New Build Heat Standard Consultation: Part II

Scottish Government
Riaghaltas na h-Alba
gov.scot

Contents

Executive Summary

To meet our statutory climate change targets[1], we must ensure that all buildings are green and fit for the long term in our zero emissions future. Heat decarbonisation is a significant lever in achieving this. **New buildings can, and will, lead the way in Scotland**.

This consultation paper builds on the 2020-21 New Build Heat Standard (NBHS) Scoping Consultation[2] (*NBHS Consultation: Part I*) by setting out how the Scottish Government intends to regulate to prohibit the use of direct emissions heating (DEH) systems in new buildings from 2024 onwards. A DEH system is one which produces greenhouse gas emissions at the point of use[3].

The Scottish Government is seeking your views on the key areas relating to these proposals, which will help to ensure that the regulations enforced from 2024 onwards are achievable and effective.

Our proposals to develop the NBHS have coincided with the recent conclusion of the Building Standards Energy Review[4]. The improved energy efficiency standards for new buildings, set under the revised building regulations, will pave the way for the implementation of the NBHS in 2024.

Key proposals

- ✓ From 1 April 2024, new buildings applying for a building warrant will be prohibited from using direct emissions heating systems to meet their space and hot water heating and cooling demand.
- ✓ Instead, the use of zero direct emissions heating (ZDEH) technologies will be required.
- ✓ This will mean an increase in the deployment of ZDEH systems, such as heat pumps and heat networks, in new buildings across Scotland.
- ✗ Bioenergy is not considered to be a ZDEH technology.

This will apply to:

- both new domestic and non-domestic buildings, as well as the conversion of existing buildings.
- any installed heating system within the curtilage of the building (both main and any other fixed heating system).

1 Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 (legislation.gov.uk)
2 New Build Heat Standard: scoping consultation - gov.scot (www.gov.scot)
3 As defined within The Building (Scotland) Amendment Regulations 2022 (legislation.gov.uk)
4 Scottish Building Regulations: Proposed changes to Energy Standards and associated topics, including Ventilation, Overheating and Electric Vehicle Charging Infrastructure - Scottish Government - Citizen Space (consult.gov.scot)

Introduction

Background

The Scottish Government is legally committed to meeting the targets set out within the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019. This includes reducing emissions by 75% by 2030 and reaching net zero by 2045.

We are facing a global climate emergency, and the recent United Nations Climate Change Conference (COP26) in Glasgow provided a strong message to governments: that they must accelerate their heat decarbonisation plans (as part of a wider effort) to reduce emissions before the window of opportunity for change closes.

As the First Minister set out earlier this year at the annual All-Energy Conference in Glasgow, we must not lose sight of the underlying importance – and urgency – of the climate change emergency as the key driver for our just transition towards a decarbonised energy system.

With Scotland's buildings accounting for approximately 20% of our total greenhouse gas emissions, both the Heat in Buildings Strategy[5] and the 2020-21 New Build Heat Standard (NBHS) Scoping Consultation (*NBHS Consultation: Part I*) emphasised the urgent need to tackle the emissions associated with our buildings to ensure Scotland achieves our climate change targets.

To help achieve this, **the Scottish Government is proposing to prohibit the use of direct emissions heating systems (DEH) in any new building applying for a building warrant from 1 April 2024 onwards.**

Following the Programme for Government (PfG) commitment in 2019-20[6] to decarbonise Scotland's new buildings, many forerunner housing associations and developers have already embraced the shift away from DEH systems, and are now delivering buildings served by zero direct emissions heating (ZDEH) systems across the country.

As set out within *NBHS Consultation: Part I*, taking action on new buildings now will not only help Scotland achieve our statutory climate change targets, but it will also help to prevent the need for retrofit (post-2024) as all buildings – eventually - transition away from DEH systems.

5 Heat in Buildings Strategy - achieving net zero emissions in Scotland's buildings - gov.scot (www.gov.scot)
6 Protecting Scotland's Future: the Government's Programme for Scotland 2019-2020 - gov.scot (www.gov.scot)

Purpose

The *NBHS Consultation: Part I* set out our intention to develop regulations which would require new homes and non-domestic buildings – as well as conversions to existing buildings – consented from 2024 onwards to meet their space and hot water heating/cooling demand through systems which produce no direct greenhouse gas emissions at point of use.

