



Scottish Woodfuel News

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Coille Beithe na Gàidhealtachd
HIGHLAND BIRCHWOODS



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Welcome to Issue 3 of Scottish Woodfuel News. Please send contributions for future issues to woodfuel@reforestingscotland.org.uk. We aim to publish issue 4 in spring 2008.

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Forestry Commission Scotland Woodfuel Update

The woodfuel industry is growing apace, with several key developments over last few months.

There is a flurry of activity across Scotland, as projects supported by the Scottish Biomass Support Scheme (**SBSS**) get underway. For the UK, the recent **Energy Review** set out how it would support biomass through the Renewables Obligation, with additional support for dedicated biomass plants and energy crops. Demand for woodfuel is increasing at all scales, and the Environment Minister, Mike Russell, has launched the **Woodfuel Task Force** which will consider how we can increase the available resource in Scotland.

SBSS

78 projects are now signed up to the Scheme covering a wide range of organisations, scales and locations across Scotland.

In South Scotland, Gelston Castle in the Borders and Langside Farm

in Ayrshire are now ready for a warm woodfuelled autumn.

The Ayrshire Biomass Group comprises five estates pooling resources to create a woodfuel supply chain. They will be using undermanaged woodlands on the estates to supply boilers to be installed at each of the five sites.

At the other end of the country, another producer group is being set up, this time for grass to supply an anaerobic digester on Westray in Orkney. The digester itself should be installed shortly, alongside an existing one using cattle slurry.

Wood chip in the north is also taking off. The Caithness Heat & Power



district heating scheme in Wick is now underway, with an extension funded by the SBSS. A similar scheme is to go in at Seaton in Aberdeen. Almac Chipping now has a stockpile of wood drying, to be chipped for the Wick district heating scheme.

Further down the east coast, Bill Watson has set up a substantial supply chain facilities and is working on several boiler installations around Forfar in commercial, local authority and housing association buildings.

In the west, the first community woodfuel company is being set up by Here We Are. They will supply Lakeland Smolts and are hoping to develop other projects in the area.

Although the key aim of the SBSS was to get projects up and running, the Executive also recognises the importance of training to ensure the emerging biomass industry has the skills it needs. The IGNITE training courses have proved a great success in getting people started on woodfuel. Northern Woodheat has also developed training courses for installers and professional, in collaboration with Inverness College. Both of these projects are supported through the SBSS.



Energy Review

Large-scale plants have been slower to take off, and the UK Energy Review is increasing the support available through the UK Renewables Obligations. Post-demonstration and emerging technologies will get an additional incentive by the proposed banding of ROCs, the trading mechanism for renewable electricity generation. Biomass CHP will now get twice as many ROCs for each unit of renewable electricity generated as before, as will dedicated biomass electricity plants using energy crops, to encourage the development of a supply chain. Current developments at a large-scale include the

E-ON plant at Lockerbie, which is about to be commissioned, and a number of CHP projects in the pipeline such as Caledonian Paper at Irvine and Balcas at Invergordon.

Woodfuel Task Force

The woodfuel task force was launched in June with the aim of increasing the supply of wood for renewable energy production. Led by Forestry Commission Scotland, the task force is made up of representatives from the wood processing, land management and renewable energy sectors.

The Task Force has already met and the Minister has challenged the group to determine the sources of available biomass material from:

- established forests;
- neglected woodlands;
- short rotation coppice;
- arboricultural and landscaping activities;
- recycled and waste wood.

The task force will also advise on the impact of market price on supply from these sources to woodfuel users and other processing sectors. The Task Force is expected to report on its findings by the end of the year.

In conclusion

From individual farms, estates and small businesses to local authorities and large-scale energy producers, the benefits of woodfuel are being demonstrated. There are nearly 80 small to medium scale heat only installations, and installed capacity will more than double over the next year with support from the SBSS. Large-scale projects are due to come on stream over the next few years, including pelletising plants which will stimulate the market for domestic use. The demand for wood is strong and growing, and the Woodfuel Task Force will help boost development, with benefits for rural employment and climate change.

Rebecca Carr

Contributors

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Photos: Rebecca Carr, Joe Fergusson, Dan Gates, Dave Parfitt, Jon Priddy, Fiona Strachan
Edit/Layout: Nick Marshall

Ayrshire Woodfuel Forum Spawns Scottish Woodfuels Group

An idea formed last year at a meeting at the Ayrshire Joint Structure Plan Team offices in Prestwick has developed into a significant new venture in South West Scotland. Saturday 15th September saw the unveiling of the Scottish Woodfuels Group, a co-operative producer group ready to satisfy any demand for biomass fuel in the region.

