Department for Energy Security & Net Zero

Raising Product Standards for Space Heating

Updating ecodesign and energy labelling for hydronic space and combination heaters

Closing date: 25 March 2025

December 2024

Any enquiries regarding this publication should be sent to us at:
spaceheatingstandards@energysecurity.gov.uk

Executive Summary

Introduction

Improving heating appliance efficiency can deliver significant consumer bills savings – by reducing energy consumption – also leading to reduced carbon emissions and increasing energy security by reducing dependence on volatile fossil fuel energy markets.

This consultation sets out proposals which will drive significant improvements in the efficiency of new heating appliances and deliver substantial bill savings for households purchasing gas boilers and heat pumps. The new energy efficiency proposals for gas boilers are expected to deliver average savings of over £30 per year, equating to a £450 saving over the 15-year life of the boilers, once the full set of changes are implemented from 2028. In advance of this, the first tranche of proposals expect to see gas boiler households benefit in a £19 yearly saving. These savings quickly offset the increased capital costs of approximately £50.

Heat pump running costs can be similar or higher than gas boilers, despite being three times more efficient, because they use electricity rather than gas. To assist with heat pump running costs, this consultation sets out new heat pump efficiency proposals which expect to deliver a bill saving for households of around £22 per year from 2029. These savings are expected to quickly offset the estimated increased capital costs of £56.

To realise these benefits, we are proposing to update ecodesign and energy labelling regulations for space and combination heaters. Ecodesign legislation has historically been an effective way of reducing energy consumption by driving higher performance of energy-related products.[1] It has achieved this by preventing less efficient products from being placed on the market through new minimum requirements, driving innovation by setting benchmarks for the highest standard of products and introducing a compliance regime delivered through market surveillance authorities. Accompanying energy labelling legislation has also improved the clarity and consistency of consumer information, supporting effective choice and competition.

This consultation sets out our proposals to go beyond the present requirements of ecodesign legislation (813/2013) and energy labelling legislation (811/2013) to further drive the efficiency of space heating products.[2] These proposals build on the research and evidence gathered through the Improving Boiler Standards and Efficiency consultation[3], Boiler Plus Standards review[4], and Energy-related products: call for evidence[5]. The draft statutory instrument (SI), which is based on the proposals in this document, will be published alongside this consultation

[1] Department of Energy and Climate Change (2016), 'Post Implementation Review of the Ecodesign for Energy Related Products Regulations 2010 (S.I. 2010/2617), https://assets.publishing.service.gov.uk/media/5a74798940f0b646cbc40190/PIR_Ecodesign_for_Energy_Related_Products_Regulations_Accessible.pdf.

[2] Current ecodesign legislation for hydronic space heaters (813/2013) is available at: https://www.legislation.gov.uk/eur/813/2013. Current energy labelling legislation for hydronic space heaters (811/2013) is available at: https://www.legislation.gov.uk/eur/811/2013.

[3] Department of Business Energy and Industrial Strategy (BEIS) (2022), 'Improving boiler standards and efficiency', https://www.gov.uk/government/consultations/improving-boiler-standards-and-efficiency.

[4] BEIS (2021), 'Boiler Plus: initial policy review', https://assets.publishing.service.gov.uk/media/611b9287d3bf7f63b086cb04/boiler-plus-policy-review.pdf.

[5] BEIS (2020), 'Energy-related products: call for evidence', https://assets.publishing.service.gov.uk/media/60477b20d3bf7f1d0da7571c/energy-related-products-summary-responses.pdf.

in due course, at which point the consultation period will begin. The SI is referenced throughout.

Hydrogen-ready boiler standards will not be considered through this update to ecodesign and energy labelling. The government has recently announced its intention to assess the current evidence base before consulting in 2025 on the role of hydrogen in home heating. The government will consider whether any changes to the approach to hydrogen-ready boilers is warranted following that consultation process.

We are aware that since 2018 the European Commission has been reviewing and planning to update the EU's ecodesign and energy labelling legislation for hydronic space heaters.[6] We have carefully considered this work in our policy formulation and the drafting of the statutory instrument (SI). Despite the ongoing uncertainty regarding the final form of the EU's legislation, we will continue to give this work close attention as it evolves.

The Office for Product Safety and Standards (OPSS), within the Department for Business and Trade, is the appointed Market Surveillance Authority for ecodesign and energy labelling regulations in Great Britain and will provide oversight for implemented proposals.

Proposals

In this consultation we are seeking views on proposals to improve product standards by updating ecodesign and energy labelling legislation for space and combination heaters to reduce energy bills, decarbonise heating and improve energy security by:

- enabling electrification of heat (Part 1)
- reducing fossil fuel demand (Part 2)
- ensuring effectiveness of product standards (Part 3)
- improving energy labels (Part 4)

Enabling electrification of heat proposals are part of a wider package of policies which aim to scale up heat pump deployment and support industry to reduce the upfront and ongoing costs of heat pumps. The proposals outlined here include: amending the primary energy factor for electricity (Chapter 1), updating definitions and minimum energy performance standards for low-, medium-, and high-temperature heat pumps and hybrid heaters and updating the testing methodology required (Chapters 2 and 4), and exploring how to make sure hot water cylinders are compatible with low-temperature systems, including heat pumps (Chapter 3).

Reducing fossil fuel demand from the estimated 10 million plus boiler installations anticipated over the next decade can help to save consumers money on their bills, cut carbon emissions and increase energy security by reducing dependence on volatile fossil fuel energy markets. The fossil fuel boiler proposals include implementing minimum modulation

[6] Current EU ecodesign legislation for hydronic space heaters (813/2013) is available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32013R0813. Current EU energy labelling legislation for hydronic space heaters (811/2013) is available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32013R0811. The EU's work has cumulated in a series of publicly available reports and draft regulations. The most recent working document, setting out proposals to update to their 813/2013 legislation, is available at: https://www.tzb-info.cz/docu/clanky/0251/025188_space-heaters-ed-27032023.pdf.

requirements for gas combination boilers and establishing a default flow temperature factory setting (Chapter 5). The temperature control proposals include: transferring temperature control classes into the regulations and preventing Control Classes I-III from being placed on the market in Great Britain (GB), setting requirements to use open protocols, and requiring temperature controls to be accompanied by information about which open protocols they can use (Chapter 6).

Ensuring effectiveness while ensuring any product cost increases are limited and businesses remain competitive is essential to maximise the benefits of ecodesign legislation. Proposals include: updating performance benchmarks (Chapter 7), allowing boiler manufacturers to self-certify their products, narrowing verification tolerances, and reducing circumvention (Chapter 8), and seeking views whether to expand the scope of ecodesign (Chapter 9).

Improving energy labels can help users and installers make informed decisions about what to buy. Proposals include rescaling the space heating energy efficiency classes (Chapter 10) and updating designs for energy labels and visual advertising pictograms (Chapter 11).

The United Kingdom (UK) is committed to net zero greenhouse gas emissions by 2050. This will require significant transformation to decarbonise heating, which accounted for 22% of the UK's carbon emissions in 2022.[7] Our analysis estimates that these policies will also contribute to the equivalent carbon savings of 2.0 million tonnes (MtCO2e) for Carbon Budget 5 (which covers 2028 – 2032), and up to 3.8MtCO2e for Carbon Budget 6 (which covers 2033 – 2037).

We welcome views and evidence on the proposals set out in this document and on the accompanying draft SI. We aim to publish a government response and accompanying regulations shortly after the closure of this consultation, in 2025. The earliest the proposals could be implemented is 2026. However, this is subject to the decisions following this consultation and when parliamentary time allows.

A glossary of terms can be found in Annex A. The full list of the questions asked in this consultation is included in Annex B. A full bibliography is provided in Annex C.

[7] DESNZ analysis, UK 1990-2022 GHG statistics (dataset of emissions by end-user) and 2023 Energy Consumption UK 2023.

Contents

General information

Why we are consulting

Improving product standards can save consumers money by reducing their bills, while cutting carbon emissions and increasing energy security. Product regulations, such as those set out in ecodesign and energy labelling legislation, are, therefore, a key lever to help reduce greenhouse gas emissions to net zero by 2050.

We have identified a variety of opportunities to update product standards for space and combination heaters which aim to enable electrification of heat, reduce fossil fuel demand, ensure effectiveness and improve energy labels.

We welcome views and evidence on the proposals set out in this document and on the accompanying draft SI.

Consultation details

Issued:17/12/2024

Respond by: 25/03/2025 11:59

Enquiries to:

Energy-related Products team, the Department for Energy Security and Net Zero

Email: spaceheatingstandards@energysecurity.gov.uk

Consultation reference: Raising product standards for space heating

Audiences:

We are seeking views from all – including manufacturers, merchants and dealers, installers, associations, consumer organisations, academia and members of the public – to ensure that we understand all potential impacts of our proposals.

Territorial extent:

The proposed updates to ecodesign and energy labelling set out in this consultation would apply to GB. To facilitate dual access to both the UK Internal Market and the EU Single Market, Northern Ireland continues to apply EU ecodesign and energy labelling regulations in accordance with the Windsor Framework. As the UK Government is looking to introduce higher requirements in GB than the current standards applicable in Northern Ireland, goods compliant with these higher requirements will also be able to be placed on the market in Northern Ireland. At the same time, Northern Ireland businesses will continue to have unfettered access to the GB market. Accordingly, the proposals set out in this consultation will not inhibit trade between Great Britain and Northern Ireland.

How to respond

Respond online at: [insert Citizen Space link]

We strongly encourage responses via the online survey. Using the online survey greatly assists our analysis of the responses, enabling more efficient and effective consideration of the issues raised. If it is not possible for you to use the online survey, you can respond through email or a written response.

Email to: spaceheatingstandards@energysecurity.gov.uk

Write to:

Energy-related Products
Department for Energy Security and Net Zero
3-8 Whitehall Place
London
SW1A 2EG

When responding, please state whether you are responding as an individual or representing the views of an organisation.

Your response will be most useful if it is framed in direct response to the questions posed, though further comments and evidence are also welcome.

Confidentiality and data protection

Information you provide in response to this consultation, including personal information, may be disclosed in accordance with UK legislation (the Freedom of Information Act 2000, the Data Protection Act 2018 and the Environmental Information Regulations 2004).

If you want the information that you provide to be treated as confidential, please tell us, but be aware that we cannot guarantee confidentiality in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not be regarded by us as a confidentiality request.

We will process your personal data in accordance with all applicable data protection laws. See our privacy policy.

We will summarise all responses and publish this summary on GOV.UK. The summary will include a list of names or organisations that responded, but not people's personal names, addresses or other contact details.

Quality assurance

This consultation has been carried out in accordance with the government's consultation principles.

If you have any complaints about the way this consultation has been conducted, please email: bru@energysecurity.gov.uk.

Part 1: Enabling electrification of heat

To meet net zero, we need to move away from using fossil fuel systems to heat homes, such as gas boilers, towards low-carbon heating technologies. Heat pumps have a critical role to play in decarbonising how we heat our homes. The Government is committed to supporting the growth of the heat pump market.

While a highly efficient and low-carbon alternative to existing fossil fuel systems, it is crucial that the heat pumps installed into homes deliver for consumers and keeps bills as low as possible. This requires pushing the market to ensure they are as efficient as possible. This has the added benefit of ensuring electricity demand is low. As set out above, the policies set out are expected to lead to a bill reduction of around £22 per year.

Because most of the heat output of a heat pump is drawn from the ground or outside air, heat pumps produce several units of heat for every unit of energy consumed, meaning replacing a boiler with a heat pump is often the most impactful measure for reducing a building's energy demand. At the same time, the UK's electricity generation mix is producing increasingly lower greenhouse gas emissions each year.

Government is committed to supporting the growth of the UK heat pump industry and is providing up to £30 million towards a Heat Pump Manufacturing Investment Accelerator Competition. A range of policies also exist to drive heat pump uptake, including the Boiler Upgrade Scheme[8], which provides grants to encourage property owners to replace existing fossil fuel heating with more efficient, low-carbon heating systems including air-source heat pumps and ground-source heat pumps.

Due to developments in heat pump technology, it is clear that heat pumps are capable of achieving much higher efficiencies than the minimum energy performance standards (MEPS) currently require.

Part 1 of this consultation sets out proposals to update ecodesign and energy labelling regulations for heat pumps. In addition, we propose to introduce new requirements for hybrid heat pumps, as well as amendments to ensure hot water cylinders are compatible with heat pumps and designed to work in a wet low-temperature heating system. In summary, the proposals included in Part 1 are to:

- amend the primary energy factor for electricity, used to calculate seasonal space heating energy efficiency for space heaters, to 1.9
- increase MEPS for low- and medium-temperature heat pumps, and introduce new energy performance standards for high-temperature heat pumps
- amend the definition of low-temperature heat pumps, and introduce new definitions for medium- and high-temperature heat pumps
- update the testing methodology required to establish the seasonal space heating energy efficiency of heat pumps and hybrid heat pumps, in line with EU law

[8] An overview of 'the Boiler Upgrade Scheme, and information about eligibility and how to apply is available at: https://www.gov.uk/apply-boiler-upgrade-scheme.

- explore amendments to hot water cylinders to make them low-temperature systems / heat pump compatible
- create a new definition for hybrid heat pumps
- introduce MEPS for hybrid heat pumps

These policy proposals are part of a wider package of policies which aim to scale up heat pump deployment and support industry to reduce the upfront and ongoing costs of heat pumps.

Chapter 1: Primary energy factor

Introduction

Setting MEPS for energy-related products is an important policy lever to reduce energy demand and lower consumer bills.

To make MEPS comparable between products, ecodesign and energy labelling regulations use seasonal space heating energy efficiency to test performance (and compliance with MEPS). The seasonal space heating energy efficiency is calculated by adjusting the seasonal coefficient of performance (SCOP) to account for primary energy.

The conversion coefficient (CC) acts as a primary energy factor for electricity. The current CC (primary energy factor for electricity) in GB ecodesign (813/2013) is 2.5.

This figure was retained when we left the EU and therefore represents an outdated EU value, introduced with the Energy Efficiency Directive in 2012. This CC is not reflective of electricity production in GB in 2024. Given the decarbonisation of the electricity grid over the last decade, we need to ensure that this is reflected in our broader policies. Updating the primary energy factor for electricity used in ecodesign is an important element of this and will help ensure the carbon benefits of using efficient electric space heating technologies, such as heat pumps, are properly recognised.

Context

Primary energy is energy that has not undergone any conversion or transformation process, for example oil or gas. Secondary energy is generated by converting or transforming this primary energy, for example electricity generated by burning fossil fuels.

The primary energy factor describes the efficiency of converting energy from primary sources (e.g. renewables such as wind, solar hydropower or fossil fuels such as coal or crude oil) to a secondary energy carrier (e.g. electricity, natural gas) that provides energy services delivered to end-users. The calculation is as follows:

$$Primary\ Energy\ Factor = 1 + \Sigma_{All\ process\ stages}\left(\frac{Energy\ use}{Energy\ content\ of\ delivered\ fuel}\right)$$

Less energy is lost when converting from renewables to electricity, than from burning fossil fuels to generate electricity. Therefore, as the electricity grid decarbonises, we can expect the primary energy factor for electricity to reduce.

The Home Energy Model for the Future Homes Standard (2023) proposed a primary energy factor for electricity of 1.969[9] for England and Wales. The government response to this consultation is expected in due course. However, the proposed figure is similar to the updated figure proposed by the European Commission in 2023. In 2023, the European Commission updated the primary energy factor in the Energy Efficiency Directive to a CC of 1.9[10], to better reflect the energy mix of electricity in the EU.

[9] DESNZ (2023), 'Home Energy Model: Future Homes Standard assessment', Table 8, https://www.gov.uk/government/consultations/home-energy-model-future-homes-standard-assessment.
[10] 'Directive (EU) 2023/1791 of the European Parliament and of the Council of 13 September 2023 on energy efficiency and amending Regulation (EU) 2023/955', Article 31, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ%3AJOL_2023_231_R_0001&qid=1695186598766.

Having a different primary energy factor in EU and GB ecodesign regulations for space heaters could create difficulties for manufacturers, many of whom sell in both markets. They would have to calculate seasonal space heating energy efficiency for their products twice using two different primary energy factors. We wish to avoid creating unnecessary barriers and costs for industry which do not result in any real-world improvements to efficiency.

Updating primary energy factor to 1.9

To better reflect the GB electricity grid, to future-proof the value and to minimise unnecessary friction to trade, we propose lowering the CC, which represents the primary energy factor for electricity for GB, from 2.5 to 1.9. This change will be made to ecodesign (813/2013) as set out in regulation 19 of the draft SI. We propose to introduce this CC from mid-2026, in line with the earliest implementation date of other proposals in this consultation.

Chapters 2 and 4 describe proposals to increase MEPS for low- and medium-temperature heat pumps, and introduce MEPS for high-temperature heat pumps and hybrid heat pumps. These proposals are based on a conversion coefficient of 1.9.

Electric boilers

To continue to allow a comparison between products using different fuels, existing MEPS for products fuelled by electricity, which we are not proposing to increase in this consultation, must be updated to reflect the new primary energy factor. This does not represent an increase in the performance required of the product, but merely an adjustment to accommodate a new conversion coefficient that better represents the electricity that product uses.

Electric boiler space heaters and electric boiler combination heaters run purely using electricity. Therefore, the MEPS for electric boilers must be updated in line with the new primary energy factor.

Ecodesign requires electric boiler space heaters and electric boiler combination heaters to have a seasonal space heating energy efficiency of at least 36%, based on a primary energy factor of 1.9. We propose to update this figure to 47%, based on a primary energy factor of 1.9. This change will be made to ecodesign (813/2013).

Please review regulation 18(2) of the draft SI.

1. **Do you agree with lowering the primary energy factor for electricity to 1.9 from mid-2026? Yes/No/Don’t know. Please provide evidence or reasoning to support your answer.**

Chapter 2: Heat pumps

Introduction

Heat pumps have a critical role to play in decarbonising how we heat our homes, as they provide a highly efficient and low-carbon alternative to existing fossil fuel systems. A range of policy measures, such as the Boiler Upgrade Scheme in England and Wales, exist to encourage the installation of heat pumps in homes and help overcome the high upfront cost compared to fossil fuel alternatives.

This consultation sets out proposals to increase MEPS for low- and medium-temperature heat pumps, and introduce MEPS for high-temperature heat pumps.

Context

In 2020, stakeholder views were sought on increasing MEPS for heat pumps, via the Energy-related products: call for evidence. These fed-into the Energy-related Products Policy Framework[11], which set out illustrative proposals for new MEPS for heat pumps, and an intent to consult.

Following further research, analysis and modelling, and engagement with industry, these have been revised and the policy proposals set out below seek to ensure that only the most energy efficient products are available on the market, while also ensuring consumer choice is maintained.

Minimum Energy Performance Standards

As an established technology, heat pumps are subject to MEPS under ecodesign (813/2013). The metric used to set MEPS is the seasonal space heating energy efficiency (η_s) which expresses energy efficiency in primary energy terms, i.e. the efficiency of the energy source is factored into the efficiency calculation. This allows for a comparison between different technologies using different energy sources. Chapter 1 sets out proposals to update the primary energy factor from 2.5 to 1.9. The MEPS proposals set out in this chapter are based on a primary energy factor of 1.9.

Currently MEPS requirements are placed on low and medium-temperature heat pumps via ecodesign (813/2013):

- low-temperature heat pumps are subject to MEPS of 125%, tested at 35°C and based on a primary energy factor of 2.5
- all other heat pumps heat pumps are subject to MEPS of 110%, tested at 55°C and based on a primary energy factor of 2.5

These MEPS are no longer pushing the market towards selling more efficient products. Products cluster near the current minimum requirements as it is cheaper to produce less efficient products. Market forces will drive products to the cheaper end, at a long-term cost to the consumer society from energy consumption. Therefore, government must intervene to

[11] BEIS (2021), 'Energy-related products policy framework; page 5, https://www.gov.uk/government/publications/energy-related-products-policy-framework.

increase the MEPS, to ensure consumers are not paying higher bills due to purchasing less efficient products than the market is capable of producing.

