

# Case Study



A leading residential HVAC equipment manufacturer reduced the carbon footprint at a large manufacturing facility by over 5%.

The manufacturer implemented predictive insights to improve operations and maintenance.

## The Customer

One of the world leaders in heating, air conditioning and refrigeration solutions. The company operates a large manufacturing facility in Mexico. This facility has been operational for over 10 years and is spread across an area of 385,000 square feet, producing over 60,000 units annually.

## The Challenge

The manufacturer was looking to optimize its facility equipment operations to reduce carbon footprint and energy intensity in addition to enhancing equipment reliability. Low visibility of equipment operations resulted in unplanned downtime and the recurrence of frequent breakdown maintenance, which resulted in excessive wear and tear of critical parts, further reducing equipment life. The manufacturer also wanted to leverage new age technologies like Internet of Things (IoT) and Artificial Intelligence (AI) to reduce carbon footprint and gain better visibility of equipment operations. To achieve these objectives, the HVAC equipment manufacturer engaged with Carrier ABOUND.

## The Solution

Carrier ABOUND deployed an AI based solution to reduce carbon footprint, energy use intensity and improve equipment reliability. The solution leverages the ABOUND™ Insights platform, which constantly monitors & analyzes facility equipment, predicts equipment issues and offers insights and prescriptive recommendations. By collecting and analyzing data continuously from the connected equipment, the platform identified changes in equipment behavior using a vast repository of equipment scenarios. It then provided appropriate recommendations in natural language, using its AI Assistant for facility equipment, to correct issues and prevent them from manifesting into more serious problems.

First, the manufacturing plant was onboarded onto the ABOUND Insights platform. This involved integrating various HVAC, Lighting and other equipment inside the facility that were connected to existing Building Management Systems (BMS). This created an intelligent network of connected infrastructure.

Carrier ABOUND deployed a connector software at the Building Management System and the

facility's Energy Management System to gather data from the connected equipment. The platform collected data at 15 minutes intervals and then stored it in the cloud. After the creation of a provisioning model, the data flow was established between the facility and the Abound Insights platform. Then the platform would detect issues, patterns in data and then depict them for better visibility and provide actionable insights to optimize operations.

The insights and recommendations from the platform were prioritized and converted into a periodic report and comprehensive worklist by an expert advisory team from the Carrier Customer Command Centers. Our experts used predictive actionable insights from the platform to define action plans and ensure they were implemented promptly. The combination of the Abound Insights platform and the advisory experts helped in making the facility operations more proactive and efficient, leading to continuous savings and operational improvements.

## The Result

This engagement enabled the manufacturer to achieve the following results in their plant in 2021:

- i. Energy savings of over 9% for HVAC equipment
- ii. Energy savings of over 5% for the entire facility
- iii. Greenhouse gas emissions reduced by 300 metric tons CO<sub>2</sub> equivalent\*

All this was achieved with a less than 24-month payback on the investment into the program.

\*Note: Emission Reduction refers to the approximate units of carbon dioxide emission avoided as a result of reduction in energy (electrical) usage under Scope 2 of GHG emission reduction. The calculation uses U.S. national weighted average CO<sub>2</sub> marginal emission rate to convert reductions of kilowatt-hours into avoided units of carbon dioxide emissions, i.e.  $7.09 \times 10^{-4}$  metric tons CO<sub>2</sub> /kWh X Adjusted Energy Savings

Write to us at [abound@carrier.com](mailto:abound@carrier.com) for more on how we can help your company achieve its business and sustainability goals.

### About Carrier Abound

Carrier Abound provides digitally connected lifecycle solutions and services for diverse building portfolios. The solutions and services enable building management to see deeply and broadly across their assets, prioritize and act on real-time insights, and refine, adapt, and scale on a continual basis to improve energy efficiency and asset performance, enhance occupant comfort and productivity, and streamline compliance reporting. Carrier Abound is part of Carrier Global Corporation, global leader in intelligent climate and energy solutions.

For more information, please visit [abound.carrier.com](https://abound.carrier.com) and join the conversation on [LinkedIn](#).

