




Wind Plant Increases
Yearly Revenue by
\$5,700/MW

Overview

WindESCo was engaged by UPC Renewables to optimize 79 MW of in-warranty turbines under an **OEM Full Service Agreement**.

WindESCo optimized the plant performance to deliver a **2% increase in AEP**.

Overall revenue increased by **\$5,700/MW/Yr** for a total of **\$450,000/Yr** for the project.

 WindESCo offered real solutions that were quick and easy to implement, with no hardware required. They added a lot of value to the project.

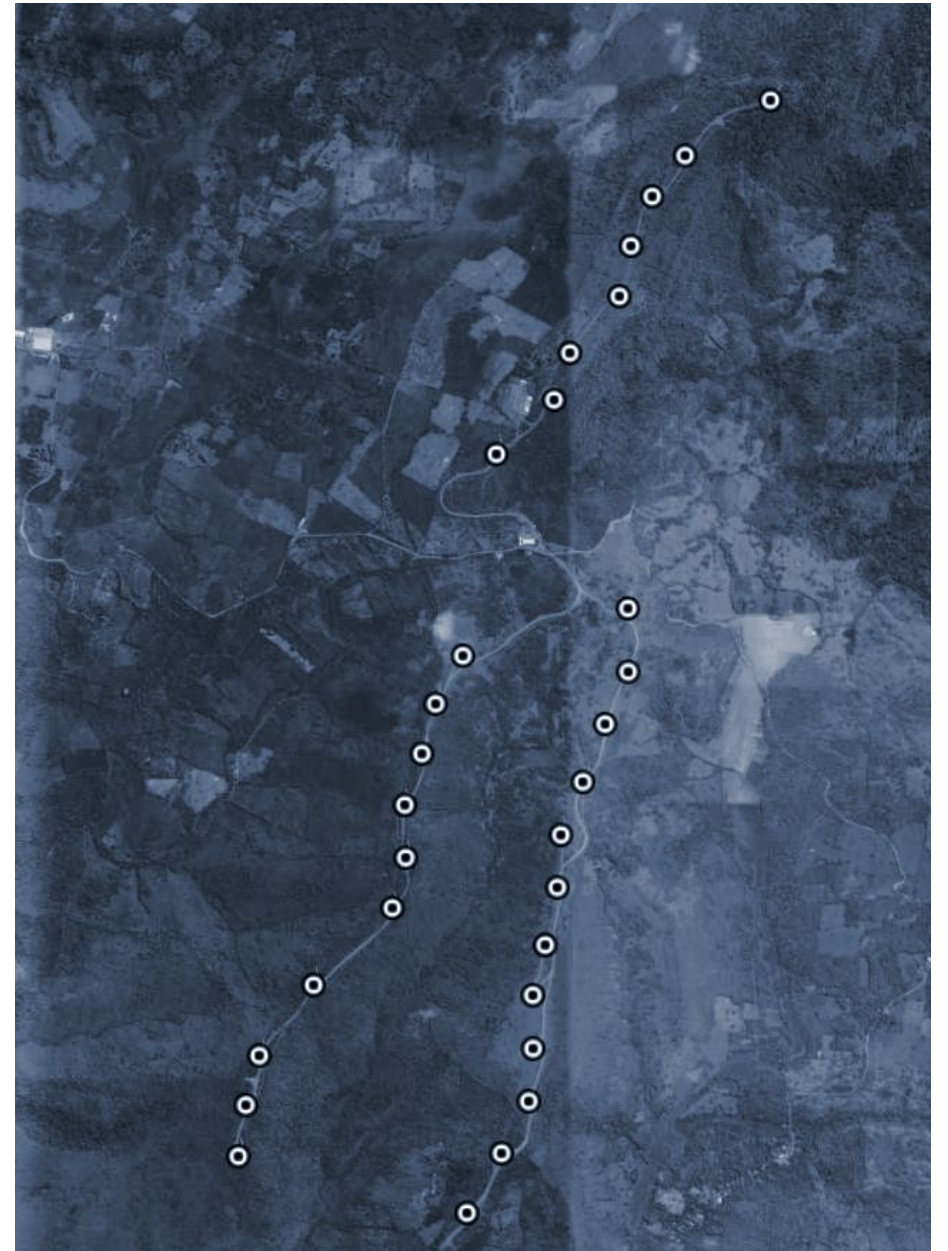


Aaron Pritchard,
Technical Director & Operations Manager



Sidrap Wind Project

Location	Southeast Asia
Capacity	79 MW
O&M Contract	OEM Full-Service Agreement
Warranty Status	Under Warranty with OEM





