



# Data Centers

*Data centers are the backbone of the modern business. Over the last ten years, the push to increase capacity has driven data center expansion.*

## The Numbers

Results from a 3-year old data center	
Power Issues	8
Savings Uncovered	\$138,000
Cost to implement	\$173,000
ROI	1.25
Phase I Expansion	Yes
Phase II Expansion	Yes
Phase III Expansion	Only with corrective action

## Background

Data center expansion includes the addition of blade servers and extra processing capacity. Often times this will tax the limits of cooling of the electrical system. The trend does not seem to be slowing and even more expansion is required. Does the data center owner really know how much more his infrastructure can handle? In the rush to build and expand the current infrastructure, are there energy savings that could be captured and applied to the inevitable expansion?

## The Program

Eaton Electrical Services and Solutions (EESS) can help. Our engineers can assist the data center owner with consulting services which will not only determine the current capacity, but will provide a forecast for the future. As this assessment is performed, our engineers will balance the need to optimize the expansion and capacity requirements with a review of opportunities to reduce the overall energy consumed in the data center. This will provide the most reliable, highest quality solution, at the lowest operating cost.

Eaton's service offering combines the value of PowerChain Management<sup>®</sup> with an entire facility energy audit. The energy audit looks at the operation and technology of the systems which consume energy in data centers and supporting areas:

- Lighting
- CRAC units
- Chilled water systems
- Cooling towers
- Ventilation systems
- Electrical billing structure

## To learn more, contact:

Eaton Corporation  
[www.eaton.com/electrical](http://www.eaton.com/electrical)



**Enhanced Safety**



**Effective Use of Capital**



**Greater Reliability**



**Risk Mitigation**



**Operating Cost Efficiencies**



**An Eaton Green Solution**

*They wanted to know if the data center mechanical equipment was still running efficiently even though the facility was newer.*

### A Case Study- The Numbers

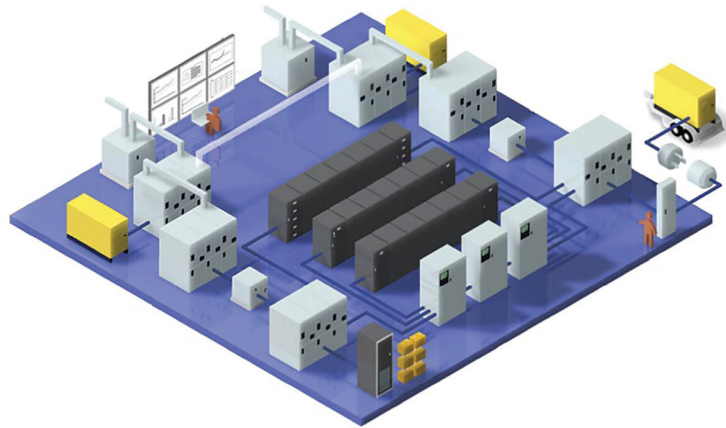
A health care insurance provider had a three-year-old data center. Because of consolidation within the organization, the center was called upon to almost double capacity in three phases. There was little desire or funding to increase the raised floor "white-space," so a higher density server application needed to be installed. In addition, the company wanted to remain a leader in environmental sustainability. They wanted to know if the data center mechanical equipment was still running efficiently even though the facility was newer. Most importantly, would the infrastructure need to be upgraded and in which phase of the expansion?

EESS was contacted not only to forecast the effect of increased electrical use on the infrastructure, but to determine measures to use electrical energy more efficiently. Eaton proposed a PowerChain Management audit with an energy management assessment option. The study found that the data center electrical system could expand in Phase I and Phase II but would require power factor correction to complete Phase III. It also showed that the cooling capacity was sufficient through Phase III, but significant savings could be found if Variable Frequency Drives were installed in the final phase.



### The Value of PowerChain Management

PowerChain Management helps enterprises achieve a competitive advantage through proactive management of the power system as a strategic, integrated asset throughout its lifecycle. PowerChain Management ensures that organizations will experience whole system reliability at the lowest operating cost possible from end to end.



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