

Case Study

College invests in Green Future.

An example of how using biomass fuel can improve sustainability credentials

Background

Biomass is fuel that is developed from organic materials, a renewable and sustainable source of energy used to create electricity or other forms of power. Some examples of materials that make up biomass fuels are: scrap lumber; forest debris; certain crops; manure; and some types of waste residues.

Key benefits of biomass fuel are:

No harmful emissions: Biomass energy, for the most part, creates no harmful carbon dioxide emissions.

Abundant and Renewable: Since biomass products come from living sources, and life is cyclical, these products potentially never run out.

Reduce Landfills: Rubbish as landfill can, at least partially, be burned to create useable biomass energy.

The 2012 UK Bioenergy Strategy widely recognises that bioenergy has an important role to play if the UK is to meet its low carbon objectives by 2050. Rising carbon emissions are affecting the atmosphere, with long-term devastating consequences for the planet.

In 1981, West Dean College, a centre for arts and conservation set in the heart of the South Downs National Park, made a commitment to sustainable energy with the installation of one of the first woodchip-fired biomass boilers in the UK. Fuelled entirely by sustainably produced thinning's from the West Dean Estate, the system has been heating the College workshop, studios, student accommodation, and more, ever since.



The project

Just a few years after the College opened its doors in 1971 it became clear that the existing coke and oil-burners, which operated at about 40-45% efficiency, would not cope with the anticipated growth in student numbers. A commissioned survey confirmed that the annual yield required to fuel the College could be successfully sustained by the 2000 acres of woodland on the West Dean Estate and the innovative boiler was installed.

In 2015 West Dean College renewed its 35 year commitment to sustainable energy with the updating of its biomass boiler system. Having been a champion of renewable energy since the system was first installed, the College's green credentials continue to grow with a state-of-the-art replacement that ensures a sustainable future for the college.

"We are proud to have made this long-term investment in the latest biomass technology," says Alex Barron, Chief Executive of West Dean College, part of the Edward James Foundation. Biomass energy is virtually carbon neutral; it is clean, safe, and benefits both woodland management and the local economy. The recommitment to sustainable energy demonstrates West Dean College's environmental stewardship in its use of the Estate's natural resources.

All the wood continues to be sustainably sourced from woodland within four miles of the College. New efficiencies mean that, for the same amount of fuel, the system has been extended to heat a number of residential properties on the estate, all within the South Downs National Park.

“It is good to see the West Dean Estate renewing its commitment to biomass with this investment and benefitting from the multiple advantages it provides.”

Andrew Player MICfor, Landscape and Biodiversity Lead (Woodland), South Downs National Park Authority

The outcome

The new district biomass boiler system was installed on a site opposite the college in 2016. It incorporates an enlarged chip store, which both streamlines the production process and reduces the moisture level of the wood, increasing the efficiency of the fuel. The boiler runs at 1% ash waste.

The system heats the West Dean House, its ancillary buildings and annexes, College workshops and studios, student accommodation, the Victorian glasshouses in the walled Kitchen Garden, the Visitor Centre, an outdoor swimming pool, the village church, and residential accommodation in the village.

Since the system was installed, the College has made a carbon saving of over 16,000 tonnes of CO₂.

In February 2017 the College, together with Savills Energy, was recognised for its commitment to a sustainable future, winning ‘Best Biomass Scheme’ at the prestigious Energy Now Expo Awards 2017. Following the win, Philip Kirk of Savills, who manages the West Dean Estate, stated “The Edward James Foundation has been carrying out truly innovative work at West Dean.”

The College is recognised by the South Down National Park Authority as an organisation that is leading the way to a sustainable future by continuing to make the most from the resources on the West Dean Estate.

The future

Creating a sustainable future at a college-wide level has seen a series of initiatives in energy efficiency and waste management, including the installation of low-energy LED lighting. The College also has an outstanding level of biodiversity owing to the various habitats across West Dean Gardens and the surrounding estate.

The College has established links with the South Downs National Park Authority and is committed to working towards increasing the level of local wildlife, protecting habitats, and maintaining tranquil and un-spoilt places.

The College is committed to providing a wide range of learning experiences through publicly accessible activity, from Garden events to talks, exhibitions, and collaborations.

In addition The Edward James Foundation is committed to maintaining the community at West Dean, both at the College and in the village, and continues to harness pride in the local area.

Images:

Front page top: The Froling Boiler (left) West Dean College (right)

Back page bottom: Metalwork at West Dean College where all the workshops are heated by the Biomass boiler.

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For further information please contact; media@westdean.org.uk

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