

Smaller Institutions

WINNER

Harper Adams University College - Growing electricity self-sufficiency

The College's campus in Newport, Shropshire, houses Britain's first biomass-fuelled CHP plant. This uses innovative turbine technology to produce higher energy conversion efficiencies - and lower operating costs - than conventional steam biomass units. It produces 100kW of electricity - sufficient to meet the College's baseload electricity demand - and 200kW of heat. CO2 emissions have also been reduced by 648 tonnes a year - the equivalent of 14,727 energy saving lightbulbs. The scheme is already modestly profitable, and should become more so as conventional fuel prices rise, more of the heat output is used, and as a market is created for carbon credits from smaller organisations.

The unit's development began with the College winning support for a Sustainable Technologies Network from the Higher Education Innovation Fund (HEIF). The Network links academic experts (at the College and elsewhere) with manufacturers and others to demonstrate and evaluate equipment and technical processes. Through it, the College formed links with a local supplier of biomass combustion and waste-to-energy systems, Talbott's Heating. Talbott's was looking for the first demonstration site for a recently developed CHP unit, and Harper was able to create a funding package involving HEFCE capital funds, DTI innovation funding, Advantage West Midlands (the regional development agency), and other sources, to build it at Newport.

In summer 2006 the scheme will become self-sufficient, as its biomass will be provided by short rotation crops, tree coppicing, and forestry and agricultural residues, from the College's land. Set-up and research funding for this was gained, respectively, from the DEFRA Energy Crops Scheme and the DTI's Zero Emissions technology programme. The scheme will also become integrated into the curriculum of revised undergraduate courses on Sustainable Resource Management, and into the College's third mission activities on rural innovation. The hope is that sales of the unit will take off both in the UK - including on HE campuses with access to biomass - and internationally.



Professor Wynne Jones, the College's Principal, believes that the scheme is "fulfilling the two key objectives identified by the national Biomass Task Force - creating a robust supply chain, and gaining more accurate data on carbon reduction as a basis for selling carbon credits. As a result, we're expecting to show the system to at least 4,000 visitors during 2006. They'll see an example of higher education putting its expertise into action to create a technology which can save money, help the environment, and provide new opportunities for the rural economy."

Professor Wynne Jones

Judges' Comments on Smaller Institutions

Whilst smaller institutions often lack the funding or expertise available in larger ones, it can be easier to create and implement innovative initiatives. This is certainly true of Harper Adams University College, which provides an impressive example of a HE institution combining academic and business expertise to develop new technologies and systems, to support industry, to create impressive regional and national partnerships, to pull in large amounts of external funding, and to respond to - and influence - national agendas. This would be inspirational at a large university, and is even more so for an institution with only 2,200 students. While it is too early to judge the potential market for the specific biomass CHP unit, the College's creation of a locally closed loop for biomass production and consumption is likely to provide a model for other rural campuses, and the rural economy in general.