



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

BID DOCUMENTS

Name of Project: SUPPLY, DELIVERY, INSTALLATION, TEST AND COMMISSIONING OF 1X600 KW STANDBY POWER (OPEN TYPE) DIESEL GENERATOR SET AND ASSOCIATED ELECTRICAL EQUIPMENT FOR NPC HEAD OFFICE

Project Location: NPC HEAD OFFICE, QUEZON CITY

Specification No.: LuzP22Z1381Se

PR Number : HO-TFM22-091

Contents : Volume 1 of 1

SECTION I	- INVITATION TO BID
SECTION II	- INSTRUCTION TO BIDDERS
SECTION III	- BID DATA SHEETS
SECTION IV	- GENERAL CONDITIONS OF THE CONTRACT
SECTION V	- SPECIAL CONDITIONS OF THE CONTRACT
SECTION VI	- TECHNICAL SPECIFICATIONS PART I - TECHNICAL SPECIFICATIONS PART II - TECHNICAL DATA SHEETS
SECTION VII	- BID PRICE SCHEDULE
SECTION VIII	- BIDDING FORMS
SECTION IX	- BID DRAWINGS

Design and Development Department



SECTION I

INVITATION TO BID



National Power Corporation

INVITATION TO BID

PUBLIC BIDDING – BCS 2022-0646

1. The NATIONAL POWER CORPORATION (NPC), through its approved Corporate Budget of CY 2022 intends to apply the sum of **(Please see schedule below)** being the Approved Budget for the Contract (ABC) to payments under the contract. Bids received in excess of the ABC shall be automatically rejected at Bid opening.

PR Nos./PB Ref No. & Description	Similar Contracts	Pre-bid Conference	Bid Submission / Opening	ABC/ Amt. of Bid Docs
HO-IST22-010 / PB221024-NA00392 Supply, Delivery, Installation, Configuration, Testing and Commissioning of Uninterruptible Power Supply (UPS) System and Accessories	Supply, Delivery, Installation, Configuration, Testing and Commissioning of an enterprise-class servers, ICT equipment, or backup power solutions for data center	11 October 2022 9:30 A.M	24 October 2022 9:30 A.M	₱ 4,900,000.00 / ₱ 5,000.00
HO-TFM22-091 / PB220705-HG00236 (PB2) Supply, Delivery, Installation, Test and Commissioning of 1 x 600kW Standby Power (Open Type) Diesel Generator Set and Associated Electrical Equipment for NPC Head Office	Supply, Delivery, Installation, Test and Commissioning or Construction of Power Facilities, Installation, Test and Commissioning of "Unit Diesel Generator" with generator capacity of at least 300kW Rated capacity	11 October 2022 9:30 A.M	24 October 2022 9:30 A.M	₱ 12,108,600.00 / ₱ 25,000.00
HO-PMD22-011 / PB220425-HG (PB3) Supply, Delivery, Erection / Installation, Testing & Commissioning of 7.97 / 13.8kV Distribution Line System for the Electrification of Various Areas in Sulu under NPC Off-Grid Electrification Projects at Banguingui, Sulu • PCAB License: License Category of at least "Category B – Electrical Works" and registration classification of at least "Medium A – Electrical Works"	Supply, Delivery, Erection, Installation, Testing and Commissioning of Distribution Line System with nominal voltage of at least 7.97kV	11 October 2022 9:30 A.M	24 October 2022 9:30 A.M	₱ 49,977,000.00 / ₱ 25,000.00

<p>HO-PIB22-010 / PB220808-HG00295 (PB3)</p> <p>Supply, Delivery, Installation, Test and Commissioning of 1 x 100kW Modular Diesel Generating Set and Associated Electrical Equipment for Mababangbaybay DPP, Claveria Buriyas Island, Masbate</p>	<p>Supply, Delivery, Installation, Test and Commissioning or Construction of Power Facilities, Installation, Test and Commissioning of "Unit Diesel Generator – Transformer" with generator capacity of at least 100kW Prime or Continuous Power and Associated Power Transformer of at least 150 kVA rating</p>	<p>11 October 2022 9:30 A.M</p>	<p>24 October 2022 9:30 A.M</p>	<p>₱ 7,065,000.00 / ₱ 10,000.00</p>
<p align="center">Venue: Kañao Function Room, NPC Bldg. Diliman, Quezon City</p>				

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

PR No/s. / PB Ref No/s.	Delivery Period / Contract Duration	Relevant Period of SLCC reckoned from the date of submission & receipt of bids
HO-IST22-010	Sixty (60) Calendar Days	Ten (10) Years
HO-TFM22-091	One Hundred Eighty (180) Calendar Days	Fifteen (15) Years
HO-PMD22-011	Two Hundred (200) Calendar Days	-
HO-PIB22-010	Two Hundred Forty (240) Calendar Days	Fifteen (15) Years

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

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

4. Prospective Bidders may obtain further information from National Power Corporation, Bids and Contracts Services Division and inspect the Bidding Documents at the address given below during office hours (8:00AM to 5:00PM), Monday to Friday.

5. A complete set of Bidding Documents may be acquired by interested Bidders from the given address and website(s) and upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB. Bidding fee may be refunded in accordance with the guidelines based on the grounds provided under Section 41 of R.A. 9184 and its Revised IRR.

6. The National Power Corporation will hold Pre-Bid Conference (**see table above**) and/or through video conferencing or webcasting which shall be open to prospective bidders.

Only registered bidder/s shall be allowed to participate for 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. A "No Face mask / No Entry" policy shall be implemented in the NPC premises. Face mask shall be 3-ply surgical or KN95 mask type.
 - 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 on 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**

BIR Road cor. Quezon Avenue

Diliman, Quezon City

Tel Nos.: 8924-5211 and 8921-3541 local 5611/5211

Fax No.: 8922-1622

Email: bcsd@napocor.gov.ph / bcsd_napocor@yahoo.com

12. You may visit the following websites:

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


RENE B. BARRUELA

Vice President, Corporate Affairs Group and
Chairman, Bids and Awards Committee

SECTION II

**INSTRUCTIONS TO
BIDDERS**

SECTION II – INSTRUCTIONS TO BIDDERS

TABLE OF CONTENTS

<u>CLAUSE NO.</u>	<u>TITLE</u>	<u>PAGE NO.</u>
1.	SCOPE OF BID	1
2.	FUNDING INFORMATION.....	1
3.	BIDDING REQUIREMENTS	1
4.	CORRUPT, FRAUDULENT, COLLUSIVE, AND COERCIVE PRACTICES.....	1
5.	ELIGIBLE BIDDERS	2
6.	ORIGIN OF GOODS	2
7.	SUBCONTRACTS	2
8.	PRE-BID CONFERENCE	3
9.	CLARIFICATION AND AMENDMENT OF BIDDING DOCUMENTS	3
10.	DOCUMENTS COMPRISING THE BID: ELIGIBILITY AND TECHNICAL COMPONENTS	3
11.	DOCUMENTS COMPRISING THE BID: FINANCIAL COMPONENT	3
12.	BID PRICES	4
13.	BID AND PAYMENT CURRENCIES	4
14.	BID SECURITY	4
15.	SEALING AND MARKING OF BIDS	5
16.	DEADLINE FOR SUBMISSION OF BIDS	5
17.	OPENING AND PRELIMINARY EXAMINATION OF BIDS	5
18.	DOMESTIC PREFERENCE.....	5
19.	DETAILED EVALUATION AND COMPARISON OF BIDS.....	5
20.	POST-QUALIFICATION	6
21.	SIGNING OF THE CONTRACT	6

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, TEST AND COMMISSIONING OF 1X600 KW STANDBY POWER (OPEN TYPE) DIESEL GENERATOR SET AND ASSOCIATED ELECTRICAL EQUIPMENT FOR NPC HEAD OFFICE**, with identification number LuzP22Z1381Se.

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 2022 in the amount specified in the Invitation to Bid.

2.2. The source of funding is the Corporate Operating Budget of the National Power Corporation.

3. Bidding Requirements

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

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

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

4. Corrupt, Fraudulent, Collusive, and Coercive Practices

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

SECTION II – INSTRUCTIONS TO BIDDERS

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.

SECTION II – INSTRUCTIONS TO BIDDERS

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.

SECTION II – INSTRUCTIONS TO BIDDERS

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.

SECTION II – INSTRUCTIONS TO BIDDERS

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

SECTION III - BID DATA SHEET

ITB Clause	
5.3	<p>For this purpose, similar contracts shall refer to Supply, Delivery, Installation, Test and Commissioning or Construction of Power Facilities, Installation, Test and Commissioning of "Unit Diesel Generator" with generator capacity of at least 300 kW Rated Capacity.</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> <p>Bidders must also comply with the Diesel Engine-Generator and Associated Equipment Data Summary specified in Section M-1.0. of the Section VI - Technical Data Sheet.</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 Post-Qualification:</p> <ol style="list-style-type: none"> 1. Contract/Purchase Order and/or Notice of Award 2. Certification coming from the project owner/client that the performance is satisfactory as of the bidding date <p>The bidder shall declare in this form all his on-going government and private contracts including contracts where the bidder (either as individual or as a Joint Venture) is a partner in a Joint Venture agreement other than his current joint venture where he is a partner. Non declaration will be a ground for disqualification of bid.</p> <p>The Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid (Form No. NPCSF-GOODS-03) shall be supported by the following documents to be submitted during Bid Opening:</p> <ol style="list-style-type: none"> 1. Contract/Purchase Order 2. Certificate of Acceptance; or Certificate of Completion; or Official Receipt (O.R); or Sales Invoice <p>The prospective bidders shall declare its Joint Venture partner during the purchase of bid/tender documents. 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. Failure to do so shall be a ground for disqualification/non-acceptance of its bid.</p>

SECTION III – BID DATA SHEET

<p>10.5</p>	<p>Bidders shall also submit the following requirements in their first envelope, Eligibility and Technical Component of their bid:</p> <ol style="list-style-type: none"> 1. Drawings & Documents to be submitted with the Proposal as specified in Sections M-1.0, M-2.0, Annexes A.1 to A.3 for Mechanical Works and Sections E-1.0 for Electrical Works, Section VI – Part II Technical Data Sheets. <p>Manufacturer’s brochures, manuals and other supporting documents of equipment, materials, hardware and tools proposed by the bidders must comply with the technical specifications of such equipment, materials, hardware and tools. It shall be a ground for rejection of the said equipment, materials, hardware and tools if the submitted brochures, manuals and other supporting documents are determined not complying with the specifications during the contract implementation.</p> <p>Equipment, materials, hardware and tools proposed by the winning bidder to be supplied, which were evaluated to be complying with the technical specifications, shall not be replaced and must be the same items to be delivered/installed/used during the contract implementation. Any proposed changes/replacement of said items may be allowed on meritorious reasons subject to validation and prior approval by NPC.</p> <ol style="list-style-type: none"> 2. Complete eligibility documents of the proposed sub-contractor, if any
<p>12</p>	<p>The price of the Goods shall be quoted DDP Project Site or the applicable International Commercial Terms (INCOTERMS) for this Project.</p>
<p>14.1</p>	<p>The bid security shall be in the form of a Bid Securing Declaration, or any of the following forms and amounts:</p> <ol style="list-style-type: none"> a) The amount of not less two percent (2%) of ABC, if bid security is in cash, cashier’s/manager’s check, bank draft/guarantee or irrevocable letter of credit; or b) The amount of not less than five percent (5%) of ABC, if bid security is in Surety Bond.
<p>19.3</p>	<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> <p>Bid offers that exceed the ABC of the lot or with incomplete price, shall be rejected.</p>



SECTION III – BID DATA SHEET

	<p>Bids shall also be further evaluated based on the Computed Fuel Consumption Cost. The formula and its application are stated in Clause TS-11.2 of Section VI – Technical Specifications. It is understood however, that the award of contract shall be at the Bidder's submitted bid price or its calculated bid price due to computational errors, omissions and discount, whichever is lower. Contract amount shall be exclusive of computed Fuel Consumption Cost.</p>
<p>19.5</p>	<p>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.</p>
<p>20.1</p>	<p>Additional documents to be submitted during Post-Qualification:</p> <ul style="list-style-type: none"> a. Contract/Purchase Order and/or Notice of Award for the contracts stated in the List of all Ongoing Government & Private Contracts Including Contracts Awarded but not yet Started (NPCSF-GOODS-02); b. 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; c. The website, name, address, contact person, telephone number and e-mail address of the principal supplier of the Diesel Gensets to be supplied for this project. d. The name, address, telephone number and e-mail address of the manufacturer's technical coordinator or specialist with whom NPC can interface throughout the contract duration. e. The name, address, contact person and number of the Bidder's Local Service Center in the Philippines declared in the Bid Proposal, that will efficiently cater to the maintenance, repair, and spare parts requirements of the supplied unit/s during the warranty period as prescribed in the Conditions of Contract and/or Technical Specifications. Bidders shall also submit the Bio-data/work experience of at least two (2) of its personnel in the Local Service Center. A certification from Manufacturer/Authorized Representative to prove that the said personnel has undergone required training to service the unit/s to be supplied for this project shall also be submitted. <p>In case the Local Service Center is not owned by the Bidder, a Memorandum of Agreement (or any similar document) between the Bidder and the Manufacturer/Authorized Representative of the supplied unit/s shall be submitted by the Bidder subject to verification/approval of NPC. Non-submission of this requirement shall be grounds for disqualification of the bid.</p> <ul style="list-style-type: none"> f. Drawings and documents to be submitted during post-qualification process Sections M-3.0 to M-5.0 for Mechanical Works and Sections E-1.0 to E-3.0 for Electrical Works, Section VI – Part II Technical Data Sheets.
<p>20.2</p>	<p>The licenses and permits relevant to the Project and the corresponding law requiring it as specified in the Technical Specifications, if any.</p>
<p>21.2</p>	<p>Notice to Proceed.</p>

SECTION IV

GENERAL CONDITIONS OF CONTRACT

SECTION IV – GENERAL CONDITIONS OF CONTRACT

TABLE OF CONTENTS

<u>CLAUSE NO.</u>	<u>TITLE</u>	<u>PAGE NO.</u>
1.	SCOPE OF CONTRACT.....	1
2.	ADVANCE PAYMENT AND TERMS OF PAYMENT.....	1
3.	PERFORMANCE SECURITY.....	1
4.	INSPECTION AND TESTS.....	1
5.	WARRANTY.....	2
6.	LIABILITY OF THE SUPPLIER.....	2

SECTION IV – GENERAL CONDITIONS OF CONTRACT

1. Scope of Contract

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

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

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

2. Advance Payment and Terms of Payment

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

3. Performance Security

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

4. Inspection and Tests

The Procuring Entity or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Project specifications at no extra cost to the Procuring Entity in accordance with the Generic Procurement Manual. In addition to tests in the **SCC, Section VI (Technical Specifications)** shall specify what inspections and/or tests the Procuring Entity requires, and where they are to be

conducted. The Procuring Entity shall notify the Supplier in writing, in a timely manner, of the identity of any representatives retained for these purposes. All reasonable facilities and assistance for the inspection and testing of Goods, including access to drawings and production data, shall be provided by the Supplier to the authorized inspectors at no charge to the Procuring Entity.

5. Warranty

- 5.1 In order to assure that manufacturing defects shall be corrected by the Supplier, a warranty shall be required from the Supplier as provided under Section 62.1 of the 2016 revised IRR of RA No. 9184.
- 5.2 The Procuring Entity shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall correct/repair or replace the defective Goods or parts thereof within the period specified in the **SCC**, without cost to the Procuring Entity, pursuant to the Generic Procurement Manual.

6. Liability of the Supplier

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

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

SECTION V

SPECIAL CONDITIONS OF CONTRACT

SECTION IV – SPECIAL CONDITIONS OF CONTRACT

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

SECTION V – SPECIAL CONDITIONS OF CONTRACT

- (i) Original and four copies of the Supplier's invoice showing Goods' description, quantity, unit price, and total amount;
- (ii) Original and four copies of the negotiable, clean shipped on board bill of lading marked "freight pre-paid" and five copies of the non-negotiable bill of lading ;
- (iii) Original and four copies of Supplier's factory test/inspection report;
- (iv) Delivery receipt detailing number and description of items received signed by the Procuring Entity's representative at the Project Site;
- (v) Certificate of Completion/Inspection Report signed by the Procuring Entity's representative at the Project Site;
- (vi) Original and four copies of the Inspection Receiving Report signed by the Procuring Entity's representative at the Project Site;
- (vii) Original and four copies of the certificate of origin (for imported Goods); and
- (viii) Original and four copies of the Manufacturer's and/or Supplier's warranty certificate including all other documents specified in the Technical Specifications, if any.

For purposes of this Clause the Procuring Entity's Representative at the Project Site is Vice President - Admin and Finance.

Incidental Services –

The Supplier is required to provide all of the following services, including additional services, if any, specified in Section VI. 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.

