

Title: **Tender Technical Evaluation  
Strategy for Tutuka SSC  
Mechanical and Machined  
spares**

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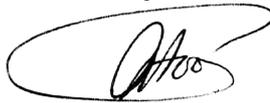
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DISCLOSURE****Compiled by****Tebogo Motloutsi  
SSC System Engineer**Date: 03/02/2021**Functional Responsibility****Phil Hoop  
Boiler Engineering Manager**Date: 03/02/2021**Authorised by****Ntombifuthi Ngcobo  
Power Station Engineering  
Manager**Date: 03/02/2021**CONTROLLED DISCLOSURE**

## CONTENTS

	Page
<b>LIST OF TABLES</b> .....	<b>2</b>
<b>1. INTRODUCTION</b> .....	<b>3</b>
<b>2. SUPPORTING CLAUSES</b> .....	<b>3</b>
2.1 SCOPE .....	3
2.2 PURPOSE .....	6
2.3 APPLICABILITY .....	6
2.4 NORMATIVE/INFORMATIVE REFERENCES.....	6
Normative .....	6
Informative.....	6
2.5 DEFINITIONS.....	6
Classification .....	7
2.6 ABBREVIATIONS.....	7
2.7 ROLES AND RESPONSIBILITIES.....	7
2.8 PROCESS FOR MONITORING.....	7
2.9 RELATED/SUPPORTING DOCUMENTS.....	7
2.10 PREREQUISITES .....	7
2.11 PRECAUTIONS AND LIMITATIONS .....	8
<b>3. TENDER TECHNICAL EVALUATION STRATEGY</b> .....	<b>9</b>
3.1 TECHNICAL TENDER EVALUATION METHOD.....	9
3.2 SCORING TABLE .....	9
3.3 TECHNICAL EVALUATION THRESHOLD .....	10
3.4 TECHNICAL EVALUATION TEAM .....	11
3.5 TECHNICAL EVALUATION TEAM RESPONSIBILITIES .....	11
3.6 TECHNICAL EVALUATION SCORING GUIDE .....	12
<b>2. AUTHORISATION</b> .....	<b>15</b>
<b>3. REVISIONS</b> .....	<b>15</b>
<b>4. DEVELOPMENT TEAM</b> .....	<b>15</b>
<b>5. ACKNOWLEDGEMENTS</b> .....	<b>15</b>

### LIST OF TABLES

Table 1: Abbreviations .....	<b>Error! Bookmark not defined.</b>
Table 2: Evaluation Criteria .....	9
Table 3: Qualitative Evaluation Criteria Scoring Table .....	9
Table 4: TET .....	11
Table 5: Evaluation Matrix .....	11
Table 6: Scoring guide.....	12
<b>Table 7: Acceptable Technical Risks</b> .....	<b>14</b>
<b>Table 8: Unacceptable Technical Risks</b> .....	<b>14</b>
<b>Table 9: Acceptable Technical Exceptions / Conditions</b> .....	<b>14</b>

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## 1. INTRODUCTION

Tutuka Power Station units consist of a boiler set that is fitted with a Submerged Scraper Chain Conveyor (SSC) system underneath the boiler for Boiler Bottom Ash (BBA) removal. Each boiler unit has one SSC. BBA removed by the SSC is discharged onto the short coarse ash conveyors (CAC) via a discharge grizzly assembly. The short coarse ash conveyor is linked to other ash conveyors to eventually feed the discarded ash to the ash disposal facility (Ash dump).

The SSC consists of the chain; scraper bars (flights), main drive system, tensioning system, idler wheels, stub shafts (submerged idler wheels), ash box, etc. The ash box has the horizontal section directly underneath the boiler nose, as well as the sloped section that guides the ash up to the exit onto the grizzly grating and short coarse conveyor. The purpose of the sloped section (dewatering slope) is to allow the water to drain as much as possible from the ash as it ascends up the slope to the exit point.

The ash box is the main container of the falling coarse ash from the boiler. In operation the ash box is filled to capacity with water that is high enough to reach the bottom of the boiler structure (dipper plates) to provide the seal to the boiler and prevent air ingress at the bottom of the boiler. The scrapers guided by the two chains enters the inside of the ash box (upper trough) at the rear, scraps and push the ash at the bottom of the ash box through to the dewatering slope until the ash falls over onto the grizzly gratings and the short coarse conveyor. The scrapers bars still guided by the chain, proceed to travel underneath the ash box upper trough in the return tray / lower trough back to the rear side where they will re-enter the ash box upper trough.

