Eskom	Strategy	Engineering

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TABLES

1. INTRODUCTION

Duvha Power Station is in the process of replacing/upgrading their hydrogen generating plant. The existing plant has not been in operation due to the obsolescence of plant equipment. This contract will be for the design, manufacture, construct, install and commissioning of a new hydrogen plant that is in accordance with the supplied Works information. This will ensure a reliable hydrogen supply to the station's units.

This document defines the project evaluation strategy which includes the mandatory and qualitative technical criteria specified by each interface discipline.

2. SUPPORTING CLAUSES

2.1 SCOPE

This strategy defines the Technical Evaluation Team (TET), their responsibilities and the criteria to be used to evaluate the Duvha Hydrogen Generating Plant Upgrade Project.

2.1.1 Purpose

The purpose of this tender technical evaluation strategy is to define the Mandatory Evaluation Criteria, Qualitative Evaluation Criteria and 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 strategy document applies to the plant engineering team working on the Duvha Hydrogen Generating Plant Upgrade project.

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] 240-168966153 ~~240-48929482~~ : Tender Technical Evaluation Procedure

[2] 32-1033 : Eskom Procurement Policy

2.2.2 Informative

[3] 382-ECM-AABZ28-SP0004-17: Duvha Hydrogen Generating Plant Upgrade: Technical Specification

2.3 DEFINITIONS

2.3.1 Classification

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

Definition	Description
Enquiry	A competitive or non-competitive request for information, interest, quotations or proposals made to a supplier, a group of suppliers or the market at large.
Eskom Evaluation Team	The persons appointed by Eskom (referred to as the Employer) to perform the evaluation of tender submissions in line with Eskom's requirements.
Normative	Documents that shall be read in conjunction with this report and are binding on tenderers.
Tender	A tender refers to an open or closed competitive request for quotations/ prices against a clearly defined scope or specification.

2.4 ABBREVIATIONS

Abbreviation	Description
C&I	Control & Instrumentation
CV	Curriculum Vitae
ECSA	Engineering Council of South Africa
FMECA	Failure Modes, Effects and Criticality Analysis
HAZOP	Hazard and Operability
LDE	Lead Discipline Engineer
LPS	Low Pressure Services
OEM	Original Equipment Manufacturer
OHS	Occupational Health and Safety
OPCR	Outside Plant Control Room
AM	Asset Management
PER	Pressure Equipment Regulation
PLC	Programmable Logic Controller
RAM	Reliability, Availability and Maintainability
SCADA	Supervisory Control and Data Acquisition
SHEQ	Safety, Health, Environment and Quality
TET	Technical Evaluation Team
VA	Visual Automation

2.5 ROLES AND RESPONSIBILITIES

As per 240-48929482: Tender Technical Evaluation Procedure 240-168966153

2.6 PROCESS FOR MONITORING

As per 240-48929482: Tender Technical Evaluation Procedure 240-168966153

2.7 RELATED/SUPPORTING DOCUMENTS

Please refer to Section 2.2

3. TENDER TECHNCIAL EVALAUTION STRATEGY

3.1 TECHNICAL EVALUATION THRESHOLD

In order to be eligible for evaluation, the tenderer shall meet all the mandatory requirements. The evaluation of tenders will be based on the tenderer's ability to meet the requirements specified in the Duvha Power Station Hydrogen Generating Plant Upgrade Technical Specification. A weighted score card approach will be used to evaluate the tenders against the Employer's requirements. The following scoring method will be used in general. It will be specified where other scoring methods are used.