SECTION V – SPECIAL CONDITIONS OF CONTRACT

	<p>The outer packaging must be clearly marked on at least four (4) sides as follows:</p> <ul style="list-style-type: none"> Name of the Procuring Entity Name of the Supplier Contract Description Final Destination Gross weight Any special lifting instructions Any special handling instructions Any relevant HAZCHEM classifications <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>Transportation –</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>Intellectual Property Rights –</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>
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2.0	The applicable Terms of Payment for this Contract is Clause 2.2, Item No. 3.
2.2	<p>Advance payment not to exceed fifteen percent (15%) of the contract amount shall be allowed and paid within sixty (60) calendar days from effectivity of the contract and upon the submission to and acceptance by the Procuring Entity of an irrevocable letter of credit or bank guarantee issued by a Universal or Commercial Bank. The irrevocable letter of credit or bank guarantee must be for an equivalent amount, shall remain valid until the goods are delivered, and accompanied by a claim for advance payment.</p> <p>All progress payments shall first be charged against the advance payment until the latter has been fully exhausted.</p> <p>The terms of payment shall be as follows:</p> <p>1) For Supply and Delivery Pay items:</p> <p>(a) On Contract Effectivity: Advance payment of Fifteen percent (15%) of the total Contract Price shall be paid within sixty (60) days from effectivity of the Contract and upon submission of a claim and an irrevocable letter of credit or bank guarantee issued by a Universal or Commercial Bank for the equivalent amount valid until the Goods are delivered and in the form provided in Section VIII- Bidding Forms.</p> <p>(b) On Delivery: Eighty percent (80%) of the Contract Price of the delivered Goods shall be considered for payment, less the total amount of advance payment, if any and other deductions. If the amount is sufficient to fully recoup the advance payment, the remainder after deductions shall be paid to the Supplier within sixty (60) days after the date of receipt of the Goods and upon submission of the documents (i) through (vi) specified in the <u>SCC</u> provision on Delivery and Documents. Otherwise, the total delivery payment shall be charged against the advance payment and the remaining advance payment will be fully recouped from the succeeding claims.</p> <p>(c) On Acceptance: The remaining twenty percent (20%) of the Contract Price of the delivered Goods shall be paid to the Supplier within sixty (60) days after the date of submission of the acceptance and inspection certificate for the respective delivery issued by the Procuring Entity's authorized representative. In the event that no acceptance certificate is issued by the Procuring Entity's authorized representative within forty five (45) days after successful test and commissioning, if required, the Supplier shall have the right to claim payment of the remaining twenty percent (20%) subject to the Procuring Entity's own verification of the reason(s) for the failure to issue documents (vii) and (viii) as described in the <u>SCC</u> provision on Delivery and Documents.</p> <p>2) For Supply, Delivery, Installation, Test and Commissioning Pay Items:</p> <p>(a) On Contract Effectivity: Advance payment of Fifteen percent (15%) of the total Contract Price shall be paid within sixty (60) days from effectivity of the Contract and upon submission of a claim and an irrevocable letter of credit or bank guarantee issued by a Universal or Commercial Bank for the equivalent amount valid until the Goods are delivered and in the form provided in Section VIII- Bidding Forms.</p>

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

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

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

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

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

(c) On Acceptance: The remaining forty percent (40%) of the price of the **delivered Goods** shall be paid to the Supplier within sixty (60) days after the date of submission of the acceptance and inspection certificate for the respective delivery issued by the Procuring Entity's authorized representative. In the event that no acceptance certificate is issued by the Procuring Entity's authorized representative within forty five (45) days after successful test and commissioning, the Supplier shall have the right to claim payment subject to the Procuring Entity's own verification of the reason(s) for the failure to issue

SECTION V – SPECIAL CONDITIONS OF CONTRACT

	documents (vii) and (viii) as described in the <u>SCC</u> provision on Delivery and Documents
3.2	<p>1. The following must be indicated in the performance bond to be posted by the Contractor:</p> <ul style="list-style-type: none"> i. Company Name ii. Correct amount of the Bond iii. Contract/Purchase Order Reference Number iv. Purpose of the Bond: "To guarantee the faithful performance of the Principal's obligation to undertake <u>(Contract/Purchase Order Description)</u> in accordance with the terms and conditions of <u>(Contract No. & Schedule/Purchase Order No.)</u> entered into by the parties." <p>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.</p> <p>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.</p> <p>4. Other required conditions in addition to the standard policy terms issued by the Bonding Company:</p> <ul style="list-style-type: none"> i. The bond is a penal bond, callable on demand and the entire amount thereof shall be forfeited in favor of the Obligee upon default of the Principal without the need to prove or to show grounds or reasons for demand for the sum specified therein; ii. The amount claimed by the Obligee under this bond shall be paid in full and shall never be subject to any adjustment by the Surety; iii. In case of claim, the Surety shall pay such claim within sixty (60) days from receipt by the Surety of the Obligee's notice of claim/demand letter notwithstanding any objection thereto by the Principal.
4	The inspections and tests that will be conducted are specified in the Technical Specifications.
5.2	The period for correction of defects in the warranty period shall not exceed thirty (30) days upon receipt of the notice from NPC.
6	Aside from the Liquidated Damages, the NPC shall also implement the additional penalties specified in Clause TS-11.3 of Section VI – Technical Specifications.

SECTION VI

TECHNICAL SPECIFICATIONS

PART I – TECHNICAL SPECIFICATIONS

TABLE OF CONTENTS

<u>CLAUSE NO.</u>	<u>TITLE</u>	<u>PAGE NO.</u>
TS-1.0	GENERAL	1
TS-2.0	SCOPE OF WORK	1
TS-3.0	DELIVERY PERIOD AND LOCATION	4
TS-4.0	DESIGN REQUIREMENTS	4
TS-4.1	General	4
TS-4.2	Design Data	5
TS-4.3	Expected Diesel Generating Set Operating Characteristics	7
TS-4.4	Diesel Engine and Auxiliaries	8
TS-4.5	AC Generator and Auxiliaries	9
TS-4.6	Control, Instrumentation and Protection Panel	9
TS-4.7	Power, Control and Instrumentation Cables	10
TS-5.0	PERFORMANCE REQUIREMENTS	11
TS-6.0	TESTING AND ACCEPTANCE CRITERIA	11
TS-6.1	General	11
TS-6.1.1	FACTORY ACCEPTANCE TEST	12
TS-6.2	Pre-Commissioning/Commissioning Test	14
TS-6.2.1	General	14
TS-6.2.2	Pre-Commissioning Test (Typical)	14
TS-6.2.3	Commissioning Test	15
TS-6.2.4	Performance Test	15
TS-6.3	Test Failures	16
TS-6.4	Test Reports/Certificates	17
TS-7.0	SPARE PARTS AND TOOLS	17
TS-8.0	DRAWINGS & DOCUMENTS TO BE SUBMITTED	17
TS-9.0	GUARANTEE	19
TS-10.0	CERTIFICATE OF COMPLETION AND ACCEPTANCE	20
TS-11.0	MISCELLANEOUS	21
TS-11.1	Training of NPC Personnel	21
TS-11.2	Fuel Consumption	21
TS-11.3	Penalty for Failure to meet Guaranteed Rated Output and Guaranteed Fuel Consumption	22



PART I - TECHNICAL SPECIFICATIONS

TS-1.0 GENERAL

This specification covers the technical requirements for the supply, delivery, installation, testing and commissioning of **1x600 KW Standby Power (Open Type) Diesel Generating (DG) Set and Associated Electrical Equipment for NPC Head Office.**

Other parts and accessories including special tools and replacement spare parts which are not specifically mentioned herein but are necessary for the proper assembly and operation of the equipment during the warranty period shall be furnished.

All materials to be used and incorporated into the equipment shall be new and unused. They shall be suitable for the intended purpose and shall comply with all applicable regulations, quality, and standards.

Equipment shall essentially be the standard products of the manufacturer which best meets the conditions of sound engineering economy of manufacture and procurement of any necessary spare parts.

The Supplier shall accept full responsibility for his work including design, performance qualifications, specifications, documentation, reports, fabrication, assembly, corrosion protection, shop testing, preparation for shipment, supervision on field testing, warranty provisions and compliance with the applicable codes and standards and the requirements of this Specification.

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

Utmost care shall be strictly observed by the Supplier during delivery to avoid damage of any kind to the supplied equipment/component and the existing equipment & structure at site.

In the event that any such damage should occur due to the carelessness, negligence or fault of the Supplier, the Supplier shall repair or replace all damaged items at his own expense and to the satisfaction of NPC.

TS-2.0 SCOPE OF WORK

The scope of work shall cover the supply, delivery, installation, test and commissioning of **1x600 KW Standby Power (Open Type) Diesel Generating (DG) Set and Associated Electrical Equipment** complete with auxiliary equipment and devices, control and protection panel, other necessary works and services including but not limited to the following:



SECTION VI – TECHNICAL SPECIFICATIONS

- a) Mobilization, demobilization, clean-up, provision of temporary office, housing & storage and all miscellaneous works required for the implementation of the project;
- b) Alignment of the set level and true grade of the existing genset foundation before the final fixing of the genset. Foundation bolts and bed plates with the appropriate size and quantity required in the installation shall be supplied and installed by the contractor.
- c) Supply and installation of Conduit System;
- d) 1,000L elevated fuel day tank, complete with accessories, associated structural supports, isolation valves, flow meter, 50 liters per minute @ 10 meters discharge head cast iron double acting rotary hand pump with flexible hose of appropriate materials and size, instruments and other accessories as shown on the reference drawings. The fuel day tank shall be provided with high and low level alarm contacts for annunciation in the generator control and protection panel
- e) One (1) lot of Piping Materials complete with valves, fittings, supports and accessories, interconnection works with the common piping and existing piping systems (fuel oil day tanks' supply/filling, cooling water make-up supply/filling and engine fuel supply/return from/to fuel day tank), waste oil piping to existing oil-water separator and engine smoke stack/pipe and associated structural steel supports, including any required excavation and backfilling works
- f) Supply and delivery of standard and special tools with tool box required for operation and maintenance/servicing (bidder to submit with the bid the tools list as specified in the technical data sheets and/or bid price schedule);
- g) Supply and delivery of all required spare parts necessary for repair works during the warranty period, as specified in the technical data sheets and other manufacturer's standard and recommended spare parts during the warranty period including those spare parts to be consumed or replaced during site test (bidder to submit with the bid the attached spare parts form);
- h) Conduct of testing and commissioning of the diesel generating set in accordance with the approved test procedure to be submitted by the Supplier. Supplier shall submit the test procedure prior to testing for NPC's review and approval;

The Supplier may request NPC to provide operations and maintenance personnel to assist the Supplier during the conduct of the test and commissioning.

The Supplier shall provide highly qualified and experience technical personnel/engineers during the test and commissioning;



SECTION VI – TECHNICAL SPECIFICATIONS

- i) Supply and delivery of fuel oil, lubricating oil, lubricants, chemicals, coolant and other consumables required during initial filling;

Cost of fuel consumed during the start-up, pre-testing/pre-commissioning and re-test of the performance test shall be borne by the Supplier;

- j) Furnish measuring and testing instruments, tools and devices to be used during the test and commissioning

- k) Other genset accessories including but not limited to anti-vibration mounting pads, maintenance-free lead-acid type battery complete with cable, terminations and rack; exhaust pipes-bellows-silencer assembly (heat insulated manifolds);

- l) Supply and delivery of all required spare parts including labor and travel time necessary for repair works (consumables are by supply and delivery only) during the warranty period.

The supply shall include all spare parts specified in the technical specifications and Technical Data Sheets including replacement parts which are consumed during the test and commissioning;

- m) Supply and delivery of standard and special tools as specified in the specification or technical data sheets and other necessary tools as recommended by the manufacturer including tool box required for start-up, test and commissioning, operation and normal/overhaul maintenance. It shall include Portable Computer for diagnostic and programming the genset control setting complete with licensed software of genset control system and electronic/digital governing system including other digital components that require exclusive programs from the Manufacturer and/or Supplier

- n) Supply, laying and test of Power, Control and Instrumentation Cables including ground conductors and other appurtenances required for the interfacing of supplied equipment;

- o) After contract award and prior to procurement/contract implementation, submit three (3) sets of drawings and documents for approval of materials and equipment such as schematics and wiring diagrams, dimensioned assembly drawings of genset and associated trailer, interconnecting diagrams identifying terminal numbers and test procedures.

Three (3) sets of Operation and Maintenance Manuals that include Parts List, and Preventive Maintenance Schedule during the life span of the generating set shall be submitted at least 1 month prior to the delivery of the generating set, and dimensioned drawings; and

- p) Conduct Training at site of at least four (4) NPC's personnel who will be assigned to operate and maintain the generating.

- q) All other required works to complete the project



TS-3.0 DELIVERY PERIOD AND LOCATION

The delivery period shall be **ONE HUNDRED EIGHTY (180) CALENDAR DAYS** reckoned from the date stated in the Notice to Proceed.

The unit shall be delivered to **NPC Head Office, Quezon City.**

The Supplier shall be responsible for visiting the site and take particular reference to its accessibility, means of communication and transportation, and all other factors that could hamper the smooth execution of the contract.

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

TS-4.0 DESIGN REQUIREMENTS**TS-4.1 General**

It is not the intent of this specification to specify all technical requirements nor to set forth those requirements covered by applicable codes and standards. The Supplier shall furnish high quality work, materials and equipment meeting the requirements of this specification and industry standards.

All materials and equipment to be supplied under this contract shall be new and unused, of current manufacture, and of the highest grade and the best of their respective kinds, and free from defects and imperfections. All materials shall comply with the latest revisions or editions of the specified standards or organizations for each equipment specification unless otherwise specified or permitted by NPC. The names of manufacturers of equipment and articles contemplated for incorporation in the work together with performance capacities and other significant information pertaining to the equipment shall be furnished for approval. Equipment or articles supplied or used without such approval shall be at the Supplier's risk of subsequent rejections.

The Supplier shall be responsible for visiting the site and thoroughly investigate and familiarize himself with all the conditions at site, the surrounding area and take particular reference to its accessibility, means of communication and transportation, and all other factors that could hamper the smooth execution of the contract, particularly on the conduct of testing and training of (4) NPC's personnel who will be assigned to operate and maintain the DG sets.

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

The relative experience of the Manufacturer in the business of manufacturing the equipment and materials shall not be less than the number of years specified in the relevant specifications. Experience less than what is required will be ground for rejection.



TS-4.2 Design Data

The DG Set shall be designed and manufactured for maximum safety and reliability in accordance with **ISO 9001** quality specifications.

The DG set shall have the following characteristics at ISO Specified Reference Site Conditions:

- a) Rated Output : 600 kW Minimum (standby duty)
- b) Voltage : 480 VAC
- c) Phase : 3Ø
- d) Power Factor : 0.8 lagging (min.)
- e) Frequency : 60 Hz
- f) Rated Speed (diesel engine and generator) : 1800 RPM
- g) Guaranteed Fuel Cons. : 0.28 li/kW-hr (max.) (@ 100% load)

Specified Reference Site Conditions

- Total Barometric Pressure : 100 kPa
- Air Temperature : 40 °C
- Charge Air Coolant Temperature : 40 °C
- Relative Humidity : 80%

For different test conditions, the measured power output and fuel consumption of the Diesel Engine Generator Units shall be adjusted to Specified Reference Site Conditions using the adjustment formulas in ISO 3046/1 or other applicable standards

The DG set shall be capable of producing the **Standby Power Output** under the most adverse combination of ambient tropical temperature, pressure and humidity as described in the Specifications.

All piping that requires outside connection such as for exhaust, fuel, water and lubricating oil supply systems shall be provided with matching flange including gaskets, bolts and nuts.

The basic specification for the diesel fuel oil to be used by the diesel engine unit will be as follows:

Property	Unit	ASTM Method	Min.	Max.
1. Density @ 15 C	kg/L	D-1289	0.82	0.88
2. Kinematic Viscosity @ 40 °C	cSt	D-445	1.7	5.5
3. Flash point	°C (°F)	D-93	55(131)	
4. Pour Point	°C (°F)	D-97		10 (50)
5. Cloud Point	°C (°F)	D-2500		16 (60.8)



6. Ash	% wt.	D-482		0.01
7. Sulfur	% wt.	D-4294/D-129		0.3
8. Water & Sediment	% vol.	D-2709		0.1
9. Water Content (by distillation)	% vol.	D-95		0.1
10. Calorific Value				
HHV	BTU/lb	D-240/D4868	19,600	
LHV	BTU/lb	D-4809	18,400	
11. Others				
a. Distillation Temperature 90% Recovery	°C	D-86		370
b. Carbon Residue, 10%Bottoms	% wt.	D-4530-85		0.35
c. Cetane Index		D-976	45	
d. ASTM Colour		D-1500		5.0
e. Sediment (by extraction)	% wt.	D-473		0.01
f. Copper strip corrosion, 3 h at 50 °C		ASTM D-130		No. 1
g. FAME content	% vol.	PNS EN 14078 modified	1.7	
h. Methyl laurate (C12 ME)	% wt.	PNS EN 14331 modified	0.8	
i. Free Water	% vol.			1.0

Although this is the base specification that will be used for Performance Test, NPC prefers that the engine be able to run on a wide range of fuels.

The conditions stated below shall be taken into consideration in the design, manufacture and selection of the equipment and materials to be supplied by the supplier, unless otherwise specifically indicated in the relevant technical specifications.

- a) Elevation above sea level : 0 to 500 M
- b) Ambient temperature : up to 45°C
- c) Barometric pressure : 0.974 - 1.03 kg/cm² abs
- d) % Relative humidity : up to 85%
- e) Design for seismic loads : Seismic zone factor 0.4
- f) Max. wind velocity : 250 km/hrand/or as specified in the latest edition of National Structural code of the Philippines
- g) Sound pressure level : ≤120dBA at 1 m distance



SECTION VI – TECHNICAL SPECIFICATIONS

The DG set shall also comply with the Emission Standards of the Philippine Clean Air Act, including but not limited to the following:

Pollutant	Max. Permissible Limit (mg/Ncm)	Method of Sampling	Method of Analysis
NOx	2000 as NO2	USEPA Methods 1 thru 4 & Method 7	Phenol-disulfonic Acid Method or as per sampling method
SOx	700 as SO2	USEPA Methods 1 thru 4 & Method 6 or 8 as appropriate	As per sampling method
CO	500 as CO	USEPA Method 3 or 10	Orsat Analysis or NDIR
Particulates	200	USEPA Methods 1 through 5	Gravimetric per sampling method

TS-4.3 Expected Diesel Generating Set Operating Characteristics

- a) The governor and excitation control systems shall be designed to permit the operation of the unit with the system specified herein, without exceeding the active and reactive power limitations of the engine and generator.
- b) Start-up operation shall be performed locally from the unit's control panel mounted on the DG set;

The unit's control panel shall be furnished with indication functions necessary for monitoring, metering, control and protection of the diesel generating sets and shall be equipped with the Generator Main Circuit Breaker;

- c) Capable of operation at no load for limited period of time;
- d) Engine shall be capable of starting from "cold condition" and operating at specified time under load without AC power available for motor-driven auxiliaries;
- e) Engine speed shall be controlled by electronic governor capable of isochronous speed regulation and 115% overspeed shutdown. Speed and voltage control systems shall be designed to maintain the frequency and voltage within acceptable limits for the following loading conditions:
 - e.1 Under steady state conditions, frequency and voltage shall be maintained within 0.5% of rated value.
 - e.2 At no time during any loading sequence shall the voltage fall below 85% of rated value and the frequency fall below 95% of rated value.
 - e.3 Rejection of the total short time capability load shall not cause an overspeed trip nor shall rejection of the largest single load, when the unit is carrying the maximum load, cause a speed rise in excess of 15% of rated speed; and



- f) Moving parts shall be designed to withstand, without damage, the level of over speed that is caused by the following:
 - f.1 Full short time load rejection; plus
 - f.2 Margin to allow the overspeed device to be set sufficiently high to guarantee that the unit will not trip on full short time load rejection

TS-4.4 Diesel Engine and Auxiliaries

- a) Diesel-Powered 4 cycle engine, standby duty, multi-cylinder, turbocharged and after cooled, air to air charged cooled, heavy steel skid base with anti-vibration mounted between engine feet and base frame;
- b) Electronic Speed Governor with automatic power controller for load regulation;
- c) Direct fuel Injection complete with filter, engine driven fuel pump;
- d) Lube Oil System complete with gear driven oil pump, spin on full flow filter, thermostatic valve, pressure regulator, oil cooler, oil sump and scavenge oil pump as required;
- e) Fuel day tank, complete with tank appurtenances (nozzles, level indicator, etc.), spin on filter with water separator, secondary filter/strainer, engine driven fuel pump, necessary valves, 50 liters per minute @ 10 meters discharge head cast iron double acting rotary hand pump with flexible hose of appropriate materials and size flow meter, pressure gauges and fuel cut-off valves. Filter elements shall be of replaceable type;
- f) Water cooled cylinder, vertical radiator/Water Closed Circuit Cooling System;
- g) Air Cleaner with heavy duty dry type intake air filter, replaceable element with restriction indicator;
- h) Residential type silencer with stainless steel expansion bellows and applicable caps; and
- i) Electric Motor Starter (24 DC volts) complete with heavy duty lead acid type battery and Engine-driven battery charger, connection cables, terminals and battery mounting frame.
- j) All equipment and auxiliaries to be supplied shall be provided with 1 mm thick of stainless steel nameplate with clearly legible writing of approved size and pattern. Nameplates generally contain the brief technical specifications or characteristics of each component or equipment has been designed to operate and shall include the following: manufacturer's name, type of equipment, serial number, year of manufacture, weight, and other relevant information in compliance with applicable standards. Nameplate of the generating set shall also indicate the "Prime Duty" and/or allowable "Continuous Duty" kW Ratings.



