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## 1. INTRODUCTION

ESKOM Transmission (*the Employer*) requires an Emergency Restoration System (ERS) to improve the recovery period during emergencies. The system required consists of three structures and one hoisting tower for voltages up to 400 kV and will only be suitable for Alternating Current (AC). The evaluation criteria will be used to technically evaluate potential suppliers for the supply of a new emergency restoration system for the Transmission grids. This will be done in accordance with LES1419 - Emergency Restoration System Functional Specification – For 400 kV AC System only.

## 2. SUPPORTING CLAUSES

## 2.1 Scope

This document describes how technical evaluations will be conducted for the tender returnable package for the supply of the ERS. This evaluation will include the mandatory demonstration of the system at a site chosen by the supplier.

## 2.2 Purpose

The technical evaluation criteria serve as basis for the tender technical evaluation process.

The purpose of this tender technical evaluation criteria is to define the Mandatory Evaluation Criteria, Qualitative Evaluation Criteria, Mandatory Site Demonstration, and member responsibilities for the tender technical evaluation.

## 2.2.1 Applicability

This report shall apply to Eskom Transmission Group and its Grids where the requirement for an ERS system will be required.

## 2.3 Normative/Informative References

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

## 2.3.1 Normative

- 1) 240-48929482 Tender Technical Evaluation Procedure
- 2) ISO 9001 Quality Management Systems
- 3) 32-1034 Eskom Procurement Policy
- LES1419 Emergency Restoration System Functional Specification For 400 kV AC System only

### 2.3.2 Informative

1) 240-47172520 – TRMSCAAC 6: The standard for the construction of overhead powerlines.

### 2.4 Definitions

### 2.4.1 General

Definition	Description
Supplier	A tenderer who has submitted a quantitative proposal for ESKOM to consider on this tender enquiry.
ESKOM	ESKOM Holdings Limited, its divisions and wholly owned subsidiaries.
Employer	Refers to Eskom Holdings State Owned Company
Tender	A tender refers to an open or closed competitive request for quotations/ prices against a clearly defined scope/ specification.

## 2.4.2 Disclosure classification

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

### 2.5 Abbreviations

Abbreviation	Description	
AC	Alternative Current	
(M)	Mandatory	
САН	Conductor attachment height	
DOI	Declaration of interest	
ECSA	Engineering Council of South Africa	
EDC	ESKOM Documentation Centre	
EDWL	Engineering design work lead	
ERS	Emergency Restoration System	
ESK	ESKOM wide document ID prefix	
FEA	Finite Element Analysis	
ID	Identification	
LDE	Lead discipline engineer	
LES	Line Engineering Services	
NDA	Non-disclosure agreement	
SME	Subject matter expert (within ESKOM)	
SOW	Scope of Work	
TER	Technical evaluation report	
TET	Technical evaluation team	

### 2.6 Roles and Responsibilities

- The TET members shall be responsible for conducting the evaluations in a controlled environment and compile a report with all the findings from the evaluation. Relevant manager(s) shall authorize the report compiled by the TET members.
- 2) SME shall present a team composition breakdown of the various engineering disciplines required to fairly evaluate the tender after the tender closing date.
- 3) The EDWL will arrange with the buyer for suitable dates and venue for conducting the evaluations.

### 2.7 **Process for monitoring**

The procurement process will be led and monitored by the allocated buyer.

## 3. TECHNICAL TENDER EVALUATION CRITERIA

## 3.1 Desktop Technical Evaluation Method

The basic steps for a technical evaluation must be followed as per the Technical Tender Evaluation Procedure [1). A two stage Technical Evaluation Criteria is set out.

<u>Stage 1</u>: Mandatory Technical Evaluation Criteria (gatekeepers) are 'must meet' criteria. These criteria are not weighted, or point scored but are assessed on a Yes/No basis to ascertain whether or not the criteria are met. An assessment of 'No' against any mandatory criterion will disqualify the tenderer and the tenderer will not be evaluated against Qualitative Criteria.

