

Reduce Energy Consumption and Improve Monitoring of Refinery and Petrochemical Utilities Systems



While it is relatively common for process streams in refineries and petrochemical plants to have sufficient instrumentation, the utilities systems that support production are often not as well instrumented. This can make it impossible to determine where unnecessary consumption or leaks are occurring. Honeywell's low cost and flexible OneWireless solutions can provide essential information for identifying utility consumption and enable strategies that save energy and improve efficiency.

In order to compete in an environment with high energy costs, refiners and petrochemical producers are looking for ways to improve their energy efficiency and reduce these unnecessary energy costs.

It is difficult to improve energy consumption if it cannot be measured. Utilities systems are characterized by a branched piping network, sending steam, air, water, lube oil, fuel gas, fuel oil, and electricity to and from the process units. Often only the network's main headers and branches are instrumented, which leaves many areas unmeasured. This limited coverage may help calculate the overall consumption and identify the main suppliers' and consumers' performance, but it does not help close the material balance or identify possible leaks or wasted use. Engineers also do not have enough information to optimize the usage of these utilities across the site.

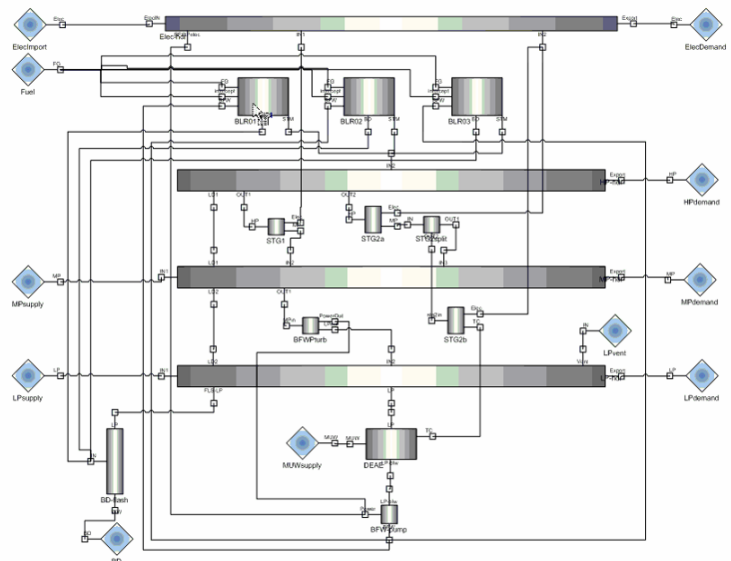
Honeywell's OneWireless provides a single industrial wireless mesh network that can support multiple industrial protocols and applications simultaneously. This makes it simple to manage and operate processes within a secure and reliable network.

XYR 6000 or XYR 5000 differential wireless transmitters can be combined with any flow element to quickly and cheaply provide flow information to as many additional branches of utilities systems that are required to adequately map all the suppliers and consumers.

These wireless transmitters can provide one second or greater reporting intervals and use self-contained batteries which can last up to 10 years. Wireless transmitters can operate effectively over a range of 6 miles when used in conjunction with high gain antennae. Therefore, even the largest utility system networks can be covered with one wireless network so that all information can be integrated into the control room for energy monitoring applications.

Wireless technology can enable improved monitoring and reduced energy usage in several ways:

- There are multiple header steam systems suppliers and consumers across the site but many of them do not have sufficient **flow measurements** to know where the steam is being used. Installing wireless flow transmitters on the main branches can help identify where the consumers are and provide information about where steam is being wasted either through broken steam traps or inefficient operation. Steam balancing applications can then help reduce header pressures and close let down valves, resulting in improved energy efficiency.



- **Column steam reboilers** are sometimes controlled using a tray temperature directly to control valve. Inserting a wireless flow transmitter would support more efficient steam consumption strategies such as using the tray temperature to control a steam/feed ratio controller.
- **Fuel gas headers** do not have a high surge capacity, so they need to consume what is provided or the excess will be blown down to the flare stack. Most major consumers like furnace fuel gas lines have wired flow meters. However, the off-gas into the fuel gas system from light ends columns, for example, are not monitored. Fuel gas consumption can be improved by installing a wireless flow meter on a column off-gas vent and as additional fuel gas is available, automatically adjusting the baseload of fuel oil consumed in a dual fired furnace.
- **Lube oil circuits** ensure that rotating equipment remains in optimal operating condition. Although the total consumption of lube oil is commonly measured, the flow to individual pieces of equipment may not be. Adding wireless flow meters to measure each major user's consumption can help identify where unexpected amounts are being used due to leaks into equipment or, worse, where a blockage is preventing lube oil reaching a machine.
- **Instrument air compressors**, while vital to a plant's safe operation, are not usually monitored unless they fail. Typically companies run multiple compressors to the same header with a pressure valve on each compressor venting to the atmosphere to prevent overpressure. Installing a wireless flow meter on the vent might highlight the opportunity to safely turn off one of the compressors or reduce its speed to save electricity.



Honeywell's OneWireless solution can eliminate the economic barriers that normally prevent sufficient monitoring of utilities. As a result of better monitoring, companies can reduce energy consumption and improve energy efficiency.

More Information

For more information on Honeywell's wireless solutions, visit www.honeywell.com/ps/wireless or contact your Honeywell account manager.

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