Leading Independent Power Producer (IPP) in Asia-Pacific

23⁺

Years of Global Experience

4,500

MW of Installed Capacity

13

Offices Around the World

The Problem

In 2019, UPC Renewables' new 79 MW wind plant was generating less-than-expected revenues compared to pre-construction estimates.

The wind plant was not meeting its P50 projection and turbines were failing their power curve tests.

No solution was being offered by the OEM to address the issues and increase production.

WindESCo approached us early on and it was immediately apparent that they understood our problems and began offering real solutions right away.



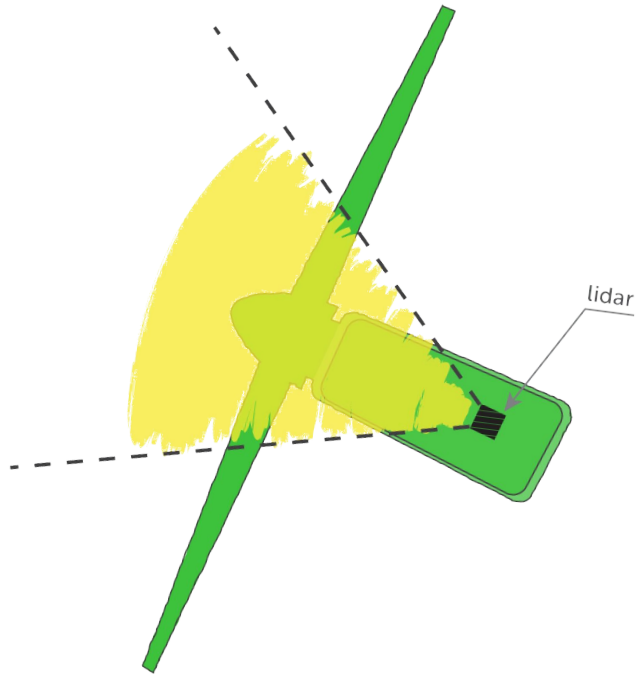
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WindESCo

Avoiding LiDAR

Before settling on WindESCo to optimize their wind plant, UPC Renewables was considering implementing LiDAR technology.



What they quickly found was that using LiDAR is:



Costly.

\$100K+ per unit



Not Scalable.

Individual LiDAR units can only collect data at a single turbine



Not a Solution.

LiDAR simply provides more data to analyze

The Solution

We determined that WindESCo Find, Fix, Measure would be cost-effective, scalable, and provide immediate ROI for UPC Renewables.

WindESCo Find, Fix, Measure is a comprehensive wind farm AEP improvement solution which leverages SCADA data to **increase AEP between 1-7%**. WindESCo Find, Fix, Measure requires no hardware and provides analytics beyond existing asset monitoring platforms.

Throughout the process we worked closely with UPC Renewables to recommend optimized parameters, to verify that were implemented correctly, and to calculate the gains in energy output.



