SIEMENS

Utility cost reductions achieved with new metering technology

Steel mill

Power Distribution Solutions

Challenge

A large steel producer in the Midwest was asked by the utility to reduce their electrical energy usage by at least 15% before the end of fiscal 2010. The local electrical utility was also offering a better rate and lower demand charges if the steel mill could show that they had a solution installed in their facility that would allow them to shed load. Similar to the way a residential electrical utility would offer a better rate to residential customers that have the capability to interrupt, or cycle their air conditioning units.

One of the customer's challenges was to come up with the loads that could be limited or interrupted. The customer only had "antiquated" analog voltage and amperage meters on their medium voltage and low voltage switchgear. They were forced to send an engineer out to manually read the meters which was time consuming as well as prone to mistakes. In order to comply with the wishes of the utility and to make their facility more energy efficient, they would need to monitor their loads not only at the main breakers, but at the feeder breaker level as well. Almost all of their analog meters were GE and Westinghouse draw-out style and would be a challenge to retrofit. This customer would need a complete power monitoring solution, including software, that would provide comprehensive energy reports for the utility to show energy reductions.

Solution

Siemens Power Distribution Solutions engineers conducted an audit of the steel mill's facility and electrical equipment and came up with a comprehensive power monitoring solution that utilized existing draw-out meter hardware with our advanced electrical power metering and Siemens WinPM.Net software. Siemens offers a "slide in" retrofit for old Westinghouse, GE and other watt hour analog meters. This solution replaces the old watt hour meter without using any special tools or making any changes to the exterior of the switchgear. The retrofit uses the existing draw-out case, potential transformers and current transformers to greatly minimize the amount of labor required to retrofit the meters. The retrofit kits can also be pre-wired to accept control wiring for most applications, to reduce more labor costs. For this application we chose the 9360DC meter with on-board web server, Modbus Master capability as well as "gateway" capabilities. For the feeder breakers, we chose the PAC3200 meter, with some locations taking advantage of the Serial (Modbus RTU) Module. The 9340 meter was chosen to monitor the mains of the gear because the customer wanted a meter with power quality capabilities and sags/swell fault detection. The PAC3200 meter was ideal for the feeder breakers because only basic energy readings were required at those locations.

Results

The customer immediately installed (59) meter retrofit kits using their maintenance personnel providing the utility "proof" that the plant was making progress towards reaching their reduction in energy goals. On the next scheduled shutdown, the mill installed Siemens advanced WinPM.Net software to gather, alarm and report on the energy usage and power quality within the plant. This metering solution helped them determine which processes/facility functions can be reduced or "interrupted" in order to meet the 15% reduction goal. Having the capability to interrupt and receiving the lower rates and demand charges will produce a savings of more than $37,000 per month. With this success, Siemens has been asked to look at providing the same solution at their second plant in this region.

Siemens Solution for Industrial

Siemens is the world's leader in providing totally integrated solutions to enhance safety, reliability and flexibility in the industrial plants. Integrated power and factory automation solutions improve productivity and, ultimately, the competitiveness of your organization in the global market.

Smart devices of power distribution make plant wide integration easy resulting in the timely and efficient diagnosis of problems before a plant or process shut down. Additionally, Siemens products share a common global technology platform, which enable organizations to operate and implement branches worldwide.

Reliable and precise monitoring of electrical power systems

Siemens Power Distribution Solutions recognizes that high performance facilities make for high performance business. Energy is the lifeline of your business, and better efficiency and sustainability can have a large positive impact on your bottom line.

The Energy Management and Control Systems from Siemens provide a complete enterprise solution that can help you manage the energy costs and availability of your business. With our advanced meters and controls, you can be sure to use only the energy you need, when you need it.

Siemens Power Distribution Solutions can also contribute toward achieving LEED® certification and provides the needed energy metering data for federal/local government energy reductions programs.

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