Eskom National Transmission Company South Africa ™	**Scope of Work**	**National Transmission Company South Africa**

Title: **TERMINATING AND COMMISSIONING OF 11 KV CABLE SYSTEMS TO A NEWLY INSTALLED 11 KV FIXED PATTERN INDOOR SWITCHGEAR AT MULDERSVLEI SUBSTATION**

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1. Introduction

This document contains the scope, design and minimum technical requirements and evaluation criteria for the swinging over of 11 kV cable systems to a newly installed 11 kV fixed pattern indoor switchgear at Muldersvlei substation.

Muldersvlei substation is situated in the Western Grid with heavy and very heavy pollution levels. Muldersvlei substation is equipped with an aged 11 kV oil filled indoor switchgear board that was planned for replacement between 2020 and 2023. A new 11 kV fixed pattern indoor switchgear was installed as a replacement solution for the oil filled indoor switchgear in accordance with WMul08P01-SE-D87-A. However, the project was not completed due to business challenges.

This document aims to describe the scope of works required for the completion of the 11 kV cable systems work that still needs to be done. The work that still needs to be done includes swinging over the existing 11 kV cable systems (feeders) to the newly installed switchgear, installing surge arrestors on applicable panels, installing arc sensors on the switchgear for protection and commissioning the 11 kV cable systems including the 11 kV indoor switchgear.

2. Supporting clauses

2.1 Scope

This specification contains the Scope of Work (SoW) for terminating already installed11 kV cables systems that will be used for swinging over the existing load at Muldersvlei 11 kV oil filled indoor switchgear to the newly installed 11 kV fixed pattern indoor switchgear. There are 6X11 kV feeders that needs to be swang over to the new 11 kV fixed pattern indoor switchgear. The cable feeders were installed around 2020 and 2023, but they were not terminated due to business and project execution challenges. The scope will include terminating of the installed 11 kV cable systems to: the 11 kV side of transformer number 8, installing of surge arrestors to the fixed pattern indoor switchgear, terminating the 11 kV cable systems to existing 11 kV overhead lines.

2.1.1 Purpose

This document specifies the requirements for the terminating of 11kV power cables, installation of surge arrestors to already installed 11 kV cables, after installation tests and commissioning of the 11 kV cable systems and 11 kV fixed pattern indoor switchgear at Muldersvlei substation.

2.1.2 Applicability

This document shall apply only to the new 11 kV XLPE cable system project and 11 kV fixed pattern indoor switchgear at Muldersvlei substation.

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] SANS 60099-1: Surge arresters Part 1: Non-linear resistor type gapped surge arresters for a.c systems.

[2] SANS 60099-4, Surge arresters Part 4: Metal-oxide surge arresters without gaps for a.c. systems.

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[3] SANS 876, Cable terminations and live conductors within air-filled enclosures (insulation co-ordination) for rated a.c. voltages from 7,2 kV and up to and including 36 kV.

[4] SANS 1332, Accessories for medium-voltage power cables (3,8/6,6 kV to 19/33 kV).

[5] SANS 60815, Selection and dimensioning of high-voltage insulators intended for use in polluted conditions.

[6] SANS 10198-11, The selection, handling, and installation of electric power cables of rating not exceeding 33 kV Part 11: Jointing and termination of screened polymeric-insulated cables.

[7] SANS 10198-13, The selection, handling, and installation of electric power cables of rating not exceeding 33 kV Part 13: On-site testing, commissioning, maintenance, diagnostics, and fault location.

[8] 240-56030619, Accessories for medium-voltage power cables for systems with nominal voltages of 11 kV to 33 kV standard. 240-56065202

[9] 240-56065202, Switchgear training requirements from original equipment manufacturers standard.

[10] D-DT-8006, MV cable terminations – XLPE insulated cable.

[11] D-DT-8021, MV transition cable joints (PILC to XLPE).

[12] D-DT-8017, MV screened separable connectors and tri-furcating kits.

[13] D-DT-8010, Surge arrestors for indoor application.