Following analysis and modelling of the Microgeneration Certification Scheme (MCS) database, as well as learnings from previous industry engagement, we are proposing the following heat pump MEPS, based on a primary energy factor of 1.9. We are proposing that these come into force in two tiers: tier 1 in mid-2027, and tier 2 in mid-2029. We are also keen for views on the feasibility of a faster implementation, with tier 1 in mid-2026 and tier 2 in mid-2028. We also propose to update heat pump definitions in line with the new MEPS categories proposed (as set out in the Terminology and testing section below):

- low-temperature heat pumps (tested at 35°C): 170% in mid-2027 and 175% in mid-2029 – this would be equivalent to heat pumps with SCOPs of 3.29 and 3.38, respectively
- medium-temperature heat pumps (tested at 55°C): 168% in mid-2027 and 175% in mid-2029 – this would be equivalent to heat pumps with SCOPs of 3.25 and 3.38, respectively
- high-temperature heat pumps (tested at 65°C): 143% in mid-2027 and 153% in mid-2029 – this would be equivalent to heat pumps with SCOPs of 2.77 and 2.96, respectively

We are proposing MEPS at these efficiency levels as we know that manufacturers can produce more efficient products; in most cases a manufacturer will be producing multiple products with different efficiencies in the same factory. These MEPS proposals have been selected to remove the least efficient ~40% of the market in the tier 1 changes. This approach has been shown to maximise energy savings, while also not leaving gaps in either the product types available on the market or leaving manufacturers unable to switch to a viable product. In most cases manufacturers are already producing compliant products, it is a matter of reprioritising production. We anticipate that the lead in time for implementation which we have proposed in the draft SI, in combination with our compliance with the 6-month standstill obligation under the WTO's Technical Barriers to Trade Agreement, should allow manufacturers time to adjust their production. We are particularly interested in views from manufacturers about the lead-in time.

We are proposing to introduce a new, distinct MEPS for heat pumps operating at high-temperature (65°C). Although we estimate high-temperature heat pumps make up a small proportion of the current GB market (11%), we anticipate their growth will continue. We are interested in views from stakeholders about the feasibility of introducing MEPS for high-temperature heat pumps now, and whether the efficiencies proposed are appropriate.

For the consumer, the electricity savings from using more efficient products will outweigh the potential small upfront cost increase as a result of the new efficiency standards. Without raising MEPS, consumers are likely to buy products with lower efficiencies as they do not realise, or ignore, the opportunity cost of buying a less efficient product at lower upfront cost.

We are aware that the EU's f-gas regulations[12], which will prevent the sale of heat pumps which use specific f-gases from 2027, may have an impact on the supply of heat pumps in the medium-term. We are keen to understand the interaction between these MEPS proposals and the EU's f-gas regulations, and their own 2023 ecodesign (813/2013) proposals, and welcome discussion and evidence from consultation respondents on this topic.

[12] 'Commission Regulation (EU) 2024/573', available at: http://data.europa.eu/eli/reg/2024/573/oj.

This change will be made to ecodesign (813/2013). Please review regulation 18(2) of the draft SI.

2. **Do you agree that we should raise the MEPS to 170% for low-temperature heat pumps under tier 1? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

3. **Do you agree that the tier 1 increase in MEPS to 170% for low-temperature heat pumps should take effect from mid-2027? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

4. **Do you agree that we should raise the MEPS to 175% for low-temperature heat pumps under tier 2? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

5. **Do you agree that the tier 2 increase in MEPS to 175% for low-temperature heat pumps should take effect from mid-2029? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

6. **Do you agree that we should raise the MEPS to 168% for medium-temperature heat pumps under tier 1? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

7. **Do you agree that the tier 1 increase in MEPS to 168% for medium-temperature heat pumps should take effect from mid-2027? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

8. **Do you agree that we should raise the MEPS to 175% for medium-temperature heat pumps? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

9. **Do you agree that the tier 2 increase in MEPS to 175% for medium-temperature heat pumps should take effect from mid-2029? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

10. **Do you agree that we should raise the MEPS to 143% for high-temperature heat pumps under tier 1? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

11. **Do you agree that the tier 1 increase in MEPS to 143% for high-temperature heat pumps should take effect from mid-2027? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

12. **Do you agree that we should raise the MEPS to 153% for high-temperature heat pumps under tier 2? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

13. **Do you agree that this tier 2 increase in MEPS to 153% for high-temperature heat pumps should take effect from mid-2029? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

14. **Do you have any views on whether the MEPS could be implemented at a faster rate, with tier 1 in mid-2026 and tier 2 in mid-2028? Please provide evidence or reasoning to support your answer.**

15. **Do you have any views on the interaction between the MEPS proposals for heat pumps and the EU's f-gas regulations? Please provide evidence or reasoning to support your answer.**

Where a heat pump can operate at more than one temperature application, we are proposing that the heat pump will be required to be tested at all relevant temperature applications and meet the corresponding MEPS at each temperature. Please see the section below on the proposed amended definitions of heat pumps and temperature application. We are keen to understand the impact this would have on high temperature heat pumps in particular.

16. **What impacts would occur as a result of requiring heat pumps to meet the MEPS for all temperature applications they operate at? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

Terminology and testing

We are proposing to update the testing method to align with the European Commission's latest proposals. This will enable the implementation of MEPS for high-temperature heat pumps, and bringing testing requirements in line with the Commission's proposals should prevent manufacturers selling products in GB and EU from having to perform seasonal space heating energy efficiency tests twice, to two different standards. We propose designating the existing relevant standards, including BS EN 14825:2022[13].The draft SI accompanying this consultation has been updated in line with the Commission's most recent proposals. Please review regulation 19 of the draft SI.

17. **Do you agree that BS EN 14825:2022 and BS EN 14511-2-2022 are appropriate means of calculating the seasonal space heating energy efficiency for a heat pump, despite the fact that they are currently behind a paywall? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

We also propose updating the definitions for heat pump types and temperature applications, in line with the Commission's latest proposals. The existing definitions as set out in ecodesign (813/2013) are:

- 'low-temperature heat pump' means a heat pump space heater that is specifically designed for low-temperature application, and that cannot deliver heating water with an outlet temperature of 52 °C at an inlet dry (wet) bulb temperature of – 7 °C (– 8 °C) in the reference design conditions for average climate;
- 'low-temperature application' means an application where the heat pump space heater delivers its declared capacity for heating at an indoor heat exchanger outlet temperature of 35 °C;
- 'medium-temperature application' means an application where the heat pump space heater or heat pump combination heater delivers its declared capacity for heating at an indoor heat exchanger outlet temperature of 55 °C;

[13] British Standards Institute (2022) 'BS EN 14825:2022: British Standards for air conditioners, liquid chilling packages and heat pumps, with electrically driven compressors, for space heating and cooling, commercial and process cooling. Testing and rating at part load conditions and calculation of seasonal performance', https://knowledge.bsigroup.com/products/air-conditioners-liquid-chilling-packages-and-heat-pumps-with-electrically-driven-compressors-for-space-heating-and-cooling-commercial-and-process-cooling-testing-and-rating-at-part-load-conditions-and-calculation-of-seasonal-performance?version=standard.

We propose to update these to:

- ‘low-temperature heat pump space heater’ means a heat pump space heater, or heat pump combination heater, that is declared capable of being used in a low-temperature application.
- ‘medium-temperature heat pump space heater’ means a heat pump space heater, or heat pump combination heater, that is declared capable of being used in a medium-temperature application
- ‘high-temperature heat pump space heater’ means a heat pump space heater, or heat pump combination heater, that is declared capable of being used in a high-temperature application
- ‘low-temperature application’ means an application where the heater delivers space heating at an indoor heat exchanger outlet temperature of 35°C at reference design temperature, and at the water outlet temperature specified for each set of part load conditions in the rows marked 'LT' in Table 4B in Annex 3.
- ‘medium-temperature application’ means an application where the heater delivers space heating at an indoor heat exchanger outlet temperature of 55°C at reference design temperature, and at the water outlet temperature specified for each set of part load conditions in the rows marked 'MT' in Table 4B in Annex 3.
- ‘high-temperature application’ means an application where the heater delivers space heating at an indoor heat exchanger outlet temperature of 65°C at reference design temperature, and at the water outlet temperature specified for each set of part load conditions in the rows marked 'HT' in Table 4B in Annex 3.

We propose updating these definitions, as set out in regulation 12(5) of the draft SI. These definitions should mean that if a single heat pump can operate in more than one temperature application, the MEPS requirements apply at all relevant temperatures. We are keen for views and evidence in responses to questions 2-14 and 16 as to whether MEPS should apply to all heat pumps at each temperature application that a heat pump is capable of operating at.

18. **Do these definitions adequately cover all current and future heat pumps? Yes/No/Don’t know. If not, what elements do you recommend should be changed and why? Please provide evidence or reasoning to support your answer.**

19. **Do you agree with the proposed definitions for low-temperature, medium-temperature and high-temperature heat pump space heater? Yes/No/Don’t know. If not, what elements do you recommend should be changed and why? Please provide evidence or reasoning to support your answer.**

20. **Do you agree with the proposed definitions for low-temperature, medium-temperature and high-temperature application? Yes/No/Don’t know. If not, what elements do you recommend should be changed and why? Please provide evidence or reasoning to support your answer.**

Chapter 3: Hot water storage

Introduction

Hot water storage is a necessary part of nearly all heat pump heating systems. Standard heat pumps do not provide hot water on demand like combination boilers. As such, these heat pump systems, as well as heat only and system boilers, require a way of storing hot water for when it is required.

Ecodesign regulations have been used to improve the performance of hot water storage tanks (or 'cylinders' as they are commonly referred). In 2017, the regulations were updated to require all hot water storage tanks to meet a minimum performance rating of C.

This chapter seeks views about what changes and signals could be made through amending ecodesign (814/2013) and energy labelling regulations (812/2013) and, respectively to encourage or require a market shift towards cylinders compatible with low-temperature heating systems, such as heat pumps. This will not be implemented in this round of amendments, so no changes have been made in the draft SI accompanying this consultation. We will reconsult on any proposed later changes to ecodesign following feedback on this section.

Context

Hot water cylinders can be direct or indirect. A direct cylinder is directly heated via an electric immersion heater (and does not work with an integrated hot water system), whereas indirect cylinders heat the water at the point of storage (via a coil running through the cylinder) and therefore can be used with such systems.

Hot water cylinders can also be vented or unvented. The water supply for vented cylinders is via a vent pipe from a large tank of cold water stored at a higher source (usually a loft). Unvented cylinders are connected to the mains, which runs at a higher pressure attainable than vented cylinders. However, unvented cylinders aren't always compatible with modern power showers and mixers, and since unvented cylinders are linked directly to the mains, these will not provide hot water if mains are turned off.

Previous regulation changes have focused on the minimum efficiency of hot water storage tanks. The Improving Boiler Standards and Efficiency consultation proposed to raise the minimum efficiency class for all hot water storage tanks to B. However, respondents highlighted challenges around the cost impacts and space requirements inherent in these proposals. Therefore, the Government is not planning to implement this proposal.

The previous focus on raising energy efficiency rating means there has been less focus on the compatibility of hot water cylinders with a heat pump or other low-temperature hydronic heating systems. Achieving such compatibility could both enable low-temperature operation of existing systems and / or futureproof cylinders for use with other low-temperature appliances (such as heat pumps) by removing the need to replace cylinders as part of upgrades to such systems.

Compatibility with heat pumps and low-temperature systems

Respondents to the Improving Boiler Standards and Efficiency consultation focused on hot water cylinder stratification as key to supporting heat pump compatibility. In a stratified cylinder, the separation of the warm water takes place at different heights according to its temperature. The water at the top of the cylinder has the highest temperature, and the water at the bottom, the lowest.

Cylinders using stratification are a faster, more energy efficient and economical way to provide hot water compared to a cylinder without the feature. Cylinders with greater stratification were seen by respondents as being more compatible with heat pumps as they were better suited for low-temperature operation.

Respondents also raised the issue of coil sizing. Heating coils are used to heat water inside indirect water heating cylinders. If the coil of an existing cylinder is too small, a cylinder in a low-temperature heating system will take longer to reheat, perhaps meaning hot water supply is insufficient to meet demand. It was therefore suggested that the Government could provide advice or set requirements related to coil size.

As such, the Government would welcome further views on how stratification and coil size requirements could be regulated to better support cylinder compatibility with low-temperature heating systems and heat pumps, as well as other suggestions to improve such compatibility.

One option could be to include coil sizing requirements in the regulations. In responses to the Improving Boiler Standards and Efficiency consultation, it was suggested that the Government could provide advice/regulate about the correct coil size (used to heat water inside indirect water heating cylinders) with some respondents suggesting the minimum coil size for a range of hot water cylinder sizes, i.e. 90-150L coil size suitable for 6kW heat pumps, 150L-210L coil size for 5,6,8,10kW heat pumps, and 210L-300L coil suitable up to 17kW heat pumps.

An alternative option, given the diverse range of hot water cylinders that are low-temperature systems / heat pump compatible, is to make better use of the energy labelling. For example, a low-temperature compatibility mark could be introduced to cylinder energy labels, to denote products achieving a base level of compatibility. Another option would be to provide an efficiency uplift to the efficiency rating of cylinders where they are deemed to have an appropriate degree of stratification for use as part of a low-temperature system. Improving cylinder energy labelling in this way would enable installers and consumers to make more informed choices when replacing hot water cylinders and to help futureproof their purchase.

If we are to later change hot water cylinder regulations (814/2013) or amend the energy label (812/2013), it would be useful to have a definition which will enable government to define a more heat pump / low-temperature compatible hot water cylinder, compared to a less compatible model. The definition for a low-temperature compatible hot water storage tank could make reference to specific features, such as stratification and coil sizing. We welcome views on this definition.

21. **How should regulations define a low-temperature compatible hot water storage tank? What are the key constituent elements of this definition? Please provide evidence or reasoning to support your answer**

22. **Do you agree that a heat pump compatible symbol on an energy label would help futureproof hot water cylinders? Yes/No/Don’t know. Please provide evidence or reasoning to support your answer.**

23. **Should stratification be incorporated into the requirements of ecodesign (812/2013), to support hot water cylinder heat pump compatibility? Yes/No/Don’t know. Please provide evidence or reasoning to support your answer.**

24. **Should coil sizing be incorporated into the requirements of ecodesign (812/2013), to support hot water cylinder heat pump compatibility?**

Yes/No/Don’t know. Please provide evidence or reasoning to support your answer.

Chapter 4: Hybrid heat pumps

Introduction

Hybrid heat pumps consist of multiple heat sources (one of which is a heat pump) operating together to create a single heating system. Because they are a type of space heater, they fall within the scope of ecodesign and energy labelling legislation for space heating. However, they are not currently categorised as a specific type of appliance and there is no definition or minimum efficiency criteria in the current legislation.

The Government believes that hybrid heat pumps can play an important role in heat decarbonisation, and we will continue to consider the necessary conditions to enable their installation. Notably, however, significant carbon savings from hybrid heat pumps are dependent on a range of factors including system design, a building's thermal characteristics and consumer behaviour.

This consultation proposes two new safeguards vital to creating a solid foundation for a wider market for hybrid heat pumps and to help ensure that systems are designed to reduce energy use and deliver carbon and bill savings. Firstly, we propose a clear definition for hybrid heating systems and hybrid heat pumps, for the purposes of ecodesign and energy labelling regulations. By defining these products such that they are required to have similar characteristics and capabilities, this can improve clarity, consistency and comparability between products for consumers. Secondly, we propose a new minimum seasonal space heating energy efficiency for hybrid heat pumps. MEPS for hybrid heat pumps can help futureproof this technology and ensure that new products placed on the market are effective and efficient and are therefore more likely to deliver real-world carbon savings.

We acknowledge that other factors may have a role to play in enabling and encouraging hybrid heat pumps to be used in a way that maximises bill savings for consumers and the delivery of carbon savings, through heat pump-led utilisation. This could include relative gas and electricity prices, system control capability to respond to price signals, installation standards and guidance, and consumer information and advice. These are beyond the scope of ecodesign and energy labelling regulations, and therefore beyond the scope of this consultation.

Context

In the consultation on Improving Boiler Standards and Efficiency, the previous government expressed its hope that hybrid heat pumps may be able to play a substantive role beyond 2028, if they are compatible with net zero or if they act as a stepping-stone to other technologies that are compatible with net zero (such as standalone heat pumps). The consultation set out a range of risks and benefits of hybrid heat pumps and sought views on this.

We understand that the potential benefits of widespread deployment of hybrid heat pumps may be significant and that switching from a fossil fuel boiler to a hybrid heat pump could:

- reduce fossil fuel use – reducing carbon emissions while also reducing dependency on volatile fossil fuel prices and increasing energy security
- reduce consumers' energy bills – due to an efficiency increase (from 92% for gas boilers, to above 125% in line with our minimum efficiency proposals), especially if combined with actions to rebalance electricity costs

- contribute towards growth of the heat pump supply chain, UK manufacturing of low-carbon appliances, and upskilling installers

Additionally, in comparison to standalone heat pumps, hybrid heat pumps can:

- allow a more gradual transition for consumers – increasing familiarity with a new technology and allowing more time to improve the thermal efficiency of homes before installing a low-temperature heat pump
- be suitable for somewhat space-constrained properties, when combined with a combi boiler, as they do not require space for a hot water tank
- potentially reduce or delay the need for additional generation capacity and electricity grid expansion and reinforcement, given their potential to reduce peak electricity demand by switching between fuel sources

Compact hybrid heat pumps – consisting of a heat pump and a natural gas boiler within a single unit and without an outdoor unit – have the potential to deliver further benefits as they may be suitable for space constrained homes, as they do not require external space for a heat pump's outdoor unit (nor space for a hot water tank). However, there are also challenges, risks and issues specific to compact hybrid heating systems – mainly around their size and weight and the requirement for an additional flue – making them not an exact like-for-like replacement for a combination boiler.

We appreciate that there are also some challenges and drawbacks to hybrid heat pumps generally, including how best to ensure that increasing deployment of hybrid heat pumps does not encroach on the installation of standalone heat pumps and the risk that keeping too many technology options open can cause diseconomies and decision paralysis.

The Government will continue to develop and communicate its position on hybrid heat pumps, to provide both consumers and industry with certainty and stability and is keen to continue to work with industry to further build our evidence base. We will monitor product and market developments in the UK and product and regulatory developments in related markets and continue to work with stakeholders and international colleagues to learn insights about the deployment of hybrid heat pumps.

Terminology and definitions

Current ecodesign (813/2013) and energy labelling (811/2013) legislation does not include a definition of hybrid heating systems. Without one, we will not be able to set minimum efficiency requirements and there is a risk of miscommunication and greenwashing, as a range of products could be described as a 'hybrid heat pump'.

We have identified a number of key elements to a definition, for use in ecodesign and energy labelling legislation, which are set out below.

Clarity – Any legislative definition needs to be easy to understand and apply so that manufacturers can easily determine whether their product, or group of products, would fall in- or out-of-scope of this definition.

Enabling variety – An array of hybrid heat pumps is currently available. So as not to hinder innovation, or create loopholes in our minimum requirements, we need a definition which can encompass this wide variety of products. This should be irrespective of the fuel used by the alternate heat source, whether and how the heat sources are integrated (whether they are

single units or groups of products placed on the market as a package), and whether the heat pump delivers water heating. Therefore, the definition needs to cover:

- packaged hybrid heat pumps – Separable boiler and heat pump products packaged to create a single heating system
- integrated hybrid heat pumps – Where parts of a heat pump and alternate heat source are integrated within a single unit. 'Compact' hybrid heat pumps are a sub-set of integrated hybrid heat pumps – to describe systems where all of the of the heat sources are housed within a single unit

As this legislation takes effect at the point a product is placed on the market it will not need to cover heat pumps installed alongside pre-existing heating systems to create a single hybrid heating system.

Ensuring quality – We intend to include in the definition any elements of a hybrid heat pump which are essential to the effectiveness of the system, such as a single master control to operate and optimise how the component heat sources operate together. This definition would, therefore, set the bar as to what a hybrid heat pump needs to contain or be capable of.

Futureproofing – New types of hybrid heat pumps, not currently widely available, may enter the market and/or have a significant role to play in heat decarbonisation in the future. We need to ensure our definition is broad and flexible enough to encompass new innovations.

