

Title: **TECHNICAL EVALUATION  
CRITERIA FOR RESIDENTIAL  
SOLAR PHOTOVOLTAIC (PV)  
AND BATTERY ENERGY  
STORAGE SYSTEMS (BESS)**

Unique Identifier: **240-171000567**

Alternative Reference Number: **n/a**

Area of Applicability: **Engineering**

Documentation Type: **Report**

Revision: **1**

Total Pages: **11**

Next Review Date: **n/a**

Disclosure Classification: **Controlled  
Disclosure**

Compiled by

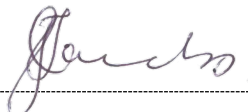


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## **1. Introduction**

The purpose of this Technical Evaluation Criteria (TEC) document is to provide a clear and objective framework for evaluating the capability, compliance, and suitability of EPC contractors for residential solar PV installations. With the rapid growth in the deployment of residential PV systems, it is essential that appointed contractors demonstrate the necessary technical competence, implement robust quality assurance practices, and adhere to relevant SANS/IEC standards. This ensures that all installations are safe, reliable, and efficient, thereby protecting both customers and assets.

The TEC sets out the minimum mandatory requirements, technical scoring parameters, and performance benchmarks that EPC contractors must satisfy to be considered for contract award. It places emphasis on critical areas such as contractor qualifications, system design methodology, compliance with equipment specifications, installation workmanship, commissioning procedures, and maintenance capabilities. By applying these criteria, the evaluation team can ensure that only contractors who are both competent and compliant are selected, thereby safeguarding long-term system performance, customer safety, and regulatory compliance.

This document has been developed in full alignment with Eskom's established standards and specifications, which define the minimum safety, quality, performance, and equipment requirements applicable to all PV and Battery Energy Storage System (BESS) installations within Eskom facilities. Contractors are required to meet or exceed these requirements to ensure technical integrity and sustainable system operation. The key references include:

- Eskom Standard 240-171000418 – Major Equipment Requirements for Distribution Solar PV and BESS: SSEG and Microgrids
- Eskom Specification 240-171000566 – User Requirement Specification (URS) for Residential Solar PV and BESS

By grounding the evaluation framework in these authoritative standards, the TEC provides a robust mechanism for ensuring that residential PV installations are delivered to the highest levels of safety, quality, and performance.

## **2. Supporting clauses**

### **2.1 Scope**

This document applies to all Engineering, Procurement, and Construction (EPC) contractors participating in the procurement and installation of residential Solar PV systems. It covers evaluation areas such as contractor qualifications, design quality, material compliance, installation practices, safety standards, commissioning, and after-sales support.

#### **2.1.1 Purpose**

The purpose of this document is to establish standardised technical evaluation requirements for EPC contractors bidding on residential Solar PV installations. These requirements ensure that selected contractors possess the necessary technical skills, experience, and resources to deliver installations that meet safety, performance, and regulatory expectations.

#### **2.1.2 Applicability**

These technical evaluation criteria shall be applied by procurement teams, project managers, and technical evaluators responsible for assessing contractor submissions for residential PV projects in Eskom Distribution Division.

## 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] Occupational Health and Safety Act (Act No. 85 of 1993).
- [3] SANS 10142-1:2024 Wiring of Premises.
- [4] IEC 62446: Grid Connected PV Systems – Testing, Documentation and Maintenance.
- [5] Eskom 240-171000418, Major Equipment Requirements for Distribution Solar PV and BESS: SSEG and Microgrids.
- [6] NRS 097-2-1:2024: Grid Interconnection of Embedded Generation.
- [7] 240-171000566: User Requirements Specification for Residential Solar PV and BESS
- [8] 240-48929482: Tender Technical Evaluation Procedure
- [9] 32-1034: Eskom Procurement and Supply Chain Management Procedure
- [10] 240-75655380: Low Voltage Services Section 1 – Electrification

### 2.2.2 Informative

None

## 2.3 Definitions

### 2.3.1 General

Definition	Description
<b>Battery Energy Storage System</b>	An integrated system consisting of rechargeable batteries, control electronics, and associated balance-of-system components, designed to store electrical energy for later use.
<b>PV Module</b>	A solar panel consisting of interconnected photovoltaic cells, designed to convert sunlight into DC electrical energy.
<b>Inverter</b>	A device that converts DC electricity from PV modules into AC electricity suitable for grid connection or load supply.
<b>Balance of System</b>	All components of a PV system other than PV modules, including inverters, mounting structures, wiring, monitoring systems, and protection devices.
<b>Contractor</b>	A company or individual appointed to execute Solar PV design, installation, and commissioning.
<b>Tender</b>	A tender refers to an open or closed competitive request for quotations / prices against a clearly defined scope / specification.
<b>Technical Compliance</b>	Conformance to all technical specifications, standards, and statutory requirements.
<b>Mandatory Requirements</b>	Technical and compliance conditions that must be met in Phase 1 for a contractor to qualify for further evaluation.

