Customer Success Story:
Macy's

Market Served
Data center & IT

Macy's rings up huge savings with 9395 UPS

Location:
Lorain, Ohio

Segment:
Retail

Challenge:
Macy's previous UPS solution was not only extremely inefficient, but also unable to handle the retailer's growing capacity requirements.

Solution:
Power Xpert™ 9395,
Energy Saver System (ESS)

Results:
The company's deployment of a pair of Power Xpert 9395 units, coupled with ESS, has enabled Macy's to dramatically reduce power and cooling while achieving exceptional reliability in a scalable solution.

The fact that you could even push the efficiency almost to 100 percent without compromising the UPS's reliability was a huge selling point for us.

Bill Hawk, manager of data center operations

Background

Macy's, Inc. is one of the nation's premier retailers, with fiscal 2012 sales of $27.7 billion. The company operates the Macy's and Bloomingdale's brands with 840 stores in 45 states, the District of Columbia, Guam and Puerto Rico.

Committed to sustainability, Macy's has taken dozens of tangible steps to reduce its impact on the environment. In fact, both the EPA and the Solar Energy Industries Association ranked the organization as one of the top companies for generating green electricity. In addition to emphasized energy optimization, Macy's has made it a priority to implement green initiatives, such as reducing electric consumption by 38 percent in Macy's stores since 2002, increasing the percentage of certified or recycled paper used in marketing materials to more than 95 percent; reducing store packaging with the Bag-It-Right program; and increasing solar energy with more than 55 active installations at Macy's locations

Challenges

Operating two large data centers — a primary facility based in John's Creek, Ga., and a secondary site in Lorain, Ohio — Macy's is not only committed to the environment, but also to maintaining a strong focus on technology. Because of its dedication to improving the overall shopping experience for its customers, both online and in stores, the company has experienced continued growth in its IT operations. As a result, two aging Liebert uninterruptible power systems (UPSs) within the Lorain facility couldn't keep pace. The solution was not only unable to meet Macy's capacity requirements, but was also significantly inefficient.

With the Lorain data center responsible for developmental tasks, disaster recovery, and supporting several backend services associated with operating macys.com, the company requires the highest level of availability at all times. To accommodate ongoing growth and meet uptime requirements for some 400 servers there, Macy's recognized that the UPSs needed to be upgraded.

Topping the organization's power protection goals were reliability, scalability and efficiency.

"The no. 1 thing we were looking for was a modular design," reveals Bill Hawk, manager of data center operations. "We wanted something that we would be able to grow into."

Powering Business Worldwide

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The ability to slash ever-escalating energy costs was also high on Macy's list. "These older UPSs were very inefficient and had a power factor of 0.8," Hawk explains. "We wanted something in the mid- to high 0.9 range that would take advantage of new technologies available today. Cutting energy costs was a primary factor."

In addition, Macy's sought a highly regarded, tried-and-true manufacturer. "We wanted a reputable UPS brand and model. We weren't about to just invite anyone to the dance," Hawk emphasizes. "We did our homework and only worked with the top brands in the UPS market."

Solution

Ultimately, Eaton® tendered the most attractive dance card, providing a UPS solution that enabled Macy's to achieve its power, capacity and scalability needs while dramatically improving efficiency. Two 550kVA Power Xpert 9395 UPSs were installed in a dual bus configuration with sealed batteries, coupled with facility-level power distribution units (PDUs) and the Eaton Energy Saver System (ESS).

"We use Eaton equipment in many of our other locations, so we were very familiar with the brand, the quality, the serviceability and many other factors that make the line top-tier in the UPS industry," Hawk says.

Indeed, the 9395 delivers unprecedented power performance and efficiency, while providing the highest level of reliability and availability on the market — thanks in part to its inherent redundancy option. The unit's multi-module, scalable architecture is also an ideal fit for Macy's growing IT environment, as the 9395 can easily adapt to future changes in load demands and new requirements for high reliability, without requiring the purchase of an additional UPS.

"We love the fact that we can expand the capacity of the existing UPS by adding more modules," Hawk notes. "We plan to have ongoing growth, and that requires more systems to support that growth."

