

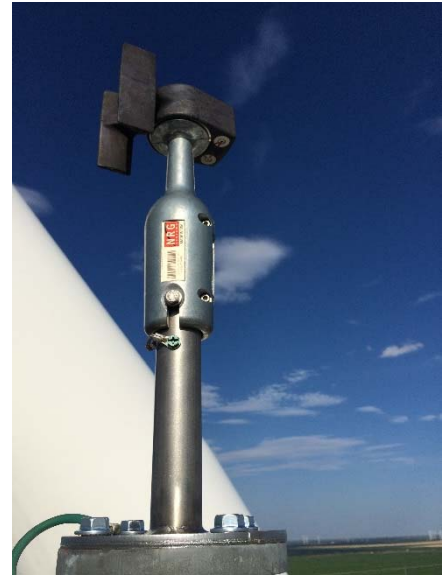
Hybrid XT Retrofit on MHI Turbines

PROBLEM

ALLETE Clean Energy, a renewable energy company based in Minnesota, U.S., was suffering from reliability issues coupled with long leads times for the turbine control sensors that come stock on their Mitsubishi 600kW turbines. The stock sensors were also minimally heated, so icing events easily overwhelmed them. These problems were causing lost production, revenue hits, and reduced technical availability. ALLETE estimates that these problems led to 30 turbine-days of downtime across their wind farm per year.

SOLUTION

ALLETE reached out to RNRG to see if a Hybrid XT retrofit solution was available for their Mitsubishi turbines. After several technical conference calls and many e-mail exchanges, RNRG knew what sensor output the turbine controller needed, the mechanical mounting solution that needed to be fabricated, and how it could route and connect the cabling. RNRG engineered and fabricated a prototype retrofit solution, shipped it to ALLETE, and provided remote installation support. ALLETE's world-class technicians installed the sensor and provided valuable feedback so that final refinements could be made to the retrofit kit design and installation instructions.



RESULTS

The close collaboration between ALLETE and RNRG resulted in a proven retrofit solution for Mitsubishi turbines. The newly installed Hybrid XTs have been running on the turbine for months with no issues. The retrofit kits include everything a technician needs to successfully install the Hybrid XT sensors, including the mechanical mounting adapter, a power supply to keep the sensors free of ice, the cables and wires needed to connect to the PLC, and a clear set of instructions to step the installer through the process.

BENEFITS

ALLETE now has an effective turbine control sensor solution that combines superior reliability and de-icing capability to maximize turbine availability alongside short lead times and world-class customer support to optimize their business. By eliminating the downtime caused by the stock sensors, ALLETE believes it will soon see the return on its investment.

"This helps with cost savings for me on multiple levels. The RNRG team has been extremely helpful and easy to work with. I am truly excited that I can get quality, reliable replacement components for my turbines that are made right here in the United States."

– Dan Cathcart, ALLETE Clean Energy