TS-4.5 AC Generator and Auxiliaries

- a) Type : Rotating field synchronous AC Generator, drip-proof, self-ventilated, directly connected to engine
- b) Rated Output : 600kW (min.)
- c) Voltage : 480VAC
- d) Phase : 3 Phase
- e) Power Factor : 0.80 lagging (min)
- f) Frequency : 60 Hz ($\pm 5\%$)
- g) Insulation Class : Class F for both the armature and field windings but the temp. rise shall be limited to class B at rated load
- h) Excitation : Brushless, Separately Excited, Permanent Magnetic Generator (PMG) or equivalent
- i) Generator winding : Wye connection
- j) Allowable Voltage : At the rated output, frequency, voltage and power factor, the generator can operate satisfactorily though the terminal voltage may vary at $\pm 5\%$ of rated value

TS-4.6 Control, Instrumentation and Protection Panel

The DG set shall be able to be respectively started and tripped manually from a local control panel mounted on the DG set and a remote control and protection panel located inside the control room. The generator control and protection panel (GCPP) inside the control room shall be equipped with the Generator Main Circuit Breaker. Controls and monitoring of the DG set and its auxiliaries shall be carried out in the GCPP. Control panel and instruments shall conform to the requirements specified in these specifications.

Instrumentation selected shall be suitable for the application and shall be manufacturer's standard subject to approval by NPC. Process fluid corrosion effects, pressure surge and ambient temperature ranges shall be considered in material and housing selection so as to provide safe design margin.

The protection relays required for the generator shall include but not limited to line over current, under/over voltage, short circuit, and under/over frequency. The Supplier may offer different protection scheme based on experience suitable for the specified rating and time-current/voltage curve characteristics of the DG set.

The GCPP shall be equipped with the following minimum requirements for the operator interface with the DG set and other necessary auxiliary equipment.

a) Protection and Control

The protection relay system shall be designed to bring the unit to automatic opening of breaker for electrical fault according to calculated tripping parameters.



The protection scheme shall be provided with adequate number of input/output contacts of suitable rating to carry out the prescribed tripping functions, alarm indication, fault recording function and supplementary signaling functions as maybe necessary for the initiation of automatic closing/tripping or switching control.

The Supplier shall provide protection scheme in which based on his experience is suitable for the specified rating of the generating set.

b) Monitoring and Metering

All indicating instruments shall fulfill the requirements for accuracy class 0.3 or better except for the frequency meter which shall have $\pm 0.01\text{Hz}$. The panel shall be equipped with the following minimum required metering devices and indicating instruments including those that are specified in the technical data sheets, Part II of this Section:

- b.1 Metering (current, voltage, power (kW, kVAr), kW-hr, frequency, power factor) capable to measure single and three phase parameters through respective control switches.
- b.2 Event Recorder (to be able to capture the latest events)
- b.3 Data Logger (all data is stored in non-volatile memory so that information is retained even when power to the unit is lost)
- b.4 User Programmable Fault Reports

c) Synchronizing Module

The panel shall be equipped with the synchronizing function for automatic and manual modes, selector switch, (automatic, manual, and off), and the necessary indicators, metering, and other required appurtenances.

The existing stand-by genset at NPC Head Office can be paralleled as long as the new synchronizing system is capable of load sharing function for Base and Regulating Load Operation.

TS-4.7 Power, Control and Instrumentation Cables

This specification covers the technical and associated requirements of power, control and instrumentation cables.

All cables shall be designed to withstand the short-circuit condition and voltage drop of 3% (max.).

The cables to be supplied shall have insulation levels able to withstand any voltage surges which are normally expected to occur in the power system in which the cable is to be used, due to switching operations, sudden load variations, faults, etc. The 600V power, control and instrumentation cable to be supplied shall be compliant to UL 83, PNS 35, ICEA S-73-532 specification and requirements of PEC respectively.

The cables shall be selected to withstand without distress any short-circuit currents in the conductor and sheath related to the existing fault levels.



The cables and its accessories shall be manufactured to fulfill the requirements when operating with full load or at any load factor.

TS-5.0 PERFORMANCE REQUIREMENTS

The DG Set shall operate and perform to satisfactorily meet the guaranteed or specified values in accordance with the requirements of this specification which include the guaranteed rated output, guaranteed fuel consumption, sound pressure level, NOx and SOx emission levels and vibration and other requirements specified in the Technical Data sheets.

TS-6.0 TESTING AND ACCEPTANCE CRITERIA

TS-6.1 General

All tests required shall be performed to ensure adequacy of design, material, workmanship, and conformance of the supplied equipment to the requirements of the specifications and applicable standards.

The Supplier shall be responsible for the conduct of test at the site in accordance with the approved test procedure to be submitted by the Supplier/Manufacturer. NPC shall be notified by the Supplier fifteen (15) days in advance prior to conduct of site test.

The Supplier shall submit three (3) copies of test procedures for NPC's review/approval for all equipment covered by the Contract at least fifteen (15) days prior to the conduct of actual test. The test procedures shall cover the test to be conducted at the site.

Certified test reports/results of all tests conducted at manufacturer's shop/factory shall be submitted to NPC for evaluation and acceptance.

Measuring and testing instruments, tools, and other devices required during the site test shall be furnished by the Supplier.

Fuel oil, lubricating oil, lubricants, chemicals and other consumables required during initial filling and site test shall be borne by Supplier.

The Supplier shall provide the services of highly qualified engineers/supervisors and skilled personnel during testing and commissioning who shall be responsible in coordinating and supervision of the test and commissioning to be conducted by NPC.

NPC shall be responsible in compiling, recording, and submitting the relative test reports. Certified test reports shall be submitted by the Supplier within a maximum of seven (7) days after the completion of tests.

Acceptance certificate shall be issued only after all the required tests are satisfactorily conducted and results are within the acceptable range and the guaranteed values are met.



SECTION VI – TECHNICAL SPECIFICATIONS

If any equipment fails to pass any test, NPC may direct the Supplier to make necessary corrections or alterations for defects or order the replacement of equipment/component as may be deemed appropriate. Any expenses due to additional tests or retests made necessary by failure of the Supplier's supplied equipment, i.e. failure to meet the guarantees and other requirements of the specification, shall be borne by/charged to the Supplier.

TS-6.1.1 FACTORY ACCEPTANCE TEST

Prior to shipping/delivery and final inspection, equipment supplied by the supplier shall have Factory Acceptance Test (FAT) that will be conducted by the supplier at the manufacturer's plant and will be witnessed by the NPC and/or its duly authorized representative.

NPC and/or its duly authorized representative shall be entitled to attend and/or witness applicable test detailed in the relevant sections. NPC shall be notified by the contractor sixty (60) days in advance about any test requiring the presence of NPC. NPC's acceptance of the work by waiving the inspection of tests and acceptance of the contractor's certificate test reports and inspection and testing certificate shall be in no way relieve the contractor of his responsibility in accordance with the requirement of the specifications.

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

At the commencement of the witnessing of Factory Test, all applicable equipment and materials shall be brought together in one place, integrated and the configuration/set-up at the factory shall be identical to that to be installed at the site and any equipment and software necessary for the proper operation of the equipment shall have reached its final form, not to be changed during the Factory Test and until commencement of commissioning at site.

The Supplier shall immediately advise NPC should failures occur, take remedial action subject to NPC's approval, and proceed with the Factory Test as and when directed by NPC. It shall be NPC's prerogative to order a repeat of all such tests that he deems may have been affected by the failure.

The Supplier shall ensure that during the test, all hard copies from output devices are retained and that no outside parties interfere in any way with testing, equipment or test instruments, fixtures and jigs for the entire duration of the Factory Test. Only Supplier's personnel who are needed on the testing of the equipment shall be allowed in the test area.

The Supplier shall also be responsible that an accurate record of tests are kept and each individual test is duly initialed and dated by the Supplier and stamped or marked either "passed" or "failed" with annotations of antecedents and observations concerning the test. For each day of testing, the Supplier shall submit to NPC the proposed disposition of each criterion that failed during the previous day of testing, prior to commencement of the tests scheduled for that day.



SECTION VI – TECHNICAL SPECIFICATIONS

Tests witnessed by NPC's representative shall affix its initial on the test record. The test record and dispositions, and any other pertinent supporting data and documents shall form part of a test report to be submitted in accordance with the specification.

a) Diesel Engine-Generator Sets

Before leaving the factory, the diesel engine generator set shall be carefully tested, using diesel fuel oil, by the Supplier in the presence of NPC and/or its duly authorized representative. Also, the Supplier shall provide the photograph of each DG Set nameplate to NPC prior to the shipment of the equipment.

The diesel engine shall be subjected to the following tests in direct connection with the main generator:

a.1 Starting Test and Maneuvering Test at no load

a.2 Load Test

<u>Load</u>	<u>Duration</u>
50%	0.5 hour
75%	0.5 hour
100%	1.0 hour

a.3 Governor Regulation Test

a.4 Over speed Trip Test

a.5 Engine High Temperature, Low Oil Pressure and Emergency Device Trip Test

a.6 Fuel Oil Consumption Test

a.7 Test for Sound Level at 1M distance from genset

After the factory test, the diesel engine generator set shall be thoroughly checked and inspected to determine the condition of the external and internal parts. If defective parts are found, those parts shall be replaced or remedied and necessary adjustments shall be made at the expense of the Supplier. Emission testing on each stack is required for diesel gensets with dual stacks.

Notes:

1. **The use of Weighing Scale shall be the basis for the acceptance of Fuel Rate requirement during the conduct of Factory Acceptance Test (FAT) or as specified in the approved Test Procedures.**
2. **The conduct of Sound and Vibration Tests shall be done during Factory Acceptance Test (FAT) and at Site Acceptance Test.**

b) Sound Test and Vibration Test

The genset shall be tested for Vibration Test and Sound Level @ 1-meter distance from any point of the unit which shall not exceed 120 dBA.



TS-6.2 Pre-Commissioning/Commissioning Test**TS-6.2.1 General**

After installation of the equipment and its associated auxiliaries, the Supplier shall notify NPC of the date when the plant is ready for pre-commissioning/commissioning test at site. The timing and duration of the test shall be as mutually agreed by NPC and Supplier and shall be satisfactorily completed as required under the Contract.

The Supplier shall submit personal data sheet of at least one (1) of its proposed Commissioning Engineers/technical staffs for NPC's evaluation and approval at least one (1) month prior to testing and commissioning. A certification from Manufacturer/Authorized Representative to prove that the said personnel has undergone previous test and commissioning services of similar unit/s to be supplied for this project shall also be submitted.

During the test and commissioning period, NPC shall provide operations and maintenance personnel, upon request of the Supplier, who shall assist in the performance of the commissioning test. The said personnel shall be placed under direct supervision of the Supplier/Commissioning Engineer and shall also serve the purpose of on-the-job training in the field of operation and maintenance of the plant.

The Supplier, with the assistance of NPC personnel involved in the test and commissioning, shall be responsible in compiling, recording and submitting the test reports to NPC.

Calibrated measuring and testing instruments, tools, and devices shall also be furnished by the Supplier. The cost of all tests and relative activities shall be borne by the Supplier.

TS-6.2.2 Pre-Commissioning Test (Typical)

The typical Pre-Commissioning Test shall include but not limited to the following:

- a) Alignment of engine-generator
- b) Wiring continuity test
- c) Insulation Resistance testing of equipment and power cables
- d) Checking of safety valve settings
- e) Checking of settings for switches and instrument transmitters
- f) Calibration and test of I & C equipment and measuring instruments;
- g) Checking and testing of AVR, electrical relays, CT's and PT's
- h) H.V. test for relevant equipment
- i) Functional test of all supplied equipment
- j) Checking for tightness, rotation, direction of auxiliary electrical motors, etc.
- k) Setting/calibration of relays and other protective devices
- l) Fuel injectors, fuel injection pump calibration and settings
- m) Conduct the following tests/works, as applicable:
 - m.1 Hydrostatic and pneumatic tests of field assembled equipment and piping



- m.2 Lube Oil flushing of field installed engine lube oil pipe
- m.3 Chemical cleaning of field installed engine piping system

TS-6.2.3 Commissioning Test

The Commissioning Test shall be carried-out after the Pre-Commissioning Test has been conducted to ascertain its fitness for operation and shall include the following:

A. Procedure:

- a) Trial run of individual auxiliary equipment, if applicable
- b) System sequential operation
- c) Generating unit tripping device test
- d) No load operation of diesel generating set
- e) Test of control systems safety and operating functions
- f) Unit load test and load rejection test (at 50%, 75%, 100%)
- g) Unit start-up/stop tests
- h) Guaranteed Standby Rated Power & Guaranteed Fuel Rate tests
- i) Capacity & fuel rate test;
- j) Tests for Sound Pressure Level, NOx and SOx Emission Levels, and Vibration
- k) Tests for Electrical Equipment per ANSI and IEC standard
- l) Unit Synchronization at 480V
- m) Parallel Operation & Load Sharing Test
- n) 8 hours Reliability Test using NPC Head Office Building as load.

B. Supplier Participation:

- a) Supply sufficient fuel and lube oil to conduct all testing.
- b) Provide portable calibrated emission tester (for testing only during acceptance).
- c) Provide load bank (at 50%, 75% and 100%) during commissioning and performance testing.
- d) Provide test instrument to determine electrical test parameter.

TS-6.2.4 Performance Test

The performance test shall be carried out during the period of commissioning test to verify the guaranteed or specified values of the equipment in accordance with the requirements of the specifications which include the guaranteed rated output, guaranteed fuel rate, sound pressure level, NOx and SOx Emission Levels and Vibration.

Performance test of the guaranteed rated output and guaranteed fuel rate of the DG set shall be carried out in accordance with ISO 3046/1 standard.

- a) Governing Test: gradual speed change from zero to full load and instantaneous speed change with 25% load on or off
- b) Overspeed Trip Test
- c) Low Pressure, High Temperature and Emergency Device Trip
- d) Load Test & Fuel Oil Consumption Test



SECTION VI - TECHNICAL SPECIFICATIONS

50% load	0.5 hour
75% load	0.5 hour
100% load	1 hour

Before each test, the diesel generating set shall be stabilized at a given load for duration of thirty (30) minutes or as recommended by the Manufacturer. After the stabilization period, initial readings shall be recorded and succeeding readings shall be taken every ten (10) minutes thereafter for a period as specified above. As minimum, there shall be three (3) test runs at each test point for both the power output and fuel oil consumption. The computed results shall be the time-weighted average of related readings.

The results of the test at 100% load for one (1) hour shall be the basis in determining the required guaranteed rated power output and guaranteed fuel consumption.

- e) Test for Sound Pressure Level, SOx and NOx Emission Levels and Vibration. These tests shall be determined during the Load Test at 100% Load.
- f) All applicable auxiliary and electrical equipment shall be tested to ensure proper operation and performance and to conform to the guaranteed and expected performance values specified in the technical data sheets. Tests shall be performed in accordance with the approved test procedures submitted by the Supplier.

TS-6.3 Test Failures

If any equipment or component fails to pass any test, NPC may direct the Supplier to make any necessary corrections or alterations for defects or order equipment/component replacement, as maybe deemed appropriate. Any and all expenses due to additional tests or retests made necessary by failure of Supplier's supplied equipment/component, i.e. failure to meet the guarantees and other requirements of the specification, shall be borne by the Supplier. The costs of witnessing the Factory Tests by NPC or its representative(s) as a result of retest to be conducted on the equipment shall also be borne by the Supplier.

If the results of the performance test at site show that the equipment failed to meet the guaranteed Standby power output and/or the guaranteed fuel oil rate, the Supplier shall be given two (2) weeks maximum from the completion date of the performance test to make any necessary corrections or alterations of defects before conducting the retest. The Supplier may request time extension for any corrections subject to NPC's evaluation/approval of corresponding justification for such extension. One (1) retest is allowed only during the required two (2) weeks maximum period including trial runs. If the results of the latest test/retest failed to meet the guaranteed rated output and/or the guaranteed fuel oil rate, then these results shall become the basis in applying the applicable penalties.

Penalties specified in the relevant sections of this Specification shall be applied in case tests or retests at site for the DG set, transformers and associated equipment have failed to meet the relative guaranteed data.



SECTION VI - TECHNICAL SPECIFICATIONS

NPC shall have the right to reject DG Set whose fuel oil rate during test deviates to more than +5% of its guaranteed fuel oil rate and the Standby Power Output is less than its Guaranteed Power Output.

NPC shall also have the right to reject the DG Set if it fails during tests to comply with the Standards of the Philippine Clean Air Act and Sound Pressure Level as required in the Technical Specifications.

TS-6.4 Test Reports/Certificates

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

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

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

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

TS-7.0 SPARE PARTS AND TOOLS

The lists of Spares and Tools in a form to be filled up by the Supplier as specified in Part II - Technical Data Sheets, are preliminary and subject to changes to conform with the final design and model/brand of the proposed equipment (per manufacturer's standard).

The Bidder shall indicate "N/A" to the respective items in the said lists if found not applicable to the brand/model of the proposed equipment. However, NPC reserves the right to request the Supplier to provide the same or its equivalent if it is determined to be "required or necessary" during the evaluation, checking and review/approval of the final lists to be submitted by the Supplier during the Contract Stage at no cost to NPC.

