

# Case Study

## Letheringham Mill

### Woodbridge, Suffolk

#### Extensive Property Renovations Around a Listed 18C Mill

**Two 95kW ETA PE-K wood pellet boilers heat the main house, three holiday units and pool, with future capacity for the mill.**

The boiler room was located in an outbuilding alongside a purpose built pellet store with a twin augers. Wood pellet is augered from the pellet store and transferred pneumatically in to the boiler's day hoppers. Around 90m of insulated underground pipe delivers heat to the main house and the pool.

**"Technical competence was very important to us."**



**Asgard Biomass** has been installing biomass boiler in the east of England for the last 10 years, during this period dozens of boilers have been installed all over the region.

#### The Installation:

- "Cascaded" ETA HACK 95kW wood pellet boilers.
- Heating and hot water in 5 separate buildings
- 90m of Calpex insulated underground pipe
- Purpose built pellet store
- Heating for internal swimming pool

#### The Benefits:

- Fuel Costs reduced by more than 30% (heating oil comparison)
- CO<sub>2</sub> Reduced by 98% or around 30 tonnes of carbon saved
- RHI eligibility will ensure annual payment of over £21,471 (depending on usage) every year for 20 years

#### Why Biomass

- Major renovations provided an opportunity to install a completely new biomass district heating supply to all the premises on the property
- Major financial benefit from the RHI income on an annual basis for 20 years
- Make a positive and on-going contribution to the environment
- Full automation, reliability and ease of fuel delivery



#### Background

The complete renovation of a house and outbuildings provided an opportunity to install a biomass system. The boiler house and fuel store were located in an existing outbuilding adjacent to the listed barn and three newly renovate holiday cottages. The underground district heating pipe was installed along with other services during the renovations. District pipe was laid to the main house and pool around 90m away.

## Project Summary

Asgard Biomass undertook the following aspects of the installation:

- Installation of two ETA PE-K 95 kW wood pellet boilers giving 190 kW heat capacity
- Pellet store, agitator and auger feed system.
- Complete boiler room fit-out including two 2200l thermal stores, high efficiency variable speed pumps, pressurisation unit and heat exchanger
- 90m of Calpex Uno pre insulated underground pipe
- Property connections including 3 x class 2 RHI compliant heat meters



Boiler House and Pellet Store

## Key Costs and Benefits

A turnkey system similar to the one outlined above is likely to cost around £100,000

**Fuel Consumption** - 52 tonnes of wood pellet vs 6,600 litres of oil

**Fuel Cost Savings** - Around £3,000 equivalent to a 40% reduction

**RHI Payments** - Around £21,000 per annum depending on use equivalent to around £570,000 over 20 years (index linked)

**Payback Period** - Approximately 4 to 5 years combining RHI income and fuel cost savings

**Project Value** – Annual gain around £25,000 per annum combining RHI income and fuel savings. Project discounted cash flow over 20 years £780,000

**CO<sub>2</sub> Savings** - 30 Tonnes

*Figures are approximations based on assumptions made on fuel usage and price, fuel inflation and annual RHI rates and index linked increases. RHI tariff at July 2013.*

**The Boiler: 2 x ETA PE-K 95kW Boiler,**

Premium Austrian build,

Highest industry safety levels,

Fully automatic, internet access

Turbulator cleaned heat exchanger,

5 Year Warranty

Lambda control

Tilt grate cleaning mechanism

Flue gas recirculation,

Robust industry leading auger

High efficiency 93.5%