Definition	Description
<b>Functional Requirements</b>	The set of measurable criteria, specifications, and standards that a contractor must meet to demonstrate technical competence in designing, supplying, installing, testing, and commissioning a Solar PV or BESS project.
<b>Standard Test Conditions (STC)</b>	Conditions where the irradiance is 1 000 W/m <sup>2</sup> , the temperature of the photovoltaic cell is 25 °C and the air mass is 1,5
<b>Fully Compliant</b>	A state where a contractor or supplier meets the requirement in full with no deviations.
<b>Partially Compliant</b>	A state where a contractor or supplier meets the requirement to some degree but with gaps or deviations that require rectification
<b>Non-Compliant</b>	A state where a contractor or supplier fails to meet the stipulated requirements in full.

### 2.3.2 Disclosure classification

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

## 2.4 Abbreviations

Abbreviation	Description
<b>PV</b>	Photovoltaic
<b>BESS</b>	Battery Energy Storage System
<b>DC</b>	Direct Current
<b>AC</b>	Alternating Current
<b>OHS</b>	Occupational Health and Safety
<b>IEC</b>	International Electrotechnical Commission
<b>SANS</b>	South African National Standards
<b>SLD</b>	Single Line Diagram
<b>CoC</b>	Certificate of Compliance
<b>OEM</b>	Original Equipment Manufacturer
<b>BOS</b>	Balance of System
<b>STC</b>	Standard Test Conditions
<b>TEC</b>	Technical Evaluation Criteria
<b>TET</b>	Technical Evaluation Team

## 2.5 Roles and responsibilities

All Eskom employees and/or appointed entities involved in the procurement of components and services for residential-scale solar PV and battery energy storage technologies, must ensure that all deliverables comply with the specified technical evaluation criteria.

## **2.6 Process for monitoring**

The acceptance of the proposed solution will be based on a thorough evaluation of the fully compliant design review and documentation submission.

After the contract is awarded, the components procured by the successful bidder will be subjected to technical quality inspections prior to the installation of any of the proposed components as a solution to the project.

## **2.7 Related/supporting documents**

Refer to clause 2.2 of this document.

## **3. Tender Evaluation Criteria**

This Technical Evaluation Criteria (TEC) document sets out the methodology that Eskom will apply to assess and score the Technical category of tender submissions. The evaluation will be conducted by the appointed Eskom Technical Evaluation Team (TET), ensuring consistency, transparency, and objectivity throughout the process.

To facilitate an efficient evaluation, tenderers are required to submit Technical Schedules A and B in electronic format (PDF and Excel for evaluation purposes). In addition, all supporting documentation—such as datasheets, technical drawings, manuals, type test certificates, and test reports referenced in the Technical Schedules—must be provided in electronic format (e.g., PDF). Each supporting document must be clearly cross-referenced in the submission pack, with the file name, page number, chapter, and paragraph indicated in Schedule B wherever documentation is requested.

Tenderers may submit alternative test certifications or standards to demonstrate compliance, provided that detailed explanations and supporting results are included. The TET will review such alternatives and determine their adequacy based on the quality and completeness of the information submitted. It is important to note that no supporting evidence submitted after the tender deadline will be accepted. Furthermore, only type test certificates and reports issued by accredited, independent laboratories such as SANAS or ILAC will be considered valid.

### **3.1 Technical Evaluation Process**

- a) The technical evaluation process consists of two stages: Mandatory Evaluation Criteria and Functional Scoring Criteria. All tenders must first comply with the Mandatory Technical Criteria. Any submission that fails to meet these requirements will be deemed non-compliant and disqualified from further consideration.
- b) Tenders that successfully meet the Mandatory requirements will proceed to the Functional evaluation stage. At this stage, submissions will be scored against defined functional criteria to assess their technical adequacy and competitiveness. To be considered technically acceptable, a tender must achieve a minimum overall weighted score of 80% in the Functional evaluation. Tenderers are compelled to complete technical schedule A and B and provide any reference material required.

