

# COMMUNITY RENEWABLE ENERGY AT LOCAL LEVEL

## Tanfield Lea Community Centre



Tanfield Lea Community Centre in County Durham is owned by the Coal Industries Social Welfare Organisation, and is used by the local community for various meetings, classes etc. It was built in the 1920s, and is difficult to keep warm. The management committee consulted REALL on the best way to heat the hall sustainably.

One of REALL's project officers visited the hall and organised a feasibility study by North Energy. This examined the possibilities of biomass (wood pellets) heating, ground source heat pumps, solar air heating and energy efficiency measures.

Wood pellet burning boilers burn pellets made from compressed sawdust. Above the fire box is a hopper, filled with 6 or 8mm pellets, which are fed automatically into the fire as required. The pellets are supplied in small sacks, and are clean and easy to handle. Depending on the weather, the hopper is usually refilled every few days. These stoves incorporate a timer and a thermostat to ensure convenience and efficiency. Only 1% of the wood appears as ash, so the ashpan is emptied infrequently. The stoves are 90% efficient and very clean burning with no visible smoke.

Ground source heat pumps are powered by electricity, and are a very efficient use of power, as for every unit of electricity used, three to four units of heat are produced. Heat is taken from the ground via pipes, either laid horizontally in trenches or vertically in boreholes. These pipes carry a water and antifreeze mix, which is warmed by the surrounding

heat of the ground. The pumps then transfer the heat to the building's central heating system, working in a similar way to a refrigerator, but harnessing the heat rather than the cooling effect.

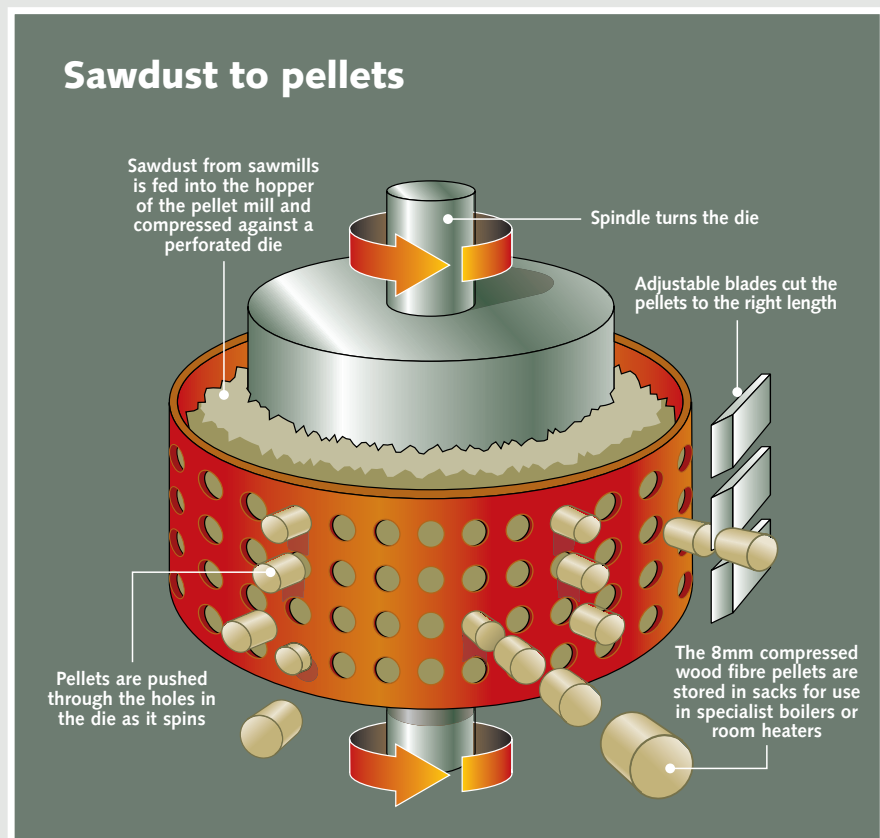
Solar air heating uses special solar panels on the roof, which heat air as it is passed through them. The air then goes to a distribution box with a fan and distribution pipes, each with an electrically controlled damper. When the sun is shining on cold days, the system pulls warm air, taken from the loft space, through the solar air heater panels where it warms up. This is then filtered and distributed to the room below. On cold rainy days there is no energy advantage in using the collectors. However the air in the loft, heated by upward transmission of heat from the room, can be filtered and distributed back to the room below.

Although the committee was very keen on a ground source heat pump, when investigated, this option turned out not

to be viable. Firstly, the building is not well insulated, and a low temperature heating system would struggle to heat it, secondly, the electricity supply would not be able to support the starting current for the pumps, and thirdly, there is not enough room to lay pipes in trenches, and drilling boreholes into an area with many old mine workings is not considered wise.

The feasibility study showed that a solar air heated system would be practical, but would not provide enough heat for the building, and fuel savings would be low.

An automatic pellet boiler proved to be the most feasible option for Tanfield Lea Community Centre. This would be able to provide adequate heat for the building, cut carbon emissions and would only need attending every few days. It could be fitted in without needing planning permission. However, so far, (2007) despite trying many grant schemes, the necessary funding has not been forthcoming.



# CLEAN GREEN TECHNOLOGIES



## Solar water heating

Over a year, solar water heating can provide about 60% of a typical family's hot water.

## Solar photovoltaics

PV panels generate electricity from the sun, produce no CO<sub>2</sub> and are maintenance free.



## Wood heating

Heating with wood is carbon neutral as growing trees lock up the CO<sub>2</sub> emitted by burning them.



## Micro wind power

In an open location wind turbines make a useful contribution to electricity supply.

## Hydro power

For buildings near a river, hydro can generate power with no pollution.



## Ground sourced heat pumps

Heat from the ground for underfloor heating or extra large radiators. Uses electricity efficiently.

## Funding for renewables and energy efficiency

There are various funding sources for renewable energy and energy efficiency at both local and national level. Advice on funding is available from your local rural community council:

### Community Action Northumberland

Tower Buildings, 9 Oldgate, Morpeth  
Northumberland NE61 1PY

### Durham Rural Community Council

Park House, Station Road, Lanchester  
Durham DH7 0EX

### Tees Valley Rural Community Council

Queensway House, Queensway  
Middlesbrough TS3 8TF

**REALL** was run by Community Action Northumberland and Durham Rural Community Council and operated in conjunction with partners. Funding has now come to an end, and Community Action Northumberland can no longer supply specialist renewable energy advice, although Community Action field workers are able to offer general guidance.

Funding for **REALL** was received from:

Community Action  
Northumberland



## Further information

Further information about community ownership of renewable projects is available from the **Department of Trade and Industry**. [www.dti.gov.uk/files/file15108.pdf](http://www.dti.gov.uk/files/file15108.pdf).

Information about energy co-operatives - **Energy4All**

Tel: 01229 821028, Email: [info@energy4all.co.uk](mailto:info@energy4all.co.uk)  
and web: [www.energy4all.co.uk](http://www.energy4all.co.uk)

Information about energy matters for communities may be obtained from **Café**.

Community Helpline 08701 261444, email [café@est.org.uk](mailto:café@est.org.uk) and web [www.est.org.uk/cafe](http://www.est.org.uk/cafe)

Small scale renewables may be seen on the **Tynedale Renewable Energy Trail** and there is an exhibition at Kielder Castle, open from Easter to October. [www.tynedalerenewableenergy.org.uk](http://www.tynedalerenewableenergy.org.uk)

The **SEED** Programme

**Community Renewables Initiative**

**PB Power and RC Engineering**