Burning issue

With the UK's future energy needs hitting the news, Ben Tansley and Jane Karthaus take a look at one of the most sustainable fuels of all: wood

'A land of opportunity' was how an Austrian colleague recently described the British woodfuel sector. Across Europe many eyes are looking to the UK as a market that is worthy of investment, and there have been stories of large energy companies sizing up British commercial forests for future use.

The reason? The UK is Europe's largest energy consumer, yet the proportion of renewable energy in the UK's energy mix is one of the worst, and the proportion of heat we produce from renewable sources *is* the worst in Europe. Add the fact that we have the worst insulated homes and properties in Europe, a legally binding government commitment to reduce our carbon emissions, plus some of the most generous incentives to install renewable heat- and electricity-generating equipment, and you can see why the more established woodfuel economies from across Europe are fixing their sights on the United Kingdom.

Woodfuel is one of the most promising contenders in the renewable-energy race, and comes with several advantages over other renewables. The fuel can be easily converted into electricity or heat, and the energy can be delivered on demand. Longer term, we can control the supply of the main ingredient required: wood.

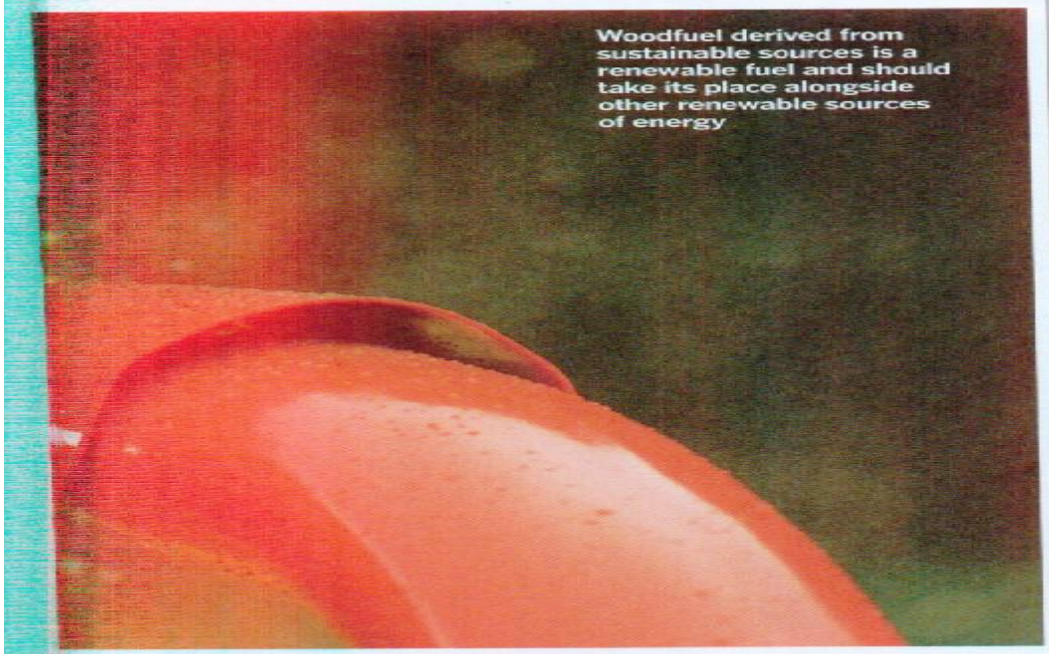
Woodfuel is derived from a mixture of sources: reclaimed timber, raw material from commercial forests or short-rotation coppice, sawmill produce, or from arboricultural residues. Woodfuel can be supplied in various forms: traditional firewood logs, typically burnt (usually inefficiently) in open fireplaces or (more efficiently) in closed stoves; woodchips, which are easier to handle and are most commonly used in specially designed boilers; or pellets formed from dried sawdust, which 'flow' more like a liquid for ease of delivery and have a higher energy content per volume. They do, however, require specialist boilers.

Woodfuel derived from sustainable sources is a renewable fuel and should take its place alongside other renewable sources of energy, such as wind and solar. It is most efficiently used (80–90%) when converted to useful heat. Efficiencies are lower when wood is used to provide power.

Two distinct woodfuel markets are emerging in the UK. As our hunger for electricity continues to grow, incentives are in place to encourage the growth of large-scale power production from biomass. Large-scale power stations consume vast quantities of fuel but, in many circumstances, they burn it at relatively low efficiencies. Woodfuel is very inefficient when used to generate electricity without also using the heat produced, or when used in co-firing.

Ironically, government incentives such as Renewable Obligation Certificates encourage this use, leading to large-scale power plants consuming enormous volumes of a valuable and limited domestic resource. The E-ON plant at Lockerbie came on stream in 2008, but only recently has the heat been utilised by James Jones's adjacent sawmill. While UK growers are delighted to have competing buyers for their lowest-grade material (including some that was previously unmarketable), the larger power producers are not looking to the UK to source the vast majority of this timber.

