

	<p align="center"><b>Specification</b></p>	<p align="center"><b>Generation Medupi Power Station</b></p>
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**Title: Electrical Maintenance Department  
User Requirement Specification for  
Calibration of Testing Equipment**

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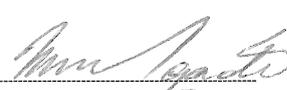
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Compiled by	Supported by	Functional Responsibility	Authorized by
			
<p><b>Cathrine Mathiyana</b> Senior Technician Electrical</p>	<p><b>S Khanyile</b> Senior Advisor Technical support</p>	<p><b>Portia Lutumbu</b> Manager Electrical Maintenance</p>	<p><b>Mbongeni Mqadi</b> Middle Manager Execution</p>
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## **1.Introduction**

The testing equipment mentioned in this scope are used to perform electrical tests in Medupi power station. It is imperative that the equipment be calibrated and serviced by accredited service providers at the right frequency. This is to ensure the accuracy of the equipment as per the ISO 9001 standard. Medupi Power Station Electrical Maintenance Testing Equipment Calibrations shall be outsourced to a suitably qualified, experienced and well established service provider.

## **2.Supporting Clauses**

### **2.1 Scope**

This document covers the detailed Scope of Work necessary for the test equipment calibration at Medupi Power Station for electrical maintenance department.

#### **2.1.1 Purpose**

The purpose of this document is to define a Scope of Work based on which a service contract will be established between Eskom Medupi Power Station and the accredited Service Provider.

#### **2.1.2 Applicability**

This document shall be applicable to Medupi Power Station Electrical Maintenance Department.

#### **2.1.3 Effective date**

The Scope of Work will be effective from the date it is authorized and documented at the Document Management Centre.

## **2.2 Normative/Informative References**

Parties using this document shall apply the most recent revision of the documents listed in the following paragraphs.

### **2.2.1 Normative**

1. 240-163346844 Medupi Power Station Calibration of Electrical Maintenance Testing Equipment Procedure

### **2.2.2 Informative**

2. ISO 9001 Quality Management Systems
3. ISO/IEC 17025:2008 General requirements for the competence of testing and calibration laboratories.
4. SANS 10378:2012 General requirements for the competence of verification laboratories.

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### 2.3 Definitions

Terms	Explanation
Accuracy	The degree of correctness with which the result of a measurement represents the true value of a quantity usually expressed in terms of error.
Calibration	A comparison between a process calibration equipment item and a measuring standard of higher accuracy to detect, correlate, adjust and document the accuracy of the item being compared
Contractor	Service Provider or legal entity contracted to provides any service/s to Eskom for compensation
ISO 17025	An International Standard (published by the International Organization for Standardization) that specifies the general requirements for the competence to carry out tests and/or calibrations
Tender	An offer to do or perform an act which the party offering is bound to perform for the party to whom the offer is made.
Testing Equipment	Equipment required to perform a test.

### 2.4 Abbreviations

Abbreviation	Explanation
DC	Direct Current
HV	High Voltage
IEC	International Electro technical Commission
ISO	International Standard Organisation
OEM	Original Equipment Manufacture
SABS	South African Bureau Standards
SANAS	South Africa National Accreditation System
SANS	South African National Standard
SAP	Systems, Applications, Product
Snr	Senior
SOW	Scope of Work

### 2.5 Roles and Responsibilities

Roles	Responsibilities
<b>Electrical Maintenance</b>	To provide adequate descriptions and quantities for the planning and procurement of business needs within the sphere of responsibility in Electrical Maintenance.
	To provide quick response to any request for clarification or through the relevant procurement department.

### 2.6 Process for Monitoring

Regular reviews and Audit shall be conducted to ensure compliance to the content of this document. The SAP Plant Maintenance Management System shall be used to track or assess the Calibration of Equipment.

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## **2.7 Related/Supporting Documents**

None

## **3 Document Content**

### **3.1 Requirements**

#### **3.1.1 Adherence to Eskom General Policies & Standards**

The employees of the service provider shall comply with Eskom's policies and regulations.

