

Distribution Centers

Two Very Different Customers, One Energy-Saving Solution

This case study profiles the energy challenges of two different customers, demonstrating the scalability and results of Encycle's Swarm Logic[®] cloud-based technology across different types and sizes of distribution centers.

Customer One is a well-known, international clothing retailer with a 1.8 million-square-foot distribution warehouse. The massive location features 115 HVAC rooftop units (RTUs) having a combined 5,235 tons of cooling capacity, with Swarm Logic managing 5,759 kW in HVAC electric load.

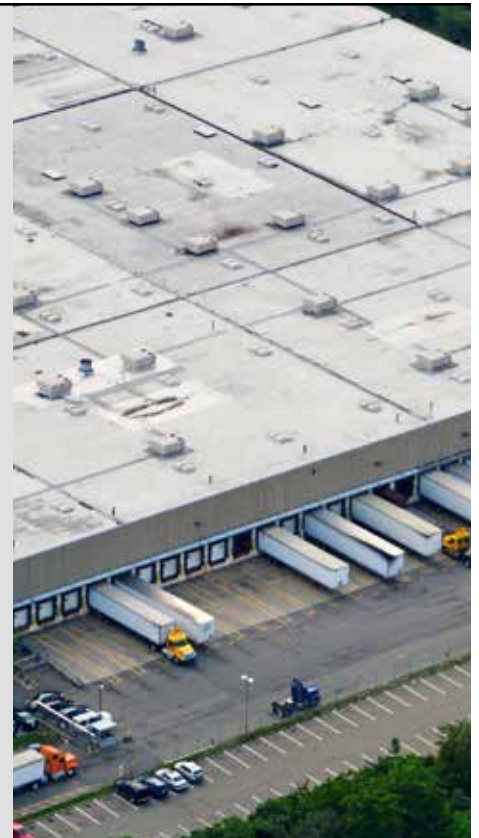
Customer Two is a global wholesale pharmaceutical distribution company that has deployed Swarm Logic at two California distribution sites measuring 221,200 and 210,200 square feet. Together, these two sites feature 49 RTUs that have a combined 872 tons of cooling capacity, with Swarm Logic managing 961 kW in HVAC electric load.

Both customers were seeking to improve the control and efficiency of their HVAC systems while making progress toward their corporate sustainability goals. In addition, their facility operations teams wanted insight into individual RTU performance to help reduce downtime and improve operating efficiency. Finally, both customers wanted to take advantage of available demand response incentives and needed access to a technology solution that would simplify participation.

How Encycle helped a large clothing retailer and a pharmaceutical distribution company save thousands of dollars annually on HVAC energy while qualifying for significant utility incentives.

Client Challenge

- Like many distribution centers, the interior environments of the customers' sites needed to be conditioned to provide a comfortable working environment for employees who manage the day-to-day operations that include receiving, inventory replenishment, order fulfillment, and shipping. For the pharmaceutical customer, products sensitive to changes in temperature or humidity placed increased demands on the HVAC systems.
- Conditioning large interior spaces like distribution centers is costly. When working under tight profit margins, every penny counts.
- Lack of insight and visibility into the performance of existing HVAC equipment was limiting the facility management teams' ability to anticipate, prioritize, and budget for maintenance activities.
- Both customers have very robust corporate sustainability programs and needed a solution that would help them manage and report on the performance of their facilities from a greenhouse gas emissions perspective.
- Solar power and battery storage systems had been installed by Customer One, so the HVAC control solution required integration that would not interfere with the operation of these systems.



Swarm Logic® Solution

Encycle installed Swarm Logic technology at all three distribution centers profiled above. Integration was quick and seamless, enabling each building's RTUs to operate as part of a networked system. This approach allows the RTUs to respond more efficiently to changing conditions such as outdoor temperature and building occupancy, thereby apportioning energy consumption more logically. Using Encycle's Swarm Portal™, both customers gained clear visibility into their HVAC energy use and savings in real time. Swarm Portal also provided valuable insights into the performance of each RTU in real time, enabling their facility operations teams to proactively address RTU scheduling and maintenance issues in a timely and cost-effective manner.

Swarm Logic Results

Operating invisibly in the background on a 24/7/365 basis, the scalable Swarm Logic solution created a significant decrease in energy consumption and demand, maintained building comfort for employees, and helped ensure proper conditions for the pharmaceutical products. Customer One observed that Swarm Logic provided them with similar benefits as a building automation system such as scheduling and notifications, all at a fraction of the cost. Encycle's solution also allowed these customers to enroll in California's demand response (DR) programs, with Swarm Logic simplifying the operational processes for participation for the facility staff. With Encycle's Swarm Portal, both customers had ready access to the information needed to report their corporate sustainability, saving their facility operations and sustainability teams hours of time.

The Numbers

Clothing Retailer:

- > \$100,000 in annual electric savings
- 10% reduction in average HVAC peak kW demand
- 10% reduction in HVAC electric consumption
- \$176,400 in DR enrollment incentives plus \$25,000 annual DR incentives
- Eliminated 375 tons of CO₂ emissions annually

Pharmaceutical Wholesaler:

- \$23,000 in annual electric savings
- 11% reduction in average HVAC peak kW demand
- 14% reduction in HVAC electric consumption
- \$39,000 in DR enrollment incentives
- Eliminated 140 tons of CO₂ emissions annually



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