2.2.2 Informative

[13] ISO 9001 Quality Management Systems support structure details.

2.3 Definitions

2.3.1 General

Definition	Description
Cable system	Cable with installed accessories (i.e. joints if applicable, terminations, earthing, and surge arrestors)

2.3.2 Disclosure classification

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

2.4 Abbreviations

Abbreviation	Description
Al	Aluminium
Cu	Copper
EXT	Extensible
IED	Intelligent Electronic Device
PILC	Paper Insulated Lead Covered

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Abbreviation	Description
SSC	Screen Separable Connector
XLPE	Cross Linked Polyethylene

2.5 Roles and responsibilities

All Eskom employees and/or appointed bodies involved in the procurement of the 11 kV XLPE cable systems shall ensure that the project deliverable meets the requirements of this specification.

All suppliers and contractors of the 11 kV XLPE cable systems to Eskom must be conversant with the requirements of this standard and shall comply with the requirements. Suppliers shall ensure that they obtain clarity where required and obtain all supporting information or documents necessary to comply with this document.

2.6 Process for monitoring

The 11kV XLPE cable systems and commissioning of 11 kV fixed pattern indoor switchgear project acceptances shall be based on full compliance to this specification.

2.7 Related/supporting documents

Refer to clause/ section 2.2.

3. Scope of Project

3.1 Farmers 1, 11 kV feeder

Supply and install 11 kV XLPE outdoor cable termination to terminate the installed11 kV, 185mm^2, 3 core, XLPE cable to the existing 11 kV overhead feeder. The 11 kV, 3 core, XLPE outdoor termination shall be in accordance with SAP number 0184239 of DDT 8006.

3.2 Farmers 2, 11 kV feeder

Supply and install 11 kV XLPE outdoor cable termination to terminate the installed 11 kV, 185mm^2, 3 core, XLPE cable to the existing 11 kV overhead feeder. The 11 kV, 3 core, XLPE outdoor termination shall be in accordance with SAP number 0184239 of DDT 8006.

3.3 Farmers 3, 11 kV feeder

Currently there are 2X 11kV, 185mm^2, 3 core, copper, PILC cables installed in this feeder. These feeders are currently supplied via the old oil filled indoor switchgear which will be decommissioned once the newly installed fixed pattern indoor switchgear is commissioned and energised. The cables will have to be cut transitioned from PILC (2 X11kV, 185mm^2, 3 core, copper, PILC) to XLPE and then trifurcated to (2 X11kV, 185mm^2, 1 core, copper, XLPE).

- Supply and install transition trifurcating joint kits to transition and trifurcate the two 11 kV, 185mm^2, 3 core, copper, PILC cables **to** 2 X11kV, 185mm^2, 1 core, copper, XLPE. Use SAP number 0580863 of DDT 8021.
- These 2 X11kV, 185mm^2, 1 core, copper, XLPE will have to be terminated in the Farm 3 feeder panel (kindly see scope included in clause 3.6 of this document).

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3.4 Farmers 4, 11 kV feeder

Currently there is an existing 11 kV, 185mm^2, 3 core XLPE cable installed but was not terminated. Below is the scope of work

- Trace the existing 11 kV, 185mm^2, 3 core XLPE cable route and then terminate the 11 kV, 185mm^2, 3 core, XLPE cable to the existing 11 kV overhead feeder by using 11 kV, 3 core, XLPE outdoor termination in accordance with SAP number 0184239 of DDT 8006.

3.5 11 kV cable termination to transformer number 8

Currently there are 6X11 kV, 630mm^2, 1 core, XLPE cables installed and are to be terminated to transformer number 8, two cables per phase to be installed. Below is the scope of work:

- Disconnect old 6X11kV, 630mm^2, PILC cables from the sealing end structure of the transformer number 8.
- Supply and install outdoor cable terminations to terminate the already installed 6X11 kV, 630mm^2, 1 core, XLPE cables in accordance with SAP nr 0635341 of DDT 8006.

Note: there is cable sealing end structure already installed.

