Eskom	Report	Tutuka Power Station Engineering

Title:	**Tender Technical Evaluation Strategy Report for The Design, Manufacture, Testing and supplier and deliver of Medium Voltage Induction Motors for Tutuka Power Stations, on an once off purchase.**	Unique Identifier:	**15ENG GEN-3095**
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TABLES

1. INTRODUCTION

Tutuka power station is in dire need of procuring various Medium Voltage (MV) Motors. The MV motors which are going to be replace have more than 25 years of operation of which there have exceeded their design life of 20-25 years. So, there is an urgent need of procuring new motors due to the current motor's having high premature failures during operation and high maintenance cost. The required MV motors are used in critical system such as the conveyor system and electrical compressor system.

This document presents the technical specification for the design, manufacture, testing and installation witnessing of new Medium Voltage (MV) Induction Motors for Tutuka Power Stations. This is a once off purchase of MV Motor for Tutaka Power Station.

2. SUPPORTING CLAUSES

2.1 SCOPE

The mandatory and qualitative evaluation criteria will be evaluated per motor design as defined in the respective sections.

No changes will be permitted to be made to the evaluation criteria once the Technical Evaluation Strategy report has been authorised.

2.1.1 Purpose

The purpose of this document is to define the technical evaluation criteria as well as the roles and responsibilities of the Technical Evaluation Team (TET) members.

The Tender Technical Evaluation Strategy will define the following technical evaluation criteria:

- Mandatory Evaluation Criteria
- Qualitative Evaluation Criteria
- TET Member Responsibilities
- Acceptable/Unacceptable Qualifications

2.1.2 Applicability

This document applies to all Generation Power Stations that require new MV motors in accordance with the authorised procurement strategy.

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 Technical Tender Evaluation Procedure

[2] 240-50237155: New MV Motor Procurement Standard

[3] 240-54783039: New MV Motor Technical Schedule A&B

[4] 240-138203748: MV Synchronous Motor Technical Schedule AB Template

[5] NEC Contract MV Motors

2.2.2 Informative

[6] N/A

2.3 DEFINITIONS

None

2.3.1 Disclosure Classification

Confidential: the classification given to information that may be used by malicious/opposing/hostile elements to **harm** the objectives and functions of Eskom Holdings Limited.

2.4 ABBREVIATIONS

Abbreviation	Description
CACW	Closed Air Circuit Water Cooled
CT	Current Transformer
CU	Copper
EWL	Engineering Work Lead
LRC	Locked Rotor Current
LCI	Load Commutated Inverter
LRT	Locked Rotor Torque
PD	Partial Discharge
SME	Subject Matter Expert
TET	Technical Evaluation Team

2.5 ROLES AND RESPONSIBILITIES

Roles and responsibilities shall be as per “240-168966153: Tender Technical Evaluation Procedure”, summarised below:

Engineering Manager: All Engineering Managers throughout Eskom shall ensure that all staff, in their respective areas understand and adhere to this procedure.

Engineering Work Lead (EWL): The EWL is responsible to manage the execution and adherence to this procedure. The EWL compiles the Technical evaluation reports with input from respective TET members.

Technical Evaluation Team (TET) member: 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. Furthermore, the TET compiles a report detailing the findings of the evaluation for the respective tenders on the allocated area of responsibility as highlighted in Table 5; this is mandatory responsibility for each TET member. The report should also highlight major areas of compliance and non-compliance, risks, points to be considered for negotiations etc. in accordance with the “240-168966153: Tender Technical Evaluation Procedure”. Where possible, one consolidated report will be acceptable per functional area, however the report should be supported by the respective TET member score sheets.

2.6 PROCESS FOR MONITORING

N/A

2.7 RELATED/SUPPORTING DOCUMENTS

N/A

3. TENDER TECHNICAL EVALUATION STRATEGY

3.1 TET MEMBERS

The following Evaluation Team Members have been appointed to perform evaluations.

Table 1: TET Members

TET number	TET Member Name	Designation
TET 1		
TET 2		
TET 3		

3.2 MANDATORY TECHNICAL EVALUATION CRITERIA

3.2.1 Induction Motors

In accordance with 240-168966153, an assessment of 'NO' against criterion I1 to I2 in Table 2 shall disqualify the assessed tendered design from further Qualitative Evaluation.

Table 2: Mandatory Technical Evaluation Criteria for Induction Motors per Design

Ref #	Mandatory Technical Criteria Description	Reference to Technical Specification / Tender Returnable	Motivation for use of Criteria
1.	The Supplier must submit a completed Schedule B of Technical Schedule A&B, Outline Drawing, Thermal Limit curves as per IEEE 620 and Torque and Current versus Speed Curves for each tendered motor design at 100%, 85%, and 75% of motor rated voltage.	• 3.3.3.1.A-D of Eskom Standard 240-50237155	Mandatory and qualitative evaluation phases of each tendered design cannot be conducted / completed without these documents.
2.	Each tendered design must be electrically and mechanically interchangeable with existing motor without plant modification.	• Electrical: 2.0, 3.01, 5.101-5.103, 6.101, 6.215-6.216 of Technical Schedule A&B 240-54783039. • Mechanical: 7.402 &11.0 of Technical Schedule A&B 240-54783039 and Outline drawing mounting dimensions.	Successful installation and operation of replacement motors should not be subjected to implementation of plant modifications.

