

	Strategy	Engineering
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Strategy for Tutuka Power Station Coal
Plant Maintenance Work.**

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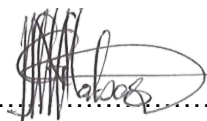
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1. INTRODUCTION

The Tutuka Coal Stockyard conveyor systems delivers between 500 000 to 1 300 000 tons per month for six (6) power generating units depending on the required boilerburn plan. The conveyor belt operations such as the running times and coaling intervals are controlled by the Coal Stockyard (CSY) Control Room Operating Philosophy.

The coal conveyor system is designed to have two (2) identical, parallel running, overland conveyor systems. These two systems are known as the `A` line or `B` line. Their operation is such that only one (1) of the conveyor systems will be delivering coal to Tutuka Power Station at a time, with the other on standby. Each overland conveyor has the capacity to satisfy the coal requirement for TutukaPower Station.

The Coal Handling Plant / Coal Plant is designed to handle coal from the mine through the two (2) overland conveyors via the CYS into the Station terrace. The maintenance of the Coal Plant is key in ensuring the reliability, availability, and maintainability of the plant under all circumstances during the operational life of the station. Thus, the maintenance philosophy and/or strategy requires that preventative maintenance, inspections regiments, plant repairs, other activities must be conducted to preserve the condition and life of the plant.

1.1 SCOPE

The scope of this document is to capture the Technical Tender Evaluation Strategy (TTES) for the Coal Plant maintenance work. The required work is for the service provider(s) or contractor(s) to be able to conduct and perform maintenance activities, that are based on daily inspections and required preventative maintenance plans (PMs).^{[1][2]}

1.1.1 Purpose

The purpose of this TTES is to define the Mandatory Evaluation Criteria, Qualitative Evaluation Criteria, and to define the TET member responsibilities for tender technical evaluations. The TTES serves as the basis for the tender technical evaluation process.^{[1][2]}

1.1.2 Applicability

This document applies to the TET of Tutuka Power Station for all Coal Plant, CYS, and supply chains enquiries.

1.2 NORMATIVE/INFORMATIVE REFERENCES

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

1.2.1 Normative

- [1] 240-48929482: Tender Technical Evaluation Procedure.
- [2] 240-53716726: Tender Technical Scoring Form Template.

1.2.2 Informative

- [3] 240-53716746: Tender Technical Evaluation Report.
- [4] 240-44682850: Process Control Manual (PCM) for Provide Engineering during Project Sourcing.

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1.3 DEFINITIONS

1.3.1 Classification

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

1.4 ABBREVIATIONS

Abbreviation	Description
C&I	Control and instrumentation
CSY	Coal Stock Yard
CHP	Terrace Coal Handling Plant
EDWL	Engineering Design Work Lead
ISO	International Standard Organization
LDE	Lead Discipline Engineer
NDC	New Denmark Colliery
PCM	Process Control Manual
PEIC	Production Engineering Integration Coal
PM	Preventative Maintenance Orders
SHEQ	Safety, Health, Environment and Quality
TET	Technical Evaluation Team
TTES	Technical Tender Evaluation Strategy

1.5 ROLES AND RESPONSIBILITIES

Below are the key roles and responsibilities as prescribed in the Tender Technical Evaluation Procedure ^{[1][2]}:

- **Engineering Manager:** All Engineering Managers throughout Eskom shall ensure that all staff, in their respective areas understand and adhere to this procedure.
- **Engineering Design Work Lead (EDWL):** The EDWL is responsible to manage the execution and adhere to this procedure. Typically, on New Build the EDWL role is fulfilled by the lead Discipline Engineer (LDE) and on existing asset projects the EDWL role is fulfilled by the relevant System Engineer
- **Technical Evaluation Team (TET):** The delegated engineers/technical specialists who are responsible to review and evaluate technical aspects of the tender documentation as per the Tender Technical Evaluation Strategy.

1.6 PROCESS FOR MONITORING

N/A

1.7 RELATED/SUPPORTING DOCUMENTS

[5] 15ENG GEN-2356 Coal Handling Plant maintenance scope of work

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2. TENDER TECHNICAL EVALUATION STRATEGY

2.1 TECHNICAL EVALUATION METHOD^{[1][2][3][4][5]}

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

The technical criteria and weighting is broken down as follows:

a) Technical: 100%

The evaluation of the tender submission will be based on the tenderer's ability to meet the Engineering requirements. A weighted score card approach will be used to evaluate the tender submission against the specifications and Employer's requirements.

