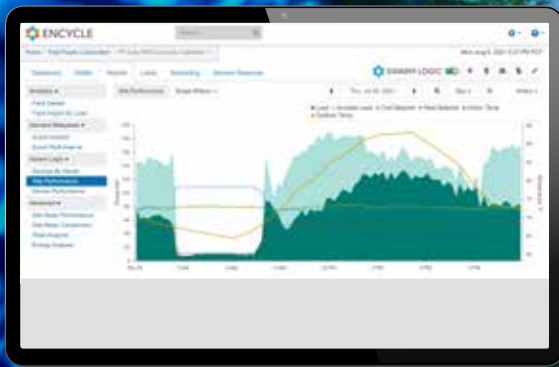


# Swarm Service™

## Cloud-Based Energy Management that Makes Smart Buildings Smarter

Integrated with existing building controls, Swarm Service reduces HVAC-related energy costs and CO<sub>2</sub> emissions by an additional 10%-20%.



### Encycle takes Energy-as-a-Service to a new level.

For commercial and industrial buildings, energy represents a massive expense that consumes a large portion of a company's operating budget. Energy-as-a-Service, also known as EaaS, gives customers access to energy management services without upfront costs. Encycle's EaaS approach leverages its unique Swarm Logic® technology to dynamically coordinate HVAC activity, drastically reducing energy consumption and CO<sub>2</sub> emissions. Swarm Service adds the benefits of Swarm Logic HVAC coordination technology without the need for additional hardware by means of transparent, cloud-based application programming interfaces (APIs) that integrate seamlessly with third-party building management, smart thermostat, and IoT systems. Swarm Service surpasses other energy efficiency solutions, offering the following advantages:

- Requires no capital expenditure
- Integrates easily with existing building automation systems (BAS)
- Requires no additional hardware purchase or installation
- Operates autonomously 24/7/365
- Helps identify underperforming HVAC assets
- Maintains comfort levels within established parameters
- Delivers optimization of HVAC systems through highly patented, transformational technology

**Swarm Service delivers simplicity with sophisticated energy optimization.**

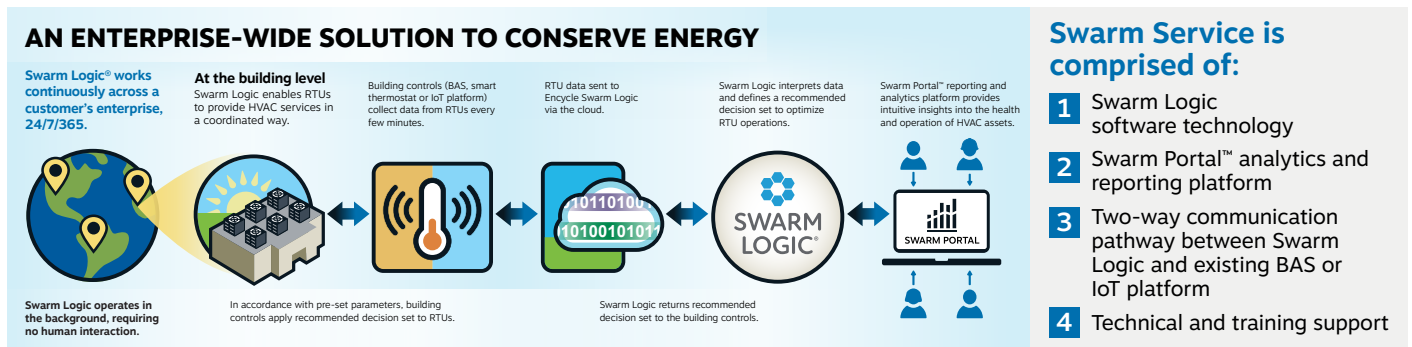
## Swarm Service provides additional value streams through your installed energy management hardware.

Whether you are using a building automation system (BAS) or planning to install one, you are already focused on reducing HVAC-related energy costs and CO<sub>2</sub> emissions. But what if you could achieve even more savings on top of what you are realizing with no additional capital investment?

You can — by up to 20% or more with the independently proven savings of Encycle's unique data-driven Swarm Service. The multi-patented, cloud-based software works with your BAS to collect HVAC equipment and building operational

data, sending it to the cloud where Swarm Logic determines optimal HVAC control decisions for the BAS to apply.

Commercial and industrial enterprises across North America rely on Swarm Service to significantly lower utility bill costs, maximize efficiency, and reduce environmental impact. **All this with a payback period of a few months.** It's no wonder Encycle customers confirm that Swarm Logic is a must-have energy and carbon emissions reduction solution.



Our advanced Swarm Logic HVAC energy management technology performs five key functions within a closed loop system to deliver up to 20% reductions in HVAC-related energy usage and costs.

## Tangible results that embrace continuous commissioning practices

Compared to building commissioning and retro-commissioning that center around “one-time” optimizing events, continuous commissioning aims to keep buildings operating at peak efficiencies all the time. The challenge of these efforts typically require significant human intervention, ongoing time commitments, expertise, and capital expenditures.