This strategy serves as the Technical Evaluation Strategy for the procurement of mechanical and machined SSC spare components to ensure technical requirements are met.

## 2. SUPPORTING CLAUSES

### 2.1 SCOPE

The description of the scope of this Works is as follows:

The scope of work entails the supply and delivery of machined and mechanical spare components as per the list below

Description	Technical Description (Long Text)	Type/System
SSC main drive shaft	SHAFT: LENGTH: 2700 MM; MATERIAL: EN8; APPLICATION: SSC MAIN DRIVE; END STYLE 1: 36MM KEY WAY; END STYLE 2: 36MM KEY WAY; END SIZE DAIMETER: 125 MM; 2 SECTION DAIMETER 140mm with 2x KEY WAYS: MIDDLE SECTION DAIMETER 150MM; MATERIAL SPECIFICATIONS TO SUPPLIED VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER	Machining

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	drawing number 6045s2	
L&R 3 and 4 Wheels	Radius: 473mm, PCD 495, Thickness:105mm Material: EN8 MATERIAL SPECIFICATIONS TO SUPPLIED VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER 6037s2	Machining
L&R 3 and 4 Shaft and wheel assembly	SHAFT: LENGTH 2316 MM; MATERIAL EN8; APPLICATION: SSC RETURN IDLER: NO KEY ;MATERIAL SPECIFICATIONS TO SUPPLIED VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER 6037	Machining
SSC Tear drop liners L&R2	Thickness: 80 mm Material: VR 500 MATERIAL SPECIFICATIONS TO SUPPLIED VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER 57228r0	Machining
SSC tensioner block rail	KEY STOCK: WIDTH: 28 MM LENGTH: 3 M PROCESS: HOT ROLLED THICKNESS: 50 MM MATERIAL: STL FLAT BAR VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER	Machining
SSC Tensioner wheels	IDLER, SPROCKET DIAMETER 480 MM, EN 8, CHAIN TENSION L/R5, TENSION CHAIN GUIDE WHEELS, 180MMto 150MM HOLE IN CENTRE, 8x HOLES FOR M10 BOLTS, NO KEYWAY, DATE OF MANUFACTURING MUST BE STAMPED, IN ACCORDANCE WITH THE LATEST EDITION OF SA NS 1313, ALL IDLERS MUST BE SABS APPROVED WITH SABS MARK VISIBLE ON ALL IDLERS, APPROVED MATERIAL CERTIFICATE TO BE INCLUDED WITH EVERY DELIVERY, VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER Drawing 57231s3 rev 3 ITEM 2	Machining
SSC Tensioner Block	BLOCK LENGTH 245 MM THICKNESS 140mm, MATERIAL STL, CHAIN TENSION L/R5, TENSION CHAIN GUIDE WITH WEAR LINER BOLTED DATE OF MANUFACTURING MUST BE STAMPED, IN ACCORDANCE WITH THE LATEST EDITION OF SA NS 1313, ALL BLOCKS MUST BE SABS APPROVED WITH SABS MARK VISIBLE VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER Drawing 57231s2r0	Machining