The scoring method will be as follows:

SCORE	PERCENTAGE	DESCRIPTION
5	100	COMPLIANT <ul style="list-style-type: none"> Meet technical requirement(s) AND; No foreseen technical risk(s) in meeting technical requirements.
4	80	COMPLIANT WITH ASSOCIATED QUALIFICATIONS & PROFESSIONAL BODIES <ul style="list-style-type: none"> Meet technical requirement(s) with; Acceptable technical risk(s) AND/OR; Acceptable exceptions AND/OR; Acceptable conditions.
2	40	NON-COMPLIANT <ul style="list-style-type: none"> 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.		

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

Technical (100%)		
1.	Proven track record of Bulk Materials Handling Plants	25%
2.	Proven track record of execution of PM Orders, repairs, replacement of failed components.	50%
3.	Proven track record of providing support to plant investigations and condition monitoring.	25%
TOTAL (100%)		
Overall minimum threshold for qualification (70%)		

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2.2 TECHNICAL EVALUATION THRESHOLD

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

2.3 TET MEMBERS

Table 1:TET MEMBERS

TET number: Section to be evaluated	TET Member Name	Designation
TET 1	Thomas Xaba	Engineering Snr. Advisor
TET 2	Rhulani Lowani	Mechanical Maintenance Manager
TET 3	Hanerike Koekemoer	Systems Engineer
TET 4	Sekese Maema	Senior Supervisor
TET 4	Lindani Masondo	Technical Support Manager

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2.4 MANDATORY TECHNICAL EVALUATION CRITERIA

This section will not be applicable for this maintenance contract, there are no mandatory technical requirements

2.5 QUALITATIVE TECHNICAL EVALUATION CRITERIA

Table 2: Qualitative Technical Evaluation Criteria

	Qualitative Technical Criteria Description		Reference to Technical Specification / Tender Returnable	Criteria Weighting (%)		Criteria Sub Weighting (%)
1.	Proven track record of maintaining of Bulk Materials Handling plants			25%		100%
		Statement of the scope including the following:				
	1 · 1	Maintenance experience of Bulk Materials Handling Systems inclusive of:- <ul style="list-style-type: none"> Conveyor belts and associated Drive assemblies, Chutes and Multi-way chute diverters (flopper gates), Flopper actuators, Insertable dust extractors, Vibro motors torquing and Vibro screens, Overhung electromagnets, Shuttle Cars pion and rack drives, Hydraulic powerpack and hydraulic motors, Stacker -Reclaimers, Dust suppression systems. Slurry pumping. 	Previous maintenance work:			40%
			1. Maintenance Activities (at least ten (10) brief history of key activities of work performed on these system(s) / equipment(s) / component(s)). Detailed methodology on slurry pump overhaul and conveyor belt splicing.	Submitted 10	5	
				Submitted 7	4	
				Submitted 3	2	
				Submitted < 3	0	
			2. Maintenance Documentation <ul style="list-style-type: none"> Maintenance manuals and/or procedures, for maintaining plant equipment 	Submitted 5	5	20%
				Submitted 4	4	

			<ul style="list-style-type: none"> Preventative Maintenance Orders (PMs) execution, Quality Control Plans (QCPs), Check sheets, And maintenance plans. 	Submitted 2	2	
				No evidence	0	
			3. Propose at least ten (10) key maintenance metrics for the CSY and CHP to ensure the reliability, availability, and maintainability of the plant(s) using proposed maintenance KPI, and maintenance KPA.	Submitted 10	5	40%
				Submitted 7	4	
				Submitted 3	2	
				No evidence	0	
2.	Proven track record of performing inspections, repairs, and or replacement of damaged component(s) and/or equipment(s).			50%		100%
		Statement of the scope including the following:				
	2.1	The number of years that the company has been conducting maintenance in Bulk Materials Handling plant(s).	Years of experience on BMH conveyors i.e. chutes, flopper gates, vibro motors, dust extractors, sumps dredging, slurry pumping systems, hydraulic powerpack and associated motors, electromagnets and flopper actuators.	>9 years	5	20%
				>7 – 9 years	4	
				5 - 7 years	2	
				< 5 years	0	
	2.2	Team experience of key personnel such as the site manager, supervisor, artisans (boilermakers, mechanics, electricians, riggers, quality control officers), safety officer, and others. Submit supporting documents such as qualifications, trade tests, etc. for the maintenance team that will be performing the maintenance activities.	Organogram, CV of each team members and certificates	>9 years	5	20%
				>5 – 9 years	4	
				2 – 5 years	2	
				<2 year	0	
	2.3	Provide an activity schedule with quantifiable hours to perform the various maintenance activities on the	Provide internal company template	100% Productivity	5	15%

