The Waterfront at Barton Marina Maximises Energy Savings and Victorian Charm with 40.5kW SolarEdge PV System

Barton Marina, linked to the Trent and Mersey Canal and surrounded by ninety acres of woodland and lakes, is one of Staffordshire's leading tourist destinations. Overlooking the marina is the popular Waterfront Pub and Restaurant. Built in 2007 using largely reclaimed materials, The Waterfront resembles a Victorian canal-side warehouse, and is designed to accommodate up to three hundred customers for al fresco dining on the many terraces, or in the recently refurbished lounge and restaurant. On the first floor a function room with spectacular views caters for up to two hundred persons, and is in high demand for weddings, conferences and parties.

The Challenge

Powered 100% by electricity, The Waterfront's high energy usage was exacerbated by increasing energy prices. As a result, the owners planned to reduce their energy bills and achieve a greener and more sustainable site. In spring 2021, the UK COVID lockdown provided a window of opportunity to carry out refurbishments, and plans were put in place to install a roof-top solar PV system. The owners needed a system that would contribute the greatest savings to their electricity costs and remain visually pleasing to visitors.



The Solution

Solar PV installer, Kembla, designed a 40.5kWp SolarEdge system to make the most of the available roof space and deliver the maximum output and energy savings. The system comprises ninety 450W modules, upgraded to smart modules with forty-five P950 SolarEdge Power Optimizers, along with a SolarEdge 33.3kW Three Phase Inverter.

Power Optimizers Put More Power and Design Flexibility on the Menu

The SolarEdge solution overcomes the challenges of maximising system output while keeping the Victorian design aesthetically pleasing using the company's Power Optimizers. These are installed underneath each pair of modules to maximise the performance of each module in the system individually. This ensures that, unlike traditional string inverter systems, should the performance of some modules be impaired, for example due to shading or soiling, the rest of the system will continue to produce the maximum amount of energy.

The SolarEdge DC-optimised solution also enable much greater flexibility when it comes to laying out the roof space. In a traditional, non-optimised solution, module placement is limited by the need for equal string lengths, as well as maintaining the same azimuth and tilt of each module. In the SolarEdge system, no such restrictions apply, allowing the layout of the modules to adapt optimally to the roof shape and design to generate more power.



Delivering Green Energy in Time for Re-opening

With the end of lockdown in sight, the project took Kembla less than three weeks from order to completion – including gaining District Network Operator approval to enable the system to be connected and exporting power to the grid. The PV system was commissioned in time for The Waterfront to open its doors to customers once more.

"The system is now delivering an estimated 35.89MWh of output each year - offsetting 10.09 tonnes of carbon. This delivers the equivalent of 463 trees planted each year." *Declan Adams, Managing Director, Kembla Limited.*

Originally, the owners had calculated a six-year return on investment period. Since the re-opening, this has been reduced to five years and, based on the performance of the system, they have also installed additional SolarEdge solutions on two other buildings - the Marina Office & Café and a maintenance building.

Full Performance Monitoring for System Owners and Installers

A SolarEdge Energy Meter was added to the system to provide full visibility of the PV performance. Using the mySolarEdge app, the site owners can track system production in real time. They can also view site consumption and see how much power is being exported back to the grid to stay in control of their energy usage and savings.

Kembla is able to monitor the system remotely via the SolarEdge Monitoring Platform. With fault detection right down to module level and with system alerts set up, the installer can pin-point accurately any issues and resolve them quickly to minimise their time on site and maximise the system uptime.

Steve Rainsford, Barton Marina's Site Manager, explains: "Our focus was very much on achieving long-term cost savings while also retaining the aesthetics of the pub. We certainly gave the Kembla team a challenge as, from order to switch-on, we could only give them a three-week window. We are very pleased to be taking another step forward to making the site more sustainable with a PV system that makes the most of our roof space and allows us to see exactly how much energy we are generating and using every day, month and year."

Installation at a Glance



- 45 x P950 SolarEdge Power Optimizers
- 33.3kW Three Phase Inverter with DC safety unit, Surge Protection Device and Rapid Shutdown Device
- Energy Meter

The Safer Choice for Solar

For businesses in the hospitality industry, safety is of primary importance when choosing a PV system. The SolarEdge solution includes built several advanced built-in safety features such as SafeDC[™] and arc fault detection.

SolarEdge SafeDC is designed to automatically power down the solar array to a touch-safe voltage of 1V whenever the inverter or grid is shutdown, protecting the property as well as installers, electricians, and emergency responders. Arc fault detection and interruption are not required by UK regulations, but 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.

The Bottom Line

In pubs, hotels and restaurants, outdoor spaces are key to the customer experience. So when a location demands maximum output power from a PV system in a setting that needs to retain the visual impact of the building's exterior, module placement roof space utilisation become a priority. The SolarEdge system maximises energy generation throughout its lifetime for increased savings, and with greater flexibility in PV layout, systems can be designed to be more in-keeping with the style and shape of the roof.

With increasing numbers of consumers willing to reward more sustainable businesses, The Waterfront now offers its guests a green energy environment. In addition to installing the SolarEdge system, the owners replaced all lighting with energy efficient LEDs and adopted a zero-waste policy. And despite hospitality being one of the worst hit UK sectors during the COVID pandemic, the owners understand that cutting their carbon emissions will also help them to cut their operational costs and bounce back even faster.



The DC-optimised solution offers much greater design freedom, improving roof space utilisation for greater energy yield

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 ground-breaking 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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