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SSC Tensioner shaft	SHAFT: LENGTH: 338,5 MM; MATERIAL: EN8; APPLICATION: SSC TENSIONER; GROOVE TO BE MACHINED, and M12 DRILLED AND TAPPED HOLES ON THE OTHER SIDE VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER Drawing 57231s3 rev 3 ITEM 1	Machining
Tensioner wheel covers, keeper plates and bolts	MATERIAL:EN 10025-2; APPLICATION: SSC TENSIONER WHEEL RESTRAINERS; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER Drawing 57231s3 rev 3 ITEM 3,4,5 and 6	Machining
SSC VRN 500 liners	SPARES FOR WET ASH SCRAPER CONVEYOR FLIGHT BAR WEAR PLATES 80 X 10, 1720 MM LONG * MATERIAL: V.R.N. 500	Machining
SSC VRN 600 liners	SPARES FOR WET ASH SCRAPER CONVEYOR F WEAR PLATES 120 X 12, 1760 MM LONG * MATERIAL: V.R.N. 600	Machining
Coupling guard (repairable)	HOUSING: TYPE: COUPLING DIMENSIONS: DIA 365 MM MATERIAL: AL COVER SUB ASSY, HORIZONTAL SPLIT PART NO: FALK-150T1	Machining
Grizzly NDE shaft	SHAFT: TYPE: NON DRIVE END; LENGTH: 1.544 M; MATERIAL: EN8; APPLICATION: GRIZZLY SCRAPER CONVEYOR; END STYLE 1: PLAIN; END STYLE 2: PLAIN; END 1 SIZE: 75 MM; END 2 SIZE: 80 MM; B SIDE ON DRAWING - KEY WAY TO BE MACHINED 180 DEG FROM EACH OTHER AND ON THE SA ME CENTER LINE; MATERIAL CERTIFICATION TO BE PROVIDED VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER.	Machining
Grizzly DE shaft	SHAFT: TYPE: DRIVE END; LENGTH: 1.615 M; MATERIAL: EN8; APPLICATION: GRIZZLY SCRAPER CONVEYOR; END STYLE 1: KEYED; END STYLE 2: PLAIN; END 1 SIZE: 190 MM; END 2 SIZE: 80 MM; B SIDE ON DRAWING KEY WAY TO BE MACHINED 180 DEG FROM EACH OTHER AND ON THE SAME CE NTER LINE; MATERIAL CERTIFICATION TO BE PROVIDED VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING REVISION NUMBER.	Machining
Degritting sump pumps	PUMP DEGRITTING,7.5KW,MODEL 100KJ175-H	Mechanical
Valve gate	VALVE, GATE: VALVE SIZE: 250 MM DESIGN RATING: 16 BAR CONNECTION: FLANGE BODY MATERIAL: SGI TRIM: GATE SGI NITRILE COATED SPINDLE SS SOFTGOODS: SEAL RESILIENT STEM DESIGN: RISING STYLE: BONNET BOLTED TEMPERATURE RATING: 90 DEG C OPERATED: HANDWHEEL SPECIFICATION: SABS664 CL16 SOFTGOODS PACKING DRILLED TO BS4504 TABLE 10 FUSION BONDED EPOXY COATED AND BEARING THE SABS MARK OF APPROVAL DRAWING NO: AINSWORTH-2874 DRAWING NO: AINSWORTH 2874	Mechanical

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## **2.2 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. This document will also provide a guideline as to what technical tender returnables are expected and how to assess each tender returnable by providing acceptable and unacceptable criteria's.

## **2.3 APPLICABILITY**

This document is applicable to the Tender Evaluation Team for Tender Technical Evaluation Strategy for the supply of SSC mechanical and Machined spares.

## **2.4 NORMATIVE/INFORMATIVE REFERENCES**

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

### **Normative**

- [1] ISO 9001 Quality Management Systems.
- [2] 240-48929482: Tender Technical Evaluation Procedure
- [3] 240-53716712: Tender Technical Evaluation Results Form Template
- [4] 240-53716726: Tender Technical Evaluation Scoring Form Template
- [5] 240-53114186: Document and Records Management
- [6] 240-53665024: Engineering Quality Manual
- [7] 15ENG BLR-032: Maintenance Execution Strategy for SSC, Grizzly and sumps

### **Informative**

- [8] NEC document for Supply, Supply and Delivery of SSC Mechanical and Machine spares at Tutuka Power Station .
- [9] OHSA: Occupational Health and Safety Act 85 of 1983
- [10] 240-106628253 Standard for Welding Requirements on Eskom Plant
- [11] Occupational Health and Safety Act, 1993 (No 85 of 1993): OHS Act, Regulation and code
- [12] QM58: Eskom's Quality Requirements

