



Wood chip supply and quality requirements from a buyers perspective

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CAFRE Energy Use

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cuts carbon







Encouraging local production

Woodchip Boilers



• 150kW biomass boiler at Loughry Campus

• 320kW biomass boiler at Horticulture Development Centre, Greenmount Campus

 300kW biomass boiler at Enniskillen Campus



150kW Froling at Loughry Campus ~160 tonne/year







320 kW Froling at HDC ~120 tonnes/year



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300kW KWB at Enniskillen Campus ~185 tonnes/year





Ash disposal

The need for standards



- There is a wide range of biomass suitable for energy use.
- With wood chip there can be major differences in characteristics and properties between different batches
 - chipped using different chippers,
 - from different material,
 - with different moisture content.

The need for standards



- Although it is all usable, one batch will allow a particular boiler to operate according to specification, but
- Another may cause
 - blockages in the fuel feed line,
 - inefficient operation,
 - emissions,
 - condensation in the flue, or
 - cause the boiler to shut down as it moves outside its operating parameters.

Standards.



- The European Standards Organisation is called CEN (Comite' de Normalisation) CEN Technical Committee 335 - Solid bio-fuels
- Established about 10 years ago with a mandate to produce standards for solid biofuel including wood chip

Standards.



- CEN has now published a suite of standards (Euro Norms) that have replaced all other individual European country standards and in the UK
- These standards have been adopted by British Standards (BS EN).
- The standards describe a fuel that is provided and what its agreed properties are.
- The properties specified for each individual fuel are divided into:



• Normative properties, which must be provided - materials origin, particle size, moisture level and ash content.

• Informative properties, which are voluntary - net energy content, bulk density, chlorine and nitrogen content.

CEN/TC 335



- CEN/TC 335 allows all relevant properties of the fuel to be described, and includes both normative information that must be provided about the fuel, and informative information that can be included but is not required.
- As well as the physical and chemical characteristics of the fuel as it is, CEN/TC 335 also provides information on the source of the material.

ÖNORM



- While the CEN/TC 335 suite of standards are intended to be the universal standards for solid bio fuels across Europe, prior to these many countries developed their own standards.
- The Austrian Standards Institute is ÖNORM.
- While ÖNORM is now adopting its own implementations of the CEN/TC 335 standards, many Austrian boilers have been installed in the UK and specify fuel according to ÖNORM M7 133 for wood chips.

British Standards



Fuel specifications and classes for graded wood chips

• BS EN ISO 17225-4:2014

What do CAFRE require?



- Must be in line with EU Procurement rules and public procurement policy (Available on application to tender)
- Wood fuel must be from legal and sustainable sources.
- The wood fuel must be the right size, ensuring boiler feed system does not block i.e. to G50 standard

Grading



- G30 Fine wood chips
- G50 Medium wood chips
- G100 Course wood chips

- 1 3 cm
- 3 5 cm
- 5 10 cm

CAFRE requirement



• G50:

	G50 Wood chips
Fine	max. 20%
	width <5.6 mm
	max. 4% finest material
	width <1 mm
Main	60 to 100%
	width 5.6 – 31.5 mm
	max. length 50 mm
Course	max. 20%
	max. cross-section 5 cm ²
	max. Length 12 mm

Moisture content



- W20 Air dry
 - W30 Suitable for storage
 - W35 Limited suitability for storage
 - W40 Damp
 - W50 Freshly cut

<10%mc 20-30%mc 30-35%mc 35-40%mc 40-50%mc

CAFRE requirement



- The wood chip must have the right moisture content for the boiler(s) to work at optimum efficiency i.e. W30 (20 – 30%)
- Price tendered related to moisture content (MC%)
- Price tendered may include a range of prices at different MC%

CAFRE requirement



- Deliveries by weight must be accompanied by a weight docket from a certified weighbridge
- Deliveries Mon-Fri, 8.00am to 5.00pm capable of delivery in 48 hours from order
- Ash removal as part of contract
- Bid for one or more sites
- Award on a per site basis

Fuel delivery systems











CAFRE requirement



• Separate quotations for each site

• Payment based on CAFRE analysis of each load

 A guarantee is provided that the wood chip meets recognised standards and fulfils the required specification for the boiler.

Tender evaluation



- Award of contract will be based on compliance with experience and price
- Submitted tender prices will be converted to a price per kWh based on Coford Equation of

Calorific Value =19.2-(0.2164 x % moisture content) GJ per tonne

The range of prices tendered will be averaged



Example TendersNI

https://etendersni.gov.uk

CPV codes for eTendersNI

09111400-Wood fuels 09110000-Solid fuels 03413000-Fuel wood 03410000-Wood



CAFRE – Supply of Wood Chip Fuel CFT 77759

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