BUSINESS

Case Study
Jackson Plants
Honiton

RENEWABLE ENERGY 4 DEVON

Introduction

Based at Combe Raleigh, near Honiton in East Devon, Jackson Plants is the largest bedding plant young plant wholesaler in the region, propagating plants for sale to nurseries, parks, charities and the private sector. Previously their boiler used 120,000 litres of oil pa to heat the greenhouses, the owner, David Jackson, wanted to reduce their environmental impact and fuel bills by converting the oil boiler to run on wood pellets.

Project development

- The site has several large propagation glass houses heated with two large boilers. The main site boiler started life 20 years ago as a 4MW coal boiler, after five years David decided to convert it run on oil. As an oil boiler it was fired at 2MW and using approximately 100,000 litres of oil pa. A second boiler was using an additional 20,000 litres.
- David has always been concerned about the effect of burning fossil fuels on our climate and knew that growing plants under glass during an English winter could hardly be described as eco-friendly. Galvanised by the high price of oil, he needed no better reason to switch to pellets.
- Initially he looked into a new pellet boiler, but this would have cost over £100,000. With a solid fuel boiler already in place, all that was required was a new stoker which was installed by the manufacturer in September 2008.
- Since then the site has been heated with pellets, although David has had some trouble sourcing a local supply. At time of writing the price of oil had dropped significantly, making pellets a less attractive option. David has chosen to keep using pellets because he strongly believes we need to act urgently to reduce CO2 emissions.

How the system works

The pellets are delivered by lorry in 18 tonne loads and blown into the fuel store, the old oil tank doubles as a pellet silo. Pellets are moved by an underfeed auger system through a fire break to remove any possibility of a burn back setting the whole fuel store alight.

The 4MW boiler is fired at 1.2MW, it was lit with a single match in September 08 and has not gone out since. They have used various pellet suppliers with mixed success, but are currently satisfied with the high quality supplied by Forever Fuels, which have a moisture content of 6.2% and leave only 0.3% ash. Hot water is pumped underground to heat the greenhouses. Currently there is no heat store, but David plans to install a 25,000 gallon thermal store to improve efficiency and control.

Costs and benefits

- **The whole conversion cost £25,000.**
- **Burning 120,000 litres of oil releases around 390 tonnes of CO2, providing the same amount of heat with high quality wood pellets releases only 117 tonnes of CO2: A carbon dioxide saving of 273 tonnes per year.**
- **Because Jackson Plants has such a high demand of 260 tonnes of pellets per year, they were able to secure a good price, and are paying £177 per tonne. So the annual fuel cost is £46,770, a saving of £25,230 per year (if oil costs 60p/litre), with a payback period of less than one year.**
- **As the oil price has dropped to 40p/litre in early 2009, the financial payback has increased substantially. It is highly unlikely the oil price will remain this low for very long, but even so, the longer payback is environmentally worthwhile.**

Technical details

Boiler	**Hartley and Sugden coal boiler converted to burn pellets.**
Conversion system	**Replaced solid fuel auger, fire break and retort, fitted Combserve stoker**
Installer	**Combserve**
Fuel supply	**Forever Fuels www.forever-fuels.com**

Wider benefits

The glass houses have a computer controlled shading and insulation system that limits excess solar gain and reduces heat loss, the ventilation system automatically controls the window opening at the same time.

Customers can return plug and carry trays and pots to Jackson Plants for reuse and recycling. The nursery avoids wasting water by not showering the plants from above: The pots and plugs are kept in shallow troughs, these troughs are filled with water to allow the plants to drink, the troughs are then drained and the water is stored to be reused.

"We've always been concerned about the carbon footprint of growing plants under glass all through the winter, and the option to do a simple conversion of our existing boiler, rather than having to buy a brand new pellet boiler, was very appealing."

Further information

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For independent advice and support

Image gallery

Auger feed system

Wood pellets

Inside the greenhouses

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