



Getting O&M Right

Best Practice Principles Across the Scale Spectrum

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Anthem is one of the largest Independent Power Producers (IPPs) in Southern Africa. We develop, finance, build, own and operate large-scale renewable energy projects, with an asset portfolio of 2.7 GW of live projects, and more than 11 GW of greenfield site pipeline.

Greenfield Pipeline, to Projects, to Assets to Impact

Projects and Assets

- 17 projects in operation, generating over 1.1 GW.
- 5 projects under construction, totalling 940 MW.
- 1 projects at financial close, totalling 720 MW.
- O&M to 500 MW of our own PV projects.
- 11 GW greenfield site pipeline across South Africa, with well-developed plans to further its expansion into Southern Africa, beyond Eswatini.

Impact

- Offset over 11.3 million tonnes of CO₂
- R600 million in socio-economic and enterprise development,
- Supported nearly 1,200 SMEs.
- Generates over 2,400 GWh pa, 1,350 GWh pa more online in 2026



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Reliability is not a feature you add at the end. It is a discipline you build from the beginning.

Anonymous



South Africa's Solar Fleet Is Ageing

- GW-scale solar since 2016. The oldest REIPPPP assets are approaching a decade in operation.
- O&M is the primary mechanism for protecting the value of the investment over a 25–30 year asset life.
- Quality discrepancies between O&M service providers are real and documented.
- Today's content draws on the SAPVIA / SolarPower Europe O&M Best Practice Guidelines — built for this market, at every scale.

70%

potential yield reduction
on a poorly maintained plant

10%+

generation loss from soiling
in just 2 weeks

30%+

generation loss from soiling
if uncleaned for 6 weeks

Why O&M Underperforms — Three Root Causes



Reactive-Only Culture

Preventive Maintenance is the core. Most operators live in Corrective and Extraordinary maintenance — which is always higher cost and always more disruptive than a well-executed planned programme.



Monitoring Nobody Reads

Most plants have adequate monitoring infrastructure. The failure is not technology — it is active management of the data. Alarm fatigue is real. Hundreds of alarms a day with no structured triage is effectively no monitoring.



Outsourced Accountability

The O&M service provider manages to their contract. Scope gaps, warranty evidence gaps, and insurance compliance gaps do not get flagged unprompted. The asset owner has to manage beyond the contract.

These failure modes appear at 100kW and 100MW. The rand value of the consequence differs. The mechanism is identical.

Pillar 1 — Planned Maintenance

The maintenance plan is a commitment, not a suggestion

Annual Maintenance Plan (AMP) is the central instrument.

It defines what gets done, how often, and when — with specific dates and generation-window logic built in.

Schedule maintenance in low-generation windows.

Night hours for solar. Low-wind periods for wind. The trade-off between uptime and maintenance is largely a scheduling problem — not a real conflict.

This applies at every scale.

Utility-scale inverter inspections at night lose no generation. C&I quarterly inspections on a Saturday lose no client productivity.

The test:

If your AMP doesn't have specific dates, times, and generation-window logic — it is a wishlist, not a plan.

What deferred PM actually costs:

- **A skipped service is never a saving.**
It converts into higher-cost reactive spend, extended downtime, and accelerated component degradation.
- **Maintenance backlogs compound.**
The cost of a planned window is always lower than the forced outage it prevents.

Pillar 2 — KPIs You Actually Use

Measure the plant AND the service provider

Plant KPIs

What your asset produced

- Performance Ratio (PR)
- Specific Yield
- Technical Availability (Uptime)
- Contractual Availability

O&M Service Provider KPIs

How well your contractor performed

- Acknowledgement Time
- Intervention Time
- Response Time
- Resolution Time

O&M service provider KPIs are not yet widespread in South Africa. If you are not tracking them, you are not managing O&M — you are hoping for it.

Pillar 3 — Data as a Management Tool

Your monitoring portal is an early warning system — treat it as one

At Utility Scale

Inverter-level Specific Yield comparison surfaces underperformance that aggregate PR figures hide.

IGBT temperature trend monitoring can identify a failure weeks before it presents — shifting the intervention from reactive to planned.

At C&I / Rooftop Scale

Basic inverter-level comparison between units on the same site will find problems your overall PR won't show.

The monitoring portal your installer configured is the tool. Use it.

One inverter underperforming = a fault. **Three sites with the same inverter underperforming** = a systemic issue.

The portfolio view is only possible if you are actively reading the data.

Pillar 4 — Owner Accountability

Scope gaps are your problem

The contractor manages to their contract. As the asset owner — whether you own one rooftop system or a 100MW IPP project — the accountability floor is yours.

Warranty Evidence

Bad record-keeping of failures gives manufacturers grounds to reject serial defect claims. Evidence quality is an O&M function. The guidelines are explicit on this point.

Insurance Compliance

Insurance policies can be voided by maintenance failures — inadequate inverter ventilation, non-compliant lightning protection maintenance, improper module storage.

Contractor Performance

Hold your service provider to owner-level standards, not contract-minimum standards. The contractual KPIs are a floor. Asset value protection requires performance above that floor.

Ask yourself at every decision point: "What would I do if this were entirely my own capital at risk?"

The South African Context — Four Factors That Make SA O&M Different

Parts Availability

OEM local representation is limited in SA. Parts lead times are longer than mature markets. Best practice: the asset owner holds spares inventory; the O&M provider manages stock and replenishment. Do not leave this to the contractor by default.

Lightning Risk

A major concern across SA. Not universally covered by force majeure. Insurance policies require lightning protection infrastructure to be maintained to specification. Non-compliance can void cover at the worst possible time.

Grid Code Compliance

SA Grid Code v3.0 requirements for Renewable Power Plants are specific. Many inverters in the field have no pre-configuration for local grid code requirements. This is an O&M programme responsibility to resolve.

Labour Unrest

An increasingly common operational disruption at solar facilities in SA. Generally not excludable as force majeure. Contingency planning for access and maintenance continuity is an O&M programme responsibility.

Three Things to Take Away

1

Execute the plan.

Schedule it. Lock it in. Use generation windows. No deferrals without an immediate reschedule.

2

Measure the contractor, not just the plant.

Response Time and Resolution Time are KPIs. If you are not tracking them, you are not managing O&M performance.

3

Own the accountability.

The contractor manages to their contract. You manage the asset. Scope gaps, warranty evidence, and insurance compliance are your responsibility.

Resources & Contact

Reference Document

SAPVIA / SolarPower Europe O&M Best Practice Guidelines South Africa Edition

Jointly developed with SAPVIA and GIZ SAGEN.
Covers utility-scale IPPs through to C&I and SSEG rooftop.

Available at: www.solarpowereurope.org

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Thank you



Thank you

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