

Emerson's Smart Wireless Helps San Diego Gas & Electric Improve Operations and Safety as well as Extend Asset Life

RESULTS

- Integrates with the plant's Ovation® expert control system providing additional insight to field information
- Protects against pump damage valued at \$20,000 per pump
- Lengthens motor life, saving \$15,000 - 20,000 per motor every 5 years
- Eliminated wire and cable costs, saving \$5,000 - \$8,000 per device
- Installed each device in 1 hour versus an estimated 2 weeks to run cable for a single wired monitor



APPLICATION

Wireless network implemented in a 550-MW 2x1 combined cycle plant with GE turbines

CUSTOMER

San Diego Gas and Electric (SDG&E), Palomar Energy Center located near Escondido, California

CHALLENGE

SDG&E is a regulated public utility that provides safe and reliable energy service to 3.4 million consumers throughout San Diego and South Orange County.

SDG&E wanted to implement a wireless architecture throughout the Palomar combined cycle plant in order to access data that was previously unattainable through traditional wired solutions. The wireless data would be used in various efficiency calculations at the plant. Project goals included:

- Straightforward project implementation by plant personnel
- Achieve cost savings versus traditional wired applications
- Improve operational efficiencies
- Enhance plant safety and asset protection

“Emerson Smart Wireless is very easy, very reliable. We used wireless for the ease of installation; we did not have to run any power or instrument wiring resulting in cost savings. Another great benefit was the fact that we could install the devices ourselves instead of hiring contractors. The ability to do it ourselves in a fraction of the time delivered big savings.”

Steve Lyons
Instrument Technician
San Diego Gas & Electric
Palomar Energy Center



For more information:
www.EmersonProcess-PowerWater.com
www.EmersonProcess.com/Smartwireless/



SOLUTION

Five applications of Emerson's WirelessHART™ network at the Palomar Energy Center use Rosemount® wireless transmitters communicating with a single Smart Wireless Gateway to collect new, continuous data for SDG&E.

The wireless network is integrated into Emerson's Ovation® expert control system, providing access to additional plant and process data for control and asset optimization, which translates into operational efficiencies and performance improvements. Because wireless is flexible and scalable, power producers can adopt this approach wherever it makes sense for their plant. By picking even one small application, users can achieve improvements that would not be possible in a traditional plant configuration.

SDG&E has increased its cooling water throughput with the help of real-time cooling riser data delivered by Rosemount wireless temperature transmitters. The reliable technology provides access to process data that was previously uncollected. This data is used in efficiency calculations to verify that cooling fans are running at correct speeds. Confirmation of properly operating cooling fans eliminates the need to over-compensate, which gives the plant better thermal efficiency.

In a second application, turbine compartment temperatures are checked continuously by wireless temperature transmitters to detect leaks of turbine exhaust cooling air. Previously, SDG&E had only switches that would close if the temperature reached a certain point, but had no temperature data to indicate leaks. The new data has allowed SDG&E to cut preventative maintenance on the turbines in half.

A third Smart Wireless application of Rosemount wireless pressure transmitters detect air leaks from two forced draft fans as each alternately sit idle while the other runs to cool turbines. Wireless pressure data helped find leaks in a more expeditious manner. SDG&E is now able to lower the fans' amps, which has lengthened their lifetime, saving at least one fan motor every five years, providing an estimated savings of \$15,000 to \$20,000.

In a fourth application, Rosemount wireless DP transmitters check inlet air filters that protect turbine blades in an area subjected to construction dust. When filters are fouled, turbine efficiency is severely reduced. SDG&E's filter cleaning system did not provide accurate filter condition readings. After installing wireless DP, turbine efficiency has improved and megawatt usage was reduced. Better DP information across the filters enables plant personnel to clean them at the proper time.

In a fifth Smart Wireless application, SDG&E installed a Rosemount wireless temperature transmitter to monitor pipes on the facility's fire safety system. Pipe temperatures can rise to 160 degrees Fahrenheit if pumps are accidentally left on after weekly tests. Use of wireless helps to protect against pump damage, which could cost the plant \$20,000 per pump, and protects plant personnel from burns.

“The new data provided by the Smart Wireless network allows us to perform maintenance when needed, and less on a scheduled basis. As a result, we have cut our preventive maintenance on the turbines in half. Additionally, after installing wireless DP transmitters, we have improved turbine efficiency and reduced our megawatt usage.”

Steve Lyons

Instrument Technician
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