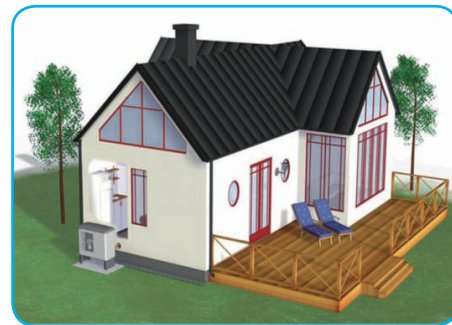


A Guide to Heat Pumps

What are heat pumps?

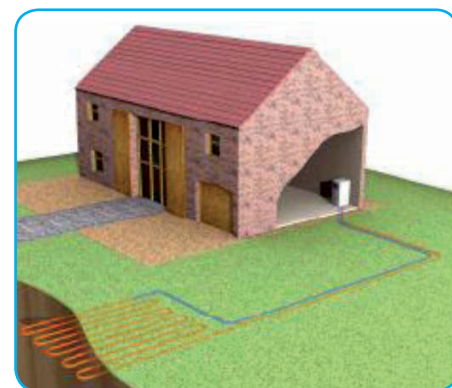
- Heat pumps use a small amount of energy to extract latent heat from the air, ground, nearby lake or river, and transfer it into the property
- They use a refrigerant fluid that boils at very low temperatures, picking up heat as it travels, and depositing that heat to where it's needed within the property
- Heat pumps can be used all year round even during sub-zero outside temperatures
- They can be sized to fit one property or multiple properties as part of a district heating scheme
- Most existing central heating systems can be adapted to incorporate a heat pump
- Heat pumps can be integrated with solar photovoltaic systems, to offset the energy requirements of the heat pump itself
- Solar thermal integration provides highly efficient domestic hot water and also 're-charges' a ground array for ground source heat pumps



Air Source Heat Pump

What benefit do they offer?

- Heat pumps only require one unit of electricity to generate typically around three units of heat, making them over 300% efficient during normal operation
- They can save large amounts of CO₂ and money, especially when compared to oil, coal, and electric storage heating
- Heat pumps installed by British Gas will come with a warranty for the heat pump and for the installation work
- If the property sits within a Low Super Output Area, the installation may be eligible for grant funding (CESP or CERT), reducing or removing your own capital outlay while allowing you to keep all of the benefit
- The Government's Renewable Heat 'Premium Payments' are likely to earn owners around £850 – £1,250 per installation for certain types of heat pump



Ground Source Heat Pump

What do they look like?

- Air source heat pump systems are made up of two parts – an external and internal unit. Both units can be sized differently depending on the space available for the internal water-storage unit
- Ground source heat pumps use a similar internal unit to air source, but instead of the external heat exchanger, they use a 'ground loop', which is a loop of piping used to carry the heat transfer fluid
- The ground loop can be arranged in a pattern of trenches that sit a couple of meters below the ground, or in vertical 'boreholes' that travel straight downwards to 100m or so below the ground
- Heat pumps come with controls that are usually found on the internal unit to allow minor adjustments after the initial set up



Ground Source: Ground Loop

Why British Gas?

- We offer expert heat pump design, testing, and installation through Cool Planet, a company owned by British Gas
- We will manage the full implementation of the heat pump system and ensure bespoke design to deliver the best performance
- All heat pump installations through British Gas come with a full warranty for the heat pump and system design, supported by the highest standards of aftercare



Air Source: Domestic Units

Case Studies – British Gas Heat Pump Installations

Toryglen, Glasgow

Thistle Housing Association, in partnership with British Gas, are installing air source heat pump systems across six separate tower blocks. Two different bespoke solutions will be used for maximum benefit: 112 heat pumps will be housed across communal balconies for two of the tower blocks; and district heating systems using three large air source heat pumps will heat the remaining properties. Completion is set for early 2012.

VolkerFitzpatrick Head Office, Hoddesdon, Hertfordshire.

Cool Planet designed a bespoke ground source heat pump system providing 100% of the heating and cooling needed for the large rurally-sited office headquarters. With a view to keep installation costs low, and with full client engagement at every stage of the process, the final installed system has not only significantly reduced the CO₂ output of the building operating at above 500% efficiency (independently verified), but also managed to achieve payback through cost savings within just 30 months.

Luton 6th Form College

Cool Planet carried out a Hydro-geological Assessment, and proposed to the client an Open Loop solution consisting of two bore holes at 55m utilising the significant aquifer properties of the chalk. All drilling and testing is now complete and yield is in excess of client's requirement. The client has had a very significant saving in cost for the scheme and a similarly very significant reduction in programme on site with all works being completed on time and to budget.



For more information please contact:

0870 850 9493

mail@cool-planet.co.uk

www.cool-planet.co.uk