

## Success Story: Ave Maria University

Markets Served:  
Education

*"The system is based on best-of-breed architecture and has a communications platform that makes it flexible enough to work in almost any environment."*

# Eaton's Power Xpert®: The Heart of Ave Maria University's Cost-Saving Power Monitoring System

#### Location:

Ave Maria, Florida

#### Segment:

Education

#### Problem:

Need system to integrate IT and Facilities

#### Solution:

PowerChain Management solution with Power Xpert

#### Results:

Energy and cost savings

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#### Background

As Ave Maria's Vice President of Technology and Systems Engineering responsible for designing a state-of-the-art university, Bryan Mehaffey began with a unique vision vastly different from traditional planning strategies. His goal was to incorporate IT operations and facility operations into one group, and to converge 23 systems combining the university's IT infrastructure, fire, security, HVAC, power quality/usage monitoring and building control systems on a single Internet protocol (IP) common platform.

#### Challenge

When Mehaffey joined the university's design team, he challenged tradition. He questioned the need to spend money installing a separate network of wires and cabling for each system, such as lighting, cooling and phone services, when he could just merge IT and building-system functions, enabling the university to run and

manage everything centrally over an IP network that communicates with an ODBC database through a Web browser.

Mehaffey knew that with a system such as this, Ave Maria could merge its building maintenance and IT departments to reduce staff by a third while at the same time controlling every IT and building system under a single roof.

As he began making his vision into a reality, he worked with Eaton to develop the Power Xpert Software, Foreseer® Class monitoring system into their 24-hour guard on the university's 908-acre, 500,000 square feet of facilities, capable of transforming data into information that can be used to make management decisions and cost projections.

#### Solution

When design work on Ave Maria began, Mehaffey took on responsibility for all of the electrical, mechanical and technology systems. Instead of selecting specific pieces of equipment, he specified what he was looking for from an operational, performance-based standpoint and he wasn't sure Eaton fit the bill.

Mehaffey explains, "I discussed with Eaton that I needed a system that could be more flex-

ible and more scaleable than their older, proprietary communication platform. Our new system needed to interoperate between multiple systems from other providers. Shortly afterward, Eaton called and indicated that it had a product under development that it believed would meet my objectives."

Convinced that Eaton's approach had the flexibility and capabilities to be developed into the system he wanted, Mehaffey agreed to install the Power Xpert system. The only stipulation was that Eaton would have to make the product interface seamlessly into his combined systems platform.

"In talking with Eaton, I felt that the company recognized the value and importance of working with an end user to help create the end product, rather than trying to put together something and then asking if it was of value to us."

The Power Xpert system also allows Ave Maria to monitor the quality of the voltage and current of the power it gets from the power company. The system shows if there's a leg that is getting weak voltage from the power company, the university can notify the utility.

The power monitoring system also reports "dirty" power. This enables the university to react

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*"I don't know how anyone can truthfully manage an infrastructure of any size without a power management system that provides the information we get out of the Power Xpert Software, Foreseer Class; we would be lost without it."*

immediately, ensuring its equipment is protected as well as reporting the occurrence to the power company so it can be corrected.

Mehaffey explains, "There are three phases of power coming into the plant and often one of those phases will drop off or brown out. We're able to react to that knowing what's going to happen in the plant once it senses that leg of power dropping off. In those situations, our other systems are sophisticated enough to activate a sequence of operations that react to remove the danger

of damage as well as intercommunicate and interoperate with our facilities management system. Once the Power Xpert senses 'symptoms,' it automatically goes into preventive mode. This is a 24-hour guard on our system."

### Results

Since Eaton was able to install the hardware upfront, it began metering and capturing information as soon as electricity started to flow. Even before the software, storage information and reports were operational; the meters were already collecting data, even during construction.

Mehaffey states, "A couple of weeks before the campus opened, we came in on a Monday morning and found massive electrical damage throughout the campus and construction trailers."

"Our first reaction was that we must have taken a major lightning hit. By looking at the history in the meters, we determined that our local electrical co-op had done something within its system that had sent an over voltage in excess of 760 volts throughout the campus environment for three consecutive days.

"When we told the power company about the damage, its first reaction was that it wasn't their fault that we must have taken a lightning hit. However, we were able to provide the data from the Power Xpert meters to the electrical co-op's lawyers. In about a 30-minute meeting, they concluded that it was the co-op's fault and reimbursed us for \$208,000 worth of damage. The system paid for itself before it ever came online."

In another instance, the university received an electric bill that it felt was astronomical. After calling the electric company and explaining that an error was suspected, the electric company denied it citing that a physical reading had been taken and therefore must be accurate.

Mehaffey reports, "We were able to pull a report for our usage through that same time period and present it to the power company to prove our actual electrical consumption during that time frame. It conflicted with the historical information that the power company had and gave credibility to our information. As a result, we received a \$35,000 reimbursement for over charges.

"The biggest benefit of that incident is that the electrical co-op is aware of two things: we watch what happens here very closely and our information is dead on accurate. Not only do we have a lot of information, we have a lot of credible information that in many ways is more sophisticated than theirs. The power company knows how prepared we are to make whatever case we need to make stick. To me, that in itself is saving me money because the company makes sure that they know it's accurate before they send me a bill."

Mehaffey says, "The customized user interface and reporting are what we count on. It's not just a 'nice thing to have,' it's vital and we rely on it. As a result of it, we have been very successful in not just creating an environment that is very energy efficient, but also enables us to accurately project our energy consumption and bills, which is crucial to our financial performance.

The Power Xpert system is the tool at the heart of our being able to create those projections.

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