## **2.5 DEFINITIONS**

<b>Definition</b>	<b>Description</b>

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## Classification

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

## 2.6 ABBREVIATIONS

**Table 1: Abbreviations**

Abbreviation & Acronyms	Description
RFP	Request for proposal
RFQ	Request for Quotation
TET	Technical Evaluation Team
SOW	Scope of Work
BBA	Boiler Bottom Ash
ID	Inside diameter
ISO	International Organization for Standardization
ITP	Inspection and Test Plan
m/s	Meters per second
OEM	Original Equipment Manufacturer
OHS	Occupational Health and Safety
SANS	South African National Standards
SSC	Submerged Scraper Chain Conveyor
QCP	Quality Control Procedure
WPS	Welding Procedure Specification

## 2.7 ROLES AND RESPONSIBILITIES

As per 240-48929482: Tender Technical Evaluation Procedure

## 2.8 PROCESS FOR MONITORING

As per 240-48929482: Tender Technical Evaluation Procedure

## 2.9 RELATED/SUPPORTING DOCUMENTS

240-48929482, Tender Engineering Evaluation Procedure

## 2.10 PREREQUISITES

All personnel on the technical tender evaluation team must be familiar with this document before the tender evaluation can proceed.

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Technical tender evaluation team must approve this document before the tender evaluation can proceed.

There shall at least be **three evaluation team members to meet a quorum** to be present in the scheduled meeting(s) to approve the evaluation criteria and to evaluate the tender documents.

## **2.11 PRECAUTIONS AND LIMITATIONS**

N/A

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### 3. TENDER TECHNICAL EVALUATION STRATEGY

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

#### 3.1 TECHNICAL TENDER EVALUATION METHOD

Table 1: Evaluation Criteria

Gatekeepers		
No.	Mandatory Technical Criteria Description	
1.1	Provide verifiable reference that the Manufacture/Supplier has successfully completed machined similar equipment to Power Stations/ similar industries in the last 10 years.  References shall include the customer name, customer reference person with contact details, project scope.	
<b>NB: Tenders, which do not satisfy these gatekeepers, will not be given further consideration.</b>		
Technical Evaluation Criteria		Weighting [%]
2.1	Provide technical specification of machine shop, machine shop should be capable of machining shaft components of up to 2000mm in length and 300mm diameter.	30
2.2	Examples of completed QCP and supporting work instruction (procedure) used for machining of shafts  Client must have signed on for approval of QCP.	20
2.3	Verifiable Reference list of supplied pumps and valves within Eskom and/or mining industry/or other heavy construction industries. References shall include the customer name, customer reference person with contact details, project scope.	20
2.4	Supplier/Manufacturer to supply the price schedule and lead times as per the spares detailed in section 2.1 Scope	20
2.5	Provide proof of that the Equipment spare parts are machined locally and the mechanical parts received from the OEMs	10
<b>TOTAL</b>		<b>100%</b>

**NB: A minimum total of 70 % is required in this section for further consideration. The tenderer is to ensure that all the evaluation criteria are submitted as stated with the tender application.**

#### 3.2 SCORING TABLE

Table 2: Qualitative Evaluation Criteria Scoring Table

Score	Points	Definition
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5	100	<b>COMPLIANT</b> Meet technical requirement(s) AND; No foreseen technical risk(s) in meeting technical requirements.
4	80	<b>COMPLIANT WITH ASSOCIATED QUALIFICATIONS</b> Meet technical requirement(s) with; Acceptable technical risk(s) AND/OR; Acceptable exceptions AND/OR; Acceptable conditions.
2	40	<b>NON-COMPLIANT</b> Does not meet technical requirement(s) AND/OR; Unacceptable technical risk(s) AND/OR; Unacceptable exceptions AND/OR; Unacceptable conditions. Omission of the SOW
0	0	<b>TOTALLY DEFICIENT OR NON-RESPONSIVE</b>
Note 1: The scoring table does not allow for scoring of 1 and 3.		

### 3.3 TECHNICAL EVALUATION THRESHOLD

The minimum weighted final score (threshold) required for a tender to be considered from a technical perspective is **70%**. Tenderers need to have a minimum weighted score of 70% overall or more to technically qualify for further evaluation.

