

Consultation Response

22 February 2019



Clean Growth – Transforming Heating

The Heating and Hotwater Industry Council (HHIC) is the leading representative body for the UK domestic heating and hot water industry, worth £3-4 billion per year. HHIC's membership base covers approximately 94 per cent of heating and hot water solutions available in the UK.

HHIC is a division of the Energy and Utilities Alliance (EUA), a company limited by guarantee and registered in England. Company number: 10461234, VAT number: 254 3805 07, registered address: Camden House, 201 Warwick Road, Kenilworth, Warwickshire, CV8 1TH.

We welcome views on the strategic inferences we have identified, the priority areas we believe require further development to inform a long term policy framework, on any important omissions, on the parties who may be best placed to deliver in these areas, and on opportunities for enhancing co-ordination

HHIC welcomes the release of this document as a catalyst to move on the conversation regarding the long-term decarbonisation of heating in the UK. Given that awareness of low carbon and renewable heating systems remains low (52% according to the latest public attitudes tracker)¹ and given that the Renewable Heat Incentive will be ending in 2021, it comes at an important time. The priorities and strategic considerations identified at this stage will have a significant influence on the ongoing debate around the future of heat so our members have noted this document with great interest.

Overall, we are concerned that whilst the document explores the potential of in-home disruption for consumers and the need to raise awareness of low carbon heating options, there is very little mention of cost impacts on consumers, both upfront and the ongoing impact on energy bills. We believe that consumers need to be put at the heart of the transition to low carbon heating as they will be required to endure any resultant disruption and will be paying for it either through their bills or general taxation. We believe that only by significantly raising awareness of low carbon heating technologies and, crucially, asking consumers which they would be willing to accept in their homes will this transition be successful in reality.

HHIC welcomes BEIS's core approach of evaluating the impact that each low carbon heating technology could have on the whole energy system and on transition costs, both for the wider network and for consumers. We are pleased to have a formal acknowledgment that hydrogen could deliver the emissions reductions from heating consistent with our 2050 targets. Some of the concerns around the viability of hydrogen can be quickly addressed; for example, one of the key reasons for the commencement of the iron mains replacement programme was to futureproof the gas grid, opening the door for it to transport a wider range of gases in the future,

¹ [Public Attitudes Tracker](#) (wave 28), Department for Business, Energy & Industrial Strategy, December 2018.

including hydrogen. All options for heat decarbonisation will require significant investment in new infrastructure. We acknowledge that carbon capture and storage (CCS) will be a key technology for hydrogen which is why we were extremely disappointed when the Government took the decision to cancel DECC's CCS competition; this wasted taxpayers' money and stalled private sector investment, setting back the development of this vital technology by a number of years. CCS has the potential to unlock large carbon savings, and infinite possibilities for carbon usage, across a multitude of sectors and processes, not just heating.

We are glad to see an acknowledgment that large scale electrification of heat and industrial processes would require a huge increase in investment, both in grid infrastructure and low carbon generation. The evaluation of the proportion of buildings which are not suitable for commercially available electric heating options, such as heat pumps, will be a key piece of work which needs to be completed as a matter of urgency; our members believe that the actual proportion is far higher than BEIS's initial estimates and claims from manufacturers of electric heating systems. Further investigation needs to be done on the impact of installing heat pumps in particular on typical British homes; the implications of larger units, the need for hot water storage and larger radiators, in addition to high levels of insulation, will include extensive in-home disruption as well as high upfront costs, something consumers are unlikely to find palatable. The need to allocate space for hot water cylinders in the 13.3 million of homes that have combi boilers needs to be considered as does the continuing trend for regular systems being replaced with combi boilers.

We welcome the development of a new comprehensive policy framework for heat as an injection of clarity and evidence-based decisions into what will be the most challenging issue for our industry in the next twenty to thirty years. Clarity on funding for schemes to support uptake of low carbon heating and how this funding will be allocated will be much appreciated by our members. We remain concerned that a disproportionate amount of funding and departmental resources could be spent on proposals for off-grid homes when overall carbon savings would be relatively low and cost burdens on consumers for associated improvements like insulation could be high.

A programme of work on the requirements for electricity generation and network infrastructure upgrades to facilitate large scale electrification of domestic heating will be watched closely by our members. There has not been much assessment of these considerations which could have a significant impact on the overall affordability of electrification. We hope that this work will take into account additional future demands on the electricity grid, including from the millions of electric cars that the Government anticipates will be plugged in on a daily basis, for example. Included in this assessment should also be the seasonal nature of heat demand compared to wind and solar electricity generation of wind and solar which currently forms part of the electrical generation in the UK.

Several of our members are already participating in the Government's work on the feasibility of hydrogen for heat, including in the Hy4Heat project. We look forward to demonstrating the viability of hydrogen in terms of costs, infrastructure, the effect on the whole energy system and impacts on consumers. We hope that the latter point is emphasised by the Government as any future transition must be both affordable for consumers and palatable to them in terms of the changes they may have to make to their homes, appliances and behaviour.