TS-8.0 DRAWINGS & DOCUMENTS TO BE SUBMITTED

- a) To be submitted with the bid
 - a.1 Letter of Confirmation that a local agent or representative is available to provide after sales service and parts for the diesel engine generator set to be supplied. Name, address and contact number/person shall be provided;
 - a.2 Manufacturer's brochures/catalogues, Performance Curves for generator set, Engine Fuel Oil consumption versus load and Ambient Temperature, which contain information/data to adequately support the submitted Technical Data Sheets;



SECTION VI – TECHNICAL SPECIFICATIONS

- a.3 Bid must be accompanied by authorization to bid from any of the following:
- a.3.1 Original Equipment Manufacturer (OEM).
 - a.3.2 In case of authorized distributor issuing the notarized appointment, it shall be accompanied by a Certificate of Authorized Distributorship from the OEM.
 - a.3.3 Licensee of the OEM.
 - a.3.4 Manufacturers of Generating Sets or any equipment duly recognized to be using the original products of the OEM.
- OR
- a.3.5 Original copy of Manufacturer's Authorization to bid directly addressed to the BAC-NPC indicating therein the PR/Reference Number with:
 - a.3.5.1 Certificate from the bidder that its offer is existing in the Philippine market for not less than five (5) years.
- Note: Authorization to bid shall be current and valid for one (1) year from date of issuance.
- a.4 Completely filled-out Technical Data Sheets;
 - a.5 ISO 9001 Certificate of the Manufacturer or equivalent;
 - a.6 Items M-1.0 to 2.0& E-1.0, Annexes A.1 to A.3 of the technical data sheet
- b) To be submitted during post-qualification
- b.1 M-3.0, M-4.0, M-5.0, M-6.0 and E-2.0 of the technical data sheets;
- c) To be submitted during project implementation or as specified in the specification:
- c.1 Certificate of Origin of the genset;
 - c.2 Certificate of Warranty on parts and services for one (1) year;
 - c.3 Shop Test Certificates from Manufacturer;
 - c.4 Assembly and dimensional drawings, schematic wiring diagrams, interconnection diagrams identifying by terminal number;
 - c.5 Site testing Procedure;
 - c.6 Three (3) sets of operation and maintenance manual;
 - c.7 Date of Manufacture and Production Control No.;
 - c.8 Bill of lading; and
 - c.9 M-7.0, M-8.0, M-9.0, M-10.0, M-11.0 and M-12.0 of the technical data sheets
- d) Supplier's/Manufacturer's Drawings

Prior to the procurement of all equipment to be supplied, the Supplier shall submit for NPC's review, approval, and/or reference, three (3) copies of prints of drawings (outline/arrangement drawings of gensets and its auxiliaries, wiring diagrams). NPC shall review, comment or note corrections to be made and return one (1) copy to the Supplier within twenty (20) calendar days after receipt of the drawing. If corrections are required, the Supplier shall make all necessary corrections and re-submit such within fourteen (14) calendar days for NPC's review and approval.



Supplier shall provide three (3) copies of the Instruction Manuals required for all equipment supplied under this Contract including site training program, test procedures at least one (1) month prior to test and commissioning.

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

Supplier's documents and drawings shall be prepared and submitted preferably on A4 or A3 sheets folded to A4 to **The Manager, General Services Department**.

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

TS-9.0 GUARANTEE

The Supplier shall guarantee that upon receipt of NPC's Notice of Request, he will promptly repair, and/or replace, at his own expense, equipment and machineries, against defect in design, workmanship and materials and shall include labor, parts and travel time for necessary repairs at the site effective from date of issuance of Certificate of Completion for a period of twelve (12) months (but, in no event, be less than 500 running hours).

The Supplier shall also provide the services of the equipment Manufacturer/Supplier or his authorized local representative (a service technician who has complete knowledge of proper operation and maintenance of the generating sets) for a period of not less than two (2) days in two (2) separate visits which will coincide on the first two (2) scheduled periods of preventive maintenance (every 250 hours or per manufacturer's recommended hours) of at least one generating set during the warranty period at no cost to NPC to perform the following, but not limited to:

- a) Checking/inspection of installed equipment;
- b) Conduct evaluation and assessment of operating parameters;
- c) Make necessary adjustment on instruments and controls;
- d) Perform/supervise necessary cleaning, repair, trouble shooting, parts replacement; and
- e) Provide training and/or informative instructions similar to items "a)" to "d)" above to NPC Operation and Maintenance Personnel. Such training/instruction shall be conducted (Hands on) in such a way that NPC O and M Personnel would be able to perform reliably and satisfactorily on similar generating sets supplied under this contract.



Note: In the event that the Supplier has failed to conduct/perform the above site visit/inspection services, an amount equivalent to P1,000,000.00 shall be deducted from the contract price.

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

The guarantee period of twelve (12) months shall be exclusive of any downtime attributable to the Supplier. In case of generating set downtime occurs during the warranty period due to fault of the Supplier, the downtime hours shall be added to the 1-year warranty period which shall start upon receipt by the Supplier of NPC's Notice of Request for Supplier's Repair Services. Hence, the warranty period is extended with the equivalent downtime attributable to the Supplier. Provided further that the release of the warranty bond/security is without prejudice to terms provided by Clause TS-10.0 and shall be done after the warranty period plus downtime attributable to Supplier, if any as certified by the concerned end-user.

Accordingly, the warranty bond shall be extended.

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

The Warranty Period for the completed Works shall commence on the date of issue of the Certificate of Acceptance.

TS-10.0 CERTIFICATE OF COMPLETION AND ACCEPTANCE

When all the works and services have been satisfactorily completed as required in the Contract, the Supplier may give notice to this effect to NPC. The notice shall be the basis for the issuance of Certificate of Completion in respect of the works within fifteen (15) days of receipt of such notice.

After the lapse of the warranty period, provided that there are no defects found and/or pending repair works (including completion of the required Supplier's Service Personnel Services specified in Clause TS-9.0 (Guarantee) as certified by the Manager – GSD), NPC shall issue the Certificate of Final Acceptance.



TS-11.0 MISCELLANEOUS**TS-11.1 Training of NPC Personnel**

The Supplier shall conduct training at Site of NPC's personnel who will be assigned to operate and maintain the generating set. At least four (4) NPC Personnel shall participate in the training program. The Supplier shall provide a comprehensive training program (to be submitted for NPC's approval) related to design application, operation and maintenance, including trouble shooting of the Supplier's supplied system and equipment starting from Start of Pre-Commissioning/Commissioning and thereafter up to the issuance of Certificate of Acceptance.

The contents of the training program shall include but not limited to:

- a) Lectures on Diesel Power Plant principles in management and practices for operators, technicians and in maintenance personnel; and
- b) Hands-on training on Operation and Maintenance training program covering electrical, mechanical and instrumentation and control.
- c) Proper maintenance during long period of standby condition.

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

Upon completion of the training, the Supplier shall issue the participants with Certificate of Completion.

TS-11.2 Fuel Consumption

Bids shall also be evaluated based on the Cost of Fuel Consumption for one (1) year period for each bidder for their guaranteed fuel consumption at Guaranteed Rated output. The formula and its application are stated below. It is understood however, that the award of contract shall be at the Bidder's submitted bid price or its calculated bid price due to computation errors, omissions and discount, whichever is lower. Contract amount shall be exclusive of computed cost of fuel consumption.

a) Cost of Fuel Consumption

- a.1 Consumption = (Guaranteed Fuel Consumption @ Guaranteed Rated Output, in li/kW-hr) multiplied by (fuel cost per liter indicated in the form) multiplied by (operating hours per year) multiplied by (Guaranteed Rated Output, kW) multiplied by (No. of Diesel Generating Set)

The corrected bid price due to computational errors, omissions and discounts or its submitted bid price or its submitted bid price, whichever is lower; PLUS the computed Fuel Consumption, shall become the total evaluated bid price, for bid comparison purposes.



Base on the detailed evaluation of bids, those that comply with the above-mentioned requirements shall be ranked in the ascending order of their total evaluated bid prices to identify the Lowest Evaluated Bid.

TS-11.3 Penalty for Failure to meet Guaranteed Rated Output and Guaranteed Fuel Consumption

Aside from the Liquidated Damages, NPC shall impose a penalty in case the Supplier fails within one (1) month from performance test date to attain the guaranteed rated output and guaranteed fuel consumption of the diesel generating unit.

If the diesel generating unit fails to attain the specified guarantees during the performance test, a penalty shall be imposed to the Supplier computed in accordance with the following formula:

a) Penalty for Failure to Meet the Guaranteed Rated Output

$$\text{Penalty} = \left\{ \left[\frac{1 - \text{ATO}}{\text{GRO}} \right] \times \text{TCP} \right\} \times 2$$

- where: ATO = Actual Tested Output of the DG Set at site corrected to ISO 3046 conditions, kW
- GRO = Guaranteed Rated Output of the DG Set at ISO 3046 conditions, kW
- TCP = Total Contract Price of the DG Set

b) Penalty for Failure to Meet the Guaranteed Fuel Rate

$$\text{Penalty} = (\text{AFR} - \text{GFR}) \times \text{GRO} \times \text{COF} \times 500$$

- where: AFR = Actual Fuel Rate of the DG Set at site corrected to ISO 3046 conditions, li/kw-hr
- GFR = Guaranteed Fuel Rate of the DG Set at ISO 3046 conditions, li/kw-hr
- GRO = Guaranteed Rated Output of the DG Set at ISO 3046 conditions, KW
- COF = Prevailing cost of delivered fuel per liter
- 500 = No. of operating hours for one (1) year period

NPC still have the right to reject the diesel generating set for failure to meet the guaranteed values.



SECTION VI TECHNICAL SPECIFICATIONS

PART II – TECHNICAL DATA SHEETS



PART II – TECHNICAL DATA SHEETS

MW – MECHANICAL WORKS

TABLE OF CONTENTS

SECTION	DESCRIPTION	PAGE
DOCUMENTS TO BE SUBMITTED DURING BID OPENING		
M-1.0	Diesel Generating Set and Associated Equipment Data Summary	VI-TDS(MW)-2
M-2.0	Fuel Consumption Form for Diesel Generating Set	VI-TDS(MW)-3
Annex A.1	Letter of Authorization and Guarantee Statement either from: 1) Original Equipment Manufacturer (OEM) or 2) Licensee/Agreement from OEM as a Licensee or 3) Authorized Distributor/Dealer (accompanied by a Certificate of Authorized Distributorship/Dealership from the OEM/Licensee of the OEM). If from the Licensee, a Certification from the OEM as a Licensee or the Licensee agreement must also be submitted), for the Diesel Generating Sets.	Attachment As Annex A.1
Annex A.2	“Diesel Generating Set (Engine + AC Generator) Performance Curve” @ Reference Site Conditions issued by the Manufacturer/Assembler/Integrator (duly signed with full name) of the Diesel Generating Set Model/Type being offered	Attachment As Annex A.2
Annex A.3	“Engine Performance Curve” @ Reference Site Conditions issued by the Diesel Engine Manufacturer or Diesel Generating Set Manufacturer/Assembler/Integrator (duly signed with full name) for the Diesel Engine Model/Type being offered	Attachment As Annex A.3
DOCUMENTS TO BE SUBMITTED DURING POST QUALIFICATION BUT NOT LIMITED TO:		
M-3.0	Diesel Engine	VI-TDS(MW)-5
M-4.0	Spare Parts	VI-TDS(MW)-6
M-4.1	Spare Parts During the Warranty Period	VI-TDS(MW)-6
M-4.2	Spare Parts to Supplied and Delivered	VI-TDS(MW)-7
M-5.0	Standard/Special Tools	VI-TDS(MW)-8
M-5.1	Standard/Special Tools To Be Supplied and Delivered	VI-TDS(MW)-8

SECTION VI – TECHNICAL SPECIFICATIONS

SECTION	DESCRIPTION	PAGE
DOCUMENTS TO BE SUBMITTED DURING PROJECT IMPLEMENTATION BUT NOT LIMITED TO:		
M-6.0	ISO 9001 Certificate of the Manufacturer/Assembler/Integrator or equivalent for each of the Diesel Generating Set	
M-7.0	Standard Certification of the proposed offered model of Diesel Generating Set from any of the following internationally recognized certifying body/organization: a) Canadian Standard Association (CSA) b) Underwriter's Laboratories (UL) c) Japanese Industrial Standards (JIS) d) European Commission (CE) e) Lloyd's Register (LR) f) Germanischer Lloyd (GL) g) Nippon Kaiji Kyokai (NKK) h) American Bureau of Shipping (ABS)	
M-8.0	Power Derate Curves and Details or Certificate/Statement from Diesel Generating Set's Manufacturer/Assembler/ Integrator that the proposed Diesel Engine-Generator Set have no deration at Reference Site Conditions.	
M-9.0	Manufacturer's/Assembler's General Data, Catalogue and Brochures of model/type of equipment offered and published as standard products for the Diesel Generator Set which contain the following information: a) Manufacturer/Assembler b) Model/Type c) Standby Rating d) Voltage e) Power Factor f) Frequency g) Rated Speed h) Arrangement & Number of Cylinders	
M-10.0	Technical Data for Engine and Auxiliaries (See Attached Forms)	III-TDS(MW)-13
M-11.0	Supplier/Manufacturer/Assembler Drawings, Brochures, Instruction Manuals and other Documents as specified in Clause TS-8.0 and other relevant Clauses of the Technical Specifications	
M-12.0	Photos of Nameplates (DG set, Engine and Alternator) – submit 3 months prior to test and commissioning	
M-13.0	Serial Nos. of DG Set, Engine and Alternator – submit 3 months prior to test and commissioning	
M-14.0	Copy of Result of Stack Emission Test, from a DENR-accredited testing firm	

PART II – TECHNICAL DATA SHEETS

MW – MECHANICAL WORKS

DOCUMENTS TO BE SUBMITTED DURING THE BID OPENING
(Sections M-1.0, M-2.0, Annexes A.1, A.2 & A.3)

NOTES

1. The Bidder shall complete this technical data sheet and submit the filled-up forms with the technical proposal. The Bidder shall use additional sheets as necessary for any other additional information following the format shown herein or by reproducing the same.
2. The data required are technical features and characteristics of the Equipment to be provided by the bidder. Bidder's proposal shall at least be equal or superior to the requirements specified by NPC.
3. Deviation from the requirements indicated in the technical data sheets M-1.0, M-2.0 and non-submission of the required documents listed as Annexes A.1, A.2 and A.3 shall be ground for disqualification.
4. All data and information shall be in English language.

 Name of Firm

 Name & Signature of Representative

 Designation



SECTION VI - TECHNICAL SPECIFICATIONS

M-1.0 DIESEL GENERATING (DG) SET AND ASSOCIATED EQUIPMENT DATA SUMMARY

ITEM	DESCRIPTION	NPC REQUIREMENT	SUPPLIER'S DATA
M-1.1	DG Set (Diesel Engine + AC Generator) – STANDBY DUTY *	Designed, manufactured & tested in compliance with the latest version of the standards* listed below, mounted on heavy duty steel baseframe with anti-vibration pads	
M-1.2	Manufacturer/Assembler/Integrator of DG Set being offered	By Supplier	
M-1.3	Brand Name of DG Set being offered	By Supplier	
M-1.4	Model of DG Set being offered	By Supplier	
M-1.5	DG Set Manufacturer/Assembler/ Integrator Experience, Year	5 (minimum)	
M-1.6	DG Set Guaranteed Standby Rated Power at Reference Site Conditions* & 0.8 Power Factor, kW	600 kW (min.)	
M-1.7	D/G set Guaranteed Prime Rating at Reference Site Conditions* & 0.8 Power Factor, kW	By Supplier	
M-1.8	D/G set Guaranteed Continuous Rating at Reference Site Conditions* & 0.8 Power Factor, kW	By Supplier	
M-1.9	D/G set Guaranteed Fuel Rate at Required D/G Set Standby Power Output and at Reference Site Conditions, 100 % Rated Load, li/kW-hr	0.28 (max)	
M-1.10	Voltage, V	480 (± 5%)	
M-1.11	Power factor	0.80 (minimum)	
M-1.12	Frequency, Hz	60	
M-1.13	No. of Phases, Ø	3	
M-1.14	Rated Speed, RPM	1800	
M-1.15	Governor	electronic	
M-1.16	Arrangement & Number of Cylinders	In-line, multi-cylinder	
M-1.17	Maximum Sound Pressure Level @ 1-meter distance, dBA	120	
M-1.18	Maximum Permissible NOx, mg/Nm ³	2000 as NO ₂	

- NOTES:**
- * IEC 60034, IEC 60085, IEC60529, ISO 9001 and ISO 3046
 - Guaranteed Fuel Consumption which is more than the specified maximum value will be ground for rejection of the equipment being offered.
 - Experience less than what is required will be ground for rejection of the equipment being offered.

Name of Firm

Name & Signature of Representative

Designation



M-1.0 DIESEL GENERATING (DG) SET AND ASSOCIATED EQUIPMENT DATA SUMMARY

ITEM	DESCRIPTION	NPC REQUIREMENT	SUPPLIER'S DATA
M-1.19	Maximum Permissible Sox, mg/Nm ³	700 as SO ₂	
M-1.20	Maximum Permissible CO, mg/Nm ³	500 as CO	
M-1.21	Particulates, mg/Nm ³	200	
M-1.22	Factory Acceptance Test	Yes	
M-1.2	"Diesel Generating Set (Engine + AC Generator) Performance Curve" @ Reference Site Conditions issued by the Manufacturer/Assembler/Integrator (duly signed with full name) of the Diesel Generating Set Model/Type being offered	To be Submitted/Attachment as Annex A.2	
M-1.2.1	Diesel Engine		
M-1.2.2	Manufacturer	By Supplier	
M-1.2.3	Manufacturer's Experience, years	10	
M-1.2.4	Place of Manufacture	By Supplier	
M-1.2.5	Brand Name of Diesel Engine being offered	By Supplier	
M-1.2.6	Model/Type	By Supplier	
M-1.2.7	"Engine Performance Curve" @ Reference Site Conditions issued by the Diesel Engine Manufacturer or Diesel Generating Set Manufacturer/Assembler/Integrator (duly signed with full name) for the Diesel Engine Model/Type being offered	To be Submitted/Attachment as Annex A.3	

M-2.0 – FUEL CONSUMPTION FOR DIESEL ENGINE-GENERATOR SETS

A	B*	C	D	E
D/G Set Guaranteed Standby Power at Reference Site Conditions (Minimum KW)	D/G Set Guaranteed Fuel Rate at Required Standby Power & at Reference Site Conditions (liters/kilowatt-hour)	Cost of Fuel (PhP/ltr)	No. of operating hours per year (hrs)	1-Year Cost of Fuel Consumption, (A x B x C x D) (PhP)
600		70.80	500	

NOTES: * Write the Guaranteed Fuel Rate in three decimal places, i.e. 0.270 L/kW-hr. If Fuel Rate is indicated in more than three decimal places, only the first three decimal numbers will be considered regardless of any number written in the fourth decimal number.

Name of Firm

Name & Signature of Representative

Designation



PART II – TECHNICAL DATA SHEETS

MW – MECHANICAL WORKS


DOCUMENTS TO BE SUBMITTED DURING POST-QUALIFICATION
(Sections M-3.0 to M-5.1)

NOTES

1. The Bidder shall complete this technical data sheet and submit the filled-up forms during the post-qualification which shall only serve as reference for the review and approval of brochure/drawings during implementation stage. The Bidder shall use additional sheets as necessary for any other additional information following the format shown herein or by reproducing the same.
2. The data required are technical features and characteristics of the Equipment to be provided by the bidder which shall at least be equal or superior to the requirements specified by NPC.
3. The lists of Spares and Tools (Items M-4.1 to M-5.1) are preliminary and subject to changes to conform with the final design and model/brand of the proposed equipment (per manufacturer's standard).

