

Why Green Heat?

There are three pressing reasons to eliminate gas for heating. NetZero by 2050 gets the most attention, but national security and the economy are also major drivers. Historically, wars have seriously impacted production in the Middle East. In addition, we import over 60% of our gas via three pipelines and three LNG terminals; all could be put out of action by a hostile party, with major economic and welfare consequences. Our oil and gas imports cost over ~£40bn in a normal year (and a lot more when conventional gas supplies are interrupted), which must be paid for by exports, sale of UK assets or foreign borrowing. Along with our climate change commitments, these issues support urgent action to reduce gas consumption.

What are the options?

It is best to draft proof and insulate your home to a reasonable level before buying a new heating system. This reduces the capacity and cost of the equipment and its running costs. 'Heat the person' technologies such as electric blankets and heated clothes use far less energy than space heating, maintaining comfort in cooler rooms and saving running costs for all the options.

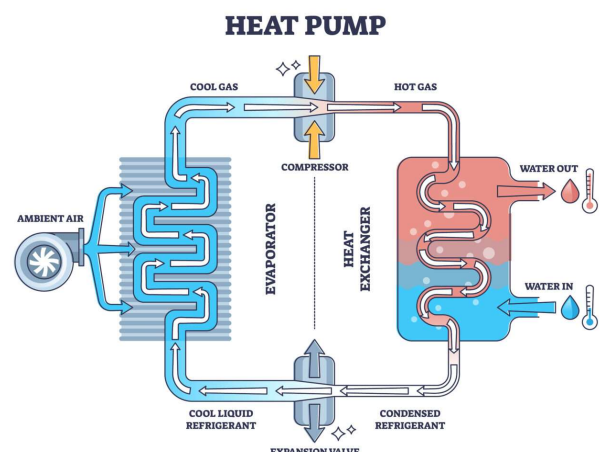
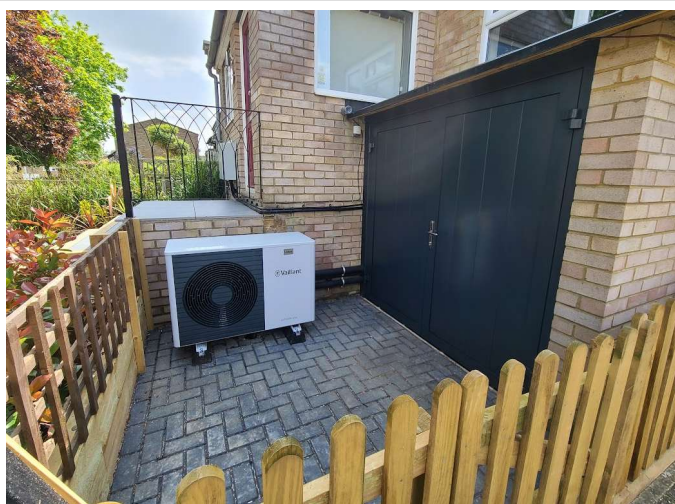
- Heat pumps, air or ground source, provide space and water heating and are best for most of us
- Where there is no room to install a heat pump, electric heating with heat storage can be cost effective if combined with off peak and flexible tariffs
- Infrequently used buildings such as churches may find radiant space heating to be the best option
- Biomass boilers produce little net CO₂ but emit NO_x and fine particles, so are less desirable in urban settings

Heat pumps

While heat pumps can seem unfamiliar, we all have one - in our fridge. This takes thermal energy out of the cold interior and moves it into our warm kitchen. A domestic heat pump does the same at larger scale, cooling outside air or water and moving the thermal energy into our homes. It uses electricity, but the total heat energy delivered can be three or more times the electrical energy consumed. The efficiency increases as the temperature difference between the heat source and the output decreases, so big, cool radiators are better than small hot ones, and air source heat pumps are less efficient on the coldest days, not a problem for ground source heat pumps.

Clean sources of electricity are reducing gas fired power generation, which makes a heat pump a very low CO₂ heating option – even running on 100% gas generated electricity, it still creates less CO₂ than a boiler. Tens of thousands of heat pumps have already been installed across the UK, and over 2.2 million heat pumps were installed across Europe in 2024. The UK Government expects that millions of heat pumps will be needed to meet our net zero targets and cut our gas imports and plans for 600,000 per year to be installed in the UK.

At today's prices, a heat pump will reduce running costs compared to conventional electric heating (£700-£1200/y), while the situation is more marginal, if replacing a modern, well configured oil or gas boiler with their dependency on volatile fuel prices and energy tariffs,. CO₂ savings are significant (1900-2900 kg/y for gas) in all cases. It is important to find a capable system designer / installer. Personal references are desirable and get at least 3 quotes. The heat pump location can be an issue; whilst a 'permitted development' (no planning permission) there are rules on proximity to a neighbour's habitable rooms and loudness. The larger hot water tank required also needs a space, and some radiators may have to be replaced to allow a lower flow temperature. As of May 2025, the UK Government Boiler Upgrade Scheme grants £7500 towards the purchase and installation of an air or ground source heat pump, while biomass boilers receive £5000. See <https://www.gov.uk/apply-boiler-upgrade-scheme/what-you-can-get>



Potential annual savings of installing a standard air-source heat pump in a three bedroom semi-detached home, with radiator upgrades as required.

ENGLAND, SCOTLAND AND WALES based upon July 2025 prices

Annual Fuel Cost Savings (£)



Annual CO2 Savings(kg)