The Part I consultation was a high-level precursor to this consultation document: it was an opportunity for the Scottish Government to make clear our ambitions and to give industry, developers, local authorities, housing associations, and other affected groups a strong signal of what to expect ahead of 2024.

Independent analysis of the responses received to the *NBHS Consultation: Part I* found them to be predominately supportive of the Scottish Government's intention to regulate the direct greenhouse gas emissions associated with heating and cooling new buildings[7].

The NBHS proposals have continued to evolve, based on feedback received from the *NBHS Consultation: Part I*, engagement with stakeholders (both formally – as part of our external working group and online workshops – and informally), through evidence-gathering exercises and independent research, altogether reflecting the wider-evolving policy context for Heat in Buildings in Scotland and beyond.

Building on this work and ahead of laying regulations in Parliament in 2023 – **to come into force on 1 April 2024** – the Scottish Government is now undertaking *NBHS Consultation: Part II*, as committed to within the Part I consultation.

This is a further opportunity for stakeholders to input into the final development of the NBHS, and this consultation sets out how we intend to regulate to prohibit the use of DEH systems in new domestic and non-domestic buildings applying for a building warrant from 1 April 2024 onwards.

This paper also provides a concise summary response to *NBHS Consultation: Part I*, outlining the key actions the Scottish Government has taken to date, and what actions we plan to take to ensure the transition to ZDEH in new buildings is one which is fair, just, and leaves no one – or any business – behind.

7 New Build Heat Standard - scoping consultation: analysis - gov.scot (www.gov.scot)

Approach to Public Engagement

Regulations – such as those set out in this consultation – form a central part of the net zero heating pathway. However, recent research at a UK-level shows that levels of general understanding of the link between DEH systems (in this example, gas central heating) and climate change is only around 50%[8]; and that, in Scotland, only around half of people have heard of key non-DEH systems, such as heat pumps[9].

This evidence highlights that **proposed regulations must be accompanied by significant awareness raising**, to ensure that the public understand why the heat transition – and levers such as the NBHS – are necessary, and what this may mean for them.

That is why, as committed to within our Heat in Buildings Strategy, work is now underway to **develop a new Heat in Buildings Public Engagement Strategy**, to be published in early 2023. This strategy will build on the principles set out in our broader approach to public engagement on climate change that we published last year.

Key to the Pubic Engagement Strategy will be:

- **increasing understanding of the changes we need to see** in how we heat our homes and buildings, and why;
- **raising the profile of energy efficiency and zero direct emissions heating options** so that people are aware of the benefits and begin to see them as a positive choice for them; and
- **raising awareness of the support and advisory services available** to maximise uptake of the support available.

We will use the strategy to set out a framework for public engagement, including public participation in policy and support programme design, ensuring the needs of different (domestic and non-domestic) groups are considered. This reflects our commitment to supporting a **just and fair transition**.

Following the analysis of responses received to the *NBHS Consultation: Part I*, we recognise that there is a need for leadership and co-ordination to support the acceleration of heat decarbonisation in Scotland. This is why we have committed to establishing a dedicated **National Public Energy Agency** by 2025 to provide this role, with an in-house virtual Agency to be established by September 2022.

As part of the work of the virtual Agency, this year, we will launch a **national conversation and campaign** on the transformational change in how we heat and use energy in our homes and buildings.

Working with partner organisations, we will use these complementary activities to increase awareness of the heat transition with different consumer groups, building readiness for change amongst a wide cross-section of society ahead of the introduction of proposed regulations set out as part of our Heat in Buildings Strategy (the NBHS being one part of this regulatory package).

8 Understanding Net Zero: A Consumer Perspective - Energy Systems Catapult
9 Heat pump awareness in Scotland report

Chapter Summary

1. **Chapter 1:** provides a timeline of key dates for NBHS between now and 2024.
2. **Chapter 2:** sets out proposals for regulating direct emissions heating and cooling within new homes, and how this will be achieved in practice.
3. **Chapter 3:** a summary of the key considerations for regulating heat within new commercial and non-domestic buildings.
4. **Chapter 4:** an overview of the Scottish Government's response to key issues raised by *NBHS Consultation: Part I*.