Instigated by the Joint Structure Plan Officer, Niall Finnie, encouraged by the Energy Agency Renewables Development Officer, Joe Fergusson, and ably assisted by Forestry Commission Woodfuel Development Officer, Trevor Blackburn, a biomass seminar was held in January 2007 at Auchincruive, near Ayr, after which delegates were invited to form the Ayrshire Woodfuel Forum to coordinate efforts to develop the biomass industry in the region.

The Forum's opening meeting was held on 16th May, chaired by Energy Agency Director Liz Marquis, during which it became clear that there was a role for a formal producer group which could tender for more and larger wood chip or heat supply contracts than individual members could individually take on. This should give potential customers, such as Local Authorities, the confidence to award contracts to less established suppliers than they might otherwise consider.

Three meetings later, following discussions with representatives of Co-operative Development Scotland (CDS) (www.cdscotland.co.uk) and with valuable input from South Scotland Forest Industries Cluster's Charlie Fulton, it was decided to request CDS's assistance with registering the co-operative as a company limited by guarantee and to invite potential members to sign up to a member's agreement.

Founder members include May-Tag Ltd of Maybole, Blairquhan Estate and the Ayrshire Biomass Group which is a loose consortium of five chip users and suppliers based in North and East Ayrshire. Others are likely to include private forestry growers, forest management companies and a waste management company.

The stated aim of the Scottish Woodfuels Group is "to provide high quality, cost-effective, environmentally sound and sustainable woodfuel to meet customers'

demands throughout Scotland and beyond, providing the highest standards of reliability and customer satisfaction."

First to kick off the supply chain was Blairquhan Estate which started by chipping slab wood from the Blairquhan sawmill to supply its own 80kW Veto boiler, supplied by Highland Wood Energy and installed by themselves. It was visited by a delegation from the Scottish Executive's Energy Policy Unit in February. Blairquhan also supplies Langside Farm (B&B), near Dalry in North Ayrshire, now a rare holder of the Green Tourism Business Scheme Gold Award (www.green-business.co.uk and www.langsidefarm.co.uk).

The launch of Scottish Woodfuels Group was timed to coincide with the Energy Agency's 3rd annual public Renewable Energy Fair which included six biomass heating installers' stands amongst the 26 exhibitors. Joe Fergusson, Renewables Development Officer, said "We expect this new co-operative Group to be a great example of how a combined effort can produce greater benefits for all. A potential customer may contract with any member to receive a long term supply, with

the confidence that the standards of fuel quality will be governed and policed by the Group and that, should there be any interruption in that supply, their contract will be honoured by the Group". The Group will also be able to club together to minimise the cost of chipping and other operations, and offer a range of delivery methods to suit most customers.

It is expected that contract tenders will be forthcoming in the near future from South Ayrshire Council and Ayrshire & Arran Health Board. It is hoped that, once the lorries start to deliver, this will herald the dawn of a new age of local and sustainable energy supply.

For further information contact Peter Walker, Scottish Woodfuels Group Ltd 28, High Street Maybole KA19 7BZ Tel: 01655 883765 or email info@scottishwoodfuels.org. The Energy Agency provides free advice and grants to householders, non-profit groups and businesses in Ayrshire and Dumfries & Galloway and can be contacted on 01292 521896 or via www.energyagency.org.uk

Joe Fergusson



BOILER - BLAIRQUHAN ESTATE

Northern Woodheat/North Sea Bioenergy Closing Conference

One hundred delegates from a wide range of backgrounds and several different countries gathered in the stunning Strathpeffer Pavilion on the 4-5th September for Northern WoodHeat's closing conference. The project, managed by Highland Birchwoods and funded by the Northern Periphery Programme, has been working to encourage the development of sustainable woodfuel supply chains at the small and medium scale for the last three years in Scotland, Iceland and Finland. Each year, it has held a conference in one of the three partner countries and in this, the project's final year, it was the turn of Scotland to play host.



PRESENTATION BY BOB MACINTOSH

The conference was part of a week of woodfuel-themed events organised by project partners – starting with a visit to the Caithness Heat and Power woodchip-fired heating plant at Wick and nearby harvesting sites organised by Forest Enterprise Dornoch, and finishing with a seminar on Collaboration Within the Woodfuel Supply Chain hosted by DWP Harvesting and Marketing. The conference was held jointly with another EU funded project, North Sea Bioenergy, which has been looking at practical issues surrounding small scale wood pellet manufacture in Scotland, and it was also supported by the Highlands and Islands Community Energy Company, which is instrumental in helping communities facilitate their own renewables projects in the Highlands.

