This article was published in March 2025

Alternative Heating Systems in the UK

As the UK transitions towards a greener future, alternative heating systems are becoming increasingly popular, especially those that utilise electricity. With the government's commitment to achieving net-zero carbon emissions by 2050, traditional gas and oil heating systems are gradually being phased out in favour of more sustainable options.

The Shift Away from Gas Heating

The UK has long relied on natural gas for domestic heating, but this is changing. Gas boilers contribute significantly to carbon emissions, prompting the government to introduce policies that encourage the adoption of low-carbon alternatives. Whilst Government wavers on policy, particularly discouraging gas boilers in new-build homes (and a potential hydrogen mix/replacement remains uncertain), homeowners are exploring alternative heating systems that are more energy-efficient and environmentally friendly. However the imbalance between the cost of gas (and oil) per kilowatt, with gas remaining three times or more cheaper, continues to act as a drag on straightforward change.

The challenge in two simple tables

Heating system efficiency			**Cost of power per kilowatt hour (kWh)**	
Modern gas (and oil) boilers	Circa 93%		Gas	7p / kWh
Electric radiators	100%		Electricity	27.03p per kWh
Heat pumps	>300%		Economy 7	13p per kWh

Note: there are a broad range of tariffs available including specialist tariffs for those with batteries, some of which offer 7p/kWh off peak meaning it can be used for off peak charging.

Electric Heating Systems

Electric heating solutions are gaining traction due to their efficiency, lower carbon footprint (especially when powered by renewable energy), and ease of installation. Virtually all electric heating is 100% efficient but can be costly to run unless coupled with solar PV panels and battery storage, which require greater capital investment. The most notable electric heating alternatives include:

Heat Pumps

Heat pumps are one of the most efficient ways to heat homes using electricity. They work by extracting heat from the air, ground, or water and converting it into usable warmth. For homes without substantial grounds, air source heat pumps are usually the optimal choice. They are particularly good with underfloor heating but can work with upgraded radiators.

Infrared panels provide heat through radiation rather than convection. Unlike conventional radiators, which warm the air, infrared panels directly heat objects and people in a room. This results in even heat distribution and minimal energy wastage. They are particularly beneficial for well-insulated homes and can be mounted on walls or ceilings to save space.

Electric radiators now offer an abundance of choice. All are convectors and come with and without oil or clay / ceramic filling.

Electric underfloor heating has a long history but needs preplanning and is typically only in individual rooms. Underfloor heating in new or rebuilds is best operated with a heat pump, in which case it will a wet system.

Modern electric storage heaters have come a long way from their inefficient predecessors. They work by storing electricity during off-peak hours (when it is cheaper) and releasing heat throughout the day. High heat-retention models offer better control and efficiency, making them a cost-effective option for homes on time-of-use tariffs.

Electric immersions provide central heating and hot water without the need for gas. They are compact, require minimal maintenance, and can be easily installed in homes where gas connections are unavailable. However, they can be costly to run unless paired with renewable energy sources like solar panels and batteries.

Homeowners are increasingly investing in solar panels and battery storage to generate and store electricity for heating. This reduces reliance on the grid and lowers energy costs. Hybrid solutions, a mix of solar and heat pump whilst retaining the existing e.g. gas based may prove increasingly viable for existing homes.

Whilst there is as yet no one simple answer it is clear that, as the UK moves towards a sustainable future, electric heating solutions offer a viable and eco-friendly alternative to traditional gas and oil systems. With advancements in technology and growing support for renewable energy, electric heating systems will play a crucial role in reducing carbon emissions and ensuring a cleaner, greener environment.

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