

Title: **TECHNICAL EVALUATION  
CRITERIA FOR WESKUSFLEUR  
132KV CABLE SYSTEM**

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## 1. Introduction

This document details the technical evaluation criteria for evaluating the tender submissions for Weskusfleur 132kV cable system. This technical evaluation criteria applies to Eskom Transmission division.

This document contains both the technical evaluation criteria used for the documentation evaluation and factory evaluation where applicable.

## 2. Supporting clauses

### 2.1 Scope

The document covers the technical criteria for evaluating the tender submissions for Weskusfleur 132kV cable system within Eskom Transmission Division. The technical evaluation criteria is in line with the specification for Weskusfleur 132kV cable system document reference 240-171000282.

#### 2.1.1 Purpose

The document addresses the technical evaluation criteria to be used when evaluating the Weskusfleur 132kV cable system for the project within Eskom Transmission Division.

#### 2.1.2 Applicability

This document shall apply throughout the Eskom Transmission division.

## 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] 240-171000282: Specification for Weskusfleur 132kV cable system
- [2] SANS/IEC 60840: Power cables with extruded insulation and their accessories for rated voltages above 30 kV (Um = 36 kV) up to 150 kV (Um = 170 kV) — Test methods and requirements

### 2.2.2 Informative

None

## 2.3 Definitions

### 2.3.1 General

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

### 2.3.2 Disclosure classification

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

## 2.4 Abbreviations

Abbreviation	Description
CV	Curriculum Vitae
ECC	Earth Continuity Conductor
GIS	Gas Insulated Switchgear
HV	High Voltage
SOP	Standard Operating Procedure
SVL	Sheath Voltage Limiter
XLPE	Cross-Linked Polyethylene

## 2.5 Roles and responsibilities

All Eskom employees and/or appointed bodies involved in the procurement for the respective project shall ensure that the project deliverable meets the requirements of these technical evaluation criteria. Any deviation from these requirements shall constitute non-conformance.

All suppliers must acquaint themselves with the requirements of this document and shall comply with the requirements.

## 2.6 Process for monitoring

The technical compliance or qualification shall be based on fully compliant submission of documents and proving manufacturing capability during factory evaluations.

## 2.7 Related/supporting documents

Refer to clause/ section 2.2.

## 3. Technical Evaluation Process

This technical evaluation criteria is intended to be employed as part of a tender process. The evaluation methodology consists of two separate parts, namely the documentation evaluation and the factory evaluation. These two evaluation methods can be done in combination(together) or as standalone criteria, as required. A factory evaluation will be done for all products emanating from that same facility.

Where both documentation evaluation and factory evaluation are undertaken as part of a technical evaluation, a weighting of 50% will be assigned to each category, unless determined otherwise prior to the evaluation process. An overall threshold will have to be achieved to qualify technically or meet technical compliance.

### 3.1 Document Technical Evaluation Criteria

The documentation evaluation consists of two levels. The first level is the mandatory or gatekeeper criteria which consists of confirming key functional requirements as contained in Table 1 for each circuit. If all functional requirements are met, the mandatory requirements are complied with. In this instance full points are awarded with a weighting of 60% towards the final score. If there is a failure to meet any one of the functional requirements, the submission is non-compliant and 0% is scored, leading to technical disqualification. These criteria must be met before proceeding to the next level, level 2 scoring.

At level 2, the individual requirements as stipulated is scored in accordance with Table 2. The score obtained are weighted at 40% of the final score.

The overall threshold to meet technical qualification or compliance is **80%**. The final score therefor is the Level 1 percentage weighted score plus the level 2 percentage weighted score and must be equal to or greater than **80%**. Where the Tenderer have met the threshold, it will have to fully comply with the deficient criteria as part of further negotiations toward contract placement.

