

Response ID ANON-7X4C-RE5H-T

Submitted to Phasing out the installation of fossil fuel heating systems in businesses and public buildings off the gas grid
Submitted on 2022-01-12 16:00:17

About you

1 What is your name?

Name:

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2 What is your email address?

Email:

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3 What is your organisation?

Organisation:

Institute of Acoustics

4 Are you happy for your response to be published?

Yes

5 Would you like to be contacted when the consultation response is published?

Yes

6 How did you hear about this consultation?

Where did you hear of this consultation?:

Other (please specify):

Heard about it on the news

Introduction

The non-domestic off-gas grid building stock

The proposals

1 Do you agree with the principle of using the natural replacement cycle to phase out the installation of fossil fuel heating systems in non-domestic buildings off the gas grid? Yes/No. Please explain your response.

Not Answered

Please answer here.:

This response comes from the Institute of Acoustics (IOA). We have only answered questions where we can offer authoritative comment. Where we have not answered a question, we will enter N/A in the evidence text box.

The Institute of Acoustics is the professional body for those working in the field of acoustics and noise management. Our members include consultants, academics and regulators. Our activities include working for the building industry, developers and local authorities in all matters associated with sound and noise management in the built and natural environment. This response has been compiled by members of the Institute.

Timelines for implementing the proposals

2 Do the 2024 and 2026 timescales for introducing this policy provide sufficient lead in time for non-domestic off-gas grid consumers to prepare for their transition to low carbon heat? Yes/No. Please provide evidence to support your response where possible.

Not Answered

Please answer here.:

N/A

3 Would an implementation date of 2024 (for large buildings) and 2026 (for smaller buildings) provide sufficient lead in time for industry to prepare for the increase in demand? Yes/No. Please provide evidence to support your response where possible.

Not Answered

Please answer here.:

N/A

4 Do you agree with our proposal to introduce this policy for the largest buildings first? Yes/No. If not, please explain your reasoning, using evidence to support your response where possible.

Not Answered

Please answer here.:

N/A

Proposed low carbon technologies

Favouring heat pumps

5 Do you agree with our proposals to take a heat pump first approach to the replacement of fossil fuel heating systems in off-gas grid non-domestic buildings? Yes/No. Please explain your response.

No

Please answer here.:

We have answered 'no' because we are not convinced that the potential noise issues have yet been properly addressed. If we were content that the noise issues associated with the widespread installation of heat pumps will be properly managed in line with Government Noise policy, our answer would be 'yes'.

It is noted that the word 'noise' does not appear in either the consultation document nor in the Impact Assessment.

It must be made clear that the Institute of Acoustics (IOA) recognises that fossil fuel heating systems contributes to climate change. However, we caution against assuming at this stage that heat pumps are the obvious solution. There are potential noise and vibration impacts that could affect both users and those living nearby.

The noise issue with heat pumps was recognised when heat pumps attracted permitted development rights around 12 years ago. The noise element of the Microgeneration Certification Scheme (MCS) was developed to help reduce adverse impacts that might arise from the installation of such pumps. It was designed to be a relatively simple approach, but that inevitably meant that compromises had to be made in the detail. So the IOA urges the Government not to think that this MCS can simply be rolled out as a means of managing the noise now. The issue of noise from heat pumps needs much more consideration.

In response to this consultation, the IOA canvassed views of some of its members regarding their experience of noise from heat pumps. From their responses, five conclusions can be drawn:

1. The use of heat pumps does cause adverse noise impacts and at times significant adverse impacts, both of which must be addressed to comply with Government policy;
2. Installing heat pumps such that the noise is effectively managed will at times require specific mitigation in the form, for example, of acoustic enclosures;
3. Undertaking retrospective mitigation for pumps installed under permitted development rights can be hindered by the rules associated with the size of the units;
4. There is no consistency in the format of the data published by manufacturers regarding the noise emission from their units. The data is sometimes limited to either sound power or sound pressure levels. Information about the frequency spectrum of the noise emission and the directivity characteristics are sometimes missing. The lack of such data makes assessing the potential noise impact and what, if anything, needs to be done to mitigate it very challenging; and
5. Heat pumps can exhibit acoustic characteristics, e.g. tonality and impulsivity, which can exacerbate the adverse impact perceived and which are not reflected in single overall noise level values.

A paper published by one of our members in 2019 explores further some of these issues:

SOUND FROM DOMESTIC AIR SOURCE HEAT PUMPS: A CASE STUDY by Matt Torjussen, Proceedings of the Institute of Acoustics, Vol. 41. Pt. 1. 2019.

Please do contact us if you would like a copy of this paper.

Given the importance of this issue, the IOA has also commenced a survey of acousticians, regulators and the general public regarding their experience of noise from air source heat pumps. It is early days for the survey, but again, the Institute would be happy to meet with you to discuss our findings.