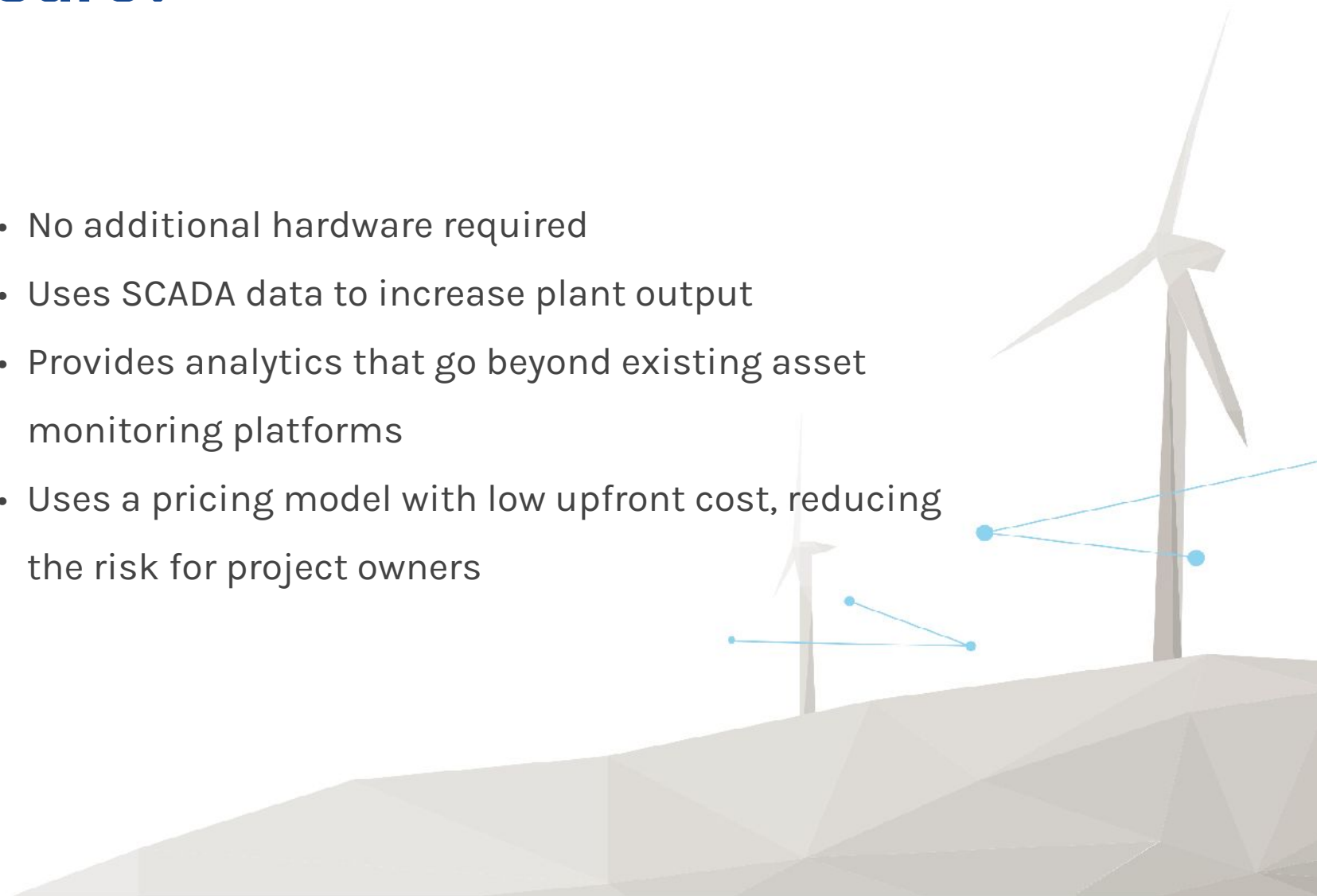
Why Find, Fix, Measure?



