Forestry Commission Scotland

usewoodfuel

FORFAR ECO PARK

Forfar, Angus

Why Use Woodfuel?
The Eco Park's desire to lower heating bills and their commitment to reduce carbon emissions were important drivers for the change from fossil fuel heating to woodfuel. Although the existing heating system did not require replacement, plans began when heating costs of gas rose dramatically and provided the financial impetus to shift to renewable energy. When prices dropped it was still economically advantageous to continue the switch to woodfuel, and the fact that woodfuel prices are more stable and predictable than world-wide energy markets is an additional benefit.

Key Benefits of this Woodfuel Installation
// Lower heating bills
// Delivers on carbon reduction commitment
// Close proximity to fuel supplier, helping to minimise cost
// Fuel price security through 10 year ESCo contract

System Accolades
The Eco Park is the first example of a District Heating Scheme installation in Angus where heat is distributed via underground pipe work from a single centralised boiler to the seven units. As hot water travels round the district heating pipe work, it is drawn off to heat each property as its heating is switched on. No accumulator tank is fitted to the system as the district heating pipe work acts as a mini accumulator system.

Heat is provided through an Energy Services Company (ESCo), Angus Biofuels. The ESCo has installed heat meter at each unit to measure the kWh usage, which allows accurate fuel bills for delivered heat to be produced for each customer. Supplied woodchip is delivered at 25 % moisture content from the chipping plant, which is located less than 3 miles away.

usewoodfuel

What is a District Heating Scheme?

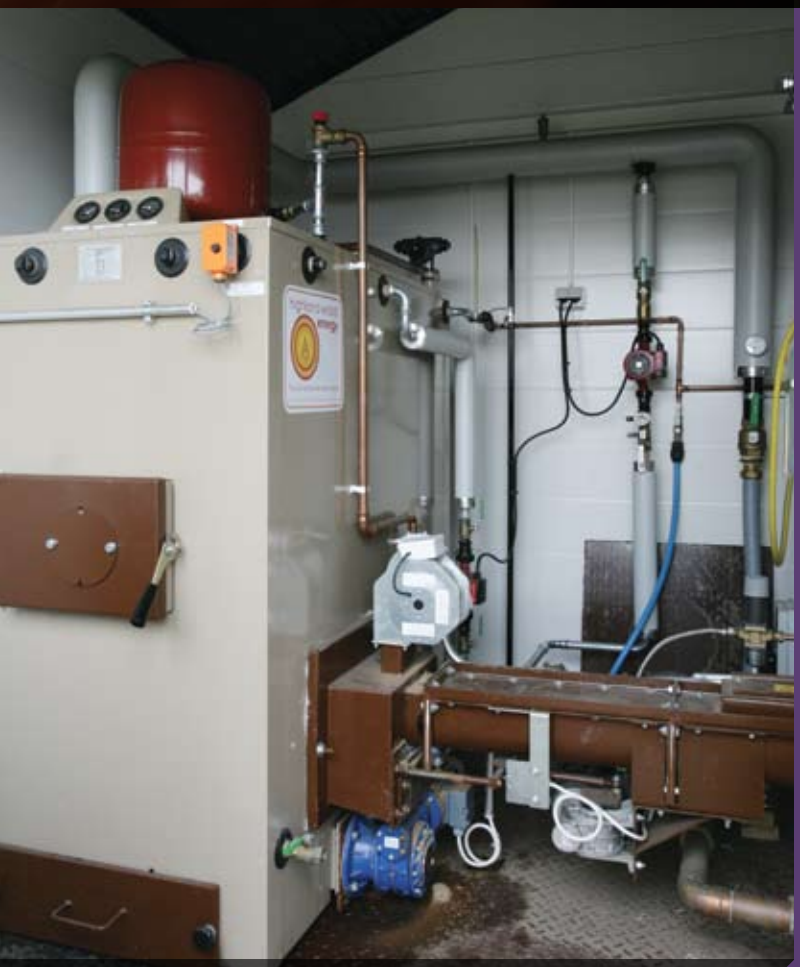
// Heating pipe network for distributing heat generated from a central location utilising a single boiler
// It can have residential and commercial uses
// It can provide space heating and water heating

Benefits of District Heating

// A single boiler can heat many properties
// Cost effective as a single boiler, boiler house and fuel store can supply many properties
// Very energy efficient via heat recovery system
// Delivered heat to each user is measured in kWh and accurate, individual bills can be produced for each customer's usage

Lessons Learned:

// Underground heating mains costs can be significant and should be costed accurately
// Three-phase electricity connection cost can be a large proportion of expenditure
// Containerised systems can ease design approval under local planning regulations
// Early communication and support from the Local Authority and other regulatory bodies can reduce project delays



BOILER	
Max output	150 kW
Manufacturer	Veto
Fuel Type	Woodchip
Fuel specification	Particle size: P16 (80 % of particles 16mm or less) Moisture content: M30 (30 % Moisture Content)
Installation date	Autumn 2007
System configuration	Original gas system retained as top-up/back-up
Energy consumption	300,000 kWh
Woodfuel Store capacity	15 m^3 or approx. 5 tonnes of woodchip, equivalent to approx. 20,000 kWh of heat
Fuel delivery interval	Winter: once a week Summer: every 3 weeks
Supply contract	10 year Energy Supply Contract reviewed annually
Source radius	60 miles
Annual woodfuel use	75 tonnes
BUILDING	
Heated area	650 m^2 1560 m^3
Heated volume	Built with lime floors, slate roof and timer frame,
Fabric of Heated Building	larch cladding with sheep wool installation
Building use	Commercial (small business units)
INSTALLATION COSTS	
Boiler System	£147,800
Funding Source	Scottish Biomass Support Scheme
Funding support rate	40 % of additional costs of woodfuel system
COST SAVING	
CO^2 savings pa	70 tonnes
Woodfuel cost	2.5p per kWh through ESCo contract
Annual fuel cost saving	£8,000 (based on 2008/09 prices)
Payback period	10 years

www.usewoodfuel.co.uk

BIOMASS Energy Centre
Scottish Enterprise
Forestry Commission Scotland
Forest Research