We, therefore, propose adding the following definition into Article 2 of ecodesign (813/2013) and energy labelling (811/2013) regulations, as set out in regulation 12 of the draft SI, (18H), so that a hybrid heat pump system refers to a system of space heating, or space and water heating, that contains an electric heat pump, a fuel boiler space heater or a fuel boiler combination heater, and a master control which determines, based on operating conditions, the heat output of each of the heaters.

To reduce duplication, we also propose updating the definition of a 'heat pump space heater' to remove the reference to supplementary heaters using the combustion of fuels.

Please review regulation 12 of the draft SI.

25. Do you agree with (a) the proposed definition of hybrid heat pump and (b) adjusting the definition of a heat pump space heater to reduce duplication? Yes/No/Don't know. If not, what elements do you recommend should be changed and why? Please provide evidence or reasoning to support your answer.

Minimum Energy Performance Standards

Currently there is little clarity for manufacturers as to which standards to use to calculate a hybrid heat pump's seasonal space heating energy efficiency, and whether the declared efficiency should reflect the total system's efficiency, or the component technologies' efficiencies. Therefore, it is challenging for consumers to easily compare different hybrid heaters, or easily understand the difference in efficiency between a standalone heat pump or hybrid heat pump.

Minimum energy performance standards (MEPS) and labelling have historically been successful in reducing energy use and lifetime costs by removing the least efficient products from the market and empowering consumers to purchase more efficient products. Setting

MEPS for hybrid heat pumps through ecodesign (813/2013) is an important step in creating a solid foundation for a market for hybrid heat pumps and preventing low efficiency products from being placed on the market in the future. As there is still a relatively small existing market for hybrid heat pumps, we are also mindful that any new MEPS need to avoid stifling this emerging market by setting too high standards too early.

The compliance with MEPS is based on the product's seasonal space heating energy efficiency, which reflects the performance under laboratory test conditions and does not necessarily reflect in situ performance. Therefore, in addition to setting MEPS, we intend to continue working to enable, encourage and incentivise high-quality installations and heat pump-led operation to deliver real-world carbon savings.

The consultation on Improving Boiler Standards and Efficiency sought views on the establishment of a minimum efficiency for hybrid heat pumps through ecodesign and energy labelling legislation, and at what level this should be set. Many respondents were supportive of MEPS for hybrid heat pumps, but referred to previous European Commission proposals, which have since been updated, and some assumed different primary energy factors for electricity. The previous government's response reaffirmed the intention to set a minimum efficiency for hybrid heat pumps, but to provide another opportunity to gather views on a specific value.

The Government now proposes to set a MEPS for medium-temperature application hybrid heat pumps of 125% (assuming a primary energy factor of 1.9) from mid-2027 in ecodesign (813/2013), as set out in regulation 18 of the draft SI.

We understand 125% seasonal space heating energy efficiency could be met by many of the hybrid heating systems currently available, and therefore mid-2027 provides sufficient lead-time for manufacturers. This value also complements our MEPS for heat pumps (as stated in Chapter 2) and boilers (as stated in Chapter 5).

We do not propose to set separate specific standards for hybrid heat pumps operating at low- or high-temperature, as we expect that medium-temperature application (of 55°C), will most closely resemble in situ operation.

We propose that BS EN 14825:2022 and BS EN 15502-2-3:2023[14] are reliable, accurate and reproducible methods that take into account the generally recognised state-of-the-art methods for measurements and calculations, and, therefore, are appropriate to be used for the purposes of compliance and verification of compliance of a hybrid heat pump's seasonal space heating energy efficiency (depending on which heating system is the supplementary heater). We also propose to accept both separated and combined test methods (as described in BS EN 14825:2022) to calculate the seasonal space heating energy efficiency. The combined method provides the benefit of including any impacts of the control's decision-making in the calculation while the separated test method allows more combinations of heat pumps and alternative heat sources to be approved to operate together without the need to test all combinations separately.

26. Do you agree that we should set a MEPS at 125% for hybrid heat pumps? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

[14] British Standards Institute (2023), 'BS EN 15502-2-3:2023: Gas-fired central heating boilers - Specific standard for hybrid units combining a gas-fired boiler and an electrical heat pump in a product' https://knowledge.bsigroup.com/products/gas-fired-central-heating-boilers-specific-standard-for-hybrid-units-combining-a-gas-fired-boiler-and-an-electrical-heat-pump-in-a-product?version=standard.

27. **Do you agree that this should be for medium-temperature (55°C flow temperature) hybrid heat pumps? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

28. **Do you agree that the implementation of new MEPS for hybrid heat pumps should align with the tier 1 heat pump MEPS proposals, taking effect from mid-2027? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

29. **Do you agree that either test methods (combined or separate) should be acceptable for testing the seasonal space heating energy efficiency for hybrids heat pumps? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

30. **Do you agree that BS EN 14825:2022 and BS EN 15502-2-3:2023 are appropriate means of calculating the seasonal space heating energy efficiency for a hybrid heat pump despite the fact that they are currently behind a paywall? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

Information required

In addition to stating the calculated seasonal space heating energy efficiency of the hybrid heat pump, we propose that hybrid heat pumps should have similar information requirements as for boilers and heat pumps. However, there are some elements of information requirements as set out in energy labelling (811/2013), Annex V, Tables 7&8 and ecodesign (813/2013), Annex II, Tables 1&2 which may not be calculable for hybrid heaters tested through the combined method. Therefore, we propose a new table of information requirements to be added to energy labelling (811/2013) as set out in regulation 30 of the draft SI, and to ecodesign (813/2013) as set out in regulation 18 of the SI, specifically for hybrid heaters as per Table 1 below. This includes small changes in information requirements to reflect the operation of hybrid heat pumps and align with the latest British Standards Institute (BSI) testing standards on:

- which is the primary (vs supplementary) heat source
- what standard is used for testing the system
- the rated heat output of heat pump (P_{hp}) and boiler (P_{fb}), which correspond to P_{rated} and P_{sup} (or vice vera)
- switch temperature boiler off ($T_{fb,off}$), rather than bivalent temperature (T_{biv})
- switch temperature heat pump on ($T_{hp,on}$), rather than operational limit temperature (TOL)

Table 1: Information requirements for hybrid heaters

Model(s): [information identifying the model(s) to which the information relates]								
Primary heat source: [heat pump/fuel boiler]								
Testing Standard used:								
Air-to-water heat pump: [yes/no]								
Water-to-water heat pump: [yes/no]								
Brine-to-water heat pump: [yes/no]								
Low-temperature heat pump: [yes/no]								
Heat pump combination heater: [yes/no]								
B1 boiler: [yes/no]								
Boiler combination heater: [yes/no]								
Item	Symbol	Value	Unit		Item	Symbol	Value	Unit
Rated heat output of heat pump (at temperature $T_{hp,on}$)	P_{hp}	x	kW		Seasonal space heating energy efficiency	η_s	x	%
Rated heat output of boiler (at temperature $T_{fb,off}$)	P_{fb}	x	kW					
Declared hybrid heat pump capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j					Declared coefficient of performance or primary energy ratio for hybrid heat pump for part load at indoor temperature 20 °C and outdoor temperature T_j			
T_j = – 7 °C	*Pdh*	x,x	kW		T_j = – 7 °C	*COPd or PERd*	x,xx or x,x	– or %
T_j = + 2 °C	*Pdh*	x,x	kW		T_j = + 2 °C	*COPd or PERd*	x,xx or x,x	– or %
T_j = + 7 °C	*Pdh*	x,x	kW		T_j = + 7 °C	*COPd or PERd*	x,xx or x,x	– or %

T_j = + 12 °C	*Pdh*	x,x	kW		T_j = + 12 °C	*COPd or PERd*	x,xx or x,x	– or %
Switch temperature boiler off	$T_{fb,off}$	x	°C		Cycling interval efficiency	*COPcyc or PERcyc*	x,xx or x,x	– or %
Switch temperature heat pump on	$T_{hp,on}$	x	°C		Heating water operating limit temperature	*WTOL*	x	°C
Cycling interval capacity for heating	*Pcych*	x,x	kW					
Degradation co-efficient(b)	*Cdh*	x,x	—					
Power consumption in modes other than active mode								
Off mode	P_{OFF}	x,xxx	kW					
Thermostat-off mode	P_{TO}	x,xxx	kW					
Standby mode	P_{SB}	x,xxx	kW					
Crankcase heater mode	P_{CK}	x,xxx	kW					
Other items								
Capacity control	fixed/variable				For air-to-water heat pumps: Rated air flow rate, outdoors	—	x	m^3/h
Sound power level, indoors/outdoors	L_{WA}	x/x	dB		For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor	—	x	m^3/h

Emissions of nitrogen oxides	NO_x	x	mg/kWh		heat exchanger			
For hybrid heat pump combination heater:								
Declared load profile	x				Water heating energy efficiency	η_{wh}	x	%
Daily electricity consumption	Q_{elec}	x,xxx	kWh		Daily fuel consumption	Q_{fuel}	x,xxx	kWh
Contact details	Name and address of the manufacturer or its authorised representative.							

31. **Do you agree with the information requirements for hybrid heat pumps as per Table 1 (regulation18(6) Table 2A of the Draft SI)? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

32. **Are there any elements missing from Table 1 (regulation18(6) Table 2A of the Draft SI) that should be added? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

33. **Are there any elements in Table 1 (regulation18(6) Table 2A of the Draft SI) that should be removed? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

We also propose to update the information requirements for the product brochure and other literature provided with the product to clarify the information requirements for hybrid heat pumps. The current product fiche is found in the energy labelling legislation 811/2013, Annex IV and 813/2013, Annex II.

The role of hybrid heat pumps in heat decarbonisation

The Energy-related Products Policy Framework, published in November 2021, referenced the possibility of phasing out the installation of standalone fossil fuel boilers by setting minimum efficiency requirements for all space heaters of more than 100%. Similar proposals were also made by the European Commission in 2023. Only a small number of respondents to the consultation on Improving Boiler Standards and Efficiency commented on this, with an even split of views.

On consideration of the responses to previous consultations received, the potential level of disruption caused by this policy, the range of alternative technologies to decarbonise heat, and what we currently understand to be the relative risks and benefits of widespread deployment of hybrid heat pumps, the Government is not currently proposing to implement a minimum efficiency for all space heaters of more than 100%. However, we are keen to gather views, both on to what extent we should enable and encourage hybrid heat pump installations and whether we should reconsider setting a minimum efficiency for all space heaters of more than 100%.

34. **On the balance of pros and cons, should we encourage and enable hybrid heat pumps to play a significant, and potentially widespread, role in heat**

decarbonisation? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

35. **Do you agree that we should not currently be looking to introduce mandating a minimum efficiency of more than 100%, which would, in effect, phase out installation of standalone fossil fuel boilers? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

Part 2: Reducing fossil fuel demand

Despite the range of government policies aimed at growing the clean heat market, it is estimated that there will still be over 10 million boiler installations over the next decade. We want to ensure that consumers purchasing these new fossil fuel boilers can benefit from raised in-home performance.

Despite being a mature technology there is more that can be done to ensure that condensing boilers operate as efficiently as possible while ensuring consumer comfort and control. The government aims to ensure households that still use fossil fuel system get energy bills as low as possible. The more efficient the operation of the fossil fuel system the lower consumer bills and the less carbon will be emitted.

The new energy efficiency proposals for gas boilers are expected to deliver average savings of over £30 per year over the 15-year life of the boilers once the full requirements are introduced. In advance of this, the first tranche of proposals expect to see gas boiler households benefit in a £19 yearly saving. These changes quickly offset the increased capital costs of approximately £50.

The significant number of installations means the average anticipated efficiency of improvement could translate into carbon savings which can contribute to legally binding carbon budgets. The boiler and temperature control proposals in this consultation are expected to save 1.9MtCO2e in Carbon Budget 5 and 3.5MtCO2e in Carbon Budget 6 and to reduce reliance on imported energy.

Boiler Plus Standards

In 2018, changes were made to Approved Document L of the English Building Regulations intended to improve the in-situ efficiency of boilers. The aim was to improve consumer comfort and ensure they benefit from increasingly energy efficient heating systems. These changes became known as the 'Boiler Plus Standards'[15]. The standards applied to boiler replacements and installations in existing dwellings.

According to these standards, when replacing any type of oil and gas boiler, installers should fit boiler interlock and a time and temperature control. There are additional standards for installations of gas boilers: a MEPS for gas boilers of 92%, and, for combination gas boilers, a standard stating that one of four additional energy efficiency measures:

- Flue Gas Heat Recovery Systems (FGHRS)
- Weather Compensators
- Load Compensators
- Smart controls with automation and optimisation functions

Gas Safe Register certified installers, to ensure they are fulfilling the expectations associated with self-certification of a gas boiler installations, will need to follow the standards above or

[15] BEIS (2018), 'Boiler Plus: New Standards for domestic boiler installations from April 2018', https://assets.publishing.service.gov.uk/media/5b2cc1e2ed915d586e2d8fe9/Boiler_Plus_Factsheet_v3.pdf.

their installations will need to meet the expected standards in Approved Document L Volume 1 or demonstrate equivalence.

With the exception of FGHRS, these measures are types of heating control that are intended to reduce gas consumption either by reducing the boiler's operating time/periods or helping the boiler operate using lower flow temperatures.

Boiler Plus Review

The Boiler Plus Review (2021) was an initial policy review into the standards. It was intended to check the levels of compliance with the Boiler Plus Standards as well as understanding how the standards impacted manufacturers, installers and consumers. The review was also an opportunity to assess if it was appropriate for the aspects of the standards which applied only to combination gas boilers to be applied to all gas boiler types.

The review found the standards had been successful in removing the lowest tested efficiency boilers from the market. There had also been a significant increase in the additional energy measures being installed with gas combination boilers, in particular smart controls.

The review did, however, also highlight several barriers to the delivery of the policy objectives and suggested ways in which policy could develop further. For example, there were concerns of potential non-compliance due to the lack of monitoring around the installation of additional energy measures with gas combination boilers. A consumer engagement gap was also raised due to limited awareness of temperature control functions and of the Boiler Plus standards. As the functions of temperature controls vary, so do the benefits to consumers. These benefits can be further impacted due to the operational protocols that are in place within both the boiler and the control, as these can affect the control's ability to communicate with and adjust the boiler output. The proposals we set out in the following chapters have taken account of these findings.

Estimated Savings

The previous Government's response to the Improving Boiler Standards and Efficiency consultation (2024), committed to several policies including technical improvements to gas boilers to increase system efficiency. We recognise the benefits of these policies, and we are proceeding to consult on their implementation.

It is estimated that the total package of policy proposals for gas boilers (outlined in Chapter 5) and the proposals for controls (outlined in Chapter 6) will provide around a £30 bill saving per year for the average household. The proposals are also expected to deliver savings for oil boiler users. These policies will enable fossil fuel boilers to operate closer to their lab-tested efficiency levels.

Proposals

In Part 2 we are consulting on the regulatory implementation of the following measures:

- all gas combination boilers (≤45kW) to be able to modulate their maximum output down to 15% without on/off cycling by mid-2028

- all oil combination boilers (≤45kW) to be capable of modulating their heat output down to 30% of their maximum heat output without on/off cycling, by mid-2028
- all gas combination boilers to be supplied with a 60 degrees Celsius (°C) low flow temperature factory default setting by mid-2026
- raising GB requirements so that temperature control Classes I-III are no longer sufficient by mid-2026
- introduce the definition of open protocols into the regulations
- all temperature controls and gas combination boilers to use open protocols by mid-2026
- boilers and temperature controls must, when placed on the market, be accompanied by information about which open protocols they can use
- formally introduce temperature control Classes definitions into the regulations
- all oil combination boilers to use open protocols by mid-2028

Chapter 5: Fossil fuel boilers

Introduction

Historically, Government regulation has been important in driving adoption rates for new, more efficient technologies in the boiler market, spurring innovation and technological development.

Previous changes to minimum boiler efficiency for gas boilers have largely focused on raising minimum tested efficiency and sought to ensure that gas boilers are operating as efficiently as possible in the home to reduce the gap between tested and advertised efficiency levels. This was achieved through the use of additional technology, such as heating controls, and installations practices. However, we still believe there is a performance gap between boilers under test conditions and in-home boiler efficiency which these policies seek to address.

This chapter will consult on measures that are expected to further improve the energy efficiency performance of a gas or an oil boiler in the home, including by mitigating for boiler oversizing and better providing for low-temperature operation of systems in the home.

Context

Updates to Approved Document L of the Building Regulations in 2021 included standards in sizing all parts of the heating system including pipework and emitters to meet a property's heat demand year around, at a flow temperature of 55°C or lower. It also set standards gas combination boilers to be able to modulate down to the typical heating load of the dwelling.

We recognise the benefits of low-temperature systems for consumers including bill savings, increased system efficiency and reduced carbon emissions. The department is working to implement mandatory low-temperature training for all gas boiler installers to ensure that all consumers can benefit from this.

Wider combination boiler modulation to tackle oversizing

Combination boilers are the most common boiler type sold on the UK market, making up around 80% of all gas boiler sales and a large portion of oil boilers. These boilers tend to be attractive to consumers as they can meet hot water demand instantly and do not require a hot water tank, saving on space.

Correct boiler sizing is a significant factor in ensuring that household energy demands are met for space heating and domestic hot water. However, the anticipated hot water demand can heavily influence the sizing of the boiler and can result in a boiler that is significantly oversized when compared to the space heating demand of the home.

The average property in the England has a space heating demand of 6kW, whereas the most commonly installed gas combination boilers have a maximum space heating output over 24kW.[16] As a result, system/heat only boilers, which are often far smaller in a heat output and yet can provide sufficient hot water with this smaller output, are often recommended for dwellings with a larger hot water demand.

[16] BSRIA (2024) 'UK Domestic Boilers' Report 105841/62

Space heating demand is also calculated by considering winter temperatures, so the system can meet peak demand. But this means the system is oversized for requirements in milder temperatures in the shoulder seasons.

If a boiler is oversized, then boiler cycling is more likely to occur. Cycling is where a boiler repeatedly turns itself on and off to regulate its output to maintain the set temperature. This can cause wear and tear, reducing the lifespan of the boiler and its efficiency.

Updated Buildings Regulations in 2021 state that heating systems should not be "significantly oversized" and "when a gas combination boiler is used, the boiler type selected should be selected to modulate down to the typical heating load of the dwelling".[17]

Wide boiler modulation can help address the impacts of boiler oversizing. A modulation boiler can turn down its output to meet heat demand rather than needing to turn the system on and off continuously. For example, if a 30kW boiler only requires 10kW of heat, then it can modulate its output down to only use the 10kW that is required. By turning down its output, the boiler is only using the energy that is necessary to meet heating demand and is doing so without on-off cycling.

Noting the above, and with consideration of stakeholder views gathered through the Improving Boiler Standards and Efficiency consultation, the Government is proposing that from mid-2028 all new gas combination boilers (≤45kW) placed on the GB market should be able to modulate down to at least 15% of their maximum output without on/off cycling. By maximum output, the regulations mean the maximum KW output of the boiler i.e. for a 30KW even if the heating output is capped at 24KW the maximum output is 30KW. However, if this requirement should be focused solely on the maximum heating output of gas combination boilers, we would welcome views. The latter approach focusing on heating output has been taken with oil combination boilers.

Please review regulation 12; regulation 13(3); regulation 18(3), (4) of the draft SI.

36. Do you agree that all new gas combination boilers (≤45kW) placed on the GB market should be able to modulate their maximum output down to 15% without on/off cycling by mid-2028? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

Larger boilers, due to their higher levels of absolute output, may be able to modulate to lower proportions of their total output than their smaller counterparts. It is for this reason, that the Government is considering an extension to the above modulation requirement for all gas combination boilers placed on the GB market, such that in the future all larger gas combination boilers, 45kW≥32kW, must be able to modulate their maximum output down to 10% without on/off cycling.

37. Do you agree that the Government should consider introducing an extension for the modulation requirements such that larger domestic-scale gas combination boilers (45≥32kW) placed on the GB market should be able to modulate their maximum output down to 10% without on/off cycling? Yes/No/Don't know. Please provide evidence or reasoning to support your answer. If you support an increased modulation requirement for larger

[17] MHCLG and DLUHC (2021), 'Conservation of fuel and power: Approved Document L', page 36, https://www.gov.uk/government/publications/conservation-of-fuel-and-power-approved-document-l#full-publication-update-history.

domestic-scale combination boilers, please suggest a date for when this should come into force.

