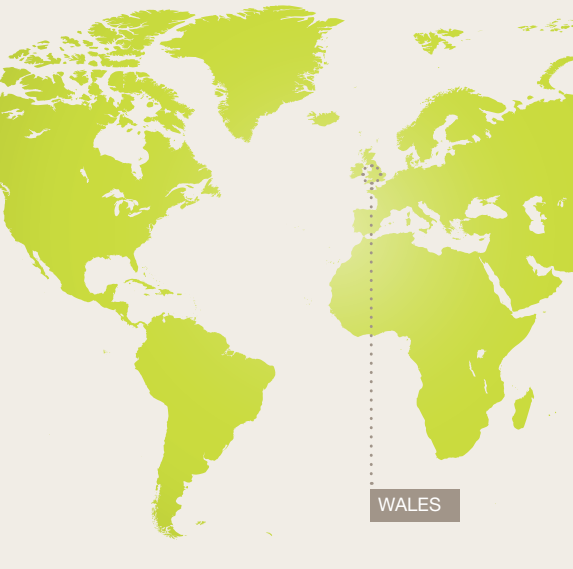


Forestry Commission Wales Supply of biomass to Western Bio Energy



Background and drivers

Forestry Commission Wales is the Welsh Government's Department of Forestry. Its role is to promote sustainable management of woodlands to increase their value to society and the environment. It also manages 125,000 hectares of woodland on behalf of the Welsh Government.

In 2002, a number of traditional virgin wood fibre markets in Wales and just across the border in England increased their use of recycled wood fibre as their primary raw material. This led to a fall in both the value of and the demand for smaller diameter round timber, especially in South Wales.

Forestry Commission Wales invited business proposals in an effort to promote new or alternative markets. One proposal came from Western Bio Energy Ltd, which operates a 10MW biomass power plant near Port Talbot, South Wales. This led to a 12-year supply contract between Forestry Commission Wales and Western Bio Energy for up to 66,000 tonnes of wood fibre per year. From the start, there was a fundamental commitment to making sure that the supply of biomass was sustainable, following the UK Forestry Standard and Forestry Commission Wales's forest certification.

Supply of certified biomass

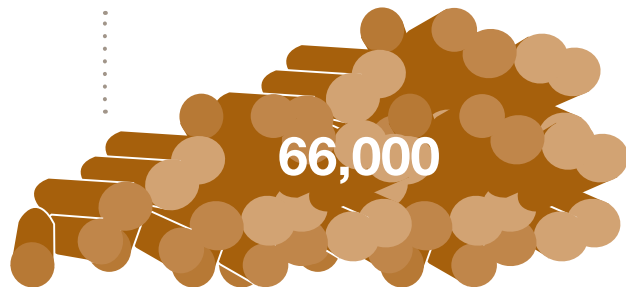
All of the wood fibre supplied by Forestry Commission Wales under its contract with Western Bio Energy is certified by the Forest Stewardship Council (FSC) and PEFC. Forestry Commission Wales uses its operational and programme planning system to identify what fibre to use, and to ensure that:

- timing and scale of forest operations minimize environmental disturbance
- appropriate harvesting methods minimize damage to soils and water
- operating methods reflect site sensitivities, retaining living and dead trees, clumps, patches, buffers and corridors
- brash harvesting is managed according to the Forestry Commission's "Guidance on Site Selection for Brash Removal". This informs site selection, and timing and quantity of brash and stumps to be recovered.



Bioenergy has provided a new market for smaller diameter timber in South Wales.

TONNES OF WOOD
FIBRE SUPPLIED
PER YEAR



Management practices

The “Guidance on Site Selection for Brash Removal” has been developed to ensure that brash recovery – seen as a new forest operation – meets the requirements of sustainable forest management. It has established best practice protocols for both site assessment and operational practice. Brash is only recovered from sites where the risks are considered manageable. The following factors are taken into consideration:

- machine traffic causing physical damage to soil such as compaction, rutting and erosion, leading to increased turbidity and siltation of local watercourses
- removal of essential nutrients (nitrogen, phosphorus and potassium) and carbon in brash residues, leading to lower soil fertility, potential loss of tree growth in subsequent rotations, and reduced soil carbon storage
- removal of base cations (calcium, magnesium, sodium and potassium) reducing soil buffering capacity and leading to increased acidification of soil and stream water.

The risk of damage depends on site sensitivity; on many sites it can be effectively controlled by good planning and forest management. The Forestry Commission has produced a number of guides on good practice:

- Whole-Tree Harvesting: A Guide to Good Practice (1997)
- Forests and Soil Conservation Guidelines (1998)
- Forests and Water Guidelines (2003)
- Protecting the Environment during Mechanised Harvesting Operations (2005)
- Managing Brash on Conifer Clearfell Sites (2006).

The guidance adopts a relatively broad-brush, precautionary approach. It recommends avoiding the removal of brash residues in potential acid-sensitive areas and on all nutrient-poor soils (where poor fertility may limit tree growth).

The guidance enables managers to allocate sites to a risk category based on physical characteristics, then follow the appropriate best practice.

Risk category with recommended good practice measures to control risk

Low

Normal good practice

Medium

Brash baling and brash removal should be limited to largely needle-free brash (<20% needles remaining), except on groundwater gley soils, where fresh brash can be removed. Brash removal should be restricted to dry periods unless it involves secondary extraction, which can be done in wet periods. Enough brash needs to be retained on site and extraction routes to protect soils from machine traffic.

High

Removal of brash is unlikely to be sustainable and should generally be avoided. Could be considered if nutrients and/or base cations are replaced via remedial treatments such as applying limestone or wood ash (none needed on Juncus bogs), subject to an assessment of suitability, cost-effectiveness and sustainability. Enough brash of adequate strength must be retained to protect soils from machine traffic.

The critical role of sustainable forest management

The UK Forestry Standard (UKFS), first published in 1998, provides a comprehensive statement of the UK government's approach to sustainable forestry. It explains how the UKFS will be delivered in practice, and defines the criteria and indicators of sustainable management for all forests in the UK. These are linked to the developing international protocols for sustainable forestry.

The UKFS also forms the basis for the UK Woodland Assurance Standard (UKWAS). This provides a voluntary national standard of responsible forest management, supported by forestry, environmental and social organizations and by the government. UKWAS requires forest managers to comply with the law and certification standards on:

- management planning
- woodland design: creation, felling and replanting
- operations
- protection and maintenance
- conservation and enhancement of biodiversity
- the community
- forestry workforce.

In 1999, the woodland Forestry Commission Wales manages on behalf of the Welsh Government was certified as meeting the highest international environmental, economic and social standards, as set by the FSC/PEFC. Certified status is maintained with an annual independent audit.

Outputs, results and lessons learned

Forestry Commission Wales can meet its long-term contractual commitment to supply biomass for bioenergy sustainably. The material it supplies carries the FSC/PEFC label, demonstrating that it's a product of woodland managed to the highest standard.

Long-term management plans, which allow Forestry Commission Wales to estimate its future production levels, are essential for entering into such a long-term supply contract.



The Forestry Commission has produced guidance on sustainable brush removal.