The opening session of the conference covered woodfuel policy issues from several different perspectives. The first presentation was given by Dr Bob McIntosh, Director of Forestry Commission Scotland who gave a detailed overview of the current and projected demand for biomass and discussed Forestry Commission's continuing role in supporting the further development of the woodfuel industry. David Henderson-Howat, the Deputy Director Agriculture of the Scottish

Government's Rural Directorate, followed this by outlining the many contentious issues surrounding the input of the agricultural sector to the biomass stream, such as the use of land that could be used to grow food to grow fuel, and he also drew attention to the appalling level of current food wastage. Parallel sessions followed covering such varied topics as Silviculture, Woodfuel Technology, Logistics, Using Woodfuel, Agriculture and Woodfuel, and Woodfuel Business Models. The Using Woodfuel session, chaired by HICEC's CEO, Nicholas Gubbins, was notable for the realistic portrayal it gave of the difficulties still faced by projects in dealing with bureaucracy, red tape and securing a reliable woodfuel supply. It contained presentations from stakeholders with varying backgrounds –including the Here We Are community group from Cairndow in Argyll, and the Albyn Housing Aviemore North development – and showed that the same problems are recurring throughout the country at different scales.

The Silviculture session gave a good indication of the new challenges raised by increased demand for woodfuel from our forests, and work that is ongoing to meet them. It was opened by Jon Hollingdale, former Community Woodlands Manager for Dunnet Forestry Trust. Jon's presentation focused on the Integration of Forest Management and Woodfuel using Dunnet Forest in Caithness as an example. Robert Matthews of Forest Research then gave a presentation on Forest Research's work developing modelling systems to successfully predict the productivity of woodlands for woodfuel in addition to other products.

Following this, Karri Passanen of the Finnish Forest Research Institute (METLA), talked about 'EnerTree', a decision support tool for evaluating economical and ecological consequences of forest biomass extraction. Forest Research and METLA



SCOTTISH SCH OF FORESTRY BOILER

are currently collaborating under the Northern WoodHeat project to improve Enertree's applicability in the UK.

The session was rounded up by two more presentations from Forest Research – each addressing different harvesting issues that have arisen through increasing demand for woodfuel, and discussing ways to maximise both the biomass yield and nutrient retention through forestry based



operations. Tom Nisbet outlined the potential impacts of residue recovery, and Shaun Mochan talked about his work for Northern WoodHeat on sourfelling (harvesting whole trees and leaving them to dry in the forest prior to extraction).

There were several presentations from overseas speakers; these included some from Northern WoodHeat's Finnish partners who have been applying their considerable expertise to the Scottish and Icelandic situations over the lifespan of the project. A good illustration of woodfuel as one of a suite of energy solutions was given by Loftur Jonsson, of Heradsskogar (Northern WoodHeat's Icelandic lead partner) in his talk on Introducing Woodfuel to Iceland, and there were also some interesting talks from Dutch and German partners of North Sea Bioenergy, which showed some good examples of how farmers can enter the biomass market.

In the afternoon of the second day, the delegates split into groups for site visits to different woodfuel installations in the Inverness area. These included the Scottish School of Forestry's new woodfuel boiler which, as well as heating several teaching buildings, provides a valuable training facility for student plumbers and installers in Inverness College's Construction School. The group also visited the nearby FC Smithton building with its new Woodfuel boiler which is also supplied by the School of Forestry. The second group went to Alvie Estate, near Aviemore, who are producing high quality

woodchip, stored in a shed with a drying floor, to fuel Alvie House's own boiler as well as other boilers in the surrounding area, and then visited Albyn housing's Aviemore North development – a district heating scheme which supplies heat to a new social housing development.

The range of topics covered at the conference gave a good reflection of how quickly Scotland's woodfuel sector is growing. Whilst this is very positive on the whole, it is clear that there are still plenty of challenges to be addressed. In particular, it was striking that when Northern WoodHeat launched three years ago, attention was focussed on how plentiful the potential woodfuel supply in Scotland was and what a good opportunity it posed. However, we heard from several different speakers that now the focus is on sourcing enough supply to meet the projected demand arising from a number of large scale biomass developments, for which there is currently a predicted shortfall. At the small and medium scale however, in rural areas too far away to supply such large scale projects, there are still significant opportunities for development. Displacement (competition for resources with other wood processing sectors) was also a hot topic, and Roger Coppock's talk outlined how the Woodfuel Task Force for Scotland is seeking to address this by focusing on waste wood, agricultural waste-streams and small under-managed woodlands. Other issues that recurred throughout the week were the high capital costs of woodfuel installations in comparison to other fuel sources, the shortage of qualified woodfuel boiler installers and woodfuel quality issues.