1. Timeline

Pathway to 2024

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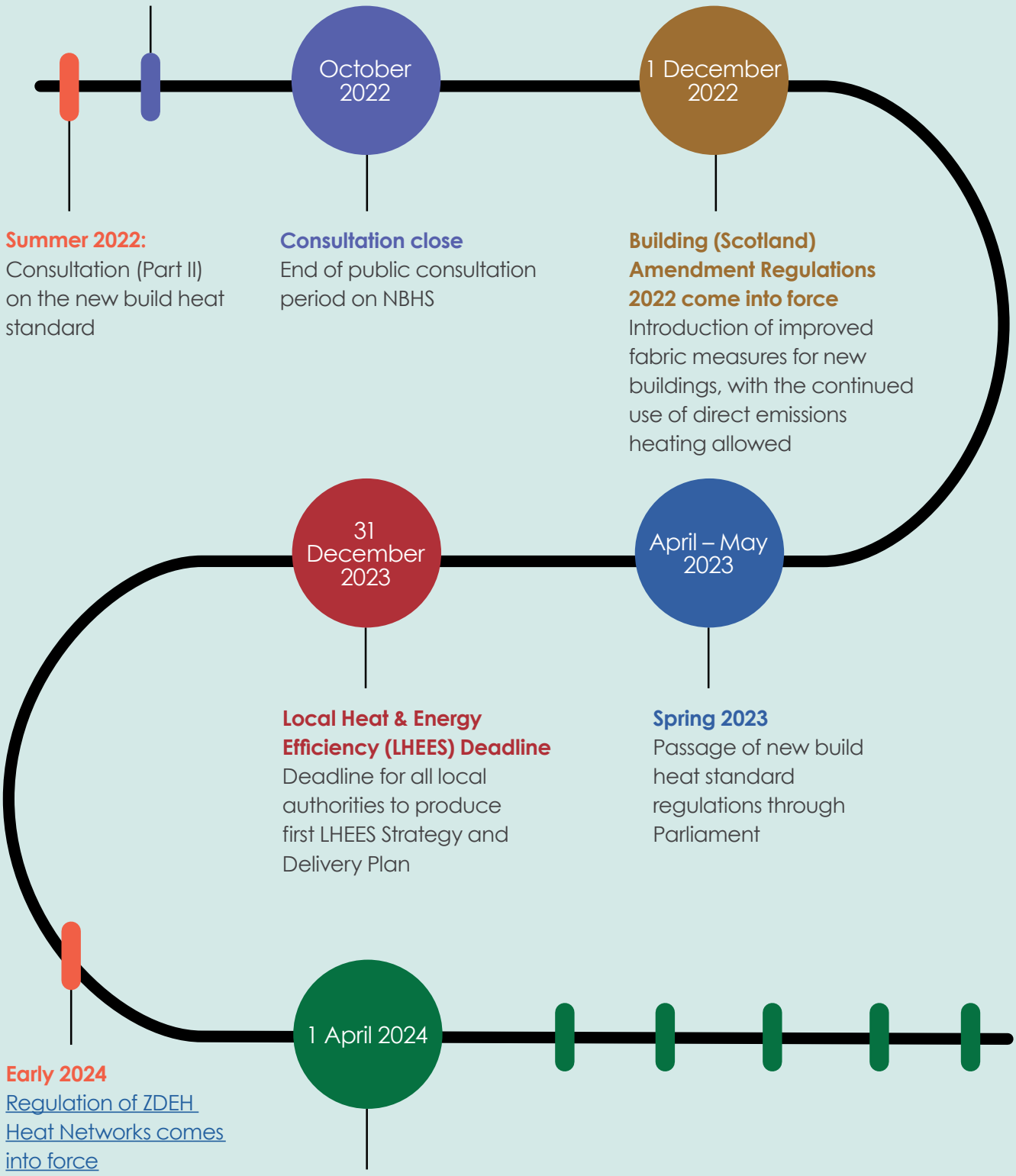