3.6 11 kV cable termination to fixed pattern indoor switchgear

Currently there are 12X11 kV, 630mm^2, 1 core, XLPE cables installed and are to be terminated to two incomer panels. Two single core cables per phase. And 21 x 11kV, 185mm^2, 1 core, XLPE cables to be terminated to 6 feeder panels. Below is the scope of work

- Incomer 1
    - Supply and install 6 x 630mm^2 SSC for terminating 6 x 1C core cables into incomer 1, thus two cables per phase. Install the extensible screened separable connectors in accordance with SAP 0580431 of DDT 8017.
- Incomer 2
    - Supply and install 6 x 630mm^2 SSC for terminating 6 x 1C core cables into incomer 2, thus two cables per phase. Install the extensible screened separable connectors in accordance with SAP 0580431 of DDT 8017.
- Supply and install 185mm^2 SSC with surge arrestors for terminating 6 x 1C core cables (Farmers 3), 2X 1 core cables per phase hence 6 cables, this to be done in accordance with SAP 0580435 of DDT 8017.
- Supply and install Surge Arrestors for all other cable feeders (5X feeder panels, excluding farmers 3), this to be done in accordance with SAP of DDT 8010.

Note: The five feeder cables (Farm 1, Farm s, Farm 4 and 2 internal reticulation feeders) have been terminated, SSC already installed but surge arrestors have not been installed.

3.7 Arc sensors for protection

Arc sensors are positioned in the switchgear to detect failures of the screen separable MV cable connectors used for terminations in the switchgear cable and busbar compartments. The arc sensors consist of a mono-filament fibre optic cable with a lens and mounting bracket on one end, and a push-in connector for installation into a protection relay on the other end. It is imperative that the fibre optic cable is not damaged or bent beyond a 100mm bending radius.

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Currently there are cable chamber arc sensors installed in the eight feeder panels. Cable chamber arc sensors are missing from the incomer panels. Busbar arc sensors are missing from the feeder panels, incomer panels and from the bus section panel. Below is the scope of work:

- Route the eight already installed arc sensors from the feeder panels of the indoor switchgear to the protection panels. Arc sensor leads are to be routed in “sprag” tubing or like provide mechanical protection when outside of the switchgear, to be supplied by the Contractor.
- Install 14 arc sensors which are to be free-issued by the Purchaser in the incomer panel cable chambers (2 sensors), and the busbar chambers of all panels (12 sensors) and route these to the protection panels. Arc sensor leads are to be routed in “sprag” tubing or like provide mechanical protection when outside of the switchgear, to be supplied by the Contractor. Arc sensors/leads are to be installed using existing holes/studs in the switchgear compartments and shall be routed without the need to drill holes in the switchgear (affecting its internal arc rating). Arc sensor leads are to be braced so as not to interfere with moving parts inside the switchgear, or to suffer abrasion damage.
- The cable- and busbar chamber arc sensors from each switchgear panel are to be routed to the corresponding protection Intelligent Electronic Device (IED) in its off-board protection panel. The bus section panel’s arc sensors are to be routed to the bus section panel protection scheme.
- Each arc sensor lead is to be labelled at the IED end using the slip-in ferrule holder provided on the cable. The Supplier shall provide suitable slip-in label, preferably black lettering on a white background. Each lead shall be identified according to the switchgear panel number (e.g. P08) and the sensor location C = cable chamber and B = busbar chamber. The bus section busbar chamber sensors shall be labelled P06L (Left = Q1 side) and P06R (Right = Q10 side).
- Supply and install an arc flash barrier board: arc flash barrier board is required to block the light/mirror image of arc flash that may emerge from one side of the bus section (left side or right hand side), thereby preventing the arc protection from opening the breakers of the incomers (left side of the bus section and the right hand side of the bus section (or “A” and “B” side of the bus section). Meaning if there is an electric arc from the left-hand side of the bus section, then the arc sensors on the right-hand side of the bus section should not see the arc (and vice versa), thereby allowing only the affected side of the board to be isolated. It is also a safety measure; thus completely isolating one section of the board from the live section of the board while work is performed on the dead section of the board.

