Using Wind Plant Data to Increase Reliability

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Abstract

Operators interested in improving reliability should begin with a focus on the performance of the wind plant as a whole. To then understand the factors which drive individual turbine performance, which together comprise the plant performance, it is necessary to track a number of key indicators. Analysis of these key indicators can reveal the type, frequency, and cause of failures and will also identify their contributions to overall plant performance. The ideal approach to using data to drive good decisions includes first determining which critical decisions can be based on data. When those required decisions are understood, then the analysis required to inform those decisions can be identified, and finally the data to be collected in support of those analyses can be determined. Once equipped with high-quality data and analysis capabilities, the key steps to data-based decision making for reliability improvements are to isolate possible improvements, select the improvements with largest return on investment (ROI), implement the selected improvements, and finally to track their impact.