

CSEP PROJECT CASE STUDY No.2
Carnyorth Outdoor Education Centre



Left: Sunslate Solar PV tiles installed by Plug into the Sun at Carnyorth Outdoor education Centre.



Right: Genersys 1000-10 Solar Thermal Collectors installed by Celtic Solar Ltd

CEP Lead officer and team	Community Team: Neil Farrington
Location of project	Carnyorth Outdoor Education Centre, St Just, TR20 8QS Grid ref - Lat:N50.06.27 long:5.36.33, SW 420292
Project Stages	Winter 2004: energy audit of building Winter 2004 : Community consultation & events Nov 2005: Funding confirmed Feb 2006: Installation
Project description	Energy improvements to educational building: insulation, draught proofing, double glazing, Solar thermal flat plate collectors, Solar PV tiles. LPG water heating system installed by CCC. Educational tools: a wind powered bubble machine, a seesaw powered fountain and model steam engines. A pedal powered generator is due to be installed by 16 May and fuel cell powered model cars are on order.
Partners	Carnyorth Outdoor Education Centre, Cornwall County Council <u>CEP</u> : Funding advice, in kind match, technical advice, consultation and training events. <u>Installers</u> : Plug Into The Sun for the solar PV. Celtic Solar Ltd for the Solar Thermal.
Value of project / Funding & Grants received:	Project cost : £121, 749 <u>Funders</u> : Energy Saving Trust, EDF Energy Green Energy Fund, Cornwall County Council, Penwith Community Development Trust, Community Renewables Initiative, Ashden Award and CEP in-kind contributions.
Measurable Outcomes	The PV installation uses 372 Atlantis Sunslates wired in series with an installed capacity of 5kW _{peak} . The centre's new solar panels should generate 20 per cent of the centre's energy, thus reducing carbon emissions by six tonnes a year, while a 140cm globe in the dining hall spins using solar power. The Solar Thermal installation uses 5 Genersys 1000-10 solar collectors produce a maximum of 6,000 kWh per annum and will reduce carbon emissions by up to 3.75 tonnes per year.

<p>Wider Benefits of the scheme: (social, environmental, economic)</p>	<p>Amongst the interactive learning resources is an innovative and energy creating pedal powered cinema. The children pedal bicycles to create the energy needed to run the cinema equipment to watch films, and a see-saw pump which the children play on to pump water.</p> <p>This project is a good example of departmental partnership working well within Cornwall County Council to achieve a joint aim. Everyone had to work together to very tight deadlines to meet the grants requirements.</p> <p>The Centre now offers science and design technology short courses to schools to cover aspects of the curriculum in an innovative way to inspire the pupils to take a keen interest and excel in these subjects and alternative energy sources.</p>
<p>Issues encountered</p>	<p>The planning authority insisted on Solar PV tiles rather than panels because of the landscape designations, despite having permitted a Solar PV panel installation on a community building (the Centre of Pendeen) nearby with the same designations. This vastly increased the cost.</p> <p>A proposed solar shower was not installed because in this instance the proposed solar shower was for demonstration purposes only and would therefore not have the full health and safety issues properly addressed. Professionally installed solar showers will be protected by digital solar controllers with integral legionella protection programmes.</p>
<p>Key Lessons:</p>	<p>The energy saving resources not only carry out very real functions in the Centre, they also demonstrate to pupils how alternative energy sources actually work.</p> <p>The building, in need of modification and upgrading, offered its own challenge in that it is an old building without the benefit of modern building techniques and technology to make it energy efficient, making the very fabric of the building an educational resource. This provided the opportunity for tenants to explore energy generation and conservation issues to challenge the impact alternative energy sources can make on our environment.</p>
<p>Further information</p>	<p>David Knight or Ali - 01736 786344 - dknight@cornwall.gov.uk / carnyorth@cornwall.gov.uk</p> <p>Plug into the Sun: Andy Tanner on 01736 871291. Website: www.plugintothesun.co.uk</p> <p>Celtic Solar Ltd. : John Turner - 01566 781509 - www.celticsolar.co.uk contact: info@celticsolar.co.uk</p> <p>Paul Holman - 01872 326946 - pholman@cornwall.gov.uk</p>

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