3.8 The cable system after installation testing

The Contractor shall provide proposals for after installation tests. These proposals, inclusive of method statements with pass/fail criteria shall be provided with the tender. Cable systems after installation test shall be done in accordance with SANS 10189-13, and commissioning tests for the switchgear shall be done in accordance with SANS/IEC 62271-1.

a) DC voltage test of the over sheath.

b) AC voltage test with PD test may be proposed. AC voltage method, PD test methods, detection systems as well as pass/fail criteria to be provided, and all other commissioning tests as stated in SANS 10198-13 and SANS/IEC 62271-1.

Eskom reserves the right to support any proposal with any alternative testing method. All test and measurement data and results performed during and after installation shall be provided to Eskom in a final report.

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3.9 Risks identified for the 11 kV cable system project

Work will be conducted in proximity to live installations. There is thus an increased risk of induced voltage or currents on the cable circuit being installed due to this live apparatus in proximity. This risk may be accentuated when the cable termination works, which is at elevation, are done. Additional earthing and/or electric field screening precautions may therefore be required during installation and testing of the cable.

3.10 Tender Requirements

The following shall be submitted by the supplier at tender stage. All information shall be in English and properly legible, if not, it could render the tender non-responsive. Furthermore, all information provided must pertain to the items within the tenderer's offer.

1) Completed Technical Schedules

2) Preliminary Project plan (schedule) indicating time frame and sequence for all on-site project activities.

3) A signed confirmation letter from the delegated representative of the type evaluated cable accessories supplier(s), confirming supply of type tested terminations for this project to the tenderer. Only cable accessories which have been type evaluated in accordance with SANS 1332 shall be offered and accepted.

4) Experience and jointing certification(s) of jointers and installation teams demonstrating relevant MV cable installation experience shall be provided. A one page CV for each team member will be sufficient. A minimum of two team members consisting of one jointer/installation supervisor and one jointer, each with a minimum of 5 years related experience is required.

5) Training proposal letter stating how the training requirements as stated in 240-56065202 will be achieved.

6) Proposal for after installation tests as outlined in 3.8.

3.11 Requirements after Contract award

The Supplier shall avail method statements and documents after contract award and when required pertaining to:

a) Final Project Plan (schedule) indicating sequence and time frames of all related activities.

b) Final site and route surveying.

c) Routine test reports for cable accessories, i.e. cable terminations (where applicable), cable joints (where applicable), surge arrestors and SSC (where applicable).

d) Site Preparation and/or Establishment.

e) Outdoor cable terminations installation method statement and onsite quality inspection plans.

f) Surge arrestors installation method statement and onsite quality inspection plans.

g) After installation testing and commissioning testing method statements and onsite quality inspection plans.

4. Conclusion

This report specifies a cable system requirement for terminating and commissioning of 11 kV cable systems to a newly installed 11 kV fixed pattern indoor switchgear at Muldersvlei substation. The Supplier must complete the Technical Schedule B in Appendix A as part of the tender returnable.

The technical evaluation criteria for this project are specified in Appendices B, and C.

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5. Authorization

This document has been seen and accepted by:

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6. Revisions

Date	Rev	Compiler	Remarks
October 2026	2	Q. Khumalo	Included the requirements for arc flash barrier board in clause 3.7. Updated Technical Schedule A&B to include arc flash barrier board. Reviewed and amended mandatory requirements on the Technical Evaluation Criteria (Appendix B). Added table 3: requirements for contract award.
August 2025	1	Q. Khumalo	New document

7. Development team

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

- Mercia Zulu: Engineer: NTCSA, Asset Management, SE&D
- Queeneth Khumalo: Chief Engineer: NTCSA, Asset Management, SE&D
- Stuart Van Zyl: Corporate Specialist: NTCSA, Engineering, PTM&C

8. Acknowledgements

Not applicable.