In addition, by operating at greater than 94 percent efficiency, the 9395 answered Macy's desire for sustainability through lower energy costs. Even more, the company opted to achieve an unprecedented level of efficiency by deploying ESS. The exclusive Eaton technology enables the 9395 to attain an industry-leading efficiency level of 99 percent — the only technology on the market capable of yielding such results. Using ESS, the UPS intelligently adapts to utility power conditions while supplying clean power to the connected equipment. And because UPSs using ESS maintain 99 percent efficiency even when lightly loaded, the technology can deliver gains of up to 15 percentage points in efficiency over traditional models in the typical operating range.

"The fact that you could even push the efficiency almost to 100 percent without compromising the UPS's reliability was a huge selling point for us," Hawk confirms.

Leveraging the 9395s and ESS has not only helped Macy's slash power costs, but considerably reduce cooling requirements as well.

"Because we are using less energy, the plant doesn't have to invest as much to cool the UPS room as it's not running as hot," Hawk explains. "That's a big cost savings right there. Another important thing is that with the UPS's newer technology of dry cell batteries, we don't have to invest in a lot of ventilation."

When it comes to the measuring the magnitude of savings afforded by the 9395, Macy's isn't just guessing. Rather, because Eaton understood the company's commitment to deliver a superior, energy-efficient solution, it partnered with an outside consultant, Sigma Engineering Group, to document the pre- and post-installation of the UPSs and ESS.

The consultants, who evaluated Macy's energy profile before and after the 9395 deployment, confirmed that ESS allowed for a dramatic increase in efficiency to 99.9 percent. As a result, they determined that Macy's bolstered efficiency translates to an hourly savings of 86.6kW and an additional savings of 31.8kW through mechanical cooling reduction. The net 24.4 percent savings affords the company substantial annual energy savings that will be realized year after year.

The energy optimization consultants then used that data to help Macy's submit a rebate application. As a result of demonstrating an approximate 10x reduction in UPS losses, coupled with eliminating supplemental cooling systems required for rejecting UPS-created heat, Macy's was awarded an $80,000 rebate from the local utility company.

"That was the icing on the cake," Hawk enthuses, noting that he learned about the possible rebate during the design process. "We felt very good about the brand, the modularity and the efficiency, and the fact that the 9395 met everything we had in our design specs. The rebate was just a bonus, not a reason that we chose Eaton," he adds. "But because we did pick Eaton, it allowed us to get a nice chunk of money on top of everything else."

The solution's combined energy savings, low total cost of ownership and exceptional reliability have prompted Macy's to plan for additional 9395 units in the future.

"We just kicked off phase two of our power and mechanical infrastructure upgrades," Hawk reports. "We are working with a lot of the same people we worked with last time."

And it's not surprising, considering that Macy's 9395 solution is expected to pay for itself in less than four years, thanks to the energy savings and rebate. "The ROI is very good," Hawk emphasizes.

Another boon for Macy's is having access to local Eaton service technicians. "We've had previous maintenance agreements with Eaton, and have been very happy with the quality of goods and service after the sale," Hawk says. Noting that he compiled a "non-dollars matrix" of the benefits of going with Eaton, Hawk adds, "The team of technicians definitely gave Eaton more value to us. It was an important factor that we took into consideration."

While Macy's has been fortunate not to have experienced any unplanned power outages recently, its power equipment is tested on a regular basis. "We switch from commercial to UPS and generator power and test in that mode, and the UPSs have performed just as expected with no issue," Hawk reports.

"Eaton has such a long history of being the Cadillac of UPSs — not to mention, they are a really good price," he adds. "There are a lot of UPS manufacturers out there, but they tend to not have all the bells and whistles. Eaton's units are very well made and we have had no issues whatsoever over the long term."

Results

Deploying the 9395 UPSs with ESS has helped the environmentally responsible Macy's to further its pledge to efficiency, while at the same time ensure the highest reliability and expansion capabilities within its Lorain data center. With the Eaton solution in place, the company is now able to:

- Achieve up to 99 percent efficiency through ESS, resulting in significantly lower energy and cooling costs
- Easily upgrade capacity or availability thanks to the modular, scalable system
- Maintain 100 percent uptime for its critical equipment and operations
- Preserve the ongoing health and optimal performance of the unit with an Eaton service plan

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