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Title: **Solar PV Carports and Battery Energy Storage System at Eskom Academy of Learning Project**
Tender Technical Evaluation Strategy Report

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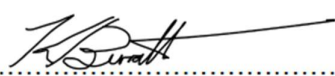


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1. INTRODUCTION

The Eskom Academy of Learning (EAL) has been earmarked as the pilot site for a Smart Village initiative. One stream of this initiative encompasses the inclusion of Solar PV and Battery Energy Storage System to supplement the power provision for the EAL site. This document contains the Tender Technical Evaluation Criteria for the appointment of the *Contractor* to conduct the works required.

2. SUPPORTING CLAUSES

2.1 SCOPE

This document provides the tender technical evaluation strategy for the required works of the Solar PV Carports and Battery Energy Storage System at Eskom Academy of Learning Project.

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

This document is applicable to the Solar PV Carports and Battery Energy Storage System at Eskom Academy of Learning Project only.

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] 240-48929482: Tender Technical Evaluation Procedure

2.2.2 Informative

[2] 474-13557 Technical Specification for the Design, Supply, Installation and 1-year Maintenance of Solar PV Carports and Battery Energy Storage System at Eskom Academy of Learning

2.3 DEFINITIONS

Definition	Description
Contractor/Tenderer	Refers to the corporation appointed to perform the engineering, procurement, and construction works required for the project.
Employer	Refers to Eskom Holdings State Owned Company
Eskom Engineering	Refers to the Eskom Engineering team who will perform the reviews and provide technical assistance for the work performed by the appointed Contractor.

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Specification	The document/s forming part of the contract in which the methods of executing the various items of work to be done is described, as well as the nature and quality of the materials to be supplied and it includes technical schedules and drawings attached thereto as well as all samples and patterns
The Client	The end user will be Eskom who will be represented by Eskom Properties throughout the duration of the Project.

2.3.1 Classification

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

2.4 ABBREVIATIONS

Abbreviation	Description
BoQ	Bill of Quantity
CoC	Certificate of Compliance
DoL	Department of Labour
ECSA	Engineering Council of South Africa
EDWL	Engineering Design Work Lead
LDE	Lead Discipline Engineer
TET	Technical Evaluation Team

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

Refer to Section 2.2

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 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.

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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%.

The following scoring method will be used:

SCORE	PERCENTAGE (%)	DESCRIPTION
5	100	COMPLIANT <ul style="list-style-type: none">Meet the technical requirement(s) AND,No foreseen technical risk(s) in meeting technical requirements
4	80	COMPLIANT WITH ASSOCIATED QUALIFICATIONS <ul style="list-style-type: none">Meet the technical requirement(s) with,Acceptable technical risks AND/OR;Acceptable exceptions AND/OR;Acceptable conditions
2	40	NON-COMPLIANT <ul style="list-style-type: none">Does not meet the technical requirement(s) AND/ORUnacceptable technical risk(s) AND/OR;Unacceptable exceptions AND/OR;Unacceptable conditions
0	0	TOTALLY DEFICIENT/NON-RESPONSIVE

3.2 TET MEMBERS

Table 1: TET Members

TET number	TET Member Name	Designation
TET 1	Dr Marubini Manyage	Chief Engineer
TET 2	Thomas Jacobs	Chief Engineer
TET 3	Byron Thomas	Engineer
TET 4	Kameel Burath	Engineer

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3.3 MANDATORY 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.	<p>The Tenderer has successfully executed one Solar PV Carport and Battery Hybrid System project as lead EPC Contractor with PV DC capacity and Battery Capacity ≥ 50kWp/100kWh.</p> <p>Submit Tender Returnable with supporting documents to proof criterion No.1</p>	<p>Reference: Works Information (WI) Technical Spec. Section 2.2</p> <p>Tender Returnable: Completed Appendix E: Technical Schedule A&B - Table 2.2 including Photographs and/or short video clips.</p>	<p>Minimum experience required to ensure expertise, knowledge, proven track record and risk management in developing Hybrid system projects.</p>
2.	<p>Provide a grid-tie Solar PV Carport design with</p> <ol style="list-style-type: none"> Minimum DC capacity of 577kWp using Modules from Tier 1 manufacturers. AC output capacity of 500kWac using inverter with NRS 097-2-1 certificate or listed in WI. Plant Annual Performance Ratio ≥ 80%. <p>Submit Tender Returnable with supporting documents to proof criterion No.2</p> <p>Provide a Hybrid Solar PV Carport design with</p> <ol style="list-style-type: none"> Minimum total DC capacity of 1334kWp using Modules from Tier 1 manufacturers. Minimum total AC output of 1200kWac (2x600kWac with NRS 097-2-1 certificate Plant Annual Performance Ratio ≥ 80%. Minimum Battery size of 2400kWh (2x1200kWh). <p>Submit Tender Returnable with supporting documents to proof criterion No.3</p>	<p>Reference: WI Technical Spec. Section 3.1.6, Section 3.3.1.1 and Section 3.8.</p> <p>Tender Returnable: Completed Appendix E: Technical Schedule A&B: Table 3-1 and 4.1 including PV Simulation report to verify Plant Capacity and PR, Inverter NRS 097-2-1 certificate if inverter is not listed in Appendix D of Technical Specification and PV Module datasheet from Tier 1 manufacturer from Q3/Q4 2024.</p> <p>Reference: WI Technical Spec. Section 3.1.7, Section 3.3.1.1 and Section 3.8.</p> <p>Tender Returnable: Completed Appendix E: Technical Schedule A&B: Table 3-2 and 4.3 including PV Simulation report to verify Plant Capacity and PR, PV Module datasheet from Tier 1 manufacturer from Q3/Q4 2024, Inverter NRS 097-2-1 certificate, Tender Technical Schedule C and Battery datasheet</p>	<p>PV Plant provided is efficient, reliable with guaranteed performance values for acceptance and developed using Modules and Inverters from reputable manufacturer to back the warranty.</p> <p>Hybrid Plant provided is efficient, reliable with guaranteed performance values for acceptance and developed using Modules,</p>

