

Developing Innovative IoT Solutions for a Low Carbon Energy Provider

On-Site Energy selected Intelligent Industries to build an end-to-end industrial IoT solution to support the roll out of their energy centres across a range of manufacturing sites.





Brief

On-Site Energy build and run low carbon energy centres that help energy-intensive manufacturers make their operations more sustainable. Their on-site combined heat and power (CHP) systems generate electricity and use waste heat to power various production processes. This enables their clients to reduce energy costs and consumption, lower their carbon footprint, and take control of their own energy supply.

With a growing portfolio, including a multinational automobile manufacturer, they needed a unified dashboard to monitor and remotely control the CHP systems across different sites. Intelligent Industries were chosen to deliver this business-critical project due to our wealth of experience with energy data and our track record for delivering best-in-class industrial IoT solutions.





Delivery

We collaborated with On-Site Energy to create a sophisticated end-to-end solution, building an industrial control panel with a cloud based reporting dashboard. This was a complex project incorporating mechanical, electrical, and cloud-based technologies. Each site had different equipment, functional requirements, and control languages, and the control panel had to synthesise modbus, analogue, and digital signals.

Our algorithms not only captured data on the CHP systems' performance, but also optimised uptime by adjusting energy output to site demand and, where possible, exporting back to the national grid. We used Microsoft Azure IoT Edge and other Azure services to provide real-time and historical reporting capabilities. On-Site Energy and their clients could then use the dashboard to see how the engines were running, what load they were running at, and how much thermal energy they were generating.

In addition to the standard deployment across sites, the automobile manufacturer had further functionality requirements that we were able to fulfil. This was a major infrastructure project for our client, which included running 1.5km of new gas line, building a new pump room and an 11kv substation. We integrated with various other aspects of the project to ensure that equipment uptime was maximised.





Results

On-Site Energy now have a scalable platform with a unified control logic and wide-ranging functionality. Before this project, they didn't have any solutions in place to remotely control the CHP systems. Our work has enabled them to successfully roll out their business. They now have three sites live on the platform and expect to quadruple the number of sites and users by next year.

We continue to work closely with On-Site Energy to further develop their asset management capabilities, including solar PV, wind, batteries, heat pumps, and other technologies and to develop best-in-class predictive analytics to enhance optimisation.

"The solution is a prime example of industrial IoT. I think it's one of the best examples around at the moment and it's only in its early stage. We couldn't operate our business properly without the platform. It is truly essential to us."

David Kipling, CEO of On-Site Energy





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