

Mid-Box Retail Chain

National retail chain deploys Swarm Logic via smart thermostats to slash energy costs

This major mid-box chain dominates its market niche in the U.S. with brick-and-mortar stores in every state. Its retail locations feature multiple floors, unique shopping sections, and cozy nook cafés, with each area having different cooling and heating requirements. Like many large retailers, this customer has a lean facility management team responsible for maintaining over 600 stores that average 26,000 square feet. The retail chain had already taken several steps to improve energy and HVAC performance by partnering with a leading smart thermostat OEM and a national HVAC maintenance vendor. Encycle teamed with the OEM to bring new savings opportunities forward.

Encycle knew the seamless integration of its data-driven Swarm Logic® software with the smart thermostats would deliver significant energy savings while providing better visibility into the operational performance of the retailer's HVAC assets. Nobody knew that a global pandemic was on the horizon that would cause dramatic shifts in store occupancy and utilization. Luckily, Swarm Logic was the perfect solution to enable the customer's facility operations to respond efficiently.

How Encycle helped a mid-box retail chain save nearly a half-million dollars annually on HVAC energy costs

Customer Challenge

- Achieve reductions in energy spend and consumption without compromising comfort.
- Increase their HVAC management vendor's ability to anticipate, prioritize, and schedule maintenance activities.
- Improve operating efficiency without adding more work to a lean facility operations team.
- Maintain comfort for different "micro-climate zones" in each store. Cafés have heat-producing equipment and condensed occupancy in dining areas, while other store areas require effective humidity control to protect merchandise.
- COVID-19 caused stores to go from being fully open for business to curbside pickup only. Gradual re-openings saw reduced occupancy levels that varied in response to changing state and local governments regulations and orders. The HVAC control solution needed to adapt to these continuous changes.

Swarm Logic® Solution

With smart thermostats already installed, Encycle could offer its Swarm Logic technology as a seamless "plug and play" solution. Swarm Logic dynamically synchronizes HVAC rooftop unit (RTU) control decisions, enabling RTUs to operate most efficiently by responding in real time to changing conditions such as outdoor temperature or building occupancy levels. The enterprise-wide, cloud-based solution uses artificial intelligence capabilities to create dynamic models for each building's thermal load profile to help achieve significant energy savings. It also provides customers and HVAC service providers with access to Swarm Portal®,



Encycle's robust analytics and reporting platform. Swarm Logic operates autonomously in the background and requires no human intervention to maintain or monitor its actions.

Swarm Logic Results

What began as a 90-day pilot trial grew to a successful deployment of Swarm Logic across over 400 sites by September 2020. The retailer initially installed Swarm Logic at 30 stores in February 2019. After seeing success with the initial sites the customer subscribed the remaining 400+ sites to Swarm Logic. The retail chain realized a significant decrease in energy consumption and demand while maintaining building comfort for customers and employees. Swarm Logic efficiently maintained the desired temperature and humidity throughout each site, including the challenges of micro-climates within each site caused by the café, occupancy and weather conditions.

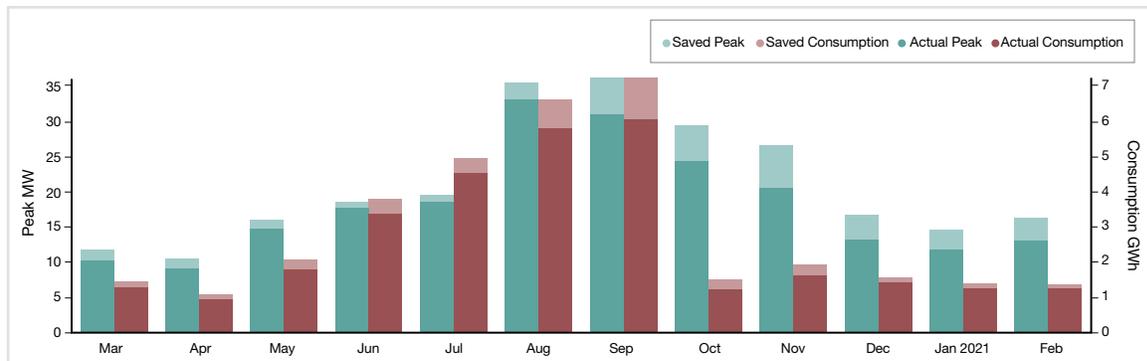
The retailer's HVAC service vendor was impressed with Encycle's Swarm Portal. The firm regularly uses the platform to report on store comfort and identify potential mechanical issues, allowing service personnel to address underperforming units and reduce emergency service calls.

In 2020, all of the customer locations experienced significant operational changes due to COVID-19. A wide range of demands were placed on the buildings' HVAC equipment as stores went from pre-COVID normal operating conditions to being largely closed in March. Curbside pickup service soon became an option for customers, but it wasn't until June that stores gradually reopened with reduced occupancy and operating hours that varied by state. Beyond adjusting HVAC setpoints and schedules to minimize energy use and cost, Encycle's artificial intelligence capabilities offered another layer of adaptability that responded efficiently and remotely to dramatic shifts in HVAC usage demands and patterns.

The Numbers

- \$456,590 in annual electric savings (\$1,462 average savings per site)
- 13% reduction in HVAC electric consumption
- 14% reduction in average peak electric demand
- 3,432 tons of avoided CO₂ emissions

Consumption and Peak Demand Savings by Month



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