<u>Stage 2:</u> Qualitative Technical Evaluation Criteria are weighted evaluation criteria used to identify the highest technically ranked tenderer. The Qualitative Evaluation Criteria are weighted to reflect the relevant importance of each criterion.

The technical criteria and weighting is broken down to 100% functionality.

The minimum weighted final score (threshold) required for a tender to be considered from a technical perspective is 70%.

The evaluation of the tender submission will be based on the tenderer's ability to meet the Engineering



requirements.

The scoring method will be as follows:

SCORE	PERCENTAGE	DESCRIPTION		
5	100	COMPLIANT		
		<ul> <li>Meet technical requirement(s) AND;</li> </ul>		
		<ul> <li>No foreseen technical risk(s) in meeting technical requirements.</li> </ul>		
4	80	COMPLIANT WITH ASSOCIATED QUALIFICATIONS		
		<ul> <li>Meet technical requirement(s) with;</li> </ul>		
		<ul> <li>Acceptable technical risk(s) AND/OR;</li> </ul>		
		Acceptable exceptions AND/OR;		
		Acceptable conditions.		
2	40	NON-COMPLIANT		
		<ul> <li>Does not meet technical requirement(s) AND/OR; Unacceptable technical risk(s) AND/OR;</li> </ul>		
		Unacceptable exceptions AND/OR;		
		Unacceptable conditions.		
0	0	TOTALLY DEFICIENT OR NON-RESPONSIVE		

The evaluation scores will be weighted as follows:

Engineering (100%)			
Functionality	100%		
TOTAL (100%)			
Overall minimum threshold for qualification (70%)			

## 3.2 Site Demonstration Evaluation Method

The Mandatory Site demonstration will be carried out for all suppliers who have passed the minimum 70% score on the technical evaluation criteria above.

This criterion is not weighted or point scored, but are assessed on a Yes/No basis to ascertain whether or not the criteria are met. An assessment of 'No' against any mandatory criterion will **DISQUALIFY** the tenderer.

The supplier must demonstrate and perform the following tasks as listed below:

- 1) Desktop design (for both suspension and max angle of deviation assemblies).
- 2) Tower Setting out.
- 3) New Foundation Technologies.
- 4) Hoisting tower assembly and Erection.
- 5) Erection of main tower (include the dressing of the tower)
  - 5.1. Suspension assembly
  - 5.2. Strain assembly
- 6) Earthwire strain and suspension assemblies
- 7) Stay assemblies and foundation connections.
- 8) Demonstrate the design on the software package as per functional specification.

## 3.3 Technical Evaluation Threshold

A weighted score-card approach is used to evaluate the technical compliance of the tenders against the technical specifications. Tenderers need to have a weighted score of 70% overall or more to technically qualify for further evaluation.

All technical submissions will be in physical hard-copy files and a USB memory stick. Only hard-copy files are considered as the main submission.

A weighted score-card approach is used to evaluate the technical compliance of the tenders against the technical specifications. Tenderers need to have a weighted score of 70% overall or more to technically qualify for further evaluation.

The evaluation of the tender submission will be based on the tenderer's ability to meet the Engineering requirements.

## 3.4 Technical Evaluation Team Members

TET members will be appointed by the responsible Senior Manager in writing upon the closing date of the tender. Each TET member shall possess knowledge and expertise to evaluate the entire technical section of the tender i.e., must have enough experience in the design, installation and construction of ERS. The team will consist of a mechanical, electrical and civil engineers doing the evaluation. A minimum of three TET members shall be assigned per each tender to ensure independent review and evaluation.

TET number	TET Member Name	Designation
TET 1		
TET 2		
TET 3		
TET 4		
TET 5		
TET 6		

### Table 1: Technical Evaluation Team and designations

All the TET members shall have the knowledge and the expertise to evaluate all the qualitative and mandatory criterions.

