Woodfuel
an opportunity for lowland forestry

We’ve all heard lots about woodfuel over the last few years and even more about climate change. I’ve just returned from the Central European Biomass Conference in Austria where some familiar issues were reinforced:

1. Climate change is a strong probability – the image of ‘Red Rum’ racing a donkey came to mind;
2. While we keep discovering more reserves of fossil fuels the supply remains finite, the demand is increasing and there’s an even stronger probability that the prices will continue to rise;
3. Biomass, in all its forms, is one of the key alternatives to fossil fuel; BUT
4. We’ve a long way to go before we make best use of the resource available from trees, woods and forests in England.

The Woodheat Solutions project, led by the Forestry Commission and sponsored by the European Union, has been working to transfer knowledge and experience about the use of wood as a sustainably produced fuel source from Austria and Finland where its’ use is well established to South East England, Croatia and Slovenia where there is rather a lot of underutilised wood.

The project has included:

- study tours to both Finland and Austria which were attended by a whole cross section of woodland owners, managers, contractors and potential users of woodfuel;
- workshops, technical advice and 1:1 discussions; and
- considerable thought about how this potential market opportunity could benefit the trees, woods and forest of south east England and the wide range of economic, environmental and social benefits they provide.

We hope the following summary of our key observations will stimulate you to reflect on whether woodfuel provides an opportunity for you.

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Woodlands in south east England:

- Woodland area: > 270,000 ha representing 14% woodland cover.
- Less than 20% is coniferous.
- Significant areas have been traditionally managed as broadleaved coppice.
- About half is ancient woodland (> 87,000 ha is Ancient and Semi Natural Woodland and < 44,000 ha of Plantations on Ancient Woodland Sites).
- The Forestry Commission currently manages about 35,000 ha (40% conifer/60% broadleaves) from which about 160,000 m³ is harvested per year.
- Many of the other 235,000 ha (15% conifer/85% broadleaves) have not seen active management for many years mainly due to the decline of local markets for low grade wood; less than a third (by area) are currently subject to a grant scheme or felling licence.
- If we conservatively estimate that most woodland has the potential to grow at 4 m³ per ha per year (and many will achieve more, for instance sweet chestnut coppice can attain YC12 on a 20-25 year rotation) then the woods in south east England could grow at more than 1,000,000 m³ per year.

1. Sequestration and/or substitution:
   - Wood as a solid product (house, garden fence, furniture) provides semi-permanent sequestration of carbon and a carbon lean substitute for carbon hungry materials like bricks and steel;
   - Wood as a fuel provides a renewable substitute for fossil fuels.

2. The growing resource:
   - Even under optimal silviculture the proportion of the growing wood which will be sequestered as a solid timber product is probably less than 30% (early thinnings, sawmill slabwood and sawdust, construction offcuts accounting for the rest);

   Many woods in lowland England are of traditional coppice origin, haven’t been actively managed for decades and the proportion of the growing resource which could be sequestered is even less.

   - Markets for low grade wood would help us undertake silvicultural operations at lower or no cost to woodland owners, or ideally provide a return!

3. Cubic metres or calories?
Foresters traditionally consider the productivity of woods on the basis of growth rate in volume terms, however, as the wider market for carbon, in all its’ forms grows, perhaps we should also consider growth in terms of tonnes carbon, or by its’ energy value in kilowatt hours?
Questions to ask when considering heating with wood:

a. How much heat do you need and when do you need it?
   - Reduce heat load by insulation first;
   - Woodfuelled boilers work best when running at maximum load;
   - You can balance your heat requirements from the boiler by using an accumulator tank to store heat when you don’t need it; and
   - Peak winter and low summer heat loads could be accommodated by an existing fossil fuel boiler and/or a solar thermal array.

b. What fuel type is best for you?
   - Conventional logs work very well in batch boilers if you don’t mind loading them;
   - Woodchip systems are more suited to larger heat requirements but require space and a well thought out fuel supply chain but offer convenience;
   - Woodpellets require less space, offer great convenience but are difficult to fuel from your own woods.

c. How can you ensure the right woodfuel quality?
   - Most woodfuel systems are designed for a particular fuel quality based on chip size and moisture content;
   - The new CEN Standards ensure a common understanding between boiler manufacturer and fuel supplier – they’re not as complicated as they first look – honest!
   - Consider how you will:
     * Season the wood to attain the right moisture content;
     * Chip the wood to the correct size keeping ‘fines’ and ‘shards’ within system tolerances; and
     * Store it to avoid degradation and / or contamination.

d. How will you deliver the fuel to the boiler?
   - Bunker size and accessibility to suit your own delivery system be it corn shovel, trailer, blower or elevator.

e. How, or who, will maintain the system?
   - Many woodfuel systems benefit from simple but regular maintenance, such as cleaning dust from sensors. Ensure you know what is needed and consider how this can be undertaken.
5. Keep it local:
As we all know the financial costs of transporting wood can be crippling, not to mention the added carbon released. Opportunities to supply small local markets offer several benefits:

- Ability to reduce transport costs markedly, especially if woodchips could be delivered with existing farm equipment;
- Reduced costs could allow you to offer woodchip at a better price to the buyer than a competitor yet attain a higher price as a seller;
- Local supply facilitates security of supply for the buyer and security of market for the seller, both benefit;
- Demonstrating to local people how local woods supply local needs helps dispel fears about woodland management operations.

6. Sell heat if you can:
As the markets for woodfuel grow and evolve look to sell on calorific value rather than volume. Seasoned wood and hardwood has a higher calorific value than unseasoned or softwood.

In Austria even logs were sold on calorific value determined by weight and moisture content.

7. Consider appropriate machinery:
Certainly in the South East many of our woods are small and environmentally sensitive. It’s also difficult to attract chainsaw drivers! Some of the smaller scale harvesting and extraction machinery is now being used by contractors.

Tractor based harvester operating in Sussex allows mechanisation and versatility in farm woods.
Some equipment may be eligible for RDPE grants currently delivered by your local Regional Development Agency.

Conclusion: The evolving market for woodfuel finally looks like offering a very real opportunity to restore woodland management to lowland woods. Like all new markets it will require investment but with the support proposed under DECC’s Renewable Heat Incentive and the English Woodland Grant Scheme’s Woodfuel WIG (details of both we hope to see shortly) we just might manage it!

If you are interested in learning more, please see our website.

www.woodheatsolutions.eu