Predictive Maintenance in Action: Understanding Workflow to Maximize O&M

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Abstract

Harness the value of data to improve O&M performance.

Wind industry is yet to capitalize on profit gains from big data insights.

Challenge: tying data-driven insights into workflow so that everyone from the field to the c-suite makes better, faster decisions based on a single version of the truth.

Collaborating closely with Berkshire Hathaway Energy, Uptake has:
- Undertaken ethnographic UX research of all roles in an organization involved in wind O&M.
- Mapped the pain points of existing workflows in wind O&M.
- Identified how predictive technology can address those pain points.
- Designed user-centered software design, enabling frictionless user adoption and more effective engagement during design and deployment.

Results

Rapid Results: 2 days. 1 insight. $250,000

![Performance Graph]

- Onboarding
- Turbine Maintenance
  - Few hours of downtime: $5,000
- Turbine Crash
  - Three days of downtime: $250,000

- A
  - Uptake configured a machine learning anomaly detection model to find issues on the low speed side of the drive train.

- B
  - Uptake identified assets that were showing signatures of gearbox main bearing failure including Tower 17.

- C
  - A technician was sent to the tower and discovered the whole main bearing had shifted. The Tower was shut down for resolution.

Objectives

- Connect business value, data, software, and experience in the field at a successful wind operation
- Learn from best practices of a collaboration between a disruptive start-up and an established energy company
- See data analytics' value in action to improve O&M performance

Conclusions

Data fed into industry-leading machine learning is only half the solution.

Listening to understand everyone in the value chain - field staff workflows, management KPIs, all the way to the regulators who oversee the market.