Mandatory Criteria Number	TET 1	TET 2	TET 3
1			
2			
3			
4			
5			
6			
7			
Qualitative Criteria			
Number	IEI 1	TET 2	TET 3
Number 1	IEI 1	TET 2	TET 3
Number 1 2	IEI 1	TET 2	TET 3
Number 1 2 3			TET 3
Number           1           2           3           4			TET 3
Number           1           2           3           4           5			TET 3
Number           1           2           3           4           5           6			TET 3
Number           1           2           3           4           5           6           7			TET 3

### Table 2: Technical Evaluation Team Responsibilities

Site Demonstration Criteria Number	TET 1	TET 2	TET 3
1			
2			
3			
4			
5			
6			
7			
8			

## 4. TENDER TECHNICAL EVALUATION CRITERIA



## 4.1 Mandatory Technical Evaluation Criteria

The table below details the mandatory criterion to be applied when evaluating the tender. The tender will NOT be evaluated if any of the items listed on **Table 3** are not provided.

	Mandatory Technical Criteria Description	Reference to Technical Specification / Tender Returnable	Motivation for use of Criteria
1	Supplier submits technical proposal which contains all items as per ERS functional specification (i.e., technical proposal).	LES1419 - Emergency Restoration System Functional Specification.	Objective Criteria
2	Supplier submits portfolio of evidence that clearly indicates their experience relating to the design and construction of ERS.	LES1419 - Emergency Restoration System Functional Specification.	Objective Criteria
3	Supplier submits a DETAILED activity schedule (including min period) that details all the activities involved when restoring a 400 kV powerline with the proposed system.	LES1419 - Emergency Restoration System Functional Specification.	Objective Criteria
4	Supplier submits a DETAILED Manual (including tools) that shows step by step process on how to use the proposed ERS. i.e. from unpacking of the material, structure setting out, foundation, assembly, erection, tower dressing, earthing, decommissioning, and the safe re-packing of the material.	LES1419 - Emergency Restoration System Functional Specification.	Objective Criteria

### Table 3: Mandatory Technical Evaluation Criteria

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5	A letter confirming software package (compatible with Windows OS and any mobile package) to be used when determining the parameters of the ERS during structure failure. For mobile packages either Android OS or IOS can be supplied. If not yet available, a letter of intent to comply to ESKOM software requirements should be made available.	LES1419 - Emergency Restoration System Functional Specification.	Objective Criteria
6	Submit a detailed training schedule (include min period) that will be followed when training ESKOM on the proposed ERS (Including the use of the software).	LES1419 - Emergency Restoration System Functional Specification.	Objective Criteria
7	Submit completed Schedule A, B, C, D & E of LES1419 - Emergency Restoration System Functional Specification. <b>(No sections may be left blank.)</b>	LES1419 - Emergency Restoration System Functional Specification.	Objective Criteria



## 4.2 **Qualitative Technical Evaluation Criteria**

Table 4 below details the qualitative criterion to be applied when evaluating the tender. The minimum weighted final score (threshold) required for a tender to be considered successful from a technical perspective is **70%**.

Table 4: Qualitative	e Technical	Evaluation	Criteria
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	Qualitative Technical Criteria Description (maximum marks per item = 5)	Reference to Technical Specification / Tender Returnable	Criteria Weighting (%)
1.	Submit technical/functional details of the proposed ERS in line with the <i>LES1419 - Emergency Restoration System Functional</i> <i>Specification</i> provided.	Technical data sheet A2 page size. Technical drawings showing functional dimensions.	10
	<ul> <li>Compliant = 5 <ul> <li>Functional dimensions of ALL components forming ERS</li> <li>Type of foundation system to be installed per soil type</li> <li>Material list for all components including strength,</li> <li>Electrical components should also be supplied with electrical parameters</li> <li>Technical drawings for all components</li> </ul> </li> <li>Compliant with associated qualifications = 4 <ul> <li>Missing not more than 20% of items indicated under compliant above.</li> </ul> </li> <li>Non-compliant = 2 <ul> <li>Missing 60% of the items requested under compliant above</li> </ul> </li> </ul>	Electrical and Type tests for electrical equipment.	
	<ul> <li>Very little of structured consideration to items listed under compliant above</li> </ul>		



