ENCYCLE
INTELLIGENT BUILDINGS MADE EASY

CASE STUDY

SWARM LOGIC®
POWERED BY DATA. DRIVEN BY SUSTAINABILITY.

Big-Box Department Store

National Retail Chain Scores Seven-Figure Energy Savings

This well-known U.S. department store customer was looking for scalable ways to reduce energy use, which had become a top-five operating expense. Its stores ranged in size from 24,000 to 208,000 square feet, with the average store size being 105,000 square feet. Like most retailers, this big-box retail chain had a lean facility management team that realized they needed better visibility into the performance of its existing HVAC equipment to help them develop an achievable cost reduction action plan. Additionally, the team knew it was missing out on revenue opportunities by not fully participating in demand response programs offered by utility companies across the country.

How Encycle helped a big-box department store chain reap nearly $2 million in annual energy savings and demand response incentives, on top of the savings realized by installing building automation systems.

Client Challenge

- Energy was a top-five operating expense, prompting the need to find scalable ways to lower energy spend, consumption, and peak demand
- Lack of insight and visibility into the performance of existing HVAC equipment was limiting the facility management team's ability to anticipate and prioritize budget maintenance activities
- Missed out on Demand Response (DR) revenue incentives offered by utilities nationwide due to a lack of technology required to participate in DR programs

Swarm Logic® Solution

In addition to operating across the continental U.S., the retail giant also had stores in Hawaii and Puerto Rico, which increased the range of climate zones that any one viable solution needed to support. A total of nearly 3,000 HVAC rooftop units (RTUs) at these locations had to keep shoppers comfortable while still operating at top efficiency. The customer viewed Encycle as an extension of their internal team, trusting their experienced energy analysts to provide the technical support and cloud-based solutions needed to transform the way their HVAC systems performed.

Working with their existing building automation systems, the customer deployed Encycle's Swarm Logic® cloud-based technology across 200 of its stores. This quick and seamless integration enabled each of the site's RTUs to operate as a networked system, responding more efficiently to changing conditions such as outdoor temperature and building occupancy, thereby apportioning energy consumption more logically. With Encycle's guidance, the customer also enrolled many of its

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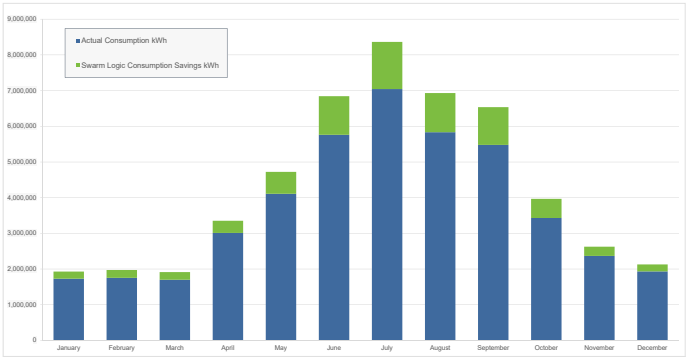
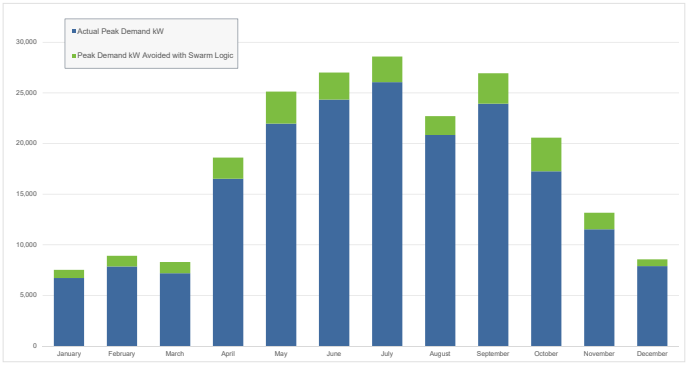
California, Pennsylvania, Hawaii, and Puerto Rico facilities in DR programs, and then used Swarm Logic to simplify DR tasks. In addition, the customer was able to access incentives from some utility companies, which helped defray the cost of Encycle's Swarm Logic energy-saving solution.

Swarm Logic Results

Operating invisibly in the background, the scalable solution created meaningful value across all geographies while maintaining comfort for shoppers and employees. Fine-tuned energy management by Encycle's Swarm Logic solution delivered $1,270,000 in annual energy savings, dramatically improving the company's bottom line. These savings were in addition to those already realized by previously-installed building automation systems. After deploying Swarm Logic, reductions in HVAC peak electric demand and consumption per year reached 12.5% and 16.2% respectively. Swarm Logic technology also helped manage participation in demand response programs in several markets, which yielded $650,000 in yearly program incentives from the California market alone.

The facilities management team also gained access to valuable analytics on the performance of their HVAC system, including identification of underperforming units. Having this type of real-time data enabled the team to direct its mechanical maintenance budget and resources to those units negatively impacting store comfort and causing the greatest excessive electric consumption and spend.





The Numbers

- Saved $1,270,000 in annual energy costs – incremental to previous benefits achieved by installing building automation systems
- Lowered peak electric demand across all sites by as much as 3,300 kW per month – 12.5% reduction in HVAC electric demand across the year
- Reduced total HVAC electric consumption by more than 7,000,000 kWh per year – 16.2% reduction in annual HVAC electric consumption
- Added $650,000 in demand response incentives in first year – just from the California market

"We found that Swarm Logic reduces peak electrical demand while maintaining stable interior temperatures by minimizing the number and size of loads unnecessarily running concurrently, reducing HVAC unit run times by 10-20 percent (or more), depending on building and space tolerances."

Program Manager with
a Major California Electric Utility

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