Eskom	Report	Technology

Title: **TECHNICAL EVALUATION CRITERIA FOR MINIATURE SUBSTATIONS**

Unique Identifier:	**240-91422345**
Alternative Reference Number:	**<n/a>**
Area of Applicability:	**Engineering**
Documentation Type:	**Report**
Revision:	**5**
Total Pages:	**20**
Next Review Date:	**n/a**
Disclosure Classification:	**Controlled Disclosure**

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Date: 1 July 2025	Date: 1 July 2025	Date: 1 July 2025

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PCM Reference: **Support to Commercial**
SCOT Study Committee Number/Name: **Cable Systems and Metal Enclosed Switchgear**

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1. Introduction

This document has been developed to set the standard technical evaluation criteria to be used when evaluating tender submissions for mini substations used in Eskom. These mini substation product range types will include Type A mini subs, Type B mini subs and Type B high risk mini subs, and all related components per type used. The technical evaluation criteria have clauses developed to address various aspects required to perform the technical evaluation. It has been developed in line with the Eskom mini substation equipment specifications.

This document contains both the evaluation criteria used for the documentation evaluation, factory evaluations and factory sample evaluations. In addition it contains the questions which are required for technical evaluation purposes.

2. Supporting clauses

2.1 Scope

The document covers the criteria for the evaluation of the mini substations within Eskom Holdings SOC Limited (Ltd).

2.1.1 Purpose

The document addresses the standard documented technical evaluation criteria to be used when evaluating the tender submissions for the mini substations in line with the Eskom Holdings SOC Limited (Ltd) requirements and it is applicable to all stages of the technical evaluations for the related tender submissions.

2.1.2 Applicability

This document shall apply for the Eskom Holdings SOC Limited, Distribution and Transmission division wherein Eskom has a controlling interest, and Generation division where required.

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 National document(s)

[1] SANS 1029, Mini-substations for rated A.C voltages up to and including 24 kV.

[2] SANS 1874, Switchgear — Metal-enclosed ring main units for rated a.c. voltages above 1 kV and up to and including 36 kV.

[3] SANS 876, Cable terminations and live conductors within air-filled enclosures (insulation coordination) 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 121 / ISO 1461, Hot-dip galvanized coatings on fabricated iron and steel articles – Specifications and test methods.

[6] SANS 1019, Standard voltages, currents and insulation levels for electricity supply.

[7] SANS 1091, National colour standard.

[8] SANS 60076-7, Power transformers – Part 7: Loading guide for oil-immersed power transformers.

[9] SANS 60269-2 /IEC 60269-2, Low-voltage fuses – Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) - Examples of standardized systems of fuses A to I.

[10] SANS 60529, Degrees of protection provided by enclosures (IP Code).

[11] SANS 60815-1, Selection and dimensioning of high-voltage insulators intended for use in polluted conditions – Part 1: Definitions, information and general principles.

[12] SANS 60947-3 /IEC 60947-3, Low-voltage switchgear and controlgear – Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units.

[13] SANS 61243-5, Live working – Voltage detectors – Part 5: Voltage detecting systems (VDS).

[14] SANS 61439-1, Low-voltage switchgear and controlgear assemblies – Part 1: General rules.

[15] SANS 780, Distribution transformers.

[16] SANS 62271-202, High-voltage switchgear and controlgear - Part 202: High-voltage/low-voltage prefabricated substation.

[17] SANS 62271-200, High-voltage switchgear and control gear - Part 200: AC metal-enclosed switchgear and control gear for rated voltages above 1 kV and up to and including 52 kV.

2.2.2 Eskom document(s)

[18] 240-56062752: Specification for medium voltage miniature substations for systems with nominal voltages of 3.3 kV, 6.6 kV, 11 KV and 22 kV standard.

[19] 240-70413291 (DSP 34-253): Specification for electrical terminal blocks.

[20] 240-56364491 (DST 34-462): Standard design for distribution protection schemes.

[21] 240-75655480 (DSP 34-1080): Specification for earth fault indicators used for MV cable networks.

[22] 240-75655504 (DSP 34-1658): Corrosion protection specification for distribution outdoor equipment manufactured from steel.

[23] 240-64685228 (DST 34-333): Generic Specification for Protective Intelligent Electronic Devices (IEDS).

