

Title: **TECHNICAL EVALUATION
STANDARD FOR THE SUPPLY
OF PRIMARY PLANT
EQUIPMENT ON GUMENI
SUBSTATION 2ND 400/132KV
500MVA TRANSFORMER BAY**

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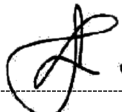


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Content

	Page
Executive Summary.....	3
1. Introduction.....	4
2. Supporting clauses	4
2.1 Scope	4
2.1.1 Purpose.....	4
2.1.2 Applicability	4
2.2 Normative/informative references	4
2.2.1 Normative.....	4
2.2.2 Informative	4
2.3 Definitions.....	4
2.3.1 General	4
2.3.2 Disclosure classification.....	4
2.4 Abbreviations.....	5
2.5 Roles and responsibilities	5
2.6 Process for monitoring	5
2.7 Related/supporting documents	5
3. Requirements	5
3.1 General.....	5
3.2 Desktop Evaluation	6
4. Authorization.....	6
5. Revisions	6
6. Development team	7
7. Acknowledgements	7
Annexure A – List of Approved Product (LAP)	8
Annexure B– Desktop Documentation Evaluation: Qualitative Criteria.....	10
Annexure C – Deviation schedule	14

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 are capable of supplying primary plant equipment. This tender technical evaluation criterion was created to evaluate the tender for Gumeni Substation 2nd 400/132kV 500MVA transformer bay primary plant. Compliance with this document will ensure that all suppliers bidding to supply primary plant equipment for Gumeni substation 2nd transformer bay 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 provide 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 Gumeni Substation 2nd 400/132kV 500MVA transformer bay primary plant equipment for the Transmission division.

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 the Gumeni substation 2nd 400/132kV 500MVA transformer bay 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] Gum22P02-SE-C16 - Gumeni Substation 2nd 400/132kV 500MVA Transformer – Basic Design Report with Scope of Work

2.2.2 Informative

None

2.3 Definitions

2.3.1 General

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

2.3.2 Disclosure classification

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

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2.4 Abbreviations

Abbreviation	Description
STATCOM	Static Synchronous Compensator
SVC	Static Var Compensator
TCR	Thyristor Controlled Reactor
TSC	Thyristor Switched Capacitor
Tx	Transmission
VSC	Voltage Source Convertor
VT	Voltage Transformer
CT	Current Transformer
CVT	Capacitive Voltage Transformer
EPC	Engineer, Procure, and Construct
Eskom	Eskom Holdings SOC (Ltd)
FACTS	Flexible AC Transmission Systems
GIS	Gas Insulated Switchgear
HV	High Voltage
HVDC	High Voltage Direct Current
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 APPROVE HV EQUIPMET (unique identifier **240-18020051**) 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 comply with List of Approved Products (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.

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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 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 Annex 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 may delay the project and may have cost implications, which delays will impact the delivery timelines, and which additional costs will be for the tenderer's account. No product which is proposed as an alternative technology as contemplated shall be supplied or used in respect of the works unless accepted by Eskom in writing.

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:

Name and surname	Designation
Bheki Ntshangase	Senior Manager – Transmission Division, Substation Equipment & Diagnostics
Sidwell Mtetwa	Corporate Specialist - Transmission Division, Substation Equipment & Diagnostics
Sphiwe Nkosi	Chief Technologist - Transmission Division, Substation Equipment & Diagnostics
Sibongile Maphosa	Chief Engineer - Transmission Division, Substation Equipment & Diagnostics

5. Revisions

Date	Rev	Compiler	Remarks
Sep 2023	1	S Miya	First Issue

6. Development team

Not Applicable.

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:

Equipment	Equipment Rating	Total Quantity	Will use the Approved products as per attached LAP (Y/N)	Comments
400 kV Yard				
400kV Surge Arresters	400 kV Metal Oxide Arrestor, 80 % Effectively Earthed, 31 mm/kV	3		
400kV Earth Switches	400 kV, 3150 A, (Motorised), 220 V DC, 31 mm/kV	1		
400kV Double Side Break Isolators (LH ES)	400 kV, 3150 A, (Motorised), 220 V DC, 31 mm/kV	1		
400 kV Pantograph Isolators	400 kV, 3150 A, (Motorised), 220 V DC, 31 mm/kV	1		
400 kV CTs	400 kV, 3150 A, 6C [(2 x TPS, 2400/1, MRP), (2 x TPS, 2400/1, F-BZ), (2 x M, 2400/1, MR-M)], 31 mm/kV)	3		
400kV Circuit Breakers	400 kV, 3150 A, 3Φ ARC tripping, 220 V DC, 31 mm/kV	1		
400kV Post Insulators	TBC in detail design, 31 mm/kV	10 (TBA)		
132kV Yard				
132kV Surge Arresters	132 kV, Station Class, 31 mm/kV	3		
132kV Earth Switches	132 kV, Station Class, 31 mm/kV Operated, 31 mm/kV	1		
132kV CTs	132 kV, 2500 A, [(2 x TPS, 2400/1, MR-P), (2 x TPS, 2400/1, F-BZ), (2 x M, 2400/1, MR-M)], 31 mm/kV)	3		
132kV Circuit Breakers	132 kV, 3150 A, 50 kA, 3-φ ARC, 220 V dc aux, 31 mm/kV	1		
132kV Conventional Isolator with Right Hand Earth switch	132 kV, 2500 A, 40 kA, 3000 mm φ- spacing, (Motorised), 220 V dc aux, 31 mm/kV	1		
132 kV Pantograph Isolator	132 kV, 2500 A, 40 kA, 3000 mm φ- spacing, (Motorised), 220 V dc aux, 31 mm/kV	1		
132 kV Post Insulators	C10-550, 10 kN min, 31 mm/kV	TBC		
22 kV Yard				
22/0.4 kV Auxiliary Transformer	22/0.4 kV 500 kVA ONAN Auxiliary Transformer	1		

