ARTICLE

Powering change: Why condition-based maintenance will enable a renewable future

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Renewable energy adoption is growing all over the world, paving the path to a cleaner, greener future. To meet increasing demand, power companies are stepping up generation efforts. In the first quarter of 2020, renewables reached nearly 28% of global electricity supply, up from 26% in the first quarter of 2019. However, increased renewable energy generation puts increased pressure on critical generation assets. As more renewables are integrated into the power grid, solar, wind, hydro, and geothermal power plants must optimize asset performance. Optimization starts with the combination of an operational data management platform and condition-based maintenance.

Building and maintaining a sustainable power grid is a complex endeavor. Renewable energy sources are highly dependent on weather conditions, which means generation capabilities vary depending on time of day. Operators must maintain a diverse combination of power sources and associated assets to accommodate fluctuating supply and increased demand. However, renewable assets come with unique challenges, and those challenges require equally unique maintenance strategies.

For years, power generation companies have relied on scheduled maintenance to ensure assets are in optimal condition. However, scheduled maintenance doesn't look at actual asset condition, which means companies are missing performance anomalies that indicate future failure. Scheduled maintenance also doesn't optimize for other variables, such as location or grouping maintenance service with other similar assets. For example, wind farms are traditionally scattered in remote areas and require expensive cranes for any repairs of maintenance procedures. It's far more efficient to perform maintenance on multiple units at one time.

Now, thanks to an influx of operations data, power generation companies can move away from scheduled maintenance and deploy condition-based maintenance strategies. PI System data provides a real-time view into asset condition. Real-time condition monitoring enables operators and engineers to find anomalies faster than ever, identify performance degradation, and eliminate unplanned costs associated with reactive maintenance. Condition-based maintenance drives new efficiencies, prevents catastrophic failures, and enables companies to address the unique challenges, such as planning maintenance for distributed assets.

Now more than ever, power generation companies need real-time monitoring supporting condition-based maintenance strategies to deliver sustainable energy and meet market demand.

About the author

David Thomason has 38 years' experience in applying information technology to the requirements of the Power Generation & Utility industry. He is an active advocate in the use of advanced analytics and technologies to enhance business value.

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