Eskom	Strategy	Engineering

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Compiled by	Functional Responsibility	Authorised by
……..	……..	……..
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Engineer – LPS CoE	**Manager - LPS CoE (Acting)**	**Senior Manager – Auxiliary & Chemical Engineering (Acting)**
Date: 16 March 2020	Date: ……	Date: ……

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TABLES

1. INTRODUCTION

The Flow Metrology Laboratory is situated at the Eskom Research & Innovation Centre, Rosherville (ERIC) and is used to perform the calibration of water flow meters. The Flow Metrology Laboratory plant was commissioned in the mid 1980's and is in need of refurbishment as no maintenance was carried out during the life cycle of the plant. The flow metrology plant consists of electrical and mechanical equipment which are used to generate flows that are required to calibrate the different meters to be used in power stations.

The project scope of work includes the refurbishment of the entire flow metrology process plant and its auxiliaries such that different velocity ranges (min and max) can be achieved in each of the different pipe sizes tested (15NB to 700NB) either by use of the tower, or by pumping directly. Flow is to be controlled by Variable Speed Drives (VSD's), and in some scenarios the added use of a by-pass dump-line.

2. SUPPORTING CLAUSES

2.1 SCOPE

This document covers the different aspects that will be evaluated and scored by the multi-disciplinary Technical Evaluation Team (TET) to complete the technical evaluation of the Flow Metrology Laboratory enquiry. The team members are listed and appointed in this document along with their responsibilities. The document also describes the acceptable and unacceptable risks and qualifications and/or conditions.

Once the Technical Evaluation Strategy is authorised no changes will be made to the evaluation criteria without appropriate authorisation.

2.1.1 Purpose

The purpose of this tender technical evaluation strategy is to define the Mandatory Evaluation Criteria, Qualitative Evaluation Criteria and Technical Evaluation Team (TET) member responsibilities for tender technical evaluation. The technical evaluation strategy serves as basis for the tender technical evaluation process.

2.1.2 Applicability

This document is applicable to the refurbishment of the Flow Metrology Laboratory situated at the Eskom Research & Innovation Centre, Rosherville (ERIC).

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] 240-48929482: Tender Technical Evaluation Procedure

[2] 32-1034: Eskom Procurement Policy

[3] 240-133173992: Procurement Strategy Triple Adjudication (R10m to R300m)

[4] 240-133137042: Eskom_Rosherville ERIC Flow Lab - Detailed Design Report - Contract Works Information rev 3

2.2.2 Informative

[5] 240-133231297 Eskom Rosherville ERIC Flow Lab-Contract Strategy

2.3 DEFINITIONS

Item	Description
Metrology	The scientific study of measurement

2.3.1 Classification

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

2.4 ABBREVIATIONS

Abbreviation	Description
C&I	Control and Instrumentation
CoE	Centre of Excellence
EDWL	Engineering Design Work Lead
HVAC	Heating Ventilation and Air Conditioning
LDE	Lead Discipline Engineer
VSD	Variable Speed Drives
OEM	Original Equipment Manufacturer

2.5 ROLES AND RESPONSIBILITIES

As per 240-48929482: Tender Technical Evaluation Procedure

2.6 PROCESS FOR MONITORING

N/A

2.7 RELATED/SUPPORTING DOCUMENTS

N/A

3. TENDER TECHNCIAL EVALAUTION STRATEGY

3.1 TECHNICAL EVALUATION THRESHOLD

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

3.2 TET MEMBERS

Table 1: TET Members

TET number	TET Member Name	Designation
TET 1	Willem Erasmus	Engineer – LPS CoE
TET 2	Anasen Pillay	Senior Engineer – LPS CoE
TET 3	Andrew Koenane	Senior Engineer – Electrical CoE
TET 4	Winston Seima	Chief Technologist – Electrical CoE
TET 5	Casper Steenkamp	Engineering – C&I CoE
TET 6	Nomatshawe Gantsho	Manager – C&I CoE
TET 7	Byron Thomas	Engineer – Structural Design CoE
TET 8	Niloshen Moodley	Engineer – Structural Design CoE
TET 9	Takalani Mashamba	Senior Technologist Engineer – SI CoE
TET 10	Amanda Pantsi	Senior Technician-SI CoE
Optional Members:		
TET number	**TET Member Name**	**Designation**
TET 11	Marlize Andre	Corporate Specialist Fire Protection – LPS CoE
TET 12	Nkosi Ndika	Chief Technologist Engineer – LPS CoE
TET 13	Gareth Macintosh	Acting Manager – Structural Design CoE
TET 14	Redz Pillay	Engineer – Structural Design CoE