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Appendix A – Schedules A and B for the Muldersvei 11kV cable systems

Schedule A: Purchaser's specific requirements

Schedule B: Guarantees and particulars of equipment to be supplied (to be completed by tenderer)

Item Nr	Description	Units	Schedule A	Schedule B
1	a) altitude	m	Up to 1800	xxxxxxxx
2	b) ambient air temperature	°C	–5 °C to 50 °C (average of 35 °C)	xxxxxxxx
3	c) soil temperature	°C	0 °C to 35 °C (average of 25 °C)	xxxxxxxx
4	d) soil thermal resistivity (maximum at soil dry out)	K·m/W	1,2	xxxxxxxx
5	e) depth of burial	m	0.8	xxxxxxxx
6	f) configuration		Treifoil	xxxxxxxx
7	g) special bonding applied		Single ends point bonded	xxxxxxxx
8	h) lightning ground flash density		severe (14 flashes/km^2/year	xxxxxxxx
9	i) solar radiation	W/m^2	1 000 to 1 250	xxxxxxxx
10	j) ultraviolet radiation		High	xxxxxxxx
11	k) relative humidity		10 % to 95 %;	xxxxxxxx
12	m) wind pressure and seismic		Not exceeding 700 Pa (equivalent to 34 m/s) and 0.3g	xxxxxxxx
13 14	n) pollution severity defined by IEC 60815: "Very heavy"		Very heavy (31 mm/KV required as a minimum)	xxxxxxxx
15	o) maximum conductor operating temperature	°C	70°C	xxxxxxxx
16	Cable or accessory operating voltage (or both) (U)	kV	11	xxxxxxxx
17	Rated voltage of accessories	kV	11	xxxxxxxx
18	Type of cables installed		1 core, 3 core, Cu, XLPE	xxxxxxxx
19	Conductor cross-sectional area	mm^2	630mm^2 and ^{630}mm^2	xxxxxxxx
21	Minimum Symmetrical short-circuit fault level at 1s	kA	40	xxxxxxxx
22	**11 kV cable termination to transformer number 8**			
22.1	Disconnect 2X630mm^2, 1core, PILC cables from the sealing end structure.		6X 630mm^2, 1 core, Cu cables to be transitioned from to PILC to XLPE.	
22.2	Re-use the sealing end structure and terminate 2X630mm^2, 1core, XLPE, SAP number 0580341 of DDT 8006. Note 2X 1 core cables per phase.		Yes	
22.3	Does the termination comply with the specification as prescribed in 0580341 of DDT 8006?		Yes	

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Item Nr	Description	Units	Schedule A	Schedule B
22.4	OEM of the cable termination supplied?		xxxxxxxx	
22.5	Installation manual/ jointer instruction supplied?		Yes	
23	**Terminating 630mm^2 cables into incomer 1 of the fixed pattern indoor switchgear**			
23.1	2X 630mm^2 cables have already been terminated into the incomer panel. Supply and install extensible SSC in the incomer panel as per SAP 0580431 of DDT 8017.		6X630mm^2 cables to be terminated	
23.2	Does the station class surge arrestor comply with the specification as prescribed in SAP 0580431 of DDT 8017?		Yes	
23.3	OEM of the SSC supplied?		xxxxxxxx	
23.4	Installation manual/ jointer instruction supplied?		Yes	
24	**Terminating 630mm^2 cables into incomer 2 of the fixed pattern indoor switchgear**			
24.1	Terminate the 630mm^2 cables into the incomer panel by using indoor termination with extensible screen separable connector in accordance with SAP 0580431 of DDT 8017.		6X630mm^2 cables to be terminated	
24.2	Does the SSC comply with the specification as prescribed in SAP 0580431 of DDT 8017?		Yes	
24.3	OEM of the SSC supplied?		xxxxxxxx	
24.4	Installation manual/ jointer instruction supplied?		Yes	
25	**Installing surge arrestors into cable compartments of feeder panels**			
25.1	Supply and install surge arrestors into all feeder panels, i.e 6 feeder panels.		18 = 6 X 3 surge arrestors	
25.2	Does the surge arrestors comply with SAP 0175534 number of DDT 8010?		Yes	
25.3	OEM of the surge arrestor supplied?		xxxxxxxx	
25.4	Installation manual/instruction supplied?		Yes	
26	**Terminating Farmers 1, 11 kV cable feeder to 11 kV overhead line**			
26.1	Supply and install 11 kV XLPE outdoor cable termination to terminate the installed 11 kV, 185mm^2, 3 core, XLPE cable to the existing 11 kV overhead feeder.		Outdoor termination.	