#### **3.1.2 Quality Standard**

The contractor shall provide a complete Quality Assurance plan in accordance with the requirements of ISO 9001: 2008 to the Employer for approval. This plan must ensure an integrated quality service as part of the contract. Execution of all quality related activities, including inspection and test plans compilation and execution, stores material quality inspections and all quality related record keeping is part of the contractor's scope of work.

#### **3.1.3 International Standard (ISO/IEC)**

The service provider shall be accredited in accordance to with the requirements of the ISO 17025: 2005 standard.

#### **3.1.4 South African National Accreditation System Standard (SANAS)**

The service provider shall be accredited in accordance with the requirements of the SANAS regulatory standards.

##### **3.1.4.1 Calibration Environment/Laboratory**

- a) The service provider's calibration laboratory shall be accredited in accordance to with the requirements of the ISO 17025:2005 standard, SANAS regulatory documentation.
- b) The service provider shall perform all test equipment checks/ calibrations within a calibration environment/ laboratory in accordance to with the requirements of the ISO 17025:2005 standard and SANAS regulatory documentation.

##### **3.1.4.2 Calibration Test Equipment**

The service provider shall only make use of approved test equipment for calibrations which has been accredited in accordance to with the requirements of the SANAS standards and which is of higher accuracy than the equipment to be calibrated.

##### **3.1.4.3 Calibration Procedures**

- a) The service provider shall only use approved calibration procedures which has been accredited in accordance to with the requirements of the SANAS standards.

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- b) The service provider shall supply Medupi Power Station with the approved calibration procedures used for testing equipment calibrations.
- c) The service provider shall notify Medupi Power Station of any revision changes of these approved calibration procedures and supply the latest revision.

#### **3.1.4.4 Calibration Certificates**

- 4 The service provider shall only use and supply approved calibration certificates in accordance to with the requirements of SANAS standards for each test equipment calibration.
- 5 The service provider shall only provide SANAS accredited calibration certificates for each calibration done on test equipment.
- 6 The calibration certificates shall carry the logo of SANAS accreditation.
- 7 The calibration certificates shall be recorded in writing and carry the initials, surname and signature of the person conducting the test calibration and the date calibration.
- 8 The calibration certificates shall record the “as found” and “as left” values, including the error and error tolerance of the test equipment.
- 9 Test equipment which operates outside the acceptable error tolerances shall be recorded in the calibration certificate.

#### **3.1.4.5 Calibration Labels**

- a) The service provider shall after each calibration apply a calibration label to the test equipment with the words: “Due for calibration...” and a date which will indicate to the user when the test equipment must be returned to the calibration facility for re-calibration.
- b) The calibration labels shall be off a printed format and carry the calibration certificate reference number, signature of the person conducting the test calibration and the date of calibration.

#### **3.1.4.6 Sealing Devices**

The service provider shall after each calibration apply a sealing device to each test equipment which provide an indication of unauthorised interference or adjustments. The sealing device applied shall be for the approval of the employer. If the sealing device is broken the test equipment shall be regarded as faulty, withdrawn from the service and returned to the calibration facility for re-calibration.

#### **3.1.4.7 Calibration Reports and Records**

- a) The service provider shall provide Medupi Power Station Electrical Maintenance Department with detailed reports of each test equipment calibration performance and including the environmental conditions of the calibration.
- b) The service provider shall keep detailed records (reports and certificates) in a database of each test equipment calibration for future reference in the event of loss of original reports and certificates.

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#### **3.1.4.8 a. Calibration Turnaround Times**

The service provider shall commit towards a specified turnaround time schedule indicating, the calibration, verification or repairs on all test equipment within a specified timeframe as agreed upon between the Medupi Power Station Electrical Maintenance Department and the service provider.

#### **3.1.5 Defective Testing Equipment**

Testing equipment which have been found defective or operates outside the acceptable error tolerance ranges shall be identified, marked as defective and returned to Medupi Power Station Electrical Maintenance Department for disposal of such test equipment.

