

SolarEdge Installation Outperforms Energy Estimates For Four Consecutive Years

► Poole, Dorset, UK

► 32 kWp



Installation Date: October 2011

Inverter: 3 X SolarEdge SE10k

Power Optimisers: 136 X SolarEdge OP250

Modules: 136 X 235W MAGE Powertech Plus

Installed by: Empower Energy

"For years we have recommended SolarEdge technology to system owners to help increase their energy production. Proving the benefit that SolarEdge offers, this system has over-performed the estimated yield by 8% for four years."

> Malcolm Davidge, Technical Director, Empower Energy

With high energy costs, the owner of Birds Hill Nursing Home decided to install a PV system to help reduce energy costs and benefit from an additional revenue flow through the FIT program. Empower Energy, an experienced PV installer, recommended SolarEdge technology to both improve system production and increase system size. After three years of operation, even this experienced installer was surprised by how much SolarEdge outperformed expectations.

Increased Energy Yield

The SolarEdge DC optimised inverter system was able to increase energy production as it provides per module maximum power point tracking (MPPT) and therefore allows each module to generate its own maximum possible energy. This eliminates power losses due to module mismatch caused by a variety of sources, including module orientation, thermal mismatch, soiling, uneven aging, and partial shading.

During its first year of production, the SolarEdge system outperformed its PV Sol's estimated output by more than 5% or 1.5 MWh. Even with favorable weather conditions, as seen in 2014, a typical PV system is still expected to see decreasing production due to aging and additional factors over the years; however, this SolarEdge system experienced increased energy production. According to the estimate, the system should have only reached 122 MWh after four years, not taking aging and module degradation into account. However, the system has already reached 131.5 MW – an 8% increase over estimated.

As of January 2015, The Birds Hill Nursing Home received £50,000 in FIT payments. In addition, self-consumption of PV electricity resulted in approximately £14,000 of savings in electricity bills. The increased production of the PV system shortened the payback period for its investment to under 6 years.

Maximum Design Flexibility

With the system spreading across multiple roof facets, Empower Energy leveraged the constraint-free design of the SolarEdge system to maximise every aspect of available roof area. The SolarEdge system provides unprecedented design flexibility by allowing multiple module orientations in a single string and longer strings. This allowed Empower Energy to significantly decrease BoS costs. This type of system can be installed with strings as long as 45/46 modules (compared to a maximum of only 21 modules per string with a typical string inverter). Meaning that SolarEdge technology can further reduce BoS costs by decreasing the amount of strings to only three for the entire system (one string per inverter).

The hierarchy view from the SolarEdge monitoring portal shows that modules with different orientations and on different roof facets can be connected in the same string, and that panels up to 11kW can be connected in one string. SolarEdge technology enabled Empower to maximise every aspect of available roof area due to its unprecedented design flexibility.

	Estimated	2012	2013	2014	2015
Annual Output (MWh)	30.496	32.024	32.32	34.596	32.612
Additional Energy		+5%	+6%	+13%	+7%

The installer, using PV Sol, estimated the annual output of the installation to be 30.496 MWh. The system outperformed this estimate over 4 consecutive years, generating .



A screenshot from the SolarEdge monitoring portal showing the site's annual cumulative energy.