2.	Submit a step-by-step Design process (as per the design software package and other construction considerations) to be followed when deploying the system onsite in line with the LES1419 - <i>Emergency Restoration System Functional</i> <i>Specification</i> provided.	Detailed process flow (with its dependents and considerations) in A2 page size. A sample of all the outputs.	10
	<ul> <li>Compliant = 5 <ul> <li>List inputs</li> <li>Design considerations</li> <li>Feasible Options</li> <li>Calculations performed.</li> <li>Outputs (parameters of the designs, schematic layout, itemized bill of materials)</li> </ul> </li> </ul>		
	<ul> <li>Compliant with associated qualifications = 4</li> <li>Missing not more than <u>20% of</u> items indicated under compliant above.</li> </ul>		
	<ul> <li>Non-compliant = 2</li> <li>Missing 60% of the items requested under compliant above</li> </ul>		
	Totally deficient or non-responsive = 0		
	<ul> <li>Very little of structured consideration to items listed under compliant above</li> </ul>		



3.	Submit a stan by stan USED MANUAL for the SAFE	Detailed user manual.	20
	installation and decommissioning of proposed ERS in line with the LES1419 - Emergency Restoration System Functional Specification provided.	Schematic drawings of the process (video or images showing the full construction process).	
	Compliant = 5		
	Unpacking of the equipment		
	Setting out of foundations		
	Foundation installation for different soil types		
	<ul> <li>Stay wire connections to foundation and tower</li> </ul>		
	Tower dressing		
	Tower climbing		
	Accessing of running blocks during stringing		
	Decommissioning of tower		
	Installation and detaching of the hoisting tower		
	Packing of the equipment after use (including Detailed inventory/ part list)		
	Compliant with associated gualifications = 4		
	• Missing not more than <u>20% of</u> items indicated under compliant above.		
	Non-compliant = 2		
	Missing <u>60%</u> of the items requested under compliant above		
	Totally deficient or non-responsive = 0		
	<ul> <li>Very little of structured consideration to items listed under compliant above</li> </ul>		



4.	Submit technical characteristics of the ERS in line with the	15
	LES1419 - Emergency Restoration System Functional	
	Specification provided.	
	Compliant = 5	
	<ul> <li>Maximum suspension towers per set based on CAH = 23 m (lowest CAH)</li> </ul>	
	• Maximum strain towers per set based on CAH = 23 m (lowest CAH)	
	Maximum CAH that can be achieved with provided stay lengths and without	
	having bending issues (for strain and suspension structures)	
	Maximum angle of deviation suspension structure is designed for (if any)	
	<ul> <li>Maximum angle strain tower is designed for (i.e. 0 - 90 degrees)</li> </ul>	
	Maximum weight and wind span on flat terrain considering (3-phase Quad	
	Zebra, 2xEarthwires of 19/2.7 steelwire) the tower is designed for (based on	
	highest possible CAH)	
	<ul> <li>Structural capacity must exceed the geotechnical capacity of the foundation</li> </ul>	
	system	
	Climbing load limits on incline members and specification	
	Breaking capacity for all hardware components	
	Tension and post insulator characteristic including the test loads	
	Compliant with associated qualifications = 4	
	Missing not more than <u>20% of</u> items indicated under compliant above.	
	Non-compliant = 2	
	Missing <u>60%</u> of the items requested under compliant above	
	Totally deficient or non-responsive = 0	
	Very little of structured consideration to items listed under compliant above	