In any event, with the wealth of experience that some of our members have on this issue, the IOA is keen to meet with you to try to identify the necessary solutions so that noise from heat pumps does not become an obstacle to addressing fossil fuels as a means of heating buildings. Please do contact us.

6 Do you agree that most non-domestic off-gas grid buildings will be suitable for a heat pump? Yes/No. Please provide evidence to support your response, including examples of situations where the heat and hot water demand could not be met by a heat pump.

Not Answered

Please answer here.:

From the noise perspective it depends on the relative location of the premises in question and any noise sensitive premises located nearby.

Alternative low-carbon systems

7 What types of buildings are likely to fall into the 'hard to treat' category? Please provide evidence to support your response.

Please answer here.:

N/A

8 What low carbon heating systems do you foresee being used as alternatives to heat pumps in 'hard to treat' buildings? Please provide evidence to support your response.

Please answer here.:

N/A

9 Will these alternative low carbon heating systems align with the net zero, sustainability, air quality and consumer experience criteria set out in the 'Alternative low carbon systems' section? Please provide evidence to support your response.

Please answer here.:

Only to say that the criteria should be extended so that the systems also comply with the Government's noise policy.

Untreatable buildings

10 Are there instances where both heat pumps and alternative low carbon heating technologies will be unsuitable for meeting a building's space heating and hot water demands – i.e., 'untreatable buildings'? Yes/No. If yes, how and when do you foresee low carbon heating technologies developing to overcome these challenges? Please provide evidence to support your response.

Not Answered

Please answer here.:

N/A

The cost of transitioning

11 How do you foresee the costs associated with installing a heat pump in non-domestic buildings changing over the next 10 years? Please consider a range of system sizes in your response and provide evidence to support your answer.

Please answer here.:

N/A

12 How do you foresee the costs associated with installing alternative low carbon heating systems in non-domestic buildings changing over the next 10 years (i.e., other than heat pumps)? Please consider a range of system sizes in your response and provide evidence to support your answer.

Please answer here.:

N/A

13 How can the government support cost reductions in low carbon heating technologies suitable for non-domestic buildings, particularly heat pumps? Please consider buildings of differing sizes and energy use.

Please answer here.:

N/A

14 How accurate is our indicative modelling for the cost of transitioning to low carbon heat? Please provide evidence to support your response. This should include details on the types of buildings the costs are associated with, including its floor area (m2), energy use (kWh) and the type of heating system it currently uses.

Please answer here.:

N/A

15 How can we support the green finance market to develop the products and investor demand that businesses will need to fund their transition to low carbon heat?

Please answer here.:

N/A

Back-up heating systems

16 In what situations are fossil fuel back-up systems common and how frequently are they used? Please provide evidence to support your response.

Please answer here.:

N/A

17 What low carbon back-up solutions are available for buildings with a heat pump as their primary system? Please provide evidence to support your response.

Please answer here.:

N/A

Consumer protection

18 Taking into consideration existing certification schemes, are businesses adequately protected when installing a low carbon heating system up to 45-kilowatts? Please provide evidence to support your response.

Please answer here.:

N/A

19 Do businesses that install low carbon heating systems with a capacity over 45-kilowatts require consumer protection? Yes/No. If Yes, how should this differ from standards available for installations up to 45-kilowatts?

Not Answered

Please answer here.:

N/A

Managing compliance

20 Do you have any views on how best to ensure compliance with the proposed regulations laid out through this consultation? Please provide evidence to support your answer.

Please answer here.:

N/A

Other trigger points to reinforce the policy

21 What is the typical lifespan of a non-domestic heating system used in an off-gas grid building? How does this vary by system capacity? Please provide evidence to support your response, which should include the type and size of heating systems.

Please answer here.:

N/A

22 What are the potential implications for businesses of introducing an end date by which all buildings must have transitioned to low carbon heating (e.g. in the early 2040s)?

Please answer here.:

N/A

23 What are the potential implications for businesses of introducing trigger points for installing a low carbon heating system, in addition to the natural replacement cycle, such as at the point of let or sale?

Please answer here.:

N/A

Equality Act 2010

24 Do you have any evidence on how groups protected under the Public Sector Equality Duty may be affected by our proposals to phase out high carbon fossil fuel heating in non-domestic buildings off the gas grid?

Please answer here.:

N/A

25 Do you have any views on what more could be done to ensure businesses and communities affected by our proposals experience a smooth transition to low carbon heat? Please provide evidence to support your answer.

Please answer here.:

As indicated above, the noise from heat pumps needs to be effectively managed so that the noise impact does not hinder the move to low carbon heat.

End of consultation

26 Please use this space to provide any further views not already captured in your responses to the previous consultation questions.

Please answer here.:

None