Highland Birchwoods would like to thank all the speakers and delegates for contributing to a very successful and stimulating event. All presentations can be downloaded from the Northern WoodHeat website www.northernwoodheat.net. For more information about the project, contact the Project Manager at Highland Birchwoods on 01463 811 606.

Fiona Strachan

Domestic Woodfuel Installations – A Case Study

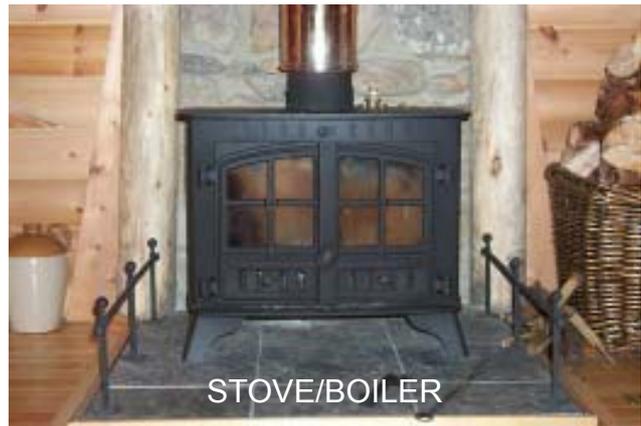
A bit of background

We wanted to install a woodfuel heating system in our new build in Rogart, Sutherland and started our research in 2003. I had been employed in forestry or woodland management in one way or another for most of my life and was sold on the concept before we started and luckily the rest of the family were too. We'd had a little Jotul 601 space heater in our farm cottage for a couple of years so everyone was comfortable with cutting and stacking wood and was used to the routine.

When I started our research the first woodchip units in the highlands and islands had been installed including one that I had been involved in raising funds for at Bettyhill swimming pool. Although these units had teething problems the owners of them were generally positive, stating things like savings over oil and convenience as plus points for the systems. Equipment cost was, however, a different issue.

Which system? - Making the choice

Cost was my first reality check. Woodchip boiler at about £2800, outbuilding to house the boiler around the £2000 mark, pumps, controls etc plus



of course the heating system itself, I wasn't seeing much change out of £6000. An oil boiler off the shelf for £900 or thereabouts? I also didn't like the idea of being tied to one fuel type and not just that, a relatively specialised fuel type. We looked at pellets and discounted them for the same reasons plus at that time, lack of suppliers.

So the obvious answer was logs, but how to make a log system that had a degree of convenience to it. I didn't really like the idea of having a log based system which meant if the fire wasn't burning you'd get cold. Chip and pellet based systems could go into slumber mode much like oil or gas and fire back up thermostatically when required. Automated batch type log boilers could do something like this but again the cost was high and we were back into building a separate out-house pushing costs up even further. I then decided I needed to skill up a bit more and started on an online plumbing course and undertook two units Heating systems and drainage as well as consulting a heating engineer. As luck had it our latest recruit to the team was also a plumber whose advice as we actually installed was invaluable.

Then we stumbled on accumulators! A large body (tank) of water, super-insulated, with a selection of tappings for coils, immersions - whatever is required. These things bring convenience to logs. Connect the log boiler to the accumulator, heat the house and the accumulator up, let the boiler go out and draw subsequent heat as required from the accumulator until such time another burn was required. Size the system correctly and it's one burn a day in the depths of Winter down to once every three to four days in the Spring, Summer and Autumn.



Additionally as the house was a new build and very thermal efficient it became clear that it wouldn't require a huge heat input anyway. The smallest logboilers we'd been looking at were 28kW and yet the energy rating required for building control showed the house would only draw 9kW to maintain an internal temperature of 20 degrees when it was -1 outside.

So all we really required was a big wood burning stove with back boiler and accumulator. We settled on a 16kW Hunter Herald flat top which is supposed to deliver 9kW to the back boiler and 7kW to the room, coupled to 9 radiators downstairs and upstairs and a 500 litre Akvaterm accumulator. The stove was £950 and was available through a local outlet, the accumulator was £900 and was ordered at the time through Fuelwood Harvesting in the Borders, although now available through Peter De La Haye Engineering. The heating engineer provided me with a schematic which ended up being changed slightly in consultation with my colleague and when the house was ready for plumbing I got on with it. I plumbed the house completely myself including the heating system.



