

10 Orchard Close Ferring BN12 6QP



Overview

Type: Detached bungalow

Age: 1950s

Residents: 1

Feature

Solar PV (2.88kWp)



Introduction

John's 2.88kWp (kilowatt peak) solar PV system was installed by Kingsley Eco Solutions in November 2011. The system was installed and commissioned in one day; scaffolding was erected and dismantled a couple of days before and after.

Twelve 240 watt Suntech panels are installed on the south facing roof. The roof has minimal shading and only in mid-winter. The angle of tilt is 30-45 degrees. The PowerOne inverter, AC and DC isolators, grid connection and meters are installed in the garage. In the house an eco-eye monitor displays the real-time amount of electricity generated and records hourly, daily and monthly totals.

The solar panels carry a manufacturer's guarantee to perform at a minimum 80% efficiency for 25 years. The inverter is guaranteed by the manufacturer for 10 years. The installation (wiring and pipework) carries a 5 year guarantee from the installer.

Payments of the Feed-in-Tariff and for the deemed export of electricity (50% of the electricity generated) are made by John's energy supplier, Good Energy. Quarterly meter readings of the electricity generated have to be submitted.

Performance

At the time of installation the government's Standard Assessment Procedure (SAP) was used to give annual estimates of electricity output, carbon benefit and cost savings. These estimates have been exceeded in all three years of operation.

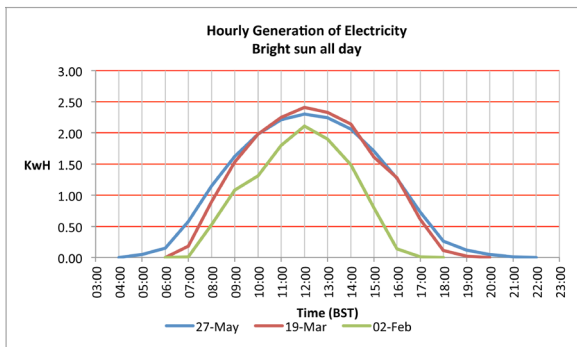
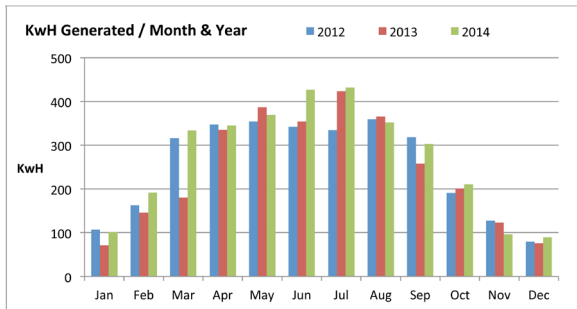
Payment for the 50% of electricity generated that is deemed to be exported to the grid is made at a much lower rate and averages £51pa.

The addition of solar PV to the household's energy mix means that more renewable energy is generated than is consumed from fossil fuels.

Year	kWh generated	CO2 emissions saved (tonnes)	FIT Payment
SAP estimate	2,472	1.34	£1,070.00
2012	2,814	1.53	£1,261.02
2013	3,148	1.71	£1,509.47
2014	3,484	1.89	£1,659.08

Saving on electricity bills

John's electricity consumption was well below the UK average before installation of the solar PV system. The SAP estimate (based on average household use) gave an annual saving of £149 on electricity bills. It was understood from the start that this was unrealistic. The challenge is that electricity is not generated when power is most needed; in winter and at night.



Monitoring of the PV system has enabled adjustments to be made to lifestyle and energy use to get the most from the renewable energy generated. Appliances are used when the PV system is generating and in sequence, not simultaneously. New appliances (when needed) draw relatively low levels of power (within the capacity of the PV system) or have some capacity to store energy.

Electricity usage in 2014 was down by 45% compared to usage before the solar PV system was installed. Some of this reduction is the result of other measures to reduce electricity consumption. A reduction of 35%-40% might be attributed to the use of electricity generated by the solar PV system. Savings on the electricity bill are approximately £55pa.

Maintenance

Maintenance has been minimal and has incurred no cost. Rain keeps the panels clean. A long-handled mop is used a couple of times a year during long dry spells and to clean up after seagulls.

Financial Return

NB: Both installation costs and the Feed-in-Tariff have come down since 2011. In a suitable location, a solar PV system should still provide a positive financial return, but is unlikely to replicate the returns on this system. However, households using more electricity than in this case study would have the potential to make greater savings on electricity bills.

The capital cost of the system was £8558. This outlay will be repaid in under 6 years. Over the 25 year period of the guarantee of the solar panels the investment could provide a return of 18%. These figures are based on future performance in line with standard estimating tools. If the system continues to outperform those estimates the returns will be better. Allowance is made for a 1% reduction in efficiency of the solar panels each year and includes the cost of a replacement inverter.

Professionals

Solar PV: www.kingsleygroup.co.uk

