

CASE STUDY

Practical help for businesses
Harrington Woodfuel Co.



European Union
European Regional
Development Fund

7.5% OF UK HOUSEHOLDS USE WOOD FUEL FOR SOME OF THEIR HEATING^[1]

Rising energy prices have resulted in consumers turning to wood-burning stoves as a secondary heating system.

In 2017, it is estimated that at least **200,000** wood-burning stoves were installed in the UK^[2].

Over **90%** of wood fuel users in the UK burn logs^[1].



For every tree that is cut into fuel logs, waste woodcuts and sawdust are generated.

Waste such as this offers a number
of commercial opportunities.



Air quality and wood fuel has become a hot topic and stove owners are being asked to think about the impact of burning poor quality logs has on the environment.

Guidelines for wood stove users

According to the Forestry Commission^[3] the use of clean wood from existing woodlands by small to medium-scale heating systems produces relatively low levels of emissions.

In addition, provided the fuel has been adequately dried to get its moisture content down to a specified level, and it is burned in equipment for which it is specified, wood fuel emissions will comply with the air quality standards required in our UK towns and cities.

In light of this, the Forestry Commission recommends that wood fuel buyers seek reputable suppliers who guarantee that the fuel's moisture content complies with the industry standard and the buyer's equipment specification.



Case study

One such supplier **Harrington Woodfuel Co. Ltd.** based in Wythall in the West Midlands, is a family run business which operates under a simple philosophy – to make ‘truly good wood fuel’.

They are currently the only Woodsure/HETAS^[4] and Grown In Britain certified supplier of kiln-dried hardwood firewood in the central West Midlands carrying out random tests to ensure the moisture content of their final product is below 20%.

Professional arborist and forester, Matthew Downes who founded the company in 2010 recognised that the residue waste associated with his wood fuel production process could open up new possibilities for his business benefiting both the environment and local economy.

Log production process

Each week, 25 tonnes of sustainably-sourced whole trees are delivered directly from British forests to the Harrington site. On arrival the trees, consisting of native species including beech, ash and sycamore are sorted and processed into firewood ready to be force dried in the kiln.

The waste wood resulting from this process is fed into a biomass boiler situated on site. The boiler heats up water, and through heat transfer pumps hot air via the kiln where the newly processed logs are fed and subsequently dried to less than 20% moisture content.

Harrington's logs are shipped out to homes and businesses across the West Midlands, as well as further afield to other parts of the UK, such as Cumbria and Devon. Their full product range includes kiln-dried hardwood logs, part seasoned firewood, boiler logs, kindling and firelighters. They have also recently added two new products to their portfolio; pizza logs suitable for wood burning pizza ovens; and 'hobbit' logs, measuring 8 inches by 3 inches - ideal for smaller fire places and wood burning stoves.



Wood waste residues

The log production process unavoidably generates waste. For every 120 cubic metres of wood processed at the Harrington site, 25 cubic metres of sawdust and waste chippings are generated.

Support from EBRI

New product feasibility, Wythall, West Midlands

Innovative entrepreneur and founder of Harrington's, Matthew Downes first connected with the European Bioenergy Research Institute (EBRI), Aston University when he attended one of its 'Value from Waste' Master Classes held at EBRI in the heart of Birmingham city centre.

During the two-day course he discovered how new market opportunities can be developed from a variety of unwanted materials such as agricultural and manufacturing waste, as well as food and household waste. This helped him to get an insight into how his business could benefit from the wood waste residues generated by his log production process, in terms of new market opportunities and supply chain benefits.

These EBRI Master Classes are part of an EU European Regional Development Fund (ERDF) initiative which provides practical help to small and medium sized enterprises in the West Midlands to develop new services and products.



Matthew Downes of Harrington Woodfuel Co. (pictured centre above) at EBRI's 'Value from Waste' Master Class which was held at EBRI on the Aston University campus.



The EBRI Master Class provided food for thought on how to future-proof my company.

It's interesting to see other opportunities available other than wood-based biomass, such as extracting energy from food."

Matthew Downes
Founder of Harrington Woodfuel Co.

Help to identify new market opportunities

Following on from the Master Class event, EBRI provided additional support to Matthew regarding how he could extract value from his constant supply of waste wood. Each month his company produces approximately 25 cubic metres of wood waste, and as Harrington will be growing their production four-fold by 2019 there will be a relative increase of waste wood offcuts and sawdust.

EBRI's specialist team of business research associates initially conducted a market review to assess the current market values of waste chips and sawdust, including an evaluation of potential markets and alternative revenue generating streams.

They then analysed the chemical and physical properties of a sample of Harrington's offcuts and sawdust to identify the most feasible opportunities in terms of new products and services.

Findings and recommendations

Sawdust

The results of the analysis revealed that the sawdust would be an excellent raw material for biofuel wood pellets, owing to its low moisture and ash content and considerable heating value. It is also ideal for animal and poultry bedding, and equine surfaces.

In the event that Harrington consider selling its sawdust onto pelletising companies, a list of potential sawdust offtaker companies was summarised in EBRI's report, as well as current market prices for kiln-dried and fresh sawdust.



Woodchips

Although woodchips are generally used for community and commercial scale heating systems, there are now smaller woodchip boilers on the market that can be used domestically.

Currently, 25 cubic metres of wood offcuts are generated at the Harrington site each month, which is expected to increase to 100 cubic meters during the next 12 months. These offcuts offer the potential to produce G30 quality class woodchips, ideal for domestic and medium scale heating applications. The cost of woodchips is directly related to the grade and moisture content of the wood, for instance the G30 woodchip combined with a moisture content of 20% has the highest market value.

EBRI's report highlighted that woodchip offers the best market opportunities for Harrington, especially the larger size splinters. It also identified that woodchip waste is more valuable if the sizes are consistent. As part of its recommendations EBRI suggested appropriate specialist chipping equipment, designed specifically for producing wood fuel, which Harrington could consider investing in.

At present, about 350,000 tonnes of woodchip and pellet goes into the UK heating sector.

This could grow to 500,000-600,000 tonnes in 12 months^[5].



Outcome

EBRI's research has helped Matthew to make key strategic decisions affecting his future business growth. The findings and recommendations has prompted him to consider future opportunities for his business, including selling waste sawdust to fuel pellet producers. EBRI also highlighted that woodchip waste is more valuable if the sizes are consistent, and Harrington Woodfuel Co. will use this finding to guide its equipment investment decisions in the future.



EBRI's recommendations can help us with our long-term business plan, and provides us with valuable details and figures we can use with potential customers, partners and investors."

Matthew Downes
Founder of Harrington
Woodfuel Co.

The European Bioenergy Research Institute (EBRI) at Aston University provides practical solutions for businesses to explore the growing 'Energy-from-Waste' market, and the opportunities it offers. Companies can benefit from specialist support, cutting-edge technologies and bespoke events, e.g. workshops to help stimulate business start-up and growth, plus the development of new products and services.

To discover more email:

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or call 0121 204 3383

www.bioenergy-for-business.org

- [1] Domestic Wood Use Survey published by the Department of Energy & Climate Change (DECC) – 31st March 2016
- [2] Stove Industry Alliance
- [3] www.forestry.gov.uk/forestry/infid-839ec6
- [4] HETAS is a not-for-profit organisation that approves biomass and solid fuel heating appliances, fuels and services, including the registration of competent installers and servicing businesses.
- [5] Farmers Weekly, 10 August 2017, www.fwi.co.uk/business/woodchip-demand-may-rise-subsidy-cuts-loom.htm



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