

Strategy

Engineering

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Boiler Tubes Strategy **Bending at Kriel Power Station**

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1. INTRODUCTION

The technical evaluation strategy herein was written for the placement of a five (5) years Boiler Tube contract for Kriel Power Station. The technical specification includes an audit strategy to assess companies for compliance to relevant applicable international code and Eskom's standard requirements of which when met an Eskom Approval is granted. The additional purpose is to briefly outline the minimum scope that will require the Bending Services for the Boiler Tubing Plant in relation to their application, specification, and locations on which some special skills and expertise will be needed.

The evaluation of the tender is based on the tenderer's ability to meet both mandatory (gatekeepers) and qualitative (weighted) evaluation criteria requirements.

2. SUPPORTING CLAUSES

2.1 SCOPE

The scope of this document defines the technical criteria to be used to evaluate tender documents supplied by potential service providers to execute work defined on the scope of work document: 559-286950604. The acceptable and unacceptable technical risks are identified and where exceptions will be allowed it is stated.

2.1.1 Purpose

The purpose of this tender technical evaluation strategy is to define the Mandatory Evaluation Criteria, Qualitative Evaluation Criteria, TET member responsibilities for tender technical evaluation and Acceptable/Unacceptable Qualifications. The technical evaluation strategy serves as basis for the tender technical evaluation process.

2.1.2 Applicability

This document is applicable to scope of work document: 559-286950604 and, all six Boilers at Kriel Power Station.

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: Generation Tender Technical Evaluation Procedure.
- [2] Pressure Equipment Regulations (PER)
- [3] Occupational Health and Safety Act 85 of 1993 (OHS-Act)
- [4] EN 12952 (All parts) Water-tube boilers and auxiliary installations
- [5] ISO 3834 2 Quality requirements for Welding
- [6] 32-1033: Eskom Procurement and Supply Chain Management Policy
- [7] 32-1034: Eskom Procurement and Supply Management Procedure during the tender process

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2.2.2 Informative

[8] ISO 9001: Quality Management Systems.

- [9] 240:105658000: Supplier Quality Management Specification
- [10] 240-83540088 Requirements for NDT on Eskom Plant Standard
- [11] 240-83539994 Eskom NDT Personnel Approval (NPA) for Quality Related Special Processes on Eskom Plant Standard
- [12] QM 58 Supplier Contract Quality Requirements Specification

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2.3 DEFINITIONS

Definition	Description
Pipework	Pipes and fittings are used for the conveyance of steam, water, gases or other fluids.
Valve	A device for shutting off or controlling the flow of a fluid through a pipe or duct.
Boiler tube	Refers to a boiler thin wall component (operating at high pressure and temperature) defined below.
Generation	The division of Eskom that is responsible for electricity generation.
Pressure Equipment Regulations	Pressure Equipment Regulations (PER) of the Occupational Health and Safety Act 85 of 1993. These regulations will include the requirements of SANS 347.
Quality	Quality in terms of this standard refers to the quality requirements as defined in ISO 9001 [9].
Welding engineer	Means a qualified welding engineer assigned to the power station with duties and responsibilities as defined in the Eskom welding standard [10].

2.3.1 Classification

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

2.4 ABBREVIATIONS

Abbreviation	Description
AIA	Approved inspection authority
TET	Technical Evaluation Team
CQP	Contract Quality Plan
EN	Europäische Norm ("European Norm"), European Standards
ID	Internal Diameter
ISO	International Organization for Standardization
NDT	Non-Destructive Testing
IWE	International Welding Engineer registered with IIW
IWT	International Welding Technologist registered with IIW
OEM	Original Equipment Manufacturer
PQR	Procedure Qualification records
QCP	Quality Control Plan
SOW	Scope of work
WPS	Welding Procedure Specifications
WPQR	Welding Procedure Qualification Record
WQR	Welder's Qualification Record

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2.5 ROLES AND RESPONSIBILITIES

as per 240-168966153: Generation Tender Technical Evaluation Procedure

2.6 PROCESS FOR MONITORING

N/A

2.7 RELATED/SUPPORTING DOCUMENTS

240-105658000 Supplier Quality Management Specification
240-168966153 Generation Tender Technical Evaluation Procedure
240-87660096 Non-Destructive Testing Inspection Qualification Standard
240-83539994 Standard for Non-destructive Testing (NDT) on Eskom Plant
240-106628253 Standard for Welding Requirements on Eskom Plant

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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%**. This is as per the threshold stipulated in the normative reference [1] above. There are no deviations therefore from the procedure [1]. Potential service providers are required to note the criticality of the scope of work that is required herein, the nature of NDT work, supervision, Data capturing, dependability on the NDT results, with parameters and governance on the equipment being tested compliance to:

- Code, standard and guidelines
- Regulatory requirements (PER, SANS 347, etc.)
- · High operating pressure.
- · High operating temperatures.
- Different materials and dimensions considerations
- Personnel credibility, tools and equipment precession required.

