

# Omagh College Wood Chip Boiler

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Omagh College opened its new college facility in October 2005 and shortly after, commissioned a 150kW biomass boiler.

The new facility, costing in the region of £20 million, boasts over 15,000 square metres of state-of-the-art academic accommodation.

The college installed a 150kw KWB wood chip boiler which feeds into an under floor heating system to the industrial wing of the new building. The fuel source is willow chip from Rural Generation, however the college is in the process of sourcing local supplies of wood chip.

## Fuel

Wood chip is currently supplied by Brook Hall Estate in Londonderry where short rotation coppice willow is grown. The willow is chipped and then dried to a low moisture content required for effective combustion. The college have recently sourced a local supplier (within 5 mile radius) who will begin supplying the college later this year.

Wood chip is delivered directly into the storage bunker approximately every 10 days and stored in a 4.5 tonne storage shed. Chips are fed to the boiler via a screw auger and ash is emptied approximately once every 10 days.



The KWB TDS Powerfire boiler is fully automatic. Microprocessors within the boiler control the whole process, making it user-friendly. The system is monitored via a SMS phone system which informs the boiler operator and the installer of the running hours and the current state of the boiler. The system will also inform the installer, Rural Generation, if a fault has occurred by sending them a SMS.

## Education

The new boiler system has been an important educational resource both to the students and to other local visitors. For example, several demonstration days have been held where members of the general public have received a tour of the facility. This includes an inspection of all three biomass boilers (the other two boilers are used in teaching labs) and an explanation of how they work. To date approximately 500 visitors have benefited.

Students on various courses at the college have also utilized this new resource for example initial training has already taken place with the plumbing trainees and the installation has been used extensively as a training aid to demonstrate different aspects of the Environmental Entrepreneur's course (a 100 hour course for the Rural community seeking to exploit new opportunities presented by renewable and alternative energy). The facility is also utilized by the Foundation Degree class in Rural Sustainability. To date around 600 students have benefited from the installation.

The college is at present seeking accreditation for the Renewable Energy Installer Academy biomass training course which is expected in early 2007.

## Costs and Funding

The boiler system cost £32,000 to install and funding was received from 2 sources. The project was partly financed by the European Union through the Interreg IIIA Programme, managed for the Special EU Programmes Body by the Dept of Enterprise, Trade and Investment. The second funder was the Central Energy Efficiency Fund managed by the Dept of Finance and Personnel.

## Fuel Usage

In the year 16/11/05 - 16/11/06 the boiler output was 467,250 kWh (3115 hours at full load). The cost of wood chip fuel for this period was **£7059.60** (78.44 tonnes @ £90 / tonne (£65/T + £25/T delivery))

The equivalent cost of gas (assuming 2.79p/kWh) would have been **£13,036** and the equivalent cost of 28 sec oil (assuming 3.63p/kWh) would have been **£16,961**.

## Carbon Savings

Gas: 4629 March 20077,250 x 0.19 kg/kWh = 88.77 tonnes  
Oil: 467,250 x 0.27 kg/kWh = 126.15 tonnes

***“The use of Bio-mass, grown on farms within a five mile radius of the college, will provide 25% of Omagh college’s heating requirements. This project is an integral element of Omagh College’s rural sustainability programmes. The Bio-mass heating system is ideal as a demonstrator and awareness raising utility. Performance data collected underpins education and research. Renewable and locally produced energy enhances the environment and supports the local economy.”***

Mark McGuigan, Project Officer, Omagh College.

Last updated 29 March 2007