Johnson & Starley look at the future of Warm Air Heating and the options to replace natural gas.

There is a considerable amount of misinformation and confusion for homeowners regarding the replacement of natural gas, including which alternatives will be used, when this transition will occur and how it will affect warm air heating.

Our goal is to provide homeowners with clear and accurate information, based solely on the facts provided by the government. We aim to dispel any misconceptions and present the information in a straightforward manner to assist people in any decisions they need to make about replacing their warm air heating now or in the future.

Firstly, the claim that warm air heating will be illegal from 2024 is false.
Warm air heating meets all current legislation, and there are no plans to make it illegal or change the legislation. This is a rumour being circulated to scare people into changing their warm air heating, to a boiler and radiators.

Will you be able to buy a new gas heater, or have it fixed after 2025?

The answer to whether gas boilers/heaters will be banned from 2025 is **no**. However new build properties constructed after 2025 must be heated with a renewable heating source. Existing gas-fired heaters can still be replaced, and there is no need to do so before 2025. The government's goal is to install no new gas or oil boilers after 2035, but that will not force anyone to change their gas heating until then. Instead, if a gas or oil heater fails after 2035, and if parts are no longer available, a carbon-friendly alternative will be required.

Now let us look at some of the facts regarding the possible options to replace natural gas.

What are the plans for moving from Natural Gas to Hydrogen?

The Government has given no clear signals regarding hydrogen, low carbon heat, hydrogen-ready boilers or a blend of hydrogen being used. Having done little to engage the public this has added to confusion.

Replacing natural gas with hydrogen in the existing infrastructure poses several challenges, including the need for new pipework and hydrogen's different molecular construction,

invisible flame and lower calorific value. Sustainable and scalable hydrogen production is also a significant challenge as it is expensive, and it is difficult to see how the UK will meet all its hydrogen demand by 2035 utilising domestic non-fossil production.

There is still much uncertainty surrounding international trade and how this would impact green hydrogen, meaning that any gaps would need to be filled with blue hydrogen. To compound this more the Government have made no developments around a hydrogen production or storage infrastructure.

To add further weight to the argument against wholescale use of Hydrogen the Climate Change Committee report of June 2023 'Progress in reducing emissions, Report To Parliament' states:

Even by 2050, hydrogen availability remains a key risk for scenarios with higher levels of hydrogen use. The viability of using hydrogen at scale in buildings depends on the availability of hydrogen with sufficiently low lifecycle emissions. In particular, whether it could be sourced at the necessary scale without risking the security of supply or excessive exposure to volatile fossil fuel markets. This implies that the Government needs to focus hydrogen use on those areas in which electrification is not feasible in order to ensure that the hydrogen supply challenge is manageable.

Is there going to be a Hydrogen Blend introduced?

This is a topic of discussion, the possibility of incorporating a 20% hydrogen blend into the gas networks. It's worth noting that gas appliances sold in the UK undergo approval testing using a range of gases. These include G20 which is 100% methane, G21 which includes 13mol% propane, **G222 which contains 23 mol% hydrogen,** and G23, which includes 7.5mol% nitrogen.

In 2019, a study called 'HyDepoly' was conducted to show the impact of a 20% hydrogen blend on various types of gas appliances. The study concluded that there were no significant implications associated with introducing the blend.

As of now, no hydrogen-ready boilers are available on the market because they are not yet approved for sale. The Government plans to explore the potential use of hydrogen in heating buildings in the coming years, and states 'They will make a strategic decision on the role of hydrogen in decarbonising heat in 2026

Are heat pumps the way forward?

Yes and no! Heat pumps have their advantages and limitations. On one hand, they are incredibly efficient since they extract heat from the environment, but still require electricity to operate. However, they may not provide the same level of consistent heat output as a gas boiler, making them unsuitable for certain applications, especially in the UK's ageing housing stock.

For instance, heat pumps are most effective when installed alongside underfloor heating systems in modern, energy-efficient properties with good insulation.

When heat pumps alone cannot fully meet the heating demands, a hybrid option could be a viable solution. This hybrid system operates in harmony with a traditional gas or electric boiler combing the benefits of both technologies.

Lets take a look at the pros and cons of heat pumps.

1) **Low carbon alternative.**

As the appliance only uses electricity and approximately 40% of our electricity is produced by renewable methods, it is better for the environment.

2) **Low maintenance**

A heat pump requires less maintenance, servicing and hopefully less repairs than a traditional boiler. As they do not use gas, there are also fewer risks associated with their use.

3) **Better efficiency**

Heat pump manufacturers boast efficiencies on average of 300% while a gas boiler has an average energy efficiency rating of up to 99%

4) **Can provide cooling and heating.**

A heat pump can work in reverse so it can not only put heat into your house, it can also remove it.

As with all things, there are some disadvantages.

1) **Significant upfront costs**

Installing a ground source, air source or hybrid system can have extremely high installation costs. The Council for Climate Change has estimated that it would cost an average of £26,000 to change a home to a low-carbon heating system. In the present economic climate, many people find themselves facing financial constraints, making it unfeasible or undesirable to take out loans for such expenses.

2) **Running costs can be very high**

If your home has poor thermal efficiency or the heat pump is used incorrectly then running costs can be extremely high, especially if compared to gas.
The cost of electricity is currently much higher than gas and there does not seem to be any indication that this will change. This means that they have a high-running economy, for example, electricity costs on average are:

*Electricity	-	16.57p per Kwh	-	46p per day standing charge.
*Gas	-	2.19p per kWh	-	26.16p per day standing charge.

**Octopus Energy prices as of 25/06/2023*

3) **Often requires other upgrades.**

Heat pumps often need to be installed with a heat pump-compatible water storage tank and in some cases the property may require other upgrades such as new larger radiators, larger bore pipework and home insulation. These additions can drive up costs even further.

Are the Government giving grants for heat pumps?

The Governments aptly named 'Boiler Upgrade Scheme was launched in April 2022, and has been extended until 2028.

It offers homeowners up to £5000 towards an air-source heat pump, or £6000 towards a ground-source heat pump. As with all Government grants it can be difficult to navigate through the scheme which consists of the applicants having to apply for a voucher which needs to be redeemed within 3 months. This means the heat pump must be installed within the stated period.

You cannot get a grant for a hybrid heat pump system for example a combination of gas boiler and air source heat pump.
Installers must be MCS approved and registered with a consumer protection scheme to protect the customer if anything goes wrong. Some installers seem to be reluctant to become MCS-approved due to long waiting periods for the Government to reimburse them with the cost of the voucher.

The demand for heat pumps is evident, leading to a strain on the limited number of qualified engineers available. Unfortunately, this surge in demand has resulted in some cases where installation prices have increased, contrary to the government's suggestion of potential cost reductions.

This highlights the need for more qualified engineers to cater for the growing demand for heat pumps and to ensure competitive pricing in the market.

Our Objectives.

In the absence of clear Government direction, our focus lies in addressing the significant challenge of developing low-carbon heating solutions. We continue to explore all avenues and options available, carefully evaluating their viability and affordability. At Johnson & Starley, we are committed to providing solutions that will support our customers beyond any Government deadlines.

The transition away from natural gas is a complex undertaking, as the energy system relies on a combination of various sources and technologies to ensure both reliability and sustainability. No single solution can replace natural gas entirely. Instead, it requires a careful mix of alternative energy sources and innovative technologies to meet the energy demands of the future. This comprehensive approach is essential to create a more sustainable and environmentally friendly energy landscape.

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