low carbon Cairngorms

Cairngorms NATIONAL PARK

Woodfuel Factsheet 6

A rural home heated by a log boiler

A windswept stone cottage high in the Aberdeenshire hills was never going to be the easiest to keep warm throughout the year.

But forester Matt Young fell for the dramatic setting of Upper Hillockhead, near Huntly, and resolved to transform it into a cosy home for all seasons.

The one-and-a-half storey building is typical of traditional houses in the north of Scotland, with solid stone walls, a slate roof and chimneys at either end. When Matt bought it, two wood burning stoves were the main source of heating, with a back boiler on one which heated the domestic hot water.

Since then he has installed a modern, high efficiency, automated log boiler to power a system designed to keep temperatures tolerable in even the harshest of winters.

So why opt for logs over other commonly used fuels?

"A log boiler is more work than a pellet boiler, but logs are the cheapest, least energy-intensive way of getting heat," Matt explained. "I didn't want oil heating for environmental reasons and because it's not a good option financially either."

The system

A 25 kilowatt NEHS log boiler and 1,500 litre accumulator tank were installed in an existing shed at the gable end of the house. The Akvaterm tank provides a thermal store which feeds a new central heating system and provides domestic hot water.

The boiler system was supplied and installed by Wessex Wood Boilers, chosen by Matt because "they were very helpful, understood what I wanted and offered the best price."

Having an aptitude for technical information and plumbing stood Matt in good stead. "I understand it reasonably well and got a lot of tips from people at work. I'm also a pretty practical person and I think that helps," he laughed. "I'm doing most of the work in the house myself so know what's going on."

For those less keen to get involved in designing the system, sourcing materials and getting involved in some of the work themselves, there is a diverse industry willing to provide a full service. The Forestry Commission website usewoodfuel.co.uk lists engineers and suppliers throughout the country.

Matt stresses the importance of keeping the temperature in the boiler high. "You want to have the fire burning as hot as possible. If you let it smoulder, or use damp wood, the inside of the firebox will quickly become sticky with tar, and residues will build up which are not good for the efficiency of the system."

Safety measures are built in - if it gets too hot the boiler will shut off and the fan stops. A valve will circulate mains cold water to make sure the temperature in the system doesn't get too high.

Find out more

This series of factsheets explores how households, businesses and communities are pioneering the use of woodfuel. They have been produced as part of the Cairngorms Woodfuel Action Plan and a partnership project run by the Cairngorms National Park Authority and the Clim-ATIC EU programme.

The Facts

Boiler	NEHS log burner
Total cost	£8,500
Heat capacity	25 kilowatts
Hot water	1500 litre Akvaterm accumulator tank
Number of radiators	8
Annual log consumption	12 - 15 tonnes
Oil needed for equivalent heat output	4,500 litres
Estimated annual saving	£2,000

For more information see www.lowcarboncairngorms.org

Matt emphasises the importance of careful preparation and planning before ordering and installing a new heating system. "One thing that needs to be thought through is how to get the accumulator tank into the space you have decided to put it in. As it's big, weighs around 300 kilos and can't be manhandled, that can be tricky! A neighbouring farmer helped me out with his telehandler, which was much appreciated.

"My advice would be to think everything through really well beforehand; where you are going to put everything and how you're going to get it in there."

Performance so far...

"Having a decent heating system in the house and plenty of hot water has made an enormous difference," Matt said. "The wood burning stoves were getting through huge amounts of firewood and the place never felt warm. Now it's toasty and I'm spending less time cutting wood.

"It's easy to operate and has plenty power. A 25-kilowatt boiler is about as small as they come, but for a house this size is perfect. It produces very little ash, needing emptied maybe once a fortnight or so. I've really had no problems, I'm very happy with it."

In summer Matt fires the boiler once every four or five days, while in winter its fired every day.

One feature Matt loves is the system's holiday setting, which keeps the house frost free and turns heating back on the day he comes back. Enough heat is stored in the accumulator tank to cover a long weekend. For a longer holiday an electric immersion heater kicks in to prevent freezing. "It's great, I have really appreciated not coming back to a cold house!" he said.

Matt sounds a note of caution about remembering to return to the boiler after lighting. "You need to leave it for about 20 minutes until the fire really gets going, then go back, close the vents and turn the fan on. If the phone rings or you get distracted doing something else it's quite easy to forget!

Funding

The system cost a total of £8,500, part funded by a home renewables grant of £2,500 from the Energy Saving Trust. However, this scheme has now been discontinued.

Fuel

Having plenty space around the house means Matt can buy wood in bulk and process it himself, keeping costs low. Logs are delivered by lorry at a cost of between £500 to £600 per 23-tonne load, then dried outside in the sun and the wind with a tarpaulin over them to keep off the rain.

In six months Matt has used around 7 tonnes of logs, including some burned in the wood burning stove he still uses as a room heater in the lounge.

"I've got a chainsaw and am trained in using it, so process all the logs myself," he said. While buying logs in bulk is a cheap way of building up large stocks of firewood, Matt points out that training in chainsaw cross-cutting and the appropriate protective equipment is vital.

Some logs are split by hand using an axe, but Matt has also chipped in with two friends to buy a log splitter, which enables him to split the logs in half metre lengths, which fit perfectly in the boiler. The type of wood is used is less important than how dry it is. "I burn entirely softwood which I'm totally happy with," Matt said. "For a boiler like mine softwood is actually better, it's also easier to split and more readily available."

Contacts

For details of suppliers see
www.usewoodfuel.co.uk/Suppliers.stm

Or see the Biomass Energy Centre
www.biomassenergycentre.org.uk

Energy Saving Trust
0800 512012
www.energysavingtrust.org.uk/scotland

For training see Lantra
www.lantra.co.uk

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