



BGI Ltd
Bio Global Industries



Case Study:

First in UK installation of a biomass boiler system with dual fuel store room

Bio Global Industries

Bio Global Industries Ltd (BGI) is an alternative energy company that delivers a highly flexible solution to green energy generation in the UK. Their multi fuel Biokompakt® boilers can burn a wide range of alternative, highly calorific and cost effective biomass fuels.



Project Background

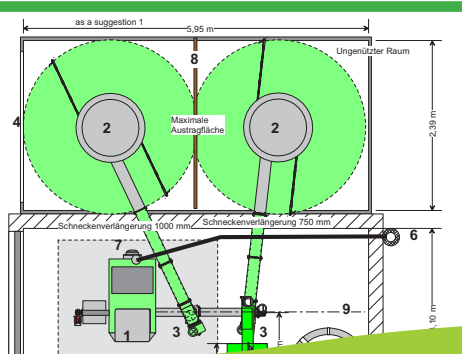
The Hunters Oak installation is a show case project that will enable the heating of three domestic properties, with the potential to become a district heating installation.

It demonstrates to smaller communities how they can save on their heating bills, become more environmentally friendly and also benefit financially from the Government's Renewable Heat Incentive (RHI) payments. The RHI pays participants of the scheme that generate and use renewable energy to heat their buildings. By increasing the generation of heat from renewable energy sources (instead of fossil fuels), the RHI helps the UK reduce greenhouse gas emissions and meet targets for reducing the effects of climate change. People who join the scheme and stick to its rules, receive quarterly payments for seven years for the amount of clean, green renewable heat their system produces.

The Solution

A Biokompakt® boiler was installed which can burn up to three different fuel types at the same time. Its lime metering system enables fuels with higher sulphur content like Miscanthus or Grass pellets to be burned.

The robust and powerful design of the fuel fed system allows the use of even hard and large sized wood chip G60 (with up to 60mm length). It is intended for commercial, industrial or residential use. Due to the locally sourced biofuels, including willow crops that grow on the surrounding land, the installation will reduce current heating costs by over 70%.



Biofuels

Energy crops such as willow are becoming more commonplace on farmland around the UK as our summers become wetter. Months of heavy rainfall can leave many crops submerged under inches of water but thirsty willow crops thrive in these conditions.

Willow is a native tree species which enjoys wet conditions and can be grown from a single branch cut from another willow tree. They have traditionally been used to make charcoal, cricket bats and even Aspirin, but are now being turned into clean, renewable energy. In the UK, willow grows best when it is coppiced and at this point, the wood can be harvested and turned into chips or pellets to burn in biomass boilers.

BGI started researching and growing fuel to provide hot water and heating for their farm 5 years ago. They travelled extensively throughout Europe to find the best willow species and most favoured growing techniques. This would then provide them with sustainable, easily managed, low maintenance and environmentally friendly products for their biomass boilers.

Initially, a crop of approximately 50,000 willow trees was planted on their land as a test bed, which will be increased by a further 100,000 trees, incorporating a variety of other biofuel crops, all capable of generating renewable energy for heating and hot water.

Matthew Hunt, BGI's Managing Director commented *"We are also communicating and liaising with local farmers and land owners within the area to provide information and raise awareness of the potential available to them with regard to the production of green fuel. Biomass fuel can be produced in a variety of forms, from a variety of raw materials. For example willow trees are grown in short rotation coppice. This means the trees are coppiced every 3 to 4 years. The coppiced material is then chipped ready to fuel the boilers."*

The willow crops are also a haven for wildlife which is great for the biodiversity and you can grow it almost anywhere. It is very low maintenance and thrives in our typical wet conditions – even in flooded fields.

BGI are working with local businesses who have land available and the appropriate resources to grow their own biomass fuels. Matthew commented, *"In certain situations, where land is available, there is an opportunity for BGI to plant a biomass crop on the site in order to provide a constant fuel supply going forward."*

He continues *"Other types of biomass fuel include Miscanthus, wheat, hemp, rye grass and many more, as well as accountable by products from manufacturing and tree surgery. All these potential biofuel materials can be turned into chips, pellets and briquettes for burning in our boilers."*

Technical Details

System:

- 98kW Biokompakt AWK/ECO biomass boiler
- District heat connecting 3 houses and a swimming pool
- 1 Main Buffer tank 2000l and 2 x 500l hot water cylinders

Installation type:

- Replacement of an old oil boiler with low efficiency grade in house No 1, installation of the district heat and connection to house No 2, installation of the new heating system in Annex – office area, connected to house No1
- New system efficiency: 94%

Example of Fuel Costs & Consumption Options:

- 29 tonnes of wood pellets at £220 per tonne = £6,380 per annum
- 40 tonnes of wood chip at £120 per tonne = £4,800 per annum
- 29 tonnes of oat husk pellets at £170 per tonne = £4,930 per annum



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