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Item Nr	Description	Units	Schedule A	Schedule B
26.2	Does the 11 kV, 3 core, XLPE, outdoor cable termination complies with SAP 0184239 number of DDT 8006?		Yes	
26.3	OEM of the cable termination supplied?		xxxxxxxx	
26.4	Installation manual/instruction supplied?		Yes	
26.5	Does the cable termination arrangement comply with DDT 0850?		Yes	
27	**Terminating Farmers 2, 11 kV cable feeder to 11 kV overhead line**			
27.1	Supply and install 11 kV XLPE outdoor cable termination to terminate the installed 11 kV, 185mm^2, 3 core, XLPE cable to the existing 11 kV overhead feeder.		Outdoor termination.	
27.2	Does the 11 kV, 3 core, XLPE, outdoor cable termination complies with SAP 0184239 number of DDT 8006?		Yes	
27.3	OEM of the cable termination supplied?		xxxxxxxx	
27.4	Installation manual/instruction supplied?		Yes	
27.5	Does the cable termination arrangement comply with DDT 0850?		Yes	
28	**Terminating Farmers 3, 11 kV cable feeder to 11 kV overhead line**			
28.1	Supply and install transition trifurcating joint kits to transition the two 11 kV, 185mm^2, 3 core, copper, PILC cables to 2 X11kV, 185mm^2, 1 core, copper, XLPE.		Yes	
28.2	Transition trifurcating joints to comply with DDT 8021 SAP number 0580863?		Yes	
28.4	OEM of the transition trifurcating joints supplied?		xxxxxxxx	
28.5	Installation manual/instruction supplied?		Yes	
28.6	Supply and install extensible SSC and terminate Farmers 3 cable feeder into the designated feeder panel.		Outdoor termination.	
28.7	Does the extensible SSC comply with SAP 0580435 of DDT 8017?		Yes	
28.8	OEM of the SSC supplied?		xxxxxxxx	
28.9	Installation manual/instruction supplied?		Yes	

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Item Nr	Description	Units	Schedule A	Schedule B
29	**Terminating Farmers 4, 11 kV cable feeder to 11 kV overhead line**			
29.1	Trace the existing 11 kV XLPE cable route and then terminate the 11 kV, 185mm^2, 3 core, XLPE cable to the existing 11 kV overhead feeder.		Yes	
29.2	Supply and install 11 kV XLPE outdoor cable termination to terminate the installed 11 kV, 185mm^2, 3 core, XLPE cable to the existing 11 kV overhead feeder.		Yes	
29.3	Does the 11 kV, 3 core, XLPE, outdoor cable termination complies with SAP 0184239 number of DDT 8006?		Yes	
29.4	OEM of the cable termination supplied?		xxxxxxxx	
29.5	Installation manual/instruction supplied?		Yes	
29.6	Does the cable termination arrangement comply with DDT 0850?		Yes	
30	**Arc Sensors**			
30.1	Route the eight already installed arc sensors from the feeder panels of the fixed pattern indoor switchgear to the protection panels.		Yes	
30.2	Install 14 free-issued arc sensors in the switchgear and route these to the protection panels.		Yes	
30.3	Arc sensors to be routed using protective tubing, “sprag” tube or like its applicable protection IED.		Yes	
30.4	Arc sensor leads to be labelled on the protection IED end as indicated herein.		Yes	
30.5	Supply and install arc flash barrier board.		Yes	
31	**Commissioning and testing of all cable systems and fixed pattern indoor switchgear**			
31.1	Commissioning and testing of all cable systems connected to fixed pattern indoor switchgear SANS 10198-13?		Yes	
31.2	Commissioning and testing of fixed pattern indoor switchgear in accordance with SANS 62271-1		Yes	

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Appendix B– Technical evaluation criteria for the Muldersvlei 11 kV cable systems projects

1) Scope

This document covers the criteria for the technical evaluation of terminating of 11 kV cable systems to newly installed 11 kV fixed pattern indoor switchgear, commissioning and testing of the 11 kV cable system and the indoor switchgear at Muldersvlei substation.