2. Regulatory Proposals

2.1 Prohibition of Direct Emissions Heating Systems in New Domestic Buildings

2.1.1 Background

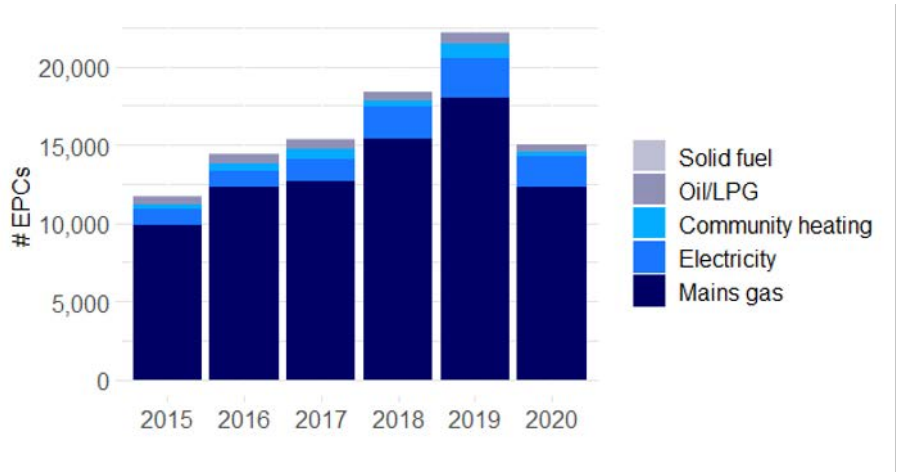
As was made clear within the *NBHS Consultation: Part I*, we cannot meet our legislated climate change targets unless the greenhouse gas emissions produced from heating (and cooling) our homes are eliminated.

The continued deployment of DEH systems is not compatible with Scotland's net zero targets and, as set out within section 2.2 of this document, there are a number of readily available technologies already in use across Scotland which can deliver the requirements of a zero direct greenhouse gas emissions standard.

Welcome progress has been made in decarbonising our building stock (both new and existing). However, as noted earlier within this document, direct emissions from buildings still account for almost 20% of Scotland's total greenhouse gas emissions[10].

To illustrate the need for regulation: analysis of the Energy Performance Certificate (EPC) register[11] for all new build homes completed in the 12-month period to end 2020 shows that over 80% of new properties were served by mains gas fired boilers as their main heating system, with a further 3% using heating oil and LPG. Only around 10% were served by non-DEH systems.

Diagram 1: New build EPCs by primary fuel type, 2015-20



10 Progress reducing emissions in Scotland - 2021 Report to Parliament - Climate Change Committee (theccc.org.uk)
11 Data Extracts (scottishepcregister.org.uk)

Therefore, a 'business as usual' approach is no longer viable. This was recognised by the UK Government during the development of the Future Homes Standard (FHS)[12]. The impact assessment[13] for the FHS identified numerous market failures preventing a successful transition away from the use of DEH systems in homes. Intervention is, therefore, necessary to stimulate the use of ZDEH systems.

Within the Future Homes Standard impact assessment, it was noted that '*building regulations and standards are widely recognised as an appropriate point of intervention to overcome these market failures in construction*'.

2.1.2 Proposed Approach

The Scottish Government agrees that intervention is necessary and, therefore, it is our intention to use existing powers under the Buildings (Scotland) Act 2003[14] and regulate to **prohibit direct emissions heating (DEH) systems being installed in new buildings applying for a building warrant from 1 April 2024.**

This will be achieved through amendments to the Building (Scotland) Regulations 2004[15].

By prohibiting the use of DEH systems through building regulations, this ensures simplicity in how the NBHS is implemented and offers a straightforward mechanism to ensure compliance.

It is proposed that the NBHS will be monitored and enforced through the building warrant process – ensuring consistency with practices already familiar to developers.

This is consistent with the feedback received to the *NBHS Consultation: Part I*, where a majority of respondents were in favour of **creating an easily understood and enforceable standard for new buildings that stipulates permissible heating systems.**

2.1.3 Defining Direct Emissions Heating

As set out within the Building (Scotland) Amendment Regulations 2022[16]: **a 'direct emission heating system', in relation to a building, means a system (other than a heat network[17]) by which the building is heated or is cooled, or by which hot water is made available in the building, which uses thermal energy produced by a source of production that:**

a) is located within the building, or the curtilage of the building, and

b) during normal operation produces greenhouse gas emissions[18] at the point of production of that thermal energy.