3.4 QUALITATIVE TECHNICAL EVALUATION CRITERIA

Table 3: Qualitative Technical Evaluation Criteria

	Qualitative Technical Criteria Description	Reference to Technical Specification / Tender Returnable	Criteria Weighting (%)	Criteria Sub Weighting (%)
1.	Electrical		70	
	1.1 Plant configuration 1. Kriel PV Module site layout to verify area fit, Module orientation and simulation report. 2. Admin PV Module site layout to verify area fit, Module orientation and simulation report.	Reference: WI Technical Spec. Section 3.1.6.2 and 3.1.7.1 Returnable: Kriel PV plant site layout and Admin PV/BESS Hybrid plant site layout with module orientation as per Table 3.1 and Table 3.2 of Technical Schedule A&B.		20
	1.2 Preliminary Single Line Diagram (SLD) for Kriel PV Plant showing PV Modules, DC-DB, Inverters, Isolators, AC-DB, Sub-DB and PoC DB Including control and monitoring system and weather station.	Reference: WI Technical Spec. Section 3.1.6.2 Returnable: Single Line Diagram for Kriel PV plant as per Table 3.1 and Section 6.2 of Technical Schedule A&B.		10
	1.3 Preliminary Single Line Diagram for Admin Plant showing: Two PV/BESS hybrid system and connection of the respective Grid and Generator at PoC Switching Station to power both Board A and Board B, including control and monitoring system and weather station.	Reference: WI Technical Spec. Section 3.1.7.2 Returnable: Single Line Diagram for Admin PV/BESS hybrid system as per Table 3.2 and Section 6.2 of Technical Schedule A&B. Note: The hybrid plant is split into two equal sub-plants and connected to separate boards.		10
	1.4 Admin Plant BESS, Grid and Generator connection proposal to meet on-grid, off-grid operation, BESS failure, bypass and	Reference: WI Technical Spec. Sections 3.1.7.3 and 3.3.3.		20

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		Generator startup signed by Registered Electrical Engineer	Returnable: A report detailing component arrangement, connections, equipment used and operating philosophy under normal and abnormal conditions as per Table 6-9 of Technical Schedule A&B. The report is signed by an ECSA Registered Electrical Engineer.		
	1.5	Product Warranties and Plant Performance Monthly Guarantees. 1. Product warranties as per Table 5-1 and Table 5.2 2. Plant Performance Monthly Guarantees for Kriel and Admin Plant.	Reference: WI Technical Spec. Section 3.3 and Section 3.8. Returnable: Completed Appendix E: Technical Schedule A&B Table 5.1 and Table 5.2 including PV Modules, Inverters and Battery warranty conditions. Plants Monthly breakdown PR in Tables 4-1 and 4-2		20
	1.6	Compliance of electrical equipment to Technical specification Tenderer indicates compliance of major equipment (Module, Inverter and Battery) balance of plant (protection, distribution boards, cabling, combiner box)	Reference: WI Technical Spec. Section 3.3 Returnable: Completed Appendix E: Technical Schedule A&B Section 6-1 with supporting documents		10
	1.7	Compliance to CMS and Weather Station Technical requirements	Reference: WI Technical Spec. Section 3.4 Returnable: Completed Appendix E: Technical Schedule A&B- Table 6-11 and Table 6-12 with datasheets		5
	1.8	Level 2 Complete Project programme/Schedule with ALL activities for both Kriel Carpark and Admin Carpark in which the electrical scope will be evaluated.	Reference: WI Technical Spec. Section 2.6 Returnable: Level 2 Project programme/Schedule – Section 7 of Technical Schedule A&B- Section 7 and Table 7-1		5