Oil boilers can also utilise modulation functions instead of on/off cycling. Whilst modulating oil boilers are not prevalent in the current market, newer models are being placed on the market that are capable of modulation. This now means more off-gas grid consumers can now benefit from more efficient heating systems. Given the early stages of market maturity, we are proposing that all combination oil boilers (≤45kW) be capable of modulating their heat output down to 30% of their maximum output without on/off cycling by 2028.

Please review regulation 12; regulation 13(3); regulation 18(3), (4) of the draft SI.

38. **Do you agree that all combination oil boilers (≤45kW) should be capable of modulating their heat output down to 30% of their maximum heat output without on/off cycling, by mid-2028? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

Gas Combination boiler flow temperatures: Default low flow temperature factory settings

By operating at lower flow temperatures, heating systems can run more efficiently, for example, by allowing boilers to run in condensing mode. This enables the boiler to recover latent heat that would otherwise be lost, thereby using less fuel to meet heat demand. Lowering the boiler's flow temperature will improve its efficiency and ensure that it is performing to the advertised performance.

In fact, lowering a combination boiler's flow temperature could save a consumer over £60 a year. Previously issued guidance recommends lowering the flow temperature to 60 degrees Celsius (°C) or 65 degrees Celsius (°C) for those over 65 years old or with pre-existing health conditions[18].

Previous updates to Part L within the Building Regulations have set standards for new or replacement wet central heating systems to be designed to operate at a maximum flow temperature of 55 degrees Celsius (°C) where possible.

Beyond this consultation, we are working with industry to implement low-temperature training for gas boiler installers to meet these standards within Building Regulations. To be registered with a government authorised competent person scheme (CPS), organisations and individuals need to demonstrate that they meet the relevant Mandatory Technical Competence (MTC) criteria. These criteria define the competence requirements for CPS installers, allowing approved persons to self-certify the compliance of controlled work in buildings that are subject to the regulations. A person operating under a CPS operator has a duty to comply with all aspects of the regulations not just the core aspects of the work being undertaken. Updates to the MTC criteria will ensure that low-temperature training becomes a mandatory requirement for gas boiler installers.

The current standards in Approved Document L1 are for when full heating systems are replaced. We acknowledge that a flow temperature of 55 degrees Celsius (°C) would not be suitable for all households, where it is only the boiler being replaced. The Government is therefore, proposing that all combination boilers should be supplied with a default low-

[18] UK Government, 'Help for Households: Make Summer Savings', https://helpforhouseholds.campaign.gov.uk/summer-savings/; . 'Help for Households' was first launched in December 2022. The £60 saving is based on energy prices in September 2023 on analysis by NESTA.

temperature factory setting at 60 degrees Celsius (°C) by 2026. We note that for those over 65 or with pre-existing health conditions, a slightly higher flow temperature of 65°C may be more suitable to ensure a home warms more quickly, as set out in previous guidance.

By lowering the flow temperature, heating systems can run more efficiently. For example, at a lower flow temperature, boilers can run in condensing mode. As a result, fewer carbon emissions are emitted, and consumers could save on their bills.

Please review regulation 18(2) in the draft SI.

39. Do you agree that all gas combination boilers be supplied with a 60 degrees Celsius (°C) low flow temperature factory default setting by early 2026? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

Chapter 6: Temperature controls

Introduction

As stated above, running a wet heating system at the lowest possible temperature generally improves efficiency. The temperature a heating system can run at depends on heat demand. Heat demand will vary depending on the temperature set in the home, both external and internal temperature, and heat loss of the property. Superior temperature controls adjust the heating system's flow temperature in response to the heat demand. Therefore, the capability of these controls can affect their ability to deliver most real-world cost and carbon savings.

There are various factors that can influence the ability of temperature controls to deliver efficiency savings, including how efficiently the system is already operating and how consistently the system runs[19].

Temperature controls are used across all heating technologies such as gas and oil boilers as well as heat pumps. They are categorised into eight different classes (Class I-VIII) depending on the various functions used:

- Class I – A room thermostat that controls the on/off operation of a heater.
- Class II – A heater flow temperature control for use with modulating heaters.
- Class III – A heater flow temperature control, for use with on/off output heaters, using weather compensation.
- Class IV – An electronic TPI room thermostat, for use with on/off output heaters.
- Class V – A load compensator, modulating the temperature and/or boiler output, maximising condensing mode.
- Class VI – A heater flow temperature control including a weather compensator and room temperature sensor, for use with modulating heaters.
- Class VII – A heater flow temperature control including a weather compensator and room sensor, for use with on/off output heaters.
- Class VIII – Multi-sensor room temperature control, for use with modulating heaters.

Further information on these classes is available in Annex A.

Each temperature control class is split up into different energy efficiency percentage uplifts that contribute to the overall space heating rating and efficiency of the heating system. These percentage uplifts vary between 1%–5% within the different control classes (as set out in Table 2). In current ecodesign and energy labelling legislation, higher control classes are deemed to offer a greater percentage uplift in efficiency when compared to the lower classes of controls. This is determined by the various functions offered by the control.

[19] DESNZ (2017) 'BRE Client Report: Evidence Gathering - Compensation and TPI Heating Controls', https://assets.publishing.service.gov.uk/media/5a81f66ced915d74e62350ca/heating-controls-compensation-tpi-bre.pdf.

However, the actual benefit of control may not completely translate to the efficiency improvement. This could be due to closed communication protocols prohibiting system access[20].

Table 2: Control Class efficiency percentage uplifts

Control Class	Efficiency percentage uplift	Control Class	Efficiency percentage uplift
Class I	1%	Class V	3%
Class II	2%	Class VI	4%
Class III	1.5%	Class VII	3.5%
Class IV	2%	Class VIII	5%

Temperature control standards

The Government proposes to raise GB requirements so that temperature control Classes I-III will no longer be sufficient from mid-2026 i.e. they will not be able to be placed on the market for use with boilers or any other heating system or appliance type. This will ensure that all heating system controls provide the highest possible energy efficiency benefit.

We recognise that some heating controls available on the GB market operate at different control classes depending on whether open or closed protocols are in use. See below for further consideration of requirements for communication protocols.

Control Classes I-III are the most basic form of boiler controls and are understood to offer the lowest benefit. Class I controls use standard on/off functionality which turn the boiler on when the temperature drops below the set temperature and turn it off when the room is at temperature. Class II and Class III controls are weather compensator controls, however, only utilise an external sensor as compared to controls in higher classes, which use a combination of external and room sensors to determine heat demand. Class II and III controls are not commonly used within the UK so removing these classes is not expected to have a significant impact.

Raising GB requirements so that control classes I-III are no longer sufficient will improve the baseline performance of controls available on the market as well as increase potential energy efficiency savings for consumers. While we expect the total impact of the policy package for boilers to have a minimal impact on total installation costs, noting the existence of the previous regulatory Boiler Plus standards, we are interested to hear views on any potential financial impacts for consumers of removing Classes I-III from the GB market.

Class IV controls (Time Proportional and Integral (TPI) controls) use previous readings to determine how quickly the room heats to the desired set temperature. This feature ensures the

[20] BRE Client Report, DESNZ (2017) 'Evidence Gathering - Compensation and TPI Heating Controls', https://assets.publishing.service.gov.uk/media/5a81f66ced915d74e62350ca/heating-controls-compensation-tpi-bre.pdf.

boiler to fire for the shortest time necessary to meet demand. These controls are suitable for the current set of oil boilers which often only have on/off functionality.

Higher control classes utilise in-built further energy efficiency functionalities such as weather and load compensation. Class V controls (load compensators) use internal sensors to detect the difference between the current and desired room temperature. Class VI/VII controls (weather compensators), use external sensors and room sensors which utilise both external and internal temperatures to determine heat demand.

Smart thermostats can offer both load and weather compensation functionalities or a TPI style function to "optimise" heating appliance performance and automation software to anticipate heat requirements. Functions such as these all contribute to a heating appliance's energy efficiency.

To raise GB requirements so that control Classes I-III are no longer sufficient from mid-2026, we will need to amend energy labelling regulations and introduce temperature controls to ecodesign. This will require amending what manufacturers of temperature controls need to do before placing controls on the market. It also will entail formally including definitions for temperature controls in the draft SI as well as being clear that manufacturers are only permitted to place temperature controls that are above Class I-III and those which use open protocols onto the market.[21]

We want to ensure that raising GB temperature control standards does not impede the deployment of low carbon heat networks. We invite your views and evidence on whether class IV controls may have not be operable with heat interface units.

For the proposals in this section, in the draft SI, please review Part 2, regulations 4, 5, 6, 7, 8, 9.

40. Do you agree with raising GB requirements so that control Classes I-III are no longer sufficient by mid-2026. Yes/No/Don't know. Please provide evidence or reasoning to support your answer, including any potential costs associated with this proposal.

41. Please present your views on any potential impacts on heat networks associated with preventing temperature control Classes I-III from the GB market by mid-2026. Please provide evidence or reasoning to support your answer.

42. Do you agree with the definitions of temperature control classes IV-VIII set out in the draft SI? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

Open controls

System efficiency is, in part, dependent on effective communication between the heating appliance and its controls. The strength of this communication can impact the heating system's ability to efficiently modulate its output and lower the flow temperature, which is the key factor in determining overall system efficiency.

[21] The control class definitions are currently only contained in the EU guidelines document. Guidelines accompanying Regulations (EU) No 811 & 812/2013 and Regulations (EU) No 813/2013 & 814/2013 and Regulations (EU) 2015/1187 & 1189, available at: https://energy.ec.europa.eu/document/download/c61475ba-4419-4ed9-9e00-033b6a926c55_en?filename=GuidelinesSpaceWaterHeaters_FINAL.pdf.

The current heating industry uses a variety of operation programmes, including:

- eBus
- EMS Bus
- Opentherm
- HT Bus

Barriers to system optimisation have developed because of the differing language models used in these programmes. This can affect a third-party control class and their capabilities.

'Closed protocols' mean that only the manufacturer's branded controls will fully function with their boilers. In contrast, 'open protocols' allow controls and boilers to communicate with one another, even if they are produced by different manufacturers. Open protocols enable controls to effectively adjust the boiler's output and flow temperature. As a result of closed protocols, boilers resort to cycling their output. In practice this means the boiler will regularly turn on and off to maintain the set temperature in a property as opposed to lowering the output temperature.

Within the current market, some heating systems use open protocols whereas others only use closed protocols. The most widely used open protocol, OpenTherm, is already in use by a significant portion of the boiler market and more widely so in other countries such as the Netherlands.

We propose to include the following definition of open protocols in the draft SI:

A qualifying communication protocol" means an open communication protocol—

(a) which allows a heater manufactured by one manufacturer and a temperature control manufactured by another to communicate with each other to help regulate the indoor temperature as required by the end-user, and

(b) the use of which does not result in the heater or the temperature control (or both) losing any functionality which reduces the efficiency of the heater.

For this purpose—

(a) the use of an open communication protocol results in a temperature control losing functionality which reduces the efficiency of the heater if, in particular, the use of that protocol means the temperature control can no longer maintain the set point temperature by adjusting the flow temperature, or, as the case may be, modulating the output, of the heater;

(b) a heater can modulate its output if it can vary its power output whilst maintaining continuous operation, and the reference to "modulating" is to be read accordingly

The previous Government's response to the Improving Boiler Standards and Efficiency consultation stated that a form of open protocols should be required for temperature controls and heating systems.

We understand that this can optimise the performance of both the heating system and controls, as well as adapting to a growing market of third-party control manufacturers who are independent of heating manufacturers. Allowing effective operation of heating systems by third party controls, by requiring use of open protocols, would result in greater competition,

innovation and consumer choice. The Government therefore proposes to mandate that all heating controls use open protocols by mid-2026.

We also propose to require all heating systems and temperature controls to be placed on the market with materials which explain which open protocol(s) their appliances is (are) compatible with.

The Government proposes to require combination gas boilers to use open protocols from 2026. We also propose requiring oil boilers to use open protocols too but only from 2028, given the current lower levels of use of open protocols within the market for oil boilers.

We are not proposing for the requirements for the use of open protocols within appliances to extend to all hydronic heating appliances (such as heat pumps and electric boilers). The Government is, however, interested in views as to whether an open protocol requirement should be expanded to system and regular boilers.

In addition, we expect any combination boiler that is part of a hybrid heat pump to be designed to be able to operate with open protocols, even if the heat pump part uses closed protocols. This would apply to gas combination boilers in hybrid heat pumps from mid-2026 and oil combination boilers in hybrid heat pumps from mid-2028 (in accordance with the proposals set out in Part 2 above).

We recognise that manufacturers may wish to still place their own brand of closed protocol controls on the market even if all combination boilers are required to use open protocols as a result of these proposals. This may be due to unique control features which require a particular software or for effective system diagnostic checks. We, therefore, invite your views on whether some closed protocol controls should be allowed to remain on the GB market whilst still requiring all gas combination boilers to use open protocols by mid-2026 and all oil boilers to use open protocols by mid-2028.

For the proposals in this section, in the draft SI, please review regulation 5(2), (3); regulation 7 (2); regulation 8; regulation 9 (3c); regulation 13 (3); regulation 17 (4); regulation 18 (3) (4); regulation 26 (10); regulation 29; regulation 30 (3) (4).

43. **Do you agree with the definition of open protocols? Yes/No/Don’t Know. Please provide evidence or reasoning to support your answer**

44. **Do you agree all gas combination boilers placed on the market should use open protocols by mid-2026? Yes/No/Don’t know. Please provide evidence or reasoning to support your answer.**

45. **Do you agree oil combination boilers placed on the market should use open protocols by mid-2028? Yes/No/Don’t know. Please provide evidence or reasoning to support your answer.**

46. **Do you agree that an open protocols requirement can be extended to system and regular boilers? Yes/No/Don’t know. Please provide evidence or reasoning to support your answer. If yes, provide a date from when this should be introduced.**

47. **Do you agree temperature controls placed on the market must use open protocols by mid-2026? Yes/No/Don’t know. Please provide evidence or reasoning to support your answer.**

48. **Do you agree with the proposed requirement that boilers and temperature controls must, when placed on the market, be accompanied by information about which open protocols they can use? Yes/No/Don't know. Please explain if you think this is sufficient and if not, how government should go further, including any evidence or reasoning to support your answer.**

49. **Please present your arguments for why some closed protocols should remain on the GB market whilst still requiring all combination boilers to use open protocols by mid-2026. Please provide evidence or reasoning to support your answer.**

Part 3: Ensuring Effectiveness

While minimum product requirements are a crucial part of realising the potential benefits of the regulations, ecodesign (813/2013) also covers a series of areas designed to ensure the regulations are as effective as possible. This includes regulations within the draft SI designed to ensure compliance is high and importantly set ambitious targets to encourage innovation within the heating industry. Within this section of the consultation, we are seeking to ensure compliance and while minimising costs faced by businesses and, ultimately, consumers. As such, to maximise the effectiveness of ecodesign (813/2013), we propose:

- to update performance benchmarks for space and combination heaters, to encourage technological developments in high-performing products
- to allow boiler manufacturers to be able to self-certify their products
- to narrow product verification tolerances and implement new standards to reduce circumvention – ensuring products perform as tested
- to seek views on whether the scope of ecodesign (813/2013) should be expanded to space and combination heaters up to 1MW capacity, in order to address the range of unregulated products

Chapter 7: Benchmarks

Introduction

Manufacturers can and do market products that can exceed the minimum efficiency requirements. Ecodesign and energy labelling encourages the production of these more efficient products, including through benchmarks of best-performing heaters, and energy efficiency classes on energy labels.

Context

Ecodesign (813/2013) includes indicative benchmarks of the best available heaters on the market at the time of implementation.

There is currently a single benchmark for seasonal space heating energy efficiency of 145% (based on a primary energy factor of 2.5) set for all products contained within ecodesign (813/2013), which is set out in Annex V. 145% does not reflect the highest performing product currently available. It also does not reflect the different potential benchmarks for each product category – boiler, hybrid, heat pump, etc. – contained within the current regulation.

Additionally, the current benchmark would in any event need to be updated to reflect our proposal to update the primary energy conversion coefficient (Chapter 1). As such, we have suggested a series of updated benchmarks which reflect the best performing in heaters across the different products available on the market.

Best-performing heaters

Our latest research indicates the highest-performing heaters (in terms of seasonal space heating energy efficiency) are as stated in Table 3.

These figures reflect the proposed updates to the conversion coefficient for primary energy for electricity (from 2.5 to 1.9), as set out in Chapter 1, which impact the calculated efficiency of electrically driven products.

For hybrid heat pumps, a newly defined type of heater, we are particularly interested to test the proposed benchmark of around 165%.

We understand that there may be low-temperature heat pumps with efficiencies greater than 260%, we are particularly interested to receive evidence and data which may support a higher benchmark than 260% for low-temperature heat pumps.

Table 3: highest performing heaters per type of appliance

Type of appliance	**Seasonal space heating energy efficiency (η_s)** **(assuming a conversion coefficient for electricity of 1.9)**
Oil boiler (liquid-fired boiler)	93%

Gas boiler	95%
Hybrid heat pump	165%
Ground source heat pump	229%
High-temperature heat pump	165%
Medium-temperature heat pump	234%
Low-temperature heat pump	260%

Please review regulation 27 of the draft SI.

50. Do you agree with the proposed benchmarks? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

Chapter 8: Compliance, competitiveness and avoiding circumvention

Introduction

To maximise the effectiveness of our proposals, we are proposing several cross-cutting updates to ecodesign (813/2013) relating to boiler testing, verification tolerances, circumvention and review.

UKCA Marking and Testing

A Declaration of Conformity is required to comply with all UK product regulations. This must be supported by technical documentation, along with affixing the UK Conformity Assessment (UKCA) mark or Conformité Européenne (CE) mark. The UKCA mark was introduced on 1 January 2021. The CE mark is used for products that meet EU product regulations including ecodesign for energy-related products.

The “Product Safety and Metrology etc. (Amendment) Regulations 2024” came into force on 1 October 2024. The Regulations contain some changes to GB ecodesign legislation, including extending CE marking recognition in GB, which was previously due to end on 31 December 2024. This allows businesses to continue to either use a CE or UKCA marking when placing goods on the GB market, provided such products also comply with the GB requirements.

Based on Article 4 of ecodesign (813/2013) (“Conformity Assessment”), for gas and oil boilers to receive a UKCA marking, they would need to undergo additional/repeat third-party testing by one of the UK-based Conformity Assessment Bodies (CABs).

Due to the increased cost and business friction that this would create, we are proposing to allow that boiler manufacturers can self-certify their products against three clearly identified new regulations: boiler modulation, open protocols and default low flow temperatures. Manufacturers still have to undergo third-party testing to comply with the rest of the current standards, importantly those associated with safety such as the UK Regulations - The Gas Appliances (Enforcement) and Miscellaneous Amendments Regulations 2018 - which should be read with the assimilated version of EU Regulation 2016/426 for GB or the EU Regulation 2016/426 as applies in Northern Ireland.

The self-certification process for these clearly identified measures mirrors the process that is already followed for heat pumps, where manufactures can self-certify. The self-certification process is backed by compliance monitoring by the Office for Product Safety and Standards (OPSS).

After an initial 18-month period the OPSS will review boiler manufacturers’ adherence to the new regulations. If, after this period, non-compliance is found, then we are minded to require full third-party testing on all of the GB requirements for boilers.

Please review regulation 14 of the draft SI.

Given that the proposed updated requirements are strictly higher than those of the EU, we would expect that all space heating products subjected to the updated standards be dual marked with both UKCA and CE markings, ensuring they can continue to be sold across the whole of the internal market. We are seeking evidence in that regard in connection with this consultation and will conduct our own further assessment - though should there be evidence

that manufacturers will not continue to dual mark, we will consider appropriate measures to support the continued sale of relevant products across the whole UK Internal Market.