[24] 240-56030406 (DSP 34-210): Ring main units for systems with nominal voltages from 11 kV to 33 kV.

[25] 240-56065202: Switchgear Training Requirements from Original Equipment Manufacturers Standard.

[26] 240-45395762: Specific requirements for distribution pole and ground-mounted transformers up to 33 kV and 1 MVA.

[27] 240-57648800: New oil filled auxiliary transformers rated 1 MVA and below and 33 kV and below.

[28] D-DT-0859: Type B mini-substation plinth details.

[29] D-DT-0860: 11 kV and 22 kV Type A mini-sub cable termination detail.

[30] D-DT-0868: Schematic and wiring diagram.

[31] D-DT-1013: Mini-sub meter plate details.

[32] D-DT-3034: LV circuit breakers.

[33] D-DT-3088: Distribution transformer LV neutral surge arrester.

[34] D-DT-3132: Wire, meter sealing s/steel.

[35] D-DT-3181: LV fuses.

[36] D-DT-3409: Fuse holder, vertical 3P 440V.

[37] D-DT-3196: Ferrule, tinned Cu sealing 12mm LG.

[38] D-DT-3202: Danger sign (unauthorised entry prohibited).

[39] D-DT-6073: Signs D & E (Treatment and Full First Aid Instructions).

[40] D-DT-8017: Screened separable connectors (22kV).

[41] D-DT-8019: Cable Clamp (black polypropylene).

[42] D-DT-8026: LV flexible cables.

[43] D-DT-8029: Sealant strip for mini-sub/ RMU.

[44] D-DT-8050: Mini-substation 11 kV, Type B.

[45] D-DT-8051: Mini-substation 22 kV, Type B.

[46] D-DT-8052: Mini-substation 11 kV, Type A.

[47] D-DT-8053: Mini-substation 22 kV, Type A

2.2.3 Informative

[48] 32-9: Definition of Eskom documents.

[49] 32-644: Eskom documentation management standard.

[50] 474-65: Operating manual of the Steering Committee of Technologies (SCOT).

2.3 Definitions

2.3.1 General

Definition	Description
Eskom Evaluating Representative(s)	The person(s) appointed by Eskom to perform the evaluation of tender submission(s) in line with the Eskom requirements.
Nominal voltage	The stated r.m.s. phase-to-phase voltage of the supply to which equipment is connected.
Rated voltage	The highest r.m.s. phase-to-phase voltage of the supply for which equipment is designed to operate continuously.
Ring main unit	A medium voltage metal-enclosed switchgear assembly that comprises a combination of two ring switch-disconnectors and a circuit-breaker tee-off function. These functions incorporate integral cable earthing switches and have facilities for cable testing.
Type A mini-sub	A mini-sub that is fitted with an off-load, dead-break isolating arrangement in the MV compartment, that consists of extensible screened separable connectors at 11 kV and 22 kV.
Type B mini-sub	A mini-sub that is equipped with a ring main unit in the MV compartment.
High risk Type B mini-sub	A miniature substation that is equipped with a ring main unit in the MV compartment and a high risk enclosure design.

2.3.2 Disclosure classification

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

2.4 Abbreviations

Abbreviation	Description
LV	Low Voltage
MCCB	Moulded Case Circuit Breaker
Mini-sub	Miniature Substation

Abbreviation	Description
MV	Medium Voltage
OEM	Original Equipment Manufacturer
RMU	Ring Main Unit
SHEQ	Safety, Health, Environmental and Quality

2.5 Roles and responsibilities

All Eskom employees and/or appointed bodies involved in the procurement of the mini-subs shall ensure that the project deliverable meets the requirements of these technical evaluation criteria.

All suppliers of mini-subs to Eskom must be conversant with the requirements of the applicable standards, 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 acceptance of the mini-subs shall be based on the evaluation of the fully compliant documentation submission, factory evaluations and the exact replica factory sample evaluations for each mini substation product, product type and its associated main components.

2.7 Related/supporting documents

Refer to clause/ section 2.2.

3. Requirements

This document contains the technical evaluation criteria for all type mini-subs. The three stages of the technical evaluation criteria are specific to each of the mini-sub types and its associated main components evaluated. The evaluation methodology will include three main stages, namely the documentation evaluation, factory evaluations and factory sample evaluations.

