

Title: **TECHNICAL EVALUATION  
STANDARD FOR THE SUPPLY  
OF PRIMARY PLANT  
EQUIPMENT FOR FERRUM MTS**

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## **Executive Summary**

The technical tender evaluation is one of the critical gates in the enquiry chain to ensure that the bidders understand the customer's requirements and they can supply primary plant equipment. This tender technical evaluation criterion was created to evaluate the tender for Uppington Strengthening Phase 2 Project at Ferrum MTS. Compliance with this document will ensure that all suppliers bidding to supply primary plant equipment for Ferrum MTS to Eskom Transmission are evaluated fairly and transparently. It minimises the influence of the individual discretion of a person doing evaluation. The assessment of each supplier will be based on the information the supplier provides during tender stage.

## 1. Introduction

This document has been developed to define the standard technical evaluation criteria to be used when evaluating tender submissions, in response to a Request for Proposal (RFP), for the supply of primary plant equipment for the Uppington Strengthening Phase 2 Project at Ferrum MTS.

The document defines various aspects required to perform the technical evaluation and contains the evaluation criteria used at paper evaluation.

## 2. Supporting clauses

### 2.1 Scope

The scope of this document is to provide the framework wherein the substation primary plant associated with Ferrum MTS project may be effectively evaluated against the applicable nominated list.

This document does not specify the requirements of each item as the specific requirements, but the adherence to the list of nominated equipment to be used.

#### 2.1.1 Purpose

The purpose of this document is to standardise the technical strategy and adherence to the supply of nominated equipment to be used.

#### 2.1.2 Applicability

This document shall apply throughout Eskom's Transmission division. It is also applicable for all external parties constructing substation infrastructure projects that will be handed over operationally to Eskom Transmission.

## 2.2 Normative/informative references

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

### 2.2.1 Normative

- [1] Fer21P11-SE-D90 - Uppington Strengthening Phase 2 Project: Primary Plant Scope of Work at Ferrum Substation
- [2] 240-180000668 - Standard on how Contractors Can Select Material to Use to Build Substations or Infrastructure on the Self-Build or EPC
- [3] 240-180200051 - Eskom Transmission List of Pre-Approved HV Equipment

### 2.2.2 Informative

None

## 2.3 Definitions

### 2.3.1 General

Definition	Description
<b>Eskom assessment / evaluation representative(s)</b>	The person(s) appointed by Eskom to perform evaluation of tender submission (s) in line with Eskom requirements.

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### 2.3.2 Disclosure classification

**Controlled disclosure:** controlled disclosure to external parties (either enforced by law, or discretionary).

## 2.4 Abbreviations

Abbreviation	Description
Tx	Transmission
CT	Current Transformer
CVT	Capacitive Voltage Transformer
EPC	Engineer, Procure, and Construct
Eskom	Eskom Holdings SOC (Ltd)
HV	High Voltage
LAP	List of pre-Accepted Products or HV equipment (refer to 240-180200051)
MTS	Main Transmission Substation
SE&D (SED)	Substation Equipment & Diagnostics

## 2.5 Roles and responsibilities

Suppliers are responsible for selection of HV products from the manual title: ESKOM TRANSMISSION LIST OF PRE-APPROVED HV EQUIPMENT (unique identifier **240-180200051**) for their designs and further populate Annexure A to indicate their compliance with the List of Approve Products. Personnel involved with the design, procurement and construction of Eskom substations shall ensure compliance to these requirements and that primary plant equipment are evaluated in accordance with this document.

## 2.6 Process for monitoring

Eskom will monitor the compliance to this document.

## 2.7 Related/supporting documents.

Not applicable.

# 3. Requirements

## 3.1 General

The technical evaluation for the substation primary plant shall be composed of documentation evaluation. The qualitative requirements criteria for the technical evaluation are as in Annexure A, ensuring that suppliers abide by the LIST OF PRE-APPROVED HV EQUIPMENT (also referred in this document as LAP).

All documentation for this tender shall be in English.

For the supplier's submission to be compliant all tender technical returnables must be submitted as required and score at least 80% in the qualitative evaluation. Any deviation must be indicated on Annexure C

Suppliers who are tendering but are not the OEM of the product must source the required technical returnable from the OEM where relevant. Missing information will not be requested after the Enquiry closing date.

If any part or sub-component of the production process is outsourced, the Supplier shall retain full and complete accountability for the (entire) product.

Eskom Transmission's current installed base of primary plant equipment (power transformers, instrument transformers, surge arresters, circuit breakers and disconnectors are typically procured for easy integration

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with existing Eskom network. Product standardization forms the backbone of Eskom Transmission's efforts to reduce the burden associated with adapting the substation design that might arise due non-standard products. The new products must be largely compatible with the existing installed base.

- Products must meet the Eskom specifications; Eskom must be satisfied with quality management system and the tests conducted on the products.
- The Supply contract scope includes manufacturing, testing, supply, delivery, offloading, erection, and commissioning for a period of 4 years.
- Tenderers are to submit guarantee letters confirming they can supply the equipment as specified in Annexure A.

