

Historic England's response to the DESNZ consultation: Boiler Upgrade Scheme and Certification requirements for clean heat schemes

Question 1 – Do you agree with the proposal to amend scheme eligibility criteria to allow more installations of heat pumps in combination with other electric heating appliances? Yes/No. Please provide evidence to support your response.

Yes – Historic England agrees, as there will be certain situations where additional electric heating appliances are required or beneficial, as described in our answer to Question 2. However, it is inadvisable to have a situation where a direct electric element is being relied upon to heat a relatively large proportion, or all, of the domestic hot water unless this is only intermittently, i.e. for a weekly legionella cycle. Otherwise, this will increase the running costs due to higher electricity usage and put more demand on the electricity distribution network.

Question 2 – Do you have any views on the proposed eligibility criteria that should apply to multi-technology systems? Yes/No. Please provide evidence to support your response.

Yes – Historic England agrees, as there may be cases where the hydronic (wet) heating system does not extend to all areas of the property and extending it may not be cost-effective. In such instances, using a local direct electric heater can be a more practical solution. Allowing for this type of supplementary heating is reasonable. Some flexibility in the choice of technology eligibility criteria would allow for a balance between maximising the reduction in carbon emissions and delivering retrofit that is sympathetic to the character of older buildings.

Question 3 – Should the BUS provide grants to support the installation of air-to-air heat pumps? Yes/No. Please provide evidence to support your response.

Yes – Historic England agrees, as air-to-air heat pumps (AAHPs) can provide good energy efficiency and is a low-carbon way of effectively meeting space heating demands. However, their deployment should be subject to certain conditions: the use of refrigerants with low global warming potential (GWP) should be encouraged, and the declared Seasonal

Coefficient of Performance (SCOP) should be based on a calculation methodology that gives accurate, real-world electricity cost comparisons to air source heat pump (ASHP) systems. Most AAHPs can also provide cooling and if used in this way, the heat pump will be used year-round, increasing running costs, the environmental impact, and the demand on the electricity distribution network – these increased costs should also be considered.

Question 4 – Do you have any views on the eligibility criteria that should apply to air-to-air heat pumps if supported by the scheme? Please provide evidence to support your response.

For air-to-air heat pump (AAHP) eligibility, there should typically be no existing hydronic ‘wet’ space heating system or a case where the majority of radiators and pipework would need replacing. An example of a qualifying property would be one currently relying on direct electric heating. The AAHP should be set to heating only with clear information provided to the end user about the implications of cooling in addition.

Question 5 – Do you have any views on the advantages of certain types of air-to-air heat pumps that could be supported by the scheme, such as products that provide both space heat and hot water? Please provide evidence to support your response.

Some air-to-air heat pumps (AAHPs) utilise a ‘hydronic box’ which contains a heat exchanger, allowing a secondary side hydronic circuit to provide heat for a hot water cylinder. This would provide hot water with lower electricity use and resultant emissions as compared to relying on an AAHP system for space heating and a direct electric hot water system. However, this may require additional space and upfront costs and so will not always be feasible.

Question 6 – Do you have views on the appropriate grant level to support the installation of air-to-air heat pumps? Yes/No. Please provide evidence to support your response.

Yes – Historic England believes that grant funding for air-to-air heat pumps (AAHPs) should match that available for air source heat pumps (ASHPs). The estimate of £3900 for an AAHP installation may not reflect the actual costs for a large number of installations.

Question 8 – Do you have views on a reasonable level of air-to-air heat pump deployment on the BUS if a £1,000 or £2,000 grant was offered? Please provide evidence to support your response.

Historic England does not believe that this amount of funding will stimulate sufficient deployment. As mentioned in our answer to Question 6, we advise that funding for air-to-air heat pumps (AAHPs) should be on par with funding for air source heat pumps (ASHPs).

Question 9 – Do you have views on other barriers (i.e. non-cost related) to installing air-to-air heat pumps? Please provide evidence to support your response.

Installing external and internal units in buildings of traditional construction (i.e., pre-1919) must be considered carefully. For example, traditional buildings may struggle to accommodate the external unit(s) that come with air-to-air heat pumps (AAHPs), and it will be essential for the installer to consider how to resolve this potential barrier. Installing the external units of air source heat pumps (ASHPs) is not always a barrier to installation in traditional buildings, which demonstrates this is a barrier that can be overcome with proper planning. Additionally, internal AAHP emitters/indoor units are more challenging to accommodate from an aesthetic perspective in buildings of historical significance.

Furthermore, familiarity will likely prove a barrier as most people will only have experienced these systems in a commercial environment, and another potential barrier could be whether more vulnerable end users will be able to regularly perform maintenance on AAHPs (i.e., cleaning the filters).

Question 10 – Do you have any views on whether government should provide grants to support the installation of electric heating technologies that are not heat pumps (e.g. heat batteries)? Yes/No. Please provide evidence to support your response.

