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Spara Quick Facts:

➔ Results with Powerit’s Spara System

- 10–12% decrease in kilowatt-hour usage
- 37% reduction in peak period demand usage
- \$20,000 savings per month on the power bill
- ROI: 14 months

➔ Optimized Loads

- 2 furnaces
- Sand mixer system
- 4 dust collecting machines

➔ Powerit Technology Installed

- Spara EMS® (hardware and software)
- Spara Konnekt® wireless I/O

Foundry Cuts Energy Costs While Production Grows

In early 2008, Blackhawk de Mexico’s business was booming. The ductile and gray iron foundry, based in Santa Catarina, Nuevo Leon, Mexico, was producing 1,400 metric tons of metal castings from green sand per month. Output from the 100,000-square-foot facility near Monterrey goes into trucks, tractors, cranes, and other heavy equipment made by major manufacturers.

But the global recession hit Blackhawk hard. Production dropped to 300 tons per month, says CEO Patricio Gil. The foundry needed to cut costs—especially electricity, its second-highest expense.

The Challenge: Cut Power Demand from Essential Equipment

Blackhawk’s two melting furnaces—its biggest power drain—represented the biggest opportunity. The foundry was controlling the furnaces and other equipment manually, which made reducing electricity costs difficult.

“We had to control the costs of powering equipment by controlling how we used it,” Mr. Gil explains. “Operators might power down the sand mixer when a furnace was running, based on the assumption that we would hit peak usage if we didn’t. That process was prone to human error.”

An added challenge was minimizing power consumption during *Punta*, the daily period when electricity is most expensive. For example, the furnaces—each with a 4,400-kilowatt capacity—should be powered down to 200 kilowatts each during *Punta*. Maintaining consumption manually at that low level was a struggle.

The Goal: Automatic Action

Mr. Gil and his team realized that automation was essential. Their goal: find an easy-to-use demand control solution that would monitor and automatically adjust power to designated machines based on predetermined priorities and an ambitious demand setpoint.

The Solution: Powerit's Spara System Takes Control

After researching its options, the foundry turned to Powerit Solutions for help. Powerit Solutions' Spara EMS® technology, an integrated hardware and software system with wireless connectivity and a Web-based interface, optimizes energy use based on rules specific to the user's facility and business, and is compatible with existing automation systems.

Wireless Connections

Working with Powerit, Mr. Gil and his team selected equipment for the Spara system to monitor and control, including two furnaces, one sand mixer, and four dust collectors. In spring 2010, Powerit configured and installed the Spara energy management system (EMS) and Spara Konnekt® wireless

I/O technology, which allows the EMS to link with equipment throughout the facility without the disruptive and costly process of adding conduits and wiring runs.

Tracking Usage

Blackhawk began using the Spara system to determine process energy usage trends, keep the plant to a proper peak demand level, and automatically curtail energy consumption to prevent excess power use. For instance, the sand mixer is started and stopped according to actual need. When the mixer isn't operating, the Spara system automatically frees up that power for other equipment, such as dust collectors.

The Result: Lower Costs, Even with Rising Output

"With Powerit, we set an aggressive goal of reducing our electric bill by \$16,000 per month," Mr. Gil says. "The reality is even better—with their help we're actually saving \$20,000 per month."

Because energy curtailments to machinery operations have been finely tuned and automated, Blackhawk stays well within its demand setpoint.

Reduced Peak Usage

"We have a peak of about 10,000 kilowatts but we need to be well under that," Mr. Gil says. Based on usage data the Spara system reported, Blackhawk maintains a new reduced peak of 6,300 kilowatts. "If it looks like we're heading near our control setpoint, the Spara system reduces the equipment in the priorities and via the strategies we've defined," Mr. Gil explains.

Powerit has helped Blackhawk reduce energy consumption during the costly *Punta* period as well. Before Blackhawk implemented the Spara system, demand during *Punta* reached 5,200 kilowatts; now it's less than 750 kilowatts.

Overall, Spara has helped the foundry cut its energy consumption by nearly 12 percent. Blackhawk and Powerit are now moving on to phase two, identifying additional automation targets, such as air compressors. Blackhawk financed the system through Powerit and expects ROI within 14 months.

Controlling Costs With Growth

Mr. Gil says Powerit's technology will help Blackhawk keep energy costs under control as output rises. That's important because the company is already recovering from the recession: since 2009, Blackhawk's output has jumped from 300 tons to 1,100 tons per month.

"Powerit has given us peace of mind," says Mr. Gil. "Our Spara system removes the potential for human error. And the ease of changing parameters allows us to support production increases without losing control of power consumption."

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