3.1 Documentation Evaluation

The documentation evaluation exercise is performed by the Eskom evaluating representatives. This initial part of the evaluation starts when technical submissions are opened and assessed for the first time after the Commercial evaluations are concluded, unless otherwise agreed. Only Commercial compliant submissions shall be considered for technical evaluations to conclude the tender process, any evaluation of non-Commercial compliant tenderers will be at the discretion of Eskom. The submitted documents will be evaluated against the evaluation criteria as stated in clause 3.4 of this document.

The documentation evaluations are meant for establishing if all the key tender deliverables are met with regard to the product offered. The documentation evaluation will be performed in two levels: 1) the mandatory technical evaluation requirements and deliverables Level 1 (mandatory requirements), and 2) the level 2 (scoring phase).

Failure to submit all documents required for mandatory technical evaluation will lead to immediate disqualification.

During the documentation evaluation; the submission need to prove full compliance and that type testing for the mini subs were done in accordance with Eskom specifications and normative references where applicable. Failure to submit and comply with all test requirements specified in the Eskom specifications or the related normative referenced documents will lead to immediate disqualification, unless otherwise indicated by Eskom.

The documentation tender submission must meet all the level 1 mandatory technical evaluation requirements. Failure to meet all the mandatory requirements will result in immediate disqualification. Tenderers which were found compliant and successful on level 1 mandatory requirement will proceed to Level 2 scoring phase.

In order to proceed to the factory and factory sample evaluation stage; the tenderer will need to obtain a minimum of 80% for Level 2 scoring phase in table 2 of this document. Any submissions that do not meet the 80% threshold will result to immediate disqualification.

Immediate disqualification during the level 1 mandatory technical evaluation stage will mean that Eskom will be allowed to stop the technical evaluations without concluding the review of all the level 1 mandatory technical evaluation requirements not yet reviewed.

Note: The tenderer will be required to ensure full compliance before contract award if a score less than 100% was achieved at level 2 scoring phase.

Evaluation for the LV interconnection cables, MV interconnection cables, MV cable terminations (SSC's) and the LV switchgear used in the mini substation shall be performed as part of the mini substation technical evaluations. If more than one product option is offered for the above, a full technical submission (i.e. technical documentation in accordance with the Eskom specification, manufacturing plant location and the complete mini substation samples fitted with the different options) will be required for each option offered, including the detailed cost breakdown.

For Type B mini subs: suppliers will only have to submit one option of an Eskom compliant RMU which will be evaluated with the mini sub.

3.2 Factory Evaluation

The factory evaluations are only performed on the submissions that have achieved a minimum of 80% at level 2 scoring phase. Eskom Commercial shall make the arrangements for factory visits and ensure the companies are notified and the technical representatives are invited on time.

At the factory, the Eskom evaluating representative(s) conducts the evaluation through the use of checklists. The checklists are used to verify factory capability and manufacturing method compliance to the type tested mini substation offered.

At the end of the factory evaluation, the Eskom evaluating representative(s) list all the deviations and identified risks if any. The representatives conduct a formal discussion of the deviations and risks in line with Eskom's requirements. The Tenderer and their OEM will be required to address the discrepancies and risks identified during contract negotiations (if Tenderer is successful).

The tenderer will be disqualified if it is found that the Tenderer/Manufacturer does not have capability and ability to manufacture mini-subs in accordance with Eskom's requirements as stated in this document and in line with what was submitted during tender.

The factory evaluations will be performed at the mini sub manufacturing factory.

3.2.1 Type A mini subs factory evaluated:

The following component assembly for Type A mini subs will be evaluated

1) The mini substation enclosure manufacturing,
2) The mini substation enclosure painting/ protective coating application,
3) The transformer manufacturing,
4) The fitting of the bushing to the transformer,
5) LV assembly and wiring,
6) LV switchgear fitting to the mini sub,
7) The LV interconnection cable terminations,
8) The MV interconnection cable terminations,
9) The mini substation final assembly, and
10) Testing facilities including certification and calibration of testing equipment.

3.2.2 Type B mini subs factory evaluated:

In addition to the items listed in clause 3.2.1 above; the following component assembly for Type B mini subs will be evaluated:

1) The Type B mini-subs RMU assembling into the mini-sub enclosure.
2) The Type B mini subs relay settings configuration and functionality tests, and
3) The mini substation final assembly.
4) Testing facilities including certification and calibration of testing equipment.