Overall, we agree with BEIS's overarching approach on developing a new policy framework for heat, particularly the intention to involve stakeholders closely in the process and consider evidence from third parties. We would, however, caution against an overreliance on sourcing evidence from other countries; comparative examples of transitions can be useful to some extent but the unique profile of heating in the UK needs to be taken into account, for example our highly developed, century-old gas grid which is unparalleled.

Does this overview of the strategically important issues, as identified in the course of our review of the evidence, highlight the key issues? Are there important issues missing?

HHIC believes that BEIS's review of current evidence captures the key issues associated with each of the options for decarbonised heating. We welcome the acknowledgment that investment in gas storage would be cost-effective and would deliver benefits to the whole system; this was something argued prior to the closure of the Rough storage facility so an appreciation of the value of gas storage is overdue but a positive development nonetheless.

An issue that should be noted by BEIS is that a continued role for the gas grid opens up a number of opportunities that could be of benefit in addressing the challenge of increasing energy efficiency and electricity generation. For example, micro combined heat and power units can operate at very high efficiencies of over 90% as they generate electricity, adding value from a grid perspective. Meanwhile, other technologies can achieve greater efficiencies from a system; for example, waste water heat recovery systems and passive flue heat recovery can reuse energy that would otherwise be wasted. Technologies such as these should form part of BEIS's investigation into the merits of overarching fuels for decarbonisation.

One issue that appears to have been left out of the analysis around the cost impact of heat pumps is the issue of hot water generation. When considering alternative heating technologies for domestic properties, it is important to consider how they could affect the ways in which households generate hot water given that this inevitably goes hand-in-hand with heating. The fact that the current generation of heat pumps do not heat water to temperatures that consumers are used to (typically only a maximum of 50°C) would necessitate an alternative method of hot water generation, such as a cylinder with an immersion heater and an electric shower. This could significantly increase the overall electricity usage of the whole system and therefore upfront and ongoing costs for consumers as well as considerations around grid infrastructure.

Are there any important pieces of evidence that require further consideration?

We would question the assertion on page 53 that "gas-based solutions can be expected to involve higher operating costs than electric solutions, primarily due to the lower efficiencies of boilers compared to heat pumps and the reliance on natural gas or biomass feed stocks to produce the required gas." This is not the case in our experience as the per unit cost of electricity compared with gas means that households with heat pumps on average spend more on heating than those that use a gas boiler. This statement appears to be contradicted by another on page 30 which states that "boilers are currently the cheapest way to produce heat from gas, therefore most commentary on hydrogen for heat is focused on their use." We believe that even after a transition which replaces natural gas with hydrogen as the primary heating fuel, this will still be the case as the need for a huge increase in low carbon electricity generation to meet the twin

demands of electrified heating and electric car charging will increase unit costs for electricity substantially.

We would also question the assertion on page 99 that “the public may view the Government as a more trustworthy leader for an energy transition than industry.” The latest Public Attitudes Tracker demonstrated that 53% used their heating engineer as a source of advice and information when choosing a new boiler or heating system and 79% found them to be a very helpful source¹. Following the failure of the Green Deal, the Government’s credibility has taken a hit amongst consumers who still predominantly trust their chosen Gas Safe installer as a source of objective advice that will help the consumer to tailor their system to suit their individual needs.

We hope that BEIS will closely examine and evaluate the evidence produced by HyDeploy project being run at Keele University by Cadent and Northern Gas Networks. This project could indicate the potential for hydrogen to be deployed at scale in the gas grid long before the current timescales for our transition to low carbon heating. It is also of interest due to its focus on consumers and how they interact with their appliances.

Do you agree with the set of strategic inferences we have drawn out?

Adding to our response to the first question, we agree with most of the strategic inferences set out in the document. However, we do feel that the section on the consumer experience contains some inaccuracies and is far too short considering the overall length of the document. As stated on page 65, consumers will inevitably be impacted by the transition to low carbon heating, both financially and practically. A key plank of the new policy framework on heat ought to be minimising disruption for consumers in order to maximise the chances of them taking up such heating options. Cost is also an important factor for consumers in the acceptability of different heating system. As stated in the document, boiler manufacturers estimate that hydrogen boilers can be delivered at approximately 20% more than the cost of a natural gas boiler, and eventually at the same price once supply chains are established. These upfront costs that consumers will bear, whether it be through direct purchases, energy bills or general taxation, should be carefully considered when comparing the viability of low carbon heating technologies.

