

# Energy Efficiency-as-a-Service



## Challenges

### Getting the savings you *know* are there

We live in a world of data abundance. Modern (and not-so-modern) factories have plenty of systems: SCADA, BMS, ERP, PLCs, Data historians, etc. which contain huge amounts of data. The problem is that the opportunity is being wasted. The data is all disparate and difficult to leverage to create meaningful outcomes. It is not difficult to imagine that by connecting these systems up and applying intelligent technologies that things can be run more efficiently and effectively, but where do you start? How do you know where the value is if you currently can't see it?



## The Crowley Carbon Solution

### Delivering energy savings through data

Crowley Carbon energy-as-a-service data-led solutions delivered through the Clarity application running using AWS IoT infrastructure is the "killer app" for delivering value from your data and connected factory. In partnership with AWS we can aggregate all the critical data from the desperate systems in your factory or facility and use this data to delivery energy savings. Combining years of energy efficiency expertise with edge and cloud computing we can not only provide an outcome-based business case for a connected factory, but also guarantee and insure the result. This can give you comfort, in combination with Crowley Carbon and AWS's global capability, to roll connected factory solutions across your entire portfolio.

## Benefits

Super-charge your connected factory with our outcome-based solutions that deliver guaranteed results



### Guaranteed Energy Savings

We will guarantee energy savings in your factory and guarantee the results, typically 15%+ of your energy bill. We will also insure the outcome with an underwriting from AXA.



### Universal Connectivity

Our Clarity application, in combination with AWS IoT infrastructure, can talk all major industrial languages and protocols bringing your data to one place.



### Process Automation through Real-Time Data

We connect to all energy meters with a facility and remove the requirement to manually check and compile the data. We also automate bill validation.



### Process and quality savings

In addition to the energy business-case, our solutions offers the ability to interrogate and analyze production data to gain other process and quality optimizations.

## Crowley Carbon on AWS

AWS edge and cloud platform expertise along with Crowley Carbon's domain expertise in energy, manufacturing and industrial process allow us to offer a unique proposition to AWS customers. Our combined architecture allows us to seamlessly integrate to your production systems and near-instantly surface-up meaningful data. The Crowley Carbon domain experts can then help you use this data to deliver and maintain energy and other process savings. The advanced processing available in the AWS cloud meant that these savings are not just one off's but can be continuously improved.

### Features



#### Real-time Predictive Energy and Process Analytics

Clarity can model any process from a top-down first principles perspective and also a bottom-up data-driven empirical perspective. These models integrate with the live production, weather, and other factory data sources, to be able to accurately predict current and future performance. Deviations from these models generate alerts for automatic intervention or generate work orders in other systems. Over time, these models learn to provide ever-increasing accuracy.



#### Savings Measurement and Verification

In building a business case for a connected factory, not only is it critical to show a theoretical return on investment but also to prove that it was delivered. A core feature of the Clarity application is the ability to benchmark consumption and usage and compare those benchmarks with the actual. This allows us, using well established protocols, to prove that optimizations and interventions for process and energy optimization work and delivered results.

### Case Study: Al-Futtaim Group District Cooling



#### Challenges

Al-Futtaim Group had invested in a district cooling plant servicing their 60M SQFT mixed use development of retail commercial and residential in Dubai. The annual energy cost of the facility was US\$11M.



#### Solution

Crowley Carbon implemented Clarity, running on AWS, connecting to the Plant and the surrounding facilities, using the data to deliver system optimizations and control strategy upgrades without the need for any major capital.



#### Results

A combination of the Clarity real-time monitoring solution and the updated cooling network controls delivered annual savings of US\$3.3M while improving the climatic experience for shoppers, residents and tenants.

### Get started with Crowley Carbon solutions on AWS

Visit [www.crowleycarbon.com](http://www.crowleycarbon.com) to learn more.