

REDACTED

OPERATION PHILOSOPHY AND MAINTENANCE PROCEDURE FOR HYBRID SOLAR SYSTEM INSTALLED AT | REDACTED

OPERATION PHILOSOPHY

Safety First

Ensure the safety of all personnel involved in the operation and maintenance of the system. Comply with local safety regulations and provide appropriate training to staff.

Grid Code Compliance

Maintain continuous compliance with the South African grid code, including voltage and frequency regulations, power quality standards, and grid synchronization requirements. Notably, the system will not export power to the grid under any operating conditions to ensure grid stability.

Optimal Operation

Operate the system to maximize energy generation and utilization while minimizing grid dependency and grid disturbances.

Remote Monitoring

Implement a remote monitoring system for real-time performance tracking and fault detection. Regularly review data to ensure system health and performance.

Load Management

Implement load management strategies to match energy generation with demand. Prioritize the use of solar and stored energy to reduce grid reliance during peak periods.

Grid Interaction

Maintain seamless grid interaction, adhering to the grid code's requirements for energy export and import.

Emergency Procedures

Establish clear procedures for handling grid failures, system shutdown, and emergency power provision. Ensure backup power for essential loads in case of grid failures.

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MAINTENANCE PROCEDURE

Regular Inspections

Performing routine visual inspections of solar panels, inverters, and battery systems for signs of damage or wear. Inspect electrical connections for loose connections, corrosion, or damage.

Cleaning and Dust Removal

Regularly cleaning solar panels to maintain optimal energy production. Removing dust, dirt, and debris that may accumulate on the surface.

Battery Maintenance

Monitoring battery health, state of charge, and voltage levels. Performing periodic capacity tests and replace batteries as needed.

Inverter Checks

Checking inverter performance, including efficiency and cooling systems. Ensuring inverters are operating within specified parameters.

Remote Monitoring

Continuously reviewing remote monitoring data for any irregularities, system alarms, or performance issues. Responding promptly to any detected problems.

Grid Compliance Audits

Regularly audit the system's compliance with South African grid code requirements. Making necessary adjustments to ensure ongoing adherence.

Reporting and Documentation

Maintaining comprehensive records of all inspections, maintenance activities, and performance data. Submitting reports to relevant authorities as required.

Conclusion

The operational philosophy and maintenance procedure detailed in this document are designed to ensure the safe, efficient, and compliant operation of the grid-connected hybrid solar system with energy storage. Continuous adherence to these procedures is vital for the system's longevity and success within the framework of the South African grid code.