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	Thami Khumalo	Engineer: Low Pressure Services
TET 2	Matimba Simango	Engineer: Electrical Engineer
TET 3	Elliot Mamba	Engineer: Electrical Engineer
TET 4	David Chetty	Engineer: Electrical Engineer
TET 5	Nsizwa Mhlongo	Engineer: C&I Engineering
TET 6	Christiaan Bekker	Engineer – Civil Engineering

3.3 MANADATORY TECHNICAL EVALUATION CRITERIA

In order to be eligible for evaluation, the tenderer shall meet the gatekeepers specified on the table below:

Table 2: Mandatory Technical Evaluation Criteria

	Mandatory Technical Criteria Description	Reference to Technical Specification / Tender Returnable	Motivation for use of Criteria
1.	Has the tenderer demonstrated that the hydrogen plant as designed, constructed and commissioned by him/her has been in operation for a period of more than three years from the date of commissioning without a significant failure? Eg cell stack The sub-contracted companies as part of main tenderer shall have experience of minimum 5 years on design, construction and commissioning of the main aspects or disciplines of the of the project including but not limited to: - Hydrogen generating plant - Civil - Electrical - Hazardous installations - Control and Instrumentation	• Testimonials or Completion Certificates for completed projects consisting of the following information: • Name of company where project was executed • Project Description • Construction period • Contract value • Contact person • Contact number • Contact email	Assurance that the tenderer is competent in executing the proposed works
2.	Local company's appointment as the local agent of the OEM's technology for the hydrogen generating plant. The summary of the agency agreement must be submitted stipulating the following: • The details of the individuals trained in South Africa within the relevant local company and the level of support that can be provided. • Declaration that OEM's warranty is with the end-user. • Direct communication channel between end-user and OEM for technical support. • Frequency of OEM visits to South Africa for end-user to audit end-user satisfaction with Local Company.	Provide the following from the OEM • Training certificate from the OEM • OEM's letter of warranty • OEM's letter of technical support	Authorised plant equipment is installed and guarantees can be upheld Guarantee of the plant operation and support from the OEM and the local Agent

3.	• ECSA certificate and CV of key personnel: • Professional Civil Engineer/Civil Technologist • Professional Electrical Engineer (Heavy Current) • Professional Electrical Engineer (Light Current) • Professional Mechanical Engineer • Professional Electronic/Electronics Engineer	Provide CV's of key personnel as specified below: Minimum 5 years' experience for all. ECSA or equivalent <u>Mechanical Engineering:</u> • Professional ECSA registered Mechanical Engineer/Technologist (Design and Construction) <u>Electrical Heavy Current</u> • Minimum candidate Professional ECSA Registered Electrical Engineer/Technologist (Design and Construction) <u>Electrical Light Current (C&I)</u> • Minimum candidate Professional ECSA Registered Electrical Engineer/Technologist (Design and Construction) <u>Civil Engineering:</u> • Minimum candidate Professional ECSA Civil Engineer/Technologist (Design and Construction) <u>Electronic/Electronics Engineering</u> • Minimum candidate Professional ECSA Electronic/Electronics Engineer/Technologist (Design and Construction)	There are several designs which must be done by the relevant engineers and as such professional registration is essential.
4.	Cell-stack life expectancy of >8 years. Mean time between failures on cell stack. OEM response time to rectify plant failure < 21 days.	Letter from the OEM	This is to ensure that the plant will be adhere to the expected design life and should there be failures there is a quick response from the Contractor.
5.	Company to certified to work on Hazardous Locations with Ex. Rated Equipment	Letter/Certificate	This is to ensure that the company is certified to work on Hazardous Locations
6.	Company to be certified to work on H2 Plant	Letter/Certificate	

3.4 QUALITATIVE TECHNICAL EVALUATION CRITERIA

Notes to tenderer:

1. An undertaking is required that resources identified would not be changed on award of Contract.
2. The CVs of key personnel should have experience which is comparable in nature to the works specified in this tender
3. It is required that key personnel, in particular, have good communication skill in the English language.
4. Where no information is offered by the Tenderer, no points shall be scored

Table 3: Scoring Table

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

The evaluation scores will be weighted as follows according to disciplines:

Table 4: Evaluation Scores

Technical (100%)	
6.1 General	10%
6.2 Mechanical	30%
6.3 Control & Instrumentation	15%
6.4 Electrical	15%
6.5 Civil	10%
6.6 Configuration – and Documentation Management	10%
6.7 Perceived Risk	10%
TOTAL (100%)	
Overall minimum threshold for qualification (70%)	

3.5 GENERAL EVALUATION CRITERIA (10%)

No	Description	Weighting	Sub-weighting	Tender Returnable(s)	Scoring Criteria
3.1	**General Evaluation Criteria**	**10%**			
3.1.1	The deviation list with direct references to the clauses in the Eskom Standard 240-56227413 and technical specification must be submitted.		50%	Provide a deviation schedule	5 = 100% • 100% of Tender Returnable with relevant information received AND • Meet technical requirement(s)/AND • No foreseen technical risk(s) in meeting technical requirements. 4 = 80% • 80% of Tender Returnable with relevant information received AND • Meet technical requirement(s) with; • Acceptable technical risk(s) AND/OR; • Acceptable exceptions AND/OR; • Acceptable conditions. 2 = 40% • 40% of Tender Returnable with relevant information received AND • Does not meet technical requirement(s) AND/OR; Unacceptable technical risk(s) AND/OR; • Unacceptable exceptions AND/OR; • Unacceptable conditions. 0 = 0% = TOTALLY DEFICIENT OR NON-RESPONSIVE
3.1.2	Project Execution Plan and Project Programme		10%	Demonstrate how tenderer intend on executing the project by specified target date by providing the following information for evaluation purposes: 1) Provide typical project methodology document detailing how the Tenderer proposes to execute the Works, including de-commissioning, dismantling, transport, design, manufacture, delivery, erection, commissioning and handover. 2) The Tenderer shall indicate how it shall perform the various functions including design, procurement, programming, expediting, inspection, testing, training and commissioning and the locations where the various portions of the Work shall be implemented. 3) Provide organogram of key personnel of the main contractor. Organogram should include Management team, Project Manager, design engineers; professional engineers approving designs, site personnel for construction monitoring, Project Planner, Configuration - and Document Management and SHEQ team as minimum. The Tenderer shall also demonstrate how tenderer's Sub-Contractor and suppliers shall interface with the project management team. Typical organogram will include above with responsible person in each role. 4) High level programme with key milestones (design, construction, commissioning and testing).	

MECHANICAL EVALUATION CRITERIA

No	Description	Weighting	Sub-weighting	Tender Returnable(s)	Scoring Criteria
3.2	**Mechanical Evaluation Criteria:**	**30%**			
3.2.1	The Hydrogen Generating Plant meets the requirements listed standards and specifications. Excellent response which demonstrates the ability to deliver the Hydrogen Generating Plant scope far in excess of minimum requirements.		50%	Technical Data Sheets for proposed equipment, plant & instrumentation (valves, piping, pressure gauge, storage tanks dryers and monitoring station). (Refer to mechanical requirements point 5.2 of the technical specification)	5 = 100% = COMPLIANT • Meet technical requirement(s)/AND • No foreseen technical risk(s) in meeting technical requirements. 0 = 0% = TOTALLY DEFICIENT OR NON-RESPONSIVE
3.2.2	Spares and Maintenance Documentation		10%	Maintenance plan and cost for a similar design (as per section 7 of the technical specification)	• No Comprehensive Maintenance Recommendation; No Spares List = 0% • Only One of the two provided (Either Comprehensive Maintenance Plan OR Required Spares List) = 50% • Both the Comprehensive Maintenance Plan& Required Spares List are Provided = 100%
3.2.3	The firefighting system meets the provisions of specified standards. Full achievement of the requirements specified in the enquiry, demonstrated strengths, no errors, weaknesses or omissions. Excellent response which demonstrates the ability to deliver the Fire Protection scope far in excess of minimum requirements.		20%	Fire protection high level design base. Technical Data Sheets for proposed equipment, plant & instrumentation (as per section 5.2.2)	5 = 100% = COMPLIANT • Meet technical requirement(s)/AND • No foreseen technical risk(s) in meeting technical requirements. 0 = 0% = TOTALLY DEFICIENT OR NON-RESPONSIVE