Yes – Historic England agrees that heat batteries can be considered for funding, but only on a project-specific basis. This is because phase change heat batteries typically require charging temperatures between 50°C and 70°C, which can negatively impact heat pump efficiency.

Heat batteries should ideally be used with time-of-use tariffs that allow heat pumps to charge them when electricity prices are low. This helps offset the reduced efficiency caused by the higher flow temperatures needed to charge the battery, temperatures that would otherwise be lower if the heat pump were directly supplying space heating using weather compensation.

Another concern is that some time-of-use tariffs, particularly flexible tariffs, offer lower rates during off-peak periods but can be significantly more expensive during peak times. If such a tariff applies to the entire end user's electricity use, higher peak rates could substantially increase overall energy bills. To mitigate this risk, one option is to maintain a standard daytime tariff for general use, while applying a separate, cheaper, or flexible tariff specifically for night-time charging of the heat battery.

Heat batteries may also be useful for domestic hot water storage, especially in homes where space constraints prevent the installation of a standard hot water cylinder. Since hot water typically requires higher temperatures than space heating, the impact on heat pump efficiency is less significant in this application. Further research, or a review of existing studies, would be valuable to better understand the specific efficiency impacts of heat batteries when used for space heating compared to hot water.

Question 11 – What eligibility criteria should apply to other electric heating technologies? Please provide evidence to support your response.

Please see Historic England's answer to Question 10 for details of eligibility criteria.

Question 13 – Do you agree that hire-purchase and conditional sale agreements should be permitted alongside the BUS? Yes/No. Please provide evidence to support your response.

Yes – Historic England agrees, as allowing hire-purchase and conditional sale agreements under the Boiler Upgrade Scheme (BUS) could make heat pump installations more accessible to consumers who lack the upfront capital beyond the grant amount. However, these financing options are likely to appeal most to lower-income end users or those with limited disposable income, making consumer protection essential.

Question 18 – Do you agree that third-party ownership providers wishing to access the BUS should be restricted to MCS certified companies? Yes/No. Please provide evidence to support your response.

Yes – Historic England agrees because the Microgeneration Certification Scheme (MCS) does provide a level of protection. However, there are currently heat pump installations that are not being specified, installed, and commissioned correctly to maximise heat pump performance. Further development of the MCS is needed to improve outcomes for the end user.

Question 28 – Are there additional ways in which we can simplify the heat pump installation process to further improve access to the scheme? Please provide evidence to support your response.

Historic England believes that the requirement for improvement measures linked to the EPC should be removed. While certain fabric improvements can reduce heat loss, potentially lowering the required size of the heat pump and associated heat emitters, EPCs are not designed to provide precise, project-specific assessments. Their recommendations are often generic and not tailored to accurately quantify the impact of individual measures. Moreover, EPCs do not currently provide accurate baselines of building performance and can therefore create a performance gap, particularly for buildings of traditional construction (i.e., pre-1919). The inaccuracy of EPCs is well-evidenced – for example, the recent DEEP research found that “EPCs overestimated the heat loss measured in the DEEP case studies by, on average, 42%.” (DESNZ, 2024). Historic England’s 2022 EPC research highlights that this performance gap is particularly significant for traditional buildings: “At present, the standard calculation for traditional buildings relies on default values for materials made after 1965. These default values perceive traditional buildings to perform poorly, even though this is largely not the case.” (Historic England, 2022).

Moreover, many EPC-suggested upgrades, such as draught proofing, fall outside the scope of work typically offered by heat pump installers. Requiring these improvements introduces unnecessary complexity, as it demands coordination with additional contractors, which can delay or complicate the installation process. However, end users should be made aware of these EPC recommendations and how adopting these recommendations in addition would likely improve the heat pump operation and running costs.

References

Department for Energy Security and Net Zero (2024). *DEEP Report 1: Synthesis. Demonstration of Energy Efficiency Potential.*

https://assets.publishing.service.gov.uk/media/671f61e4ae0462c448fc4074/1._DEEP_Synthesis_Report.pdf.

Historic England (2022). *Energy Efficiency and Historic Buildings. Energy Performance Certificates (EPCs) Case Studies.* <https://historicengland.org.uk/images-books/publications/eehb-epcs-case-studies/heag0307-epcs-case-studies/>.

Question 30 – Are there additional measures the Department and Ofgem could implement to enhance consumer protection under the BUS? Yes/No. Please provide evidence to support your response.

Yes – Historic England believes that there should be guaranteed minimum performance including post completion visits within the first 12 months to verify performance and rectify any issues.

Question 31 – Do you agree with the proposal to require installers to deduct the grant amount from the upfront costs of the eligible plant? Yes/No. Please provide evidence to support your response.

Yes – Historic England agrees, as the 21% of end users expected to pay the full capital cost upfront and at their risk face a significant barrier to wider deployment.