The Bidder shall indicate "N/A" to the respective items in the said lists (Items M-4.1 to M-5.1) if found not applicable to the brand/model of the proposed equipment. However, NPC has the right to ask the Supplier to provide the same or its equivalent if it is determined as "deemed necessary or standard tool/inherent part or optional item" during the implementation of the project, checking and review/approval of the final lists to be submitted by the Supplier during the Contract Stage at no cost to NPC.

4. Non submission of the above documents shall be a ground for disqualification.

Name of Firm	Name & Signature of Representative	Designation
NATIONAL POWER CORPORATION		VI-TDS(MW)-4

SECTION VI – TECHNICAL SPECIFICATIONS

M-3.0 DIESEL ENGINE

ITEM	DESCRIPTION	NPC REQUIREMENT	SUPPLIER'S DATA
M-3.1	DIESEL ENGINE		
M-3.1.1	1. Manufacturer/Assembler	By Supplier	
	2. Manufacturer's Experience, yr.	10	
M-3.1.2	Place of Manufacture	By Supplier	
M-3.1.3	Model/Type	By Supplier	
M-3.1.4a	Engine Standby Rated Brake Power at Reference Site Conditions, kWm or BHP	By Supplier	
M-3.1.4b	Engine Prime Rated Brake Power at Reference Site Conditions, kWm or BHP	By Supplier	
M-3.1.4c	Engine Continuous Rated Brake Power at Reference Site Conditions, kWm or BHP	By Supplier	
M-3.1.5	Number of Cylinders	By Supplier	
M-3.1.6	Bore and Stroke, mm	By Supplier	
M-3.1.7	Piston Displacement, L	By Supplier	
M-3.1.8	Piston Speed, m/s	By Supplier	
M-3.1.9	Engine Mean Effective Pressure, kg/cm ²	By Supplier	
M-3.1.10	Compression Ratio	By Supplier	
M-3.1.11	Overall Dimension of Complete Unit, L x W x H, mxmxm	By Supplier	
M-3.1.12	Maximum Weight of Diesel Engine Generator Set on Skid, kg	By Supplier	
M-3.1.13	Heat Dissipation including (Generating set), kJ/hr	By Supplier	

Name of Firm

Name & Signature of Representative

Designation



SECTION VI – TECHNICAL SPECIFICATIONS

M-4.0 SPARE PARTS

M-4.1 SPARE PARTS PER UNIT OF 600 KW DG SET DURING THE WARRANTY PERIOD (Minimum Requirements as Specified in the Technical Specifications and Manufacturer’s Standard and Recommended Spare Parts) ***

ITEM	DESCRIPTION	PART NO.	MINIMUM QUANTITY**	SUPPLIERS DATA
M-4.1a	Air Filter Element		6 pcs/size	
M-4.1b	Lube Oil Filter Element		30 pcs/size	
M-4.1c	Fuel Filter Element		15 pcs	
M-4.1d	Water Filter Element		6 pcs	
M-4.1e	Fan Belt		3 pcs	
M-4.1f	Alternator Belt		3 pcs	
M-4.1g	Coolant		4 gallons	
M-4.1h	Expected spares to be consumed during the performance test		1 lot	
M-4.1i	Other spare parts recommended by Manufacturer		1 lot	
M-4.1i.1				
M-4.1i.2				
M-4.1i.3				
M-4.1i.4				
M-4.1i.5				
M-4.1i.6				
M-4.1i.7				
M-4.1i.8				
M-4.1i.9				
M-4.1i.10				

NOTES:

* *The above list is preliminary which is subject to changes to conform with the final design and model/brand of the proposed equipment (per manufacturer’s standard). NOTE #3 of page III-TDS (MW)-4.*

** *Quantities may be increased depending on manufacturer’s required replacement intervals.*

Name of Firm

Name & Signature of Representative

Designation



SECTION VI – TECHNICAL SPECIFICATIONS

M-4.2 SPARE PARTS PER TOTAL UNITS OF 600 KW DG SET SUPPLIED AND DELIVERED*

ITEM	DESCRIPTION	PART NO.	MINIMUM QUANTITY**	SUPPLIERS DATA
M-4.2a	Fuel Injector Assembly		2 pcs	
M-4.2b	Top Overhauling Kit		1 set	
M-4.2c	Actuator		1 set	
M-4.2d	Jacket Water Pump Repair Kit		1 set	
M-4.2e	Lube Oil Pump Repair Kit		1 set	
M-4.2f	Fan Adaptor & Accessories including Bearings		2 sets	
M-4.2g	Rocker Gear Cover Gasket		12 pcs	
M-4.2h	Thermostat		1 set	
M-4.2i	Lub Oil Pump Switch		1 set	
M-4.2j	Hot Water Temp. Switch		1 set	
M-4.2k	Turbocharger Repair Kit		1 set	
M-4.2l	Exhaust Manifold Bellow		1 set	
M-4.2m	Magnetic Pick-up		1 pc	
M-4.2n	Other spare parts recommended by Manufacturer		1 Lot	
M-4.2n.1				
M-4.2n.2				
M-4.2n.3				
M-4.2n.4				
M-4.2n.5				

NOTES:

* *The list is preliminary which is subject to changes to conform with the final design and model/brand of the proposed equipment (per manufacturer's standard). NOTE #3 of page III-TD S(MW)-4.*

** *Quantities may be increased depending on manufacturer's required replacement intervals.*

Name of Firm

Name & Signature of Representative

Designation




SECTION VI – TECHNICAL SPECIFICATIONS

M-5.0 STANDARD/SPECIAL TOOLS/MISCELLANEOUS TOOLS

M-5.1 STANDARD/SPECIAL TOOLS PER TOTAL UNITS OF 600 KW DG SET SUPPLIED AND DELIVERED (Minimum Requirements as Specified in the Technical Specifications & Manufacturer's Standard/Recommended Tools)⁺

ITEM	DESCRIPTION	NPC REQ'T	SUPPLIERS DATA
M-5.1a	Portable computer (Minimum of Intel I7 Processor, 16GB (1x16GB) DDR4 2666 MHZ, 256 GB PCIe NVMe SSD +1TB SATA 5400RPM 2.5" Inch, 13"-15.6" screen size & with the latest pre-installed windows operating system compatible with manufacturer's/or Supplier's software) needed in programming the DG set control setting (complete with licensed CD-ROM drive dongles of DG set control system) and electronic/digital governing system including other digital components that require exclusive programs from the Manufacturer and/or Supplier with free update throughout the operating life of the DG set	1 set	
M-5.1b	Puller, Cylinder Liner	1 set	
M-5.1c	Puller, Generator Bearing	1 set	
M-5.1d	Puller, Injector Sleeve	1 set	
M-5.1e	Extractor, Valve Seat	1 set	
M-5.1f	Extractor, Piston Ring	1 set	
M-5.1g	Extractor, Valve Guide	1 set	
M-5.1h	Extractor, Valve Spring	1 set	
M-5.1i	Expander, Injector Sleeve	1 set	
M-5.1j	Reamer, Injector Sleeve	1 set	
M-5.1k	Calibrator, Injector (Range 0-600 bars)	1 set	
M-5.1l	Feeler Gauge	1 set	
M-5.1m	Special tools for overhauling and re-assembly of turbocharger	1 set	
M-5.1n	Cleaning nozzle for cleaning of turbocharger	1 set	
M-5.1o	Special tools for maintenance and cleaning of radiators and fans	1 set	
M-5.1p	Other tools recommended by the Manufacturer	1 lot	

NOTES: + Minimum requirements but the Supplier shall provide/include in the list all the necessary/standard tools required in the performance of normal maintenance and overhaul. The above list is preliminary which is subject to changes to conform with the final design and model/brand of the proposed equipment (per manufacturer's standard). Refer also to NOTE #3 of page III-TDS (MW)-4.

Name of Firm	Name & Signature of Representative	Designation
NATIONAL POWER CORPORATION		VI-TDS(MW)-8

PART II – TECHNICAL DATA SHEETS

MW – MECHANICAL WORKS

DOCUMENTS TO BE SUBMITTED DURING THE PROJECT IMPLEMENTATION

(Sections M-6.0, M-7.0, M-8.0, M-9.0, M-10.0 & M-11.0)

NOTES

1. The Bidder shall complete this technical data sheet/documents and submit the filled-up forms during the project implementation (during contract stage). The Bidder shall use additional sheets as necessary for any other additional information following the format shown herein or by reproducing the same.
2. The data required are technical features and characteristics of the Equipment to be provided by the bidder. Bidder's proposal shall at least be equal or superior to the requirements specified by NPC. The data provided shall be used as basis for evaluation of brochures, drawings and other documents to be submitted for review and approval during the project implementation.
3. All data and information shall be in English language.

DOCUMENTS TO BE SUBMITTED DURING PROJECT IMPLEMENTATION BUT NOT LIMITED TO:		
SECTION	DESCRIPTION	PAGE
M-6.0	ISO 9001 Certificate of the Manufacturer/Assembler/Integrator or equivalent for each of the Diesel Generating Set	
M-7.0	Standard Certification of the proposed offered model of Diesel Generating Set from any of the following internationally recognized certifying body/organization: a) Canadian Standard Association (CSA) b) Underwriter's Laboratories (UL) c) Japanese Industrial Standards (JIS) d) European Commission (CE) e) Lloyd's Register (LR) f) Germanischer Lloyd (GL) g) Nippon Kaiji Kyokai (NKK) h) American Bureau of Shipping (ABS)	
M-8.0	Power Derate Curves and Details or Certificate/Statement from Diesel Generating Set's Manufacturer/Assembler/ Integrator that the proposed DG Set have no deration at Reference Site Conditions.	

SECTION VI – TECHNICAL SPECIFICATIONS

M-11.0 DIESEL ENGINE

ITEM	DESCRIPTION	NPC REQUIREMENT	SUPPLIER'S DATA
M-11.1	DIESEL ENGINE		
M-11.1.1	Fuel Rate at Required Standby Rated Power and Reference Site Conditions DG Set		
	75 % Rated Load, Li/kW-hr	By Supplier	
	50 % Rated Load, Li/kW-hr	By Supplier	
	25 % Rated Load, Li/kW-hr	By Supplier	
M-11.1.2	Number of Strokes	4	
M-11.1.3	Rotating Direction (Viewed from Flywheel Side)	By Supplier	
M-11.1.4	Required Time from Starting Signal to Rated Speed, minute	By Supplier	
M-11.1.5	Maximum Time from "Cold Condition" to Rated Speed w/ Load and w/o AC power available for motor-driven auxiliaries, minute	By Supplier	
M-11.1.6	Heaviest part of D/G set for maintenance, kg.	By Supplier	
M-11.1.7	Idling Speed Recommended, rpm	By Supplier	
M-11.1.8	Duration of Idling (max.), min.	By Supplier	
M-11.1.9	Minimum Load @ Normal Speed, kW	By Supplier	
M-11.1.10	Maximum Load @ Normal Speed, kW	By Supplier	
M-11.1.11	Engine Heat Dissipation, kJ/hr	By Supplier	
M-11.1.12	Engine Mechanical Efficiency, η_m	By Supplier	
M-11.1.13	Numerical Values for Power Adjustment Parameters (Exponents) for high speed per Table 2 of ISO 3046, a, m, n, s	By Supplier	
M-11.1.14	Expected Useful Life of Unit @ Standby Rated Power, Yrs	15	
M-11.2	LUBRICATING OIL SYSTEM		
M-11.2.1	Total Lube Oil System Capacity, liters	By Supplier	
M-11.2.2	Lube Oil Consumption of the Engine, g/kwhr	By Supplier	
M-11.2.3	Lube Oil Pump Capacity, m ³ /hr	By Supplier	
M-11.2.4	Lube Oil Filter Mesh, microns	By Supplier	
M-11.2.5	Lube Oil Filter Type & Capacity	Spin-on full flow	
M-11.2.6	Lube Oil Priming Pump Capacity, if applicable	By Supplier	

Name of Firm

Name & Signature of Representative

Designation



SECTION VI – TECHNICAL SPECIFICATIONS

M-11.0 DIESEL ENGINE (Cont'd.....)

ITEM	DESCRIPTION	NPC REQUIREMENT	SUPPLIER'S DATA
M-11.3	STARTING SYSTEM		
M-11.3.1	Battery Capacity, AH	By Supplier	
M-11.3.2	Starting Voltage, V	24	
M-11.3.3	Starting Motor Rating, HP	By Supplier	
M-11.3.4	Full Load Cranking Current, A	By Supplier	
M-11.3.5	Battery Charging Type	By Supplier	
M-11.3.6	Battery Charger Charging rate	By Supplier	
M-11.3.7	Time of Cranking, sec	30	
M-11.4	EXHAUST SYSTEM		
M-11.4.1	Exhaust Gas Flow, m ³ /hr	By Supplier	
M-11.4.2	Exhaust Gas Temperature, °C	By Supplier	
M-11.4.3	Maximum Allowable Back Pressure, mmH ₂ O	By Supplier	
M-11.4.4	Exhaust Pipe (nom. Diameter x length x weight), mm x mm x kg	By Supplier	
M-11.4.5	Silencer (nom. Diameter x length x weight), mm x mm x kg	By Supplier	
M-11.4.6	Exhaust Pipe Material, ASTM	A 106 or equivalent	
M-11.4.7	Silencer Material, ASTM	A 106 or equivalent	
M-11.4.8	Structural Steel Supports for vertically mounted stack/silencer	By Supplier	
M-11.5	INTAKE AIR SYSTEM		
M-11.5.1	Air Intake Flow (Free Air), m ³ /hr	By Supplier	
M-11.5.2	Air Filter Type	By Supplier	
M-11.5.3	Turbocharger Type	By Supplier	
M-11.5.4	Turbocharger RPM	By Supplier	
M-11.5.5	Charge Air Cooler Type	By Supplier	
M-11.5.6	Total Air Flow Required for Ventilation & Combustion, m ³ /hr	By Supplier	
M-11.6	COOLING SYSTEM (Coolant for initial filling shall be provided By Supplier per engine)		
M-11.6.1	Total Cooling Water Capacity, Liters	By Supplier	
M-11.6.2	Cooling Water Pump Capacity, m ³ /hr	By Supplier	
M-11.6.3	Jacket Water Pump Capacity, m ³ /hr	By Supplier	
M-11.6.4	Radiator Fan Air Flow, m ³ /hr	By Supplier	
M-11.6.5	Radiated Heat to Ambient, kw/hr	By Supplier	

Name of Firm

Name & Signature of Representative

Designation



SECTION VI – TECHNICAL SPECIFICATIONS

M-11.0 DIESEL ENGINE (Cont'd.....)

ITEM	DESCRIPTION	NPC REQUIREMENT	SUPPLIER'S DATA
M-11.6	COOLING SYSTEM (Coolant for initial filling shall be provided By Supplier per engine)		
M-11.6.1	Total Cooling Water Capacity, Liters	By Supplier	
M-11.6.2	Cooling Water Pump Capacity, m ³ /hr	By Supplier	
M-11.6.3	Jacket Water Pump Capacity, m ³ /hr	By Supplier	
M-11.6.4	Radiator Fan Air Flow, m ³ /hr	By Supplier	
M-11.6.5	Radiated Heat to Ambient, kw/hr	By Supplier	
M-11.6.6	Expansion Tank Capacity and Elevation, if applicable, liters and m.	By Supplier	
M-11.6.7	Radiator Dimensions (l x w x h), m x m x m	By Supplier	
M-11.6.8	Core Material	Aluminum	
M-11.6.9	Recommended cooling water properties such as ph, hardness, TDS, etc., ASTM		
	PH Value, ppm	By Supplier	
	Total Hardness	By Supplier	
	TDS, ppm	By Supplier	
	Chloride	By Supplier	
	Sulfate, ppm	By Supplier	
	Silica, mg/l	By Supplier	
	Iron, ppm	By Supplier	
	Conductivity, uS/cm	By Supplier	
M-11.7	FUEL SYSTEM		
M-11.7.1	Fuel Feed Pump Capacity, m ³ /hr	By Supplier	
M-11.7.2	Discharge Head of Feed Pump, m	By Supplier	
M-11.7.3	Fuel Filter Type and Mesh, microns	Spin-on with water separator	
M-11.7.4	Injection Nozzle Type	By Supplier	
M-11.7.5	Fuel Tank Capacity (base mounted), m ³	By Supplier	
M-11.7.5.6	Fuel Tank Dimensions (W x L x H), m x m x m	By Supplier	
M-11.7.5.7	Fuel Tank Plate Material, ASTM	A 36	
M-11.7.8	Fuel Tank Shell Thickness, mm	5	

Name of Firm

Name & Signature of Representative

Designation



SECTION VI – TECHNICAL SPECIFICATIONS

M-11.0 DIESEL ENGINE (Cont'd.....)

ITEM	DESCRIPTION	NPC REQUIREMENT	SUPPLIER'S DATA
M-11.10	ENGINE METERING AND INDICATION		
M-11.10.1	RPM Meter *, rpm	Included	
M-11.10.2	Hours Run Counter *, hours	Included	
M-11.10.3	Oil Pressure *, kg/cm2	Included	
M-11.10.4	Oil Temperature *, °C	Included	
M-11.10.5	Cooling Water Temperature *, °C	Included	
M-11.10.6	Cylinders Exhaust Gas Temperature, °C	Optional	
M-11.10.7	Battery Voltage, V	Included	
M-11.10.8	Ready to Start	Included	
M-11.10.9	Remote Control Position Indication	Included	
M-11.11	ENGINE PROTECTION AND ALARM		
M-11.11.1	Engine Overspeed	Included	
M-11.11.2	Lube Oil Pressure Low	Included	
M-11.11.3	Lube Oil Temperature High	Included	
M-11.11.4	Cooling Water Temp. High	Included	
M-11.11.5	Cooling Water Temp. Low	Optional	
M-11.11.6	Fuel Day Tank Level High	Included	
M-11.11.7	Fuel Day Tank Level Low	Included	
M-11.11.8	Battery Voltage High	Included	
M-11.11.9	Battery Voltage Low	Included	
M-11.11.10	Failure to Crank	Included	
M-11.11.11	Overcrank	Included	
M-11.12	HUMAN MACHINE INTERFACE CONTROL		
M-11.12.1	Manual Start/Stop *	Included	
M-11.12.2	Auto/Remote Start	Included	
M-11.12.3	Test Run Auto	Included	
M-11.12.4	Emergency Stop *	Included	
M-11.12.5	Alpha/Numeric Screen	Included	
M-11.12.6	Discrete Status Indicators	Included	
M-11.12.7	Fault Reset	Included	

NOTE: * These monitoring /control points shall also be provided at DG set

Name of Firm

Name & Signature of Representative

Designation



PART II – TECHNICAL DATA SHEETS

EW – ELECTRICAL WORKS

TABLE OF CONTENTS

SECTION	DESCRIPTION	PAGE
DOCUMENTS TO BE SUBMITTED DURING BID OPENING		
E-1.0	AC Generator	VI-TDS(EW)-2
DOCUMENTS TO BE SUBMITTED DURING POST QUALIFICATION (Reference for the Approval of Manufacturer’s Brochures/ Drawings)		
E-1.0	AC Generator	VI-TDS(EW)-4
E-2.0	Generator Control and Protection Panel	VI-TDS(EW)-5
E-3.0	600V Power, Control and Instrumentation Cable	VI-TDS(EW)-7



PART II - TECHNICAL DATA SHEETS

EW – ELECTRICAL WORKS

SECTION E-1.0

DOCUMENTS TO BE SUBMITTED DURING THE BID OPENING

1. The following Technical Data Sheets shall be filled-out and to be submitted with the Bid Proposal.
2. Deviation from the requirements indicated in the Technical Data Sheets shall be ground for disqualification.