3.3 QUALITATIVE TECHNICAL EVALUATION SCORING AND THRESHOLD

Table 4 shows the scoring method for the Qualitative Technical Evaluation Criteria as prescribed in 240-168966153.

These criteria are listed in Table 5 and Table 6, where each item shall be given a score of 0, 2, 4 or 5. Using the weighting for each item, the final total score will be added up and expressed as a percentage. The minimum weighted final score (threshold) required for each tendered design to be considered to be recommended for negotiation is 80%.

Table 3: Scoring Method for Qualitative Technical Evaluation Criteria

Score	%	Definition
5	100	**COMPLIANT** Meet technical requirement(s) AND No foreseen technical risk(s) in meeting technical requirement(s).
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) with: • 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.		

3.4 QUALITATIVE TECHNICAL EVALUATION CRITERIA

3.4.1 Induction Motors

In accordance with 240-168966153, each induction motor design which has met all the Mandatory Evaluation Criteria will be evaluated against the Qualitative Evaluation Criteria defined in Table 5 below. The scoring of qualitative criteria shall be based on the degree of achievement by the tenderer to meet the technical requirements defined in each tendered design Technical Schedule A&B 240-54783039 and New MV Motor Procurement Standard document 240-50237155. Each item shall have the specific sub-weighting criteria that shall be scored in accordance with Table 5. For design applications where the sub-criteria are not applicable that sub-criteria weighting, which is blank in Table 5, will be set to zero (0%) when the final design specific qualitative technical evaluation criteria matrix is set by the respective TET Member.

The minimum weighted final score (threshold) required for each tendered design to be considered FUNCTIONALLY ACCEPTABLE from a technical perspective is 80%. This is higher than the standard 70% due to previous experiences where motor designs that just make the procedure threshold, having competed with designs that achieved much higher than 80%, were selected – only for the inferior designs to have technical issues either during the detailed design phase and/or service. The Eskom objective of lowest life cycle costs is achieved by high quality designs that have obtained higher than 80% in the past related tenders.

Table 4: Qualitative Technical Evaluation Criteria for Induction Motors per Design

Criteria Ref #	Qualitative Technical Criteria Description		Reference to Technical Specification / Tender Returnable	Criteria Weighting (%)	Criteria Sub Weighting (%)
IQ.1	**Tendered Motor Design Accessories**		**Technical Schedule A & B**	**15**	
	1.1	Temperature Detectors	• 8.1		Various & varying applications: Dependant on ranking of design application requirements
	1.2	Water Ingress Detectors for CACW motors	• 7.2035 - 7.2037		
	1.3	Protection Components, e.g. CTs, Speed sensing & Anti-Surge components, where applicable	• 8.2, 8.3, 8.5 and 8.6		
	1.4	Condition Monitoring Equipment, e.g. PD & vibration sensors, where applicable	• 7.311 - 7.312 and 8.4		
IQ.2	**Tendered Motor Design Type**		**Technical Schedule A & B**	**15**	
	2.1	Type of Enclosure	• 7.201		45
	2.2	Cooling Method	• 7.202		10

Criteria Ref #	Qualitative Technical Criteria Description		Reference to Technical Specification / Tender Returnable	Criteria Weighting (%)	Criteria Sub Weighting (%)
	2.3	Rotor Type – preferable single Fab.CU vs dual cage & Al.	• 7.104 and 7.105		10
	2.4	Type of Wedges – preferable epoxy glass vs magnetic	• 7.103		30
	2.5	Equivalent Circuit Parameters – submission & completeness	• 5.30		5
IQ.3	**Tendered Motor Design Performance**		**Technical Schedule A & B**	**25**	
	3.1	High Operating Efficiency at 75% load	• 5.207		40
	3.2	High Operating Power Factor at 75% load	• 5.209 or 5.210		30
	3.3	Maximum winding operating temperature at 100% load	• 6.102		30
IQ.4	**Tendered Motor Design Capabilities**		**Technical Schedule A & B**	**40**	
	4.1	Locked Rotor Current (LRC)	• 5.205 and 12.202		30
	4.2	Locked Rotor Torque (LRT)	• 5.202 and 12.201		35
	4.3	Breakdown Torque	• 5.204 and 12.201		20
	4.4	Thermal Limits to Operating Curves Margins	• 6.20 and 12.204		15
IQ.5	**Tender Quality & Delivery Period**			**5**	
	5.1	Delivery Period	Tender returnable		50
	5.2	Deviations	Tender returnable		50
				TOTAL: 100	

3.5 TET MEMBER RESPONSIBILITIES

3.5.1 Induction Motors

Each TET member will review and evaluate motor designs as shown in Table 1.