		Bulk Materials Handling plants (similar to a job card of various maintenance activities).		80% Productivity	4	
				40% Productivity	2	
				Not evidence	0	
	2.4	Identify key components and/or equipment on the CSY and CHP that are long lead items and provide a list of their lead times.	Supply template of the activities schedule with long lead times for long lead items.	2 - 3 months	5	15%
				3 – 4 months	4	
				4 – 5 months	2	
				6 to 7 months	0	
	2.5	Company experience on handling of spares provided by client. Supplier to submit list of critical spares which is recommended for the Coal Plant.	<p>List of spares for ash plant recommend for maintenance purpose to cover all the AHP components and systems.</p> <p>Below are the key equipment spares lists that must be submitted:</p> <ul style="list-style-type: none"> • Conveyors and Feeders, • Hydraulic Drives and mototrs, • Chutes and Flopper gates, • Flopper actuators, • Shuttle car, pion and rack, • Vibro motors and screens, • Dust extractors, • Stackers/Reclaimers 	All submitted	5	15%
				Four (4) submitted	4	
				Two (2) submitted	2	
				No evidence	0	
	2.6	Method statement of performing the maintenance duties on the CHP and Coal stock yard System.	<p>Method Statement on Maintenance works:</p> <p>Submit works descriptions, overview of how the plant reliability, availability, and maintainability will be improved</p>	Good method statement	5	15%
				Fair method statement	4	
				Poor method	2	

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			and what value he appointed contractor will bring to the Tutuka Auxiliary Team.	statement		
				No evidence	0	
3.	Proven track record of providing support to plant investigations and condition monitoring			25%		100%
		Statement of the scope including the following:				
	3.1	Method statement of providing input/assisting in investigative reports on plant failures and plant unavailability on BMH System.	Method Statement on investigative reports: Submit works descriptions, overview of how Auxiliary Engineering will be supported on perform these investigations.	Good method statement	5	60%
				Fair method statement	4	
				Poor method statement	2	
				No evidence	0	
	3.2	Does the company offer other services related to Bulk Materials Handling that include design, operational support and maintenance of such systems.	Submit documentary evidence of the capacity to provide the following services: <ul style="list-style-type: none"> Design Operational Support Maintenance 	All three (3) capacity proven	5	40%
				Only (2) capacity proven	4	
				Only (1) capacity proven	2	
				No evidence	0	
			TOTAL	100%		100%

2.5 TET MEMBER RESPONSIBILITIES

Table 3: TET Member Responsibilities

Qualitative Criteria Number	TET 1	TET 2	TET 3
1.			
1.1	X	X	X
2.			
2.1	X	X	X
2.2	X	X	X
2.3	X	X	X
2.4	X	X	X
2.5	X	X	X
2.6	X	X	X
3.			
3.1	X	X	X
3.2	X	X	X

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2.6 FORESEEN ACCEPTABLE / UNACCEPTABLE QUALIFICATIONS

2.7.1 Risks

Table 4: Acceptable Technical Risks

Risk	Description
1.	N/A
2.	N/A

Table 5: Unacceptable Technical risks

Risk	Description
1.	The company that does not have experience in maintenance of Coal Plant
2.	The tender's staff have insufficient experience
3.	N/A
4.	N/A

2.7.2 Exceptions / Conditions

Table 6:Acceptable Technical Exception/Conditions

Risk	Description
1.	The proof of working in the similar systems that contain conveyors and similar product like coal

Table 7:Unacceptable Technical Exceptions/ Conditions

Risk	Description
1.	Zero experience in dealing with conveyors.

3. AUTHORISATION

This document has been seen and accepted by:

Name	Designation	Signature
Hanerike Koekemoer	Auxiliary Engineering	
Nathi Mabaso	Auxiliary Engineering Manager	
Rhulani Lowani	Mechanical Maintenance Manager	
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4. REVISIONS

Date	Rev.	Compiler	Remarks
November 2020	0.1	Hanerike Koekemoer	Draft document for comment
November 2020	1	Hanerike Koekemoer	Approval
August 2022	1	Thomas Xaba	Approval

5. DEVELOPMENT TEAM

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

- Hanerike Koekemoer
- Dipolelo Matjipa
- Sizwe Buthelezi
- Thomas Xaba

6. ACKNOWLEDGEMENTS

N/A

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