Name of Firm

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Designation



E-1.0 AC GENERATOR

ITEM	DESCRIPTION	NPC REQUIREMENT	SUPPLIER'S DATA
E-1.1	Manufacturer	By Supplier	
E-1.2	Place of Manufacture	By Supplier	
E-1.3	Generator Model	By Supplier	
E-1.4	Type	Rotating Field Synchronous AC Generator, PMG Type with AVR	
E-1.5	Minimum Rated Power Output at 0.8 Power Factor, kW	600kW (min)	
E-1.6	Duty	Standby	
E-1.7	Rated Voltage, V	480 (±5%)	
E-1.8	No. of Phase	3	
E-1.9	Frequency, Hz	60	
E-1.10	Winding Pitch	2/3	
E-1.11	Rated Speed	1800	
E-1.12	Insulation Class	Class F shall be used for both the armature and field windings	
E-1.13	Temperature Rise	Class B at rated load	
E-1.14	Space Heater installed on alternator frame (120/240Vac, single phase) sourced available power supply	To be provided	
E-1.15	Excitation System	Brushless, Separately Excited, Permanent Magnetic Generator (PMG)	
E-1.16	Automatic Voltage Regulator, % Voltage Regulation	± 0.5% in steady state with rapid response time	
E-1.17	Protection Class	IP 23	

Name of Firm

Name & Signature of Representative

Designation



PART II - TECHNICAL DATA SHEETS

EW – ELECTRICAL WORKS

SECTION E-1.0 - 2.0

DOCUMENTS TO BE SUBMITTED DURING POST-QUALIFICATION

(Reference for the Approval of Manufacturer’s Brochures/Drawings)

1. The following shall be filled-out and to be submitted during the post qualification.
2. Filled-out data by the Supplier shall only serve as reference for the review and approval of brochures/drawings during implementation stage.
3. Non-submission of the documents shall be ground for disqualification.

Name of Firm

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Designation



E-1.0 AC GENERATOR

ITEM	DESCRIPTION	NPC REQUIREMENT	SUPPLIER'S DATA
E-1.1	Generator Winding Connection	Wye connection with neutral	
E-1.2	Number of Leads	12	
E-1.3	No. of Pole	By Supplier	
E-1.4	No. of Bearing	By Supplier	
E-1.5	Allowable Voltage Variations	At the rated kVA, frequency, voltage and power factor, the generator can operate satisfactorily though the terminal voltage may vary at $\pm 5.0\%$ of rated value	
E-1.6	Winding Temperature Detector	To be provided	
E-1.7	Efficiency		
	a. 100% Load	$\geq 85\%$	
	b. 75% Load	Manufacturer's Data	
E-1.8	Guaranteed Losses at 100% rated kVA at 0.8 PF	Manufacturer's Data	
E-1.9	Guaranteed Losses at 75% rated kVA at 0.8 PF	Manufacturer's Data	
E-1.10	Damper Winding	To be provided	
E-1.11	Telephone Interference	THF is better than 2%	
E-1.12	Radio Interference	Equipped with RFI suppression	
E-1.13	Designed to withstand a momentary excess current of 1.5 times of rated current for not less than 2 min.	Yes	
E-1.14	Overspeed	1.2 times the rated speed for 2 min.	
E-1.15	Overload Capacity and Duration	10%, for max. of 1 hr in every 12 hrs.	
E-1.16	Cooling System	Totally Enclosed air cooled	
E-1.17	Protection Class	IP 23	
E-1.18	Sustained Short Circuit Capability	Yes	
Excitation System			
E-1.19	Type	Brushless, Separately Excited, Permanent Magnetic Generator (PMG) or equivalent	
Automatic Voltage Regulator (AVR)			
E-1.20	Manufacturer	By Supplier	
E-1.21	Place of Manufacture	By Supplier	
E-1.22	Model	By Supplier	
E-1.23	Type	Digital	

Name of Firm

Name & Signature of Representative

Designation



	a. Capable for Parallel Operation	Yes	
E-1.24	Input Requirements	Manufacturer's Data	
E-1.25	Continuous Output	Manufacturer's Data	
E-1.26	Regulation, %	± 0.5% in steady state with rapid response time	
E-1.27	Response Time, ms	Manufacturer's Data	
Test and Experience Requirements			
E-1.28	Test Requirement		
	a. Routine Test to be Performed	Yes	
	b. Certified Design and Routine Test Reports to be submitted	Yes	

E-2.0 GENERATOR CONTROL AND PROTECTION PANEL

ITEM	DESCRIPTION	NPC REQUIREMENT	SUPPLIER'S DATA
E-2.1	Manufacturer	By Supplier	
E-2.2	Each GCPP to be supplied shall be equipped with metering, status, alarm and trip indication light, synchronizing devices, protection relays as shown on the bid drawing	Yes	
E-2.3	All Protection, Control, Monitoring, and Metering shall be operational during manual and/or auto synchronization mode	Yes	
E-2.4	Class (indoor, outdoor)	Indoor	
E-2.5	Generator Circuit Breaker		
	a. Manufacturer	By Supplier	
	b. Model	By Supplier	
	c. Continuous Current Rating	Refer to Single Line Diagram	
	d. Construction	Refer to Single Line Diagram	
	e. Type	Compact with Electronic Trip Unit and remote-control functions	
	f. Symmetrical Current	Refer to Single Line Diagram	
E-2.6	Enclosure Details		
	a. Protection Class	IP 44	
	b. Metal Steel Sheet Thickness, mm	2	
	c. Cable Entrance	Bottom	
	d. Dimension (L x W x H), mm	Refer to Bid Drawing	
	e. Weight, kg	Manufacturer's Data	
	f. All materials are non-hygroscopic to prevent fungus growth	Yes	
	g. The GCPP shall be provided w/ nameplate	Yes	
	h. An outline drawing showing details of the GCPP enclosure including its components as shown on the bid drawing shall be furnished by the Supplier for approval of NPC	Yes	
E-2.7	Programmable Logic Controller	Included	

Name of Firm

Name & Signature of Representative

Designation



SECTION VI – TECHNICAL SPECIFICATIONS

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E-2.8	Metering System		
	The metering device to be provided shall consists of the following:	Yes	
	a. Ammeter	Included	
	b. Voltmeter	Included	
	c. Watt-Hour meter	Included	
	d. Power Factor Meter	Included	
	e. Frequency	Included	
	f. kW	Included	
	g. kVAR	Included	
	h. Running Hour meter	Included	
	i. Alternator Winding Temperature	Included	
	j. Other engine metering required as specified in Mechanical Specifications	Included	
E-2.9	Monitoring System		
	a. An Annunciator Window with Common Audio Alarm & Trip indication for:		
	a.1. Monitoring of abnormal conditions during operation of the system including generator and transformer protective devices	Included	
	a.2. Detection of alternator winding temperature	Included	
	b. Data Logger and Event Recorder	Included	
	c. User Programmable Fault Reports	Included	
	d. PLC Failure, Circuit Breaker Status (On, OFF, Trip) Engine Start/Stop, etc.	Yes	
	e. Other engine monitoring required in M.2k of the MW-TDS shall be included in the GCPP	Yes	
E-2.10	Synchronizing System		
	a. Synchronizing device for Auto and manual synchronization	Yes	
	b. GCPP shall be equipped with protection relays to provide signal and alarm to protect the D/G set from damage during fault	Yes	
E-2.11	Capable of Load Sharing Function for Base and Regulating Load Operation	Yes	
E-2.12	The Supplier shall provide all the required Generator Protection devices for the all the D/G set ratings as shown on the Single Line diagram	Yes	
E-2.13	Test Requirement		
	a. Routine Test to be Performed	Yes	
	b. Certified Routine Test Reports to be Submitted	Yes	

Name of Firm

Name & Signature of Representative

Designation



E-3.0 600V POWER, CONTROL AND INSTRUMENTATION CABLES

ITEM	DESCRIPTION	NPC REQUIREMENT	SUPPLIER'S DATA
E-3.1	Manufacturer	By Supplier	
E-3.2	Type		
	a. Power	THHN/THWN-2	
	b. Control & Instrumentation	Royal Cord	
E-3.3	No. of Conductors / Cable and Size ¹		
	a. Power	Refer to Single Line Diagram	
	b. Control & Instrumentation	By Supplier	
E-3.4	Conductor Material	Annealed Copper	
E-3.5	Conductor Shape	Circular Stranded Conductors	
E-3.6	Type of Insulation	Lead Free, UL-listed PVC	
E-3.7	Outer covering/Jacket	Oil, Chemical and Abrasion Resistant Tough Polyamide (Nylon)	
E-3.8	Meets ASTM, UL 83 & 1063, and PNS 35 Specifications and requirements of PEC	Yes	

NOTE: 1. Supplier to give full description of various number of conductor/cable and sizes based on the ampacity requirements of gensets.

Name of Firm

Name & Signature of Representative

Designation

SECTION VII

BID PRICE SCHEDULE (Schedule of Requirements)

SECTION IV - SCHEDULE OF REQUIREMENTS (BID PRICE SCHEDULE)

BPS.1 - SUMMARY

SUPPLY, DELIVERY, INSTALLATION, TEST AND COMMISSIONING OF 1X600 KW (STANDBY POWER) DIESEL GENERATOR SET AND ASSOCIATED ELECTRICAL EQUIPMENT FOR NPC HEAD OFFICE

ITEM NO.	PARTICULARS	TOTAL AMOUNT IN FIGURES		TOTAL PESO EQUIVALENT
		Foreign Currency	Phil. Peso	Phil. Peso
A.	Generating Set/s			
B.	Other Mechanical Works			
C.	Electrical Works			
D.	Spare Parts and Standard/Special Tools			
E.	Miscellaneous Equipment/Tools/Works			
TOTAL AMOUNT				

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

Name of Bidder: _____

Signature of Bidder: _____

**SECTION VII - SCHEDULE OF REQUIREMENTS
(BID PRICE SCHEDULE)
BPS.2 - Breakdown of Prices
ONE (1) UNIT OF 600 KW DIESEL GENERATOR SET FOR NPC HEAD OFFICE**

Item No.	Description of Work or Materials	QTY.- UNIT	C O D E	UNIT PRICE FOR GOODS AND RELATED SERVICES TO BE SUPPLIED FROM ABROAD				UNIT PRICE FOR GOODS AND RELATED SERVICES TO BE SUPPLIED FROM WITHIN THE PHILIPPINES			TOTAL PRICE	
				Unit Price of Goods or Services Foreign Currency { }**	Import Duties & other Levies Imposed by Phil. Govt. (Phil. Peso)	Value Added Tax and other Taxes Imposed by Phil. Govt. (Phil. Peso)	Local Transport from Port to Delivery Site *** (Phil. Peso)	Unit Price of Goods or Services (Phil. Peso)	Value Added Tax and other Taxes Imposed by Phil. Govt. (Phil. Peso)	Local Transport from Plant to Delivery Site **** (Phil. Peso)	Forex Currency (E x C)	Local Currency Portion (Phil. Peso) ((F+G+H) x C) or ((I+J+K) x C)
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
A.	GENERATING SET(S)											
A.1	600 kW (minimum) Standby Power Output, Diesel Generating set, 1800 RPM, in-line Type multi-cylinder, 480, 3-phase, 60 hertz, equipped with turbocharger, air to air charge air cooler, electronic governor, direct fuel injection, with associated auxiliary equipment for lubricating system, engine cooling system, intake air and exhaust gas system, fuel oil supply system that include starting system, controls and protection devices (generator control & protection panel, main circuit breaker, auxiliary motor control, monitoring & protection equipment & its accessories), instruction manuals and other accessories as described in the tech. specs.	1 Set										
SUB-TOTAL A				(Amount in Words)								
B.	OTHER MECHANICAL WORKS											
B.1.0	Fuel oil, lubricating oil, lubricants, coolant, chemicals and other consumables required during the initial filling, start-up, pre-test and pre-commissioning including fuel oil to be used during a re-test of performance test as described in Clause TS-6.0 of the technical specifications.	1 Lot										
B.2.0	Pipe, fittings, supports, valves and other accessories for interconnection of the supplied equipment including required excavation and backfilling works as described in the technical specifications	1 Lot										
B.3.0	Fuel supply/filling to the separate/elevated fuel day tanks complete with 50l/min capacity rotary hand pump, flexible hose, accessories, etc. and interconnection piping to/from the generating sets incl. strainers, flowmeters, etc.	1 set										
B.4.0	Smoke stack/pipe, insulation and associated structural steel supports (as applicable)	1 Lot										
B.5.0	Day Tank, 1000 liters capacity complete with manhole, inlet and outlet nozzle, nozzles for vent, overflow, drain and level gauge/switch complete with fittings connections including flexible hoses and other accessories as required in the technical specifications.	1 set										
B.6.0	Dismantling, relocation and re-installation of existing generating set, auxiliaries and other accessories as directed by NPC personnel	1 Set										
SUB-TOTAL B				(Amount in Words)								
C.	ELECTRICAL WORKS											
C.1	Power, Control and Instrumentation Cables complete with the required conduits and accessories for cabling works to interface the supplied equipment to the existing 600V system as described in the Technical Specifications, Technical Data Sheets and as shown on the Bid Drawings including installation works.	1 Lot										
SUB-TOTAL C				(Amount in Words)								

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

** Cost of equipment, freight, insurance, etc. up to Phil. port of entry. Refer to (TB-12)

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

Code	Country of Origin

Name of Bidder: _____

Signature of Bidder: _____

**SECTION VII - SCHEDULE OF REQUIREMENTS
(BID PRICE SCHEDULE)
BPS.2 - Breakdown of Prices
ONE (1) UNIT OF 600 KW DIESEL GENERATOR SET FOR NPC HEAD OFFICE**

Item No.	Description of Work or Materials	QTY.- UNIT	C O D E	UNIT PRICE FOR GOODS AND RELATED SERVICES TO BE SUPPLIED FROM ABROAD				UNIT PRICE FOR GOODS AND RELATED SERVICES TO BE SUPPLIED FROM WITHIN THE PHILIPPINES			TOTAL PRICE	
				Unit Price of Goods or Services Foreign Currency () **	Import Duties & other Levies Imposed by Phil. Govt. (Phil. Peso)	Value Added Tax and other Taxes Imposed by Phil. Govt. (Phil. Peso)	Local Transport from Port to Delivery Site *** (Phil. Peso)	Unit Price of Goods or Services (Phil. Peso)	Value Added Tax and other Taxes Imposed by Phil. Govt. (Phil. Peso)	Local Transport from Plant to Delivery Site *** (Phil. Peso)	Forex Currency (E x C)	Local Currency Portion (Phil. Peso) ((F+G+H) x C) or ((I+J+K) x C)
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
D.	SPARE PARTS AND SPECIAL/STANDARD AND MISCELLANEOUS TOOL											
D.1	MECHANICAL											
D.1.1	Spare Parts per Unit of 600 kW Diesel Genset During the Warranty Period (M-4.1: Part II - Technical Data Sheets, Mechanical Works of the Technical Specification)											
a.	Air Filter Element	6 pcs										
b.	Lube Oil Filter Element	30 pcs										
c.	Fuel Filter Element	15 pcs										
d.	Water Filter Element	6 pcs										
e.	Fan Belt	3 pcs										
f.	Alternator Belt	3 pcs										
g.	Coolant	4 Gallons										
h.	Expected spares to be consumed during the performance test	1 Lot										
i.	Other spare parts recommended by Manufacturer	1 Lot										
D.1.2	Spare Parts for 600 kW Generating Sets Supplied and Delivered (M-4.2: Part II - Technical Data Sheets, Mechanical Works of the Technical Specification)											
a.	Fuel Injector Assembly	2 Pcs										
b.	Top Overhauling Kit	1 Set										
c.	Actuator	1 Set										
d.	Jacket Water Pump Repair Kit	1 Set										
e.	Lube Oil Pump Repair Kit	1 Set										
f.	Fan Adaptor & Accessories Including Bearings	2 Sets										
g.	Rocker Gear Cover Gasket	12 Pcs										
h.	Thermostat	1 Set										
i.	Lub Oil Pump Switch	1 Set										
j.	Hot Water Temp. Switch	1 Set										
k.	Turbocharger Repair Kit	1 Set										
l.	Exhaust Manifold Bellow	1 Set										
m.	Magnetic Pick-up	1 Pc.										
n.	Other spare parts recommended by Manufacturer	1 Lot										
D.1.3	Manufacturer's Special/Standard Tools											
D.1.3.1	Standard/Special Tools for 600 kW Genset Supplied and Delivered (M-5.1: Part II - Technical Data Sheets, Mechanical Works of the Technical Specification)	1 Lot										
a.	Portable computer (Minimum of Intel I7 Processor, 16GB (1x16GB) DDR4 2666 MHZ, 256 GB PCIe NVMe SSD +1TB SATA 5400RPM 2.5" Inch, 13"-15.6" screen size & with the latest pre-installed windows operating system compatible with manufacturer's/or Supplier's software) needed in programming the DG set control setting (complete with licensed CD-ROM drive dongles of DG set control system) and electronic/digital governing system including other digital components that require exclusive programs from the Manufacturer and/or Supplier with free update throughout the operating life of the DG set	1 Set										
b.	Puller, Cylinder Liner	1 Set										
c.	Puller, Generator Bearing	1 Set										

* Bidders shall enter a code representing the Country of Origin of all imported equipment, materials and accessories
 ** Cost of equipment, freight, insurance, etc. up to Phil. port of entry. Refer to ITB-12
 *** Unit Price for Local Transportation, insurance and other local costs incidental to delivery of the goods from the Phil port of entry to final delivery site