3.2.3 Manufacturing and assembly plant verification

The manufacturing and assembly plant verification for the main components and final assembly will include the verification of the following:

1) The product and manufacturing design and design software capability.
2) The manufacturing plant setup.
3) The machinery capability.
4) Raw material and compounds type tested.
5) Production process and critical check points.
6) Material handling and storage.
7) Testing facilities including certification and calibration of testing equipment.
8) Sample testing and procedures.
9) Routine testing and procedures.
10) Final packaging of materials.

3.3 Factory Sample Evaluation

The factory sample evaluations will be the evaluation of the exact replica product that is offered to Eskom during tender. A product range sample quantity allowance will be made by Eskom whereby each tenderer will be required to prepare only one exact replica sample per product range type offered for factory sample evaluations. Eskom will notify successful tenderers and indicate the sample to prepare for sample evaluation.

The factory sample evaluations will only be performed on the submissions that have achieved a minimum score of 80% at level 2 scoring phase.

It is required that the tenderer ensure that the required exact replica samples in accordance with the Eskom mini substation specification and technical evaluation criteria are manufactured, assembled, functionally tested and ready for evaluation after Eskom has notified the tenderer that Eskom will proceed with factory evaluations and factory sample evaluations.

The costs for the exact replica sample manufacturing will be for the tenderers own cost. Should the tenderer be found compliant during the factory evaluations and factory sample evaluations, and was successful during the possible contract negotiations and awarding, the manufactured sample units may be corrected accordingly and supplied on contract when required.

At the end of the factory sample evaluation, the Eskom evaluating representative(s) list all the deviations and identified risks if any. The representative conducts a formal discussion of the deviations and risks in line with Eskom’s requirements. The Tenderer and their OEM will be required to address the discrepancies and risks identified during contract negotiations (if Tenderer is successful).

The relevant technical documents submitted during tender shall be evaluated against the prepared sample during factory sample evaluation. The tenderer will be disqualified if it is found that the Tenderer/Manufacturer does not have capability and ability to manufacture mini-sub in accordance with Eskom's requirements as stated in this document and in line with the technical documents which were submitted during tender.

Eskom Commercial shall make the necessary arrangements for the exact replica factory sample evaluations, by ensuring the companies are notified and the technical representatives are invited on time.

The exact replica factory sample evaluations shall be performed at the mini substation final assembly factory in South Africa.

3.4 Technical Evaluation Criteria for the Documentation Evaluation Stage

3.4.1 Level 1 mandatory technical evaluation requirements for mini subs

Tenderers will be required to fully comply will all the requirements/ criteria as stated in table 1 below to proceed to level 2 evaluation.

Table 1: Level 1: mandatory technical evaluation requirements

Number	Criteria	Applicability	Clause	Acceptance: Yes/No
1.	Is a detailed covering letter containing a list of items offered submitted?	Types A&B	As per tender list of items.	
2.	Is a full list listing all the individual components used to assemble the mini sub submitted? The list to include the following items: a) Screened Separable Connectors, b) MV Cables, c) LV Cables, d) Switch disconnectors/ MCCBs, e) RMUs f) LV surge arrestors, g) Bushings, h) Tap changer, i) CTs, j) Top oil temperature gauge, k) VTs l) VDS (as per SANS 61243-5? m) Earth fault indicator in accordance with the Eskom (240-56062752). Kindly complete the list in the attached excel format (Components sheet).	Types A&B	Components sheet	

Number	Criteria	Applicability	Clause	Acceptance: Yes/No
3.	Are technical brochures for all the individual components used to assemble the mini sub submitted? The brochures required are for the following items: a) Screened Separable Connectors, b) MV Cables, c) LV Cables, d) Switch disconnectors/ MCCBs (as per SANS 60947-2) e) RMUs f) LV surge arrestors, g) Bushings, h) Tap changer, i) CTs, j) Top oil temperature gauge, k) VTs l) VDS (as per SANS 61243-5? m) Earth fault indicator. In accordance with the Eskom (240-56062752). Kindly complete the list in the attached excel format (Components sheet).	Types A&B		
4.	Are the completed technical schedules B electronically submitted in the provided excel format?	Types A&B	Technical Schedules A and B	
5.	Are completed transformer design schedules electronically submitted in the provided excel format?	Types A&B	Transformer design schedule	
6.	Are completed transformer general information schedules electronically submitted in the provided excel format?	Types A&B	Transformer general information schedule	
7.	Are completed tools, spares and drawing schedules electronically submitted in the provided excel format?	Types A&B	Tools, spares and drawing schedules	