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### 3.4 TECHNICAL EVALUATION TEAM

The following personnel will form part of the technical evaluation team:

**Table 3: TET**

<b>TET Number</b>	<b>Evaluator's name</b>	<b>Designation</b>
TET 1	Tebogo Motloutsi	SSC System Engineer
TET 2	Ntsizwa Mabena	SSC Senior Supervisor
TET 3	Paul Muller	QC Technician Supervisor

### 3.5 TECHNICAL EVALUATION TEAM RESPONSIBILITIES

**Table 4: Evaluation Matrix**

<b>Section</b>	<b>TET 1</b>	<b>TET 2</b>	<b>TET 3</b>
1.1	x	x	x
2.1	x	x	x
2.2	x	x	x
2.3	x	x	x
2.4	x	x	x

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### 3.6 TECHNICAL EVALUATION SCORING GUIDE

In the table below is a guide on how to score each technical tender returnable. This guide is obtained for the Tender Engineering Evaluation Procedure.

**Table 5: Scoring guide**

GATEKEEPERS						
Section	Criteria					Yes / No
1.1.	Provide verifiable reference that the Manufacture/Supplier has successfully completed machined similar equipment to Power Stations/ similar industries in the last 10 years. References shall include the customer name, customer reference person with contact details, project scope.					
Technical evaluation						
<b>NB: Tenders which do not satisfy this gatekeeper will not be given further consideration on this project. Contractors who qualify the gatekeeper must obtain a minimum of 70% on the quantitative evaluation to qualify.</b>						
Minimum score of 70% required			Score			
No	Criteria	Weight [%]	0	2	4	5
2.1	Provide technical specification of machine shop, machine shop should be capable of machining shaft components of up to 2000mm in length and 300mm diameter.	30	Deficient or non-responsive	Unacceptable risks	Acceptable risks	Fully compliant and no technical risks
2.2	Examples of completed QCP and supporting work instruction (procedure) used for machining of shafts Client must have signed on for approval of QCP.	20	Deficient or non-responsive	Unacceptable risks	Acceptable risks	Fully compliant and no technical risks
2.3	Verifiable Reference list of supplied pumps and valves within Eskom and/or mining industry/or other heavy construction industries. References shall include the customer name, customer reference person with contact details, project scope.system.	20	Deficient or non-responsive	Unacceptable risks	Acceptable risks	Fully compliant and no technical risks
2.4	Supplier/Manufacturer to supply the price schedule and lead times as per the spares detailed in section 2.1 Scope	20	Deficient or non-responsive	Unacceptable risks	Acceptable risks	Fully compliant and no technical risks

**Tender Technical Evaluation Strategy for Tutuka SSC  
Mechanical and Machined spares**

Unique Identifier: **15ENG GEN-2025**  
Revision: **1**  
Page: **13 of 15**

2.5	Provide proof of that the Equipment spare parts are machined locally and the mechanical parts received from the OEMs	<b>10</b>	Deficient or non-responsive	Unacceptable risks	Acceptable risks	Fully compliant and no technical risks
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**A. FORESEEN ACCEPTABLE / UNACCEPTABLE QUALIFICATIONS**

**Risks**

**Table 6: Acceptable Technical Risks**

Risk	Description
1.	Qualitative 4: Provide proof of that the Equipment spare parts are machined locally and the mechanical parts received from the OEMs

**Table 7: Unacceptable Technical Risks**

Risk	Description
1	Qualitative 4: Supplier/Manufacturer to supply the price schedule and lead times as per the spares detailed in section 2.1 Scope

**Exceptions / Conditions**

**Table 8: Acceptable Technical Exceptions / Conditions**

Risk	Description
1.	The Supply that is an authorized distributor of OEM required spares

**Table10: Unacceptable Technical Exceptions / Conditions**

Risk	Description
1	Examples of completed QCP and supporting work instruction (procedure) used for machining of shafts Client must have signed on for approval of QCP.

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## 2. AUTHORISATION

This document has been seen and accepted by

Name	Designation
Phil Hoop	Boiler Engineering Manager
Mikateko Matlole	MMD Line Manager
Tebogo Motloutsi	SSC System Engineer
Ntsizwa Mabena	MMD Senior Supervisor
Paul Muller	Quality Control Technician

## 3. REVISIONS

Date	Rev.	Compiler	Remarks
January 2021	1	Tebogo Motloutsi	New Document

## 4. DEVELOPMENT TEAM

Ntsizwa Mabena

Paul Muller

## 5. ACKNOWLEDGEMENTS

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