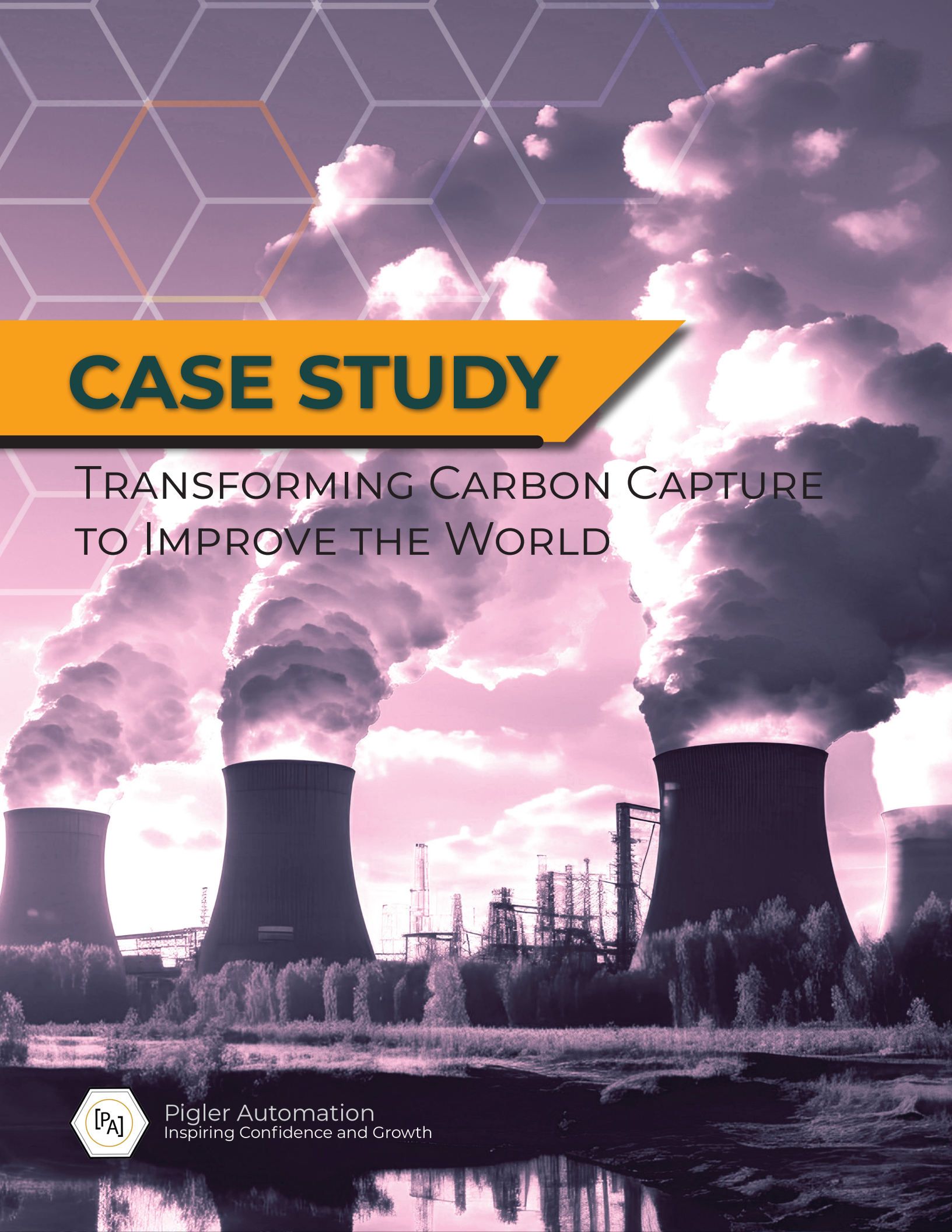




CASE STUDY

TRANSFORMING CARBON CAPTURE TO IMPROVE THE WORLD



Pigler Automation
Inspiring Confidence and Growth

Pigler Automation

Our dedication to building lasting relationships and fostering positive change in the world is exemplified by our collaboration with a leading carbon capture company, Global Thermostat. This project highlights our commitment to sustainability and innovation, where we partnered to integrate Inductive Automation's Ignition SCADA control system, revolutionizing the battle against climate change.

OVERVIEW

Addressing Climate Change Through Carbon Capture

Carbon Capture: Prove that automation technology, such as SCADA control systems, can be used with carbon capture equipment to remove CO₂ emissions from the atmosphere during the refining or manufacturing process.

Scale: Single Plant, approximately 50 employees, testing campaigns of varying lengths of time.

CHALLENGE

- Pair SCADA Control System with custom-built carbon capture equipment
- Convert a pilot plant into a full-scale plant.

SOLUTION

- Implement Ignition as the SCADA control system.
- Develop a Simulation platform (Digital Twin)
- Onsite support for over eight months.

OUTCOME

- Initial results proved that CO₂ can be captured from the air using automation.
- The current pilot plant can remove 1,000 tons of CO₂ from the air annually.
- Continuing to run testing campaigns to find the optimal conditions for carbon capture.