Swarm Service is a 100% total software solution that enables customers to overcome these time, cost, and expertise barriers. **Using real-time analysis of energy-related data collected every five minutes, Swarm Logic autonomously delivers on the promise of continuous commissioning.** Swarm Logic combines the power of IoT and proprietary technology to create custom operational decisions that maximize energy savings across your entire portfolio of buildings while maintaining customer-prescribed comfort.


With Swarm Logic, customers can achieve annual energy savings as high as 20% while avoiding the need to call in expert resources.


## Transforming energy management


Swarm Logic HVAC energy management technology uses AI to deliver significant reductions in HVAC-related kW, kWh, and CO<sub>2</sub>. Swarm Logic operates 24/7/365, requiring no human interaction. As thermal loads in the building vary in response to factors such as changing outdoor temperatures and occupancy levels, Swarm Logic continuously updates HVAC equipment control decisions to optimize energy efficiency and occupant comfort.


## Encycle Swarm Service benefits


Swarm Service is an economical, simple-to-enable energy management solution that delivers fast results, including a rapid return on investment.


 Dramatically reduces energy costs while maintaining the customer's desired level of comfort


 Optimizes HVAC system performance based on established scheduling and setpoints


 Includes easy-to-understand energy and HVAC unit operational reporting and analytics that shift maintenance activities from reactive to proactive


 Adapts to each building's requirements and characteristics

 Swarm Service supports your sustainability goals by reducing CO<sub>2</sub> emissions

 24/7/365 multiple user access with role-based security and permissions for their BAS and third-party energy monitoring service

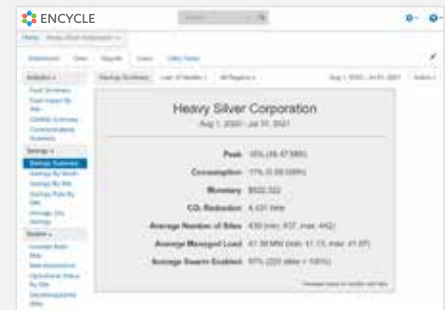
 Hands-free, autonomous operation frees your facility operations team to focus on other priorities

 Fast and easy to deploy (typically sites can be enabled for Swarm Logic in an hour or less)

 Swarm Service works seamlessly with existing building controls and is compatible with a growing number of OEM building automation products and systems

## Swarm Portal™ provides energy and HVAC operational reporting and analytics.

Swarm Portal, Encycle's web-based reporting and analytics platform, provides intuitive insights into Swarm Logic performance, energy savings, and the health and operations of your HVAC assets.



Annual Savings Summary



Savings by Month

## Seamless integration with no disruption

Encycle's Swarm Service provides a simple EaaS solution for companies to leverage their existing building controls rather than disrupt or replace them. The IoT-based approach lets you quickly and easily harmonize the activity of your HVAC systems without installing any additional hardware. All that is required is an internet connection from your BAS to the Encycle Swarm Service cloud.

You can start reaping the energy efficiency benefits of Swarm Logic immediately with our Swarm Service program. Swarm Service eliminates capital outlay and the burdens of technology deployment, management, implementation, and operation.

## With Swarm Service, demand management becomes a more attractive buy-in with immediate savings.

Traditional demand management (DM) strategies involve a static set of operating processes and programming that are designed specifically for each building's current design, equipment, and utilization. This highlights a major limitation of traditional DM strategies, which is the inability to adapt to continually changing business landscapes or other conditions. Besides this lack of flexibility and responsiveness, traditional DM approaches require technical expertise, significant time, individual site customization, and capital investment.

Encycle's Swarm Logic uses its IoT-based technology to help companies quickly realize the savings and benefits of DM for a fraction of the cost while solving typical DM issues. Swarm Service is a smart choice

that wins "hands down" compared with traditional DM strategies in terms of ease of implementation, simplicity, risk, adaptability, responsiveness, scalability, value, and comfort. And with our subscription-based EaaS model, anyone can attain these rewards.



## The advantages that set Swarm Service apart

Features / Functions	Swarm Service	Building Automation Systems	Smart Thermostats
Initial cost	●	○	●
Payback period	●	◐	●
Complexity to install / deploy	●	○	●
Complexity to operate and maintain	●	○	●
Time required to monitor / manage systems	●	○	◐
Automated monitoring and control	●	●	○
Advanced analytics and reporting	●	◐	○
Web-based user interface	●	●	◐
Method of controlling RTUs	●	●	◐
Savings reporting	●	○	○
Alarming	○	●	○
Lighting control	○	●	○

● included   ◐ may be included   ○ not included

## About Encycle

Encycle is a technology-driven company that is transforming energy management for commercial and industrial companies. The company leverages its Swarm Logic technology to lower customers' electric costs, maximize efficiency, and reduce environmental impact without sacrificing comfort. We are disrupting the building controls industry by making the promises of artificial intelligence a reality. Our enterprise-wide solutions create highly accurate and dynamic models for each building and its thermal profile. We are proud to be helping thousands of buildings become smarter and greener.

## Utility incentives

Swarm Service has been qualified by a growing number of utilities for energy efficiency incentives. Contact Encycle to learn more.



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