On page 65, it is argued that “the main disruption to the consumer in this approach is likely to be during the process of converting to hydrogen, which may require multiple home visits and new gas pipework within the home.” Our members would like to point out that whilst new pipework may be required in the small minority of homes which still have steel pipework, this is very unlikely to be the case for the vast majority of homes where replacement copper pipework has been installed. We should also remember that town gas which contained 50% of hydrogen was used in heating and cooking prior to the use of natural gas in the UK.

The argument that heat pumps would mean consumers having to entirely change the way they use their heating system, from highly responsive demand-driven heat to a low inflexible heat, is a notable one. This change would be in addition to changes to all gas appliances, adding more demand to the electricity grid. Furthermore, when considering the key issue of consumer choice, it should be noted that many consumers would be frustrated by no longer having a choice over the type of appliance they use. For example, many consumers prefer to use gas for cooking but

if they were required to replace all of their appliances with electric-only models then they would no longer have a choice over commonplace appliances in their home.

HHIC is glad to see that BEIS understands that extremely low levels of consumer awareness and interest in low carbon heating is currently a significant barrier to any future transition. As alluded to in point 5.7 on page 97, future research into consumers' opinions on low carbon heating needs to set out the practical implications of each technology in order to truly test their attitudes and appetite for change; general 'in principle' questions do not give a full picture to consumers and therefore do not address a lack of awareness of the issues and considerations raised in this document.

The fact that BEIS's own Public Attitudes Tracker shows that the vast majority of consumers would not change their heating system until their current one fails is another important consideration which we are glad has been highlighted². These consumers will be looking for a quick solution to their unusable system and are unlikely to have funds to meet high upfront costs of heat pumps; even if they did it is unlikely that they would be willing to spend five-figure sums on a new heating system.

We would also like to question the rationale behind BEIS's policy decision that will mean homes and businesses off the gas grid will have to decarbonise by 2030 whereas on-grid buildings, which are arguably in a more favourable position to decarbonise if a low carbon fuel is delivered via the grid, will be given until 2050. This fact shows that the timescales for off-grid decarbonisation do not seem to be well thought through, particularly given that fuel poverty rates in off-grid areas are higher and that the primary focus is often on electrification.

Do you agree that we have identified the most important issues to be addressed as we develop our thinking? Do you consider that there are important omissions?

HHIC is of the view that the document sets out the most important immediate steps which need to be taken to facilitate progress on the new policy framework. In particular, the consultation on changes to Part L of the Building Regulations and setting out a successor scheme that will be implemented following the closure of the Renewable Heat Incentive in 2021 are key areas of interest for our members.

We welcome BEIS's willingness to receive evidence from a wide range of stakeholders and the formation of a common agenda on research. This will give a level of clarity to the industry and enable our members to feed into the process of evaluating the feasibility of various low carbon heating options.

Do you have any comments on the types of actions identified to meet these challenges? Do you have other suggestions?

We believe that a new policy framework for heat will only be a positive step forward if it avoids picking winners and instead facilitates as much participation from consumers as possible. Any transition to low carbon heating will not be bought into by consumers if they feel that it has been

² [Public Attitudes Tracker](#) (wave 26), Department for Business, Energy & Industrial Strategy, August 2018.

developed 'behind closed doors' without taking their thoughts and circumstances into account. Given that we know consumer awareness of the need to transition to low carbon heating and how this may be done is very low, assessing the views of consumers and providing them with information on the kinds of technologies they may be expected to adopt in the coming decade will be vital.

Do you have views on which parties are best placed to deliver actions to address the key issues?

We believe that the model which has been used for the Hy4Heat project is a promising one as it brings together a range of stakeholders with practical expertise in various aspects of the gas industry. However, it will be essential for BEIS to involve trade associations and Gas Safe engineers to a greater extent in order to tap into the widest possible industry knowledge and experience.

Do you have any views on priorities for further development and proving of emerging technologies with clear potential to provide strategically important options and benefits in relation to decarbonising heating? Please provide supporting arguments for your views.

As previously mentioned, we believe that the central principle when evaluating emerging technologies should be ensuring that disruption and cost burdens on consumers is minimised whilst meeting emissions reductions targets at an affordable price.

Do you have views on how coordination and prioritisation of relevant initiatives across industry, academia and the public sector could be improved?

We have no comment to make.

Do you have views on ways in which the Government, and other actors, could seek to engage stakeholders and stimulate a wider public debate?

Including the large installation companies and the 125,000 Gas Safe installers in the debate around the future of heating in the UK will be key to engaging consumers given that they are relied so heavily on for advice and information around heating systems. Our skilled and well respected workforce of engineers will be the ones facilitating the uptake of low carbon heating systems so their voice, currently missing from the debate, should be sought and taken into account.

Are there practicable ways in which we could facilitate greater transparency in the exchange of views and analysis on relevant issues?

BEIS could look to publish evidence and feedback received periodically in relation to the strategic challenges and considerations outlined in this document rather than only doing so following consultations or publications which directly seek views such as this one.