3.3 MANADATORY TECHNICAL EVALUATION CRITERIA

Table 2: Mandatory Technical Evaluation Criteria

	Mandatory Technical Criteria Description	Evidence Required	Reference to Technical Specification / Tender Returnable	Motivation for use of Criteria
1.	All plant equipment and devices must be supplied by the Original Equipment Manufacturers (OEMs) or certified manufactured under licence, with proof of licence agreement and contract agreement from OEM. Must submit Type Test and internal arc proof certificates as per SANS 61439-1 and SANS 61641.	i) OEM Certificates ii) Contract Agreements iii) Type Test Certificates from accredited body	Works Information – Tender Returnable Section	To ensure safety requirements are met as well as genuine plant equipment that have been proven over time
2.	- Proof of National Instrumentation project experience & NI certification	i) OEM Certificates ii) Project experience	Works Information – Tender Returnable Section	To ensure integration to the existing control and calibration system will be done smoothly. Optimization will also rely on this proof of skills.
3.	The tenderer must have a track record of five completed projects as a minimum; for design, construction, and commissioning of pumping system and flow calibration environment (including switchgear, battery chargers, UPS, C&I, Fire Protection and HVAC equipment). In case the tenderer intends to subcontract or form a joint venture, a letter of agreement, together with a track record for all parties involved must be provided.	1) CV with details of work 2) ECSA certificate (or equivalent) 3) Organogram	Due to the attached memo for gap analysis. Tenders' to be specifically informed about this	To ensure that all gaps are covered in the design, and that competent people do the design for the required engineering disciplines

	The detailed design in terms of this Contract is to be executed by a qualified professional for each discipline (Mechanical, Electrical C&I, Civil and Structural) who is a member of Engineering Council of South Africa (ECSA) or equivalent international acknowledgement Staff allocation to project (Organogram with key staff indicated)			

3.4 CLARIFICATION MEETING

There will be a site clarification meeting, and during the tender evaluation process a maximum of 3 clarification meetings will be allowed per tenderer.

3.5 QUALITATIVE TECHNICAL EVALUATION CRITERIA

Table 3: Qualitative Technical Evaluation Criteria

	Qualitative Technical Criteria Description		Reference to Technical Specification / Tender Returnable	Criteria Weighting (%)	Criteria Sub Weighting (%)
1.	**Criteria 1: Control and Instrumentation Works**		**Book, paragraph number etc.**	**20**	
	1.1	OVERALL: - Design & Installation Methodology statement/ approach - Proof of National Instrumentation project experience & NI certification	Works Information – Tender Returnable Section		30
	1.2	LAB DATA ACQUISITION AND CALIBRATION CONTROL SYSTEM Integration methodology & Integration concept Conceptual general arrangement drawings of new control panel Statement of compliance to VDSS Conceptual cabinet/panels locations Electrical systems/ boards interface methodology	Works Information – Tender Returnable Section		20
	1.3	NETWORK: Conceptual site specific network topology showing: - data communication protocols, - communication cabling specification - site specific wiring diagram and cable routing, General wiring diagrams	Works Information – Tender Returnable Section		10

	1.4	WORKBENCH - Workbench functionality statement - Conceptual workbench design with physical and functional characteristics.	Works Information – Tender Returnable Section		10
	1.5	OEW (Operator and Engineering Workstation) - Conceptual Ergonomics design & layouts -Training manuals of previous projects	Works Information – Tender Returnable Section		15
	1.6	Relevant Experience: -Company's experience in similar projects (>5 years' experience) with three projects within the last 5 years in the NI LabVIEW environment. -Key resources experience, CV's of key resources (>5 years' experience and must be ECSA Pr. Eng. registered)	Works Information – Tender Returnable Section		10
	1.7	FIRE DETECTION Fire detection methodology statement/ approach The fire detection (C&I) person shall be ECSA and SAQCC registered, the installer shall also have SQCC certification	Works Information – Tender Returnable Section		5
2.	**Criteria 2: Civil and structural Works**		**<Book, paragraph number etc.>**	**20**	
	2.1	High Level Design and Construction Method Statement / Approach The method statement must indicated a breakdown of the full scope as detailed in the works information taking into account the project constraints, required plant and required investigations/assessments.	Works Information – Tender Returnable Section		35
	2.2	Relevant Construction Experience	Works Information – Tender		35

