

Developing Biomass in Kirklees

Introduction

Kirklees Council own 250 hectares (ha) of mostly deciduous woodland, most of which is unmanaged. The Council are embarking on a programme of work to ascertain the feasibility of managing these woodlands to supply biomass fuel to boilers in the district.

Local Biomass Fuel Supply

A two year woodland management pilot has been completed at Screamer Wood, Huddersfield. An area of approximately 9.5ha has been thinned, yielding between 700-750 tonnes of timber, equivalent to 480 tonnes of wood chip. A tonne of air dried timber (30% moisture content) can provide up to 3500-4000 kWh of heat.



Timber harvesting at Screamer Wood, Huddersfield

Consultants have been commissioned to carry out a woodland biomass survey of 143ha of Kirklees Council owned woodlands. This will provide an estimate of the potential wood fuel from the sustainable management of these sites but also an estimate of fuel cost per kW and highlight such as access and any extraction difficulties. Initial estimates for fuel yield on one site (8.4ha) indicate that a first woodland thinning would yield approximately 966 tonnes of timber or 2898m³ of wood chip. The results of this study, to be completed in summer 2009, will help inform the future development and use of biomass fuel in Kirklees.

Clearly there is considerable potential to create a local wood chip supply chain by bringing our woodland sites back into sustainable management. Managing woods for biomass provides an ultra low carbon, low cost, secure fuel supply and local jobs, but also increases the biodiversity and recreation values of sites.

In addition there are 2250 ha of privately owned woodland in Kirklees. Following the councils lead, owners may wish to manage their own woodland estates for the supply of biomass, providing additional possibilities for low carbon heating and fuel in the district. There may also be opportunities for sourcing fuel from the council's arboricultural arisings and from clean waste wood, but this will require further investigation.

Wood processing facility

In order to store, dry and process harvested timber into wood chip a wood processing yard will be necessary. Using the results for the woodland biomass survey and estimated future demand for woodchip fuel in the district a business case outlining possible development options for will be prepared. One possible option is a joint venture with a private woodland owner or an existing local business. It is anticipated that this can be set up within 12-18 months to supply wood chip for around £35-60 per tonne.

Boiler Installations

The development of a local wood chip supply chain will need to be supported by the installation of wood chip boilers.

To date initial plans for biomass installations in Kirklees buildings include 2 wood chip biomass boilers and 10 wood pellet boilers. Part of the difficulty with retrofitting biomass boilers, particularly in urban areas, is lack of space for fuel storage and deliveries as wood chip is 3.8-4 metres³ more volume than pellet for the same energy yield.

The benefit of wood chip is in fuel cost, approximate market cost of wood pellets is 4 - 4.2 pence per kWh which is similar to the cost of natural gas (3.5 – 4.5p/ kWh) while the average cost of wood chip is 2 -3.0 p/kWh. Also by developing a local supply of fuel, end users will not be subject to price fluctuations associated with fossil fuels and or market fluctuations in the price of biomass fuel.

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