The emergence of the heat market offers an alternative model for the UK, often at a smaller scale, where wood is burnt with considerably higher efficiencies. It also brings benefits at a local level such as



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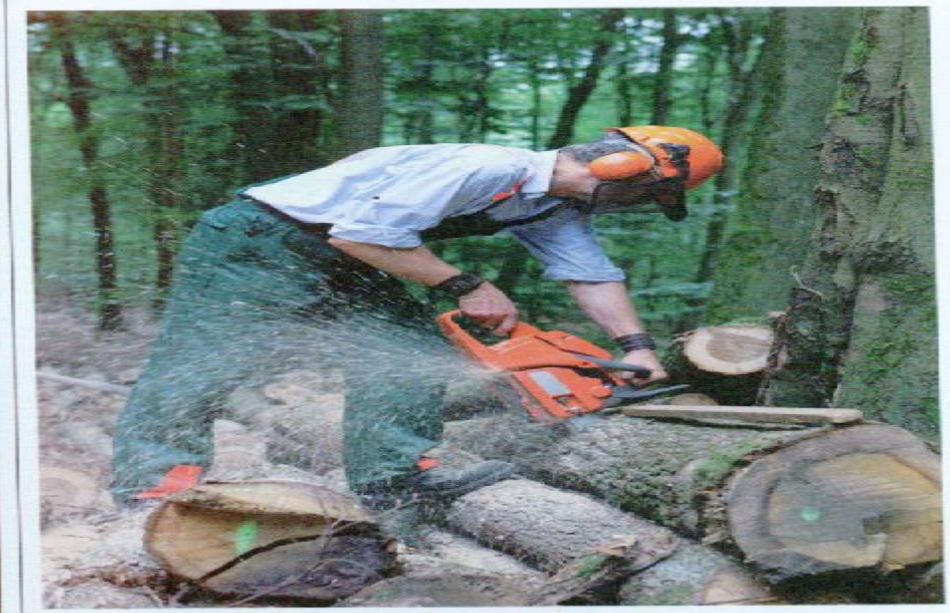
job creation and encourages investment in local woodlands. Smaller-scale and widely dispersed markets for heat (and thus wood) have traditionally been difficult for the government to incentivise, measure and direct. However, the Renewable Heat Incentive (RHI), run by Ofgem and due to be formally launched in September, aims to change this, by paying for heat to be produced from renewable sources. Woodfuel is suitable for heating everything from homes to hospitals. For fuel suppliers, the RHI has the potential to add value to many woodlands currently suffering from a lack of investment.

A lot of work has already been done to support the growth of the woodfuel sector. In North East England, for example, Northwoods has been working to build the infrastructure needed to create a sustainable woodfuel sector. The BEn project has built networks of key players, maps supply and demand of woodfuel, and assists with the sustainable development of the woodfuel sector (see www.northwoods.org.uk/ben for more information).

Woodfuel used at the small to medium scale provides a useful market for low-grade wood, enabling neglected woodlands to be brought into management, building valuable rural employment and offering a cost-effective renewable heat source, thus reducing dependence on fossil fuels from volatile parts of the world. The new RHI is helping to stimulate greater interest in the opportunities woodfuel provides, though Britain still has a long way to go before it starts to catch up with its continental neighbours.

So can we assume new, incentivised market forces will improve the management of British woodlands? Probably not on their own. Existing markets are extremely important to the forest industry, which supports many long-term jobs, and as any successful business knows, access to a variety of customers and markets is far better than having all your eggs in one basket. And in the carbon hierarchy, building with wood is preferable to burning it.



Woodfuel contributes to the green market by creating local jobs and encouraging investment in woodlands

Established fibre-users, and panelboard manufacturers in particular, have concerns about future supplies of their raw materials. If every currently-planned biomass power plant was to go ahead, their total demand could be eight times the current domestic supply. Admittedly much of this biomass is already imported, but global supply and demand is always uncertain. Even if these plants source only 10% from the UK, their impact would be considerable.

Forestry Commission England recently launched its woodfuel implementation plan, which is designed to increase production from un(der)-managed woods to achieve an additional two million tonnes of woodfuel per annum. This should help to enhance biodiversity, landscape and amenity, as well as productivity and overall timber quality.

Overall, growth in the woodfuel sector should be good news for British forestry. The UK has a limited forest resource that we need to use as efficiently as possible. More wood can be made available with effort. We are seeing woodlands returned to management because of these emerging markets, which is excellent news. Could we be bold enough to picture a future with significant commercial afforestation across the UK? Whatever happens, one thing seems certain: we are going to need more timber in years to come.

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