51. **Should boiler manufacturers be permitted to self-certify their products against the three clearly identified new measures – on boiler modulation, open protocols and default low-flow temperatures – whilst still undergoing third-party testing to comply with the current standards? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

52. **What potential cost rises would be incurred by (a) double testing for CE marking goods (b) adding testing requirements to receive a UKCA marking from UK-based Conformity Assessment Bodies? Please provide evidence or reasoning to support your answer.**

53. **Do you agree with our intention to review compliance with the boiler regulations after 18 months and to revert to third-party testing for the new requirement if the compliance, as evidenced by the OPPS is inadequate? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

54. **Do you agree in practice that manufacturers will dual mark their products with both UKCA and CE markings?**

55. **Is there anything government should consider to support manufacturers to continue dual marking their products?**

Verification tolerances

Verification tolerances are the permitted gap between the performance claimed by the manufacturer of a specific device and what can be achieved when the relevant authority tests this product. Verification tolerances were introduced to cover uncertainty that result from laboratory measurements and rounding. This variance results from acceptable practical measurement tolerances during performance testing (as specified in the EN/BS standards) which combine to contribute to the overall verification tolerance uncertainty.

The current tolerances for space heating products in ecodesign (813/2013) are set out in Table 4 below.

Table 4: verification tolerance

Parameters	Verification Tolerances
Seasonal space heating energy efficiency, η_s	The determined value shall not be lower than the declared value by more than 8%.
Water heating energy efficiency, η_{wh}	The determined value shall not be lower than the declared value by more than 8%.
Sound power level, L_{WA}	The determined value shall not exceed the declared value by more than 2 dB(A).

Emissions of nitrogen oxides, NO_x	The determined value shall not exceed the declared value by more than 20%.

We are not considering updating the tolerances for sound and nitrogen oxide (NOx) at this time. We are, however, proposing changes to the tolerance for seasonal space heating energy efficiency.

At present, this tolerance applies for all space heaters (including fossil fuel boilers and low carbon technologies, such as heat pumps). However, different appliances have different efficiencies – heat pumps have far greater efficiencies and far higher MEPS than boilers, and therefore a verification tolerance of 8 percentage points is a far smaller proportion of a heat pump's efficiency than it is of a fossil fuel boiler. Additionally, fossil fuel boilers are responsible for far greater carbon emissions, therefore it is vital to ensure that these boilers are performing at, or as close as testing accuracy allows to, their advertised efficiency.

Therefore, we propose limiting the verification tolerance of calculation of seasonal space heating energy efficiency for fossil fuel and electric boilers to 4%, whilst maintaining the 8% tolerance for cogeneration and heat pumps (and hybrid heat pumps).

The amendment to reduce the verification tolerance for fossil fuel boilers aligns with the European Commission's most recent draft regulations referenced in the executive summary. Aligning with verification tolerances of other markets may reduce the creation of niche products for different markets, and potential increased costs associated with this.

Please review regulation 20 of the draft SI.

56. Do you agree with our proposal to limit the verification tolerance on seasonal space heating energy efficiency for fossil fuel boilers to 4%? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

57. Do you agree that the verification tolerance for seasonal space heating energy efficiency for other space heaters and combination heaters, including heat pumps, should remain at 8%? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

At present, Annex IV of 813/2013 and Annex VIII of 811/2013 state that if a space heating product fails to meet the requirements, when tested by a market surveillance authority, the authority shall select three additional units of the same model for further testing. In practice, this means the GB market enforcement agency, OPSS, can only take enforcement action after the same model is tested four times.

We are interested in gathering views about the benefits and drawbacks of this approach and whether reducing the amount of additional testing would reduce the number of non-compliant products on the GB market by enabling quicker enforcement action.

58. What are the potential benefits and drawbacks of reducing the amount of additional testing for space and combination heaters required for the OPSS to take enforcement action?

Avoiding circumvention

Circumvention is the application, by manufacturers, of devices, software or other approaches which mean products can detect they are being tested and alter their performance to ensure they meet standards.

The use of circumvention devices means that more carbon and other greenhouse gases could be emitted than estimated and that consumer bills could be more expensive due to greater fuel usage.

Such ‘defeat devices’ have been used in other sectors, such as the automotive industry. As a result, the EU has been introducing regulations across energy-related products to prevent the use of these approaches to game test results.

Circumvention prevention was covered in Article 6 of the European Commission’s most recent proposals for ecodesign (813/2013), entitled Circumvention and software and firmware. The 5 points within this Article detail ways in which manufacturers are prohibited from altering the performance of products under test conditions or in ways that will alter their real-world performance.

Given the risks posed by circumvention, we recommend aligning with the EU’s actions in this area which are applied to other energy-related products to prevent products from being designed to detect that they are being tested. It will prevent products from performing differently under tested condition and therefore, creating a wider discrepancy between tested and real-world performance.

Please review regulation 10 and regulation 15 of the draft SI.

59. **Do you agree that we should update our legislation to reduce opportunities for circumvention? Yes/No/Don’t know. Please provide evidence or reasoning to support your answer.**

60. **Do you agree with the proposed drafting of this in regulation 10 and regulation 15 of the draft SI? Yes/No/Don’t know. Please provide evidence or reasoning to support your answer.**

Chapter 9: Reviewing and improving effectiveness

Introduction

To ensure the effectiveness of ecodesign (813/2013) and energy labelling (811/2013), we need to ensure the legislation applies to an appropriate range of technologies. We are aware of different impacts to different stakeholders, and we are committed to reviewing and improving our proposals.

Increasing scope

Except where stated, requirements for hydronic space heaters under ecodesign currently apply to products up to 400kW. The Medium Combustion Plant Directive applies to products with capacities above 1MW, meaning there is an unregulated gap for products between 400kW to 1MW.

There is an opportunity to fill a regulatory gap by extending ecodesign requirements to apply to products up to 1MW. This could lead to greater energy savings and a greater reduction in NOx emissions.

We understand that for the UK space heating market, extending the scope of the ecodesign measures from up to 400kW to up to 1 MW would affect 34% of the commercial space heating market and 5.2% of the total market up to 1MW in heating capacity terms.

However, we currently lack data on energy savings, incremental purchase costs and energy bill savings to project the impact of extending the ecodesign requirements scope to 1MW and we are therefore not proposing to extend the scope at this time. However, the below question will help build on our evidence for this policy area, with a view to potentially implement this scope expansion in future.

61. **Are there any barriers to extending seasonal space heating energy efficiency levels for space heating to heaters between 400kW and 1MW in capacity? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

Review

We need to review the effectiveness of these policies, to ensure they are delivering our objectives.

As set out above, if our proposal for self-certification of the proposed additional boiler requirements goes ahead, our plan would be to review compliance, through the OPSS, with the boilers proposals that have been deemed acceptable for self-certification 18 months after the regulations are introduced. This commitment will not entail amendments to the regulations., however, if non-compliance is found we intend to consult again to introduce third-party testing for the new measures applied to boilers in an updated draft SI for GB.

Impact on small and medium enterprises

Small and medium enterprises (SMEs), defined as companies with under 250 employees, make up an essential component of the private sector business landscape. Many of the proposals in this consultation will result in changes – and in some places potential additional costs – to businesses. This may include transition costs and changes to operations and could

result in disproportionate impacts for SMEs. We would like to understand if any elements of this consultation could result in disproportionate impacts on SMEs, and if so, what these are and how they might be mitigated.

62. **Will any of the proposals set out in this consultation result in disproportionate impacts on SMEs? Yes/No/Don’t know. If so, how might these be mitigated? Please provide evidence or reasoning to support your answer.**

We note the need to also take steps to understand how our proposals may affect different groups in society in different ways, with a particular focus on removing or minimising disadvantages suffered by people due to the following protected characteristics. This is considered after Part 4 of this consultation.

Additional policies

In this consultation we have set out a package of policy proposals which would amend ecodesign requirements for space heaters, including higher MEPS, new product categories and new requirements for open protocols. We are not currently planning to implement all the policies considered in the Energy-related products policy framework. However, we are interested in understanding if there are additional policies, not covered in this consultation, you would like to see adopted under ecodesign for space heaters.

63. **Do you agree that the legislation, as drafted, achieves our ecodesign objectives and reflects our proposals, as set out in this consultation? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

64. **Are there are additional policies, not covered in this consultation, you would like to see adopted under ecodesign for space heaters? Yes/No/Don't know. If yes, please explain why they should be prioritised.**

Part 4: Improving energy labels

It is essential that users and installers are provided with accurate information about the energy use of products on the market, to enable them to make informed decisions about what to buy.

The energy labels provided by manufacturers are a key mechanism for ensuring this. Labelling has been successful in achieving cost-effective improvements in energy efficiency and empowering consumers to purchase more efficient products.

The current energy labels for space heaters and combination heaters were introduced in 2013. They were updated in 2021 to replace the EU flag with the Union flag; however the other components were not reviewed at that time.

This consultation sets out proposals to refresh the label design to ensure that they clearly present critical information on the wider range of products available on the market, including proposals on:

- rescaling the space heating energy efficiency classes
- how to display the range of energy efficiency classes on visual advertising
- adding useful information to the energy label, including the space heating energy efficiency, symbols to indicate the fuel(s) that the appliance uses, a QR code to enable the user to find further information relating to the appliance
- removing the package and cogeneration heaters labels

Chapter 10: Energy efficiency classes

Introduction

Energy efficiency classes are intended to allow users (installers and consumers) to quickly and easily compare the energy efficiencies of different technologies and fuel types, for example fossil fuel boilers and heat pumps. Illustrating energy classes using scales and traffic light colours has been found to better enable comparison between products.[22]

Energy labels for hydronic space heating appliances are established by the assimilated Commission Delegated Regulation (EU) No 811/2013. The regulation establishes a green to red scale of ten space heating energy efficiency classes, from A^{+++} to G, for hydronic heating appliances (wet heating systems) with a capacity up to 70kW.

Regulation 2017/1369 also establishes a requirement that the energy efficiency class scale must be rescaled if 30% of the units of models belonging to a product group sold within the market of Great Britain fall into the top energy efficiency classes (A to A^{+++}), or 50% fall into the energy efficiency class B and above, and further technological development can be expected. We consider these to be met for the space heating energy efficiencies of space heaters and combination heaters.

Context

The current energy label for space and combination heaters has several issues, including that the space and water heating energy efficiency scales go above class A, creating the potential for consumer confusion. The Energy-related products policy framework noted that an energy efficiency scale with class A as the highest class could reduce confusion for consumers.

The higher energy efficiency classes (A to A^{+++}) have become overpopulated. Fossil-fuel technologies, such as gas boilers, can achieve space heating energy efficiency class A, while heat pumps are in classes A^{+} to A^{+++}. This rating system therefore has the potential to obscure the relative low efficiency of boilers versus other technologies and does not enable consumers to make informed decisions about low carbon technologies.

[22] The Department for Environment Food & Rural Affairs (2023), 'The role of ecolabelling in the path to net zero: Evidence review and Theory of Change', page 9, https://sciencesearch.defra.gov.uk/ProjectDetails?ProjectId=21231.

Rescaling space heating energy efficiency classes

Table 5: Current GB space heating energy efficiency classes

Seasonal space heating energy efficiency class	Seasonal space heating energy efficiency (η_s) in %
A^{+++}	$\eta_s > 150$
A^{++}	$125 \leq \eta_s < 150$
A^{+}	$98 \leq \eta_s < 125$
A	$90 \leq \eta_s < 98$
B	$82 \leq \eta_s < 90$
C	$75 \leq \eta_s < 82$
D	$36 \leq \eta_s < 75$
E	$34 \leq \eta_s < 36$
F	$30 \leq \eta_s < 34$
G	$\eta_s < 30$

We propose to rescale, removing classes above A, thereby reducing the current 10-class scale to a 7-class A to G scale. This is in line with other products (such as refrigeration and ovens) which have already been moved to a 7-class energy efficiency scale.

In accordance with regulation 2017/1369, the proposed new threshold for class A is set so that this class is vacant at the point of implementation, to encourage innovation in greater efficiency of future products.

We further propose to align the other class thresholds with current or new MEPS for different technologies, including:

- gas boiler MEPS – 92%
- our proposed hybrid heat pump MEPS – 125%
- our proposed MEPS for medium-temperature heat pumps from 2029 – 175%

We propose setting one of the thresholds at 100% to clearly distinguish between non-renewable / non-cogeneration heaters and renewable and / or cogeneration heaters.

We therefore propose rescaling of space heating energy efficiency classes as set out in Table 6.

Table 6: Proposed GB space heating energy efficiency classes (excluding low-temperature application)

Seasonal space heating energy efficiency class	Seasonal space heating energy efficiency (η_s) in %
A	$\eta_s > 260$
B	$200 \leq \eta_s < 260$
C	$175 \leq \eta_s < 200$
D	$125 \leq \eta_s < 175$
E	$100 \leq \eta_s < 125$
F	$92 \leq \eta_s < 100$
G	$\eta_s < 92$

At low-temperature, we recommend that the scale should be comparable, calculated by multiplying the seasonal space heating energy efficiency thresholds proposed for medium-temperature application in Table 6 by 1.25, as set out in Table 7.

Table 7: Proposed GB energy efficiency classes for low-temperature application

Seasonal space heating energy efficiency class	Seasonal space heating energy efficiency (η_s) in %
A	$\eta_s > 325$
B	$250 \leq \eta_s < 325$
C	$219 \leq \eta_s < 250$
D	$156 \leq \eta_s < 219$
E	$125 \leq \eta_s < 156$
F	$115 \leq \eta_s < 125$

G	η_s < 115

65. **Do you agree that setting the threshold for class A at 260% at medium-temperature application, and at 325% at low-temperature application, would mean that this band would be vacant at the point of implementation? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

66. **Do you agree that the existing boiler MEPS and our proposed hybrid heat pump and air-source heat pump MEPS should be used as class thresholds in the proposed rescaling? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

67. **Do you agree that the seasonal space heating energy efficiency values for the low-temperature scale should be calculated using a 1.25 multiplier from the medium-temperature scale? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

Product fiche

Annex IV of 811/2013 sets out the information that shall be included in the product brochure or other literature provided with the product. The current space heating energy efficiency classes (A^{+++} to G) feature in the figures (1-5) in Annex IV, which detail the information requirements for packages of heaters, temperature controls and solar devices. These figures also include control classes I-III. Therefore, in light of the proposals set out in this consultation this annex may need to be updated. We are minded to update the title of this annex, to align with updates to ecodesign and energy labelling for other energy-related products, to 'Product information sheet'.

68. **Is there any information that is not currently included in Table 1, that you feel should be added? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

69. **Is there any information that is currently included in Table 1, that you feel should be removed? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

Water heating energy efficiency classes

Combination space heaters and standalone water heaters also have energy efficiency classes for heating water. The efficiency classes from A^{+++} to G for water heating energy efficiency (η_{wh}) of a range of sizes of water heaters (from 3XS to XXL) is set out in Table 8.

Table 8: Current GB water heating energy efficiency classes:

Water heating energy efficiency class	3XS	XS	S	M	L	XL	XXL
A^{+++}	$\eta_{wh} \geq 62$	$\eta_{wh} \geq 62$	$\eta_{wh} \geq 69$	$\eta_{wh} \geq 90$	$\eta_{wh} \geq 163$	$\eta_{wh} \geq 188$	$\eta_{wh} \geq 200$
A^{++}	$53 \leq \eta_{wh} < 62$	$53 \leq \eta_{wh} < 62$	$61 \leq \eta_{wh} < 69$	$72 \leq \eta_{wh} < 90$	$130 \leq \eta_{wh} < 163$	$150 \leq \eta_{wh} < 188$	$160 \leq \eta_{wh} < 200$
A^{+}	$44 \leq \eta_{wh} < 53$	$44 \leq \eta_{wh} < 53$	$53 \leq \eta_{wh} < 61$	$55 \leq \eta_{wh} < 72$	$100 \leq \eta_{wh} < 130$	$115 \leq \eta_{wh} < 150$	$123 \leq \eta_{wh} < 160$
A	$35 \leq \eta_{wh} < 44$	$35 \leq \eta_{wh} < 44$	$38 \leq \eta_{wh} < 53$	$38 \leq \eta_{wh} < 55$	$65 \leq \eta_{wh} < 100$	$75 \leq \eta_{wh} < 115$	$80 \leq \eta_{wh} < 123$
B	$32 \leq \eta_{wh} < 35$	$32 \leq \eta_{wh} < 35$	$35 \leq \eta_{wh} < 38$	$35 \leq \eta_{wh} < 38$	$39 \leq \eta_{wh} < 65$	$50 \leq \eta_{wh} < 75$	$55 \leq \eta_{wh} < 80$
C	$29 \leq \eta_{wh} < 32$	$29 \leq \eta_{wh} < 32$	$32 \leq \eta_{wh} < 35$	$32 \leq \eta_{wh} < 35$	$36 \leq \eta_{wh} < 39$	$37 \leq \eta_{wh} < 50$	$38 \leq \eta_{wh} < 55$
D	$26 \leq \eta_{wh} < 29$	$26 \leq \eta_{wh} < 29$	$29 \leq \eta_{wh} < 32$	$29 \leq \eta_{wh} < 32$	$33 \leq \eta_{wh} < 36$	$34 \leq \eta_{wh} < 37$	$35 \leq \eta_{wh} < 38$
E	$22 \leq \eta_{wh} < 26$	$23 \leq \eta_{wh} < 26$	$26 \leq \eta_{wh} < 29$	$26 \leq \eta_{wh} < 29$	$30 \leq \eta_{wh} < 33$	$30 \leq \eta_{wh} < 34$	$30 \leq \eta_{wh} < 35$

F	19 ≤ η_{wh} < 22	20 ≤ η_{wh} < 23	23 ≤ η_{wh} < 26	23 ≤ η_{wh} < 26	27 ≤ η_{wh} < 30	27 ≤ η_{wh} < 30	27 ≤ η_{wh} < 30
G	η_{wh} < 19	η_{wh} < 20	η_{wh} < 23	η_{wh} < 23	η_{wh} < 27	η_{wh} < 27	η_{wh} < 27

Regulation 813/2013, Annex II, paragraph 2(b) sets out MEPS for water heating efficiency by combination heaters which have applied since 26 September 2017. Standalone water heaters are also subject to MEPS, as set out in regulation 2013/814, which have applied since 2017 and 2018 respectively. Water heating products with grades E, F or G can no longer be placed on the market in GB. The Government will therefore conduct a review of the current 10-band water heating energy efficiency scale (A^{+++} to G) with the aim of amending and simplifying the scale, which is similar to what has been proposed for space heating, to continue to drive efficiency, inform consumers and to ensure that the top classes are not overpopulated. As with energy efficiency classes for space heating, the law requires that once a new label is introduced, class A should be vacant at the point of implementation and a majority of products should remain below class A for at least 10 years.

We require more information and evidence about the current market of water heaters (including combination space heaters and standalone water heaters) and what the new scale should look like to achieve the aims set out above. The Government intends to implement a review of the water heating energy efficiency scale at a later date.

70. Should the water heating energy efficiency scale be recalibrated to a 7-band scale, A to G? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

71. (a) What are the highest water heating energy efficiencies of combination heaters on the market now and (b) what do you expect their performance to be in 2035? Please provide evidence or reasoning to support your answer.

72. (a) What are the highest water heating energy efficiencies of standalone water heaters on the market now and (b) what do you expect their performance to be in 2035? Please provide evidence or reasoning to support your answer.

Chapter 11: Label design

Introduction

Energy labels should present important information clearly, for use by the installer and consumer. Evidence gathered by the Department for Environment, Food and Rural Affairs (DEFRA) found that the usefulness of the label can be increased by improving its design, including using symbols and text to enhance familiarity and credibility.[23]

The design of the existing labels does not complement emerging heating policies and technologies. For example, the current labels do not adequately make it clear to the consumer if their heat pump is a hybrid heat pump. The current energy labels also contain some information not relevant to the UK, such as an EU map. New energy labels will also need to reflect changes to space heating energy efficiency classes (see Chapter 10).

Energy labels across other energy-related products, for example fridges' labelling in 2021[24], have been reviewed and updated to ensure they include modern components such as QR codes, which enable the user to quickly access information relating to the product online.

The Government is also proposing streamlining the number of labels; currently packages of space heating products – such as boilers sold with photovoltaic (PV) panels – and cogeneration heaters – appliances that also produce electricity – require an additional label. To avoid unnecessary duplication, the Government is proposing to incorporate the components in the package and cogeneration labels into the specific product labels.

