Biomass – Small Scale

Biomass is an efficient way of using technologies that have been used for centuries. Biomass products include; energy crops, forestry, wood chips and industrial waste.

There are three ways in which you can use biomass; a stand alone stove that will heat a room space, boilers connected to the central heating system and hot water systems and stoves with back boilers to supply hot water and for cooking.

The cost of installing biomass depends on the system that you have installed. Stand alone room heaters costs tend to be fixed from £1,500-£3,000. The cost of boilers varies depending on fuel choice. Atypical 15kW (three bedroom semi-detached house) pellet boiler will cost from £4,000-£12,000. A manual log feed is slightly cheaper. Unlike other types of renewable energy biomass requires you to pay for your fuel. Fuel costs depend on the distance from your fuel supplier.

Useful links

PV Solar

- PV-UK (trade association of the UK PV industry) www.pv-uk.org.uk
- DTI renewables site www.dti.gov.uk/renewables

Solar water heating

- Solar Trade Association (STA) www.solar-trade.org.uk

Ground source heating pumps

- The UK Heat Pump Association (part of the Federation of Environment Trade Association) www.feta.co.uk
- The UK Heat Pump Network www.heatpumpnet.org.uk
- The IEA Heat Pump Centre (includes case studies) www.heatpumpcentre.org

Hydroelectricity

- British Hydro Power Association www.british-hydro.org
- Environment Agency www.environment-agency.gov.uk

Biomass

- British Association of Biofuels and Oils www.biodiesel.co.uk
- British Biogen (UKTradeAssociationfor Bioenergy) www.britishbiogen.co.uk
- Information on wood fuel, system supplies and local fuel suppliers www.nef.org.uk/logpile

More information

To discuss any of the above, please contact:

Home Energy Advisor
Housing Strategy Team
Galashiels Area Office, Paton Street
Galashiels, TD1 3AS
Tel: 01896 661392
www.scotborders.gov.uk

You can get this publication on tape, in large print, and various computer formats by contacting us at the address above.

In addition, contact the address above for information on language translations, additional copies, or to arrange for an officer to meet with you to explain any areas of the publication that you would like clarified.

Photo from www.johnbirdsall.co.uk

Scottish Borders Council

Installing Renewable Energy

Social Work Services
Scottish Borders Council
Working with You

Installing Renewable Energy

Renewable energy technologies like solar energy, heat pumps, wind turbines, hydroelectricity and Biomass are becoming increasingly popular. They are a great alternative to fossil fuels and by converting to renewable energy, you will be helping to reduce carbon emissions which contribute to climate change.

It is always important to remember that although you'll save money on your fuel bills, it will take a long time to recover the cost from the installation. Before considering renewable energy you need to make sure that you have sufficient insulation in your home. Grants are available but it is important to make sure your home is adequately insulated before applying.

Solar Power Technology

There are principally two forms of solar power: solar panels and solar water heating.

Solar Panels (known as Photovoltaic panels) use energy from the sun to create electricity. These panels only require daylight not sunlight to generate electricity but the greater the intensity of sunlight the more electricity generated. Panels come in a variety of different shapes and colours that can look like roof tiles or transparent panels that can be used on conservatories. An average domestic system can cost between £4,000 and £9,000 to be installed.

Solar water heating gathers energy that is radiated by the sun and when converted, is a useful way to heat water in your home. Solar water heating systems work alongside conventional water heaters to provide hot water. Some of the benefits of having this system are that it can supply all your hot water during the summer months and 50% in the winter months. The costs vary in price due to a wide range of factors (roof size, geographic, existing hot water system). The typical installation is from £2,000 - £5,000.

It is important to consider planning permission; some local authorities will require you to apply for planning permission especially if it is a listed building or in a conservation area.

Heat Pumps

There are three types of heat pumps: ground source, air source and water source. For example, ground source heat pumps can transfer heat from the ground into a building to provide space heating and in some cases pre-heated domestic hot water. There are some considerations if you want ground source heat pumps:

- Do you have outdoor space available to accommodate pipes?
- What fuel is being replaced?
- The type of heat distribution system.
- Do you require a back up heating system?

The typical cost can be £8,000 but this technology is changing so this cost may vary.

Wind Energy – Small Scale

Power from the wind is related to wind speed, so the greater the wind speed the more power is produced. Individual turbines vary in size and power output, ranging from a few hundred watts to 2-3 mega watts.

Wind speed increases with height, so a turbine should be sited on a high mast or tower to make the most of this. The ideal area to place a turbine is up a hill on a flat surface area which is free from any obstructions like trees. You will also need to get a good knowledge of wind speeds in the area. You can do this by accessing the NOABL database or by visiting the British Wind Energy website at www.bwea.com. Planning is also an issue due to visual impact, noise and conservation issues. You may need to gain planning permission from your local authority.

The costs for wind turbines vary; costs can start from as little as £1,500 for the smaller models.