The Little Wenlock Village Hall Solar System

PV Solar Panels – installed June 2012

The PV system was financed by a donation from the Huntingdon Lane Coal Community Fund and a contribution from Village Hall funds.

The system generates whenever there is daylight on the panels, with most power from bright sun from the south around mid-day. Generation is less early and later in the day and in cloudy conditions. The chart shows actual generation.

A system facing due south generates nearly 20% more than one facing south east or south west. The angle of inclination of the roof is less important.

Power generated goes first to replace power being drawn from the grid for use by the hall. Any surplus is then used to charge the batteries. When the batteries are being charged, any further surplus power is exported to the grid. In bright sun the hall can be in use (lights, music, fridge, even a "zero carbon" electric BBQ!) with the electricity meter stationary so no power is being drawn from the grid.

The Village Hall receives a quarterly payment from EDF comprising the Feed in Tariff for every unit generated in the period and a further small amount (Export Tariff) based on an assumption that 50% of the generated power is exported to the grid. Electricity drawn from the grid by the hall reduced by around a third when the PV system was installed in 2012.

Specification Summary

Rating ……. 10kWP (peak)	Installer …… Jones and Hampton
No of Panels ….. 40	Commissioned ……. June 2012
Panel type ……... Hyundai HIS-3250HG	Predicted Generation ... 7976 kWh/year
Direction of roof .. SSE (150 deg)	Actual Generation …… 9642kWh (2019)
Inverter ……... SMA Tripower 10000	Feed in Tariff / unit …. £0.168 (2012), £0.195 (2019)

“Sundial” Energy Storage Batteries - installed June 2019

This system allows surplus power generated during the day to be stored and used to power the hall during the evening when events take place and the sun is not shining.
The supply to the hall is 3-phase so we have a battery on each phase. The system senses when any phase is exporting to the grid and instantly responds by using the exported power to charge the battery instead. The system is “smart” using only the amount of power available and required to charge the battery and responding very quickly to changing conditions. When power is required by the hall, the PV panels supply directly, if solar power is available. If solar power is insufficient then power is taken from the batteries up to the limits set by the Battery Management System. When the batteries are discharged, or unable to supply higher power requirements, the power required is taken from the mains. The system is AC coupled so the Feed in Tariff payments are not affected.

This reduces our usage of mains electricity, reduces our carbon footprint and is a small contribution to mitigating climate change.

Specification Summary

Manufacturer	Powerflow Energy Ltd, Hereford. Tel 01452 421271 www.powerflowenergy.com
Installer	PureElectrics Ltd, Oswestry, Tel 01691 676227 sales@pureelectrics.com
Battery capacity	8kWh total (Phase L1 - 2kWh, L2 - 2kWh, L3 - 4kWh)
Cycle life expected	6000 cycles.
Funding	Paid for from Village hall funds, a generous bequest from the estate of Jim Roberts, and £2000 from the Parish Council