12 The Future Homes Standard: changes to Part L and Part F of the Building Regulations for new dwellings - GOV.UK (www.gov.uk)
13 Future Homes Standard Consultation Impact Assessment
14 Building (Scotland) Act 2003 (legislation.gov.uk)
15 The Building (Scotland) Regulations 2004 (legislation.gov.uk)
16 The Building (Scotland) Amendment Regulations 2022 (legislation.gov.uk)
17 As per the definition in the Heat Networks (Scotland) Act 2021, which includes communal heating.
18 References to greenhouse gases are the same as those defined in Section 10 of the Climate Change (Scotland) Act 2009

In practice this means that, from 1 April 2024, new buildings applying for a building warrant in Scotland – which are not served by a heat network – must meet their space heating, cooling and hot water demand by using systems that produce zero direct greenhouse gas emissions at the point of use during normal operation where the system(s) is located within the building or curtilage of the building.

2.1.4 Focus on Direct Emissions

We propose that the focus of the NBHS will be to regulate direct emissions produced at the point of use. As set out within *NBHS Consultation: Part I*, this will mean that:

- Any indirect or upstream greenhouse gas emissions that are produced during the generation or distribution of purchased thermal or electrical energy – which is delivered via a heat network or heat produced from grid electricity – would be considered out of scope.

This ensures that wider energy-system decarbonisation is correctly-assigned to the appropriate actors, who have the capability and responsibility to take action[19].

The Part I consultation asked:

- **Do you agree with approach taken to focus only on direct/point-of-use emissions that a building owner has responsibility over?**

The analysis of responses to this question in the *NBHS Consultation: Part I* found that 68% of respondents were in agreement, therefore, **this approach has not changed.**

2.1.5 Interaction with the Building Standards Energy Review

Following the Energy Review consultation in 2021, amended standards for new buildings – which will apply to all building warrants applied for on or after 1 December 2022 – were published in June 2022[20].

As well as setting improved standards for energy efficiency, the 2022 building regulations already set out provisions intended to support the implementation of the NBHS:

- NBHS will require that all new wet heating systems are designed to operate at lower temperatures, to be compatible with efficient use of non-DEH solutions (such as heat pumps and heat networks).
- The approach to connecting new buildings to heat networks has also been simplified by putting a focus on the performance of the building itself, as opposed to the network which serves it.
- New buildings constructed without DEH systems will be exempt from the need to demonstrate compliance with a Target Emissions Rate (TER) in respect of Standard 6.1[21] of Scottish building regulations, but will still require to meet the new delivered energy target.

19 Any 'indirect' emissions previously attributed within the TER calculation, such as carbon factors associated with grid electricity or heat networks, will no longer be within the scope of the regulations as these indirect emissions are regulated by other regimes such as The Greenhouse Gas Emissions Trading Scheme Order 2020 (legislation.gov.uk) and the Heat Networks (Scotland) 2021.

