Computer Manufacturer Cuts Energy Costs 20% Using Power Management Equipment

A global provider of computing and imaging solutions and services for business and the home, is making enormous strides to conserve energy reducing its electrical costs with lighting control and metering systems from Square D.

At its one million-square-foot, four-building campus in San Diego, this companies engineer's are part of a team charged with conforming to California government regulations and other state building codes requiring more energy efficient buildings. The San Diego campus houses 1,500 employees who are involved in research and development and a printer pen production line.

Because lighting comprises as much as 40 percent of an average building's energy load, the company focused on lighting as a primary area to conserve energy and lower electricity costs.

"Over the years, our lighting control consisted of on and off," the chief engineer said. "When people come in they turned the lights on and turned them off when they went home.

"In the spring of 2001, we retrofitted 25 existing lighting panels with the Square D PowerLink® panels and integrated them with the building automation system so we could control the lighting circuit breakers of the entire campus,". "With the California energy crunch, we saw the opportunity to save a significant amount of power simply by paying closer attention to controlling the lighting load." The chief engineer further commented that the unique ability to readily retrofit the Square D PowerLink panels into the existing panelboard tubs minimized the upfront labor and installation cost.

The Square D PowerLink panels, installed throughout the campus buildings, use microprocessor-based control to process signals that originate from the buildings' automation system for time-based control according to predefined daily schedules. An Ethernet backbone connects the building automation system with the Square D PowerLink system.

This company had followed a traditional schedule having the lights scheduled to go to half lighting about 3:30 in the afternoon and stay at half lighting into the night. Some lights would remain at half power others are turned off completely until employees return to work the next morning at 6 a.m.

What made the Square D PowerLink system appealing was the ability to quickly implement a lighting control solution without a huge upfront investment. According to the chief engineer, "The Square D PowerLink system, with its individually controllable remotely operated circuit breakers, gave me the flexibility I was looking for in establishing lighting zones. It met the need and it offered the quickest payback of any system we evaluated. We didn't have to fuss with mounting separate relays cabinets and all the associated wiring. We saved a ton on installation time, space and money."

PowerLogic®

SQUARE D

by Schneider Electric

"We save probably 20 percent of an average 4 megawatt load at any given time," according to the chief engineer. "The system paid for itself in less than 12 months.

According to the chief engineer, complying with utility demands to shed load at a moment's notice is an important benefit of the SQUARE D POWERLINK system.

"We have earmarked a number of circuits that give us a known load reduction. We shut off loads using the same signaling process we routine lighting control. If there is a request from the utility to reduce our load during the day, we can cut back the lights on demand by manually initiating a signal to the Square D PowerLink panels."

"The system has given us better general control of the load for conservation and for demand reductions with the utilities. Now we can better work with the utilities to identify additional opportunities for energy savings incentives."

Like other major manufactures of computer and electronics equipment, the company is no stranger to getting the most out of its electrical system. Two years ago, the company installed 14 Square D POWERLOGIC circuit monitors, also connected together through the Ethernet backbone. A circuit monitor is connected to each of the main power transformers on campus, which range from 12 kv to 480v. They are also used to monitor power distribution throughout the campus.

"The PowerLogic® system has its own communication network and provides data I use to manage the power distribution," the chief engineer replied. "I can get load profile data off of load centers and other feeder circuits. It helps me to see what the load characteristics are and I use that data for load growth or load change management. If there is a problem at the plant, I can pick up starting currents, transients, harmonics, and data that is used to describe the load more completely."

The chief engineer said the circuit monitors have on board memory that feeds data into a server. The server logs trend data that can produce reports on load profiles, energy data and trends to observe load patterns.

"For instance, I'll look at the load patterns on the load centers covering the central plant. If it looks like the load on the chillers isn't conducive to energy conservation, or generates a peak demand for the site, I'll bring that to the attention of the operating people. They will look into why it operated that way and at least offer an explanation. This all reinforces the notion that if the system is not managed properly then it causes peak demand, which stays with us for the whole month."

"I can determine that one transformer may be becoming more loaded than I want it to be so I can recommend a construction project to reconfigure the load to a different load center," he continued. "That is done pretty infrequently, but I certainly can make use of available capacity if I want to add load in one area.

"The historical data PowerLogic provides includes good trend analysis about load growth; so when we do studies on the feeder circuits I can get a good feel how that load is changing and how well we are doing."

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