2) Requirements

The technical evaluation criteria are specific for each part of the 11 kV cable systems i.e. terminating of the already installed cables, installing surge arrestors in the cable compartments (where applicable) of the indoor switchgear, after installation testing and commissioning of all the 11 kV cable systems and the 11 kV fixed pattern indoor switchgear at Muldersvlei substation. The evaluation methodology entails the technical evaluation of the tender returnable documentation submitted.

2.1 Tender Evaluation process

The technical tender evaluation process constitutes the technical evaluation of the relevant tender submissions as submitted by the tenderers for this project. The submitted documents will be evaluated against the evaluation criteria as stated in Appendix C, Table 1 and 2.

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. If all functional requirements are met, the mandatory requirements are complied with. If there is a failure to meet any one of the functional requirements, the submission is non-compliant, 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 100% of the final score.

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

Table 3: lists additional items to be complied with as part of contract obligations before contract award. All required documents should be submitted before commencement of any work.

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Appendix C– Technical evaluation criteria for the Muldersvlei 11 kV cable systems project

Table 1: Mandatory technical evaluation criteria

	Level 1 Mandatory criteria		
Item	**Criteria**	**Compliant (Yes/No)**	**Comment**
1.	Fully completed Technical Schedules.		
2.	Qualifications for the jointer who will be performing the work.		
3.	Installation/joint instruction for 630mm^2 1 core, XLPE outdoor termination.		
4.	Installation/joint instruction for 185mm^2 3 core, XLPE outdoor termination.		
5.	Installation/joint instruction for 630mm^2 1 core, XLPE SSC.		
6.	Installation/joint instruction for 185mm^2 1 core, XLPE SSC.		
7.	Installation or jointer instruction for station class surge arrestors to be used in the indoor switchgear.		
Compliant		**Yes/No**	
Level 1 Mandatory: all or nothing (Proceed to Level 2 only if all mandatory criteria are met)			

Table 2: Scoring technical evaluation criteria.

	Level 2 Scoring Criteria		
Item	**Criteria**	**Weight**	**Comment**
1.	Preliminary Project plan (schedule) indicating time frame and sequence for all activities	4	
2.	Project reference list of a minimum of 5X (11kV and above) cable systems installed over the last 5 years. Project name, voltage level, as well as client name, email, and telephone contact details to be provided	2	
3.	A CV per jointer and/or installer team member/s indicating jointing and installation experience at MV cable level as outlined in clause 5.	2	
4.	Proposal for after installation tests as outline in clause 3.8.	2	
5.	Tool list to perform the SoW as stated in section 3 of this document.	2	
Sub-total		**/12**	
Level 2 scoring weighted score = (obtained score/12) × 100%. 80% required to proceed with the Tender evaluation.			

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Appendix D– OEM Specific Documents for Contractual Obligations

The items specified in Table 3 below are required to assess the technical compliance of the cable accessories and verify that the proposed Level 4 switchgear training meets the applicable training requirements. These shall be submitted before contract award.

Table 3: Contractual Obligations.

	Contractual Obligation		
Item	**Criteria**	**Weight**	**Comment**
1.	Type test reports for the cable accessories.	4	
2.	Signed letter from type tested cable accessories supplier confirming supply of all cable accessories for this project to the tenderer.	2	
3.	Offer letter for level 4 training in accordance with 240-56065202.	2	
Sub-total		**/8**	
100% compliance required to proceed to contract negotiations and contract award.			

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