Code	Country of Origin

Name of Bidder: _____

Signature of Bidder: _____



SECTION VII - SCHEDULE OF REQUIREMENTS

**SECTION VII - SCHEDULE OF REQUIREMENTS
(BID PRICE SCHEDULE)**

BPS.2 - Breakdown of Prices

ONE (1) UNIT OF 600 KW DIESEL GENERATOR SET FOR NPC HEAD OFFICE

Item No.	Description of Work or Materials	QTY.- UNIT	UNIT PRICE FOR GOODS AND RELATED SERVICES TO BE SUPPLIED FROM ABROAD				UNIT PRICE FOR GOODS AND RELATED SERVICES TO BE SUPPLIED FROM WITHIN THE PHILIPPINES				TOTAL PRICE	
			C O D E	Unit Price of Goods or Services Foreign Currency ()**	Import Duties & other Levies Imposed by Phil. Govt. (Phil. Peso)	Value Added Tax and other Taxes Imposed by Phil. Govt. (Phil. Peso)	Local Transport from Port to Delivery Site *** (Phil. Peso)	Unit Price of Goods or Services (Phil. Peso)	Value Added Tax and other Taxes Imposed by Phil. Govt. (Phil. Peso)	Local Transport from Plant to Delivery Site *** (Phil. Peso)	Forex Currency (E x C)	Local Currency Portion (Phil. Peso) ((F+G+H) x C) or ((I+J+K) x C)
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
D.1.3 Manufacturer's Special/Standard Tools												
d.	Puller, Injector Sleeve	1 Set										
e.	Extractor, Valve Seat	1 Set										
f.	Extractor, Piston Ring	1 Set										
g.	Extractor, Valve Guide	1 Set										
h.	Extractor, Valve Spring	1 Set										
i.	Expander, Injector Sleeve	1 Set										
j.	Reamer, Injector Sleeve	1 Set										
k.	Calibrator, Injector (Range 0-600 bars)	1 Set										
l.	Feeler Gauge	1 Set										
m.	Special tools for overhauling and re-assembly of turbocharger	1 Set										
n.	Cleaning nozzle for cleaning of turbocharger	1 Set										
o.	Special tools for maintenance and cleaning of radiators and fans	1 Set										
p.	Other tools recommended by the Manufacturer	1 Lot										
SUB-TOTAL D												
(Amount in Words)												
E.1	Miscellaneous Equipment and Materials											
E.1	Tagging and/or Labels for Equipment, Valves, Piping, Instruments and its fixing accessories as described in the bid documents.	1 Lot										
E.2	Painting for Fuel Oil Piping & Equipment, Water Piping, Waste Oil Piping, its associated valves, fittings, supports and other accessories including touch-up for factory painted equipment and accessories as described in the technical specifications.	1 Lot										
E.3	Conduct training at site of at least Four (4) NPC personnel to be conducted by expert/s who are knowledgeable and trained by the genset manufacturer or his authorized distributor including equipment auxiliaries.	1 Lot										
E.4	Conduct testing and commissioning including test instruments and other services as described in the technical specifications.	1 Lot										
SUB-TOTAL E												
(Amount in Words)												
GRAND TOTAL												
(Amount in Words)												

Notes: Final delivery site of all equipment/materials shall be at the plant site stated above
 If there is a discrepancy on the numbers/units/sets/quantities between or among the technical provision and Schedule of Requirements (SOR), SOR shall prevail.
 * Bidders shall enter a code representing the Country of Origin of all imported equipment, materials and accessories
 ** Cost of equipment, freight, insurance, etc. up to Phil. port of entry. Refer to ITB-12
 *** Unit Price for Local Transportation, insurance and other local costs incidental to delivery of the goods from the Phil port of entry to final delivery site

Code	Country of Origin

Name of Bidder: _____
 Signature of Bidder: _____

SECTION VIII

BIDDING FORMS

SECTION VIII – BIDDING FORMS

TABLE OF CONTENTS

NPCSF-GOODS-01	- Checklist of Technical and Financial Envelope Requirements for Bidders
NPCSF-GOODS-02	- List of all Ongoing Government & Private Contracts Including Contracts Awarded but not yet Started
NPCSF-GOODS-03	- Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid
NPCSF-GOODS-04	- Computation of Net Financial Contracting Capacity (NFCC)
NPCSF-GOODS-05	- Joint Venture Agreement
NPCSF-GOODS-06a	- Form of Bid Security : Bank Guarantee
NPCSF-GOODS-06b	- Form of Bid Security : Surety Bond
NPCSF-GOODS-06c	- Bid Securing Declaration Form
NPCSF-GOODS-07	- Omnibus Sworn Statement (Revised)
NPCSF-GOODS-08	- Bid Letter
Sample Form	- Bank Guarantee Form for Advance Payment
Sample Form	- Certification from DTI as Domestic Bidder

SECTION VIII – BIDDING FORMS

Standard Form No: NPCSF-GOODS-01

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

➤ Any of the following:

- PhilGEPS Certificate of Registration and Membership under Platinum Category in accordance with Section 8.5.2 of the IRR;

OR:

- The following updated and valid Class "A" eligibility documents enumerated under "Annex A" of the Platinum Membership:
 - Registration Certificate from the Securities and Exchange Commission (SEC) for corporations, Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives;
 - Mayor's/Business permit issued by the city or municipality where the principal place of business of the prospective bidder is located, or the equivalent document for Exclusive Economic Zones or Areas.
In cases of recently expired Mayor's/Business permits, it shall be accepted together with the official receipt as proof that the bidder has applied for renewal within the period prescribed by the concerned local government unit, provided that the renewed permit shall be submitted as a post qualification requirement in accordance with Section 34.2 of the Revised IRR of RA 9184.
 - The prospective bidder's audited financial statements, showing, among others, the prospective bidder's total and current assets and liabilities, stamped "received" by the BIR or its duly accredited and authorized institutions, for the preceding calendar year which should not be earlier than two (2) years from the date of bid submission.
 - Tax clearance per Executive Order 398, Series of 2005, as finally reviewed and approved by the BIR or as stated under GPPB NPM-039-2014, for Non-Resident Foreign Corporation (NRFC) and Non-Resident Alien Not Engaged in Trade or Business (NRANETB), a Delinquency Verification Certificate may be submitted as a form of Tax Clearance;

OR:

- A combination thereof
- 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. Contract/Purchase Order
2. 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.)

SECTION VIII – BIDDING FORMS

Standard Form No: NPCSF-GOODS-01

- Duly signed computation of its Net Financial Contracting Capacity (NFCC) at least equal to the ABC (NPCSF-GOODS-04) or a Committed Line of Credit (CLC) at least equal to ten percent (10%) of the ABC, issued by a Universal or Commercial Bank; If the Bidder opted to submit a Committed Line of Credit (CLC), the bidder must submit a granted credit line valid/effective at the date of bidding.
- b. (CLASS B)**
- For Joint Venture (if applicable), any of the following:
 - Valid Joint Venture Agreement (NPCSF-GOODS-05)
 - OR**
 - Notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA, if awarded the contract
- Certification from the relevant government office of their country stating that Filipinos are allowed to participate in their government procurement activities for the same item/product (For foreign bidders claiming eligibility by reason of their country's extension of reciprocal rights to Filipinos)

2. Technical Documents

- Bid Security, any one of the following:
 - Bid Securing Declaration (NPCSF-GOODS-06c)
 - OR**
 - Cash or Cashier's/Manager's check issued by a Universal or Commercial Bank – 2% of ABC;
 - OR**
 - Bank draft/guarantee or irrevocable letter of credit issued by a Universal or Commercial Bank: (NPCSF-GOODS-06a) - 2% of ABC;
 - OR**
 - Surety Bond callable upon demand issued by a reputable surety or insurance company (NPCSF-GOODS-06b) - 5% of ABC, with
 - Certification from the Insurance Commission as authorized company to issue surety
- Duly signed, completely filled-out and notarized Omnibus Sworn statement (Revised) (NPCSF-GOODS-07), complete with the following attachments:
 - For Sole Proprietorship:
 - Special Power of Attorney
 - For Partnership/Corporation/Cooperative/Joint Venture:
 - Document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable)
- Drawings & Documents to be submitted with the Bid, Sections M-1.0, M-2.0, Annexes A.1 to A.3 for Mechanical Works and Section E-1.0 for Electrical Works, Section VI – Part II Technical Data Sheets;
- Complete eligibility documents of the proposed subcontractor, if any

SECTION VIII – BIDDING FORMS

Standard Form No: NPCSF-GOODS-01

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

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

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 Contract/Purchase Order and any of the following: Certificate of Acceptance; or Certificate of Completion; or Official Receipt (O.R); or Sales Invoice for the contract stated above shall be submitted during Bid Opening.

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

Standard Form Number: NPCSF-GOODS-04

NET FINANCIAL CONTRACTING CAPACITY (NFCC)

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

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

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

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

NFCC = P _____

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

Submitted by:

Name of Supplier / Distributor / Manufacturer

Signature of Authorized Representative

Date : _____

Standard Form Number: NPCSF-GOODS-05

JOINT VENTURE AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

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

- and -

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

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

NAME OF PROJECT

CONTRACT AMOUNT

That the capital contribution of each member firm:

NAME OF FIRM	CAPITAL CONTRIBUTION
1.	P
2.	P

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

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

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

Name & Signature of Authorized Representative

Name & Signature of Authorized Representative

Official Designation

Official Designation

Name of Firm

Name of Firm

Witnesses

1. _____

2. _____

[Jurat]

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

SECTION VIII – BIDDING FORMS

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.

SECTION VIII – BIDDING FORMS

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

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

PRINCIPAL _____ SURETY _____

SIGNATURE(S) _____ SIGNATURES(S) _____

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

SEAL _____ SEAL _____

Standard Form No: NP-CSF-GOODS-06c

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

BID-SECURING DECLARATION
SUPPLY, DELIVERY, INSTALLATION, TEST AND COMMISSIONING OF 1X600 KW
STANDBY POWER (OPEN TYPE) DIESEL GENERATOR SET AND ASSOCIATED
ELECTRICAL EQUIPMENT FOR NPC HEAD OFFICE, LuzP22Z1381Se

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

I/We¹, the undersigned, declare that:

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

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

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

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

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

Standard Form No: NPCSF-GOODS-07

Omnibus Sworn Statement (Revised)

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

AFFIDAVIT

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

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

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

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

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

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

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

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

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

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

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

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

SECTION VIII – BIDDING FORMS

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

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

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

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

[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]

[Insert signatory's legal capacity]

Affiant

[Jurat]

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

Standard Form No: NPCSF-GOODS-08

BID LETTER

Date: _____

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

Gentlemen:

Having examined the Bidding Documents including Bid Bulletin Numbers *[insert numbers]*____, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to perform **SUPPLY, DELIVERY, INSTALLATION, TEST AND COMMISSIONING OF 1X600 KW STANDBY POWER (OPEN TYPE) DIESEL GENERATOR SET AND ASSOCIATED ELECTRICAL EQUIPMENT FOR NPC HEAD OFFICE (LuzP22Z1381Se)** in conformity with the said Bidding Documents for the sum of *[total Bid amount in words and figures]*_____ or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this Bid.

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

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

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

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

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

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

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

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

[name and signature of authorized signatory]

[in the capacity of]

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

Bank Guarantee Form for Advance Payment

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

[name of Contract]

Gentlemen and/or Ladies:

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

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

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

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

Yours truly,

Signature and seal of the Guarantors

[name of bank or financial institution]

[address]

[date]

CERTIFICATION AS A DOMESTIC BIDDER

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

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

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

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

Name

Position

Department of Trade & Industry

SECTION IX

BID DRAWINGS

BID DRAWINGS

MECHANICAL DRAWINGS

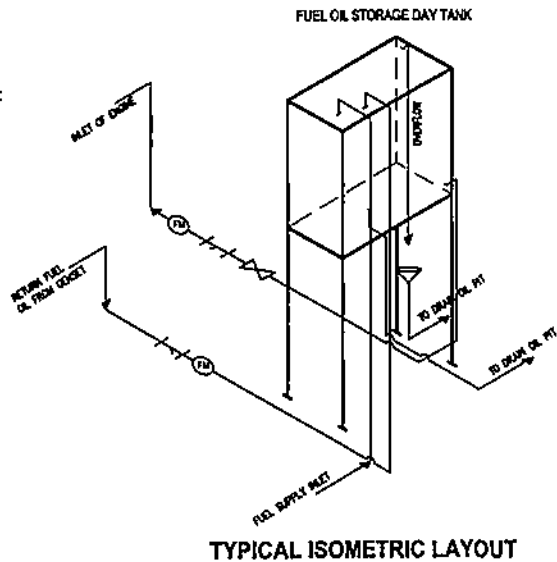
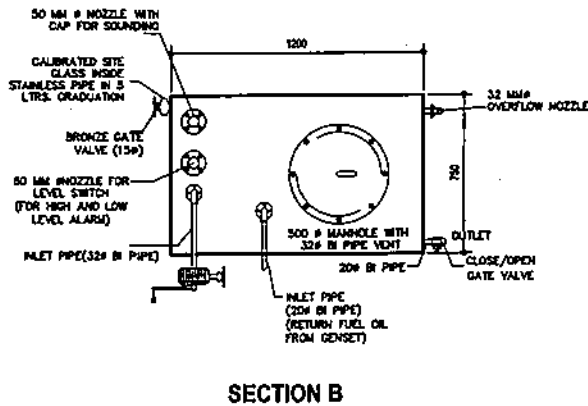
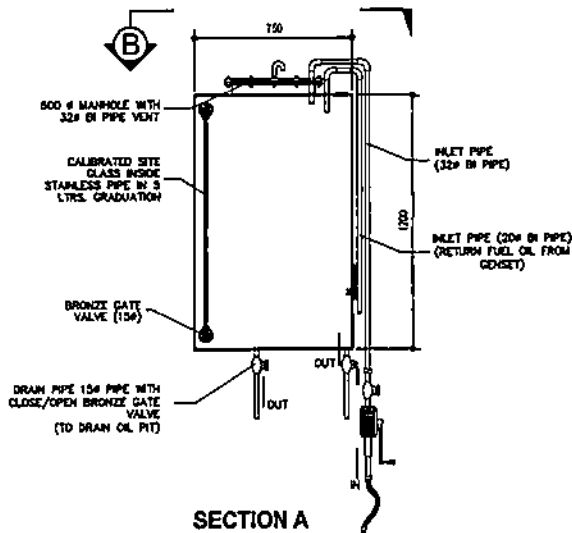
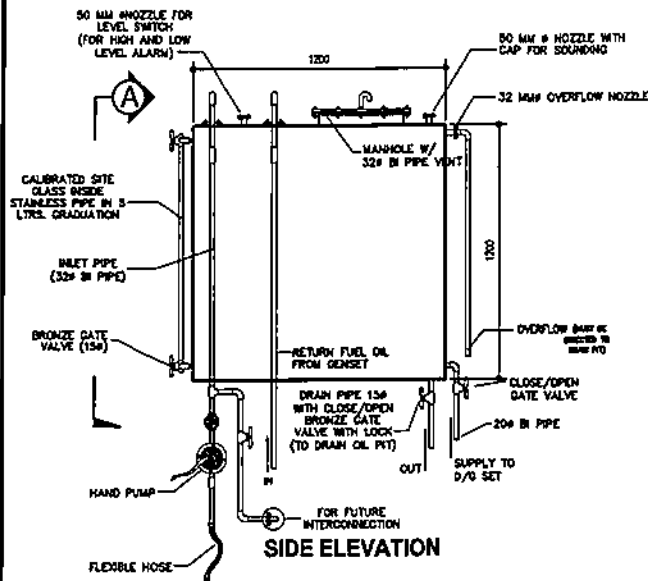


SECTION IX - BID DRAWINGS

MW - MECHANICAL DRAWINGS

DRAWING NO.	TITLE
HO-BDM-17.001	EQUIPMENT LAYOUT
HO-BDM-17.002	1000 L FUEL OIL DAY TANK & FUEL OIL TRANSFER (P&I DIAGRAM)



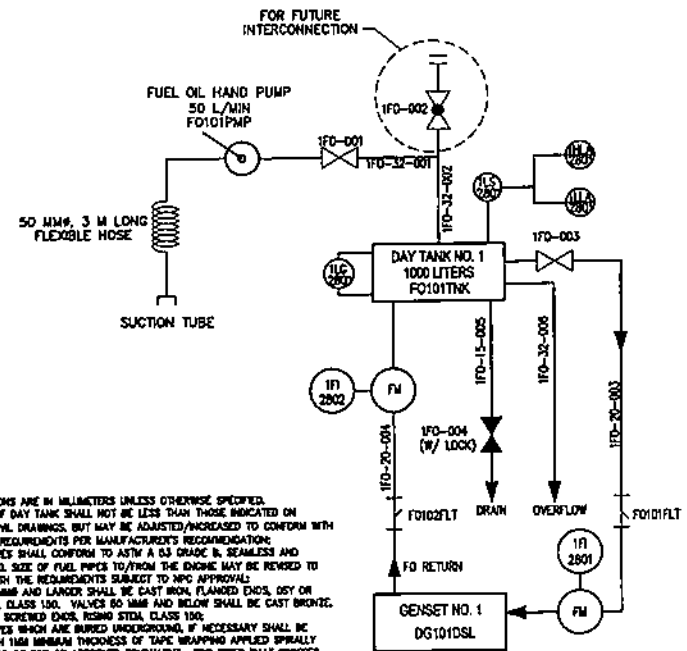


NOTES:

- THIS DRAWING IS FOR BIDDING PURPOSES ONLY;
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED;
- ELEVATION OF DAY TANK SHALL NOT BE LESS THAN THOSE INDICATED ON RELEVANT CIVIL DRAWINGS, BUT MAY BE ADJUSTED/INCREASED TO CONFORM WITH THE ENGINE REQUIREMENTS PER MANUFACTURER'S RECOMMENDATION;
- THE TANK SHALL BE SHOP-FABRICATED, RECTANGULAR MADE OF ASTM A 36 OR APPROVED EQUAL WITH MINIMUM THICKNESS OF 5 MM, WITH INTERIOR AND EXTERIOR COATING;
- EACH DIESEL GENERATING SET SHALL BE PROVIDED WITH FUEL DAY TANK; AND
- LEVEL SWITCH FOR HIGH AND LOW LEVEL ALARM SHALL BE PROVIDED AND TO BE MONITORED AT THE GENERATOR CONTROL & PROTECTION PANEL LOCATED AT THE CONTROL ROOM.

