

## **Woodfuel heating systems for schools and public buildings**

### **Summary**

The Rural Energy Trust (RET) works to promote the sustainable production and use of wood-fuel for heating. Activities include advice, training, demonstrations and presentations. Set up by a local farmer, RET works closely with its commercial counterpart, Rural Energy Limited (REL), which supplies wood-fuel and wood-burning equipment.

The Ashden judges commended RET and REL for their pragmatic approach in providing both the support system and the practical installations which have led to the installation of woodfuel heating in schools and public buildings in the East Midlands.

### **The organisation**

RET was set up by Richard Harvey, a local farmer with a commitment to environmental and community issues. It was established as a not-for-profit company in 2002, and is managed by a board of directors, including farmers, environmentalists and a local council representative. It currently has two full time employees: a forester and a renewable energy engineer.

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### **Context**

Recent falls in farm incomes have put farmers under pressure to diversify into new areas of activity. One opportunity is forestry - specifically, managing or creating areas of mixed woodland to produce a sustainable supply of wood-fuel. Farmers wishing to do so face a hurdle, however - there are at present not enough customers for the wood-fuel to sustain viable supply businesses and yet potential users are reluctant to install wood-burning equipment without guaranteed supplies. This 'catch-22' situation, however, need not apply to Leicestershire. Many schools and other institutions in the county's former mining areas still use coal-fired heating systems. With appropriate support, there is a considerable market for converting these to wood-fuel use.

### **Technology and use**

Wood can be used for heating in many different ways. Small (kW scale) stoves burn wood to provide heat directly to an individual room. They can be designed for either chopped logs or processed wood pellets. Larger systems usually run a boiler for a central heating system. Larger wood-fuel boilers (100 kW or more) use either wood-chips or wood pellets, because these can be

handled in automated fuel supply systems. Such systems can be used for district heating, supplying heat through a 'heat main' to several buildings.

RET has expertise in a wide range of wood heating systems, and provides advice on the most appropriate one for a particular site. For both heat provision and demonstration, RET has installed three different systems on the site where their office is located. These are: a 5 kW wood-pellet stove; a 40 kW log boiler with hot water tank; and a 100 kW wood-chip boiler which runs a small district heating system to neighbouring buildings.

## **Training and support**

The main work of RET is the provision of advice, training, feasibility studies and project management of all aspects of biomass heating. As well as technical expertise, RET can assist with sourcing funding for both the supply and use of wood. It also offers training programmes, demonstrations and presentations to a wide range of groups including local government, businesses and community organisations.

## **Benefits of the project**

RET has played a catalytic role in kickstarting the supply and use of wood-fuel in the East Midlands. During its first two years of operation, it handled about 500 enquiries and made over 60 feasibility studies which have led already to the installation of 15 wood-fuel boilers to supply 3 MW of heat. This has provided employment in farming, forestry and heating installation. Wood-chipping and wood pelleting enterprises have also started.

There are significant environmental benefits. The use of sustainably-harvested wood reduces greenhouse gas emissions, particularly when replacing coal, which is the most carbon-intensive of the fossil fuels. The systems installed to date will use about 840 tonnes of wood per year, and avoid the emission of about 1,400 tonnes of carbon dioxide. There are also local benefits to air quality as a result of replacing old coal boilers with wood-burners which meet the current strict emissions requirements.

The improved management of woodland to supply wood has also improved wildlife habitats, particularly by opening up glades and clearings which allow ground flora to flourish, in a way which mimics the natural cycles of ancient woodland.

RET has put particular emphasis on working with local schools, both to supply their heating needs and to bring practical examples of sustainability into education. In one local school, children have planted coppice which will eventually supply the fuel to heat their school buildings. Here, an NGO called RETAP (the similarity in name is coincidental) has launched a scheme whereby schoolchildren help grow and tend coppice trees which supply wood-fuel for their school kitchens.

## **Management, finance and partnerships**

The Ashden Award was made in recognition of the work of RET overall, rather than any particular component.

RET places great emphasis on linking up other organisations in pursuit of the provision of sustainable, locally-sourced energy, so it works closely with the National Forest Company and the Forestry Commission on the development of wood-fuel supplies, and has excellent links with local government and other agencies. Its parallel commercial company, REL, is a registered energy supply company (ESCo) formed by a group of 14 farmers, which supplies wood-fuel and wood-burning equipment.

Most of the funding for RET has come from public sources, in particular the East Midlands Development Agency and Leicestershire County Council. However, consultancy is a growing source of income, and it is envisaged that this will eventually provide the bulk of its funding.

*This report is based on information provided to the Ashden Awards judges by RET, and findings from a visit by one of the judges to see their work.*

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