Eskom	Standard	Technology

Title: **TECHNICAL EVALUATION STANDARD FOR APOLLO CS 533KV DC FILTER 1 & 2 CAPACITOR REPLACEMENT**

Unique Identifier:	**240-170000513**
Alternative Reference Number:	**<n/a>**
Area of Applicability:	**Engineering**
Documentation Type:	**Standard**
Revision:	**2**
Total Pages:	**11**
Next Review Date:	**January 2026**
Disclosure Classification:	**Controlled Disclosure**

Compiled by	Approved by	Authorized by
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Date: 08/04/2022	Date: 11/04/2022	Date: 11/04/2022

Supported by SCOT/SC

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SCOT/SC Chairperson

Date: 11/04/2022

PCM Reference: **Perform High Voltage Engineering**

SCOT Study Committee Number/Name: **Plant Equipment SC**

Content

1. Introduction

This document is aimed at outlining the standard to be adhered to when performing technical tender evaluations for replacement of the 533kV Apollo DC Filter 1 and 2 capacitors. This document was compiled in accordance with Eskom procurement and supply chain management [1].

2. Supporting clauses

2.1 Scope

This document covers the technical evaluation criteria to be used during tender technical evaluations for the replacement of capacitor units of 533kV DC Filters 1 & 2 at Apollo CS.

2.1.1 Purpose

This document is in place to ensure that the technical evaluations for the replacement of capacitor units of 533kV DC Filters 1 & 2 at Apollo CS are carried out according to the requirements of Eskom Holdings SOC (Ltd).

2.1.2 Applicability

This document shall apply throughout Eskom Holdings Limited Divisions.

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] 32-1034, Eskom Procurement and Supply Chain Management.

[2] 240-137808510, Technical Specification for Apollo CS 533kV DC Filter 1 & 2 PCB Capacitor replacement

[3] 240-4258702, Specification for Air Core Reactors.

[4] 240-132631415 Technical Evaluation Criteria for Post Insulators used as General Supports for High Voltage Plant Equipment.

[5] 240-79707491, Technical Evaluation Standard for Outdoor Ceramic Station Post Insulators for Systems with Nominal Voltages up to 765kV

[6] PDRP_2013-287: Technical Evaluation Criteria For Post Type Instrument Transformers Current Transformers, Inductive Voltage transformers, Capacitor Voltage Transformers Coupling Capacitors, CT/VT Metering Units And Line traps

[7] ISO 9001, Quality Management Systems

2.2.2 Informative

[8] 32-9, Definition of Eskom documents.

[9] 32-644, Eskom documentation management standard

[10] 474-65, Operating manual of the Steering Committee of Technologies (SCOT)

[11] QM58, Supplier contract quality requirements specification

2.3 Definitions

2.3.1 General

Definition	Description
Eskom Assessment Representative(s)	The person(s) appointed by Eskom to perform evaluation of tender submissions in line with Eskom requirements.
Functionality	Means the ability of a tenderer to provide goods or services in accordance with specifications as set out in the tender documents;

2.3.2 Disclosure classification

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

2.4 Abbreviations

Abbreviation	Description
BIL	Basic Insulation Level
CG	Care Group
HV	High Voltage
kV	kilo Volt
MVAr	Mega Volt Ampere Reactive
SCOT	Steering Committee of Technologies

2.5 Roles and responsibilities

The Power Electronics Care Group Convener must ensure that this document is updated, renewed and current at all times.

2.6 Process for monitoring

Not applicable

2.7 Related/supporting documents

Not applicable.

3. Evaluation Criteria

The technical evaluation commences after the tender closing date and once all submissions are received by the technical cross-functional team evaluating the offers. The outline of the process is provided below;

1) The evaluation and scoring will be conducted on each submission in accordance with the scoring and Criteria defined in Annex A of this document. Alternative scoring criteria is as per Annex B and shall only be considered upon meeting the Main offer and evaluation criteria threshold as per Annex A. Every criterion is scored and weighted according to its level of importance in the functionality of the system.

2) The proportion of each equipment score will added together to obtain the final score for each tenderer for the technical functionality evaluation as shown in Annex C.

3) Items requiring clarifications (if any) will be communicated to the Contractor for official response. The Contractor will be given a period of 5 working days to respond to the issues raised in the clarification requests.

4) Only submissions that score above the stipulated threshold will then be allowed to progress further in the procurement process. The stipulated threshold is 80%.

The scoring of functionality criteria shall be based on the degree of achievement by the tenderer to meet the technical requirements. Table 1 below will be used as a guideline to determine the degree of achievement of each functionality criterion.

Table 1: Scoring guideline for functionality criteria

%	Definition
100	**Compliant** • Meet technical requirements and • No foreseen technical risks in meeting the technical requirements. •
80%	**Compliant with Associated Qualifications** Meet technical requirements with; • Acceptable technical risks and/or • Acceptable exceptions and/or • Acceptable conditions
0	**Non-Compliant** • Does not meet technical requirements and/or • Unacceptable technical risks and/or • Unacceptable exceptions and/or • Unacceptable conditions and/or • Totally deficient or non-responsive
Note 1: Foreseen acceptable risks, exceptions and conditions include: • Evidence that is missing or in conflict with the requirements that is considered minor, correctable prior to contract award and does not prevent the evaluating team from making a confident evaluation of the offer. **Note 2:** Foreseen unacceptable risks, exceptions and conditions include: • Evidence that is missing or in conflict with the requirements that is considered a significant deficiency in the design and/or significant deviation from the requirements of the employer's intent.	

