

New and existing electrical equipment completes a plant wide power monitoring solution

Tire manufacturing plant

Challenge

A tire manufacturing plant in the south was facing higher operating expenses as a result of increases in electric utility costs.

Historically, electricity costs in this region were low – one of the reasons the manufacturer located the plant here many years ago. With the deregulation of energy markets, increases in energy costs were common and unpredictable. As a result it became more difficult to plan for and manage what was now a very large part of the plants operating budget – utility costs.

Implementing a system to monitor the energy use in the plant faced several challenges. The tire plant was expanded many times over the years, and as a result there was a mixture of electrical gear installed all over. The substation lineups varied in both age and type. Some had metering hardware, while others did not. One of the issues faced was integrating this mixture of hardware without replacing a large number of existing components.

In addition, the installed hardware used multiple communication protocols, was installed all over the plant and none of it was connected to the Ethernet LAN network.

Solution

Siemens engineers worked with the customer to perform a site survey of the substations and load centers in the plant. An inventory was created of the existing electrical hardware that could be used to capture the desired energy data. The survey also identified the existing communications networks at the plant. A plan was then developed for installing new metering hardware and extending the communications to all existing and new devices to complete the system.

It was found that only three new meters and a few Ethernet gateways were required to create a plant wide power monitoring network. Siemens utilized the advanced 9610 Power Meter for the new locations and also incorporated the existing CT's and PT's in these locations to further reduce downtime and costs. The rest of the sub stations used the existing Siemens 9500, 9330 and older 4700 style power meters. In addition, the ISGS relays were also brought in the Siemens WinPM.Net system. Finally, the sub stations with newer power meters allowed for direct Ethernet connections, while the sub stations with the older equipment utilized the serial-to-Ethernet gateways supplied by Siemens. This meant the entire system was now Ethernet based and ready for remote monitoring with the WinPM.Net software.

Results

Using the road map developed by the Siemens team, the plant was able to schedule the work to coincide with plant outages and avoid any unnecessary production stoppages. Also, by maximizing the use of existing hardware it reduced the project's installation costs thus lowering the projects pay back. With this approach, they kept the project costs within the existing maintenance budget, and avoided a capital request to implement the project.

The plant is now monitoring and reporting all the energy usage by department in an effort to improve operations and better allocate its energy costs. Remote alarming is also providing an added benefit to the facility personnel. They no longer have to guess what the problem is or where is originated from!



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