Using wireless in industrial automation to improve energy efficiency

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There is no doubt that considerable energy is utilized when it comes to industrial facilities. According to the Department of Energy, there are about 350,000 industrial facilities in the U.S. with annual energy costs totaling $94.4 billion. It is estimated that 30 percent of this energy is used inefficiently or unnecessarily. Furthermore, industrial facilities are responsible for 28 percent of the greenhouse gas emissions generated in the U.S. Introducing energy efficiency improvements of only 10 percent in commercial and industrial buildings, through wireless energy management for instance, would result in savings of nearly $20 billion.

Advanced controls, automation systems, and sensors are being used to improve industrial process control and energy efficiency in industrial settings. Whether reducing energy consumption or monitoring equipment for maintenance purposes, sensors, and wireless controls provide real-time data and the ability to configure and control plant related functions.

Temperature control presents an issue when it comes to large, enclosed spaces, such as warehouses or aircraft hangars. These environments can be very expensive to heat or cool and can become uncomfortable to work in. IKEA, a large distributor of home and office furnishings, was experiencing drastic and unregulated thermal discrepancies and required an energy efficient climate control solution.

Regulvar implemented an EnOcean and BACnet-based system allowing for enhanced energy management through centralized HVAC monitoring and control at IKEA’s largest facility in Brossard, Quebec, Canada. The system also switches to the most economical form of energy depending on the time of day. With virtually no interior walls and a changing layout, conventional wiring presented a challenge and was considerably expensive, time consuming, and disruptive. Installed in a matter of days, the network of wireless sensors, receivers and repeaters were placed atop metal structures, spanning distances of about 200 feet.

The evolution in wireless technologies has opened the door to a new class of plant automation architecture that offers strategic advantages. Installation savings, economies of scale, operational savings, and the ability to gather accurate, timely, and consistent data are just some of the advantages. Combining data from different sources, including existing systems, gives facility managers insight they could never get from the fragmented views provided by conventional systems.

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