4. Authorization

This document has been seen and accepted by:

Name and surname	Designation
Bheki Ntshangase	Senior Manager – Technology, HV Plant Engineering
Neels van Staden	Senior Consultant – Technology, HV Plant Engineering
Vuyani Masuku	Senior Engineer – Technology, HV Plant Engineering

5. Revisions

Date	Rev	Compiler	Remarks
April 2021	1	V Masuku	New evaluation criteria

Date	Rev	Compiler	Remarks
March 2022	2	V Masuku	Alternative offer evaluation criteria added

6. Development team

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

- Neels Van Staden
- Vuyani Masuku

7. Acknowledgements

Not Applicable.

Annex A – Technical Evaluation Criteria for DC Filter Bank

	Name of Tenderer	
	Specification	240-137808510, Technical Specification for Apollo CS 533kV DC Filter 1 & 2 PCB Capacitor replacement

Activity	**Specification (Clause)**	**Points awarded if Item is Compliant**
AB Schedules Completed.	Annex	[20]
All information is supplied English.	8.1	[5]
DC Filter Bank		
a) Compliance with RAM requirement.	6	[20]
b) BIL/Creepage requirements (Units)	AB schedules	[5]
c) Bank Sizing	AB schedules	[5]
d) Seismic requirement	AB Schedules	[5]
e) Commissioning spares	8	[2]
f) Vermin proofing	3	[2]
Capacitor Units		
a) Drawings (formal prelim design drawings)	8.1	[5]
b) Interchangeability	9.8	[5]
c) Capacitor ratings (kVAr, C and weight)	5.3	[4]
d) Losses	5.3	[5]
e) Factory failure rate	5.3	[7]
f) All tests offered (at correct test levels)	5.3	[5]

i. Thermal stability test; ii. Surge discharge test; iii. Self healing test (where applicable); iv. Environmental testing; v. Resonance frequency measurement; vi. Measurement of the tangent of the loss angle (tan δ) of the capacitor at elevated temperature; vii. DC voltage test between terminals and container; viii. Lightning impulse test between terminals and container; ix. Short-circuit discharge test; x. Test of an external fuse in combination with a capacitor; (only applicable to externally fused); xi. Endurance tests between terminals; xii. Disconnecting test on internal fuses (only applicable to internally fused)		
g) Reference list with comparable references, including contact details	1	[5]
Total score (A)		**[100]**

Annex B - Evaluation for Alternative offer

SCORING AGAINST CRITERIA FOR EVALUATION – ALTERNATIVE OFFER **(Total = 100 %, threshold for qualification = 80 %)**		
Rated values and characteristics a) **NB: If one requirement is not met 30 % is automatically deducted**		**[30]**
Rated maximum voltage (*to earth/ ground*), UM Rated continuous voltage (to earth/ground); UN Rated normal Capacitance (*tota*l); CN Rated voltage, capacitance and output of capacitor units C3 & C5 (*Un, Cn & Qn*);		
Type Testing **NB: If one requirement is not met 30 % is automatically deducted**		**[30]**
All tests offered (at correct test levels) xiii. Thermal stability test; xiv. Surge discharge test; xv. Self healing test (where applicable); xvi. Environmental testing; xvii. Resonance frequency measurement; xviii. Measurement of the tangent of the loss angle (tan δ) of the capacitor at elevated temperature; xix. DC voltage test between terminals and container; xx. Lightning impulse test between terminals and container; xxi. Short-circuit discharge test; xxii. Test of an external fuse in combination with a capacitor; (only applicable to externally fused); xxiii. Endurance tests between terminals; Disconnecting test on internal fuses (only applicable to internally fused)		
Drawings and constructional features (GA outline drawing) **NB: The score will be the ratio of the successfully met over the total number of items listed here-under, then multiplied by the weight.**		**[10]**
Drawing number Detailed description provided in “Title”. Overall dimensions Electrical clearances: – to earth; between existing equipment (NB: This shall ensure compliance with the Apollo site clearance limitations)		

Main HV terminal details Supporting structure and mounting points Foundation loading details, forces/ moment details		
Reference list with comparable references, failure rates, including contact details		**[10]**
Rating / Name plates **NB: The score will be the ratio of the successfully met over the total number of items listed here-under, then multiplied by the weight.**		**[10]**
Name of manufacturer (field – populated with details) Type designation and serial number (field – populated with details) Technical rating details (field – populated with details)		
Manuals and requested information (operation & maintenance) **NB: The score will be the ratio of the successfully met over the total number of items listed here-under, then multiplied by the weight.**		**[10]**

• Manuals submitted in both hardcopy & Electronic copy and in written in English. Following topics covered:-
  • Transport, storage, installation, operation instruction and maintenance
  • List of special tools and list of recommended spares		

Total score (Alternative Offer)		**[100]**

Annex C – Overall Technical Functionality Evaluation Score for DC Filter Bank

Name of Tenderer				
Name of Equipment	Score for each equipment as shown in Annex A	Percentage Contribution of each equipment to Capacitor Units	Equipment score	Comments
Capacitors (A)	A/B	100%	A/B x 100%	
Final Score for Tenderer			**A/B x 100%**	
Threshold for technical functionality			80%	
Outcome			Successful/Unsuccessful	