Submit a detailed manufacturing OUALITY Assurance and	Quality plan and list of applicable standards	10
Testing Evidence for all the ERS components.	Certificates applicable to all raw and used materials and or components.	
Compliant = 5	Fabrication and welding processes	
List of all international standards followed when manufacturing the various components.	including the certificate.	
Raw material Certificates for components		
Material Grades and composition Certificates		
<ul> <li>Test Certificates for all components as per applicable SANS standards</li> </ul>		
<ul> <li>Signed off Welding Certificates if applicable.</li> </ul>		
Galvanizing certificates		
Fabrication procedure for all components		
ISO9001 Certificate		
Consent letter to allow ESKOM (as the client) to visit and inspect the manufacturing plant.		
• Quality plan for the manufacturing and assembly of the ERS components		
Compliant with associated qualifications = 4		
Missing not more than <u>20% of</u> items indicated under compliant above.		
Non-compliant = 2		
Missing <u>60%</u> of the items requested under compliant above		
Totally deficient or non-responsive = 0		
Very little of structured consideration to items listed under compliant above		



6.	Submit machinery and tool list to be part of the FRS in line	Tool and machinery list	10
	with the LES1419 - Emergency Restoration System Functional	Capacity and sizes of the tools	
	Specification provided.	Measuring equipment for tower	
	Compliant = 5		
	<ul> <li>List of all hydraulic equipment and ratings</li> <li>List of all manual tools and sizes</li> <li>List of conductors and steelwire clamping tools and sizes (e.g. camelongs clamps, and more)</li> <li>Detailed service and maintenance schedule for all the machinery and tools (including all load bearing equipment) involved in the construction of the ERS</li> <li>Measuring tools (distance, force and spirit-level/inclinometer)</li> </ul>		
	<ul> <li>Missing not more than <u>20% of</u> items indicated under compliant above.</li> </ul>		
	<ul> <li>Non-compliant = 2</li> <li>Missing <u>60%</u> of the items requested under compliant above</li> </ul>		
	Totally deficient or non-responsive = 0         • Very little of structured consideration to items listed under compliant above		



7.	Submit a detailed storage and transportation of components	Container Design	10
	proposal in line the LES1419 - Emergency Restoration System	Toolbox storage	
	Functional Specification provided.	Corrosion mitigations of container, toolbox and components	
	<ul> <li>Compliant = 5</li> <li>Schematic diagram showing storage parameters of the container.</li> <li>Diagram showing how components are store and packed inside the container.</li> <li>Corrosion mitigation procedure for container and content while not in use</li> <li>Safe lifting and transportation method (including tools) of subcomponents/sections to the tower position.</li> <li>Schematic design of the toolbox for all the tools used in as part of the ERS</li> </ul>	Safe lifting and transportation method for the ERS and its components.	
	Compliant with associated qualifications = 4		
	• Missing not more than <u>20% of</u> items indicated under compliant above.		
	Non-compliant = 2		
	Missing <u>60%</u> of the items requested under compliant above		
	Totally deficient or non-responsive = 0		
	Very little of structured consideration to items listed under compliant above		



8.	Submit a detailed training schedule that will be followed to train ESKOM on ERS in line the <i>LES1419 - Emergency Restoration System Functional Specification</i> provided.	Training Schedule	15
	<ul> <li>Compliant = 5 <ul> <li>Training for ESKOM personnel on theory part of ERS: boardroom/ classroom</li> <li>Training for LES designers to use ERS software: boardroom/ classroom</li> <li>Training for ESKOM personnel on practical part of ERS: unpacking and tower installation (foundations setting out, installation of foundations, installation of the hoisting tower, installation of the tower, plumpness of tower)</li> <li>Training for ESKOM personnel on practical part of ERS: tower assembly</li> <li>Training for ESKOM personnel on practical part of ERS: tower dressing</li> <li>Training for ESKOM personnel on practical part of ERS: insulator handling</li> <li>Training for ESKOM personnel on practical part of ERS: stay-tensioning</li> <li>Training for ESKOM personnel on practical part of ERS: hoisting tower deattachment</li> </ul> </li> <li>Training for ESKOM personnel on practical part of ERS: tower decommissioning and packing</li> <li>Training for ESKOM personnel on practical part of ERS: tower decommissioning and packing</li> <li>Training for ESKOM personnel on practical part of ERS: use of all tools and machinery</li> </ul>		
	<ul> <li>Compliant with associated qualifications = 4         <ul> <li>Missing not more than <u>20% of</u> items indicated under compliant above.</li> </ul> </li> <li>Non-compliant = 2         <ul> <li>Missing <u>60%</u> of the items requested under compliant above</li> </ul> </li> </ul>		
	<ul> <li>I otally deficient or non-responsive = 0</li> <li>Very little of structured consideration to items listed under compliant above</li> </ul>		



