

REal Alternatives

Renewable Energy Systems on the Isle of Wight

Case Study 3

SOLAR-ELECTRIC (PV) PANELS BRADING CENTRE



The Brading Centre provides a community hub for local council services, meetings and activities for the village of Brading. It's a refurbished building, used only intermittently, so the most practical form of heating is by electricity. Forecast rises in electricity prices mean the Centre needs a way to offset future heating and lighting costs, so a solar-electric (PV) system was installed in December 2007.



Solar panels

How does it work?

A Photo-voltaic Array captures electricity from daylight all the year round. That free electricity is fed into the mains at the Centre, so that they use their own power and do not have to buy it from the National Grid. Any surplus is exported into the Grid, and the Centre receives payment for that energy. When solar generation is less than the Centre's consumption (a winter's evening, for example), then power is bought through the mains meter in the usual way.



Inverter

Technical Details

The 10sq m array of Kyocera KCI 30GHT-2 photovoltaic panels fits neatly and unobtrusively on the flat roof of the Centre. It has a peak generating capacity of 1.3kW; it is expected to produce about 1,000 units (kWh) of electricity per annum and has been arranged so that it can easily be expanded in the future or moved to another location.



Sunny Beam remote display

The SMA SBI 100D-ESS Inverter unit, which converts solar electricity to the mains, is fitted in a spare corner of the kitchen, together with a meter which measures the total output of the system. A Sunny Beam remote display has been provided which shows both instantaneous and cumulative output of the solar panels.

The equipment requires no maintenance and its output is guaranteed for at least 20 years; systems typically have an economic lifetime longer than the roofs to which they are mounted.

Economic Analysis

PV Array – supply and installation	£7,994
Running Costs	Nil
Maintenance Costs	Nil
Savings (1,000 units per annum at 10p)	£100 pa
Payback (electricity price at installation date)	80 years
Payback (predicted electricity price at 10 years)*	20 years
Payback (predicted electricity price at 20 years)*	5 years
CO2 Savings (per SAP 2005)	560kg pa

* based on 12% real rate of rise of energy prices

Benefits

- Future-proofing of long-term energy costs
- Visible talking-point to raise “green” awareness
- Unobtrusive; compatible with Conservation Area
- Zero maintenance
- Expandable

Project Details

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