

# William Hughes Maximises Energy Savings and Cuts Carbon Emissions at UK Manufacturing Site with SolarEdge PV System

William Hughes specialises in the design and manufacture of custom-made springs, wire forms and assemblies for global customers across a wide range of industries, including automotive, aerospace and medical. It operates three European manufacturing facilities with corporate headquarters at Stalbridge in Dorset, UK.

## The Challenge

With the energy supply contract coming up for renewal of its 87,000 sq. ft. Dorset facility, William Hughes was facing the prospect of a steep hike in energy costs. It turned to green energy specialist, CleanEarth, for help.

The large roof at the William Hughes site made it an ideal candidate for solar, but there were several challenging aspects to the installation. In particular, the roof had multiple facets and hundreds of skylights, as well as occasional inter-row shading from roof pitches. This would cause significant power loss in a traditional PV system due to the inflexibility of standard string system design.

There was another constraint that the new PV system would have to overcome. CleanEarth had helped William Hughes to secure a £100,000 grant towards the cost of the project, funded by the Low Carbon Dorset program. This EU-funded program run by the Dorset Council, helps local businesses improve their energy efficiency to reduce the county's carbon footprint. It was the largest single-site solar array that Low Carbon Dorset had supported, and according to the funding terms, CleanEarth had just four weeks to complete the project!

## The Solution

Taking into consideration the energy requirements as well as the available roof space and the multiple roof facets, CleanEarth proposed a 400kWp PV system featuring 1,000 solar modules powered by four SolarEdge 82.8kW Three Phase Inverters with Synergy Technology. The DC-optimised SolarEdge solution was chosen for its advantages in maximising energy yields, its flexibility in accommodating challenging roof designs, its built-in safety features and its fast installation.



## With Power Optimizers, Each Module Performs at its Maximum Potential

SolarEdge's solution overcame the challenge of limited roof space by using Power Optimizers connected to each pair of modules. This enabled much greater space utilisation by allowing modules to be installed almost anywhere on the roof—including around the skylights—significantly increasing the system's energy yield. Each pair of modules operates independently, so any underperformance of a single module does not impact the output of other modules in the same string. The unique SolarEdge Power Optimizer approach further ensures that the system will continue to generate maximum energy throughout its lifetime.

The choosing SolarEdge Three Phase Inverters with Synergy Technology, in addition to reducing the number of inverters required for the project, it significantly cut back installation time. The modular design of the SolarEdge Synergy units enables them to be quickly and easily fitted into place by one- or two-person crews.

## SolarEdge Module-Level Monitoring Enables Remote Troubleshooting

Another significant end-user advantage of the SolarEdge solution is that it enables monitoring of the performance of the system modules in real time. If a module starts to underperform, CleanEarth can identify the exact location of the faulty module, receive automatic alerts and troubleshoot the issue remotely using the SolarEdge Monitoring Platform. Maintenance personnel can address performance issues quickly and efficiently, reducing the cost of maintenance call-outs while also helping to keep energy losses to a minimum.



“We chose the SolarEdge inverter solution as the technology offers far more design flexibility than traditional string inverter systems. SolarEdge enabled us to overcome design challenges on the roof while delivering the maximum possible energy yield over the lifetime of the system,” said Ed Lennon, Commercial Manager at CleanEarth. “Also, SolarEdge offers some of the longest warranties in the market, which fits perfectly with CleanEarth's own ethos to design a 25-year plus lifespan into every system we install. This approach ensures our customers continue to benefit from maximum energy yield, lower maintenance costs and reduced carbon emissions for many years to come, benefiting everyone – the customer, the local population, and the environment.”

## Protecting Factory Staff and Assets with Enhanced Embedded Security

For manufacturers with many valuable assets on the factory floor, safety is of the utmost importance when choosing a PV system. The SolarEdge solution includes several advanced built-in safety features to protect people and equipment. The SafeDC™ feature is designed to automatically power down the solar array to a touch-safe voltage of 1V whenever the inverter or grid are shut down. This protects the facility, as well as installers, maintenance crews, electricians, and emergency responders. Additionally, although Arc Fault detection and interruption are not required by UK regulations, they are commonly requested by insurance companies. SolarEdge inverters include this safeguard which is designed to mitigate the effects of some arcing faults that may pose a fire risk.

## Installation at a Glance



- Stalbridge, Dorset, UK
- 400kW PV system
- 4 x SolarEdge 82.8kW Three Phase Inverters with Synergy Technology
- 500 x P370 Power Optimizers
- 1000 modules
- Module-level monitoring via SolarEdge Monitoring platform



## The Bottom Line

Manufacturers worldwide are increasingly looking for ways to reduce rising energy costs and CO2 emissions. The SolarEdge solution achieves this in three ways: 1) It increases system yield through DC optimisation, 2) It enables more modules to be placed on the roof through greater design flexibility, 3) It delivers increased system uptime with module-level monitoring.

By embracing the value of solar technology, William Hughes is forecast to save around £35,000 in energy costs and reduce its carbon emissions by 100 tons per year. The 400kWp SolarEdge installation is expected to deliver electricity at a levelized cost of only 3.2p/kWh compared to the 9p/kWh paid on average by UK manufacturers, achieving payback in just 3.8 years and saving £1.4 million over the system's lifetime (factoring in inflation).



William Hughes expects to cut energy bills by approximately £35,000 and reduce carbon emissions by 100 tons per year using SolarEdge rooftop PV solution.



SolarEdge optimised inverter solution offers much greater design freedom, improving roof space utilisation and energy yield.



The small footprint and lightweight design of SolarEdge's Three Phase Inverters with Synergy Technology enabled CleanEarth to complete the large-scale installation in just four weeks. It also helped CleanEarth to secure grant funding towards the cost of the project.

## About SolarEdge

SolarEdge is a global leader in smart energy, delivering innovative commercial and residential solutions that power our lives and drive future progress. Leveraging world-class engineering and worldwide experience, SolarEdge developed a groundbreaking intelligent inverter solution that changed the way power is harvested and managed in photovoltaic (PV) systems. As a result of this and other innovations, today SolarEdge is the world's #1 solar inverter company in revenue with millions of systems installed in 133 countries. SolarEdge addresses a broad range of smart energy market segments through its PV, storage, EV charging, battery, UPS, and grid service solutions.

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