

HEAT PUMPS

Most local authority led schemes prioritise low carbon heat systems.

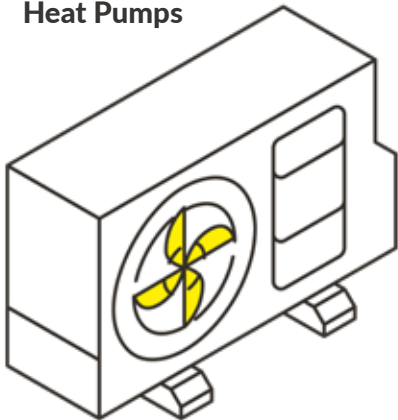
This means getting a new gas boiler is not an option through these schemes, because they use gas (which is a fossil fuel) as the energy source to heat a home. There are new heating systems that don't rely on gas, instead they use electricity and are called heat pumps.

What is a heat pump?

A heat pump is a type of electric heating that extracts heat from the environment, using a process similar to a refrigerator, to warm your home and heat water. A heat pump only uses electricity and does not consume any fuel so doesn't directly emit any carbon dioxide.

The two most common types of heat pump are:

- Air Source Heat Pumps
- Ground Source Heat Pumps



How does it work?

The heat pump uses electricity to extract heat energy from either the air, ground, or water using a fluid. This fluid (or refrigerant) is used to heat water, which is then pumped through your heating system and hot water storage system. This is the basis for how a heat pump works:

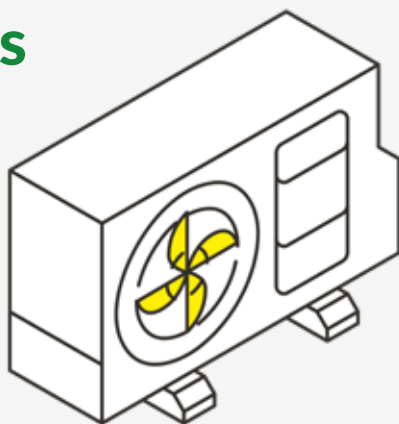
1. The refrigerant will take in heat from the heat source (air, ground, water), then it is passed through a compressor, which will increase both its pressure and temperature
2. This high temperature fluid is then used to heat another medium. Which will heat the home. It will usually heat water as part of a central heating system, but can heat air for a warm air heating system
3. After the excess heat in the refrigerant is transferred to the home, it travels back through a valve, returning to a lower pressure and cools further. The refrigerant is then at a low temperature and can take in heat from the heat source again

TOP 3

Benefits of a heat pump

1. A carbon heating method, reducing carbon emissions vs gas
2. Long life span
3. Can provide cooling in the summer

Heat Pumps



What are Air Source and Ground Source Heat Pumps?	An Air Source Heat Pump (ASHP) works by extracting heat energy from the air. A Ground Source Heat Pump (GSHP) works by extracting heat energy from a series of pipes laid underground. A GSHP is usually more expensive to install than an ASHP, but can be more efficient and cheaper to run.
How is it installed?	A qualified installer will assess your home to determine the right heat pump size. The unit is installed outside and connected to your central heating and hot water cylinder. Existing radiators may need replacing.
How disruptive?	ASHPs are more common, installed outside and resemble air conditioning units. They cause less installation disruption than GSHPs, but their location is crucial to avoid noise issues to the home or neighbours. ● ● ○ ○ ○ GSHPs require underground piping, needing ample space and potentially significant garden disruption during installation.. ● ● ● ● ○
Right for your home?	Heat pumps are a low carbon technology, extracting renewable energy from their surroundings. However, they currently rely on fossil-fuel-based grid electricity until the grid is decarbonised in coming decades. Although grid electricity is more expensive than gas, heat pumps are more efficient, making them potentially cheaper to run if properly designed by a heating engineer. The Government sees heat pumps in well-insulated homes as key to an affordable low carbon future. Existing gas central heating systems may need adapting for heat pumps, often running at lower temperatures for longer, with larger pipes and radiators to maintain heating levels.



**GREEN
DOCTOR**

Find out more by visiting www.groundwork.org.uk/getenergyhelp or scan the QR code.