		-Company's experience in similar projects , at least 3 similar project references indicating: , • Reinforced concrete construction experience • Structural steel erection experience The references must contain the following: • Client and contact information • duration of project • description of the work performed	Returnable Section		
	2.3	-Key resources experience, CV's of key resources (>5 years' relevant experience) • Construction Manager • Civil / Structural Foreman • Lead Design Engineer	Works Information – Tender Returnable Section		30
3.	**Criteria 3: Electrical Works**		**<Book, paragraph number etc.>**	**15**	
	3.1	Electrical Systems Installation Methodology – Identifying all electrical design gaps and proposed design changes to ensure documents/designs are ready for construction: Electrical Equipment of the proposed layout actual dimensions to be update for construction. The Contractor to issues a drawing showing the interconnection between the VSD cabinet and switchgear, indication cable information and terminal designations. The Contractor to update a General Arrangement drawing of the VSD panel indicating specific components and dimensions.	Works Information – Tender Returnable Section		30
	3.2	Scope of Works: -MV Switchgear retrofit (One bucket) including the	Works Information – Tender Returnable Section		10

		protection scheme -Transformer including cabling -LV Switchgear including cabling -Power Cabling (Including the cable routing) -Earthing & Lightning Protection -Small Power & Lighting including cabling -Variable Speed Drives including cabling -LV Motors including cabling			
	3.3	LV switchgear Works Tenderer Profile & Key Technical Resources CV's (min 5yrs) The Tenderer is to provide the following for the LV switchgear Assembly: - Equipment completed technical schedule A&B Electrical Switchgear Tenderer Profile & Key Technical Resources CV's (min 5yrs) Electrical Switchgear Equipment Lists and Type Test Certificates, Certification Electrical Switchgear Load Lists (PRELIMS) Electrical Switchgear Schematics / Interfaces (PRELIMS) Electrical Switchgear GA'S (PRELIMS)	Works Information – Tender Returnable Section		20
	3.4	VSD's Works Tenderer Profile & Key Technical Resources CV's (min 5yrs) The Tenderer is to provide the following for the VSD - Type test certificate - Completed technical schedule A&B -Agreement with Guarantee Requirements	Works Information – Tender Returnable Section		5
	3.5	Motors Works Tenderer Profile & Key Technical	Works Information – Tender		5

		Resources CV's (min 5yrs) The Tenderer is to provide the following for the Motors - Type test certificate - Completed version technical schedule A&B - Preliminary outline drawing - Motor Torque and Current vs Speed Curves - Motor Thermal Limit Curves - Offered Accessories details - Stator Coil Insulation System description - Rotor bar retaining method Agreement with Guarantee Requirements	Returnable Section		
	3.6	Transformer Works Tenderer Profile & Key Technical Resources CV's (min 5yrs) The Tenderer is to provide the following for the Transformer - Type test certificate - Completed technical schedule A&B Provide an Equipment lead time	Works Information – Tender Returnable Section		5
	3.7	Earthing Contractor Company Profile & Key Technical Resources CV's (min 5yrs). The Tenderer provides Methods Statement and a valid Certificate of Compliance	Works Information – Tender Returnable Section		5
	3.8	Cable Works Tenderer Profile & Key Technical Resources CV's (min 5yrs) Cable Tests Racking as per the designs As Constructed Cable Schedules Cable Routing Layouts As Constructed	Works Information – Tender Returnable Section		5

	3.9	The Tenderer ensures Technical Integration between work packages (Interfaces between various work packages, contractors, or contracts) The detailed design construction in terms of this Contract is to be executed by a qualified Electrical professional, who is a member of Engineering Council of South Africa (ECSA) or equivalent international acknowledgement. The Tenderer provides a comprehensive list of spares for the All Electrical Equipment required by this project Technical Integration between works The Tenderer provides a Technical qualifications and deviations The Tenderer ensures that Quality control measures are clearly defined FATS/SATS	Works Information – Tender Returnable Section		10
	3.10	Relevant Experience -Company's experience in similar projects (>5 years' experience -Key resources experience, CV's of key resources (>5 years' experience)	Works Information – Tender Returnable Section		5
4.	**Criteria 4: Mechanical Works**		**<Book, paragraph number etc.>**	**40**	
	4.1	High level method statement, the method statement clearly demonstrates the Tenderer's compliance with the full scope of work as detailed in the works. The following is addressed: • Schedule • Process Flow Diagrams, Piping and Instrumentation	Works Information – Tender Returnable Section		40

