

Transnet National Ports Authority

Port of Port Elizabeth

Engineering Department - Conduct Assessment on the Electrical Infrastructure Network in the Port of Port Elizabeth for a once off period

Transnet SOC Ltd

Registration Number

1990/000900/30

TNPA Port of PE

TNPA Admin Building

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Port of Port Elizabeth
INFRASTRUCTURE DEPARTMENT

Specification and bill of quantities for:

1. Electrical Network Study in Port of Port Elizabeth

1.1 Background and Purpose

Transnet National Ports Authority (TNPA), as the landlord in the Port of Port Elizabeth, is responsible for the electrical infrastructure in the port. The electrical infrastructure includes medium voltage (MV) and Low Voltage (LV) distribution equipment. The electrical network comprises 22kV, 11kV and 6.6kV. A site visit is recommended.



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1.2 Scope of work

The scope of work includes but is not limited to: (Readings should be taken for at least 3 months)

1.2.1. Data capture

Capture all relevant Network data of the 22kV, 11kV, 6.6kV and 0.4kV for inclusion in the network model and subsequent protection coordination study.

1.2.2. Visual inspection

Conduct a visual inspection to note all the relevant information that will be relevant for replacing the existing infrastructure. This will also ensure that the infrastructure is alignment with the recent South African National Standard (SANS).

1.2.3. Load measurements

Conduct load measurement of all Substations. Foreseen future expansion and load increase must be included in the study.

1.2.4. Network studies

Load flow, network capacity study, voltage regulation and fault level studies for the 22kV, 11kV, 6.6kV and 0.4Kv distribution networks. The results will be used to evaluate the MV and LV distribution network and the specification of new equipment. Included in this evaluation of the existing Power Factor Correction (PFC) equipment and a recommendation on the possible increase as may be required. Demand analysis is to be conducted as well.

1.2.5. Evaluate network configuration.

Evaluate the network operation configuration with reference to loading protection and fault levels and propose improvements. This should also ensure that the transformers are still sufficient.

1.2.6. Quality of Supply (QOS) metering

Report on the options for installing Quality of Supply Metering.

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1.2.7. Report

Submit a detailed assessment report which includes:

- Network study with all relevant data, i.e., protection coordination study, load flow and fault level studies, voltage regulation, network capacity
- Findings and recommendations related to the network study results, network configuration and network configuration, and switchgear refurbishment, including Bill of Quantities (BOQ) for such refurbishment. The BOQ should include the installation of Supervisory control and data acquisition (SCADA) for all the substations.
- Visual inspection findings, including pictures and recommendations to adhere to recent Standards.
- The report must be approved by a professional Electrical Engineer Registered with the Engineering Council of South Africa (ECSA).

The condition assessment and network study will be carried out for the following substations within the Port of Port Elizabeth:

- Charl Malan Quay Mini-Sub
- FPT (citrus) Sub
- Green Street Sub
- Main Intake Sub
- Main no.1 Quay Sub
- No. 2 Quay Mini-Sub No. 1
- No. 2 Quay Mini-Sub No. 2
- No. 3 Quay Mini-Sub
- No.1 Quay Mini-Sub
- Oil Sites Sub
- Ore Berth West Sub
- Port Admin Sub
- Rial Sub
- Russel Paterson Quay Mini-Sub
- Soldiers Road Mini-Sub No. 5

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- Soldiers Road Mini-Sub No. 6
- Soldiers Road Mini-Sub No. 7
- Workshop 17 Sub

1.3 Location of site and access

The electrical infrastructure is all located within the Port of Port Elizabeth. Access to the site will be granted by the electrical supervisor and arrangements need to be made when an assessment needs to be conducted.

1.4 Working hours

- The working hours shall be from 08h00 to 16h00, Monday to Friday.
- The service provider must not vary the working hours without a written instruction from the project manager.

1.5 Compliance

1.6.1. The Contractor must ensure that all the current statutory laws and future legislation that may be passed pertaining to the storage, handling, removal, transportation, and disposal of waste are/will be complied with and undertakes that the procedures for undertaking this work shall comply with all applicable legislation, codes of practice, local, regional, provincial, national authorities' requirements including but not limited to:

- SANS 10142-1 & 10142-2
- The Hazardous Substances Act (1973)
- The Occupational Health and Safety Act (1993)
- Environmental Conservation Act (1989)
- National Environmental Management Act (1998)
- National Environmental Management Waste Act (2008)
- The National Road Traffic Act (1996)
- Any other relevant legislation

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- 1.6.2. The contractor shall comply with the Port of Port Elizabeth's safety, health and environmental (SHE) regulations and requirements.
- 1.6.3. The service provider shall comply with Compensation for Occupational Injuries and Diseases Act, No 130 of 1993; The Service Provider shall produce proof of his registration and good standing with the Compensation Commissioner in terms of the Act. (To be included in the Safety File)
- 1.6.4. The contractor shall submit a SHE file for approval as required by the TNPA Port of Port Elizabeth SHE department before the commencement of any work.

1.7. Parking and Vehicles

- 1.7.1. Parking will be at any open parking space and will be done via reverse parking as per the port rules. Vehicles transporting workers and goods should be easily identifiable and drivers should adhere to the road signs within the port.
- 1.7.2. Parking is at own risk and TNPA shall not be held liable for any damages that occur during this time.

1.8. General Pricing Instructions

Pricing criteria adhering to assumptions set out below, read together with all parts of this specifications document, which it will be assumed in the contract that the tenderer has considered when developing their rates and prices.

Tenderers are advised that the Bill of Quantities (BoQ) is a "provisional bill" subject to re-measurement as the work proceeds. The initial quantities set out in the bill of quantities are approximate and do not necessarily represent the actual amount of work to be done and shall be re-measured and paid for based upon the actual final quantity of work done and certified for payment by the Supervisor in terms of the Contract and as described in the pricing assumptions.

1.9. Personnel And Company Requirements

1.9.1. Qualification

- Pr Eng Electrical engineer

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- Electrical engineer
- Technician

1.9.2. Company

- The service provider must have indicated relevant experience in network study.

1.10. Technical Requirements

The Technical Evaluations include the following aspects:

- Bidder must provide a number of Projects of Similar Scope of work, including sufficient proof of the experience.
- Bidder must provide a track record of the organization with respect to Network study.
- Bidder must provide a detailed plan on how to execute the network study per substation adhering to SANS and OHS Act.
- Bidder to provide a list of load loggers, power meters, and the software that they will use.
- Bidder must provide a list of all staff to work and state experience level, accreditations, and certification with regards to network study.
- Key staff should include an Electrical Engineer registered with ECSA and the certificate must be attached.

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