### 3.1.1 Mandatory/Gatekeeper Criteria

**Table 1: Mandatory/Gatekeeper criteria for each circuit.**

	Level 1 Gatekeeper	Doc ref: 240-171000282	
Item	Criteria	Requirement	Acceptance: Yes/ No
1	Completed Technical Schedules submitted	Submit fully completed Technical Schedules	
2	Copy of successfully passed Type Test reports provided	Submit completed type test reports	
3	Copy of water penetration test report/results provided	Submit separate water penetration test report if not included in type test report	
4	Cable construction drawing(s) with layer labels and dimensions	Submit cable construction drawing and conformance to metallic screen requirement (4c)	
5	Cable ampacity calculations provided	Submit detailed ampacity calculations at 100% load factor only	
6	Cable short circuit calculations provided	Submit detailed short circuit calculations	
7	Sheath standing voltage calculations provided	Submit detailed sheath standing voltage calculations	
		<b>Complaint</b>	<b>Yes/No</b>
	<b>Level 1 Percentage weighting</b>		<b>60%</b>

### 3.1.2 Level 2 Scoring Criteria

**Table 2: Level 2 Scoring criteria**

Level 2 scoring/rating			
Item	Criteria	Comments/Remarks/References	Score
1	Copy of successfully passed Prequalification test report or certification provided		3
2	Supply and installation history since year 2010 of at least 5 projects where 132kV or higher voltage XLPE cable systems were supplied and installed		2

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Level 2 scoring/rating			
Item	Criteria	Comments/Remarks/References	Score
2	<p>A brief overview of the manufacturing processes employed in the production facilities at the referenced plant. Only HV cable produced using the following production processes will be accepted:</p> <ul style="list-style-type: none"> <li>• True triple head extrusion in a Continuous Vulcanising (CV) line.</li> <li>• Dry curing of XLPE extrusion.</li> <li>• In-production quality monitoring systems employed to monitor curing and scorching characteristics of XLPE compound as well as insulation and screen thickness.</li> <li>• Appropriate ISO class clean room/enclosures for handling of insulation compounds.</li> </ul>		3
3	<p>Preliminary method statement for HV cable and GIS works provided containing minimum;</p> <ul style="list-style-type: none"> <li>• Overall project execution plan with activities (1 point)</li> <li>• Project teams and roles (1 point)</li> <li>• Trenching, cable laying and pulling methodology (2 points)</li> <li>• Outdoor, Station Transformer and GIS termination installation methodology (2 points)</li> <li>• Sheath bonding arrangement and installation methodology (2 points)</li> <li>• Quality assurance, quality inspection and test plans (1 point)</li> <li>• After installation testing proposal (1 point)</li> </ul>		10
4	CVs for a minimum of 2 technical specialists and/or designers responsible for cable system design and technical support.		2
5	CVs for a minimum of 3 installation team members inclusive of 1 supervisor and 2 jointers indicating relevant experience of HV cable installation.		3
6	Outdoor termination drawings with dimensions and labels provided		2
7	Station Transformer termination drawings with dimensions and labels provided		2
8	GIS termination (male and female bushings) detail drawings with dimensions and labels provided		2
9	Link disconnecting box drawings with dimensions and labels provided		2
10	SVL link box drawings with dimensions and labels provided		2
11	SVL drawings with dimensions and labels provided		1
12	ECC and bonding leads drawings with dimensions and labels provided		2
13	Outdoor cable termination support structure drawings with dimensions provided		2
14	Cable cleat drawings with dimensions and labels provided		2
	<b>Total Score</b>		<b>40</b>
Level 2 percentage weighting = (Score obtained/40) x40%			<b>40%</b>

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### 3.2 Cable Factory Evaluation

Factory evaluations may be required as part of the overall technical evaluation process or for purposes of prequalification or due diligence after tender/contract award.

The cable OEM will be assessed in relation to Table 3, through objective evidence. Where this evaluation forms part of the functional technical requirements, the OEM is required to score a minimum of 90 points (percent) in this evaluation to be deemed technically compliant/qualified.

Should the evaluation be conducted as part of technical due diligence after contract placement or for purpose of factory acceptance testing, the scoring is not required. In the latter case, discussions between Eskom and the OEM may pursue to enable conformance of any outstanding technical requirements.

The factory evaluation does not have to be done sequentially and is dependent on the layout of the factory. In this regard, the OEM can provide guidance as to the best sequence of production to follow.

