Western Farmers Co-Op Uses State-of-the-Art Turbine Monitoring to Provide Capabilities Beyond Simple Shutdown

RESULTS

- Confidence in information retrieval during shutdown and start up events
- Thousands of dollars in savings over other less capable systems
- Efficient integration with Ovation™ control system

"We continue to install modern equipment, and our intention is to replace old systems with Emerson technologies."

Tory Wise
Corporate Reliability Director

APPLICATION

Large steam turbine generator at fossil power plant, one of three sites supplying electric power for two-thirds of Oklahoma.

CUSTOMER

Western Farmers Electric Coop, Mooreland, OK.

CHALLENGE

WFEC supplies power for two-thirds of Oklahoma. A catastrophic failure at the largest unit at the Mooreland generation site demonstrated the need for modern and more capable online monitoring equipment.

The old protection system on the unit was not configured to shut down the 135 Mw turbine, only to display alarms and record on a paper chart. "Several rows of blades were damaged," said Torry Wise, Controls Coordinator for Power Production.

Management recognized the need for more modern online systems on their valuable generation assets. "I was tasked with placing state of-the-art equipment on Mooreland 3 and sent out for bids from our old online company and from Emerson."

"I liked the way the equipment meshed with the Emerson Ovation system we were installing. We didn't have to pull hard wire for each probe because it could connect with the Ovation network using OPC," says Wise. "We ran it through a digital link and linked through the Ovation." Another big advantage over the competition was cost. Emerson's quote "beat it out of them on a turnkey job."

If the turbine shut down but had been equipped with the Emerson online vibration monitoring system, “the shutdown would have been quick, and we may have seen less damage. Also we would have had better information to go back and tell us what happened.”

SOLUTION

The unit was out for six months while the turbine was repaired and the rotating machinery monitor was replaced with the system.

The unmatched prediction capabilities of Emerson’s Emerson’s online vibration monitoring system means a real-time analysis of the condition of your most critical equipment, and the confidence to know you can avoid costly false trips or destruction caused by catastrophic failures. Combined with the accurate and easy-to-understand reports from Emerson’s AMS Machinery Manager application, operators know what has happened, what is happening, and what will happen in time to stop it.

In addition to Mooreland Unit 3, WFEC is now using Emerson’s vibration monitoring technologies to monitor critical equipment at the 475 Mw Hugo coal-fired station, the largest single generator in their fleet. There the CSI 4500 monitors and protects boiler rotating forced draft fans, primary air fans, induced draft fans, boiler feed pumps, and the main turbine generator.

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