

### Sustainability Overview

Mucknell Abbey is a contemplative monastic community of nuns and monks living under the [Rule of St Benedict](#) and part of the [Church of England](#).

We want to show in our lives some echo of God's delight in creation, and justice and mercy towards our neighbour. So we are seeking to live simply and sustainably, aware of the web of relationships, and how our common life is lived as part of a wider ecology. In practical terms, this means considering energy and water consumption in our buildings, food, biodiversity, transport.

This factsheet gives a short introduction to our action in these areas. More information on [sustainability at Mucknell](#), and further factsheets with detail on the renewable technologies and the estate are available at [www.mucknellabbey.org.uk](http://www.mucknellabbey.org.uk).



#### Biomass Boiler

The boiler is fired by wood chip and has a heat output of 80 kW. It was made by Hargassner in Austria, and installed by Wood Energy. Wood chip is supplied by Midlands Wood Fuel from local timber sources, so is almost carbon neutral. It provides most of the heating and hot water during the winter, backed up by a liquefied petroleum gas boiler, but during the summer it is switched off, and solar thermal and LPG provide the hot water. The system was part-funded by the Low Carbon Buildings Programme.



#### Solar Water Heating

There are 8.8 m<sup>2</sup> of solar thermal panels on the guest wing roof, and 17.6 m<sup>2</sup> on the community building, and these are expected to generate 17 MWh of heat each year. Both roofs face due south, and during the summer, the panels will be able to supply nearly all the demand for hot water. Any required top-up heat will come from the LPG boiler during the summer and from the biomass boiler during the rest of the year. The system was part-funded by the Low Carbon Building Programme.



#### Photovoltaics

There are 86.5 m<sup>2</sup> of photovoltaic solar panels on the community building, with a power output of 12 kW. They are expected to generate about 9 MWh of electricity each year, which is available to use on site, avoiding importing electricity. We have registered for the government's Feed-in Tariff, through which we receive payment for all the electricity we generate. Our electricity supplier also pays for any surplus electricity we export to the grid.



#### Rainwater Harvesting

Rainwater is diverted from roofs and guttering via filters to an underground tank. The total volume is 50,000 litres: 5,000 litres for toilet flushing and external taps; 45,000 litres in case of a fire. Should the smaller tank run dry, the mains supply is the back-up. We also collect water in butts for use in the kitchen garden, and there is a bore hole in the orchard, which we hope to renovate.



## Biodigester

We are not on mains drainage, and the biodigester treats all our sewage on site. It is simply a tank filled with bacteria which digest the organic material biologically, with artificial aeration. We expect the biodigester will need to be pumped out every three years. The treated water is acceptable for animals to drink, and is discharged into a series of three swales. The swales will be planted with reed beds, which will continue to purify the water, and will provide a small wetland habitat.



## Sustainable Building

The Abbey used to be a derelict farm. Three sides of the courtyard were renovated, installing proper foundations, underfloor heating and substantial insulation. The old farmhouse was replaced with a new community building. Much of the building material was recycled or sourced locally, including farmhouse remains; paving made from glass and tyres and breeze blocks from powerstation fly ash. The doors and windows are wooden; the new Oratory is lined with birch and tiled with cedar.



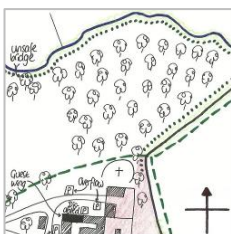
## Kitchen Garden

We are planning to be as self-sufficient as we can in vegetables and soft fruit, growing them using organic 'no dig' methods. We use harvested rain for watering, mulching with grass clippings, are making our own compost and using our neighbours' horse manure, and trying to source any materials we need as locally and sustainably as possible. Eventually, we will be able to use the products of our own coppicing, such as bean poles.



## Orchard

We have planted a small organic orchard outside the kitchen garden, comprising two crab apples, four cooking apples, 14 dessert apples, four plums, one gage, one damson and five pears. Many of the trees are local varieties, including the Worcester Pearmain dessert apple, the Pershore Purple plum, and the rare Worcester Black pear.



## Estate Management

While the monastery was being built, 5,485 trees were planted on the north side - a 'Forest of Feckenham mix', including oak, ash, birch and alder - for which we received funding from the English Woodland Grant Scheme. In 2011, a further 3,410 trees were planted, primarily coppice hazel, sweet chestnut, oak and ash. We are also continuing the hedgerows around the edges of the estate, and sowing the grassland with a wild flower mix. The overall aims are provision of woodfuel and timber, carbon sequestration, habitat creation, and life-enhancing space.