3.2 TET MEMBERS

Table 1: TET Members

TET number	TET Member Name	Designation
TET 1	Feyane Tivane	System Engineer
TET 2	Lloyd Sibande	System Engineer
TET 3	John Mkhonto	Senior Engineer

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3.3 Qualitative Criteria Description

3.3.1 CIDB Registration Certificate

N/A

3.3.2 ISO 3834-2 Certification

N/A

3.3.3 Quality management system

Valid and most recent Certificate of approval in terms of SABS ISO 9001

3.3.4 Method statement

The service provider must submit a statement of method for the work. The method Statement must be a complete method statement with details on inspections, Tube Bending fabrications, post bending treatment of tubes bends – where necessary, quality inspections and 3D bending of tube using cold process.

3.3.5 QCPs

QCPs must be submitted, with clear step-by-step works stipulated in the Quality Control Plan. preferably three (3) historically fully signed-off plans to be submitted/Comprehensive new templates with all stakeholders to sign off. Quality control plan (QCP)/ITP.

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Referenced document: 240-105658000: Supplier Quality Management Specification: referred sections/paragraphs: 3.4.11, 3.4.12; 3.4.4. Notes:

- ITP requirements referred to in paragraph 3.4.4 shall be separate template.
- 3.4.11 The last point shall be treated as an inspection report and be a separate template.
- 3.4.11 All first 11 points and any other addition shall have its own QCP/ITP template
- 3.4.12 Might not be applicable and this shall not negatively impact the score if it is not applicable to aparticular contractor/supplier.

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3.3.6 AIA and Service Provider

A letter signed (by both parties) ensuring that the service provider has in-house AIA services as required by the design code.

3.4 Technical guarantees of Machinery Availability

A fully signed catalog of the workshop machinery list showing all pictures of the machines used in the workshop. And A signed (by both parties) agreement ensuring that the service provider has in-house AIA services as required by design code

3.5 Proof of experience

Proof of personnel experience (i.e. Service Records and Qualifications only) for the personnel on Tube Bending (No CV's). And, the Proof of previously completed similar Tube/Pipe Bending work/projects, signed off completion certificates with associated Purchase Orders.

3.6 MANADATORY TECHNICAL EVALUATION CRITERIA

Table 2: Mandatory Technical Evaluation Criteria

	Mandatory Technical Criteria Description	Reference to Technical Specification / Tender Returnable	Motivation for use of Criteria
1.	Tenderer Proof of Certification and Authorization Verifiable Proof of Company approval/accreditation to carry out Tube Bending. OValid Company Certification/Accreditation	Tube/Pipe Bending Procedures make reference of the EN code to which it is drawn up from and the contractor is authorised by an accredited body to execute Bending/Manipulation of tubes/pipes.	 To ensure Tube Bending code/standard compliance The code compliant Bending procedure is essential because it specifies a set of bending principles and minimum requirements.
2.	Proof of providence of the AIA services during tube bending process Verifiable Proof of use of the AIA as may be required from time to time for site visits during tube bending. 1xoff Signed declaration from the AIA entity ensuring Kriel Power Station that there is a working relationship between itself and the contractor.	 Appointment letter signed for acceptance – by and AIA entity (the appointment letter must be current) Valid and verifiable Declaration form from the AIA – For site Visit purposes. 	Legal skill necessary to ensure scope execution within Design Code specification.

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3. Valid Proof of ownership/lease (fully signed off by both parties) of a fully equipped engineering workshop registered with the city's Deeds Registry with a full address and company name clear on the confirmation of registration with a council.

Only JV documentation will be acceptable, no subcontractor's allowed.

Note:

- Lead/Principal contractor must be clearly indicated on **both** the relevant form and in the Statement of intent to make a JV.
- If there is no mention of which partner will be the lead, this criterion will be failed by the JV.
- No subcontractor certification will be accepted.
- Not limited to Material Group (Group 1 is mostly recommended)
- Not limited to design codes (EN Codes are mostly recommended)

- Registration confirmation letter with the city council showing the full address and company name clearly mentioned in the letter
- In case of a rental, a fully signed-off lease must accompany the council letter above.
- To determine if the service provider can effectively execute the scope in a suitable Engineering Workshop equipped with the right equipment for the works

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All TET members shall independently evaluate and score each mandatory evaluation criteria for each tenderer in accordance with table2

3.7 QUALITATIVE TECHNICAL EVALUATION CRITERIA

Table 3: Qualitative Evaluation Criteria Scoring Table

Score	%	Definition		
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		

Note 1: The scoring table does not allow for scoring of 1 and 3.

Note 2: Foreseen acceptable and unacceptable risk(s), exceptions and conditions shall be unambiguously defined in the relevant Tender Technical Evaluation Strategy.

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All TET members as defined in the Tender Technical Evaluation Strategy shall independently evaluate and score each Qualitative Evaluation Criteria for each tenderer.

Each TET member shall provide a scoring form detailing all allocated scores for each evaluated criteria for each tenderer.

