

	Strategy	Tutuka Power Station Engineering
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1. INTRODUCTION

Tutuka Power Station is required by the insurer and fire protection regulations to upgrade the existing fire protection pumping system to meet the worst-case scenario fire water demand. The scope of the works requires the design of the pumping system and its associated accessories.

The implementation of this strategy will result in the following long-term benefits to Tutuka (and Eskom):

- The design of pumping system that is compliant to insurance and regulation requirements.
- Once the design has been implemented, it will eliminate the risk of property damage.
- Once the design has been implemented, it will reduce the risk of load losses due damaged equipment.
- Once the design has been implemented, it will reduce the risk of personnel harm in the event of uncontrolled fire.

2. SUPPORTING CLAUSES

2.1 SCOPE

The scope discusses the different technical aspects that will be evaluated and scored by the multi-disciplinary Technical Evaluation Team (TET) to complete the technical evaluation of proposals for the design contract to upgrade the Tutuka fire protection pumping system.

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

The document is applicable to Tutka 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] 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] 474-59: Internal Audit Procedure
- [6] 32-1034: Eskom Procurement Policy

2.2.2 Informative

[7] NEC document for the Design of Fire Protection Pumping System

2.3 DEFINITIONS

2.3.1 Classification

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

2.4 ABBREVIATIONS

Abbreviation	Description
ASIB	Automatic Sprinkler Inspection Bureau
NFPA	National Fire protection Association
SANS	South African nations Standards
TET	Technical Evaluation Team
QCP	Quality Control Plan

2.5 ROLES AND RESPONSIBILITIES

N/A as per 240-48929482: Tender Technical Evaluation Procedure

2.6 PROCESS FOR MONITORING

N/A

2.7 RELATED/SUPPORTING DOCUMENTS

N/A

3. TENDER TECHNICAL EVALUATION STRATEGY

3.1 TECHNICAL EVALUATION THRESHOLD

Mandatory Technical Evaluation Criteria (gatekeepers) are 'must meet' criteria. These criteria shall not be weighted or point scored but shall be assessed on a Yes/No basis as to whether or not the criteria are met. An assessment of 'No' against any criterion shall technically disqualify the tenderer and shall not be further evaluated against Qualitative Criteria.

Qualitative Technical Evaluation Criteria are weighted evaluation criteria used to identify the highest technically ranked tenderer after determining that all the Mandatory Evaluation Criteria have been met. The Qualitative Evaluation Criteria are weighted to reflect the relevant importance of each criterion.

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

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3.2 TET MEMBERS

3.3 MANADATORY TECHNICAL EVALUATION CRITERIA

Table 1: Mandatory Technical Evaluation Criteria

	Mandatory Technical Criteria Description	Reference to Technical Specification / Tender Returnable	Motivation for use of Criteria
1.	Does the design comply to NFPA 20 (Standard for the Installation of Stationary Fire Pumps) ORSANS 10287/ASIB, OR equivalent? Yes / No	Declaration signed by Pr Eng confirming that design and installation shall fully comply with NFPA 20 OR SANS 10287/ASIB OR Equivalent	• To ensure the designs meet national and local fire codes, such as NFPA and other building safety regulations. • Declaration also demonstrates that the company has necessary expertise, training, and experience to design fire protection systems that are safe and effective. • Insurance company may also require maintaining coverage.

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3.4 QUALITATIVE TECHNICAL EVALUATION CRITERIA

Table 2: Qualitative Technical Evaluation Criteria

	Qualitative Technical Criteria Description		Reference to Technical Specification / Tender Returnable	Criteria Weighting (%)	Criteria Scoring (0-5)	Weighted score (%)
1.	Proof company's track record in similar project design work. These must be implemented projects Please structure it the following way: <i>Name of the project, Duration, Implementation status and contactable/traceable references.</i> Note: Include purchase order/contract numbers		Proof company's track record in similar project design work	20%	5	
	1.1	No similar projects (0)	Proof company's track record in similar project design work	0%	0	
	1.2	> 2 similar projects but < 5	Proof company's track record in similar project design work	8%	2	
	1.3	> 5 similar projects but < 7	Proof company's track record in similar project design work	16%	4	
	1.4	> 7 similar projects	Proof company's track record in similar project design work	20%	5	
2.	Required electrical engineer experience			20%	5	

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	2.1	No electrical related experience at all	Submit comprehensive CV	0%	0	
	2.2	Fire pumps control panels, cable sizing and routing design experience only.	Submit comprehensive CV	6%	1	
	2.3	Motor starting methods, battery-backed control systems and fire alarm interfacing design experience only.	Submit comprehensive CV	6%	1	
	2.4	Control philosophy and PLC/SCADA integration for fire system proven experience only.	Submit comprehensive CV	6%	1	
	2.5	A CV with contactable references demonstrating: Minimum 5 – 8 years' experience in Electrical design, with at least 3 years specific to fire protection pumping system. The experience must consist of all the above (2.2 - 2.4)	Submit comprehensive CV	20%	5	
3.	Submit proposal for implementation consisting of the following:		Submit complete implementation plan	20%	5	
	3.1	Not submitted anything		0%	0	
	3.2	Submitted project Plan only		10%	2.5	
	3.3	Submitted budget proposal only (material, labor, 5 years spares plan)		14%	3.5	
	3.4	Submitted project plan AND budget proposal		20%	5	
4.	Submit a letter confirming that the system designer will offer technical support during the implementation of the project. The letter must explicitly indicate that the system designer will also interpret complex design issues based on the		Management company signed letter	20%	5	