### **3.2 Scoring Methodology**

- a) Tenderers will earn points for each “complied” entry recorded in Schedule B. Where a deviation is submitted in the Deviation Schedule and deemed acceptable by the Technical Evaluation Team, reduced points will still be awarded to reflect partial compliance.
- b) The score for each item will be multiplied by its assigned weight to determine the total score contribution. Items will be assessed according to the level of compliance, as outlined in Table 1. Fully compliant items will receive the maximum allocated score, while non-compliant items will receive zero.

- c) All scores from the completed B Schedules will be aggregated, and the overall percentage will be calculated against the maximum possible score. Any item requiring supporting documentation, for which no evidence is provided, will automatically be scored as non-compliant and awarded zero points.

**Table 1: Scoring Criteria**

Score	Description
3	Fully Compliant
1	Partially Compliant
0	Non-Compliant

- d) Where “Comply with reference/documentation” is requested, tenderers must submit supporting evidence such as drawings, calculations, or specifications. Where “Comply without reference” applies, tenderers must confirm compliance, which will be verified during project execution.
- e) For all “Partially Compliant” entries, tenderers are required to list the deviations in the designated section, explain the reasons for non-compliance, and provide any proposed alternatives or mitigation measures where available.

#### 4. Mandatory Requirements

If a “NO” response is recorded for any assessment item in Table 2, the tender will be deemed non-compliant and automatically disqualified from further consideration. Such tenders will not progress to the next stage of evaluation, namely the Functional Scoring Evaluation.

**Table 2: Mandatory Requirements**

No.	Description of Mandatory Technical Criteria	Tenderer Returnable	Compliance (YES/NO)
1.	Qualified Personnel	Provide proof of qualified personnel, submit: <ul style="list-style-type: none"> <li>a) ECSA Registration Certificate (Pr Eng / Pr Tech Eng / Pr Techni Eng) and signed design responsibility letter</li> <li>b) Proof of PV installer accreditation (e.g., PV GreenCard or equivalent)</li> <li>c) Copy of the registered Electrician's Wireman's Licence and proof of registration with Department of Labour</li> <li>d) Signed Organisational Structure (signed by delegated authority)</li> </ul>	
2.	Complete System Design Documentation for 2 previous projects in the last 3 years	Submit complete design documentation of PV/BESS system, which may include the following: <ul style="list-style-type: none"> <li>a) Single Line Diagram (SLD)</li> <li>b) PV array layout</li> <li>c) String configuration table</li> <li>d) Cable sizing calculations (AC &amp; DC)</li> <li>e) Mounting structure specifications</li> <li>f) Bill of Material (BOM)</li> <li>g) Datasheets for all components.</li> <li>h) Equipment container layout (if applicable)</li> <li>i) PV System feasibility study software report</li> </ul>	
3.	PV Module Compliance	Submit evidence that PV Modules comply with SANS 61215:2015 or equivalent.	

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No.	Description of Mandatory Technical Criteria	Tenderer Returnable	Compliance (YES/NO)
4.	Inverter Compliance	Submit evidence that inverter complies with NRS097-2-1 and submit: <ul style="list-style-type: none"> <li>a) Datasheets</li> <li>b) Third part type-test certificates</li> <li>c) Proof the inverter includes an embedded or external communication device to support both 1. Local Wi-Fi/LAN monitoring for the customer and 2. Modbus for remote telemetry (e.g. for communicating to a 3<sup>rd</sup> party system).</li> </ul>	
5.	Battery Compliance	Submit evidence that Battery modules comply with SANS/IEC 62619:2022 and IEC 63056 Ed. 1.0 b:2020 or equivalent. Minimum requirement of ≥80% DoD, ≥5,000 cycles, Modular & Scalable.	

## 5. Functional Scoring

Once tenders have successfully met all the Mandatory Evaluation Criteria outlined in Table 2, they will advance to the Functional Scoring stage. This stage is designed to assess the technical adequacy and competitiveness of submissions, and is divided into two sub-categories, as shown in Table 3 below.

**Table 3: Functional Scoring Weights**

Category	Schedules A & B	Weight
1	Material Compliance	60%
2	User Requirement Specification for Residential Solar PV and BESS	40%

To be considered technically compliant, tenderers must satisfy the following thresholds:

- Achieve a combined weighted final score of at least 80% across both sub-categories.
- Attain a minimum score of 80% in Subcategory 1 (Material Compliance); and
- Attain a minimum score of 80% in Subcategory 2 (User Requirement Specification for Residential Solar PV and BESS).

