

## STRABANE MILLS LTD

# Strabane Mills Biomass boiler installation

Strabane Mills Ltd is a relatively small niche animal feeds producer, which processes maize and other grains to create a range of dried animal feeds. The company produces approximately 20,000 tonnes of product annually.

Following a Carbon Trust survey in March 2005, and against a backdrop of rising oil prices, Strabane Mills took the proactive measure of installing a high efficiency biomass boiler incorporating state of the art control technology to provide equivalent or greater levels of efficiency and reliability as their existing fossil fuel fired boiler.

While biomass boilers are not widespread in Northern Ireland, they are a major industry in most other northern European countries. For example, from only a few hundred installations in the mid eighties, in excess of 100,000 automatic boiler installations are now carried out in Austria each year.

The primary impetus for installing a biomass boiler on the Strabane site was to secure much lower fuel costs and provide security of fuel supply. The attendant carbon savings from using biomass fuel were an added bonus that has placed the company on a strong environmental footing for future marketing initiatives.

The state-of-the-art 1.6MW Binder 8barg steam boiler installed incorporates the following features:

- Fully automatic feed
- Automatic ignition
- Capacity control
- Remote system control and monitoring
- Efficiency of 90%+
- High-velocity air heat exchanger cleaning
- Very low ash production ~ 0.5 – 1.0%
- Automatic ash removal from boiler
- Cyclones to remove fly-ash from emissions stack.

Refractory design is an important aspect of biomass boiler design influencing the turn down ratio and starting regime with wet or green woodchips. The Binder boiler incorporates a reflecting arch refractory, enabling the boiler to run reliably on wet green wood chips with up to 55% moisture by wet weight, though the refractory must be rebuilt every six years or so depending on use.

The boiler's step-grate was selected due to its ability to use a larger variety of woodchip quality types: dry or green wood at a fine or large particle size. The boiler at Strabane Mills was designed for maximum flexibility, so that wood fuel could be provided from a variety of sources, including: forestry residues, sawmill/joinery residues, clean recycled wood, arboricultural arisings and energy crops.

*The 280m<sup>3</sup> fuel store at Strabane Mills with moving floor detail*



The fuel bunker and fuel handling at Strabane Mills incorporates a hydraulically operated walking floor, which drags the piled woodchips into a series of auger feeds. The step-grate shuffles slowly moving the woodchips along the step grates with a primary airflow from below the grates and a secondary airflow from above. The two-pass boiler generates steam at 8barg and runs virtually at maximum capacity which is ideal for this type of boiler plant.

## Investment, performance and return

Capital cost	£400,000
Interest Free Loan Amount	£100,000
Annual cost savings	£200,000
Annual CO <sub>2</sub> savings	1,070 tCO <sub>2</sub>
Simple payback	2.7 years

The biomass boiler at Strabane mills displaces over 400,000 litres of oil per year saving the emission of over 1,000 tonnes of CO<sub>2</sub> to atmosphere.

## Company perspective

*“Our biomass boiler has performed exactly as specified, reduced our thermal energy costs, and helped strengthen our business in a competitive marketplace.”*

Tim Traill, Managing Director Strabane Mills

## A call to action for Northern Ireland companies

### Energy Surveys

Carbon Trust energy surveys are independent, carried out by accredited consultants and tailored specifically to the needs of your company.

[www.carbontrust.co.uk/surveys](http://www.carbontrust.co.uk/surveys)

### Interest Free Energy Efficiency Loans

Energy Efficiency Loans from the Carbon Trust are a cost-effective way to replace or upgrade your existing equipment with a more energy efficient version.

[www.carbontrust.co.uk/loans](http://www.carbontrust.co.uk/loans)

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**3Y Group** Waste wood boiler & equipment replacement (CTS062)

**Beverage Plastics** Energy saving initiatives (CTS072)

**Bombardier Aerospace, Belfast** Metering monitoring & targeting (CTS063)

**Dale Farm** Chilling plant and insulation improvements (CTS064)

**FP McCann Limited** Aggregate storage facility (CTS065)

**Huhtamaki** Carbon reduction programme (CTS066)

**Lafarge** Centralised compressed air system (CTS067)

**Pritchitts** Refrigeration and heat recovery (CTS068)

**Shah-Jalal** New process equipment (CTS069)

**Tayto** Waste oil fuelled onsite generation (CTS071)

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### Insights

Explains the opportunities surrounding climate change



### Solutions

Delivers carbon reduction solutions



### Innovations

Develops low carbon technologies



### Enterprises

Creates low carbon businesses



### Investments

Finances clean energy businesses

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