

Case Study



An aircraft engine manufacturer uses artificial intelligence to transform facility operations in large manufacturing facilities.

The manufacturer transformed complex equipment and system maintenance processes to reduce greenhouse gas emissions by over 4,000 MT CO₂ equivalent and saved over USD 250,000 in a year.

The Customer

A subsidiary of one of the largest aerospace, intelligence services providers, and defense manufacturers in the world. The customer is an American aerospace manufacturer with global service operations and their aircraft engines are widely used

The Challenge

As part of their corporate social responsibility initiatives, the manufacturer was looking to optimize its operations to reduce greenhouse gas emissions (GHG). Presently these targets were planned to be achieved through retrofits and upgrades. At the same time, the manufacturer was looking to reduce capital expenditure and wanted to adopt new technologies like Artificial Intelligence (AI) and Internet of Things (IoT) to reduce operations costs and improve energy efficiency across their manufacturing and office spaces.

To achieve these objectives, the aircraft engine manufacturer engaged with Carrier About.

The Solution

Carrier About implemented a solution that leveraged the Abound™ Insights platform, a proprietary AI and IoT platform that constantly monitors and analyzes facility equipment performance, predicts equipment issues and offers prescriptive recommendations. By collecting and analyzing data on a continuous basis from the connected equipment, the platform identified changes in equipment behavior. It would then provide appropriate recommendations, in natural language, to correct issues and prevent them from growing into larger problems.

The integrated solution of hardware, platform and remote services, addressed the objectives of reducing energy consumption, improving equipment health and availability, reducing maintenance costs, and managing demand for facilities. The solution combined energy data, equipment operations, sensors, and weather data to drive down energy, GHG emissions and operation costs.

The manufacturer's key 12 mixed-use buildings (manufacturing, office and R&D) in a single campus were onboarded to the Abound Insights platform, during which all HVAC, Lighting, and

other facility equipment, connected to the Building Management Systems (BMS) were integrated with the platform to create an intelligent infrastructure network. The Abound Insights platform provided unprecedented visibility into facility operations around equipment performance, post-maintenance interventions. It also helped increase the overall comfort and IAQ compliance levels across the buildings.

The insights and recommendations from the platform were prioritized and converted into a periodic report by our expert advisory team from our Carrier Customer Command Centers. Our experts used predictive actionable insights from the platform to define action plans and ensure implementation of insights in a timely manner.

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 helped address the challenges and yielded the following results across the 12 buildings in a single campus a year:

- i. Greenhouse gas emissions reduced by over 4,000 MT CO₂e
- ii. 2 million kWh units of electricity savings
- iii. 241 thousand therms unit of gas saved
- iv. 0.96 million kWh units of electricity optimized through scheduled corrections
- v. 129 thousand kWh units of electricity optimized through temperature setback during unoccupied hours
- vi. 73 thousand kWh units of electricity optimized through AHU duct static pressure optimization
- vii. Less than 12-month payback on the investment into the program

The project won 2 major awards in 2022:



**Environment + Energy Leader
Top Project of the Year award.
Colorado, USA.**



**2nd place in the category 'Growing the Green Way
– Using IIoT to Realize Your Decarbonization Goals'.
Berlin, Germany.**

“When the pandemic struck, 80% of our salaried employees began working remotely, leaving many office buildings under-occupied. With the ‘service providers’ assistance, we identified ways to optimize the energy usage at our main campus that resulted in significant savings in both cost and carbon footprint. This is key to our overall smarter, cleaner, greener strategy goals – not only in building the world’s most efficient propulsion systems but reducing our company’s carbon footprint.”

Plant Facilities Specialist
American Aircraft Engine Manufacturer

Write to us at 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 and join the conversation on [LinkedIn](#).