		Civil		20	
2.	2.1	Copy of the CV and ECSA certificate, of a Professional Engineer that will be responsible for the Civil Scope. The Professional Engineer must have a minimum 3 years' experience post professional registration in civil and structural works. This engineer will be responsible for the Assessments, Design, and Construction Supervision of the civil scope for the project.	NEC Works Information	<p>5 – if the engineer meets the required years and type of experience</p> <p>4 – if the engineer is deficit with the type of experience but still meets the required minimum years post registration</p> <p>2 - if the engineer is deficit with the type of experience and the minimum years post registration</p> <p>0 – If the person is not a Professional Engineer</p>	30
	2.2	Detailed Method Statement indicating the design and construction activities that will be conducted for the execution of the civil scope (Site investigations, design steps, construction works etc)	NEC Works Information	<p>5 – proposal is detailed and meets all the requirements with no technical deficiencies</p> <p>4 – proposal is high level and meets the requirements with no technical deficiencies</p> <p>2 - proposal is lacking details and has technical deficiencies</p> <p>0 – proposal does not meet requirements or not submitted</p>	40
	2.3	Level 2 Complete Project programme/Schedule with ALL activities for both Kriel Carpark and Admin Carpark in which the civil scope will be evaluated. Schedule indicates all the durations aligned	NEC Works Information	<p>5 – Level 3 schedule with all relevant activities and realistic timelines</p>	20

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		with the activities listed in the detailed method statement (2.2)		<p>4 – Level 3 schedule with some activities and realistic timelines</p> <p>2 – Schedule submitted but lacking details and activities OR unrealistic timelines</p> <p>0 – Schedule does not at level 3, lacking activities and realistic timelines</p>	
	2.4	Provide a list of minimum three (3) completed civil projects involving earthworks, structural design and construction in the past 10 years. The list needs to include the project start and end dates, name of client, name of project manager and contact information, Description of the works, description of the civil works, cost of the project.	NEC Works Information	<p>5 – at least 3 acceptable/relevant civil projects completed</p> <p>4 – only 2 acceptable/relevant civil projects completed</p> <p>2 – only 1 acceptable/relevant civil project completed</p> <p>0 – no acceptable projects completed</p>	10
		General		10	
	3.1	Provide training, 12 -month operating and maintenance specification and Spare list as per the Technical Specification	<p>Reference: WI Technical Spec. Section 3.10</p> <p>Returnable: Completed Appendix E: Technical Schedule A&B – Table 6-14 and Table 6-15.</p>		100
					TOTAL: 100

3.5 TET MEMBER RESPONSIBILITIES

Table 4: TET Member Responsibilities

Mandatory Criteria Number	TET 1	TET 2	TET 3	TET 4
1	X	X		
Qualitative Criteria Number				
1.1 – 1.8	X	X		
2.1 – 2.4			X	X
3.1	X			X

3.6 FORESEEN ACCEPTABLE / UNACCEPTABLE QUALIFICATIONS

3.6.1 Risks

Table 5: Acceptable Technical Risks

Risk	Description
1.	Alternative solutions with the same or better performance within the technical spec boundaries and in compliance with SANS and IEC standards
2.	

Table 6: Unacceptable Technical Risks

Risk	Description
1.	No method statements.
2.	Exclusions of scope specified in the employers' requirements. Datasheets of listed equipment not provided
3.	Unclear staff organogram. i.e., the staffing plan is weak not showing clarity in allocation of tasks and responsibilities.
4.	PV Modules from non-Tier 1 Manufacturers.
5.	Inverter will no NRS 097-1-2 certificate or listed in Appendix A of the Technical specification. Inverter with no string monitoring.
6.	Plant design with no PV simulation reports to verify plant DC and AC capacity and guarantee performance ratio.
7.	Tenderer with no relevant experience.

3.6.2 Exceptions / Conditions

Table 7: Acceptable Technical Exceptions / Conditions

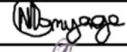
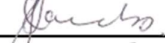
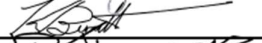

Risk	Description
1.	Information deemed as Intellectual Property not provided.
1.	

Table 8: Unacceptable Technical Exceptions / Conditions

Risk	Description
1.	Failure to meet plant performance requirements in terms of reliability and availability
2.	Failure to comply with NEC, SANS and Eskom Specifications. The Electrical Installation Regulation of the OHS Act, (Occupational Health and Safety Act, 1993 (Act 85 of 1993).
3.	PV module and Inverters with minimum rating less than values defined in the technical specification
4.	PV Plants DC capacity and AC capacity, and battery capacity less than minimum values defined in the technical specification
5.	PV module and Inverters with minimum rating less than values defined in the technical specification
6.	Equipment that do not interface with each other or operate outside the manufacturers' limits.
7.	Battery equipment with no isolations and display for monitoring.
8.	PV Combiner box excluded in the Kriel PV design.

4. AUTHORISATION

This document has been seen and accepted by:

Name	Designation	Signature
Dr Marubini Manyage	Chief Engineer	
Thomas Jacobs	Chief Engineer	
Kameel Burath	Engineer	
Byron Thomas	Engineer	

5. REVISIONS

Date	Rev.	Compiler	Remarks
January 2025	0.1	K Burath	Draft for review
January 2025	1	K Burath	Final

6. DEVELOPMENT TEAM

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

- Dr Marubini Manyage
- Thomas Jacobs
- Byron Thomas

7. ACKNOWLEDGEMENTS

- N/A

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