ECO ENERGY INSIGHTS

A North American retailer uses Artificial Intelligence and remote services to digitally transform store operations across over 2,100 stores.

The retailer improved occupant comfort, transformed store equipment maintenance processes, launched automated peak demand response, and saved an average of 10% on energy costs over 8 years.

The Client

A large home improvement retailer with over 2,100 stores. The retailer operates many big-box format facilities in North America, with each store averaging over 100,000 square feet of indoor retail space.

The Challenge

The retailer wanted to leverage technologies like Big Data, the Internet of Things (IoT) and Artificial Intelligence (AI) to save energy and improve enterprise-wide policy compliance. The retailer also wanted to regulate demand charges better, remotely commission new equipment and remotely troubleshoot various electrical and Heating, Ventilation and Air Conditioning (HVAC) issues across stores.

The set of objectives included:
- Improving energy savings through gaining visibility into energy consumption within each store
- Improving occupant comfort through improving equipment health and availability
- Improving maintenance effectiveness and reducing maintenance costs
- Engaging in active demand management to avoid associated penalties

To achieve these objectives and transform store operations, the retailer worked with EcoEnergy Insights.

The Solution

EcoEnergy Insights deployed multiple services to drive operational transformation for the retailer at the enterprise level. Our integrated solution combined store energy data, equipment behavior analytics and field service management to enhance savings.

We onboarded all the stores of the retailer onto the CORTIX™ AI and IoT platform. This involved integrating various HVAC, lighting, and other equipment inside the stores connected to existing Building Management Systems (BMS), and thus creating an intelligent network of connected infrastructure.

The platform predicts equipment behavior and either acts on the predictions or offers predictive, actionable insights and prescriptive recommendations. The insights and recommendations were focussed on addressing the objectives of energy consumption reduction, improving equipment health and availability, maintenance cost reduction and demand management.

Where necessary, meters and sensors were installed for the platform to be able to collect data from stores. Nearly 15,000 sub-meters were installed in certain stores for greater visibility into the operations and energy consumption. In addition to energy cost reduction, the unprecedented visibility into store operations enabled evaluating the performance of equipment post maintenance interventions at individual stores. It also helped with increasing the overall temperature compliance levels.

The retailer was also supported by our BluEdge™ Command Centers. The centers are made up of specialized teams of domain experts and data scientists. The teams study the predictive insights from the platform to define action plans and ensure their completion
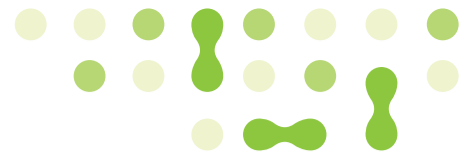
in a timely manner. The teams worked 24/7 to proactively manage operations and equipment as well as provide quick responses and remote support to store managers.

The CORTIX platform collected and analyzed data on a continuous basis from the connected equipment and ran various algorithms on the data set. These algorithms helped us with predictive, actionable insights that are acted upon in 3 ways:

Autonomous Actions – Based on prior approvals from the retailer, certain defined actions were carried out directly and autonomously by the platform.

Remote Actions – Certain predictive actionable insights from the platform were acted on remotely by the teams at the BluEdge Command Centers by logging into the BMS. These actions were either pre-approved by the retailer or after consulting with them.

Field Actions – Other predictive actionable insights that could not be resolved remotely and required action from field technicians are converted into a truck roll through a Work Order Management System. Our team at the command centers would collate problems to be addressed at a store, so that multiple fixes could be attended to in one visit.

The Result

With the combination of the CORTIX platform and the BluEdge Command Centers, the retailer was able to make store operations more proactive. This led to continuous savings and operational improvements over a 6-year period.

This partnership with EcoEnergy Insights helped address the challenges and successfully achieve the targets across over 2,100 stores in the United States in Canada.

Here is a look at results for the over **1,970 USA stores in the year 2020:**
- Energy savings of over 18% over the baseline year with year on year increased savings
- Enhanced comfort by maintaining an average of over **95%** temperature compliance against policy setpoints
- An average of **92%** of work orders and service calls were resolved remotely
- An average reduction of **5** work orders per store per annum and an increase in mean time between failure by **17%.**
- An average of over **8%** reduction in peak demand charges for the target stores

The effective use of historical data, analytics and machine learning empowered facility managers to predict the impact of various factors and meet the capacity requirements of the new operating standards during and post the COVID-19 related lockdowns. With predictive insights and proactive actions, managers were able to fulfill their key objectives of maintaining air quality, occupant comfort and energy efficiency while ensuring smooth operations.

The retailer awarded EcoEnergy Insights with the following awards over the course of the engagement:
1. 2014 Service Provider Award for increasing shareholder value
2. 2019 Service Provider Award for demonstrating "Entrepreneurial Spirit"

This engagement also won a 2017 Environmental Leader Top Project of the Year award.

Here is what one of the judges had to say,

"This project delivered significant business value for the retailer in the form of a greater than six percent decrease in energy consumption across approximately 2,000 stores. The project goes beyond traditional energy management by taking an enterprise-wide view of managing the operational performance of electromechanical assets across the network and leveraging an IoT approach to data capture and application of Big Data analytics to learn and improve operations. Interesting approach using big data to unlock energy opportunities over time."

Write to us at **info.ecoenergy@carrier.com** and elevate your business now.

About EcoEnergy Insights - EcoEnergy Insights is a global leader in providing AI and IoT solutions for building and equipment operations. Their CORTIX™ platform collects data from multiple sources, analyzes it, acts on defined deviations autonomously and offers predictive actionable insights and prescriptive recommendations. The award-winning platform, combined with expert human analytics, has been delivering industry- leading outcomes in comfort, maintenance and energy efficiency across industries such as retail, hospitality and banking. EcoEnergy Insights is a part of Carrier, the leading global provider of healthy, safe, sustainable and intelligent building and cold chain solutions.

For more information on EcoEnergy Insights and the CORTIX™ platform, visit www.ecoenergyinsights.com and www.cortix.ai.