

## Using heat that won't cost the Earth...

A few metres below our feet, the earth remains at a constant temperature of about 12-13°C throughout the year. Because of the ground's high thermal mass, it stores heat from the sun throughout the year allowing us to pump this heat from the ground to provide heating and hot water. As well as ground source heat pumps, air source and water source heat pumps are also available.

## What are the benefits of a ground source heat pump installation?

The installation of a heat pump in your development can bring substantial social, environmental and financial benefits:

- For every unit of electricity used to pump the heat, 3-4 units of heat are produced
- A system can be designed to meet 100% of your space heating demands
- There may be no need to maintain a boiler or have a gas connection to the site
- Installing a Ground Source Heat Pump can greatly reduce your fuel bills
- A typical system will produce less CO<sub>2</sub> emissions than even the most efficient condensing gas or oil boiler with the same output
- An installation will protect you from future energy price increases
- You can take the lead in bringing renewable energy to your community
- It is a positive way of meeting your organisation's social responsibility

## How much does a GSHP heating system cost to install?

Costs vary from site to site, and depend on existing soil type, heat requirement and the type of system used (bore hole or trench). It is also cheaper and easier to install on a new development rather than on an existing property.

There are a number of grants available to help reduce the cost, including Clear Skies, the Community Renewables Initiative and Green Tariff Funds. The cost of running the system can be significantly lower than for oil, LPG and electric storage heaters. System costs over the pump's lifetime are comparable to those for gas heating.

## How do GSHPs work?

A length of plastic pipe is placed in the ground and filled with a mixture of water and antifreeze, which is pumped around the pipe absorbing heat from the ground.



Ground Source Heat Pumps



The heat is then exchanged and distributed into radiators, under floor heating and/or hot water tanks. Some systems can also be reversed and used for cooling. The longer the plastic tube in the ground, the greater the amount of heat that can be supplied to the property. The plastic pipe can be laid in the following 2 ways:

- 1) A borehole dug straight down into the ground. This is a good option if the development has limited space.
- 2) A horizontal straight or spiral (slinky) pipe is installed by digging a shallow trench into land surrounding your property. Horizontal trenches usually cost less than boreholes, but require greater land area. For slinky coil, a trench of 10m length will provide for about 1kW of heating load.

### What else do I need to consider?

- Electricity is required to run the pump. Electricity is usually generated using polluting fossil fuels, but you can overcome this by purchasing your electricity from a green energy supplier or by installing a wind turbine or PV panel
- Under floor heating is the best type of heating for the system (although it is also possible to use radiators)
- A system will usually only pre-heat domestic hot water and provide space heating, so top up heating such as an immersion heater will be required to supply hot water to taps

### How do I get started?

Over the past year the REAL Initiative has committed itself to developing the partnerships, systems and services that will help organisations access renewable energy. The REAL Initiative offers the following:

- Impartial advice, information and energy audits
- Assistance with grant applications
- Access to discounted manufacturer and installation rates
- Management of large installer network and installation process
- Post installation audits for peace of mind
- Dissemination and local publicity

### So what are you waiting for?

It won't cost you the earth. In fact, with numerous grants available, it may not even cost you a penny. Call the REAL team at CEN today to find out how you can take part in the energy revolution.

**Call 020 8683 6683 today!**



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