SCALING UP

Turning Concept into Reality

In 2021, Global Thermostat, a trailblazing carbon capture innovator, embarked on a journey to revolutionize how industries tackle carbon emissions. Focused on designing and developing cutting-edge technology that extracts CO₂ emissions from the air, they sought to offset their carbon footprint and catalyze a broader, industry-wide transformation. Global Thermostat recognized the untapped potential for their groundbreaking technology within sectors such as Synthetic Fuels, Industrial Gases, Energy, Food and Beverage, and much more.

THE CHALLENGE

Industries, particularly refineries and manufacturing plants, have long grappled with the challenge of carbon emissions contributing to climate change. The catalyst for Global Thermostat was the idea of marrying their state-of-the-art carbon capture equipment with an advanced control system. This synergy could automate and optimize the carbon capture process. By infusing their technology with a control system like Inductive Automation's Ignition, they aimed to take their pilot project, a lab-sized test plant, and create a full-scale plant that could validate their hypothesis: carbon emissions could be effectively and economically removed during the refining or manufacturing process. Working with fabricators to design and build the equipment required for the new plant, Global Thermostat knew they needed a control system that brought everything together and a partner whose skills and industry expertise would help them realize their vision and goals.

THE SOLUTION

After carefully reviewing the project scope and specifications, we identified that Inductive Automation's Ignition SCADA control system would best meet the client's needs. The features that set Ignition above other SCADA control systems include OPC compatibility, user-defined templates, and vision clients. The OPC compatibility allowed for communication between the PLC and Ignition HMI System; Ignition made it uncomplicated to build this connection and provided ease of hardware communication. Ignition's UDTs (User-Defined Templates) streamline the process of standardizing custom blocks into a library object, which helped enable our engineers to set up a custom block library and update objects in bulk as needed. The HMI Visualization Client Software provided easy access to the project locally and remotely, allowing for unhindered accessibility to plant personnel.



INNOVATION IN ACTION: Simulation Platform and Beyond

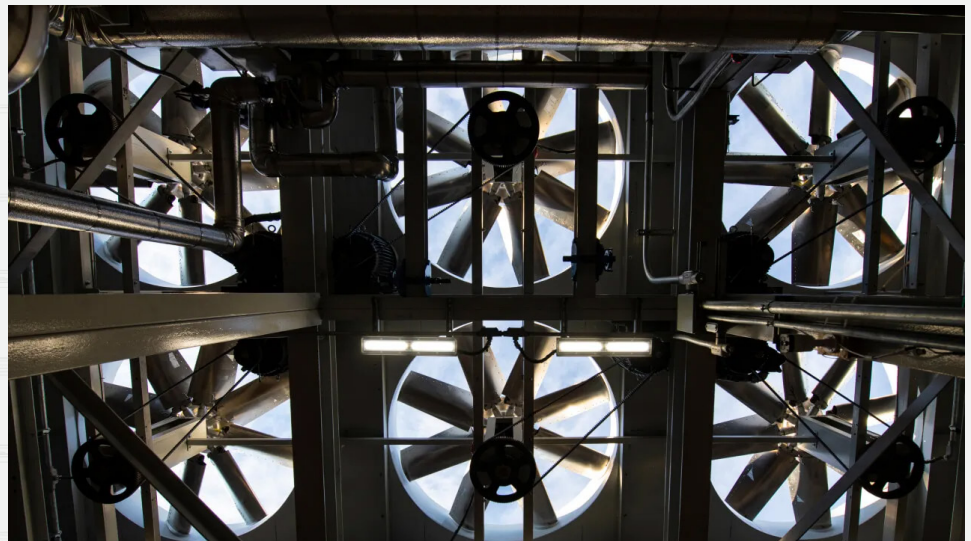
The integration of Ignition was not a standalone achievement but rather part of a meticulous process. Our engineers played a pivotal role in developing a simulation platform. This platform facilitated extensive testing of both software and the Ignition system in a controlled environment before scaling up. This approach ensured successful integration while optimizing efficiency and safety. Working on-site, our engineers could quickly adapt the system to meet the evolving needs and scope of the project. This flexibility and hands-on approach ensured that the transition to automated CO₂ capture was successful and optimized for efficiency, safety, and ease of operation.

THE OUTCOME: Paving the Way for Change

The collaborative efforts resulted in a paradigm shift. Global Thermostat applied the concepts developed with their pilot plant successfully. The full-scale plant, equipped with CO₂ capture technology and powered by Ignition, is now a beacon of environmental innovation. With the capacity to remove 1,000 tons of CO₂ annually, this achievement is not just a milestone for Global Thermostat but a testament to the potential of automation in the broader fight against climate change.

CONTINUED PROGRESS TOWARDS A SUSTAINABLE TOMORROW

Ongoing testing campaigns seek to fine-tune the system further, aiming to identify optimal conditions for carbon capture and develop applications for using the captured carbon emissions to support other industries. Pigler Automation's commitment remains steadfast as the project progresses, and we provide Global Thermostat with ongoing support and expertise. Working together, we are helping to envision a future where this technology becomes a standard across industries, actively contributing to global efforts to combat climate change and achieve sustainable, net-zero operations.





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