

Written Evidence Submitted by Vaillant Group

(HNZ0037)

About Vaillant Group

The Vaillant Group is a global market and technology leader in the fields of heating, ventilation and air-conditioning technology. For over 140 years, we have been following a strategy designed to achieve sustainable and profitable growth. Today, our family-owned company has 10 sites in 6 European countries and China.

Founded in Remscheid, Germany, in 1874, the Vaillant Group today supplies innovative hot water, room heating and cooling solutions to countries all over the world. Our company develops high-efficiency products that save energy, conserve resources and enhance people's quality of living.

As a business we take responsibility for "Taking care of a better climate" – to safeguard the home of millions of people and the environment. All of our employees are working to achieve this shared vision. It is both our ambition and our common goal. Innovation and sustainability is at the heart of everything which Vaillant does as a business. The Vaillant Group is becoming climate-neutral, and we have developed an ambitious long term climate strategy, which focuses on the following areas;

- Climate-neutral this year thanks to afforestation projects
- Company's own CO₂ emissions to be halved by 2030
- The Vaillant Group is thus supporting the aims of the United Nations and the EU on climate protection and sustainable development

Further information can be found on this link;

<https://www.youtube.com/watch?v=Dmd8JYRYrl&feature=youtu.be>

Executive Summary

Vaillant Group are strongly committed to the decarbonization of heat in Europe, which is illustrated in our strong development and portfolio of heat pumps and hydrogen ready boilers. There is no silver bullet to deliver the decarbonisation of heat. Electrification and hydrogen will have to co-exist in any future scenario. Electrification of heat is set to become greener over time thanks to greater investment in renewable energy. The move towards hydrogen as a form of heating will be strongly led by Government Policy. Whilst having ambition in terms of hydrogen is to be applauded, an industry change of such huge magnitude ultimately needs clarity on the roll out, including clearly defined timescales and expectations.

Responses;

1. The suitability of the Government's announced plans for "Driving the Growth of Low Carbon Hydrogen", including:
 - The focus, scale and timescales of the proposed measures;
 - How the proposed measures – and any other recommended measures – could best be co-ordinated;
 - The dependency of the Government's proposed plans on carbon capture and storage, any risks associated with this and how any risks should be mitigated; and
 - Potential business models that could attract private investment and stimulate widespread adoption of hydrogen as a Net Zero fuel;

EPC and SAP will be the primary methods used to assess carbon emissions in homes. The recently released SAP 11 report highlights the complication of the future gas grid and, in particular, the complication around hydrogen.

Raising the question “how does SAP cope with different emission factors of producing hydrogen?”. The emission factors for hydrogen underpin the conclusion of the planned 100% Hydrogen heating trials, (such as in Fife), future retrofit conversion programs and even the possible option of hydrogen in new build. Vaillant would encourage a working group to create an “Appendix Q” hydrogen emission factor table. These emission figures could be used to evaluate both trials and retrofit studies, outputting a total carbon figure for heating and hot water, and therefore accurately demonstrating the saving against a natural gas or heat pump system solution. This methodology would encourage end to end supply chain study and potential investment feasibility studies into the generation of hydrogen for heating. To stimulate the market, the amount of hydrogen which is allocated for heating needs to be known. Without knowing if, when, and how much hydrogen will be available to end users’ doorsteps then implementation of hydrogen ready boilers is insignificant, especially when there are already tested and proven carbon neutral products available on the market, such as heat pumps.

2. The progress of recent and ongoing trials of hydrogen in the UK and abroad, and the next steps to most effectively build on this progress;

National strategies on hydrogen within Europe are increasing. Numerous countries now have national hydrogen strategies including France, Germany, Spain and Scotland, with the preparation and drafting of national strategies for other EU member states including Italy and Poland. What needs to be defined is the allocation of hydrogen for home heating, as this is not outlined in any national strategy.

6. The relative advantages and disadvantages of hydrogen compared to other low-carbon options (such as electrification or heat networks), the applications for which hydrogen should be prioritised and why, and how any uncertainty in the optional technology should be managed.

There is no silver bullet to deliver the decarbonisation of heat. Electrification and hydrogen will have to co-exist in any future scenario. It is clear that there will be significant investment in the gas network to support the ambition set out in the Prime Minister’s Ten Point Plan for a potential Hydrogen Town before the end of the decade, but whilst having ambition is to be applauded, when it comes to a change in the industry there ultimately needs to be clarity on the roll out, including clearly defined timescales, locations and expectations. This strategy should be sign posted in the future Heat and Building Strategy and the Hydrogen Strategy during 2021. In the Hydrogen strategy paper Government should consider at what point and what level it would make sense to set a maximum carbon-intensity for hydrogen supply. These documents need to be made publicly available as quickly as possible to allow manufacturers to proactively respond by defining a complimentary product portfolio and beginning supply chain readiness. Without driven government policy and regulation there is limited drive for manufacturers to invest in the development of expensive future technologies. Having clear visibility on these policies will allow manufacturers to understand the allocation of hydrogen supply for heating (as opposed to other market sectors). The heating industry needs a guaranteed supply of hydrogen to build and develop a supply chain for hydrogen heating, including design, manufacturing investment and upskilling of installers. The Prime Minister’s Ten Point Plan outlined plans to generate 5GW of low carbon hydrogen by 2030 for industry, transport, power and homes. Clarity is required as to the proportion of hydrogen for heating, as 5GW of hydrogen is enough to power 1.8 million homes, but as there are north of 24 million homes in England, this capacity falls short.

We would question why the roll out of ‘hydrogen ready’ boilers would take place pre-2025, indeed we believe a date between 2025 and 2030 would probably align better with timescales for hydrogen rollout. By the time there is hydrogen to the doorsteps a lot of the initially (2025) installed hydrogen ready boilers will be at the end of their life, and will not have used hydrogen gas in their lifetime. Essentially hydrogen ready boilers

command an extra premium which is a cost burden to the end user, and this benefit is redundant until hydrogen ready is available. Whilst the development of hydrogen boilers should continue, pre-2025 Vaillant would recommend installing efficient system solutions as part of low carbon readiness – for either hydrogen boilers or a heat pump solution in future. Strong focus should be put on hydrogen availability where it is not feasible to decarbonise without it.

Decarbonising heat in UK homes is expected in large part to require a transfer from (largely) gas to either electric heat pumps or hydrogen. Both require the development of upgrading of infrastructure for production and distribution, and both use fuels that will potentially be more expensive to consumers than the current unit price of gas. Hence, reducing the size of the heat load that is required in UK homes can offer a significant benefit by reducing the infrastructure cost to Government and the end cost to consumers, this should be mandated into new build properties now. Households and their connection to the gas grid also needs to be considered, as there is 'no one size fits all' rule here. For most households currently on the gas grid, decarbonisation of that grid will deliver a net zero fuel, in the form of hydrogen. One consideration here is that, at this point in time, we do not yet know the suitability of clean hydrogen for use in the 85% of homes on the existing mains gas grid. Also, consumer awareness of hydrogen as a fuel for heating is low and therefore at present will offer limited public acceptability. In the BEIS "Transforming Heat – Public Attitudes Research" which was published in January 2020, it was found that 88% of the respondents had never heard of hydrogen boilers as a form of heating. A campaign of awareness will be required to make a switch here.

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