Tenderers are advised that if they have alternative technology which they may deem appropriate for the current scope of works, they are at liberty to bring this to Eskom's attention as a proposal. The use of technology which has not been evaluated and accepted by Eskom will not be acceptable [3].

### **3.2 Desktop Evaluation**

The desktop evaluation shall be conducted by the Eskom assessment representatives. This part of the evaluation will start when submissions are opened the first time. It begins with the confirmation that all tender technical returnables have been submitted. Tenderers are to submit all the required tender technical returnables and highlight any clarification prior to tender close. Tenderers are to submit guarantee letters confirming they can supply the equipment as specified in Annexure A.

During the qualitative assessment, the Eskom evaluating representatives will go through the qualifying submissions in detail and score each item evaluated. Refer to Annexure B. The tender submission must score a minimum of 80% in the qualitative evaluation to be considered as technically qualified.

## **4. Authorization**

This document has been seen and accepted by:

<b>Name and surname</b>	<b>Designation</b>
Bheki Ntshangase	Senior Manager – Transmission Division, Substation Equipment & Diagnostics
Sphiwe Nkosi	Chief Technologist - Transmission Division, Substation Equipment & Diagnostics
Sibongile Maphosa	Chief Engineer - Transmission Division, Substation Equipment & Diagnostics
Kevin Kleinhans	Chief Engineer - Transmission Division, Substation Equipment & Diagnostics

## **5. Revisions**

<b>Date</b>	<b>Rev</b>	<b>Compiler</b>	<b>Remarks</b>
Dec 2023	1	S Miya	First Issue

## **6. Development team**

Not Applicable.

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## 7. Acknowledgements

Not Applicable.

**Annexure A – List of Approved Product (LAP)**

Please note that the quantities indicated are an estimate and please indicate how you are going to source HV equipment on the table below:

Item No.	Equipment	Equipment Rating	SAP #	Total Quantity	Will use the Approved products as per attached LAP (Y/N)	Comments
<b>400 kV Yard</b>						
1	Circuit Breaker	420kV 4000A 63kA 1P 31mm/kV 110VDC with/without Controlled Switching Device	0660057	1		
2	Current transformer	CT 400kV 3150A 50KA 2P32 2M32 2B16-24 31mm/kV	639092	3		
3	Isolator	400kV 3150A 50kA 110VDC Motor Operated Disconnecter Left Hand Earthing Switch 1425BIL, 5500mm spacing	0664795	1		
4	Isolator	400kV 3150A 50kA 110VDC Motor Operated Disconnecter Right Hand Earthing Switch 1425BIL, 5500mm spacing	0664792	1		
5	Pantograph Disconnecter	400kV 3150A 50kA 110VDC Motor Operated Pantograph Disconnecter Without Earthing Switch 1425BIL	0665007	2		
6	Earth switch	400kV 63kA 110VDC Hand Operated Earthing Switch (Separately Mounted, 1550BIL, 5500mm spacing)	0665613	1		
7	Post Insulator	400kV Post Insulator, C6-1550, 25mm/kV	523608	17		

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8	Surge Arrestor	Station Class Surge Arresters For 400KV System 25mm/kV (Mechanical Load Bearing)	623039	3		
9	Capacitive Voltage Transformers	CVT 400kV/110V 2P1M 150/50VA (3P/0.2) 31mm/kV	8544	3		

**Annexure B – Desktop Documentation Evaluation: Qualitative Criteria**

Criteria	Section	% weight	Weighted Score
Circuit Breakers	B1	20	
Isolators	B2	15	
Earthing switches	B3	15	
Current Transformers	B4	15	
Capacitive Voltage Transformers	B5	15	
Surge Arrestors	B6	15	
Post Insulators	B7	5	
<b>Total</b>		<b>100</b>	

For each evaluation criteria, the extent to which submissions comply with the requirements shall be scored based on the following, with a maximum score of 100%.

Item No.	Item	Compliance
1	Provide all completed Annexure A and C	Yes/No
2	All documents to be in English	Yes/No

Threshold: The score that each tenderer receives will provide a numeric basis for tender comparison. The minimum weighted average score across all equipment required for Primary Plant to be considered must be 80% or above.

B1 Circuit Breaker				
		Criteria	Score	
	B1.1 Did the supplier select the Circuit Breaker in the LAP?	Yes	1	
		No	0	
	1.1.1 400kV Circuit Breaker			
<b>Scoring</b>				
P <sub>400</sub> = Quantity of 400kV Circuit Breaker				
P <sub>Total</sub> = P <sub>400</sub>				
Weighted score for 400kV Circuit Breaker $W_{400} = (\text{score } (1   0) \times (P_{400} / P_{Total}) \times 20\%$				
<b>Weighted score Circuit Breaker <math>W_{CBs} = W_{400}</math></b>				

