

Award-winning 1.73MWp Rooftop PV and Self-Consumption System in London

- ▶ London, UK
- ▶ 1,730 kWp
- ▶ Installation Date: October 2015



The SolarEdge SafeDC™ feature is designed to enable safe DC voltage during installation, maintenance and emergencies, which was key in making the decision to install the SolarEdge solution on the public roof of the WIM

SolarEdge inverters: 47 x SE27.6K, 1xSE25k

SolarEdge power optimisers: 2,947 x P600

Modules: 6,069 x LG 285 SIC Mono

Battery storage: 2 x Tesvolt Speicher Li120 set
Lithium Batteries (LiFeMnPo4)

Installed by: Revolution Energy Services



“With SolarEdge module-level monitoring, we can track the system output 24/7; making sure the system performs at its best at all times. This solution enabled us to offer the customer a full warranty package, including products, workmanship, and performance.”

> Andy McGloin, Director, Revolution Energy Services

Western International Market (WIM), managed by London Hounslow Council, is West London’s largest wholesale market for fresh produce and flowers and provides refrigerated warehouse storage. Equipped with two produce halls, as well as a large flower hall, the facility services approximately 80 wholesalers and buyers from across London. Most sellers use cold rooms and refrigeration units, driving the site’s electricity consumption to 3.5MWh per annum. In September 2015, site owners Hounslow Council started a project to cut their electricity bills and rely more on a renewable energy supply. Working alongside several key partners, the council set about installing the largest solar PV array by a local authority in the UK to the space of the trading halls*.

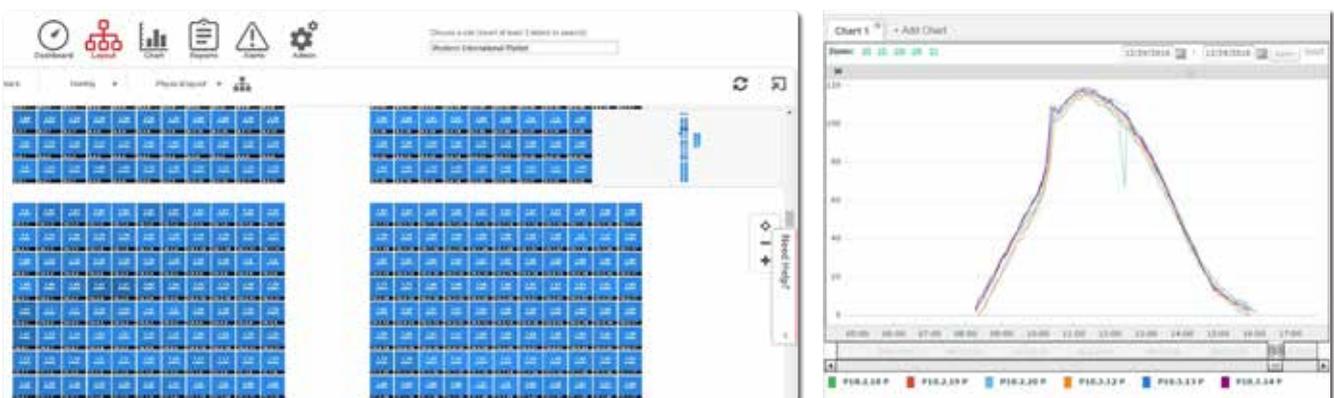
Revolution Energy, a company with a strong history with the Council, specializes in solar PV installations and commercial battery storage as well as the field of energy management. According to Revolution Energy, this PV system system helps WIM reduce its consumption from the grid by nearly 45%, significantly reducing the Council’s costs and securing long term clean, affordable, and secure energy.

PV Asset Management

As part of their offering, Revolution Energy committed to a 10-year maintenance service, including 24/7 insight into the system’s production. The SolarEdge DC optimised inverter solution, with real-time remote monitoring at the module, string, and system levels, acts as a strategic solar asset management tool for Revolution Energy, in order to help reduce operation and maintenance (O&M) expenses and increase system uptime. The SolarEdge cloud-based monitoring platform provides clear tracking of the system’s performance through a variety of features:

- Comprehensive analytics tracking and reports of energy yield, system uptime, and financial performance;
- Pinpointed and automatic notifications for immediate fault detection, accurate maintenance, and rapid response;
- Remote troubleshooting for fast and efficient resolution with minimal onsite visits.

