

Carlstonhill Farm

Short Rotation Coppice (SRC) (Willow) pellets provide heat for '2nd chance' Education Centre



Carlstonhill Farm, North Yorkshire, provides an educational establishment for children from across the region that have been excluded from school. The school started in 2005 and is housed in a series of converted farm buildings which are heated using a 40Kw Baxi pellet boiler, that fuelled using local SRC willow pellets. The schools ethos concentrates on teaching the young people practical life skills and providing vocational training. The school runs daily, taking 8-10 children for a 5 hour day. The centre's boiler also heats the adjacent farm manager's house, a 1800's Yorkshire stone 3 bed building.

objectives

- To bring redundant farm buildings back into use, the school occupies the former farm sheep and machinery sheds.
- To create a viable diversification project and generate another revenue stream for the Carlstonhill group of businesses.
- To create a 'Carbon Lean' development, the SRC pellet heating was at the heart of the building conversion and refurbishment's design, and may well have assisted in gaining the planning permissions.

actions

- Creation of a demonstration project to show utilisation of the SRC in pellet form and for the smaller scale domestic heating market. The farm already has 70Ha of SRC on its grade III land which is harvested to heat an office complex.
- Pellet supplies had to be sourced, this was undertaken via the SRC Producer Group – ReGro.
- Building a relationship with the local education authorities. The school is close to Leeds MBC, which has one of the highest UK exclusion rates.
- Development of redundant farm buildings, many dating from pre-tractor farming operations and not suited to modern agricultural practice.

achievements

For Business:

- A reduction in the Carlstonhill Estate's fossil fuel dependency, improving the quality of life for the resident of adjacent heated property for example.
- Creation of additional revenue for the managing estate, selling heat to the school and farm manager's residence.
- Improving economic standing of local not-for-profit producer group supplying fuel material, of which Carlstonhill Farms is a member.

For the Region:

- Creation of a successful 'Care Farming' venture, providing a structured educational outlet for over 150 children in the last three years.
- Creation of 11 permanent staff posts as teachers and carers within the facility.
- Creation of an exemplar site showing SRC pellet heating is suitable for smaller scale heating projects.

background

- Carlstonhill Farms is a mixed agricultural enterprise, which has been farming in the Sicklinghall area of North Yorkshire for over 70 years. It covers 273Ha, with 50% being in grass, 10% Woodland and 30% producing SRC. The farm runs 300 sheep and 50 Cattle, it employs a member of staff directly.
- The Carlstonhill group of companies run an associated 'green' office development that was opened in 2003 with a SRC fuelled district-heating system. The owner Gareth Gaunt is one of the leading exponents in biomass heating, often featuring in the media, including TV as part of the series "Jimmy's Farm".
- The school development cost £400,000, with the Baxi Boiler making up £12, with a further £8,000 for the associated heating pipe works.
- Fuel is bought in 15t quantities (then bagged into 30Kg bags) the system is uses about 2½ bags (75kgs) daily during the heating season. The system is also capable of operating on wood or other pelleted material giving less then 3% ash, so as to avoid clinkering.
- Pellets retail at approximately £150 per ton (delivered), and are bought directly from ReGro.
- The boiler is serviced annually by a local contractor, and maintenance costs are comparable to those of a similar sized solid fuel heating system. De-ashing is undertaken weekly by staff within the Carlstonhill group, with about 300kgs produced in each heating season, this is spread on the adjacent farmland.
- The Carlstonhill Group is now working with other similar estates and communities to look at installing biomass heating locally.

quotes

"It's strange to think all these sticks growing in the fields end up heating our school"

'Kaine', Service User, Carlstonhill Farm.

"The biomass boiler at Carlstonhill Farm has not only been a great asset in terms of energy and carbon conservation, but also a useful teaching tool for the school"

Gareth Gaunt, Owner, Carlstonhill Farms Ltd

partners

Carlstonhill Farms

Education Leeds

Rural Energy – Boiler Supplier
ReGro – Pellet Supplier

funding

DEFRA Rural Enterprise Scheme (ERDP)
50% Match Funded by Carlshead Ltd £15,000

lessons learnt

- When researching boiler installations, it is preferable to identify where there is a steady heat use, this installation has the school taking the daytime heat and the farm manager's house using the evening and early morning heat load.
- Ensure when providing a biomass heat system that will be managed by others, that a user-friendly fuel source is specified. A large hopper for less frequent fillings and bagged pellets are used in this case, making stoking the boiler far from a chore.