## 4.3 Site Demonstration Technical Evaluation Criteria

The table below details the mandatory site demonstration criterion to be applied when evaluating the tender. The tender will be Disqualified evaluated if any of the items listed on Table 6 are not demonstrated.

1) Demonstrate the design on the software package as per functional specification.

	Mandatory Technical Criteria Description	Reference to Technical Specification / Tender Returnable	Motivation for use of Criteria
1.	Supplier demonstrates the Desktop Design of the ERS considering an Emergency declared by ESKOM. Consideration to the scenario illustrated on the specification.	LES1419 - Emergency Restoration System Functional Specification.	Objective Criteria
2	Supplier demonstrates the implementation of the setting out of foundations and the center plinth of the tower based on the design.	LES1419 - Emergency Restoration System Functional Specification.	Objective Criteria
3	Supplier to demonstrate installation of new foundations technologies based on the different systems proposed. Temporary foundations systems including (concrete blocks, wood-pole anchors and steel-plate anchors can be used for the rest of the foundation systems).	LES1419 - Emergency Restoration System Functional Specification.	Objective Criteria
4	Supplier to demonstrate the assembly and erection of the hoisting/erection tower. This demonstration will also include the removal of the hoisting/erection equipment to let the tower stand by its own.	LES1419 - Emergency Restoration System Functional Specification.	Objective Criteria

## Table 5: Mandatory Site Demonstration Criteria



5	Supplier to demonstrate the assembly and erection of the main mast tower. This will include the installation of both the strain and suspension assemblies on the same tower. If the supplier has other alternative designs for phase conductor attachment, they will be required to demonstrate this too.	LES1419 - Emergency Restoration System Functional Specification.	Objective Criteria
6	Supplier to demonstrate the assembly and attachment of both the suspension and strain earthwire assemblies on the main tower.	LES1419 - Emergency Restoration System Functional Specification.	Objective Criteria
7	Supplier to demonstrate the assembly and connection of the stays on the tower and the foundations. This included both the insulated and non-insulated stay wire assemblies connected to the tower.	LES1419 - Emergency Restoration System Functional Specification.	Objective Criteria
8	Supplier to demonstrate the PC software and mobile software to design and analyze the scenario of a collapsed tower. Showing the inputs, calculations, design considerations and the outputs.	LES1419 - Emergency Restoration System Functional Specification.	Objective Criteria



## 5. AUTHORIZATION

This document has been seen and accepted by:

Name and surname	Designation
Faith Mokhonoana	Senior Manager – Lines Engineering Services
Sibonelo Nzama	Middle Manager – Structures, Civil and Hardware Cluster
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## 6. **REVISIONS**

Date	Rev	Compiler	Remarks
Nov 2021	1	N Muthadi	First issue
April 2023	2	N Muthadi	Modified TEC to include the Site Demonstration evaluation criteria.

## 7. DEVELOPMENT TEAM

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

- Khulani Gasa
- Lebogang Sithole
- Ndangi Muthadi
- Paul Timba
- Sifiso Zikhali
- Tiny Salaze

## 8. ACKNOWLEDGEMENTS

None

SSS