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Unique Identifier: **240-180100006**

Revision: **1**

Page: **9 of 14**

22kV Surge Arresters	22 kV Station Class, 31 mm/kV	3		
22kV Post Insulators	22 kV, 31 mm/kV, 6 kN	3		

Annexure B– Desktop Documentation Evaluation: Qualitative Criteria

Criteria	Section	% weight	Weighted Score
Isolators	B1	20	
Circuit Breakers	B2	20	
Current Transformers	B3	20	
Capacitive Voltage Transformers	B4	10	
Surge Arrestors	B5	10	
Post Insulators	B6	10	
Total		100	

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 A&B schedules	Yes/No
2	All documents to be in English	Yes/No
3	Any submission that doesn't score the minimum threshold for all items will be automatically be disqualified and not be tested on the overall criteria	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 breakers			
Description	Criteria	Score	
B1.1 Did the supplier select the Circuit Breakers in the LAP? B1.1.1 400KV Circuit Breakers B1.1.2 132kV Breakers	Yes	1	
	No	0	
Scoring			
P ₄₀₀ = Quantity of 400KV Circuit breakers			
P ₁₃₂ = Quantity of 132V Circuit breakers			
P _{Total} = P ₄₀₀ + P _{132kV}			
Weighted score for 400KV Circuit Breakers W ₄₀₀ = (score (1/0) x (P ₄₀₀ /P _{Total}) x 20%			
Weighted score for 132kV Circuit Breakers W ₁₃₂ = score (1/0) x (P ₁₃₂ /P _{Total})x 20%			
Weighted score Circuit Breakers W _{CB} = W ₄₀₀ + W ₁₃₂			

B2 Isolators			
Description	Criteria	Score	
B2.1 Did the supplier select the Isolators in the LAP? B2.1.1 400KV isolators B2.1.2 132kV Isolators	Yes	1	
	No	0	
Scoring			
P ₄₀₀ = Quantity of 400KV isolators			
P ₁₃₂ = Quantity of 132V Isolators			
P _{Total} = P ₄₀₀ + P _{132kV}			
Weighted score for 400KV Isolators W ₄₀₀ = (score (1/0) x (P ₄₀₀ /P _{Total}) x 20%			
Weighted score for 132kV Isolators W ₁₃₂ = score (1/0) x (P ₁₃₂ /P _{Total})x 20%			
Weighted score isolators W _{isol} = W ₄₀₀ + W ₁₃₂			

**TECHNICAL EVALUATION STANDARD FOR THE
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SUBSTATION 2ND 400/132KV 500MVA TRANSFORMER
BAY**
Unique Identifier: **240-180100006**Revision: **1**Page: **12 of 14**

B3 Earth switches			
	Description	Criteria	Score
	B3.1 Did the supplier select the Earth Switches in the LAP?	Yes	1
		No	0
	B3.1.1 400KV earth switches		
	B3.1.2 132kV earth switches		
	Scoring		
P ₄₀₀ = Quantity of 400KV Earth Switches			
P ₁₃₂ = Quantity of 132V earth switches			
P _{Total} = P ₄₀₀ + P _{132kV}			
Weighted score for 400KV Earth switches W ₄₀₀ = (score (1/0) x (P ₄₀₀ /P _{Total}) x 20%			
Weighted score for 132kV Earth switches W ₁₃₂ = score (1/0) x (P ₁₃₂ /P _{Total})x 20%			
Weighted score Earth Switches W_{ES} = W₄₀₀ + W₁₃₂			