Number	Criteria	Applicability	Clause	Acceptance: Yes/No
8.	Are completed type tests schedule summaries submitted electronically in the provided excel format?	Types A&B	Type schedules.	
9.	Are completed component schedule summaries submitted electronically in the provided excel format?	Types A&B	Component schedule	
10.	Are the mini substation general assembly drawings submitted?	Types A&B	240-56062752 Clause 3.8.2.2a)	
11.	Are drawings for all mini sub auxiliary equipment submitted (wiring drawing)?	Types A&B	240-56062752 Clause 3.1.2.8 and D-DT-0868	
12.	Have all the type test reports as listed in the type test schedule been submitted where required?	Types A&B	240-56062752 SANS 1874, SANS 1029, SANS 62271-200 and SANS 62271-202.	
13.	Does the mini-sub make provision for the support (clamping) of two three core cables in the MV compartment? (a drawing to be submitted)	Type A	240-56062752 clause 3.2.2.1b.	
14.	Is the distance from the cable support clamp to the centre of the bushing 800 mm (minimum)?	Types A&B	240-56062752 clause 3.2.2. & 3.3.1	
15.	Have the transformer type test reports in accordance with SANS 780 been submitted?		SANS 780	
16.	For type B mini subs: are internal arc type test reports in accordance with IEC/SANS 62271-200 submitted for the RMU?	Type B	240-56062752 Clause 3.1 and Clause 3.6 & 3.7	

Number	Criteria	Applicability	Clause	Acceptance: Yes/No
17.	For type B mini subs: are internal arc type test videos in accordance with IEC/SANS 62271-200 submitted for the RMU? **Note**: The type test video should correspond or should be the exact video for the type test report submitted above.	Type B only	240-56062752 Clause 3.1 and Clause 3.6 & 3.7	
18.	For B-Type mini subs: Are mini sub enclosure IAC-AB FLR Type test reports in accordance with IEC/SANS 62271-202 submitted? OR Has a mini sub enclosure IAC-AB FLR Type testing proposal in accordance with IEC/SANS 62271-202 been submitted and does the proposal include a commitment signed by both the minisub manufacturer and the accredited test facility stating scheduled test dates. Notes: 1) Tenderers who have submitted a type test proposal in accordance with SANS 62271-202 shall be afforded a period of six months from the tender closing date to complete the requisite testing. Non-compliance within the stipulated timeframe shall result in disqualification from the tender process. Possible contract award for such tenderers shall only be considered once all test reports have been submitted and accepted. Eskom, however, reserves the right to continue with contract award for those tenderers that are fully compliant. 2) All tests performed as part of contract award will be for the cost of the supplier and require to be witnessed by suitable Eskom technical representatives.	Type B only	240-56062752 Clause 3.6 & 3.7	
19.	Are mini sub enclosure IAC-AB FLR passed Type test Videos in accordance with IEC/SANS 62271-202 submitted? **Note:** The type test video should correspond or should be the exact video for the type test report submitted above.	Type B only	240-56062752 Clause 3.6 & 3.7	
20.	Has type testing been performed at an accredited Test facility where applicable? **Note:** A written consent stating that all type test reports were performed at accredited laboratories. This will however be verified at level 2 scoring phase.	Types A&B	240-56062752 Clause 3.6.1) & 3.7	
21.	Do the submitted drawings to show the integral cable test facility which is independent of the cable termination enclosure on the RMU of the mini sub?	Type B only	240-56062752 Clause 3.3.1.1 a	

22.	Is a technical manual of the hand-held push-button remote control unit submitted?	Type B only	240-56062752 Clause 3.3.1.1 b	
23.	Are the RMU cable termination enclosures suitable for the termination of 3-core or 3X1-core cables of conductor cross-sectional area up to 300 mm^2? **Note:** A drawing that shows a range of size of cables that can be terminated to the RMU of the mini sub to be submitted.	Type B only	240-56062752 Clause 3.3.1.1 c	
24.	Are technical manuals of the relay offered submitted in accordance with the Eskom specification?	Type B only	240-56062752 Clause 3.3.1.1 e	
Any one “NO” on the above scores the supplier will be disqualified. The mini sub should fully comply with Eskom specifications where applicable to obtain a YES on the mini sub assembly and construction.				