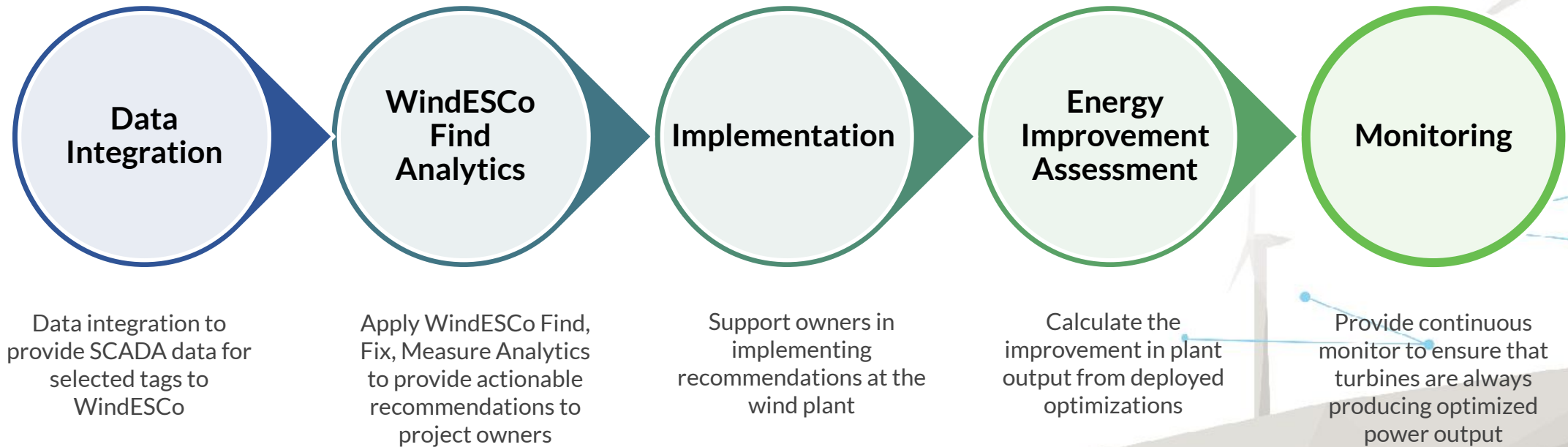
Increase Output

Scalable and cost-effective solution to increase output 1-7% by parameter optimization

- No additional hardware required
- Uses SCADA data to increase plant output
- Provides analytics that go beyond existing asset monitoring platforms
- Uses a pricing model with low upfront cost, reducing the risk for project owners



Implementing Find, Fix, Measure

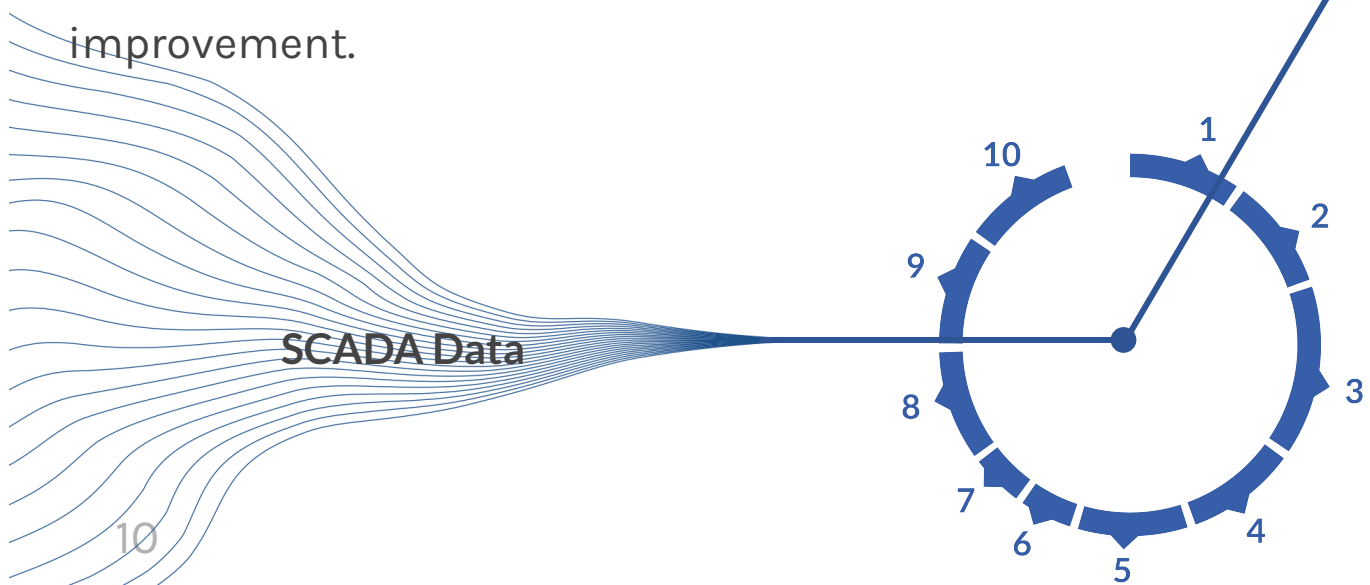


WindESCo Find Analytics

After collecting enough data, we performed analytics consisting of proprietary SCADA data checks.

