

# Case Study

Northfield Farm  
Comberton, Cambridgeshire

## Barn Conversion and Cottage

### A 70kW ETA HACK wood chip boiler heats barn conversion and cottage

The boiler is located in an outbuilding, a purpose built chip store with a hydraulically lifting roof was constructed. Wood chip is augered from the chip store directly in to the boiler. Around 100m of insulated underground pipe delivers heat to the two residential properties.

**“Ease of operation, convenience and full automation 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:

- ETA HACK 70 wood chip and pellet boiler.
- Heating and hot water in 2 separate buildings
- 106m of Calpex insulated underground pipe
- Purpose built chip/pellet store
- Hydraulic lifting roof on the fuel store

#### The Benefits:

- Fuel Costs reduced by more than 60% (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 £7,910 (depending on usage) every year for 20 years

#### Why Biomass

- Major renovations provided an opportunity to introduce a completely new heating supply in one property and upgrade the other with biomass.
- Major 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 barn and farm outbuildings provided an opportunity to install a biomass system. An existing outbuilding around 60m from the barn conversion was used to house the boiler. The underground district heating pipe was installed along with other services during the renovations. District pipe was laid to a cottage around 50m away. No back-up boiler has been installed to the barn conversion.

## Project Summary

Asgard Biomass undertook the following aspects of the installation:

- Installation of the ETA HACK 70 kW wood chip and pellet boiler
- Chip store floor and hydraulic lifting roof, agitator and auger feed system.
- Complete boiler room fit-out including 2200l thermal store, high efficiency variable speed pumps, pressurisation unit and heat exchanger
- 106m of Calpex Uno pre insulated underground pipe
- 2 x class 2 RHI compliant heat meters
- Full commissioning, training and RHI application



## Key Costs and Benefits

A system similar to the one outlined above is likely to cost around £60,000

**Fuel Consumption** - 18 tonnes of wood chip vs 6,600 litres of oil

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

**RHI Payments** - Around £7,500 per annum depending on use equivalent to around £212,500 over 20 years (index linked)

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

**Project Value** – Annual gain around £11,000 per annum combining RHI income and fuel savings. Net project cash flow over 20 years £273,000

**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 2014.*

**The Boiler:** ETA HACK 70kW 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%