3.4.2 Level 2 scoring technical evaluation requirements for mini subs

Tenderers will be required to score a minimum of 80 points from table 2 below to proceed to factory and factory sample evaluation.

Table 2: Level 2: Scoring technical evaluation requirements

Number	Criteria	Clause	Applicability	Acceptance: Yes/No/NA	Weight: 30	Score
Type test reports						
1.	Are the submitted transformer type test reports compliant? (6)	SANS 780	Type A&B		30	
	Are the submitted internal arc type test reports for the RMU compliant? (6)	IEC/SANS 62271-200	Type B			
	Are the submitted internal arc type test videos of the RMU compliant? (6)	IEC/SANS 62271-200	Type B			
	Are the submitted internal arc ABFLR type test reports for the mini-sub compliant? (6)	IEC/SANS 62271-202	Type B			
	Are the submitted internal arc ABFLR type test videos of the mini-sub compliant? (6)	IEC/SANS 62271-202	Type B			
Any one “NO” on the above criteria the supplier will lose all the 30 points. Full points will be allocated if criteria are not applicable for the type of mini sub offered.						
Number	**Criteria**	**Clause**	**Applicability**	**Acceptance: Yes/No/NA**	**Weight: 10**	**Score**
2	**Routine test reports**					
2.1	Are the submitted transformer routine test reports compliant? **Note:** The list of routine test reports/certificates required is shown in the excel provided type test schedules. **Note:** The supplier will lose all applicable points for each missing routine test report.	SANS 780	Type A&B		2	

Number	Criteria	Clause	Applicability	Acceptance: Yes/No/NA	Weight: 10	Score
2.2	Are the submitted mini sub routine test reports compliant? Note: The list of routine test reports/certificates required is shown in the excel provided type test schedules. **Note:** The supplier will lose all applicable points for each missing routine test report.	SANS 1029	Type A&B		2	
2.3	Are the submitted RMU routine test reports compliant? **Note:** The supplier will lose all applicable points for missing routine test report.	SANS/IEC 62271-200	Type B		2	
2.4	Is the top oil temperature gauge design compliant to Eskom requirements? Note: the compliance to be proven by a test report which shows that the shunt trip operates at a set temperature. Note: Supplier will lose all applicable points for failure to submit the test report as stated above.	240-56062752 Clause 3.3.1.4	Type A&B		2	
2.5	Were type tests performed in the last 10 years? Note: For Type testing performed within the last 10 Years supplier gets 2 points, and loses 0.5 point for each additional year (for the respective question above).	240-56062752 Clause 3.6.1	Type A&B		2	
Full points will be allocated if criteria are not applicable for the type of mini sub offered.						
Number	**Criteria**	**Clause**	**Applicability**	**Acceptance: Yes/No/NA**	**Weight: 10**	**Score**
3	**Schedules**					
3.1	Are the completed technical schedules B compliant and signed? Note: A penalty of 10 % will be applicable for each incorrect completion of the technical schedule B.	Technical Schedule A&B	Type A&B		4	
3.2	Are completed transformer design schedules compliant and signed?	Transformer design schedule	Type A&B		3	

	Note: A penalty of 10 % will be applicable for each incorrect completion of the transformer design schedule.					
3.3	Are completed transformer general information schedules compliant and signed? Note: A penalty of 10 % will be applicable for each incorrect completion of the transformer general information schedules.	Transformer general information schedule	Type A&B		3	
Number	**Criteria**	**Clause**	**Applicability**	**Acceptance: Yes/No/NA**	**Weight: 10**	**Score**
4	**Other Technical Documents: manuals, brochures, operating procedure and etc**					
4.1	Detailed bill of materials (BOM) for mini-sub?		Type A&B		1	
4.2	Are the rated lightning impulse peak with-stand levels for all MV equipment in accordance with the Eskom requirements?	240-56062752 Clause 3.1.2.1	Type A&B		2	
4.3	Are the total cost calculations for each transformer size submitted in accordance with the Eskom requirements? See transformer losses and capitalisation equation.	240-56062752 Clause 3.5	Type A&B		2	
4.4	Is the top oil temperature gauge design, make and test reports proofing the gauge functionality submitted, and compliant to Eskom requirements?	240-56062752 Clause 3.2.1.2 c)	Type A&B		2	
4.5	Is the operating procedure or manual for RMU submitted and compliant?	240-56062752	Type B		1	
4.6	Does the gas density monitoring device meet the minimum requirements of Eskom?	240-56062752 Clause 3.3.1.1f)	Type B		2	
Note: Full points will be allocated if criteria are not applicable for the type of mini sub offered. Note: Supplier will lose all applicable points for failure to submit the applicable documents as stated above.						
Number		**Clause**	**Applicability**	**Acceptance: Yes/No/NA**	**Weight: 40**	**Score**
5	**Drawings**					