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED. ELEVATION OF DAY TANK SHALL NOT BE LESS THAN THOSE INDICATED ON RELEVANT CIVIL DRAWINGS, BUT MAY BE ADJUSTED/INCREASED TO CONFORM WITH THE ENGINE REQUIREMENTS PER MANUFACTURER'S RECOMMENDATION;
- FUEL OIL PIPES SHALL CONFORM TO ASTM A 53 GRADE B, SEAMLESS AND SCHEDULE 40. SIZE OF FUEL PIPE TO/FROM THE ENGINE MAY BE REVERSED TO CONFORM WITH THE REQUIREMENTS SUBJECT TO APC APPROVAL;
- VALVES 85 MM AND LARGER SHALL BE CAST IRON, FLANGED ENDS, OBT OR A530 STEEL, CLASS 150. VALVES 60 MM AND BELOW SHALL BE CAST BRONZE, FLANGED OR SCREWED ENDS, RISING STD, CLASS 100;
- FUEL OIL PIPES WHICH ARE BURIED UNDERGROUND, IF NECESSARY SHALL BE APPLIED WITH 12.5 MM MINIMUM THICKNESS OF TAPE WRAPPING APPLIED SPIRALLY WITH OVERLAP OF 50% OR APPROVED EQUIVALENT. FOR PIPES THAT CROSS ROADS, PIPE BUNDLE OF GALVANIZED STEEL MATERIAL OR RSC SHALL BE PROVIDED;
- LEVEL SWITCH FOR HIGH AND LOW LEVEL ALARM SHALL BE PROVIDED AND TO BE MONITORED AT THE GENERATOR CONTROL & PROTECTION PANEL LOCATED AT THE CONTROL ROOM;
- INDIVIDUAL FLOW METERS SHALL HAVE LCD DISPLAY CAPABLE OF MONITORING THE TOTAL/ACCUMULATED FLOW, RESETTABLE TOTAL FLOW AND INSTANTANEOUS FLOW RATE WITH MINIMUM 90 DEGREE STRAIGHT, HIGH ACCURACY AND HIGH REPEATABILITY, MADE OF ALUMINUM OR APPROVED EQUIVALENT WITH FLANGED ENDS, WITH INTERNAL BATTERY THAT CAN LAST UP TO AT LEAST 5 YEARS. THE FLOWMETER SHALL BE EQUIPPED WITH PULSE GENERATION OR 4-20MA CURRENT OUTPUT AND READY FOR INTERCONNECTIONS IN FUTURE TELEMETRY PROJECT;
- HAND PUMP SHALL HAVE CAPACITY OF NOT LESS THAN 50 LITERS PER MINUTE @ 50% DISCHARGE HEAD, DOUBLE ACTING ROTARY TYPE, HEAVY DUTY CAST IRON CONSTRUCTION WITH BRASS INTERNALS WITH EASY CLEAN WIRE SCREEN, EASY DISPENSING THROUGH SYNTHETIC RUBBER HOSE, WITH TELESCOPIC SUCTION TUBE, ADAPTED TO FIT 50MM DIAMETER TO 250 LITERS DRUM. THE SUPPLY SHALL INCLUDE RUBBER HOSE NOT LESS THAN 30MM DIAMETER AND 3 METERS LONG, REINFORCED WITH SPIRAL-PLUED SYNTHETIC FABRIC WITH WIRE HELD COMPLETE CONNECTION ACCESSORIES AT BOTH ENDS;
- FINAL DETAILS AND ADJUSTMENTS SHALL BE DONE IN THE FIELD BY THE SUPPLIER DURING INSTALLATION;
- THE SUPPLIER SHALL SUPPLY FLEXIBLE HOSE NOT LESS THAN 50 MM @ 3 METERS LONG FITTED WITH STEEL PIPE NOT LESS THAN 50 MM @ FOR HANDLING FUEL OIL FROM A 250 L DRUM AND FLANGE CONNECTION AT F.O. TRANSFER PUMP SUCTION. THE FLEXIBLE HOSE SHALL BE MADE OF SYNTHETIC RUBBER TUBE, REINFORCED WITH SPIRAL-PLUED SYNTHETIC FABRIC WITH WIRE HELDS, AND
- THE DIAGRAM SHOWN IS TYPICAL FOR EACH UNIT. THE TAG NO. SHOWN ARE FOR UNIT NO. 1. TAG NUMBERS OR SPIN FOR OTHER DIESEL GENSET UNITS SHALL BE THE SAME AS UNIT 1 EXCEPT FOR UNIT NUMBER. EX. D0101SL, D0201SL, 1YD-001, 2YD001.



LEGEND:

- ◇◇ GATE VALVE
- |— T-STRAINER
- FLOW METER
- REDUCER
- CHECK VALVE
- DIESEL TANK
- WATER TANK
- CONTROL PANEL
- DAY TANK
- TRANSFORMER PAD
- CATCH BASIN
- LEVEL GAUGE

OWNER		NATIONAL POWER CORPORATION AGHAM ROAD, DILIMAN, QUEZON CITY	
SUPPLIER, RELIABLE INSTALLATION, TEST AND COMMISSIONING OF WORK BY POWER POWER, DESIGN CONSULTANT SET AND APPROVED ELECTRICAL, EQUIPMENT FOR APC AGAM OFFICE			
APPROVED BY: [Signature]			
TITLE: 1000 L FUEL OIL DAY TANK & FUEL OIL TRANSFER (P&ID DIAGRAM)			
DESIGNED	BY	CHKD	DATE
REVISED	BY	CHKD	DATE
CHALKED	BY	CHKD	DATE
BLK	BY	CHKD	DATE
MECH	BY	CHKD	DATE
DRG NO.	HO-BDM-17.002	SPEC. NO.	L102P2221381S
SCALE	NTS	BID DRAWING	

BID DRAWINGS

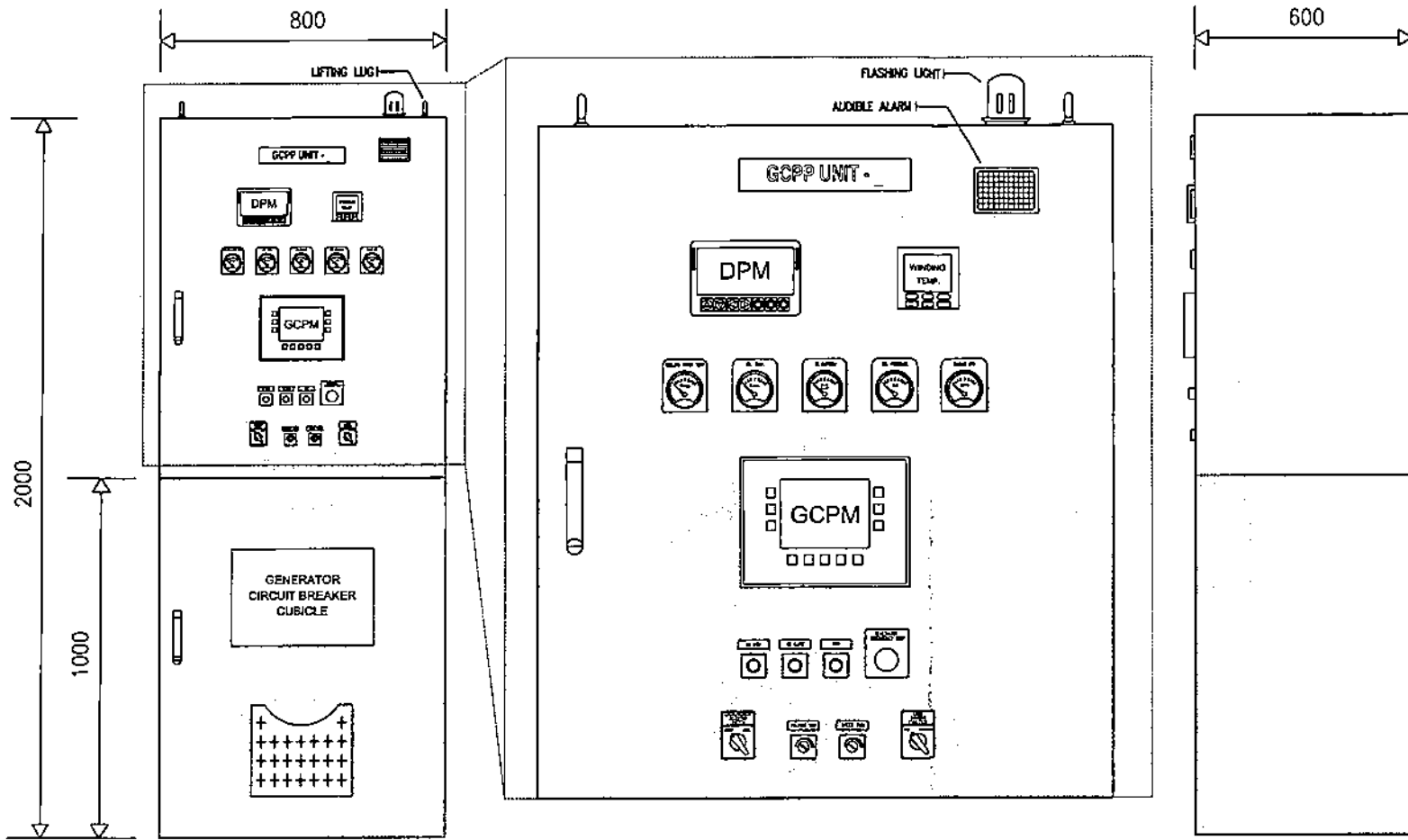
ELECTRICAL DRAWINGS



SECTION IX - BID DRAWINGS

EW - ELECTRICAL DRAWINGS

DRAWING NO.	TITLE
HO-BDE-17.001	SINGLE LINE DIAGRAM
HO-BDE-17.002	EQUIPMENT LAYOUT
HO-BDE-17.003	CONTROL AND MONITORING PANEL OUTLINE DRAWING
HO-BDE-17.004	GENERAL NOTES




NOTES:

- ALL DIMENSIONS INDICATED ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
- THE GENERATOR CONTROL AND PROTECTION PANEL (GCPP) ENCLOSURE SHALL BE COLORED RAL 7032 AND ITS STEEL SHEET THICKNESS SHALL BE AT LEAST 2.0 mm.
- THE GCPP SHALL BE EQUIPPED WITH FOLLOWING MINIMUM REQUIREMENTS:
 - CONTROL SYSTEM (ELECTRONIC CONTROL MODULE)
 - PROTECTION SYSTEM (THE PROTECTION RELAYS SHOWN ON THE SINGLE LINE DIAGRAM ARE THE MINIMUM REQUIRED PROTECTION)
 - LOCAL/REMOTE SELECTOR SWITCH
 - LOAD SHARING SELECTOR SWITCH FOR BASE AND REGULATING LOAD FUNCTION OF THE DG SET
 - MONITORING AND METERING SYSTEM (SHALL INCLUDE DIGITAL POWER METER, WINDING TEMP. MONITORING, DISCRETE ANALOG METERING DEVICES/INDICATING INSTRUMENTS FOR ENGINE PARAMETERS, AND ALARM SYSTEM WHICH SHALL DISTINGUISH ANY ABNORMAL CONDITIONS DURING OPERATION BY MEANS OF VISUAL AND AUDIBLE WARNING)
- THE SUPPLIER SHALL PROVIDE BROCHURES/ CATALOGUES OF THE GCPP COMPONENTS FOR METERING, PROTECTION, CONTROL, MONITORING AND SYNCHRONIZATION PURPOSES FOR APPROVAL OF NPC.
- THE GCPP SHALL BE DESIGNED NOT TO EXCEED THE DIMENSIONS SHOWN TO FIT INTO NPC'S EXISTING CONTROL ROOM.
- THE SUPPLIER SHALL PROVIDE ALL THE NECESSARY SOFTWARE FOR ALL THE CONTROL PANEL MODULES. ALL LICENSES AND UPDATES SHALL BE PROVIDED FOR THE NEXT FIVE YEARS AFTER THE WARRANTY PERIOD AT NO ADDITIONAL COST TO NPC.
- THE CABLE ENTRY OF THE GCPP SHALL BE REFERRED TO THE TECHNICAL DATA SHEETS.

LEGEND:


- GCPM - GENERATOR CONTROL AND PROTECTION MODULE
- DPM - DIGITAL POWER METER

OWNER:		 NATIONAL POWER CORPORATION AGHAM ROAD, DILIMAN, QUEZON CITY	
PROJECT: SUPPLY, DELIVERY, INSTALLATION, TEST AND COMMISSIONING OF GEN SET (STANDBY POWER) DIESEL GENERATOR SET AND ASSOCIATED ELECTRICAL EQUIPMENT FOR NPC HEAD OFFICE			
LOCATION: NPC HEAD OFFICE BUILDING, DILIMAN, QUEZON CITY			
TITLE: CONTROL AND MONITORING PANEL OUTLINE DRAWING			
DESIGNED	BY	CHKD	DATE
DRAWN	NIC		
REVIEWED	PRINCIPAL ENGR. / ARCHT.	RECOMMENDED	
CIVIL/ARCHT			
ELEC		APPROVED:	
MECH			
DWG. NO. HO-BDE-17.003		SPECS NO. LuzP22Z1381So	
SCALE: NTS		BID DRAWING	
REV. DATE		NATURE OF REVISION	
BY	CHKD	RECD	APPR.

SUBMITTED: *B. M. AGUILA*
 RECOMMENDED: *C. Z. C. LUGOD, JR.*
 APPROVED: *N. B. SOMOSIERRA*
 Manager, DOD 4/12

GENERAL NOTES:

1. THE GENERATOR BEARINGS SHALL BE DESIGNED TO ALLOW MINIMAL STRESS INDUCED IN THE SHAFT. GENERATORS RATED 500KW AND BELOW SHALL HAVE A SINGLE OR DOUBLE BEARING DESIGN. HOWEVER, GENERATORS RATED ABOVE 500KW SHALL ADOPT A DOUBLE BEARING DESIGN.
2. SPACE HEATERS SHALL BE INSTALLED ON THE GENERATOR FRAME TO MAINTAIN TEMPERATURE OF THE ENTIRE GENERATOR ABOVE THE DEW POINT WHILE NOT IN USE. POWER SUPPLY SHALL BE 120/240VAC SINGLE PHASE AND SHALL BE SOURCED FROM THE EXISTING STATION SERVICE TRANSFORMER. AUTOMATIC CONTROL FOR SPACE HEATERS SHALL BE INTEGRATED IN THE GENERATOR CONTROL AND PROTECTION PANEL (GCPP).
3. TEMPERATURE DETECTORS SHALL BE PROVIDED IN THE STATOR SLOTS AND AT THE END OF THE VENTILATING DUCTS ARRANGED TO RECEIVE HEAT FROM THE HOTTEST SPOT OF THE WINDINGS WITH APPROPRIATE CONTACTS FOR MONITORING, ALARM, DETECTION AND PROTECTION OF THE WINDINGS PROVIDED AT THE GCPP. AT CERTAIN PRE-SET TEMPERATURE (ALARM SETTING), THE TEMPERATURE DETECTOR WILL TRIGGER AN ALARM SO THAT AN ADJUSTMENT OR ACTION BEFORE ANY INSULATION DAMAGE OCCURS MAY BE DONE. THE CIRCUIT BREAKER FOR THE ALTERNATOR WILL AUTOMATICALLY TRIP IN THE EVENT THAT THE TEMPERATURE DETECTORS MEASURE THE WINDING TEMPERATURE TO BE ABOVE THE (SHUTDOWN SETTING) VALUE
4. ALL WORKS TO BE DONE AND EQUIPMENT TO BE SUPPLIED SHALL BE IN COMPLIANT TO THE LATEST PROVISIONS OF THE FOLLOWING STANDARDS:
 - a. NEMA - NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
 - MG 1 - STANDARD FOR MOTORS AND GENERATORS
 - WC-5 - THERMOPLASTIC-INSULATED WIRE AND CABLE FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICAL ENERGY
 - AB 1 - MOLDED CASE CIRCUIT BREAKER
 - ICS2 - INDUSTRIAL CONTROLS AND SYSTEMS: CONTROLLERS, CONTACTORS AND OVERLOAD RELAYS RATED 600VOLTS
 - ICS - GENERAL STANDARDS FOR INDUSTRIAL CONTROL AND SYSTEMS
 - MG-1 - MOTORS AND GENERATORS
 - MG-2 - SAFETY STANDARD FOR CONSTRUCTION & GUIDE FOR SELECTION, INSTALLATION AND USE OF ELECTRIC MOTORS AND GENERATORS
 - b. UL - UNDERWRITERS LABORATORIES, INC. (ALL PARTS APPLY)
 - 44 - RUBBER-INSULATED WIRES AND CABLES
 - 83 - THERMOPLASTIC INSULATED WIRES AND CABLES
 - 508A - INDUSTRIAL CONTROL EQUIPMENT
 - 1063 - MACHINE TOOL WIRE (MTW) FOR STRANDED CONDUCTOR ONLY
 - c. IEC - INTERNATIONAL ELECTRO-TECHNICAL COMMISSION
 - 60255 - ELECTRICAL RELAYS
 - 60044 - INSTRUMENT TRANSFORMER
 - 60071 - INSULATION COORDINATION
 - 60502 - POWER CABLES WITH EXTRUDED INSULATION AND THEIR ACCESSORIES FOR RATED VOLTAGES PARTS 1 & 2
 - d. NFPA - NATIONAL FIRE PROTECTION ASSOCIATION
 - 272 - STANDARD METHOD OF TEST FOR FIRE AND SMOKE CHARACTERISTICS OF WIRES AND CABLES
 - e. ASTM - AMERICAN SOCIETY FOR TESTING AND MATERIALS
 - f. ISO - INTERNATIONAL STANDARDS ORGANIZATION
 - 9001 - QUALITY SYSTEM MODEL FOR QUALITY ASSURANCE IN DESIGN/DEVELOPMENT, MANUFACTURE AND TESTING
 - 9002 - QUALITY SYSTEM MODEL FOR QUALITY ASSURANCE IN PRODUCTION, INSTALLATION & SERVICING
 - g. PEC - PHILIPPINE ELECTRICAL CODE
5. THE SUPPLIER'S EQUIPMENT TO BE SUPPLIED SHALL BE SUBJECT TO ALL TESTS AND INSPECTION TO ENSURE THE SATISFACTORY PERFORMANCE OF ALL THE EQUIPMENT. ALL THE TESTS AND INSPECTION SHALL BE DONE WITH NO ADDITIONAL COST TO NPC AND SHALL BE COMPLIANT TO THE REQUIREMENTS OF THE APPLICABLE IEC AND/OR ANSI STANDARD.
6. NON-COMPLIANCE TO THE REQUIREMENTS STATED IN THIS TENDER SHALL BE GROUNDS FOR DISQUALIFICATION.

 NATIONAL POWER CORPORATION AGHAM ROAD, DILIMAN, QUEZON CITY																																																	
PROJECT: SUPPLY, DELIVERY, INSTALLATION, TEST AND COMMISSIONING OF 11AN LOW VOLTAGE POWERED DIESEL GENERATOR SET AND ASSOCIATED ELECTRICAL EQUIPMENT FOR NPC HEAD OFFICE																																																	
LOCATION: NPC HEAD OFFICE BUILDING, DILIMAN, QUEZON CITY																																																	
TITLE: GENERAL NOTES																																																	
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REV	DATE	NATURE OF REVISION	BY	CHKD	RECD	APPL