

Brief for PV and Battery Energy Storage System (BESS) at SoP

1. Introduction

The purpose of this tender is to solicit proposals from qualified service providers to;

- Conduct a comprehensive assessment of the existing rooftop photovoltaic (PV) system installation at Eskom Sunilaws Office Park, in East London.
- Provide a detailed design for additional PV and BESS integrated to the existing system
- Supply, install and commission the additional PV and BESS system with the integration to the existing systems (including generator back-up power).

The objective of the compressive assessment is to evaluate the system's performance and determine the feasibility of maintenance, replacement, or upgrade of existing inverters and the potential addition of Battery Energy Storage Systems (BESS). The goal is to optimize energy production, enhance efficiency, and reduce reliance on the electricity grid.

2. Project Background

The existing rooftop PV installations have been operational since 2015, generating renewable energy for Eskom Sunilaws Office Park. Over time, wear and tear, technological advancements, and changes in energy consumption patterns necessitate a thorough assessment of the systems to ensure it continues to meet energy needs effectively. The currently installed rooftop PV at sunilaws was designed to supply the load in parallel with the main supply and had a peak load of 165kW. There are 8 installed inverters which are connected to 3 sets of panels, which is the carport, block B roof and block C roof. The existing monitoring system is currently malfunctional.

3. Scope of Work

The selected service provider will be responsible for the following tasks:

3.1 Site Assessment

- Conduct a detailed on-site inspection of the existing rooftop PV installation, including:
 - PV panels
 - Inverters
 - Mounting structures
 - Structural integrity assessment on the carports of the proposed additional PV panels to be installed.
 - Electrical connections
 - Monitoring system
- Assess the overall condition of the installation and identify any immediate maintenance needs.

3.2 Performance Analysis

- Analyse historical performance data of the PV system, including energy output and efficiency metrics.
- Evaluate the current energy consumption patterns of the facility and identify areas for improvement.

3.3 Inverter Evaluation

- Assess the existing inverters for performance and compatibility with current technology and future energy demands.
- Provide recommendations for maintenance, replacement, or upgrade options, considering the latest inverter technologies and efficiencies.

3.4 BESS Feasibility Study

- Evaluate the potential for integrating Battery Energy Storage Systems (BESS) to:
 - Enhance energy reliability and availability
 - Maximize the use of generated solar energy
 - Reduce peak demand on the grid
- Analyse the site's infrastructure to determine optimal BESS sizing and configuration.

3.5 Economic Analysis

- Perform a cost-benefit analysis of recommended maintenance, replacement, and upgrade options, including potential savings on electricity costs and return on investment (ROI) calculations for BESS integration.

3.6 Detail Design

- Provide a comprehensive detailed design of the additional rooftop PV, BESS and integration with the main power supply and existing back-up system.
- Provide a detailed monitoring system for the design.
- Provide fire protection on the BESS.
- Provide detailed costing and BOQ of the scope of works.
- Detailed Drawings (including As-Built, cable route and length)
- Provide municipal design application and approval (BCMDA).
- Compliance with environmental, health and safety requirements.
- Include decommissioning scope of existing infrastructure.

3.7 Construction

- The installation of additional of roof top PV including cable installation and trunking.
- Excavation and repaving for cable routing.
- The installation of BESS System.
- The upgrading or replacement of the existing inverters to an adequate size.
- The installation of automatic changeovers to the PV and BESS and then to the generator for the integration of the existing and new electrical supply systems.

3.8 Testing and Commissioning

- Provide Certificate of Compliance.
- Internal Electrical and Structural Engineer sign off.
- Provide Training and skills transfer to end users.
- Provide Hand-over documentation
- Equipment and Operation manuals.

3.9 Reporting

- Provide a comprehensive report detailing findings from the site assessment, performance analysis, inverter evaluation, BESS feasibility study, and economic analysis.
- FSOW and DRT Presentation
- Detailed Design Report
- Detailed Costing and BOQ
- Detailed Schedule and Timelines
- Construction Plan

4. Deliverables

The following deliverables are expected from the service provider:

- Site Assessment Report
- Performance Analysis Report
- Inverter Evaluation Report
- BESS Feasibility Study Report
- Economic Analysis Report
- Final Comprehensive Report consolidating all findings and recommendation.
- Internal Technical Recommendations Process.
- Detailed Design Package including drawings
- Construction
- Testing and Commissioning
- Hand-Over
- 12- Months Maintenance

5. Qualifications of the Service Provider

The service provider must demonstrate:

- Proven experience in assessing PV installations and BESS integration.
- Technical expertise in renewable energy systems and inverter technologies.
- Knowledge of relevant regulations and standards in the renewable energy sector.
- Strong analytical and reporting skills.

6. Proposal Submission Requirements

Interested bidders must submit the following:

- Company profile and relevant experience
- Proposed methodology for the assessment
- Timeline for project completion
- Detailed pricing structure
- References from similar projects

7. Evaluation Criteria

Proposals will be evaluated based on:

- Experience and qualifications
- Proposed methodology and approach
- Cost-effectiveness
- Timeline for completion
- Quality of references

8. Timeline

- Tender Issuance Date:
- Proposal Submission Deadline:
- Evaluation Period:
- Award Notification:
- Internal Design Review (DRT):
- FDP Handover:
- Construction Start:
- Construction End:
- Commission:

9. Conclusion

This tender invites all qualified service providers to submit proposals for a thorough assessment of an existing rooftop PV installation, provide a detailed design, supply, install and commissioning of additional Rooftop PV and BESS system with the integration to the existing systems (including generator back-up power). The selected provider will play a critical role in enhancing the facility's energy efficiency and sustainability through expert evaluation and strategic recommendations.

Signed;



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