5.1	Does the general assembly drawing show all the components as per Eskom's specification?	240-56062752	Type A&B		2	
5.2	Do all auxiliary wiring diagrams comply with D-DT-0868 submitted?	240-56062752	Type A&B		2	
5.3	Does the drawing for MCCB mounting plate complies with Eskom's requirements?	240-56062752 Clause 3.4.4	Type A&B		2	
5.4	Does the drawing of the rating plate comply with Eskom's requirements?	240-45395762 Clause 5.3	Type A&B		2	
5.5	Does the tendered high risk mini-sub comply with Eskom's requirements? Note: the general assembly drawing of the high risk mini sub will be evaluated to ensure that it complies with all the 5 requirements as stated in clause 3.1.3.3 a) to e) of 240-56062752.	240-56062752 Clause 3.1.3.3 a) to e)	Type B High risk		10	
5.6	Drawing number shown on submitted drawings?		Type A&B		1	
5.7	Revision number shown on submitted drawings?		Type A&B		1	
5.8	Detailed description provided in "Title" of submitted drawings?		Type A&B		1	
5.9	Approved & date of shown on submitted drawings?		Type A&B		1	
5.10	Position of holding down bolt holes (Oversized 24 mm) and alignment to the concrete plinth shown on assembly drawing?		Type A&B		1	
5.11	Position of MV bushings including spacing between bushing centres and between the outer bushing centres and the cable termination enclosure side wall?		Type A&B		1	
5.12	Position and location of cable test facilities?		Type B		1	
5.13	Position of the earth terminals or bars?		Type A&B		1	
5.14	Position of the live indication system (VDS)?		Type A&B		1	
5.15	Position of the earth fault indicator?		Type A&B		1	
5.16	Removable base sections for cable installation.		Type A&B		2	

5.17	Positions of cable support clamps and the mounting arrangement showing the distance from bushing centre line to the support clamp and from the base level to the support clamp?		Type A&B		2	
5.18	Positions of lifting eyes.		Type A&B		2	
5.19	Position of the documentation pocket.		Type A&B		2	
5.20	Position of the operating handle storage facility.		Type B		2	
5.21	Drawing for the rating plate.		Type A&B		2	
Note: Full points will be allocated if criteria are not applicable for the type of mini sub offered. Note: supplier will lose all applicable points for not showing the items listed above on the relevant drawings.						
Grand Total					**100**	
Minimum required score/100 to proceed to factory and factory sample evaluation					**80**	

3.5 Conclusion

This report is effective to specify the technical evaluation criteria for mini subs to be used in Eskom. The mini subs suppliers are to complete the provided excel schedules aligned with 240-56062752, and other documents listed in the normative references of the documents above as part of the tender deliverables.

4. Authorization

This document has been seen and accepted by:

Name and surname	Designation
Alex Ndlela	Senior Manager: Engineering
Simphiwe Mbonambi	Senior Manager: Procurement
Vusani Phalanndwa	Commercial: Buyer

5. Revisions

Date	Rev	Compiler	Remarks
April 2021	4	Q. Khumalo	Addressed comments from Auditor. Table 2 revised.
May 2020	3	B. Olivier	Addressed comments from Auditor. Corrected total score for table 2.
Aug 2019	2	B. Olivier	Removed the requirements for IRTU fitted RMUs. Restructured the document.
March 2016	1	Q. Khumalo & T. Du Plessis	New Document

6. Development team

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

- Neville Booyens: Senior Engineer SI KZNOU, Group Technology
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7. Acknowledgements

Not applicable.