

# The use of photovoltaics as alternative energy



Centre for Rural Innovation  
at Harper Adams University College



## PROJECT SUMMARY

HARPER Adams University College has embarked on a project to use an alternative method of energy system.

Experts have installed a 10 kWp photovoltaic SolarTile array on a new student hall of residence – which is set to be opened in September 2006. Photovoltaics (PV), or solar cells, are semiconductor devices that convert sunlight into direct current electricity. Groups of these cells are electrically configured into modules and arrays, the electricity can be stored in a battery or used on the national grid. Advantages of the PVs are that they create no noise and no emissions, and they require minimal maintenance because there are no moving parts. The product, which was developed by Southampton University, is building mounted, which means the tile integrates with the surrounding roof tiles to produce an unobtrusive and aesthetically pleasing system with a long functional life.

The new accommodation, which will house 150 students, is central to the college and provides an ideal location for promotion of photovoltaic systems to students, staff and visitors. Once the new system is in place, monitoring and display information will be used to raise awareness of the amount of electricity and the Carbon savings the system produces.

The main features of the SolarTile array are that it generates electricity from sunlight, even in cloudy conditions. It is anticipated the performance of the photovoltaics will be as follows:

- Estimated kWh per annum: 8,624 kWh
- Estimated electricity cost saving: £366.52 annually
- Estimated revenue from Renewable Obligation Certificates: £360 annually
- Estimated Carbon Dioxide saving per year: 3,700 kg

Working in partnership with the DTI Major Photovoltaic Demonstration Programme, it encourages good quality investment to lead to a level of market activity which can be self-sustaining within 10 years. The Solartile represents an optimal design for a PV tile (shingle) which can be integrated into most types of tiled roofs. It can be manufactured in a variety of textured materials allowing a harmonious blend with surrounding tiles. The project forms part of wider sustainable initiatives at Harper Adams which aims to reduce carbon emissions and produce renewable energy to protect the university college from price fluctuations as well as providing a secure energy supply.

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### KEY FACTS:

Lead Group: Sustainable Technologies Network

Key theme: Sustainable Technology & Rural Economy

Contract Value: £100,000

Project Leader: Dr Andrea Humphries

Project Duration: One year

Sponsor/Client: DTI



## Centre for Rural Innovation

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### **Accessing the research and consultancy work at Harper Adams University College**

The main purpose of the Centre is the sharing of knowledge to support innovation in the rural economy by:

- the provision of technical research services and business consultancy
- making our facilities available to support the needs of businesses
- supporting business networking
- the development of new technologies
- providing training programmes and work-based qualifications to businesses and individuals

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The website is designed to allow you to interpret the range of research and consultancy work undertaken using seven key Themes:

- Rural Entrepreneurship and Social Enterprise
- Innovation for Sustainable Farming
- Food Chain Safety
- Linking Urban and Rural Economies and Communities
- Sustainable Technology and the Rural Economy
- Rural Advisors and Agencies
- Rural Professional Practice

### **General enquiries**

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