

Improving wind farm performance and strengthening owner control for a leading independent power producer

One of South Africa's oldest and largest independent power producers is expanding its renewable power generation portfolio. As that growth continues, the business needs to maintain strong performance across its existing wind farms, while building the internal capability, systems and asset knowledge to manage a larger portfolio.

Asset Performance Partners (APP) has worked with the company across two of its wind farms, where the assets have continued to perform above benchmark availability levels. By combining platform insight with embedded engineering support, APP has helped the company's team maintain that performance, improve visibility into asset health, and strengthen day-to-day oversight of O&M contractor performance. That work is now helping the business lay the groundwork for expansion.

With a clearer, data-driven view of wind farm conditions and performance, the team is better positioned to take on additional assets, support future refinancing and acquisition discussions, and manage growth without increasing internal resources at the same time.

THE CHALLENGE

The organisation was not short of data. The issue was turning it into something that the team could actually use.

Operational data, inspection reports, and event logs were available but largely inaccessible, not integrated and inconsistently used in decision-making. The volume of information exceeded what any individual or team could realistically process, and critical signals were often buried in disconnected systems.

At the same time, the structure of the operating model created another layer of complexity. The O&M contractors responsible for managing the wind farms controlled much of the operational data and insight. This limited transparency made it difficult for the company's team to assess performance or to challenge contractor decisions independently.

The risk was not only short-term underperformance. Without a clear view of asset health, there was a real possibility that underlying issues could go undetected for years, only becoming visible after contract changes or during critical financial events such as refinancing. Equally, without a data-backed record showing that the wind farms were in good condition, the company risked being treated like any generic plant in refinancing or acquisition discussions, rather than receiving credits for assets performing above benchmark levels.

THE APP APPROACH

APP's role combined platform capability with embedded technical support. The starting point was integrating multiple data streams, including SCADA, inspection, and event data, into a single performance view. This created a more structured and usable dataset that could support consistent analysis across the wind farms.

This was not a standalone technology deployment. APP engineers were embedded within the company's team, working alongside and supported by the O&M and owner team to interpret insights, prioritise actions, and support decision-making.

Through this combination of platform and embedded capability, APP supported:

- ongoing asset performance monitoring and reporting.
 - risk-based decision support linked to inspection and operational data.
 - improved contractor oversight, including tracking of actions and recommendations.
 - more structured and automated operational reporting processes.
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RESULTS AND VALUE DELIVERED

The impact of this approach was visible both in day-to-day performance and in measurable outcomes.

Across the two wind farms, average availability reached approximately 98%, exceeding the contractual benchmark of 97%, which is typically difficult to surpass under standard O&M arrangements. More importantly, the platform and supporting analysis enabled targeted interventions that prevented significant failures and reduced performance losses.

In one example, a high-risk gearbox was identified by APP's risk assessment models, despite not being flagged by the condition-monitoring systems. The issue was confirmed on inspection and addressed before failure occurred.

In another case, analysis of oil data identified issues with the oil in a turbine gearbox. This issue had not been detected through standard processes and could have led to premature failure.

Across the intervention programme, APP identified multiple potential "saves", with most of the recommended interventions accepted or taken forward by the O&M contractor. In the progress review period, seven of the nine identified interventions were converted into direct actions, representing an approximate 78% conversion rate.

From a financial perspective, this translated into measurable value, including:

- approximately \$68,600 in annual recurring savings.
- approximately \$185,000 in once-off savings.
- preservation of an estimated 56 turbine years of asset life.

A STRONGER POSITION FOR FUTURE GROWTH

Beyond operational improvements, the engagement changed how the company manages its assets. The business now has a structured, data-driven record of asset performance and health. This creates a stronger foundation for future refinancing discussions and improves its position in acquisition negotiations.

Equally important, the company's team is no longer dependent on external contractors for critical operational insight. With greater internal visibility and control, the business is better positioned to manage O&M relationships, renegotiate contracts, or transition between contractors without losing institutional knowledge.

The model has also unlocked the team's capacity. By automating data management and supporting analysis, APP has enabled the company's operations engineers to focus on higher-value technical work and on expanding the asset portfolio.

LOOKING AHEAD

With improved visibility, stronger performance, and a more scalable operating model, the company is better positioned to pursue its next phase of growth. This includes portfolio expansion, potential refinancing, and the ability to take on additional assets without a linear increase in internal resources.

The data foundation now in place also creates room for more advanced analytics. APP is preparing to implement an AI-driven wind turbine unwinding model, designed to reduce downtime by helping teams identify better windows for intervention and improve turbine availability over time. This reflects the next stage of the engagement: moving beyond clearer visibility into more predictive, targeted performance improvement.

For APP, the engagement reflects a broader shift in how asset performance is managed. It is no longer enough to monitor performance.

The real value lies in turning data into decisions, and decisions into measurable outcomes.

A graphic illustration of several wind turbines on a hill, rendered in a stylized, geometric manner with a warm, orange-red color palette. The turbines are silhouetted against a lighter background, and the overall shape of the graphic is a large, upward-pointing triangle.