Context

Energy labelling regulation 811/2013 sets out a requirement for manufacturers to provide energy efficiency labels with space heaters and combination heaters. Annex III of this regulation sets out the specific design of these labels, and provides an individual label for boilers, cogeneration heaters, low-temperature heat pumps, heat pumps (excluding low-temperature), and space heater packages. Specific labels are specified for products which provide space heating only and those which provide space heating and instantaneous hot water. Annex III provides images of the labels to be used as well as the precise design requirements of these labels.

Following the Ecodesign for Energy-Related Products and Energy Information (Amendment) (EU Exit) Regulations 2020, Annex III of regulation 811/2013 currently includes both designs for energy labels for the EU and for GB. Currently the GB energy labels are identical to EU energy labels, except for the inclusion of the Union Flag (as opposed to an EU flag).

Energy label design

As noted in the "Water heating energy efficiency classes" section in Chapter 10, we will consider any necessary changes to the water heating energy efficiency scale at a later date.

[23] The Department for Environment Food & Rural Affairs (2023), 'The role of ecolabelling in the path to net zero: Evidence review and Theory of Change', page 19, https://sciencesearch.defra.gov.uk/ProjectDetails?ProjectId=21231.
[24] 'The Ecodesign for Energy-Related Products and Energy Information Regulations 2021', available at https://www.legislation.gov.uk/uksi/2021/745/contents/made.

The labels for combination heaters would then be updated to reflect a new water heating energy efficiency scale.

Chapter 10 also notes that combination heaters with water heating energy efficiency classes E, F or G can no longer be placed on the market in GB due to the MEPS which are currently in place. Therefore, until such time we have reached a firm view on reforms to the water heating energy efficiency scale, combination heater labels will contain a water heating energy efficiency scale with classes A^{+++} to D. The full labels and legal underpinning are set out in Schedule 1 of the draft SI, regulation 28.

Reviewing the benefits of current energy labels, we propose to maintain the following aspects:

- the minimum sizing (of 105 mm by 200 mm)
- the Union Flag
- the name of the supplier and model
- scale(s) denoting the space heating (and water heating for combination heaters) energy efficiency class(es)
- noise levels
- a “clock and coins” symbol, denoting off-peak water heating capability

73. Do you agree with the proposal to retain current label requirements on: minimum sizing, Union Flag, name of the supplier and model, energy efficiency scale, noise levels and off-peak capability symbol? Yes/No/Don’t know. Please provide evidence or reasoning for your answer.

We propose to no longer require different energy labels for packages and cogeneration heaters. Instead, we propose to incorporate the relevant information from these energy labels into separate energy labels for each technology; namely:

- the class of controls (for heaters sold with controls)
- electrical efficiency and electrical rated output (for cogeneration heaters)
- a “sun” symbol to denote solar assisted water heating (for combination heaters), with a tick-box to indicate if solar assisted

74. Do you agree that the current package and cogeneration heater labels should be removed, and that information on controls class, solar assistance and cogeneration should be incorporated into other labels? Yes/No/Don’t know. Please provide evidence or reasoning to support your answer.

We also propose changes to all energy labels currently covered by the 811/2013 regulations:

- including the calculated space heating efficiency of the appliance (at one or two flow temperatures as appropriate) expressed as a percentage
- including symbols to indicate the fuel(s) that the appliance uses, and tick-box(es) to indicate when they are in use
- including a QR code which directs the user to a publicly accessible website containing the technical documentation

- removing the lowest water heating energy efficiency bands (E-G), incompatible with the minimum efficiency requirements (as stated above)

75. **Do you agree with the proposed inclusion of the efficiency of the appliance (at multiple flow temperatures and temperature zones, where relevant), as a percentage, in addition to the efficiency class? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

76. **Do you agree with the proposed inclusion of symbols to indicate the fuel(s) used, indicated by a check box system(s) and do the symbols clearly indicate the specific fuel? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

77. **Do you agree with the proposed inclusion of a QR code which enables the user to find further information relating to the appliance? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

78. **Do you agree that a A^{+++} to D water heating energy efficiency scale should appear alongside the rescaled A to G space heating classes until the Government has completed a review of water heating? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

Boiler labels

Based on the above, we propose that the energy labels for boilers are designed as per Image 1 for space heating only and Image 2 for combination heating, as per new paragraphs 1.1.1 and 2.1.1 in schedule 1, regulation 28 of the draft SI.

Fuel symbols present from left to right are natural gas, liquid heating fuels, Joule effect and solar assisted water heating (for combination heaters).

Image 1: Proposed design of boiler space heater energy label

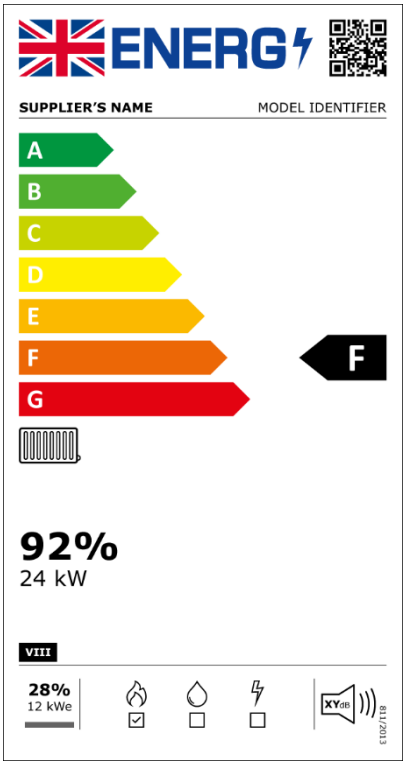
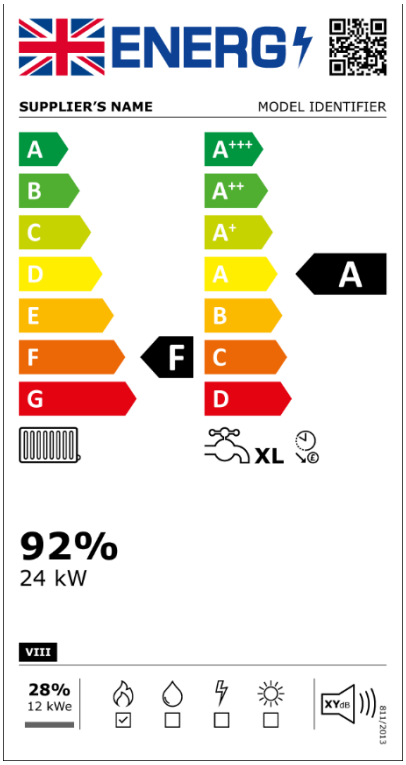


Image 2: Proposed design of boiler combination heating energy label



79. Do you agree with the design of the boiler labels, as per Images 1 and 2? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

Heat pump (and hybrid heat pump) labels

We propose that the energy labels for heat pumps and hybrid heat pumps are designed as per Image 3 and 5 for space heating only and Images 4 and 6 for combination heating. These are located in new paragraphs 1.2.1 and 2.2.1 of schedule 1, regulation 28 of the draft SI.

These labels feature a UK map only. They maintain the same climate conditions as currently apply to the UK in existing regulations. Fuel symbols present from left to right are gas fossil fuel, liquid fossil fuels, Joule effect, air source, ground / water source. Combination heater labels also contain a solar assisted water heating symbol.

For heat pumps, the space heating energy efficiency and rated heat output of the appliance are both specified 6 times; at medium and low temperature across each of the three (colder, average and warmer) temperature zones.

We anticipate that there will be a very small number of low-temperature only heat pumps on the market, and this is likely to remain so. On this basis we propose that low-temperature-only heat pumps affix a label which omits the medium-temperature scale and medium-temperature rated heat output in image 3, and only displays low-temperature seasonal space heating energy efficiency and low-temperature scale.

Image 3: Proposed design of the label when used for heat pump space heaters

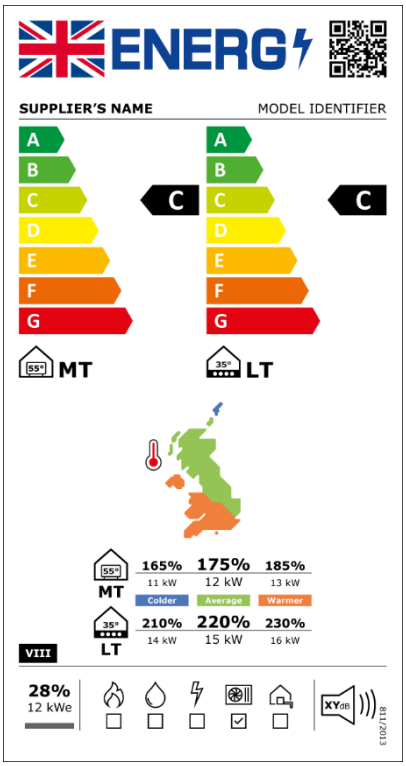
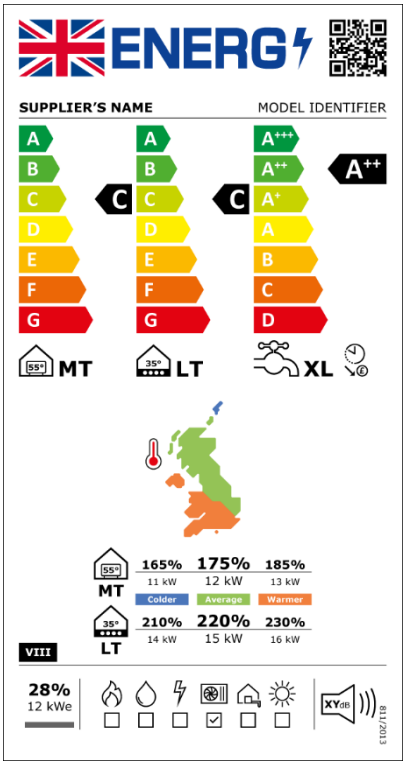


Image 4: Proposed design of the label when used for heat pump combination heaters



80. Do you agree with the designs for the label when used for heat pump space heaters and combination heaters, as per Images 3 and 4 respectively? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

81. Do you agree that when the label is used for low-temperature heat pumps only, it should not include the medium-temperature space heating energy efficiency scale or the medium-temperature-rated heat output as shown in Images 3, only low-temperature. Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

We anticipate that hybrid heat pumps are unlikely to run at low temperature in practice, so our proposal is that when used for hybrid heat pumps, the label should only require a medium-temperature energy efficiency class scale for space heating, as per Images 5 and 6 below. We are keen to receive feedback on whether to require a low-temperature scale.

We propose that the hybrid heat pump energy labels should not require the rated heat output, as we do not see the heat output of heat pump and/or the boiler individually or the sum of these constituent heat outputs as providing useful information to consumers or installers.

Image 5: Proposed design of the label when used for hybrid heat pump space heaters

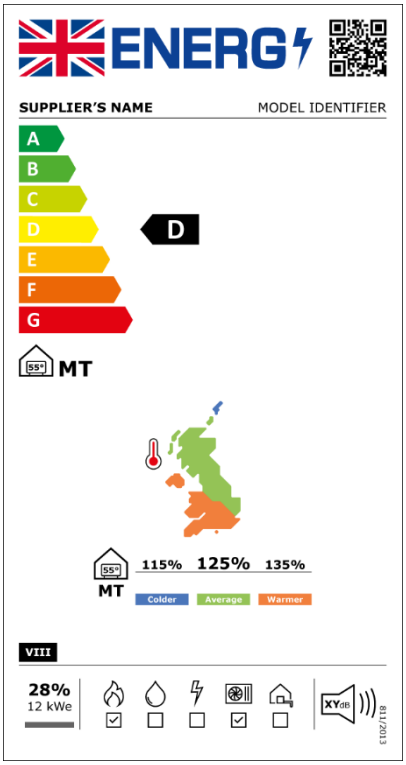
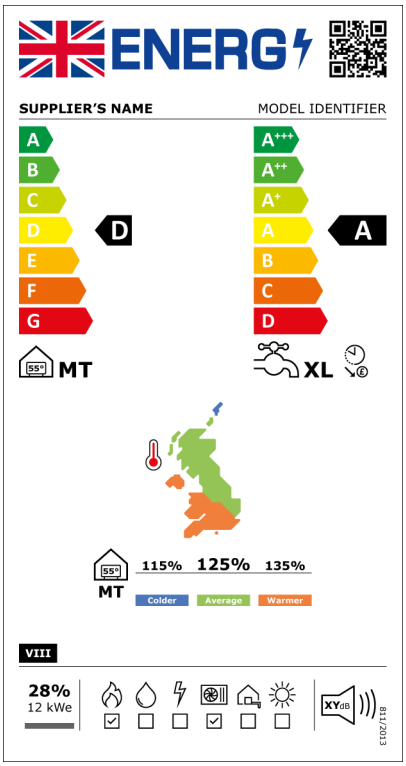


Image 6: Proposed design of the label when used for hybrid heat pump combination heaters



82. **Do you agree that when the label is used for hybrid heat pumps, it should not include the low-temperature space heating energy efficiency scale or the rated heat output, as per Images 5 and 6? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

83. **Should we look to introduce a new label, at a later date, solely for hybrid heat pumps (rather than continue to use the heat pump label for standalone heat pumps and hybrid heat pumps)? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

Information for consumers when distance selling, where the energy label is not available

In accordance with regulation 2017/1369 (introduction, paragraph 14), where it is not feasible to display the full energy label, customers should be provided at least with the space heating energy efficiency class, and, for combination heaters, the water heating energy efficiency class. The customer shall also be provided with the range of the energy efficiency classes so it is clear where a particular product sits in relation to the overall energy efficiency scale.

We note the EU Commission's clarification regarding how the range of classes should be displayed for EU products.[25]

The current regulation 811/2013 sets out overall responsibilities for manufacturers (Article 3) and requirements for dealers (Article 4) to follow when "distance selling" – when products are offered for hire or sale through the internet (Annex IX) or offered for sale in another manner where the user cannot see the product displayed (Annex VI).

There is currently a requirement for distance selling of space heaters through the internet to display the energy efficiency class of the product in the form of a pictogram, as shown in image 7.

Image 7: Current distance selling pictogram in 811/2013

For distance selling of space heaters not through the internet, the specific form of the pictogram is not set out in regulation 811/2013. To improve consistency of information available to consumers, we propose to amend 811/2013 Annex VI so the same requirements and pictograms apply across all distance selling, whether or not this is through the internet. Additionally, if the visual advertisement, promotional material or paper-based distance selling is printed in monochrome, the arrow may be in monochrome, as is the case for other technologies (such as fridges).

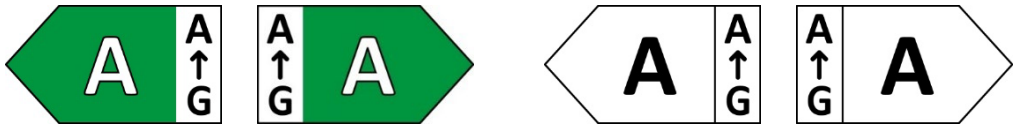
84. **Do you agree that the same requirements for labelling of visual advertisements should apply to distance selling through the internet and not through the internet? Yes/No/Don't know. Please provide reasoning to support your answer.**

[25] European Commission (2024), 'Commission clarifies rules for energy labelling in visual advertising following Court ruling', https://energy.ec.europa.eu/news/commission-clarifies-rules-energy-labelling-visual-advertising-following-court-ruling-2024-07-15_en.

Boiler pictograms

For boiler space heaters, the energy efficiency class and class range displayed on visual advertisements refers to the space heating energy efficiency class, calculated in accordance with the boiler specifications set out in Annex II of regulation 811/2013. Image 8 sets out our proposed design, as per Figure 1 in schedule 2, regulation 31 of the draft SI.

Image 8: Space heating only distance selling pictograms (for boiler, hybrid heat pump and heat pump space heaters where the seasonal space heating energy efficiency class is the same at low- and medium-temperature application)



For boiler combination heaters, the energy efficiency class and class range displayed on visual advertisements refers to both the space heating energy efficiency class and the water heating efficiency class, as calculated in accordance with point 5 of Annex VII of regulation 811/2013 and using the same load profile as on the label which is provided with the appliance. We propose that these appear in separate pictograms, as space heating and water heating have different energy efficiency class ranges (A to G and A^{+++} to D, respectively). We also propose these labels contain a radiator and tap symbol to indicate to which efficiency this relates. Images 9 and 10 sets out our proposed design, as per Figures 4 and 5 of schedule 2, regulation 31 of the draft SI.

Image 9: Space heating distance selling pictograms (for boiler, hybrid heat pump and heat pump combination heaters where the seasonal space heating energy efficiency class is the same at low- and medium-temperature application)

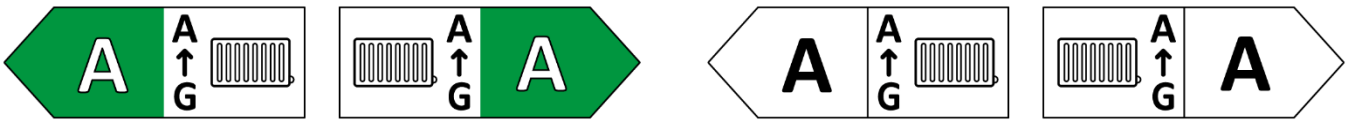
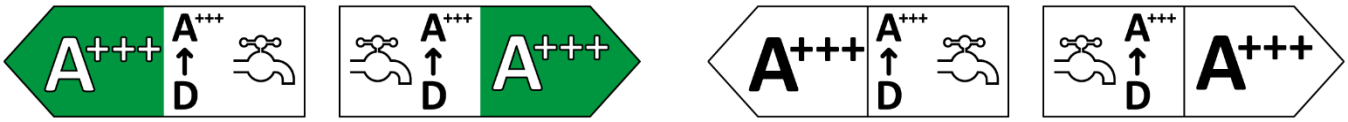


Image 10: Water heating distance selling pictograms (for boiler, hybrid heat pump and heat pump combination heaters)



Hybrid heat pump pictograms

For hybrid heat pump space heaters, the energy efficiency class and class range displayed on visual advertisements refers to the space heating energy efficiency class, which is calculated using average climate conditions, as specified in Annex VII of regulation 811/2013. Our proposal, as set out above, is that the energy labels for hybrid heat pumps only contain the medium-temperature space heating energy efficiency scale. As such, visual advertisements for hybrid space heaters should only contain the space heating energy efficiency class calculated at medium-temperature. The climate conditions and flow temperature may overcomplicate visual advertisements pictogram, if included, therefore we propose that neither are indicated in the pictogram. We therefore propose that the design is the same as for boiler space heaters, as set out in image 8.

For hybrid heat pump combination heaters, the energy efficiency class and class range displayed on visual advertisements refers to both the space heating energy efficiency class and the water heating efficiency class calculated using average climate conditions. We therefore propose that the design of the pictograms is the same as for boiler combination heaters, as set out in images 9 and 10.

Heat pump pictograms

For heat pump space heaters, the energy efficiency class and class range displayed on visual advertisements refers to both of the space heating energy efficiency classes that appear on the energy label, calculated at low- and medium-temperature application. As for hybrid heat pumps, regulation 811/2013 specifies that this should be calculated for average climate conditions, but we propose that the climate conditions should not be stated in the design. Where the product has the same space heating energy efficiency class (and class range) at low- and medium-temperature application, we propose that the design of the pictogram is the same as for boiler space heaters, as set out in image 8.

However, where heat pump space heaters have two different space heating energy efficiency classes depending on the temperature application, we propose that, in addition to a radiator symbol to clearly indicate that the energy efficiency class relates to space heating, the design includes ‘35°’ and ‘55°’ to indicate whether the energy efficiency class relates to low- or medium-temperature application, respectively. Our view is that without the radiator symbol these designs would still be distinct from the water heating design, which is indicated by a tap symbol. However, including the radiator better aligns with the space heating pictogram used for combination heaters (image 9) and improves clarity. These designs are set out in images 11 and 12, as per figures 2 and 3 in schedule 2, regulation 31 of the draft SI.