CONTROL AND INSTRUMENTATION EVALUATION CRITERIA (15%)

No	Description	Weighting	Sub-weighting	Tender Returnable(s)	Scoring Criteria
3.3	**Control and Instrumentation Evaluation Criteria**	**15%**			
3.3.1	Detailed Work Method Statement - A statement from the Tenderer detailing how they plan to execute the work for the C&I requirements as described in the Works Information (WI) including the interface of the new H2 controller (PLC) to the existing historian (VA) and interface to the Employer's OPCR SCADA for monitoring purposes.		25%	Method Statement	Excellent=25% Good= 20% Fair=10 Poor=5
3.3.2	Detailed Work Method Statement - A statement from the Tenderer detailing how they plan to execute the work for the fire detection system as described in the Works Information (WI) including the integration of the fire detection system for the H2 plant to the existing Aritech master fire panel.		25%	Method Statement	Excellent=25% Good= 20% Fair=10 Poor=5
3.3.3	Fire Detection System: Proof of registration as an authorised person with SAQCC (South African Qualification Certification Committee).		30%	Proof of Registration	30%= Proof provided 0= No Proof
3.3.4	Fire Detection System: Proof of certification with FDIA (Fire Detection Installers Association) or FSIB (Fire Support Interoperability Board).		20%	Valid Proof of Certification	20%= Proof provided 0= No Proof

ELECTRICAL EVALUATION CRITERIA (15%)

No	Description	Weighting	Sub-weighting	Tender Returnable(s)	Scoring Criteria
3.4	**Electrical Evaluation Criteria**	**15%**			
3.4.1	**Company**				
3.4.1.1	Experience & Expertise		20%	Company profile indicating technical areas of specialisation/expertise (Reference list of projects completed on H2 Generating Plants with clear accountability/responsibility on Electrical Reticulation, Hazardous Location Compliance and Hydrogen Quality requirements))	None=0% 2-3 Projects = 40% 4-5 Projects = 75% >5 Projects = 100%
3.4.1.2	Plant Maintenance Documentation		5%	Comprehensive Maintenance Strategy with Required Spares List: (Previous Work Handover documentation)	• No Comprehensive Maintenance Recommendation; No Spares List = 0% • Only One of the two provided (Either Comprehensive Maintenance Strategy OR Required Spares List) = 50% • Both the Comprehensive Maintenance Strategy & Required Spares List are Provided = 100%
3.4.2	**Skills Profile**				
3.4.2.1	Engineer(s)		20	Professional Registration (ECSA Certificate)	• No ECSA Candidate/Pr. Certified Engineer = 0% • 1 or More Candidate Engineers, No Pr. Certified Engineer = 40% • 1 Pr Certified Engineer = 75% • > 1 Pr Certified Engineers = 100%
3.4.2.2	Technician(s)		10		• No ECSA Candidate/Pr. Certified Technologist = 0% • 1 or More Candidate Engineers, No Pr. Certified Technologist = 40% • 1 Pr Certified Technologist = 75% > 1 Pr Certified Technologist = 100%
3.4.2.3	Supervisor		15	MIE Registration (MIE Certificate)	• No MIE Certified Personnel = 0% • 1 or More Certified MIE = 100%
3.4.3	**Quality Assurance**				
3.4.3.1	Procedures		10	Installation & Commissioning Procedures (Hazloc, Elec. Installation & Motors Testing), with Indicated compliance to SANS 10142 (Elec. Installations) and SANS 10108 (Hazloc) (Work Documentation)	• No Procedures = 0% • Procedure adequately covers critical/complex tasks to be executed up to commissioning = 100%
3.4.3.2	Quality Control Plan		10	QCP ((Work Documentation))	• No QCP = 0% • QCP adequately covers critical activities with necessary interventions for Service Provider's Supervisor and Engineer= 100%
3.4.3.3	Reference Check Sheets		10	Check Sheets (Work Documentation)	No Check Sheets = 0% Check Sheets are available for critical tasks necessitating check sheets and are reviewed and approved by Service Provider's Supervisor and Engineer = 100%