		• Mechanical Equipment • FATS/SATS Identifying all mechanical design gaps and proposed design changes to ensure documents/designs are ready for construction: P&ID's & Isometrics of the existing system to be updated (redlined) or generated from the existing general arrangement drawings, PFD's and P&ID's to ensure the pipe layout is ready for construction. Operating Philosophy to be revised based on updated documentation Method statements and works instruction for construction is required.			
	4.2	Confirm compliance to all mechanical requirements for the process (Flow Metrology)	Works Information – Tender Returnable Section		20
	4.3	Confirmation that HVAC system meet minimum requirements	Works Information – Tender Returnable Section		10
	4.4	Confirmation that Fire system meet minimum requirements	Works Information – Tender Returnable Section		10
	4.5	Technical qualifications and deviations	Works Information – Tender Returnable Section		5
	4.5	Relevant Experience -Company's experience in similar projects (>5 years' experience -Key resources experience, CV's of key resources (>5 years' experience)	Works Information – Tender Returnable Section		15
5.	**Criteria 5: Configuration Management**		**<Book, paragraph number etc.>**	**5**	

	5.1	Proposed work plan -indicating intent to undertake full scope of work -activities divided up realistically in schedule -timelines realistic for execution of activity -a statement confirming that the Documentation Management Strategy will be ISO 9001 compliant. -A statement confirming Handover procedure will be Eskom VDSS Compliant.	Works Information – Tender Returnable Section		100
				TOTAL: 100	

3.6 TET MEMBER RESPONSIBILITIES

Table 4: TET Member Responsibilities

Mandatory Criteria Number	**TET 1**	**TET 2**	**TET 3**	**TET 4**	**TET 5**	**TET 6**	**TET 7**	**TET 8**	**TET 9**	**TET 10**	**TET 11**	**TET 12**	**TET 13**	**TET 14**
1	x	x	x	x	x	x	x	x	x	x	o	o	o	o
2	o	o			x	x					o	o		
Qualitative Criteria Number	**TET 1**	**TET 2**	**TET 3**	**TET 4**	**TET 5**	**TET 6**	**TET 7**	**TET 8**	**TET 9**	**TET 10**	**TET 11**	**TET 12**	**TET 13**	**TET 14**
1.1 to 1.7					x	x								
2.1 to 2.5							x	x					o	o
3.1 to 3.10			x	x										
4.1 to 4.6	x	x									o	o		
5.1									x	x				

X – Mandatory
O - Optional

3.7 FORESEEN ACCEPTABLE / UNACCEPTABLE QUALIFICATIONS

3.7.1 Risks

Table 5: Acceptable Technical Risks

Risk	Description
1.	Failure to provide spares lists
2.	Additional items in gap analysis deemed necessary

Table 6: Unacceptable Technical Risks

Risk	Description
1.	No information on adherence to Eskom Standards provided.
2.	No details for the control system provided

3.7.2 Exceptions / Conditions

Table 7: Acceptable Technical Exceptions / Conditions

Risk	Description
1.	N/A

Table 8: Unacceptable Technical Exceptions / Conditions

Risk	Description
1.	Failure to meet plant performance requirements in terms of reliability and availability
2.	Failure to comply with Detailed Design and Eskom Specifications

4. AUTHORISATION

This document has been seen and accepted by:

Name	Designation	Signature
Willem Erasmus	Engineer – LPS CoE	
Anasen Pillay	Senior Engineer – LPS CoE	
Andrew Koenane	Senior Engineer – Electrical CoE	
Winston Seima	Chief Engineer Technologist – Electrical CoE	
Casper Steenkamp	Engineering – C&I CoE	
Nomatshawe Gantsho	Manager – C&I CoE	
Byron Thomas	Engineer – Structural Design CoE	
Niloshen Moodley	Engineer – Structural Design CoE	
Takalani Mashamba	Senior Technologist Engineer – SI CoE	
Amanda Pantsi	Senior Technician-SI CoE	

5. REVISIONS

Date	Rev.	Compiler	Remarks
November 2017	0.1	W. Erasmus.	Draft for review
January 2018	1	W. Erasmus.	Final document for Authorization
July 2019	1.1	W. Erasmus.	2nd Revision draft for review
August 2019	2	W. Erasmus.	Final document for Authorization
January 2020	2.1	W. Erasmus.	3rd Revision draft for review
March 2020	3	W. Erasmus.	Final document for Authorization

6. DEVELOPMENT TEAM

- Anasen Pillay
- Andrew Koenane
- Byron Thomas
- Casper Steenkamp
- Takalani Mashamba
- Willem Erasmus

7. ACKNOWLEDGEMENTS

N/A