Table 5: TET Member Responsibilities for Induction Motors

Mandatory Criteria Number	TET 1	TET 2	TET 3
I1		X	X
I2		X	X
Qualitative Criteria Number	**TET 1**	**TET 2**	**TET 3**
IQ.1		X	X
IQ.2		X	X
IQ.3		X	X
IQ.4		X	X
IQ.5		X	X

3.6 FORESEEN ACCEPTABLE / UNACCEPTABLE QUALIFICATIONS

3.6.1 Risks

Table 6: Acceptable Technical Risks

Risk	Description
1.	Tendering without conducting Site visit/s for items whose outline drawings and/or mounting dimensions have been provided by Eskom
2.	

Table 7: Unacceptable Technical Risks

Risk	Description
1.	Designs with unconfirmed size and suitability to application and Site operating conditions
2.	Mandatory criteria 1 – 3 for Induction Motors and 1-4 for Synchronous motors not evaluated and/or satisfied

3.6.2 Exceptions/Conditions

Table 8: Acceptable Technical Exceptions/Conditions

Risk	Description
1.	Declining to provide technical details accurately deemed intellectual proprietary.

Table 9: Unacceptable Technical Exceptions/Conditions

Risk	Description
1.	Failure to provide manufacturing factory name, and documents for assessing compliance with mandatory technical evaluation criteria. Subcontracting of manufacturing facility for Induction Motors and Synchronous Motors.
2.	Deviations tendered that lead to non-interchangeability (electrical and mechanical).

4. AUTHORISATION

This document has been seen and accepted by:

Name	Designation

5. REVISIONS

Date	Rev.	Compiler	Remarks
05 Much 2025	0.1		First Draft Issue for Review by Stakeholders

6. DEVELOPMENT TEAM

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

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7. ACKNOWLEDGEMENTS

- None

8. APPENDIX A: SUMMARY OF TENDER RETURNABLE FOR INDUCTION MOTORS

Tender returnables shall be adequately referenced with supporting documentation, provided in both hardcopy and softcopy formats.

8.1 MANDATORY REQUIREMENTS FOR INDUCTION MOTORS

Ref #	Mandatory Technical Criteria Description	Reference to Technical Specification / Tender Returnable	Required Tender Returnable
I1.	The Supplier must submit a completed Schedule B of Technical Schedule A&B, Outline Drawing, Thermal Limit curves as per IEEE 620 and Torque and Current versus Speed Curves for each tendered motor design at 100%, 85%, and 75% of motor rated voltage.	• 3.3.3.1.A-D of Eskom Standard 240-50237155	a) Completed Technical Schedule B of Technical Schedule A&B b) Dimensioned preliminary outline drawing. c) Torque versus Speed Curves for each tendered motor design at 100%, 85%, and 75% of motor rated voltage. d) Current versus Speed Curves for each tendered motor design at 100%, 85%, and 75% of motor rated voltage. e) Thermal Limit curves at 100%, 85%, and 75% of motor rated voltage
I2.	Each tendered design must be electrically and mechanically interchangeable with existing motor without plant modification.	• Electrical: 2.0, 3.01, 5.101-5.103, 6.101, 6.215-6.216 of Technical Schedule A&B 240-54783039. • Mechanical: 7.402 &11.0 of Technical Schedule A&B 240-54783039 and Outline drawing mounting dimensions.	a) All documents in Item I2 above.

8.2 QUALITATIVE REQUIREMENTS FOR INDUCTION MOTORS

Criteria Ref #	Qualitative Technical Criteria Description	Reference to Technical Specification / Tender Returnable	Criteria Weighting (%)	Required Tender Returnable
IQ.1	**Tendered Motor Design Accessories**	**Technical Schedule A & B**	**15**	a) Completed Technical Schedule B of Technical Schedule A&B b) Dimensioned preliminary outline drawing.
	Temperature Detectors, Water Ingress Detectors, Protection Components and Condition Monitoring Equipment	• 7.2 – 8.6		

Criteria Ref #	Qualitative Technical Criteria Description	Reference to Technical Specification / Tender Returnable	Criteria Weighting (%)	Required Tender Returnable
IQ.2	**Tendered Motor Design Type**	**Technical Schedule A & B**	**15**	c) Torque versus Speed Curves for each tendered motor design at 100%, 85%, and 75% of motor rated voltage. d) Current versus Speed Curves for each tendered motor design at 100%, 85%, and 75% of motor rated voltage. e) Thermal Limit curves at 100%, 85%, and 75% of motor rated voltage
	Type of Enclosure, Cooling Method, Rotor Type, Type of Wedges and Motor Parameters	• 5.3 - 7.203		
IQ.3	**Tendered Motor Design Performance**	**Technical Schedule A & B**	**30**	
	Efficiency, Power Factor and winding temperature	• 5.207 – 6.102		
IQ.4	**Tendered Motor Design Capabilities**	**Technical Schedule A & B**	**35**	
	Locked Rotor Current , Locked rotor torque, Breakdown Toque and Thermal limits margin	• 5.205 -12.204		
IQ.5	**Tender Quality & Delivery Period**		**5**	f) Delivery Period List g) Deviation Schedule
	Delivery Period and Deviations	Tender returnable		
			TOTAL: 100	