B4 Current Transformers			
	Description	Criteria	Score
	B4.1 Did the supplier select the CTs in the LAP?	Yes	1
		No	0
	B4.1.1. 400KV instrument transformers		
	B4.1.2 132kV instrument transformers		
	Scoring		
P ₄₀₀ = Quantity of 400KV instrument transformers			
P ₁₃₂ = Quantity of 132V instrument transformers			
P _{Total} = P ₄₀₀ + P _{132kV}			
Weighted score for 400KV CTs W ₄₀₀ = (score (1/0) x (P ₄₀₀ /P _{Total}) x 20%			
Weighted score for 132kV CTs W ₁₃₂ = score (1/0) x (P ₁₃₂ /P _{Total})x 20%			
Weighted score CTs W_{CTs} = W₄₀₀ + W₁₃₂			

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BAY**

Unique Identifier: **240-180100006**Revision: **1**Page: **13 of 14**

B5 Surge Arresters			
Description	Criteria	Score	
B5.1 Did the supplier select the Surge Arresters in the LAP?	Yes	1	
	No	0	
B5.1.1 400KV Surge Arresters			
B5.1.2 132kV Surge Arresters			
Scoring			
P ₄₀₀ = Quantity of 400KV Surge Arresters			
P ₁₃₂ = Quantity of 132V surge arrsters			
P _{Total} = P ₄₀₀ + P _{132kV}			
Weighted score for 400KV Surge Arresters W ₄₀₀ = (score (1/0) x (P ₄₀₀ /P _{Total}) x 10%			
Weighted score for 132kV Surge Arresters W ₁₃₂ = score (1/0) x (P ₁₃₂ /P _{Total})x 10%			
Weighted score Surge Arresters W_{SA} = W₄₀₀ + W₁₃₂			

B6 Post Insulators			
Description	Criteria	Score	
B6.1 Did the supplier select the Post Insulators in the LAP?	Yes	1	
	No	0	
B6.1.1 400KV Post Insulators			
B6.1.2 132kV Post Insulators			
Scoring			
P ₄₀₀ = Quantity of 400KV Post Insulators			
P ₁₃₂ = Quantity of 132V Post Insulators			
P _{Total} = P ₄₀₀ + P _{132kV}			
Weighted score for 400KV Post Insulators W ₄₀₀ = (score (1/0) x (P ₄₀₀ /P _{Total}) x 10%			
Weighted score for 132kV Post Insulators W ₁₃₂ = score (1/0) x (P ₁₃₂ /P _{Total})x 10%			
Weighted score Post Insulators W_{PIs} = W₄₀₀ + W₁₃₂			

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Annexure C – Deviation schedule

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

Name of Equipment/ Material(400kV)	Description of the Equipment/ Material	Supplier/ Original Equipment Manufacturer (OEM)	SUPPLIER DRAWING NUMBER/DOCUMENT ID
400kV Surge Arresters	400 kV Metal Oxide Arrestor, 80 % Effectively Earthed, 31 mm/kV		
400kV Earth Switches	400 kV, 3150 A, (Motorised), 220 V DC, 31 mm/kV		
400kV Double Side Break Isolators (LH ES)	400 kV, 3150 A, (Motorised), 220 V DC, 31 mm/kV		
400 kV Pantograph Isolators	400 kV, 3150 A, (Motorised), 220 V DC, 31 mm/kV		
400 kV CTs	400 kV, 3150 A, 6C [(2 x TPS, 2400/1, MRP), (2 x TPS, 2400/1, F-BZ), (2 x M, 2400/1, MR-M)], 31 mm/kV)		
400kV Circuit Breakers	400 kV, 3150 A, 3Φ ARC tripping, 220 V DC, 31 mm/kV		
400kV Post Insulators	TBC in detail design, 31 mm/kV		
132kV Surge Arresters	132 kV, Station Class, 31 mm/kV		
132kV Earth Switches	132 kV, Station Class, 31 mm/kV Operated, 31 mm/kV		
132kV CTs	132 kV, 2500 A, [(2 x TPS, 2400/1, MR-P), (2 x TPS, 2400/1, F-BZ), (2 x M, 2400/1, MR-M)], 31 mm/kV)		
132kV Circuit Breakers	132 kV, 3150 A, 50 kA, 3-φ ARC, 220 V dc aux, 31 mm/kV		
132kV Conventional Isolator with Right Hand Earth switch	132 kV, 2500 A, 40 kA, 3000 mm φ-spacing, (Motorised), 220 V dc aux, 31 mm/kV		
132 kV Pantograph Isolator	132 kV, 2500 A, 40 kA, 3000 mm φ-spacing, (Motorised), 220 V dc aux, 31 mm/kV		
132 kV Post Insulators	C10-550, 10 kN min, 31 mm/kV		
22/0.4 kV Auxiliary Transformer	22/0.4 kV 500 kVA ONAN Auxiliary Transformer		
22kV Surge Arresters	22 kV Station Class, 31 mm/kV		
22kV Post Insulators	22 kV, 31 mm/kV, 6 kN		