



Republic of the Philippines

DEPARTMENT OF SCIENCE AND TECHNOLOGY

**Philippine Atmospheric, Geophysical and Astronomical Services
Administration (PAGASA)**

TERMS OF REFERENCE

for the

SUPPLY, DELIVERY, INSTALLATION, TESTING AND COMMISSIONING OF 2MVA, 3 PHASE, 60HZ, DELTA-WYE COMPARTMENTALIZED PAD MOUNTED TRANSFORMER, FIRST PRIVATE POLE (FPP), AND PRIMARY HARDWARE FROM FPP TO TRANSFORMER.

I. OVERVIEW

PAGASA is embarking to establish a Data Center at the PAGASA WFFC Compound, Agham road, Diliman, Quezon City. The Data Center will house a high speed supercomputer that will operate and run weather and climate models. It will provide many benefits to our forecasters who are regularly developing of formulating weather and flood forecast for dissemination to the public. It will greatly improve the accuracy of our forecasts. This project is part of the program that would satisfy one of our strategic objectives to be able to deliver reliable and relevant weather related information and services.

Due to the voluminous amount of data and the high speed at which these are being process the system including the cooling system would require a large amount of power. To satisfy the requirements, a 2MVA Compartmentalized Pad mounted transformer. 3 Phase, 400 VAC shall be installed to satisfy the amount of power requirements. The said transformer shall be tapped to the established MERALCO primary lines inside the PAGASA Compound.

II. APPROVED BUDGET FOR THE CONTRACT (ABC)

The approved budget for the project amounts to **Eight Million and Seven Hundred Thousand Pesos (Php 8,700,000.00)** inclusive of VAT and all applicable government taxes.

III. QUALIFICATIONS OF THE BIDDERS.

(Please refer to Section II. Instructions to Bidders, the Bid Data Sheet and Checklist of Eligibility and Technical Requirements of the Bidding Documents)

In addition, thereto, all bidders:

1. Must have at least five (5) years of experience in the installation of 2MVA, 3 Phase, 400/230V secondary or higher rating of a compartmentalized pad mounted transformer and 50ft First Private Pole (FPP). Bidders should submit proof of completed/awarded contracts of similar scope.

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Metro Manila, Philippines 1100
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2. Must have a Single Largest Completed Contract (SLCC) similar to the project. For this purpose, contracts similar to the project shall mean “electrical construction works related to powerhouse/substations and/or electric feeders/distribution lines” and completed within the last five (5) years.
3. Must have a valid Philippine Contractors Accreditation Board (PCAB) license specialized in electrical works.
4. Must have a list of qualified technical personnel with valid PRC license who will be committed to the project.
 - Civil Engineer
 - Electrical Engineer
 - Project Engineer
5. Must have an authorized safety officer to oversee the implementation of the project. The assigned safety officer must be a member of safety organization of the Philippines.
6. Must submit proof of ISO 9001:2015 certification.

IV. DELIVERY PERIOD AND PLACE OF DELIVERY

The winning bidder shall supply, deliver, install, test, and commission the 2MVA, 3 phase, 60hz, delta-wye compartmentalized pad mounted transformer, first private pole (FPP), and primary hardware from FPP to transformer at PAGASA WFFC Compound, Agham Road, Diliman, Quezon City within the period of four (4) months/120 calendar days, commencing from the date of issuance of the Notice to Proceed.

V. BID PROPOSAL CONTENTS

All bidders shall include in their submissions the following:

- a. Engineering Plans of the whole system and other accessories in a standard engineering format with complete sets of brochures.
- b. Detailed cost breakdown for the whole project.
- c. Certification from the manufacturer that the transformer to be supplied is brand new.
- d. Certificate that it has 24x7 technical support capabilities.
- e. Certificate from manufacturer that they are capable of rendering after sales support in the next five (5) years.

All bidders shall clearly indicate in their bid offer the specifications of the compartmentalized pad mounted transformer, First Private Pole (FPP) and primary hardware from FPP to transformer referred in items, VI. TECHNICAL SPECIFICATIONS.

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These details will allow the **PAGASA-Bids and Awards Committee** to fully evaluate and determine compliance and responsiveness by the prospective bidders to each specific bidding requirement.

VI. TECHNICAL SPECIFICATIONS

1.1 2000kVA Compartmentalized pad mounted transformer

Phase: 3 Phase
Frequency: 60Hz
Vector Group: delta-wye
Primary Voltage /BIL: 34.5Kv
Secondary Voltage: 400/230Vac
Conductor: Copper
Regulation Range on HV: 34.5kV +2 / -2 @2.5%
Vector Group: Dyn11
Impedance Voltage: 4 or >
Sound Level: 60dB
Max Ambient Temperature: 40 deg C
Temperature rise of top oil: 60 deg C
Temperature rise of windings: 65 deg C
Type of cooling : Oil Natural Air Natural (ONAN)
Type of oil : Mineral Oil
Core : Silicon Steel

1.2 First Private Pole (FPP) including the following:

- a. Concrete Pole, 50ft, Class 3A
- b. Load Break Switch o Outdoor Distribution, 600A, 36kV, Rated 630A
- c. Power Fuse Assembly 36kV
- d. Distribution Lighting Arrester, 27kV w/ mounting bracket
- e. Accessories

1.3 Primary Hardware from FPP to Transformer

- a. #1/0 XLPE cable (Metering pole to FPP)
- b. #1/0 Tree wire cable (Metering pole to FPP)
- c. #1/0 bare copper (static wire)
- d. #1/0 ACSR cable (neutral wire)
- e. Accessories

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VII. SCOPE OF WORK

- Supply, delivery, installation, testing and commissioning of 2MVA, Compartmentalized Pad Mounted transformer including the following :
 1. First Private Pole (FPP), Concrete Pole, 50ft, Class 3A
 2. Load Break Switch o Outdoor Distribution, 600A, 36kV, Rated 630A.
 3. Power Fuse Assembly 36kV
 4. Distribution Lighting Arrester, 27kV w/ mounting bracket.
 5. Primary Hardware from FPP to Transformer
 6. #1/0 XLPE cable (Metering pole to FPP)
 7. #1/0 Tree wire cable (Metering pole to FPP)
 8. #1/0 bare copper (static wire)
 9. #1/0 ACSR cable (neutral wire)
 10. Accessories
- Construction of concrete pedestal, 4runs, height 6m, including the excavation, gravel bedding, rebars and mandrel works, Supply and installation of UPVC Duct, UPVC elbow, End bell Form works, Concrete backfill/Compaction.
- Construction of concrete encasement, 4 runs, 100mm diameter, including the excavation, gravel bedding, rebars and mandrel works, Supply and installation of UPVC elbow, Concrete Spacer, End bell, UPVC Form works, Concrete backfill/Compaction.
- Assist in the application of MERALCO connection and energization.
- All electrical and civil works shall comply with the MERALCO standards

VIII. FACTORY TESTING

The following test shall be performed prior to delivery of the transformer

- a. Insulation resistance Test
- b. Polarization Index Test
- c. Winding Resistance Test
- d. Transformer Turns Ratio Test
- e. Insulation Power Factor Test
- f. Dielectric Breakdown Voltage test
- g. Open and Short circuit Test

Note: All testing shall be done in the presence of PAGASA technical representative/s.

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IX. WARRANTY AND MAINTENANCE

The winning bidder shall provide a two (2) year warranty period against all defects and workmanship reckoned and five (5) years of maintenance from the date of project acceptance. Labor and materials including transportation cost shall be provided at no cost to PAGASA during the warranty period. The contractor shall readily respond to the owner's notification or request for service within 24 hours.