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	design (if installer isn't the same company that did the design).					
	4.1	No letter submitted		0%	0	
	4.2	Letter submitted but not signed by company management		4%	1	
	4.3	Letter submitted and signed by management member of the company		20%	5	
5.	Proof of Design Engineer's experience in Fire Protection Pumping System Design projects.		Submit comprehensive CV	20%	5	
	5.1	Not submitted anything		0%	0	
	5.2	Submitted Comprehensive CV and past implemented reference projects the engineer have designed		20%	5	
		Management company signed letter		TOTAL: 100	25	

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TET MEMBER RESPONSIBILITIES

Table 3: TET Member Responsibilities

Mandatory Criteria Number	TET 1	TET 2	TET 3	TET 4	TET 5	TET 6
1	X	X	X	X	X	X
2	X	X	X	X	X	X
Qualitative Criteria Number	TET 1	TET 2	TET 3	TET 4	TET 5	TET 6
1.	X	X	X	X	X	X
1.1	X	X	X	X	X	X
1.2	X	X	X	X	X	X
1.3	X	X	X	X	X	X
1.4	X	X	X	X	X	X
2.	X	X	X	X	X	X
2.1	X	X	X	X	X	X
2.2	X	X	X	X	X	X
2.3	X	X	X	X	X	X
2.4	X	X	X	X	X	X
3.	X	X	X	X	X	X
3.1	X	X	X	X	X	X
3.2	X	X	X	X	X	X
3.3	X	X	X	X	X	X
3.4	X	X	X	X	X	X
4.	X	X	X	X	X	X
4.1	X	X	X	X	X	X
4.2	X	X	X	X	X	X
4.3	X	X	X	X	X	X

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FORESEEN ACCEPTABLE / UNACCEPTABLE QUALIFICATIONS

3.4.1 Risks

Table 4: Acceptable Technical Risks

Risk	Description
1.	Power Supply Fluctuations – Addressed with backup power sources like diesel-driven pumps or emergency generators.
2.	Routine Wear and Tear – Managed through regular maintenance, testing, and component replacement.
3.	Minor Leaks in Piping – Identified and repaired during periodic inspections without significant system failure.
4.	Pump Cavitation (Low Risk Scenarios) – Avoidable through proper suction conditions and pump selection.
5.	Temporary Pressure Drops – Can be countered with automatic pressure maintenance devices (jockey pumps).
6.	Vibration and Noise – Reduced through proper pump anchoring, alignment, and isolation techniques.

Table 5: Unacceptable Technical Risks

Risk	Description
1.	Pump Failure During a Fire Event – Redundancy (main and backup pumps) is necessary to ensure system operation.
2.	Inadequate Water Supply – A critical failure if the water source is unreliable, leading to system collapse.
3.	Incorrect Pump Sizing – May result in insufficient flow or pressure, failing to meet fire suppression demands.
4.	Failure to Meet NFPA/ SANS 10287 ASIB – Non-compliance can lead to legal liability and system inefficiency.
5.	Electrical System Failure Without Backup – Essential fire pumps must have a reliable power source or diesel backup.
6.	Blocked or Malfunctioning Suction Lines – Can render the pump inoperative, requiring regular inspections.
7.	Overheating Due to Poor Ventilation – Risk of pump room overheating, leading to mechanical failure.

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8.	Incorrect Valve Operation – Can prevent water flow.
9.	Air Entrapment in the System – Can reduce water delivery efficiency, requiring air release valves.

3.4.2 Exceptions / Conditions

Table 6: Acceptable Technical Exceptions / Conditions

Risk	Description
1.	Slight Variations in Pump Flow/Pressure – If within the allowable tolerance of NFPA 20 / SANS 10287 ASIB (e.g., minor deviations due to system constraints but still meeting demand).
1.	Use of Alternative Materials – As long as they meet fire-rated requirements.
2.	Non-Ideal Pump Room Layout – If space constraints exist, provided accessibility, ventilation, and maintenance clearances comply with codes.
3.	Power Supply from Single Utility Source – If a backup power system (generator/diesel-driven pump) is installed.
4.	Temporary Manual Overrides – If automation fails, manual operation may be permitted as an emergency fallback.

Table 7: Unacceptable Technical Exceptions / Conditions

Risk	Description
1.	Undersized or Oversized Pumps – Failing to meet required flow and pressure could make the system ineffective.
2.	Non-Fire-Rated Components – Use of non-compliant pipes, fittings, or electrical components could lead to failures in a fire.
3.	Lack of Backup Power for Electric Pumps – No generator or secondary power source increases failure risk.
4.	Non-Compliant Water Source – Using unreliable or insufficient water supply without backup storage.
5.	Inadequate Ventilation in Pump Room – Could cause overheating and pump failure.

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6.	Improper Valve Placement – Valves must be properly installed at correct locations.
7.	Bypassing Essential Safety Features – Disabling alarms, pressure relief valves, or emergency shutoff mechanisms compromises safety.
8.	Lack of Regular Testing and Maintenance – Neglecting weekly/monthly tests can lead to system failure during an emergency.
9.	Failure to Meet NFPA 20 or SANS 10287 ASIB – Non-compliance can result in system failure, legal issues, and liability.

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4. ACKNOWLEDGEMENTS