Image 11: Space heating distance selling pictograms for low-temperature application (for heat pump heaters with different energy efficiency classes at low-temperature and medium-temperature application)

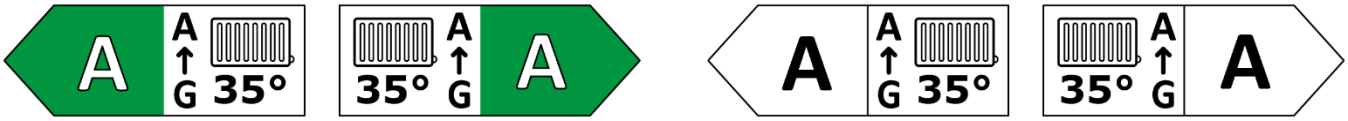
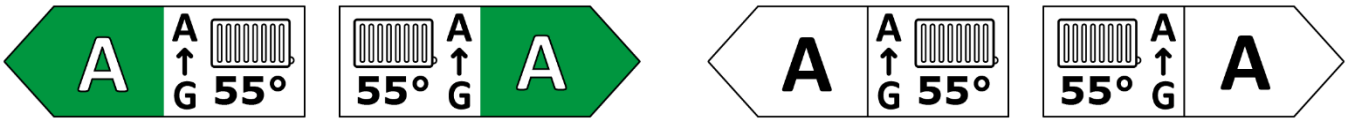


Image 12: Space heating distance selling pictograms for medium-temperature application (for heat pump heaters with different energy efficiency classes at low-temperature and medium-temperature application)



The labels could include ‘LT’ and ‘MT’ to indicate low- and medium-temperature application, respectively, instead of ‘35°’ and ‘55°’. However, while this lettering features on the heat pump energy label provided with the appliance, this is alongside the temperatures ‘35°’ and ‘55°’, and therefore may be less clear in isolation.

Alternate designs are set out in images 13 and 14. We welcome feedback on the relative benefits of images 13 and 14, in comparison to images 11 and 12.

Image 13: Space heating distance selling pictogram for low-temperature application containing LT but omitting the radiator symbol (for heat pump heaters with different energy efficiency classes at low-temperature and medium-temperature application)

Image 14: Space heating distance selling pictogram for medium-temperature application containing LT but omitting the radiator symbol (for heat pump heaters with different energy efficiency classes at low-temperature and medium-temperature application)

For heat pump combination heaters, the energy efficiency class and class range displayed on visual advertisements refers to both of the space heating energy efficiency classes (at low-temperature and medium-temperature application) and the water heating efficiency class, which all appear on the energy label. Where the heat pump has the same space heating energy efficiency class (and class range) at low-temperature and medium-temperature application, we propose that the design of the pictograms is the same as for boiler combination heaters, with a radiator symbol and tap symbol to denote space and water heating respectively, as set out in images 9 and 10.

Where the heat pump has different space heating energy efficiency classes at low-temperature and medium-temperature application, we propose the pictogram combines the design

requirements from images 10, 11 and 12, in order to display both of the space heating energy efficiency classes at low- and medium-temperature application and the water heating energy efficiency class.

85. **Do you agree that the climate conditions should be omitted from the visual advertisements pictogram itself? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

86. **For combination heaters, do you agree that the space heating and water heating efficiencies should be displayed in separate pictograms, and that these should show a radiator and tap symbol to indicate that the energy efficiency class relates to space and water heating respectively, as set out in images 9 and 10? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

87. **For heat pump heaters, do you agree with our proposal that where the space heating energy efficiency classes calculated at low- and medium-temperature application are the same, only one space heating pictogram is required, but where the energy efficiency class at low- and medium-temperature application is different, this should be displayed on two separate pictograms. Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

88. **Do you agree that where the space heating energy efficiency class at low- and medium-temperature application is different, the heat pump visual advertisement pictograms should indicate the flow temperature using '35°' and '55°', as set out in images 11 and 12, rather than 'LT' and 'MT' as set out in images 13 and 14? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

89. **Do you agree that where the space heating energy efficiency class at low- and medium-temperature application is different, the heat pump visual advertisement pictograms should still contain a radiator symbol, as set out in images 11 and 12? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

90. **For heat pump combination heaters where the space heating energy efficiency classes calculated at low- and medium-temperature application are different, do you agree with the design of the three pictograms as set out in images 10, 11 and 12? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

Implementation

Regulation 2017/1369[26] requires for there to be an initial 4-month period, where both the current and new energy labels are required to be provided by suppliers (subject to relevant exemptions). This is intended to enable dealers to be ready to sell products with the correct energy labels when the requirements change. We propose that the existing and new labels are required to be provided by suppliers from early-2026 and the current labels would cease to be required to be displayed from mid-2026, when they are replaced by the new labels.

[26] 'Regulation (EU) 2017/1369 of the European Parliament and of the Council', Article 11B, available at: https://www.legislation.gov.uk/eur/2017/1369/article/11B.

2017/1369 includes an obligation to review introduced or rescaled labels once it is estimated that a specified percentage of units fall within energy efficiency class A or A and B, and further technological development can be expected (Article 11, paragraph 6), or to identify which barriers, if any, may have prevented these circumstances from occurring within 8 years (2017/1369, Article 11, paragraph 8). 2017/1369 also includes an obligation to set the date for the evaluation and possible consequent revision of a new product-specific measure (2017/1369, Article 11A, (4)(o)). We are considering completing this evaluation by 2034 and depending on responses plan to add this to the final SI, which will accompany the government response to this consultation.

91. Do you agree that the energy labelling proposals should take effect from mid-2026 and that new energy labels should be required from this date? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

92. Would it be useful to complete an evaluation earlier than 2034, if so, when and why? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

Additional policies

In this consultation we have set out a package of policy proposals which would amend energy labelling requirements for space heaters, including rescaling seasonal space heating energy efficiency classes, redesigning energy labels and alternative designs for distance selling. We are interested in understanding if there are additional policies, not covered in this consultation, you would like to see adopted under energy labelling legislation for space heaters.

93. Do you agree that the legislation, as drafted, achieves our energy labelling objectives and reflects our proposals, as set out in this consultation? Yes/No/Don't know. Please explain your response.

94. Are there are additional policies, not covered in this consultation, you would like to see adopted under energy labelling for space heaters, and why should they be prioritised?

Equality Act 2010

Under the Public Sector Equality Duty, the Government must take steps to understand how policies will affect different groups in society in different ways, with a particular focus on removing or minimising disadvantages suffered by people due to the following protected characteristics: age; gender reassignment; being married or in a civil partnership; being pregnant or on maternity leave; disability; race including colour, nationality, ethnic or national origin; religion or belief; sex; and sexual orientation. Warm homes and thermal comfort play a crucial role in maintaining our health and wellbeing. Evidence suggests that in homes with a lower level of thermal comfort, elderly, pregnant and disabled groups may be particularly affected and at an elevated risk of negative health outcomes.

With due consideration to this, we have undertaken an impact assessment in line with the Public Sector Equality Duty to establish any potential impacts due to the policies proposed in this consultation.

We identified the use of more complex heating controls could have a negative impact on consumers with lower digital literacy, and therefore indirectly impact older consumers. When developing these proposals, we have ensured that consumers will still have the choice of purchasing many non-Wi-Fi reliant and non-complex controls.

There are also potential financial impacts as a result of increasing product requirements for space heating. For example, we expect the tranche one increase to heat pump efficiency from 2027 to result in a £12 higher cost per product, and tranche two in 2029 to result in a £56 higher cost per product. The majority of consumers within the heat pump market are able-to pay consumers. The Boiler Upgrade Scheme, a government grant scheme which provides £7,500 towards air-source and ground-source heat pumps, is a demand-led scheme where consumers are required to meet the remaining upfront capital costs of installations post-grant as well as ongoing system maintenance and running costs. The current average cost for a heat pump unit is around £4,200. As such, these changes are not expected to make a material difference in heat pump affordability or the consumer decision to purchase a heat pump.

For boilers, there is an expected price increase of up to £50, however, consumers are expected to save around £30 a year with the new minimum product requirements. Households will also benefit from increased levels of comfort and a reduction in their carbon emissions.

We acknowledge that these price increases may have a greater relative financial impact on lower-income households and that there are correlations between household income and some protected characteristics, such as race and disability. Whilst price increases are expected as a result of these policies, we believe that all consumers will experience the same anticipated energy efficiency benefits, consumer choice, and payback period. We therefore do not consider that the policy indirectly discriminates against these groups. However, if such an impact did arise, the benefits of this project are such that this would be justified and proportionate. By increasing space heating product standards, all consumers will be able to save on their bills, benefit from increased levels of comfort in the home and reduce their carbon emissions, therefore contributing to the UK’s net zero ambitions. It is for this reason we believe that there is strong justification to proceed with consulting on these policies.

We will continue to assess these potential impacts throughout and reassess should any of this change or if any new direct or indirect impacts occur.

95. Do you have views on whether, and to what extent, the policy proposals here might disproportionately impact upon certain types of consumers, with a particular focus on those in groups with protected characteristics? Please provide evidence or reasoning to support your answer.

96. Do you have any further views on the proposals detailed in this consultation that are not already captured in your responses to the previous consultation questions? Please provide evidence or reasoning to support your answer.

Annex A: Glossary

The following terms are used throughout the consultation.

Term	Description
Boiler cycling	Boiler cycling causes the boiler to repeatedly turn on and off during a heating period. This is sometimes referred to as on/off cycling. This can occur for a number of reasons such as the boiler system replicating a lower output in order to maintain a desired room temperature.
Boiler modulation	Boiler modulation is a boiler's ability to dynamically reduce its output from its maximum output. This allows boilers to use less energy by using a lower output to meet the desired room temperature.
Carbon Budgets	A carbon budget places a restriction on the total amount of greenhouse gases the UK can emit over a 5-year period. Carbon Budget 5 covers 2028 – 2032 and Carbon Budget 6 covers 2032 – 2037.
Class I	A room thermostat that controls the on/off operation of a heater. Performance parameters, including switching differential and room temperature control accuracy, are determined by the thermostat's mechanical construction.
Class II	For use with modulating heaters. A heater flow temperature control that varies the set point of the flow temperature of water leaving the heater dependent upon prevailing outside temperature and selected weather compensation curve. Control is achieved by modulating the output of the heater.
Class III	Weather compensator control, for use with on/off output heaters. A heater flow temperature control that varies the set point of the flow temperature of water leaving the heater dependent upon prevailing outside temperature and selected weather compensation curve. Heater flow temperature is varied by controlling the on/off operation of the heater.
Class IV	An electronic room thermostat that uses a TPI control strategy. For this purpose, a "TPI control strategy" is one that controls both Class IV (TPI room thermostat for use with on/off heaters) the thermostat cycle rate and the in-cycle on/off ratio of the heater proportional to room temperature, thus reducing mean water temperature, improving room temperature control accuracy and ensuring system efficiency
Class V	A load compensator is a device that measures the gap between the internal temperature of the home and what the controller is set to, then

	modulates the temperature and/or output of the boiler output so that it is hot enough to provide the extra heat needed. This allows the boiler to operate in condensing mode for more of the time, lowers the chance of overshoot of room temperature, thus saving more fuel than just standard time and temperature control.
Class VI	Weather compensator and room sensor, for use with modulating heaters. A heater flow temperature control that varies the flow temperature of water leaving the heater dependent upon prevailing outside temperature and selected weather compensation curve. A room temperature sensor monitors room temperature and adjusts the compensation curve parallel displacement to improve room comfort. Control is achieved by modulating the output of the heater.
Class VII	Weather compensator and room sensor, for use with on/off output heaters. A heater flow temperature control that varies the flow temperature of water leaving the heater dependent upon prevailing outside temperature and adjusts the compensation curve parallel displacement to improve room comfort. Heater flow temperature is varied by controlling the on/off operation of the heater.
Class VIII	Multi-sensor room temperature control, for use with modulating heaters. An electronic control, equipped with three or more room sensors, that varies the flow temperature of the water leaving the heater dependent upon the aggregated measured room temperature deviation from room sensor set points. Control is achieved by modulating the output of the heater.
Combination, system and regular boilers	There are three main types of gas boiler used in domestic properties: • A combination boiler (also known as combi boilers) combines both water heating and central heating in a single unit. They provide hot water directly at the time that it is required, rather than it being stored in a separate hot water tank or cylinder. • A system boiler heats hot water in advance, storing hot water in a separate hot water tank or cylinder. The hot water tank is fed directly from the mains water supply rather than a cold-water storage tank. • A regular boiler is fed by a cold-water storage tank (usually in a loft or attic) resulting in lower heat distribution system pressures. Hot water is heated in advance and stored in a separate hot water tank or cylinder, from which it is released when needed (independently of the boiler)
Condensing boiler	Condensing boilers collect the latent heat from the water vapour created during combustion of natural gas. In a non-condensing boiler, this water vapour is expelled to the atmosphere through the flue without reclaiming the available energy. Condensing boilers are more efficient than non-

	condensing boilers. Since 2005, condensing boilers have been mandatory to install in the UK.
Conversion coefficient (CC)	The conversion coefficient refers to a coefficient the value of which in current ecodesign (813/2013) and energy labelling (811/2013) legislation is CC = 2.5. This coefficient is used in the calculation of a product's seasonal space heating energy efficiency as it acts as a primary energy factor for electricity and therefore allows a comparison of the energy efficiency of different space heaters using different fuels to generate heat. This consultation sets out a proposal to update the conversion coefficient to 1.9.
Ecodesign	Ecodesign is the legislative framework for setting the minimum efficiency performance standards (MEPS) for energy-related products, including for space heating appliances. Ecodesign aims to phase out the least efficient energy-related products from the market through these standards. Current ecodesign legislation for hydronic space heaters (813/2013) is available at: https://www.legislation.gov.uk/eur/813/2013.
Energy label	As stated in legislation 2017/1369, a 'label' means a graphic diagram and includes the relevant energy efficiency class, with each class corresponding to energy savings from dark green to red, in order to inform customers about energy efficiency and energy consumption. Where it is not feasible to display the energy label (such as in certain forms of distance selling, visual advertisements and technical promotional material) legislation 2017/1369 states that potential customers should be provided at least with the energy class of the product and the range of the efficiency classes available on the label. In this consultation these simplified labels have been referred to as pictograms.
Energy labelling	Energy labelling legislation seeks to ensure that consumers get accurate comparative information about the energy-related products. Labelling has been successful in achieving cost-effective improvements in energy efficiency and empowering consumers to purchase more efficient products. Current energy labelling legislation for hydronic space heaters (811/2013) is available at: https://www.legislation.gov.uk/eur/811/2013. This regulation specifies a uniform design and content of product labels for space heaters and combination heaters, technical documentation,

	information to be provided for any form of distance selling, and responsibilities of suppliers and dealers.
Flow temperature	Flow temperature is the temperature that the water is heated to in the boiler and then travels to heat emitters via the distribution pipework. Boilers are more efficient when operating at lower flow temperatures. The temperature of the water after it leaves the heat emitters and returns to the boiler is known as the 'return temperature'. This temperature is highly influential in determining the efficiency of the boiler and whether it condenses or not. The return temperature of what the water is affected by the flow temperature. As water circulates round a property it transfers heat to rooms, so the flow temperature is lower than the return temperature. As lower return temperature is essential for ensuring condensing boilers are actually able to condense and achieve higher efficiencies we want to utilise the lowest possible flow temperature.
Flue Gas Heat Recovery (FGHR)	FGHR systems recover heat from waste flue gases to preheat the cold drinking water entering the combi boiler, lowering the amount of energy needed to warm the drinking water up to the required level. This means that the effectiveness of FGHR does not depend on householders using it in certain ways or making any sort of adjustments to their behaviour. Some FGHR systems use electricity to power them, while others (known as Passive FGHR) do not.
Hybrid heat pump	A single system for space heating (which may also provide water heating) consisting of an electric-driven hydronic heat pump and another heat generator alongside a single master system control (capable of determining which heat generators to be utilised depending on operating conditions).
Hybrid heater	A single system for space heating (which may also provide water heating) consisting of multiple heat generators alongside a single master system control (capable of determining which heat generators to be utilised depending on operating conditions).
Hydronic space heating system	A hydronic space heating system (wet system) is when a heating appliance produces hot water which is distributed around the property to heat emitters.
Load compensation	A load compensator is a device that measures the gap between the internal temperature of the home and what the controller is set to, then modulates the temperature and/or output of the boiler output so that it is hot enough to provide the extra heat needed. This allows the boiler to

	operate in condensing mode for more of the time, lowers the chance of overshoot of room temperature, thus saving more fuel than just standard time and temperature control.
Minimum Energy Performance Standards (MEPS)	Minimum Energy Performance Standards, or 'MEPS' refer to performance standards set out in ecodesign legislation. They aim to remove the least energy and resource efficient products from the market. Compliance with energy efficiency related MEPS for space heating is measured by calculating the heater's seasonal space heating energy efficiency.
Operating protocols	Operating protocols are the communication systems utilised between boilers and heating controls. Open protocols should enable any boiler to be fully controlled, across a multitude of functionalities including lowering flow temperatures, by a heating control produced by a third-party manufacturer. OpenTherm is the most common example. Closed protocols mean only a control made by the same manufacturers will be able to follow interact and affect the boiler.
Room thermostat	A central or room thermostat allows consumers to set their preferred temperature in their home. If the heating is turned on, the boiler will send hot water to the radiators such that the temperature on the thermostat is reached and then maintained, but not exceeded. Without a thermostat or any other heating controls, the boiler will keep heating the home until the heating is switched off, thereby using far more energy, and resulting in higher bills.
Smart control	Under the Boiler Plus Standards, smart controls (thermostats) were defined as products that let consumers remotely control their home temperature via a tablet, smartphone or desktop. To comply with Boiler Plus, a smart control can include either load or weather compensation, otherwise it must include both of: • Automation, where the device automatically controls the heating system output in response to programmed demand or occupancy detection (for example using the GPS on the users' smartphones). • Optimisation, meaning the device works out what time it should switch the boiler on so that it gets to the temperature on the thermostat at the chosen time, while using the least amount of energy.
Space heating demand	Space heating demand is the amount of heat input required to heat a property to the required temperature at a given outdoor temperature.

Seasonal space heating energy efficiency	Seasonal space heating energy efficiency is the metric used to test compliance with minimum energy performance standards in ecodesign regulation and identify the energy efficiency class for space heaters. The seasonal space heating energy efficiency, as defined in ecodesign (813/2013), means the ratio between the space heating demand for a designated heating season, supplied by a heater, and the annual energy consumption required to meet this demand, expressed in %, and includes the appliance's efficiency, primary energy, and correction factors, and reflects the product's performance under laboratory test conditions.
Time proportional and integral (TPI) control	TPI controls are a device, or feature within a device, which maintains the temperature inside the building by cycling the boiler on and off in a ratio that is proportional to the difference between the required and measured temperatures inside the building.
Timer	A timer allows consumers to set the heating to come on at specific times of the day to meet their routines without daily action on their part. Some systems have a 24-hour timer, which allows consumers to set the heating to switch on and off at the same time each day. More advanced timers, or timer functions within a programmable or smart thermostat, allow for different times to be set on different days, for example to reflect varying weekday and weekend routines.
Weather compensation	Weather compensation interacts intelligently with the boiler to provide just enough heat to keep the home warm, by adjusting the temperature and/or output of the boiler to account for changes in the weather. Operating at a lower temperature makes the boiler more efficient. Weather compensators can be external sensors feeding weather data back to the boiler, or digital products using weather data from the internet.

