

Case Study

Wireless Monitoring of Electrical Substations - Dielectric Oil Pressures and Levels

Company Profile

This company is one of the largest energy companies in the United States, with approximately \$13 billion in annual revenues and over \$36 billion in assets. In 2005, electric revenues accounted for 64.9% of consolidated sales (68.3% in 2004).



Challenge

Major metropolitan electrical substations require the ability to monitor levels of their dielectric fluid pumping stations, and pressures of their high-voltage electrical transmission terminals (potheads). This requirement is usually accomplished by having personnel manually retrieve process values from gauges located throughout the substation. This is not only dangerous, but also time-consuming and inefficient.



Solution

Rawson/Industrial Controls provided a wireless solution for this application which allows safe, reliable, real-time monitoring of pothead pressures, as well as tank levels of dielectric oil. The solution included a Honeywell OneWireless system, Honeywell XYR series wireless transmitters, and a local Emerson HMI. Rawson/Industrial Controls performed start-up, testing, and programming services to ensure the safety and reliability of the system.



Additional benefits derived from this solution:

- Battery-powered transmitters can easily be installed anywhere in the plant, without running wires or conduit.
- Transmitter batteries last 3-5 years, making the system easy to maintain.
- Transmitters can be configured as routers to enhance wireless signal reliability and range.
- The base radio can provide data in nonproprietary formats, such as OPC or Modbus.
- All wireless communications conform to ISA100 wireless standard, which is the most secure and reliable industrial wireless technology available today.
- The HMI is fully customizable to the customer's specification and is easily expandable.

Results

The total investment of this project was \$150,000, while the alternate wired solution would have required a \$300,000 investment. Data is now displayed in the control room for operators, which eliminates the manual labor required to check mechanical gauges. This yielded a savings of \$73,000 per year to net a 2-year ROI, as well as the priceless savings obtained from decreased downtime and increased safety.