**Table 3: Factory evaluation Check list**

Item Nr	Item description	Activity assessed	Compliance (yes/no)	Score
1.	<b>Production processes</b>			
	<b>a. Wire drawing process</b>			
		Wire drawing line calibration and maintenance up to date		2
		SOP in place detailing plant setup or configuration, operation, and maintenance requirements		3
		Process monitored and controlled through digital HMI and process control system		2
		Staff trained and competent to operate plant		2
	<b>b. Conductor stranding/manufacturing process</b>			
		Stranding machine calibration and maintenance up to date		2
		SOP in place detailing plant setup or configuration, operation, and maintenance requirements		3
		Able to produce required range of conductor sizes		2
		Processes monitored and controlled through digital HMI and process control system		2
		Staff trained and competent to operate plant		2
	<b>c. Main insulation extrusion line process</b>			
		Continuous Vulcanising(CV) line with triple head extrusion and dry curing.		2

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Item Nr	Item description	Activity assessed	Compliance (yes/no)	Score
		Insulation extrusion line calibration and maintenance up to date		2
		SOP in place detailing plant setup or configuration, operation and maintenance requirements		3
		Process monitored and controlled through digital HMI and process control system for critical extrusion parameters		2
		Staff trained and competent to operate plant		2
	<b>d. Application of tapes and bedding layers</b>			
		Tapes and/or bedding line calibration and maintenance up to date		2
		SOP in place detailing plant setup or configuration, operation, and maintenance requirements		3
		Process monitored and controlled through digital HMI and process control system		2
		Staff trained and competent to operate plant		2
	<b>e. Metal sheathing/wiring process</b>			
		Metal sheathing/wiring line calibration and maintenance up to date		2
		SOP in place detailing plant setup or configuration, operation, and maintenance requirements		3
		Process monitored and controlled through digital HMI and process control system		2
		Staff trained and competent to operate plant		2
	<b>f. Outer sheathing</b>			
		Sheathing extrusion machine calibration and maintenance up to date		2
		SOP in place detailing plant setup or configuration, operation, and maintenance requirements		3

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Item Nr	Item description	Activity assessed	Compliance (yes/no)	Score
		Process monitored and controlled through digital HMI and process control system		2
		Staff trained and competent to operate plant		2
<b>2.</b>	<b>Material handling and storage</b>			
	Inbound raw material handling, control and defects management.	QCP and/or QITP in place		2
	In process material handling, control, and defects management	QCP and/or QITP in place		2
<b>3.</b>	<b>Design Process</b>			
		Design process, procedures, software and tools are able to translate customer requirements.		2
		Integration of the design process into the production of the product and/or production plan.		2
		Staff trained and competent to perform design functions		2
<b>4.</b>	<b>In process quality control procedures and sample testing</b>			
		Laboratory equipped to perform the sample quality tests required and test equipment calibrated		2
		QCP and/or QITP in place for wire and conductor quality checks		2
		QCP and/or QITP in place for extruded main insulation quality checks		2
		QCP and/or QITP in place for metal sheath and/or wire/armouring quality checks		2
		QCP and/or QITP in place for outer sheath quality checks		2
<b>5.</b>	<b>Routine test requirements</b>			
		Test and measuring equipment are in place and calibrated		2
		Safety measures are in place for HV testing		2
		Voltage test SOP are in place		2
		Partial discharge SOP are in place		2
		Electrical test on outer sheath SOP is in place		2

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Item Nr	Item description	Activity assessed	Compliance (yes/no)	Score
		Test result management and QCP in place		2
		Factory routine test failure rates in place, traceable and less than 1%		2
		Staff trained and competent to perform testing functions		2
<b>6.</b>	<b>Packaging, marking and transportation</b>			
		Cable marking/ identification SOP and QCP in place		1
		Cable drumming SOP and QCP in place		1
		Transporting and shipping requirements procedures in place		1
<b>7.</b>	<b>Production waste management</b>			
		SOP in place for production waste handling and disposal management		2
		Dedicated isolation/lay-down areas for production waste and defects		1
OEM will be required to score a minimum of 90/100 to be deemed technically responsive/qualified for tender award			<b>Total Score/Percentage</b>	<b>/100</b>

### 3.3 Conclusion

This report contains the technical evaluation criteria for the Weskusfleur 132kV cable system . Tenderers will have to meet the respective criteria and thresholds as stipulated to be deemed technically compliant or qualified.

## 4. Authorization

This document has been seen and accepted by:

Name and surname	Designation
Bheki Ntshangase	Senior Manager: Asset Management-SE&D
Fernando Witbooi	Chief Technologist: Asset Management-SE&D

## 5. Revisions

Date	Rev.	Compiler	Remarks
November 2023	1	SM Msweli	New document.

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## **6. Development team**

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

- Sihle Msweli

## **7. Acknowledgements**

Not applicable.