

Barnsley Biomass

Working towards carbon emissions reduction in Yorkshire



Fifteen years after the last coal mine in Barnsley was decommissioned, the remains of the coal economy in this South Yorkshire town are being replaced by a cleaner, green alternative: biomass. Barnsley's Communal Biomass Heating System is the UK's largest working example of a process using wood arising from local woodland management to heat community housing. The Sheffield Road Flats project received the 2006 UK 1st Prize in the Ashden Award for Sustainable Energy. The project contributed towards Barnsley Metropolitan Borough Council achieving a 40% reduction in carbon emissions in 2005, with similar energy cost savings passed on to residents.

objectives

- To increase energy efficiency.
- To develop biomass usage in new and refurbished public and commercial buildings.
- To establish the first communal biomass heating system in the region.
- To reduce carbon emissions in the region.
- To improve the residential environment.

actions

- The installation of one 320kW and one 150kW Froling woodchip boiler to replace four coal-fired boilers producing 2,350kW heat.
- This in turn provides space and water heating requirements for 166 flats in three buildings on Sheffield Road.
- Installation of a gas boiler back-up plant for use in an emergency.
- The development of an Energy Management System for remote monitoring of performance/maintenance needs.
- Installing Smart Card metering of individual tenant energy consumption.
- Use of cavity wall and warm roof insulation to increase efficiency.
- Creation of a 700 tonne store for drying tree waste, avoiding landfill disposal.
- Establishment of a dedicated woodchip supply business (Silvapower Ltd).

achievements

For local residents:

- A saving of 40% on heating costs and 1,300 tonnes of CO₂ emissions.
- Clean air, no soot and virtually no noise.

For the region:

- A regional exemplar for biomass to inspire local authorities to replace the 30,000 tonnes of coal still being used to heat schools and public buildings.
- Potential to provide an estimated 15 jobs for every megawatt of biomass generated, boosting the regional economy.
- Diversification opportunities and extra income for farmers.
- Opportunity to bring neglected woodland into active management enhancing woodland biodiversity.
- The chance to utilise wood waste, which would otherwise be sent to landfill.
- A demonstration of renewable technologies in action to promote to the public.

background

- Sheffield Road is the first communal biomass heating project in Barnsley. Barnsley burns 6,500 tonnes of coal a year and generates 15,000 tonnes of CO₂. By installing wood heating in all new public buildings and refurbishments (including the Civic HQ and eleven new secondary schools as part of the "Building Schools for the Future" programme), Barnsley hopes to reduce its carbon emissions by 60% by 2010.
- Sheffield City Council has also received funding this year to convert six tower blocks comprising 296 flats to biomass, and is considering another 180 community heating schemes that need replacement boilers.
- Over the past two years Barnsley and Sheffield have helped spawn a 3,000-tonne market for biomass fuel in what was once the heartland of the coal mining industry. This biomass market, which had doubled by the end of 2007, has also led to the creation of a local woodchip supply company.
- The project meets the needs of local and regional organisations to reduce carbon emissions and make use of sustainable fuel sources. Yorkshire Forward shared these aims with four local authorities. They were also seeking to develop sustainable, affordable sources of fuel, stimulate the local forest industry and create employment opportunities. This programme has reduced the amount of wood waste going to landfill, developed a market for woodchip, and provided diversification opportunities for landowners in the region.
- The next phase of the programme aims to roll out further installations, to develop a more efficient network of fuel supply and to promote the benefits of biomass to a wider audience.

quotes

"The coal, it used to spew fumes out. The balcony used to be three inches thick. And now I'm saving pounds! I can go on holiday." Tenant in Sheffield Road flats.

"All the evidence points towards biomass as the fuel for the future – if woodfuel can power large scale buildings and housing developments for less money and cut carbon emissions, it's got to be top of the list, especially when considering new build projects such as Barnsley's new Civic HQ." Dick Bradford, Principal Designer/Energy Engineer, Barnsley Metropolitan Borough Council.

partners

Yorkshire Forward
Barnsley, Rotherham and Doncaster
Metropolitan Borough Councils
Sheffield City Council
South Yorkshire Forest Partnership
Econergy Ltd
(Boiler installation contract)
Silvapower (wood-chip supply contract)

funding

Total £1.7m
South Yorkshire Forest
Partnership
Yorkshire Forward
The Energy Saving Trust (EST)
Development & Capital Grants
DTI Bio-Energy Grant Scheme

lessons learnt

The key challenge was to persuade partners to take the project seriously at the outset and for local authorities to consider biomass as a viable energy option. Once the potential had been illustrated all the partners were very involved. The only difficulty limiting the project was access to funding, a factor which was resolved once Yorkshire Forward agreed to support the programme. Central co-ordination of the cluster activity was fundamental to ensuring that all elements of the project could be delivered successfully.