



*Innovative people throughout the Highlands are turning to wood as the fuel of the future for homes and businesses. This series of factsheets features interviews with some of the pioneers who have been leading the way on woodfuel. The factsheets have been produced as part of the PELLETtime project, a European collaboration between partners in Finland, Iceland, Scotland and Sweden.*

## The Lovat - Fort Augustus

**T**ransforming a draughty Victorian building overlooking the shores of Loch Ness into a classy hotel with a conscience could be seen as a daunting task for any entrepreneur. However Caroline Gregory, the young managing partner of The Lovat in Fort Augustus, has proved to be more than up to the challenge and, with a carefully planned and executed makeover, has breathed fresh vitality into the business and earned The Lovat the type of coveted green credentials increasingly being sought out by customers.

At the heart of the revamp was a biomass chip boiler, which keeps the building, built in the 1860s, at a comfortable temperature. Careful use of computer controls ensure the heat is used where it's needed, meaning fuel is used efficiently, even on the coldest days of winter.

Opting to go for woodchip during a total refurbishment in 2006 was a trailblazing move. The technology came with a hefty price tag - and many hoteliers in rural areas were still opting to stick with the perceived 'safety' of oil-fired central heating.

However Caroline's instincts have proved razor sharp; the prices of the kerosene fuel commonly used for heating in the Highlands has since doubled, leaving oil users facing crippling fuel bills.

The Lovat is now a cosy, low carbon haven for customers, who range from hillwalkers and cyclists to corporate clients and wedding parties.

"I'm personally very committed to being as environmentally responsible as possible and that ethos has filtered into the hotel's operation," Caroline said. "Being eco-conscious makes excellent business sense.

"The refurbishment was the catalyst to looking at what changes we could make that would be cost effective and along environmental lines."

### The system

The team at The Lovat took advantage of free advice available from organisations including the Energy Savings Trust, Forestry Commission Scotland and the Carbon Trust in choosing a renewable heating system for the hotel.

Prior to 2006, the building was heated by a mixture of electric storage heaters and electric fires in some of the rooms, which were inefficient as well as being hugely expensive.

"It was horrendous," Caroline recalled. "The hotel's environmental stance was non-existent. The electric heating was using huge amounts of power, and after we'd been at the hotel for just three days, the oil boiler packed in. Lots of heat was being lost through draughty windows and poor insulation; it was obvious right from the outset that major changes were needed. The way the hotel was plumbed was also an issue, with hot water taking ages to reach the newer part of the building."

Work began on preventing heat leaking out of the hotel, with windows resashed and insulation boosted throughout the building.

## The facts

Cost of the boiler	£60,000 (not including installation)
Boiler	Froeling Turbomatic
Heat capacity	110 kilowatts
Hot water	Two 1,800 litre accumulator tanks
Fuel	Woodchips
Fuel storage	35m <sup>3</sup> underground fuel store
Number of radiators	97
Annual woodfuel usage	100 tonnes
Annual carbon saving	150 tonnes
Annual fuel cost savings (with an oil price of about 60p/litre)	£10,000 - £12,000



Upgrading the plumbing and switching over to a modern, efficient heating system was central to the project and great care went into choosing and sourcing a boiler with capacity to heat the 28-bedroomed hotel and provide lashings of hot water for guests, 24 hours a day.

As well as consulting a range of experts, the management team had audits done and did extensive research. They made enquiries with a number of consultants and suppliers before opting for a 110 kW Froeling woodchip boiler, supplied by local company Highland Wood Energy of Fort William.

“We looked at a variety of options and the woodchip boiler seemed the most appropriate for what we were wanting to achieve,” Caroline said. “Installing central heating involved a massive capital expenditure - looking at the wider picture we also needed to establish where we were going to source fuel. We needed to be confident we were getting an automatic system that was going to be cost effective - and the woodchip boiler seemed to tick a lot of the boxes.”

An underground store holds 35 cubic metres of chips, which are fed into the burner by a double auger, which at the time of installation was the only one of its kind in the country.

The Austrian Froeling boiler feeds two 1,800 litre accumulator tanks, which ensure there is always a large reserve of hot water. “Sometimes we get groups of hillwalkers coming in who all want showers or baths at the same time,” Caroline said. “If you anticipate a large demand you need to be a little bit savvy about that - having two large thermal stores means there’s always plenty.”

The woodchip boiler has been in operation since February 2007, dramatically slashing the carbon footprint of the hotel as well as cutting heating costs.

A high-tech control system ensures the heat energy is used in parts of the hotel where it is needed - and energy is not wasted heating empty rooms. A customised computer programme controls the temperature and determines when the heating is switched on in each individual bedroom and bathroom and in all the public rooms.

The central heating system heats 28 guest bedrooms, the main dining room, the bar, brasserie area, the drawing room and back of house as well as 10 staff bedrooms. However heat is not needed in all these areas at the same time.

“The way we’ve had the system installed has really helped us use it to its best effect,” Caroline explained. “For example, the dining room only used in the morning for breakfast, so the heating is on from 5:30am until 9am and then the temperature is brought back down. The savings you have by only using heat where and when you need it, on a daily and annual basis, are incredible.

“We’ve also integrated the heating with our reservation system so that the heat in the room rises to 21C when

someone has checked in but the temperature is allowed to drop when the room is not occupied. Having control is crucial to us in effectively utilising the woodchip boiler.”

### Costs and funding

The £60,000 cost of the boiler was part funded by a 50% grant from Forestry Commission Scotland. An interest free loan from Loan Action Scotland also helped with the initial capital costs.

### Building a reputation

Customer feedback at the Lovat reflects increasing awareness of environmental issues and the public’s growing desire to make green choices.

“We’re finding there’s more and more interest from customers,” Caroline said. “We’ve just changed our feedback system to ask people if it matters to them booking a holiday, and also if they’re aware of our environmental stance.

“When people are here and they realise that we have a wood burning boiler they often ask if they can have a look. It’s an amazing piece of equipment when you break it down and think it’s burning wood and providing this amount of energy!”

In response to customer feedback the hotel is now looking into making temperatures controllable from the bedrooms.

### Woodfuel supply

Chips are sourced from Raddery Sawmill on the Black Isle. “We looked at several suppliers. Like anything in business you have to have a relationship with people you are working with,” Caroline observed. “We have built up a good relationship with Raddery Sawmill and work very well together.”

Supplies of woodchips have been delivered even in the most wintry conditions, with the only issue being that some froze in sub zero conditions and needed to be mixed up.

In winter a load of chips is delivered weekly - in summer deliveries are reduced to once a month.

### Conclusion

Caroline’s advice for any other businesses thinking about going down the woodfuel route is to do extensive research and get to know your system once it’s installed. “You can only get the best out of something if you understand how it operates,” she stressed.

Using the system efficiently is reaping financial rewards for the Lovat - and these look set to increase as the system is tweaked, the hotel’s reputation spreads and oil prices rise. It is difficult to accurately calculate the savings because the cost of oil and electricity change frequently.

“Environmental sustainability is built into our business plan and economically it’s paramount - there’s no question about it.”



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