

Low Sizergh Barn, Kendal, Cumbria

Woodfuel brings 17th century barn into 21st century



Low Sizergh Barn is a farm shop, tea room and craft gallery on an organic dairy farm, which welcomes over 100,000 visitors a year and has around 60 staff. The late 17th century barn did not have any form of heating system before, so it was important to the Low Sizergh team to find a renewable fuel source that was sensitive to the local and wider environment, as well as efficient.

The success of the woodfuel heating system now means that the hot water supply for Low Sizergh's milking parlour is also soon to be generated by the woodfuel system.

objectives

- To find a renewable fuel source to heat the farm shop, galleries, tea room, kitchen and offices.
- To develop woodfuel usage and help create a sustainable tourism destination.
- To maximise the utilisation of local Cumbrian timber for the woodfuel.
- To minimise the business' carbon footprint and help create a sustainable visitor destination.

actions

- Initial technical appraisal for the Low Sizergh Barn woodfuel project focussed primarily on the needs of the newly extended farm shop and tea room as well as other parts of the site, including kitchen and offices.
- Installing one 90kw woodfuel boiler.
- Storage methods for the woodchip were assessed, leading to the existing farm buildings being converted to accommodate not only the boiler but also a fuel bunker.
- Building local supply relationships with local forestry and woodchip service companies.

achievements

- The Low Sizergh Barn woodfuel system is benefiting over 100,000 visitors each year as well as around 60 full time and part time staff working on the site.
- First ever central heating/hot water system installed during Low Sizergh's 400-year history.
- Members of the Low Sizergh team have been through LANTRA's 'Ignite' woodfuel training course.

background

- The total Low Sizergh Barn woodfuel project cost was approximately £50,000.
- Low Sizergh are currently paying around 2.5 pence per kwh for the woodfuel heat and the project pay back is anticipated to be less than seven years.
- The system is based around the use of timber sourced and purchased within the county and brought on to the site. This is stored within the existing farm working area in a converted barn.
- The 90 kW woodfuel boiler heats woodchips with a maximum moisture content of 35%. The lower the moisture content, the more energy is generated per tonne.
- The boiler is served by a 4 x 4 metre bunker which holds approximately 10 weeks' fuel.
- Woodchip is delivered by a tractor and trailer in 3.5 tonne loads and loaded into the bunker using a JCB.
- There is no back up boiler on site. The woodfuel boiler is maintained by carrying out daily visual checks. Other scheduled tasks which are carried out less frequently include emptying the ash container, cleaning flue paths and refilling extinguishing equipment.
- Low Sizergh has developed close links with both the Forestry Commission Regional Woodland Officer and Cumbria Woodland's through their Forest Futures programme.

quote

"We wanted heat and hot water from a renewable energy source that was readily available in the local area. The fact that we are on a farm means there is space for the boiler and fuel store. The late 17th century barn had never had a heating system and we revel every day in the stable temperature of the farm shop and tea room. Insulating the barn roof drastically improved the leakiness of the building so our lovely heat is retained." Alison Park, Low Sizergh Barn

partners

The Forestry Commission
Cumbria Woodland's Forest Futures programme/Rural Development Programme/ Business Development Programme
The Carbon Trust - interest free loan from
SRM Building Design, Kendal

lessons learnt

- The installation of the woodchip boiler was part of a larger expansion and refurbishment programme at Low Sizergh Barn which made the woodfuel system design easier to incorporate.
- Following the success of the woodfuel heating system, the hot water supply for Low Sizergh's milking parlour is soon to be generated by the woodfuel system.