CIVIL EVALUATION CRITERIA (10%)

No	Description	Weighting	Sub-weighting	Tender Returnable(s)	Scoring Criteria
3.5	**Civil criteria**	**10%**			
3.5.1.	Method statement for the works clearly demonstrating compliance with the full scope of work as detailed in the Works Information. As a minimum, the method statement should include the following: ▪ Consideration for the project constraints ▪ Investigation method (e.g. NDTs etc) to determine suitability of existing infrastructure ▪ Investigation and design methodology for the design scope as described in the Works Information indicating investigation to be performed, compliance with required design specifications ▪ Erection procedures ▪ Required plant and machinery ▪ Any other relevant information needed to demonstrate a complete understanding of-, and capability to perform the civil scope of work		70%	Method Statement that will be evaluated and compared with the Technical Specification sent to market.	• Meet technical requirement(s)/AND, No foreseen technical risk(s) in meeting technical requirements. = 100% • Meet technical requirement(s) with; Acceptable technical risk(s) AND/OR; Acceptable exceptions AND/OR; Acceptable conditions. = 80% • Does not meet technical requirement(s) AND/OR; Unacceptable technical risk(s) AND/OR; Unacceptable exceptions AND/OR; Unacceptable conditions. = 40% • No response = 0%
3.5.2	Maintenance Documentation		10%	Comprehensive Maintenance Strategy for Civil infrastructure, or a statement indicating that no specialised maintenance will be needed on the Civil infrastructure.	• No Maintenance Recommendation = 0% • Maintenance Strategy provided or statement indicating no specialised maintenance required = 100%
3.5.3	Experience & Expertise		20%	Company profile indicating technical areas of specialisation/expertise (Reference list of projects completed on other plants requiring blast walls or similar civil infrastructure.)	• None=0% • 1-2 Projects = 40% • 3-5 Projects = 80% • >5 Projects = 100%

3.6 TET MEMBER RESPONSIBILITIES

Table 5: TET Member Responsibilities

Mandatory Criteria	TET 1	TET 2	TET 3	TET 4	TET 5	TET 6
1	X					
2					X	
3	X					
4						
5	X					
6						
7						
Qualitative Criteria	**TET 1**	**TET 2**	**TET 3**	**TET 4**	**TET 5**	**TET 6**
5.1	X	X	X	X	X	X
5.2	X					
5.3					X	
5.4		X	X	X		
5.5						X

FORESEEN ACCEPTABLE / UNACCEPTABLE QUALIFICATIONS

3.6.1 Risks

Table 6: Acceptable Technical Risks

Risk	Description
1.	**Alternative solutions with the same or better performance**

Table 7: Unacceptable Technical Risks

Risk	Description
1.	**Exclusion of scope specified in the Employers requirements**
2.	**Non-compliance to the requirements of the Eskom Hydrogen Systems Standard**
3.	**Exclusion of project schedule**
4.	**Unclear or non-available staff organogram i.e. the staffing is weak not showing clarity in roles and responsibilities**

3.6.2 Exceptions / Conditions

Table 8: Acceptable Technical Exceptions / Conditions

Risk	Description
1.	**Deviations with technical qualification.**

Table 9: Unacceptable Technical Exceptions / Conditions

Risk	Description
1.	**Deviations without technical qualification.**

4. AUTHORISATION

This document has been seen and accepted by:

Name	Designation
Matimba Msimango	Engineer: Electrical Engineer
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5. REVISIONS

Date	Rev.	Compiler	Remarks
2022/09/13	0	Thami Khumalo	

6. DEVELOPMENT TEAM

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

- Matimba Msimango
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- Christiaan Bekker

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