Annex B: Consultation questions

1. **Do you agree with lowering the primary energy factor for electricity to 1.9 from mid-2026? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

2. **Do you agree that we should raise the MEPS to 170% for low-temperature heat pumps under tier 1? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

3. **Do you agree that the tier 1 increase in MEPS to 170% for low-temperature heat pumps should take effect from mid-2027? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

4. **Do you agree that we should raise the MEPS to 175% for low-temperature heat pumps under tier 2? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

5. **Do you agree that the tier 2 increase in MEPS to 175% for low-temperature heat pumps should take effect from mid-2029? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

6. **Do you agree that we should raise the MEPS to 168% for medium-temperature heat pumps under tier 1? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

7. **Do you agree that the tier 1 increase in MEPS to 168% for medium-temperature heat pumps should take effect from mid-2027? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

8. **Do you agree that we should raise the MEPS to 175% for medium-temperature heat pumps? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

9. **Do you agree that the tier 2 increase in MEPS to 175% for medium-temperature heat pumps should take effect from mid-2029? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

10. **Do you agree that we should raise the MEPS to 143% for high-temperature heat pumps under tier 1? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

11. **Do you agree that the tier 1 increase in MEPS to 143% for high-temperature heat pumps should take effect from mid-2027? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

12. **Do you agree that we should raise the MEPS to 153% for high-temperature heat pumps under tier 2? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

13. **Do you agree that this tier 2 increase in MEPS to 153% for high-temperature heat pumps should take effect from mid-2029? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

14. **Do you have any views on whether the MEPS could be implemented at a faster rate, with tier 1 in mid-2026 and tier 2 in mid-2028? Please provide evidence or reasoning to support your answer.**

15. **Do you have any views on the interaction between the MEPS proposals for heat pumps and the EU's f-gas regulations? Please provide evidence or reasoning to support your answer.**

16. **What impacts would occur as a result of requiring heat pumps to meet the MEPS for all temperature applications they operate at? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

17. **Do you agree that BS EN 14825:2022 and BS EN 14511-2-2022 are appropriate means of calculating the seasonal space heating energy efficiency for a heat pump, despite the fact that they are currently behind a paywall? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

18. **Do these definitions adequately cover all current and future heat pumps? Yes/No/Don't know. If not, what elements do you recommend should be changed and why? Please provide evidence or reasoning to support your answer.**

19. **Do you agree with the proposed definitions for low-temperature, medium-temperature and high-temperature heat pump space heater? Yes/No/Don't know. If not, what elements do you recommend should be changed and why? Please provide evidence or reasoning to support your answer.**

20. **Do you agree with the proposed definitions for low-temperature, medium-temperature and high-temperature application? Yes/No/Don't know. If not, what elements do you recommend should be changed and why? Please provide evidence or reasoning to support your answer.**

21. **How should regulations define a low-temperature compatible hot water storage tank? What are the key constituent elements of this definition? Please provide evidence or reasoning to support your answer**

22. **Do you agree that a heat pump compatible symbol on an energy label would help futureproof hot water cylinders? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

23. **Should stratification be incorporated into the requirements of ecodesign (812/2013), to support hot water cylinder heat pump compatibility? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

24. **Should coil sizing be incorporated into the requirements of ecodesign (812/2013), to support hot water cylinder heat pump compatibility? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

25. **Do you agree with (a) the proposed definition of hybrid heat pump and (b) adjusting the definition of a heat pump space heater to reduce duplication? Yes/No/Don't know. If not, what elements do you recommend should be changed and why? Please provide evidence or reasoning to support your answer.**

26. **Do you agree that we should set a MEPS at 125% for hybrid heat pumps? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

27. **Do you agree that this should be for medium-temperature (55°C flow temperature) hybrid heat pumps? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

28. **Do you agree that the implementation of new MEPS for hybrid heat pumps should align with the tier 1 heat pump MEPS proposals, taking effect from mid-2027? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

29. **Do you agree that either test methods (combined or separate) should be acceptable for testing the seasonal space heating energy efficiency for hybrids heat pumps? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

30. **Do you agree that BS EN 14825:2022 and BS EN 15502-2-3:2023 are appropriate means of calculating the seasonal space heating energy efficiency for a hybrid heat pump, despite the fact that they are currently behind a paywall? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

31. **Do you agree with the information requirements for hybrid heat pumps as per Table 1 (regulation18(6) Table 2A of the Draft SI)? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

32. **Are there any elements missing from Table 1 (regulation18(6) Table 2A of the Draft SI) that should be added? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

33. **Are there any elements in Table 1 (regulation18(6) Table 2A of the Draft SI) that should be removed? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

34. **On the balance of pros and cons, should we encourage and enable hybrid heat pumps to play a significant, and potentially widespread, role in heat decarbonisation? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

35. **Do you agree that we should not currently be looking to introduce mandating a minimum efficiency of more than 100%, which would, in effect, phase out installation of standalone fossil fuel boilers? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

36. **Do you agree that all new gas combination boilers (≤45kW) placed on the GB market should be able to modulate their maximum output down to 15% without**

on/off cycling by mid-2028? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

37. **Do you agree that the Government should consider introducing an extension for the modulation requirements such that larger domestic-scale gas combination boilers (45≥32kW) placed on the GB market should be able to modulate their maximum output down to 10% without on/off cycling? Yes/No/Don't know. Please provide evidence or reasoning to support your answer. If you support an increased modulation requirement for larger domestic-scale combination boilers, please suggest a date for when this should come into force.**

38. **Do you agree that all combination oil boilers (≤45kW) should be capable of modulating their heat output down to 30% of their maximum heat output without on/off cycling, by mid-2028? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

39. **Do you agree that all combination boilers be supplied with a 60 degrees Celsius (°C) low flow temperature factory default setting by early 2026? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

40. **Do you agree with raising GB requirements so that control Classes I-III are no longer sufficient by mid-2026. Yes/No/Don't know. Please provide evidence or reasoning to support your answer, including any potential costs associated with this proposal.**

41. **Please present your views on any potential impacts on heat networks associated with preventing temperature control Classes I-III from the GB market by mid-2026. Please provide evidence or reasoning to support your answer.**

42. **Do you agree with the definitions of temperature control classes IV-VIII set out in the draft SI? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

43. **Do you agree with the definition of open protocols? Yes/No/Don't Know. Please provide evidence or reasoning to support your answer**

44. **Do you agree all gas combination boilers placed on the market should use open protocols by mid-2026? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

45. **Do you agree oil combination boilers placed on the market should use open protocols by mid-2028? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

46. **Do you agree that an open protocols requirement can be extended to system and regular boilers? Yes/No/Don't know. Please provide evidence or reasoning to support your answer. If yes, provide a date from when this should be introduced.**

47. **Do you agree temperature controls placed on the market must use open protocols by mid-2026? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

48. **Do you agree with the proposed requirement that boilers and temperature controls must, when placed on the market, be accompanied by information about which open protocols they can use? Yes/No/Don't know. Please explain if you think this is sufficient and if not, how government should go further, including any evidence or reasoning to support your answer.**

49. **Please present your arguments for why some closed protocols should remain on the GB market whilst still requiring all combination boilers to use open protocols by mid-2026. Please provide evidence or reasoning to support your answer.**

50. **Do you agree with the proposed benchmarks? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

51. **Should boiler manufacturers be permitted to self-certify their products against the three clearly identified new measures – on boiler modulation, open protocols and default low-flow temperatures – whilst still undergoing third-party testing to comply with the current standards? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

52. **What potential cost rises would be incurred by (a) double testing for CE marking goods (b) adding testing requirements to receive a UKCA marking from UK-based Conformity Assessment Bodies? Please provide evidence or reasoning to support your answer.**

53. **Do you agree with our intention to review compliance with the boiler regulations after 18 months and to revert to third-party testing for the new requirement if the compliance, as evidenced by the OPPS is inadequate? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

54. **Do you agree in practice that manufacturers will dual mark their products with both UKCA and CE markings?**

55. **Is there anything government should consider to support manufacturers to continue dual marking their products?**

56. **Do you agree with our proposal to limit the verification tolerance on seasonal space heating energy efficiency for fossil fuel boilers to 4%? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

57. **Do you agree that the verification tolerance for seasonal space heating energy efficiency for other space heaters and combination heaters, including heat pumps, should remain at 8%? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

58. **What are the potential benefits and drawbacks of reducing the amount of additional testing for space and combination heaters required for the OPSS to take enforcement action?**

59. **Do you agree that we should update our legislation to reduce opportunities for circumvention? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

60. **Do you agree with the proposed drafting of this in regulation 10 and regulation 15 of the draft SI? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

61. **Are there any barriers to extending seasonal space heating energy efficiency levels for space heating to heaters between 400kW and 1MW in capacity? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

62. **Will any of the proposals set out in this consultation result in disproportionate impacts on SMEs? Yes/No/Don't know. If so, how might these be mitigated? Please provide evidence or reasoning to support your answer.**

63. **Do you agree that the legislation, as drafted, achieves our ecodesign objectives and reflects our proposals, as set out in this consultation? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

64. **Are there are additional policies, not covered in this consultation, you would like to see adopted under ecodesign for space heaters? Yes/No/Don't know. If yes, please explain why they should be prioritised.**

65. **Do you agree that setting the threshold for class A at 260% at medium-temperature application, and at 325% at low-temperature application, would mean that this band would be vacant at the point of implementation? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

66. **Do you agree that the existing boiler MEPS and our proposed hybrid heat pump and air-source heat pump MEPS should be used as class thresholds in the proposed rescaling? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

67. **Do you agree that the seasonal space heating energy efficiency values for the low-temperature scale should be calculated using a 1.25 multiplier from the medium-temperature scale? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

68. **Is there any information that is not currently included in Table 1, that you feel should be added? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

69. **Is there any information that is currently included in Table 1, that you feel should be removed? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

70. **Should the water heating energy efficiency scale be recalibrated to a 7-band scale, A to G? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.**

71. **(a) What are the highest water heating energy efficiencies of combination heaters on the market now and (b) what do you expect their performance to be in 2035? Please provide evidence or reasoning to support your answer.**

72. (a) What are the highest water heating energy efficiencies of standalone water heaters on the market now and (b) what do you expect their performance to be in 2035? Please provide evidence or reasoning to support your answer.

73. Do you agree with the proposal to retain current label requirements on: minimum sizing, Union Flag, name of the supplier and model, energy efficiency scale, noise levels and off-peak capability symbol? Yes/No/Don't know. Please provide reasoning for your answer.

74. Do you agree that the current package and cogeneration heater labels should be removed, and that information on controls class, solar assistance and cogeneration should be incorporated into other labels? Yes/No/Don't know. Please provide reasoning to support your answer.

75. Do you agree with the proposed inclusion of the efficiency of the appliance (at multiple flow temperatures and temperature zones, where relevant), as a percentage, in addition to the efficiency class? Yes/No/Don't know. Please provide reasoning to support your answer.

76. Do you agree with the proposed inclusion of symbols to indicate the fuel(s) used, indicated by a check box system(s) and do the symbols clearly indicate the specific fuel? Yes/No/Don't know. Please provide reasoning to support your answer.

77. Do you agree with the proposed inclusion of a QR code which enables the user to find further information relating to the appliance? Yes/No/Don't know. Please provide reasoning to support your answer.

78. Do you agree that a A^{+++} to D water heating energy efficiency scale should appear alongside the rescaled A to G space heating classes until the Government has completed a review of water heating? Yes/No/Don't know. Please provide reasoning to support your answer.

79. Do you agree with the design of the boiler labels, as per Images 1 and 2? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

80. Do you agree with the designs for the label when used for heat pump space heaters and combination heaters, as per Images 3 and 4 respectively? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

81. Do you agree that when the label is used for low-temperature heat pumps only, it should not include the medium-temperature space heating energy efficiency scale or the medium-temperature-rated heat output as shown in Images 3, only low-temperature. Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

82. Do you agree that when the label is used for hybrid heat pumps, it should not include the low-temperature space heating energy efficiency scale or the rated heat output, as per Images 5 and 6? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

83. Should we look to introduce a new label, at a later date, solely for hybrid heat pumps (rather than continue to use the heat pump label for standalone heat pumps and hybrid heat pumps)? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

84. Do you agree that the same requirements for labelling of visual advertisements should apply to distance selling through the internet and not through the internet? Yes/No/Don't know. Please provide reasoning to support your answer.

85. Do you agree that the climate conditions should be omitted from the visual advertisements pictogram itself? Yes/No/Don't know. Please provide reasoning to support your answer.

86. For combination heaters, do you agree that the space heating and water heating efficiencies should be displayed in separate pictograms, and that these should show a radiator and tap symbol to indicate that the energy efficiency class relates to space and water heating respectively, as set out in images 9 and 10? Yes/No/Don't know. Please provide reasoning to support your answer.

87. For heat pump heaters, do you agree with our proposal that where the space heating energy efficiency classes calculated at low- and medium-temperature application are the same, only one space heating pictogram is required, but where the energy efficiency class at low- and medium-temperature application is different, this should be displayed on two separate pictograms. Yes/No/Don't know. Please provide reasoning to support your answer.

88. Do you agree that where the space heating energy efficiency class at low- and medium-temperature application is different, the heat pump visual advertisement pictograms should indicate the flow temperature using '35°' and '55°', as set out in images 11 and 12, rather than 'LT' and 'MT' as set out in images 13 and 14? Yes/No/Don't know. Please provide reasoning to support your answer.

89. Do you agree that where the space heating energy efficiency class at low- and medium-temperature application is different, the heat pump visual advertisement pictograms should still contain a radiator symbol, as set out in images 11 and 12? Yes/No/Don't know. Please provide reasoning to support your answer.

90. For heat pump combination heaters where the space heating energy efficiency classes calculated at low- and medium-temperature application are different, do you agree with the design of the three pictograms as set out in images 10, 11 and 12? Yes/No/Don't know. Please provide reasoning to support your answer.

91. Do you agree that the energy labelling proposals should take effect from mid-2026 and that new energy labels should be required from this date? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

92. Would it be useful to complete an evaluation earlier than 2034, if so, when and why? Yes/No/Don't know. Please provide evidence or reasoning to support your answer.

93. Do you agree that the legislation, as drafted, achieves our energy labelling objectives and reflects our proposals, as set out in this consultation? Yes/No/Don't know. Please explain your response.

94. Are there are additional policies, not covered in this consultation, you would like to see adopted under energy labelling for space heaters, and why should they be prioritised?

95. Do you have views on whether, and to what extent, the policy proposals here might disproportionately impact upon certain types of consumers, with a particular focus on those in groups with protected characteristics? Please provide evidence or reasoning to support your answer.

96. Do you have any further views on the proposals detailed in this consultation that are not already captured in your responses to the previous consultation questions? Please provide evidence or reasoning to support your answer.

Annex C: Bibliography

This annex provides the details of publications referenced throughout the consultation, in order of appearance, including reports, data sources and other webpages.

DESNZ (2024), 'Final UK greenhouse gas emissions national statistics: 1990 to 2022', https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-to-2022.

DESNZ (2023), 'Energy consumption in the UK 2023', https://www.gov.uk/government/statistics/energy-consumption-in-the-uk-2023.

DECC (2016), 'Post Implementation Review of the Ecodesign for Energy Related Products Regulations 2010 (S.I. 2010/2617)', https://assets.publishing.service.gov.uk/media/5a74798940f0b646cbc40190/PIR_Ecodesign_for_Energy_Related_Products_Regulations_Accessible.pdf.

Current ecodesign legislation for hydronic space heaters (813/2013), 'Commission Regulation (EU) No 813/2013', available at: https://www.legislation.gov.uk/eur/813/2013.

Current energy labelling legislation for hydronic space heaters (811/2013), 'Commission Delegated Regulation (EU) No 811/2013', available at: https://www.legislation.gov.uk/eur/811/2013.

BEIS & DESNZ (2022-2024), 'Improving boiler standards and efficiency' consultation, impact assessment, and Government response, available at: https://www.gov.uk/government/consultations/improving-boiler-standards-and-efficiency.

BEIS (2021), 'Boiler Plus: initial policy review', https://assets.publishing.service.gov.uk/media/611b9287d3bf7f63b086cb04/boiler-plus-policy-review.pdf.

BEIS (2020), 'Energy-related products: call for evidence', https://assets.publishing.service.gov.uk/media/60477b20d3bf7f1d0da7571c/energy-related-products-summary-responses.pdf.

Current EU ecodesign legislation for hydronic space heaters, 'Commission Regulation (EU) No 813/2013', available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32013R0813.

Current EU energy labelling legislation for hydronic space heaters, 'Commission Delegated Regulation (EU) No 811/2013', available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32013R0811.

The most recent working document, setting out proposals from the EU Commission to update to their 813/2013 legislation, available at: https://www.tzb-info.cz/docu/clanky/0251/025188_space-heaters-ed-27032023.pdf.

An overview of the Boiler Upgrade Scheme, and information about eligibility and how to apply is available at: https://www.gov.uk/apply-boiler-upgrade-scheme.

DESNZ (2023), 'Home Energy Model: Future Homes Standard assessment', Table 8 https://www.gov.uk/government/consultations/home-energy-model-future-homes-standard-assessment.

'Directive (EU) 2023/1791 of the European Parliament and of the Council of 13 September 2023 on energy efficiency and amending Regulation (EU) 2023/955', Article 31, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ%3AJOL_2023_231_R_0001&qid=1695186598766.

DESNZ (2021), 'Energy-related products policy framework', https://www.gov.uk/government/publications/energy-related-products-policy-framework.

'Directive (EU) 2024/573 of the European Parliament and of the Council of 7 February 2024 on fluorinated greenhouse gases, amending Directive (EU) 2019/1937 and repealing Regulation (EU) No 517/2014', available at: http://data.europa.eu/eli/reg/2024/573/oj.

BSI (2022) 'BS EN 14825:2022: British Standards for air conditioners, liquid chilling packages and heat pumps, with electrically driven compressors, for space heating and cooling, commercial and process cooling. Testing and rating at part load conditions and calculation of seasonal performance', https://knowledge.bsigroup.com/products/air-conditioners-liquid-chilling-packages-and-heat-pumps-with-electrically-driven-compressors-for-space-heating-and-cooling-commercial-and-process-cooling-testing-and-rating-at-part-load-conditions-and-calculation-of-seasonal-performance?version=standard.

'Commission Regulation (EU) No 814/2013', available at: https://www.legislation.gov.uk/eur/2013/814.

'Commission Delegated Regulation (EU) No 812/2013', available at: https://www.legislation.gov.uk/eur/2013/812.

British Standards Institute (2023), 'BS EN 15502-2-3:2023: Gas-fired central heating boilers - Specific standard for hybrid units combining a gas-fired boiler and an electrical heat pump in a product' https://knowledge.bsigroup.com/products/gas-fired-central-heating-boilers-specific-standard-for-hybrid-units-combining-a-gas-fired-boiler-and-an-electrical-heat-pump-in-a-product?version=standard.

BEIS (2018), 'Boiler Plus: New Standards for domestic boiler installations from April 2018', https://assets.publishing.service.gov.uk/media/5b2cc1e2ed915d586e2d8fe9/Boiler_Plus_Factsheet_v3.pdf.

MHCLG and DLUHC (2021), 'Conservation of fuel and power: Approved Document L', https://www.gov.uk/government/publications/conservation-of-fuel-and-power-approved-document-l#full-publication-update-history.

BSRIA (2024) UK Domestic Boilers Report 105841/62 (Excel data)

'Help for Households: Make Summer Savings', available at: https://helpforhouseholds.campaign.gov.uk/summer-savings/.

DESNZ (2017) 'BRE Client Report: Evidence Gathering - Compensation and TPI Heating Controls', https://assets.publishing.service.gov.uk/media/5a81f66ced915d74e62350ca/heating-controls-compensation-tpi-bre.pdf.

EU Guidelines accompanying Regulations (EU) No 811/2013 & 812/2013 and Regulations (EU) No 813 & 814/2013 and Regulations (EU) 2015/1187 & 1189, available at: https://energy.ec.europa.eu/document/download/c61475ba-4419-4ed9-9e00-033b6a926c55_en?filename=GuidelinesSpaceWaterHeaters_FINAL.pdf.

'Regulation (EU) 2023/2533 implementing Directive 2009/125/EC with regard to ecodesign requirements for household tumble dryers', available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32023R2533.

'Regulation (EU) 2017/1369 of the European Parliament and of the Council', available at: https://www.legislation.gov.uk/eur/2017/1369.

DEFRA (2023), 'The role of ecolabelling in the path to net zero: Evidence review and Theory of Change', https://sciencesearch.defra.gov.uk/ProjectDetails?ProjectId=21231.

European Commission (2024), 'Commission clarifies rules for energy labelling in visual advertising following Court ruling', https://energy.ec.europa.eu/news/commission-clarifies-rules-energy-labelling-visual-advertising-following-court-ruling-2024-07-15_en.

This consultation is available from: www.gov.uk/government/consultations/raising-product-standards-for-space-heating

If you need a version of this document in a more accessible format, please email alt.formats@energysecurity.gov.uk. Please tell us what format you need. It will help us if you say what assistive technology you use.