



Which? Shorts: we explore the alternative heating systems of the future

Hello and welcome to the Which? Shorts podcast, I'm Rob Lilley...

We're the podcast that brings you the very best articles from across Which? making them available for you to listen to, wherever you might be or whatever you might be up to.

This week we're hearing about the alternative heating solutions that can cut energy bills and help future proof your home without replacing your entire heating system.

To read us this piece, originally written by Karen Lawrence, I'll hand you over to Angus Farquhar...

The modern central heating system has been a familiar feature in most UK homes since the 1970s. If you are one of the 90% of households using gas or oil central heating, it can feel daunting to consider switching to anything else.

In a recent survey, we asked Which? members when they next expect to replace their boiler. More than 50% of respondents don't expect to do so in the next five years, and 28% don't expect to do so in the next 10 years. But if you're wondering if there are changes you can make to heat your home comfortably and cost effectively, you don't necessarily need to wait for a complete overhaul. Even if your boiler doesn't need replacing just yet, there are a few things you can think about now, with an eye on a cheaper, lower-carbon future.

In the long run, low-carbon heating and hot water systems, powered by renewable energy sources and run with smart technology, will make their way into all our homes. This will largely mean switching away from fossil fuels to electric heating systems. Data released by National Grid shows that 2022 was its second greenest year on record (behind 2020, when demand was lower than usual). In 2022, 48.5% of Britain's electricity was zero carbon, and 26.8% was wind generated. As we deploy more renewables such as wind and solar, and rely less on coal and gas, the carbon emissions from grid electricity will decrease further. However, mains electricity is currently more than three times the cost of gas per unit.

It's easy to see why 85% of UK homes use gas central heating. In a dual-fuel household, typical (medium) annual gas consumption is 12,000kWh, and electricity is 2,900kWh. Based on this, annual energy bills would be £2,222, excluding standing charges. Replacing a gas boiler with traditional electric heating (such as electric panel heaters) for the same household could double the cost to more than £4,500 a year.

Few people would consider swapping a gas boiler for direct electric heating at those prices, but more modern technologies come with much lower running costs. Hydronic heat pumps can be much more efficient than other types of electric heating. Theoretically, they can produce three to four units of heat for each unit of electricity they use, making annual bills more comparable with those of running a gas boiler.

However, heat pumps aren't suitable for every home. Installed in the wrong setup they can struggle to get a home up to temperature and be expensive to run. Seek professional advice to make sure your home is suitable for a heat pump before installing one, and always use a reputable MCS (Microgeneration Certification Scheme) certified installer. If a heat pump is right for you, look into the government's Boiler Upgrade Scheme, which offers grants of up to £6,000. Some energy providers, including Eon and Octopus, are already helping customers to navigate the scheme with their own in-house heat-pump installation services.

Updating your heating doesn't have to be all-or-nothing, though, especially if your boiler doesn't need replacing just yet. The most efficient and cost-effective solution for your household may still include a gas boiler, but there are other technologies that can work alongside it to reduce energy bills and cut your carbon footprint. There are three main areas to consider when making long-term changes to your energy bills: generating your own energy, storing cheap energy for later use, and making alternative low-carbon heating choices. Each of these can work independently and be implemented at different times.

If you're able to install solar PV panels, they can help to power your electrical appliances and lighting irrespective of whether you have a gas boiler or electric heating – which might come later down the line. If you can't fit solar panels, a battery for energy storage might still help you make the most of off-peak or time-of-use (ToU) tariffs, which are likely to become increasingly common.

Whatever type of heating system you choose, it will need to supply enough heat to meet your demand. The layout, construction, insulation, and patterns of occupation in your home will all affect the amount of heating and hot water that's needed. A heating engineer will calculate your heat demand – for both space heating and hot water – and size the system(s) correctly to suit your home.

If your home is poorly insulated, heat is lost more quickly through the fabric (the walls, windows, floor and roof), which increases the heat demand. Better insulation will reduce your overall demand, so that should be the priority for anyone thinking about reducing their energy costs. The key to a mix-and-match approach to home heating is understanding how you use your home, what level of comfort you need, and the opportunities your home provides.

There are of course many low carbon solutions, and here's a few to consider.

Different systems might be more suitable for different rooms or times of day, especially in larger homes where not all rooms are occupied.

Hydronic heat pumps are air, water or ground-source heat pumps that are typically connected to underfloor heating and/or radiators. They can replace a gas or oil boiler, but radiators and pipework may need upgrading. They can be costly and disruptive to install.

Air-to-air heat pumps transfer heat from the outside air to inside your home. Essentially they're air-conditioning units, providing heating in winter and cooling in summer, but they don't heat water for taps, so you'll need a separate hot water system. Most often installed in smaller properties, or for just one or two rooms.

Air source hot water cylinders, or domestic hot water heat pumps, combine heat pump technology and a high-performance water storage tank, using less electricity than traditional water heaters. They can also connect with solar panels to maximise energy efficiency and savings.

Thank you so much to Angus for taking us through that piece, and to Karen Laurence too, the author of that article which was originally written for the March issue of Which? magazine.

Remember you can find more articles you'll find useful every day on everything from money and technology to home and garden advice by signing up to one of our many free email newsletters at which.co.uk/newsletters.

We'll be back next week for another episode of Which? Shorts. Thanks for listening.

Which? Shorts was produced by me, Rob Lilley, while the Exec Producer was Angus Farquhar