3 checks came out as requiring further investigation. Working with UPC Renewables, we determined that addressing **Static Yaw Misalignment** would provide the best short term value.

2 additional recommendations were identified for further improvement.



10-Point Check Results

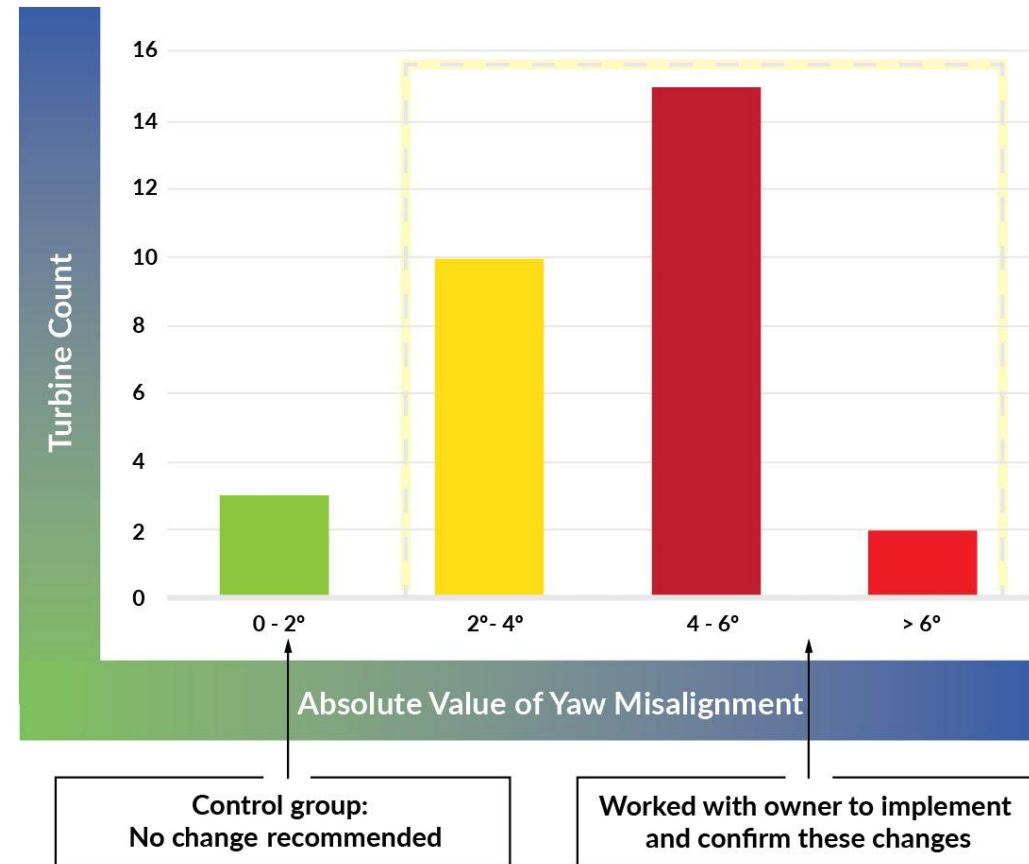
Check	Type	Severity
2	Static Yaw Misalignment Detected	High
3	Dynamic Yaw Optimization	Medium
4	Operational Discrepancy	Medium

Yaw Misalignment Findings

Out of 30 turbines, we determined that 27 were experiencing greater than **2° of static yaw misalignment** and needed correction.

We worked with UPC Renewables to not just implement our recommendations, but also to provide feedback to confirm the recommended offsets were implemented correctly.