Table 4: Qualitative Technical Evaluation Criteria

		Qualitative Technical Criteria Description	Reference to Technical Specification Tender Returnable	Criteria Weighting (%)	Criteria Sub Weighti ng (%)
1.	Meth		240-105658000 Supplier Quality Management Specification	65	
	1.1	Method Statement must be Specific to the scope of work, Inspection, fabrication and Installation steps methodology. Method Statement: - Emphasis on the Bending Procedures must be current and signed by the technical person responsible for bending techniques (20%) o Bending Methods Capabilities (8%) o Technical execution/Safe working procedure (4%) o Correct tools and equipment for specific work piece (4%) o Effective steps taken in carrying tube bending without damaging tubes (4%)			15

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	1.2	 Final Bend inspection methods and as when required. Method on Ovality reporting (4%) Provide proof of a signed off ovality report (6%) Non-specific methodology steps (0%) (0/5) - non-responsive; No submission (2/5) - Unacceptable risk: Inadequate method statement (Incomplete) with reference to the scope ofwork (5/5) – Ceiling; Complete method statement with details on inspections, fabrications 	3.3.5		20
	1.3	 A signed off procedure of the 3D Bending of Finned Tubes (Corner bends) using a Cold Bending Process: (0/5) - non-responsive; No submission (2/5) - Unacceptable risk: Inadequate method statement (Incomplete) with reference to the scope ofwork and no mention of cold process and never historically used cold process before carrying out this 3D bending. (5/5) - Ceiling; Complete method statement with details on full 3D bending of finned tubing using the cold process 	3.4		30
2.	Prod	of of Personnel Work and Company Experience		25	

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	2.1 Proof of personnel experience (i.e. Service Records and Qualifications only) for the personnel on Tube Bending (No CV's): - 1 x Site/Inspection Supervisor/Manager, one or more years — signed proof of employment (10%) - Proof of relevant work experienced for labour team: • 1 x Safety officer, proof of qualification (5%) □ 1 x NDT/QC inspector — proof of qualification (5%) (0/5) — Non-responsive; No submission (2/5) — unsigned service letters; non-verifiable Trade Certificates (5/5) — Ceiling — valid Service Letter and Trade Certificates	3.3.5		10
	2.2 Proof of previously completed same Tube/Pipe Bending work/projects, signed off completion certificates with associated Purchase Orders • Four or more separate proof of work (10%) • Less than two separate proof of work (5%) • No information or suspicious proof provided (0%) • (0/5) – Non-responsive, No submission • (2/5) – Unacceptable proof of orders and previously signed off QCP (PO number to appear on the QCP) • (4/5) - Ceiling; Only three related proof • (5/5) – Stretch; Four or more required proof	3.3.7		10
	Quality Control Plan: Submit four (4) separate and valid proof of historically fully signed-off QCPs from previously completed Tubes/Piping bending Jobs. - Tube bending specific and short as possible (7%) (4/5) - When holding points are required (6.5%) (4/5) - What critical steps to be taken in carrying out cold bending of 3-dimensional bends (6.5%) (5/5) - Generic and Not Tube Bending Specific (2/5) Signature matrix includes, outage coordinator, Eskom QC, Contractor's supervisor, etc. (5%) as per the QM58/Provided reference template.	3.3.5		5
3.	Technical guarantees on equipment offered and proof of relevant experience		10	

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3.1	A fully signed catalog of the workshop machinery listing and showing all pictures of the machines used in the workshop • (0/5) – Non-responsive; No submission • (2/5) – Unacceptable risk; incomplete schedule A or/and incomplete applicable appendix B. • (5/5) – Ceiling; Fully and Complete Submissions	3.4		10
		TOTAL	100	100

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3.8 TET MEMBER RESPONSIBILITIES

Table 3: TET Member Responsibilities

Mandatory Criteria Number	TET 1	TET 2	TET 3
1	X	X	Х
2	X	X	X
Qualitative Criteria Number	TET 1	TET 2	TET 3
1	X	X	X
2	X	Х	X
3	Υ	Y	V

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3.9 FORESEEN ACCEPTABLE / UNACCEPTABLE QUALIFICATIONS

3.9.1 Risks

Table 4: Acceptable Technical Risks

Risk	Description
1.	N/A

Table 5: Unacceptable Technical Risks

Risk	Description
1.	No proof work experience
2.	No machinery catalogue as requested

3.9.2 Exceptions / Conditions

Table 6: Acceptable Technical Exceptions / Conditions

Risk	Description
1.	N/A

Table 7: Unacceptable Technical Exceptions / Conditions

Risk	Description
1.	N/A

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4. AUTHORISATION

This document has been seen and accepted by:

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5. REVISIONS

Date	Revision	Compiler	Remarks
April 2025	1	Feyane Tivane	New document for tender technical evaluation criteria anddocument registered with documentation Centre

6. DEVELOPMENT TEAM

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

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7. ACKNOWLEDGEMENTS

N/A