### **3.2 Manpower**

#### **3.2.1 Competent Personnel ( indicate the number of technicians)**

- a) The service provider shall make use of competent laboratory personnel which has been accredited in accordance to with the requirements of the SANAS standard to perform calibrations on the test equipment.
- b) The competent laboratory personnel shall be fully trained and authorised to provide the calibration service as stipulated in the scope of work.
- c) The service provider shall supply Medupi Power Station with valid documentation as proof regarding the competency of their laboratory personnel.

### **3.3 Site Facilities and Service provided by the service provider**

#### **3.3.1 Offsite Site Calibrations**

The service provider shall be required to make use of an approved calibration laboratory which has been accredited in accordance to with the requirements of SANAS regulatory standards.

#### **3.3.2 Handling of Testing Calibration Equipment**

- a) The service provider shall handle testing equipment by carrying it in the supplied protective housing, holder, bag or container to protect it against internal and external damages caused by dropping, bumping, falling or breakages.
- b) The service provider shall report whenever damage occurs caused by dropping, bumping, falling or breakages of any testing equipment to Medupi Power Station.

#### **3.3.3 Storage of Testing Equipment**

- a) The service provider shall refer to the OEM instruction manual before any testing equipment is stored in a location/ area, if any equipment specific procedure is not available.
- b) The service provider shall ensure that the testing equipment is not being stacked flat on top of one another but separate to ensure that no damage are caused due to falling and overload.

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### **3.3.4 Transportation of Testing Equipment**

- a) The service provider shall transport testing equipment carefully with regard to their sensitivity, which should not be subjected to rough handling, vibration, humidity and abnormal temperatures or abuse.
- b) The service provider shall ensure that all testing equipment are securely packed and protected against damages from being bumped or dropped when transported to and from Medupi Power Station.
- c) The service provider shall make use of their own vehicle for the transportation of testing equipment from and to Medupi Power Station Site.
- d) The service provider shall ensure whenever transport couriers are used the company must be informed about the nature of the content of the packages and instructed to handle the packages with care. Labels must be attached to indicate the fragile nature of the items.

### **3.3.5 Contract Duration**

The duration of a contract is for a period of 5 years.

## **3.4 Scope of Work Information**

### **3.4.1 Electrical Testing Equipment**

- a) The service provider shall perform full functional and calibration tests on the following testing equipment in accordance with the requirements of the Original Equipment Manufacturer specifications.

#### **1. Instruments**

<b>Test Instrument</b>	<b>Quantity</b>	<b>Frequency</b>
3 Phase Rotation Detector	2	Yearly
PHEH 6.6 22 SN7197 767 721/S HV TESTER	2	Yearly
AC Current Clamp	4	Yearly
Fluke 1587 Insulation Multimeter	1	Yearly
Fluke Infrared Thermometer 62max+	2	Yearly
Fluke 177 True RMS Multimeter	2	Yearly
EMF-810 Microwave Leakage Detector	2	Yearly
Polarity/ELCB Testers	4	Yearly
Fluke 1587FC Insulation Multimeter	14	Yearly
Fluke 789 Multimeter	3	Yearly

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3 Phase industrial socket tester	3	Yearly
Megger MIT 525 5kv	2	Yearly
Megger MIT 525 15kv	1	Yearly
Torque Wrench	5	Yearly
Digital Vernier	2	Yearly
Fluke Thermal Imager	2	Yearly
Top Tronic TEL11 Digital Industrial ELCB Phase Rotation Tester	1	Yearly
Fluke 435 Power Quality And Energy Analyser	2	Yearly
Cable fault locator	1	Yearly

#### **4. Acceptance**

This document has been seen and accepted by:

<b>Name</b>	<b>Designation</b>
Portia Lutumbu	Electrical Maintenance Manager
Mbongeni Mqadi	Middle Manager Maintenance
Sibonelo Khanyile	Senior Advisor Technical Support
Thabo Lamola	Senior Technician Compliance

#### **5. Revisions**

<b>Date</b>	<b>Rev.</b>	<b>Compiler</b>	<b>Remarks</b>
June 2022	1	SC Mathiyana	Original document

#### **6. Development Team**

The following people were involved in the development of this document:

- Prince Twala
- Thabo Mangaba
- Khotso Magaela

#### **7. Acknowledgements**

All Development Team

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