Turbine Number	Misalignment
T1	+4.2°
T2	+2.6°
T3	+5.4°
⋮	⋮
T30	+6.7°



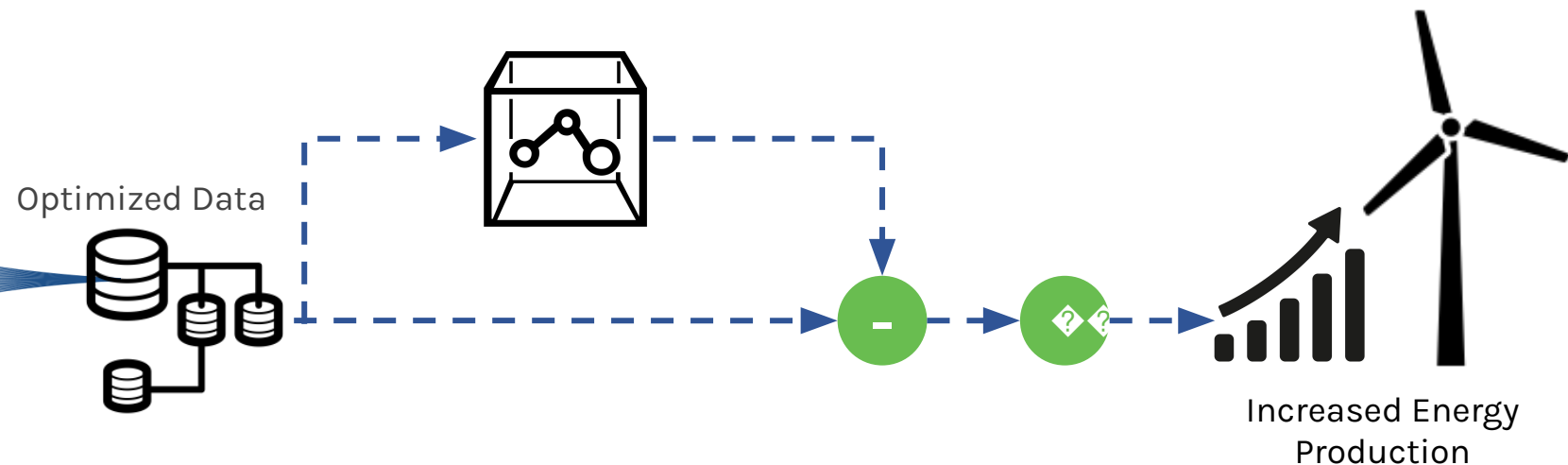
Energy Improvement Assessment

After implementing any performance improvement recommendation or upgrade, it is extremely important to calculate the increase in plant output. Traditional validation techniques are too uncertain—similar to using a tape measure instead of a caliper.

Our proprietary approach to calculate improvement in output provides reliable results with low uncertainty. This approach has been proven on multiple projects.



Independent
Engineer Approved



Energy Improvement Assessment

2%

Increase in AEP

\$450,000/Yr

Revenue Increase

\$5,700/MW/Yr

Revenue Increase



The Future

In just a few months, WindESCo was able to optimize plant output, an endeavor that would have taken over a year with other technologies.

The insights gained through WindESCo Find, Fix, Measure directly resulted in a **2% increase in AEP** for the project. The impact to the bottom line? An increase of **\$5,700/MW/Yr** for a total benefit of **\$450,000/Yr**. All without invalidating UPC Renewables' Full-Service Agreement and Warranty with the OEM.



The Results

After all optimizations have been implemented, WindESCo continues to work with UPC Renewables to increase revenues from \$5,700/MW/Yr to \$9,000/MW/Yr.

 *It's not just the service WindESCo provides. It's who they are. They treated us like friends and partners, not just another customer.*



Aaron Pritchard,
Technical Director & Operations Manager





Our mission is built into our name: ensuring that every turbine produces its maximum energy output and operates reliably beyond its intended lifetime.



Actionable Insights

We provide added intelligence beyond basic reporting.



Verified

Our energy improvement assessment is approved by a leading independent engineer



Trusted

We work with leading IPPs worldwide.



High ROI

High return on investment with a low upfront cost.



WindESCo

Your Ideal Optimization Solution Partner

Wind is complex. Accurate analysis of the existing SCADA data requires a combination of domain expertise, engineering models and machine learning techniques, all while taking into account differences in turbine models. It's important to find a partner with demonstrated expertise to help you optimize your wind project effectively.

Contact us



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