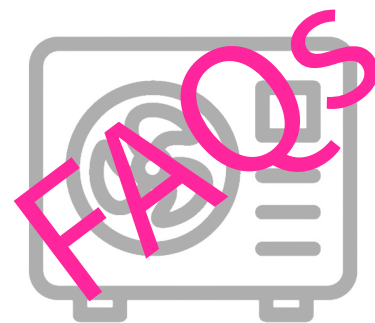


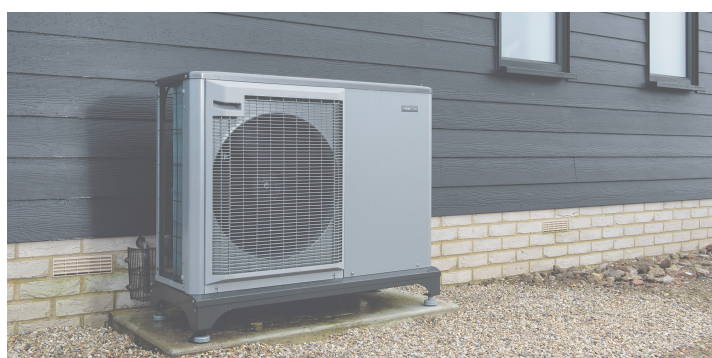
HEAT PUMPS



November '25

What is a heat pump?

A heat pump is a highly efficient boiler, but it's boiling a refrigerant rather than water. It extracts large volumes of low grade external heat, compresses it, raises its temperature and provides high grade heat to your home: space heating + hot water.



What types are available?

Most are powered by electricity and the heat source can be air, ground or water. Air source heat pumps (ASHPs) are the most common. Heat is normally delivered by water (radiators/UFH) but can also be via blown air (air-to-air ASHP).

What's the cost?

Variable! £2-5K for the ASHP, £1K for the hot water tank plus pipework, new radiators, control system, installation...

Boiler Upgrade Scheme (BUS) government grant for £7,500 available now:

www.gov.uk/apply-boiler-upgrade-scheme

Nov 2025 update - BUS now includes £2,500 grant for air-to-air ASHP & heat batteries!

Is my home suitable?

Most systems require radiators or under floor heating (UFH) - you may have to upgrade some pipework/radiators. Well insulated homes work best and cost less to run. Air-to-air ASHP is available for homes with no wet radiator/UFH - bit unusual in the UK, common in EU/USA (think 'air con')

Running/carbon cost?

On a like-for-like heat output basis, an ASHP *should* cost about the same as gas to run (Nov 2025 energy cap prices). It's essential to get an annual running cost prediction before installation (see below). As electricity prices trebled post-COVID, so did an ASHP's running cost!

On the carbon front - an ASHP should reduce CO2 emissions by two thirds compared to gas and more if replacing oil, LPG or electric storage heating.

Who do I get to quote?

Domestic ASHP market is young - still a bit wild west! But there are very good installers out there. Use the MCS register to choose a local installer - www.mcscertified.com should ensure bare minimum of good design and installation plus regulatory compliance where required.

Also check out Futureproof Cumbria's (formerly CAfS) heat pump service and recommended installers -

www.futureproofcumbria.org.uk.

Continuous heating!

Heat pumps (except air-to-air type) run as continuous space heating systems. They don't work like fossil fuel systems. No switching off at night. Operate 24/7 during heating season (Sep-May?). This is because their water flow temperatures are much lower than your gas/oil boiler - typically 45-50 deg C, rather than 55-75C. Essential for efficient operation - seasonal co-efficient of performance (SCOP) of 3.0-4.0 possible. I.e. for every 1 unit of electricity input, you get 3-4 units of heat into your house. But you are heating it all the time...

Your gas/oil boiler SCOP = 0.93 max.

Will I need new rads?

As a low flow temperature heating system you may need larger radiators. Your current rads may be sized for 70 degrees, an ASHP will be 50 deg max. But current rads may be oversized, so may not need much/any upgrading... If you do, you can often replace with triple rads in same space. Technical bit - traditional heating designed at DT50 (50 deg difference between rad @ 70C and room @ 20C). Heat pump designed DT30 or lower. Heat output from a rad at DT30 is approx. half the output at DT50.

Note - you may need some upgraded heating pipework too.

2025 update - new R290 refrigerant ASHPs can happily deliver water up to 70C, drop-in replacement with no rad upgrading? Potential running cost issues with reduced SCOPs...

Permissions needed?

Planning permission is not generally required, unless you site the external unit on the front of your house. Or if you are listed.

Building Regulations approval is needed but covered by MCS process as part of installation. This includes a noise test to ensure you don't disturb the neighbours!

You'll have to gain approval from the electricity district network operator (DNO) - here it's Electricity NorthWest. This is also done by the MCS installer.

What's maintenance like?

Very little maintenance required, ASHPs are very reliable these days and should last 20 years or so. Annual service involves checking for leaks, cleaning the fan/heat exchanger, testing set points and brushing leaves away! Warranties 7-10 years the norm.

How much space?

With an ASHP you'll need an external fan unit about 1m x 1m x 0.4m. G/WSHPs don't generally have external units. Internally there will be various plant items - you may need a cupboard or spare 'fridge-shaped' space in your kitchen + an airing cupboard for the hot water tank.

Other renewables?

Heat pumps combine well with solar PV & wind generators, PV diverters, thermal stores, phase change materials, EV chargers, battery storage and other low/zero carbon technologies.

Common terms

ASHP/GSHP/WSHP -	air source/ground source/water source heat pump
Air-to-water -	ASHP supplying heat to traditional water emitter system (rad/UFH)
Air-to-air -	ASHP using conditioned air to warm/cool spaces ('air con')
Monoblock -	type of ASHP which has all refrigeration parts in external unit
Split system -	type of ASHP that has external and internal refrigeration units
SCOP -	seasonal co-efficient of performance, heat pump efficiency ratio
Peak heat loss -	maximum heat loss from room/house at averaged coldest winter temp.
Refrigeration cycle -	process using refrigerant and vapour compression to move heat from one area/medium to another (air con, fridges, heat pumps)
Refrigerant -	heat transfer liquid with very low boiling point (e.g. minus 50 deg C)