Failure to meet either of these thresholds will result in disqualification from further consideration, regardless of performance in other areas. This ensures that only tenderers with both strong material compliance and sufficient alignment with user requirements for Residential Solar PV and BESS are deemed acceptable.



Table 4: Functional Scoring

No.	Functional Technical Criteria Description	Compliance	Weight
<b>1.</b>	<b>Material Compliance</b>		<b>60%</b>
1.1	Hybrid Inverters	Must Comply with Clause 3.3 <b>"Inverters"</b> of Eskom Standard 240-171000418 – Major Equipment Requirements for Distribution Solar PV and BESS: SSEG and Microgrids	12%
1.2	Battery Energy Storage System	Must Comply with Clause 3.5 <b>"Battery System"</b> of Eskom Standard 240-171000418 – Major Equipment Requirements for Distribution Solar PV and BESS: SSEG and Microgrids	12%
1.3	Solar Panels	Must Comply with Clause 3.4 <b>"PV Panels"</b> of Eskom Standard 240-171000418 – Major Equipment Requirements for Distribution Solar PV and BESS: SSEG and Microgrids	12%
1.4	Remote Monitoring System	Must Comply with Clause 3.7 <b>"Remote Monitoring and Control Requirements"</b> of Eskom Standard 240-171000418 – Major Equipment Requirements for Distribution Solar PV and BESS: SSEG and Microgrids	10%
1.5	AC and DC protective devices	Must Comply with Clause 3.6 <b>"AC and DC protective devices"</b> of Eskom Standard 240-171000418 – Major Equipment Requirements for Distribution Solar PV and BESS: SSEG and Microgrids	8%
1.6	Fire Protection Assessment	Must Comply with Clause 3.14 <b>"Fire Detection and Suppression System"</b> of Eskom Standard 240-171000418 – Major Equipment Requirements for Distribution Solar PV and BESS: SSEG and Microgrids	6%
<b>2.</b>	<b>Eskom User Requirements Specification for Residential Solar PV and BESS</b>		<b>40%</b>
2.1	Functional Requirements	Must Comply with Clause 3.3 <b>"Functional Requirements"</b> of Eskom Specification 240-171000566 – User Requirement Specification (URS) for Residential Solar PV and BESS	3%
2.2	System Design and Engineering	Must Comply with Clause 3.8 <b>"System Design and Engineering"</b> of Eskom Specification 240-171000566 – User Requirement Specification (URS) for Residential Solar PV and BESS	4%
2.3	Modes of Operation	Must Comply with Clause 3.4 <b>"Modes of Operation"</b> of Eskom Specification 240-171000566 – User Requirement Specification (URS) for Residential Solar PV and BESS	3%

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2.4	Customer Feasibility Study/Analysis	Must Comply with Clause 3.5 " <b>Customer Feasibility Study/Analysis</b> " of Eskom Specification 240-171000566 – User Requirement Specification (URS) for Residential Solar PV and BESS	3%
2.5	Site Assessment	Must Comply with Clause 3.6 " <b>Site Assessment</b> " of Eskom Specification 240-171000566 – User Requirement Specification (URS) for Residential Solar PV and BESS	3%
2.6	Basic Roof Assessment Method	Must Comply with Clause 3.7 " <b>Structural Assessment</b> " of Eskom Specification 240-00000000 – User Requirement Specification (URS) for Residential Solar PV and BESS	5%
2.7	Installation and Construction Requirements	Must Comply with Clause 3.10 " <b>Installation and Construction Requirements</b> " of Eskom Specification 240-171000566 – User Requirement Specification (URS) for Residential Solar PV and BESS	8%
2.8	Handover and Training	Must Comply with Clause 3.12 " <b>Handover and Training</b> " of Eskom Specification 240-171000566 – User Requirement Specification (URS) for Residential Solar PV and BESS	3%
2.9	Customer After Sales and Installation Support	Must Comply with Clause 3.14 " <b>Customer After Sales Installation Support</b> " of Eskom Specification 240-171000566 – User Requirement Specification (URS) for Residential Solar PV and BESS	8%

## 6. Authorization

This document has been seen and accepted by:

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## 7. Revisions

Date	Rev.	Compiler	Remarks
Nov 2025	1	L.S Mgaga	First Issue

## 8. Development team

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

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## **9. Acknowledgements**

Not applicable.