Revolution Energy also committed to clean the PV modules every six months in the first two years of the installation. By using the SolarEdge monitoring platform, Revolution Energy can demonstrate the increased yield following these cleanings, and show their client that the higher yield following a cleaning justifies the cleaning costs.

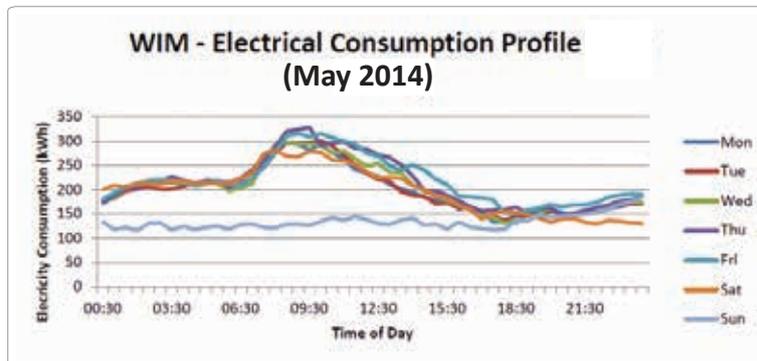


The chart view from the SolarEdge monitoring platform shows the performance of individual modules. This graph illustrates the power of each module. Full system monitoring is a powerful tool for installers to reduce their O&M costs by remotely monitoring and analyzing system performance.

*<https://www.theguardian.com/environment/2016/may/19/london-borough-installs-6000-solar-panels-on-market>

Increased Self-Consumption

WIM is predominantly used in the early hours of the morning with most tenants vacating the site by 10 a.m. Daily energy usage is very similar over a six-day period. As the site is closed on Sundays, only a lower baseload of energy is consumed on this day. Typically electricity consumption is highest in the morning, with a spike between 6:30 a.m. and 9:30 a.m. This peak has been



Typical daily electricity consumption at the WIM (snapshot taken from May 2014)

identified as the electricity draw from forklifts as tenants finish their work and plug in their forklifts to charge for use the following day. However, this created a challenge, since PV production peaks in the early afternoon (dependent on the time of the year), and in the winter periods there is little to no PV generated in the morning, when demand is highest. In order to overcome this challenge, Revolution Energy Services added timer switches that lock off the circuits that charge the forklifts until peak PV production. These timers enable WIM to maximise self-consumption from the PV array.

In addition, two Li120 lithium storage batteries were added to the AC side of the array, separate from the SolarEdge system, in order to store any excess PV energy during the day for base load consumption during dark hours. According to Revolution Energy's estimates, this brings the PV energy export to the grid to as low as 9.98%; reaching the target set by the Hounslow Council and reducing the local authority's carbon emissions by 791 tonnes every year.

The installation won the 2015 Annual European Energy Service Awards for 'Best Energy Project'.

Superior Safety

One of the main reasons for selecting SolarEdge technology for this installation was SafeDC™, the built-in safety feature. SafeDC is a certified DC disconnect, designed to decrease DC voltage from all string wires, whenever inverter or grid power is shut down. When SafeDC is enabled, the voltage of each module is reduced to 1V, protecting installers, maintenance personnel, firefighters, and property.



"This solar PV and battery storage project demonstrates LB Hounslow's aspiration to convert Western International Market to a carbon-zero site. It is a real business success story, and a great example of working together with Revolution Energy Services, SolarEdge, LG and Tesvolt to put sustainable energy at the heart of future plans. In addition to the financial benefits, the project will provide granular level M&V on system performance, carbon free power for decades reducing carbon dioxide emissions, thereby underscoring the Council's commitment to environmentally friendly projects via the largest public sector financed PV project with battery storage in the UK."

Charles Pipe, Hounslow Energy Manager