GE Renewable Energy

Solar Plant Asset Performance Management (APM)
Improve Solar Plant Performance and Reliability, Reduce Operating Cost and Risk

GE'S SOLAR PLANT APM AGNOSTIC SOLUTION PROTECTS PV PLANT PROFITABILITY THROUGH AI/ML BASED ANALYTICS

With power purchase agreement (PPA) prices dropping rapidly, reducing maintenance costs and increasing power production is critical for PV plant profitability. How do you determine if your assets are performing at their full potential and what are the right maintenance strategies to sustain viable ROI for your PV assets and reduce operating risk?

KEY OUTCOMES

Increase Yield

Driving higher yield through analytical framework to reveal insights and avoid downtime

Lower O&M Cost

Reducing unplanned downtime and costly emergency repairs, enhancing proactive maintenance strategy

OVERVIEW

Seamless Data Integration for Fleet-wide Visibility for Historical, and Future

- Connectivity to solar plant for near real-time data capture, data storage, include store and-forward feature
- Visualization of asset health and condition at the fleet, site, and asset level
- Utilizing empirical machine learning models and physics-based algorithms to gain visibility into inverter problems before they affect energy production

### Reveal Performance Gaps and Recommend Actionable Recover Plan

Solar Plant APM transforms data from your PV plants to identify performance gaps using various analytics including:

- Analytics performed on digital twins of assets in real-time to determine deviations from expected KPIs at any operating point and environmental condition
- Machine learning-based signature detection algorithms automatically quantify and categorize each cause of production loss, providing insight to enable better maintenance strategies

Detailed Maintenance Intelligence for Improved, Proactive O&M Strategy

Alerts provide recommended actions to prevent and repair component and subcomponent failures. Insights delivered include:

- Optimize decision-making process with visibilities into future inverter issues
- Empower O&M teams to dispatch resources to your sites only when they're truly needed
- Recommended actions are provided to prevent and repair component and subcomponent failures
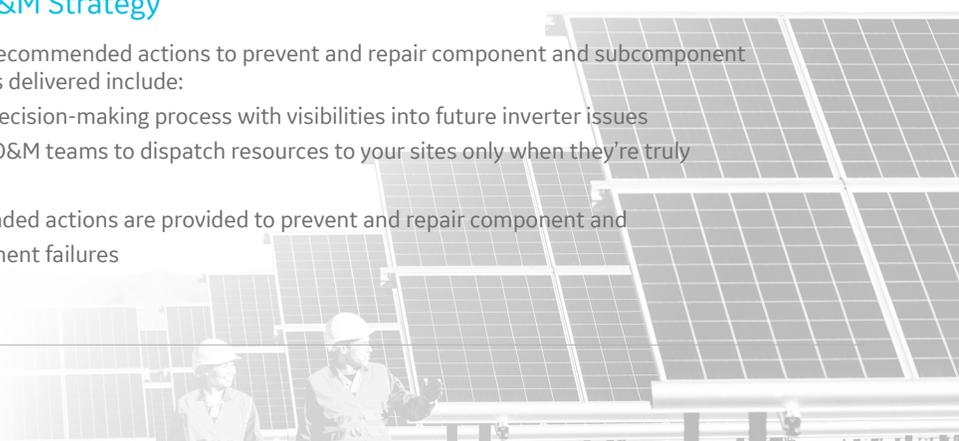
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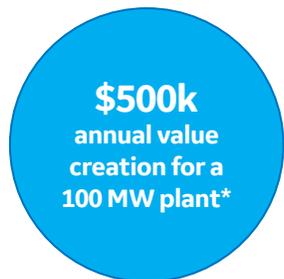
Understand Performance Gaps

Solar Plant APM performs analysis on digital twins of site assets in real-time to determine deviations from expected KPIs at any operating point and environmental condition.

Identify Areas for Improved Performance

Machine learning-based signature detection algorithms automatically quantify and categorize each cause of production loss, providing insight to enable better maintenance strategies.

Adopt Predictive, Proactive, Maintenance Strategies

With the use of machine learning, as data is processed, alerts are generated well before component failures, reducing unplanned downtime and costly emergency repairs.

40%
reduction in power production losses

+

30%
increase in plant staff productivity

+

20%
reduction in O&M expense

=

$500k
annual value creation for a 100 MW plant*

* $35/MWh PPA rate, Plant yield of 1850 kWp/kWh. Assuming 20% of O&M cost savings; $10/kW-year O&M expenses