

Response from the Institution of Gas Engineers & Managers (IGEM) to the Ministry of Housing, Communities and Local Government Future Buildings Standard – Consultation on changes to Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations for non-domestic buildings and dwellings; and overheating in new residential buildings

Introduction:

Licensed by the Engineering Council, IGEM is the professional engineering institution for gas representing thousands of engineers, technicians and managers across the UK.

As advocates of excellence, IGEM's core aim is to help all those involved with gas to achieve and maintain the highest standards of professional competence. Working with stakeholders from across the industry we seek to represent the views of our members and the wider gas community and to inform and influence current and future gas and energy policy.

IGEM fully supports the transition of the energy system to meet a net zero future and are playing a key role in supporting the evidence base for the application of low carbon gases in the gas network. As well as developing the first Hydrogen Technical Standards, IGEM are facilitating a change in regulations on the quality of gas allowed to be injected into the transmission and distribution network – to enable a higher proportion of greener gases such as biomethane and eventually hydrogen.

Our role in the government's Hydrogen Programme Management Group, sees us working directly with gas network companies, safety experts, academia and policy advisors to assess the evidence base and develop informed recommendations on the future of the gas grid.

We welcome the opportunity to respond to this consultation and aim to represent the collective views of IGEM Members and our gas industry stakeholders. We have selected questions from the consultation which are of greatest relevance to our Members and provided our response below:

Question 2)

'We believe that developers will typically deploy heat pumps and heat networks to deliver the low carbon heating requirement of the Future Buildings Standard where practical. What are your views on this and in what circumstances should other low carbon technologies, such as direct electric heating or hydrogen, be used?'

The performance targets outlined in the Future Buildings Standard clearly supports a phase out of fossil fuel heating appliances in favour of low carbon alternatives. IGEM and its Members understand the necessity of taking immediate action on emissions from heat. However, if the right drivers are not in place to encourage 'hydrogen ready' heating technologies such as hydrogen ready boilers, developers and consumers risk being locked into technologies that prove costly and inflexible. It may also limit the opportunity of converting local/regional areas to run on hydrogen delivered by the existing gas grid.

The Government have made a bold commitment to hydrogen development, however this does not appear to be appropriately reflected in the Future Buildings Standard. The Standard should include a clear intent with regards to hydrogen's potential and build flexibility into the Standard rather than precluding a technology outcome. This will help ensure the hydrogen supply chain and equipment manufacturers are not deterred from developing and scaling up their hydrogen capabilities.

IGEM support the recommendation that a mandate should be in force, by no later than 2025, which would mean that most homes would have hydrogen-ready appliances by 2040¹. Mandating hydrogen ready appliances, such as boilers, from 2025 would ensure an easier and quicker

¹ Energy Networks Association, *A Hydrogen Network Plan* <https://www.energynetworks.org/newsroom/gas-grid-companies-plot-course-to-britains-first-hydrogen-town>

switchover to hydrogen once the gas grid is ready and regulations have been updated. Limiting the opportunity of low cost, low carbon solutions such as biomethane and hydrogen means the UK may face a significant missed opportunity on its journey towards net-zero carbon emissions by 2050.

The Standard should consider that the installation of heat pumps will be more costly for developers than traditional heating technologies, and currently more costly for consumers and businesses to run. There are also ongoing concerns on the effectiveness of heat pumps for many non-domestic new builds due to the amount of heat required.

The additional strain on the electricity grid from widespread heat pump use, should also be taken into consideration. There is potential for hybrid heating solutions, for example, where a heat pump is installed and a hydrogen ready boiler is used as back up. This model can provide considerable flexibility to meet the variations in energy demand due to weather changes – meeting storage challenges through the network’s capacity to store gas within the distribution system itself². With the peaks and troughs of renewable electricity capacity, hydrogen can provide back up when wind and solar generation is insufficient, and any excess electricity used to produce hydrogen. A Future Buildings Standard which in effect deters gas connections for new buildings will seriously limit the use of hybrid systems, risking that the potential of both hydrogen and biogas may not be fully realised across the UK.

Hydrogen has an important role to play in the UK’s decarbonisation transition, with the Committee on Climate Change stating that there is no realistic scenario which enables the UK to reach net zero by 2050 without clean hydrogen playing a key role in decarbonising heat³.

Locking the UK into heating technologies that rely on electricity will mean that the transition to net-zero will cost the UK more. A recent study produced by Navigant, on behalf of the Energy Networks Association, reports that in a ‘Balanced Scenario’ (where renewable and low-carbon gases are used in a balanced combination with low-carbon electricity), the cost is lower than a fully ‘Electrified Scenario’ by £13bn/year, equivalent to 12% of total energy system cost in 2050⁴. IGEM supports a regulatory approach that advocates for a range of low carbon heating technologies, depending on factors such as housing stock, location, local infrastructure and resources.

The Climate Change Committee’s Sixth Carbon Budget acknowledges a role for hydrogen in heating buildings in its ‘Balanced Net Zero Pathway’. It details that key decisions will need to be made in the 2020’s on the balance between electrification and hydrogen in decarbonising heating. The Committee supports the installation of hydrogen ready boilers, and sees this as a small cost to bear to help mitigate against; the time needed for the heat pump supply chain to fully ramp up; the continued installation of fossil fuel boilers in existing buildings; any emerging issues in a heat pump programme; and/or evidence that hydrogen can be rolled out effectively across the UK.

Crucial work is already underway to prove the safety case for hydrogen appliances. Hydrogen ready boilers have been successfully demonstrated as part of the Hy4Heat project sponsored by the Department for Business, Energy and Industrial Strategy⁵.

The transition to a future hydrogen system is likely to involve a range of pathways and end-point uses. As such, the Future Buildings Standard must be future proofed to provide flexibility and not inadvertently push developers down a path that may have unintended consequences on the costs of decarbonisation, energy capacity and a just transition for consumers.

² [Institution of Engineering & Technology](#), *Transitioning to hydrogen: assessing the engineering risks and uncertainties*, June 2019

³ [Committee on Climate Change](#), *Net Zero: The UK’s contribution to stopping global warming*, May 2019.

⁴ [Navigant](#), *Pathways to net-zero: Decarbonising the gas networks in GB*, October 2019

⁵ <https://www.hy4heat.info/wp4>