B2		Isolators		
		Criteria	Score	
	B2.1 Did the supplier select the Isolators in the LAP?	Yes	1	
		No	0	
	2.1.1 400kV Isolators			
<b>Scoring</b>				
P <sub>400</sub> = Quantity of 400kV Isolators				
P <sub>Total</sub> = P <sub>400</sub>				
Weighted score for 400kV Isolators $W_{400} = (\text{score } (1   0) \times (P_{400} / P_{Total})) \times 15\%$				
<b>Weighted score Isolators <math>W_{isol} = W_{400}</math></b>				

B3		Earth Switches		
		Criteria	Score	
	B3.1 Did the supplier select the Earth Switches in the LAP?	Yes	1	
		No	0	
	3.1.1 400kV Earth Switches			
<b>Scoring</b>				
P <sub>400</sub> = Quantity of 400kV Earth Switches				
P <sub>Total</sub> = P <sub>400</sub>				
Weighted score for 400kV Earth Switches $W_{400} = (\text{score } (1   0) \times (P_{400} / P_{Total})) \times 15\%$				
<b>Weighted score Earth Switches <math>W_{ES} = W_{400}</math></b>				

<b>B4 Current Transformer</b>			
		Criteria	Score
	B4.1 Did the supplier select the CTs in the LAP?	Yes	1
		No	0
4.1.1 400kV CTs			
<b>Scoring</b>			
P <sub>400</sub> = Quantity of 400kV CTs			
P <sub>Total</sub> = P <sub>400</sub>			
Weighted score for 400kV CTs $W_{400} = (\text{score } (1   0) \times (P_{400} / P_{Total}) \times 15\%$			
<b>Weighted score CTs <math>W_{CTs} = W_{400}</math></b>			

<b>B5 Capacitive Voltage Transformer</b>			
		Criteria	Score
	B5.1 Did the supplier select the CVTs in the LAP?	Yes	1
		No	0
5.1.1 400kV CVTs			
<b>Scoring</b>			
P <sub>400</sub> = Quantity of 400kV CVTs			
P <sub>Total</sub> = P <sub>400</sub>			
Weighted score for 400kV CVTs $W_{400} = (\text{score } (1   0) \times (P_{400} / P_{Total}) \times 15\%$			
<b>Weighted score CTs <math>W_{CVTs} = W_{400}</math></b>			

B6		Surge Arresters			
		Criteria	Score		
	B6.1 Did the supplier select the Surge Arresters in the LAP?	Yes	1		
		No	0		
	6.1.1 400kV Surge Arresters				
<b>Scoring</b>					
P <sub>400</sub> = Quantity of 400kV Surge Arresters					
P <sub>Total</sub> = P <sub>400</sub>					
Weighted score for 400kV Surge Arresters $W_{400} = (\text{score } (1   0) \times (P_{400} / P_{Total}) \times 15\%$					
<b>Weighted score Surge Arresters <math>W_{SA} = W_{400}</math></b>					

B7		Post Insulators			
		Criteria	Score		
	B7.1 Did the supplier select the Post Insulators in the LAP?	Yes	1		
		No	0		
	7.1.1 400kV Post Insulators				
<b>Scoring</b>					
P <sub>400</sub> = Quantity of 400kV Post Insulators					
P <sub>Total</sub> = P <sub>400</sub>					
Weighted score for 400kV Post Insulators $W_{400} = (\text{score } (1   0) \times (P_{400} / P_{Total}) \times 5\%$					
<b>Weighted score Post Insulators <math>W_{PIs} = W_{400}</math></b>					

## Annexure C – Deviation schedule

Tenderers are to indicate any deviations to the “Required” list as per Annexure A in the table below. Any deviations will need to be evaluated and approved by Eskom for consideration.

Name of Equipment/ Material	Description of the Equipment/ Material	SAP #	Supplier/ Original Equipment Manufacturer (OEM)	SUPPLIER DRAWING NUMBER/DOCUMENT ID
Circuit Breaker	420kV 4000A 63kA 1P 31mm/kV 110VDC with/without Controlled Switching Device	0660057		
Current transformer	CT 400kV 3150A 50KA 2P32 2M32 2B16-24 31mm/kV	639092		
Isolator	400kV 3150A 50kA 110VDC Motor Operated Disconnecter Left Hand Earthing Switch 1425BIL, 5500mm spacing	0664795		
Isolator	400kV 3150A 50kA 110VDC Motor Operated Disconnecter Right Hand Earthing Switch 1425BIL, 5500mm spacing	0664792		
Pantograph Disconnecter	400kV 3150A 50kA 110VDC Motor Operated Pantograph Disconnecter Without Earthing Switch 1425BIL	0665007		
Earth switch	400kV 63kA 110VDC Hand Operated Earthing Switch (Separately Mounted, 1550BIL, 5500mm spacing)	0665613		
Post Insulator	400kV Post Insulator, C6-1550, 25mm/kV	523608		
Surge Arrestor	Station Class Surge Arresters For 400KV System 25mm/kV (Mechanical Load Bearing)	623039		
Capacitive Voltage Transformers	CVT 400kV/110V 2P1M 150/50VA (3P/0.2) 31mm/kV	8544		

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