A log system with that large a body of relatively uncontrollable heat

needs to be vented rather than pressurised! An obvious but important point. I used copper and compression joints for all the primary heating circuit and thereafter plastic push fit stuff for distribution round the house joined back to copper anywhere above floor level for aesthetic reasons. Compression fittings are more expensive but for the first time DIYer it's also simple which meant I could do it and therefore save money.

Running the system

It's nearly 3 years since we installed the system and we haven't looked back. The system provides all our heating and hot water requirements. We had 25 tons of Douglas Fir (mixed logs) at £475 delivered which has lasted 2 years. The timber was windblown and had been lying for a couple of years. We built two storage

sheds capable of storing about 9 months supply under cover which finished the drying off. In Winter it takes me 1-1.5 hours per week to cut enough wood for the week and 10-15 minutes every morning to split enough for the daily burn. For the rest of the year it's less. In our first Winter we weren't so organised and had to use wet slab wood, meaning we relied heavily on the electrical back up in the accumulator, 2 x 3kW immersions. Expensive and unnecessary if you're organised. Dry wood is everything! That said the electrical back up hasn't been on since.

We have 24/7 programmable thermostats, one controlling the downstairs circuit and one the upstairs. To be honest, we hardly ever use the upstairs circuit, the heat from downstairs being sufficient to heat upstairs as long as we leave doors open. The thermostats talk to motorised valves on the heating circuits and when the room is warm enough the valve shuts meaning the accumulator starts to store. When the accumulator reaches 80-85 degrees, we let the stove go out, the circulating pump switches off and the accumulator stores all that heat for the next day. The accumulator does everything it says it does on the tin, it's brilliant! When we ordered ours we were told that despite being commonplace in

Scandinavian countries, we were about the third order in Scotland. Since we've put ours in we've had a lot of interest and both the boss and a pal have now followed suit.

Ash? Wood burns best on a bed of ash and the stove is so incredibly efficient there isn't much of it. We clean the ash out of the stove about two to three times a year and put it on the garden.

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Costs

Stove	£950
Accumulator	£900
Flue	£400
Plumbing materials	£450
TOTAL COSTS	£2700 – No grant aid

Jon Priddy

Pellets: coming to Scotland soon...

We are on the threshold of an exciting time in the renewable heating sector in Scotland. We have learnt from Europe that there is a well trodden path to establishing woodfuel in the market place- namely in larger public sector buildings adopting woodchip and also the promotion of a domestic automated heating industry using pellets. We have seen several woodchip examples now, and have a healthy burgeoning supply chain for quality woodchip fuel. However, a serious indigenous pellet production facility has long been needed to kick-start the important domestic market. In Scotland there are 3-4 plants in construction and due to open within 12-18 months. So, from a base-line of zero we will soon have 100-200,000 tonnes available. The Scottish government has supported these facilities. Colleagues of mine in England are envious of the strong position Scotland will soon be in regarding pellet supply.



transport/ and or domestic heating boilers or stoves. Similarly, cheap imported boilers and stoves are a) unlikely to conform to safety legislation and b) difficult to operate and maintain.

A typical 3 bedroomed house needs a 6m³ fuel store, holding around 4 tonnes of pellets, with an energy value of 19,600kWh. This means a fuel delivery is commonly around 6-9 months depending on usage. In this arrangement pellets are usually 'sucked' into the boiler (say in the basement) by a vacuum system from an external tank. It goes without saying that if building your own tank you need to be aware of the complexities, and Balcas produce a good checklist for approved features on pellet silos.

Currently pellets are around £180/tonne delivered (equivalent to 3.7 pence per kilowatt hour or 'pkWh').

With the indigenous supply and competition, prices should drop to ~£130/tonne (2.6 pkWh). In comparison, domestic heating oil (30p/litre) is 3.5pkWh and LPG is 5-6 pkWh. It is of course a market place, and prices can go up as well as down. However, in Ireland, the main producer, Balcas, has not increased price even in times when demand has exceeded supply. You may also set up a supply contract with a fixed price per tonne.

See www.hotstovies.com, www.puffinpellets.com, www.balcas.com and www.woodenergyltd.co.uk for more information.

Dan Gates

Forthcoming Events

Date	Event	More info
Nov 1	Biomass Seminar Pitlochry	www.usewoodfuel.co.uk/Events.stm
Nov 12-14	Ignite Wood Fuel Training Dundee	www.ruraldevelopment.org.uk
Nov 26-30	Renewable Energy Heating (training) CAT, Wales	www.cat.org.uk/courses
Dec 6	Scottish Green Energy Awards 2007 Edinburgh	www.usewoodfuel.co.uk/Events.stm
Dec 11-13	Ignite Wood Fuel Training Fort William	www.ruraldevelopment.org.uk