

PACSystems™ IIoT Controls Solution for Offshore Wellhead Helps Earn Carbon Offset Credits

RESULTS

- Accurate carbon offset credit data collection, analysis and reporting significantly enhanced return on project investment
- Collection precision helped achieve a net increase of 5 MMSCFD conserved gas and first-year greenhouse gas reductions of 120,214,288 kgCO₂e
- Visualized data improves equipment inspection and traceability and reduces maintenance costs



APPLICATION

Carbon offset credit reporting for offshore wellhead installation.

CUSTOMER

System integrator Drakken for CarbonAI for a project in Egypt for a large oil and gas company.

CHALLENGE

A major oil and gas company in Egypt needed an advanced automation solution to monitor and reduce flare gas emissions and generate carbon offset credits for an installation in the Gulf of Suez and its other offshore wellhead installations. Automation for earning carbon credits for this project was complex partly due to the highly remote location with no broadband internet access.

The carbon credits would be generated from flare gas reduction, so the company would have to quantify and verify the exact volume of equivalent greenhouse gas emissions reduced by the gas conservation equipment per the quantification methodology. This entails the need for continuous flare gas conservation data, recording standardized volumetric flow rates for the conserved gas and storing it to the cloud application.

“Automating the transfer of data from remote sites minimizes the potential for human error that can be so costly in carbon credit projects, while also streamlining the process and reducing time and cost.”

Ben Watts
CEO, Drakken

SOLUTION

The company selected CarbonAi, a leading provider of greenhouse gas reduction services, based on its track record of delivering proven solutions for facilitating earned carbon credits. CarbonAi provided the comprehensive data management solution and automation specialist Drakken provided the controls and automation engineering, implementation and commissioning. Drakken was tasked with providing a solution for data transfer from an energy meter, installed on a gas compressor, and flow meters to a remote cloud-based data management system. Drakken selected the PACSystems RX3i CPL410 edge controller, PACEdge™ software, a PACSystems RSTi-EP network adapter, communication card, digital input card for alarm signals, and QuickPanel+ HMI. The PACSystems edge controller, which combines real-time deterministic control and an edge-enabled execution environment in a single platform, is able to collect data from all the disparate devices over various communications protocols and transfer data via a broadband cellular gateway using Azure MQTT to a cloud-based application.

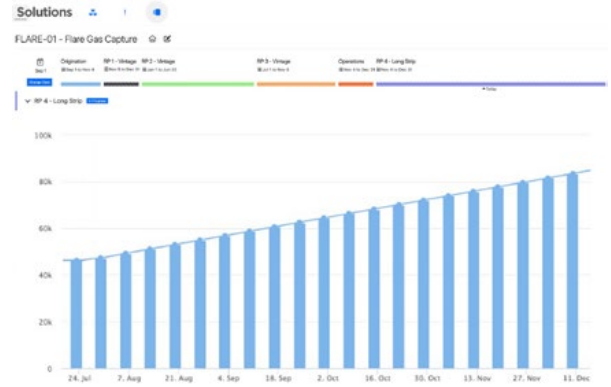
Critically, the controller is able to provide geolocation and real-time data tagged with relevant asset information, including datasheets, install and maintenance records, and photos. This creates a strong data trail, thereby increasing the chances of successful verification of credits and avoiding costs for on-site visits, manual data recording, error correction and more. This enables the CarbonAi data management platform to integrate and manage greenhouse gas reduction data for the purposes of quantification and verification of carbon credits in a highly auditable format.

In case of intermittent failure in communication, the PACSystems CPL410 edge controller stores the data and forwards it when a connection is available. Additionally, the high-fidelity reporting provided by the Emerson control system allows the company to respond immediately to problems or failures without unnecessary and costly maintenance visits that could pose safety risks. Based on the success of this project, the oil and gas company has decided to replicate the solution across other wellheads. Additionally, CarbonAi offers similar greenhouse gas reduction services, incorporating Emerson's technology, to other oil and gas companies.

RESOURCES

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Real-time monitoring and forecasting of emissions reductions and crediting revenues.

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