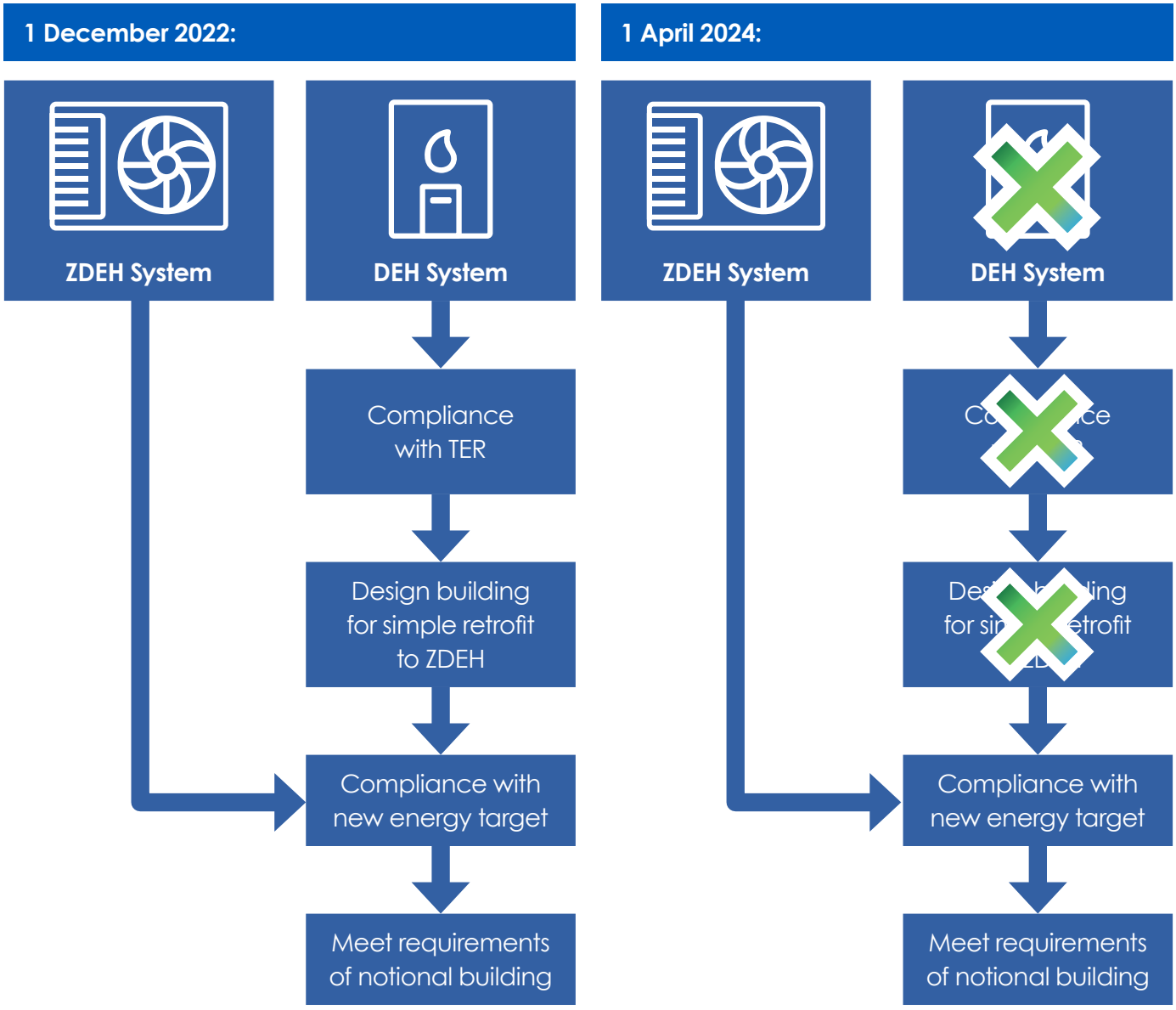
20 Building regulations - Building standards - gov.scot (www.gov.scot)

21 6.1 Carbon dioxide emissions - Building standards technical handbook 2020: non-domestic - gov.scot (www.gov.scot)

- New buildings constructed with DEH systems will be required to show they are designed to enable simple retrofit to a non-direct emissions heat solution.

As a result, from 1 April 2024, new buildings will only need to achieve compliance with a delivered energy target[22], which is set using the 'notional building' approach familiar to developers. This is illustrated below:

DEH v ZDEH



22 The new energy target will be defined in terms of delivered energy, and will complement the implementation of the NBHS: ensuring the focus is on energy consumption – not the production of greenhouse gas emissions (which will no longer be necessary in a ZDEH future).

2.1.6 Interaction with Future Reform of EPCs

For new buildings post 1 April 2024, an EPC will be required upon completion as is the case now[23].

For wider awareness, EPCs are being reformed.

To ensure EPCs align with our net-zero targets, and provide relevant information for our heating and energy efficiency standards (including for new builds), EPCs will be reformed to indicate whether or not the heat source(s) installed at a dwelling is ZDEH-compliant.

The initial proposals were consulted on in July 2021[24] and a response to this consultation will be published this year.

Consultation Question: Approach to Regulation

1. **Do you agree with the approach set out in 2.1 to regulate direct emissions heating(DEH) systems in new buildings?**

2. **Do you envisage any unintended consequences as a result of this approach? Please provide reasons for your answer.**

23 This is a requirement under the Energy Performance of Building (Scotland) Regulations 2008
24 Domestic Energy Performance Certificates (EPC) reform: consultation - gov.scot (www.gov.scot)

2.2 Technologies

The NBHS will remain technology-agnostic, as proposed in the *Part I* consultation.

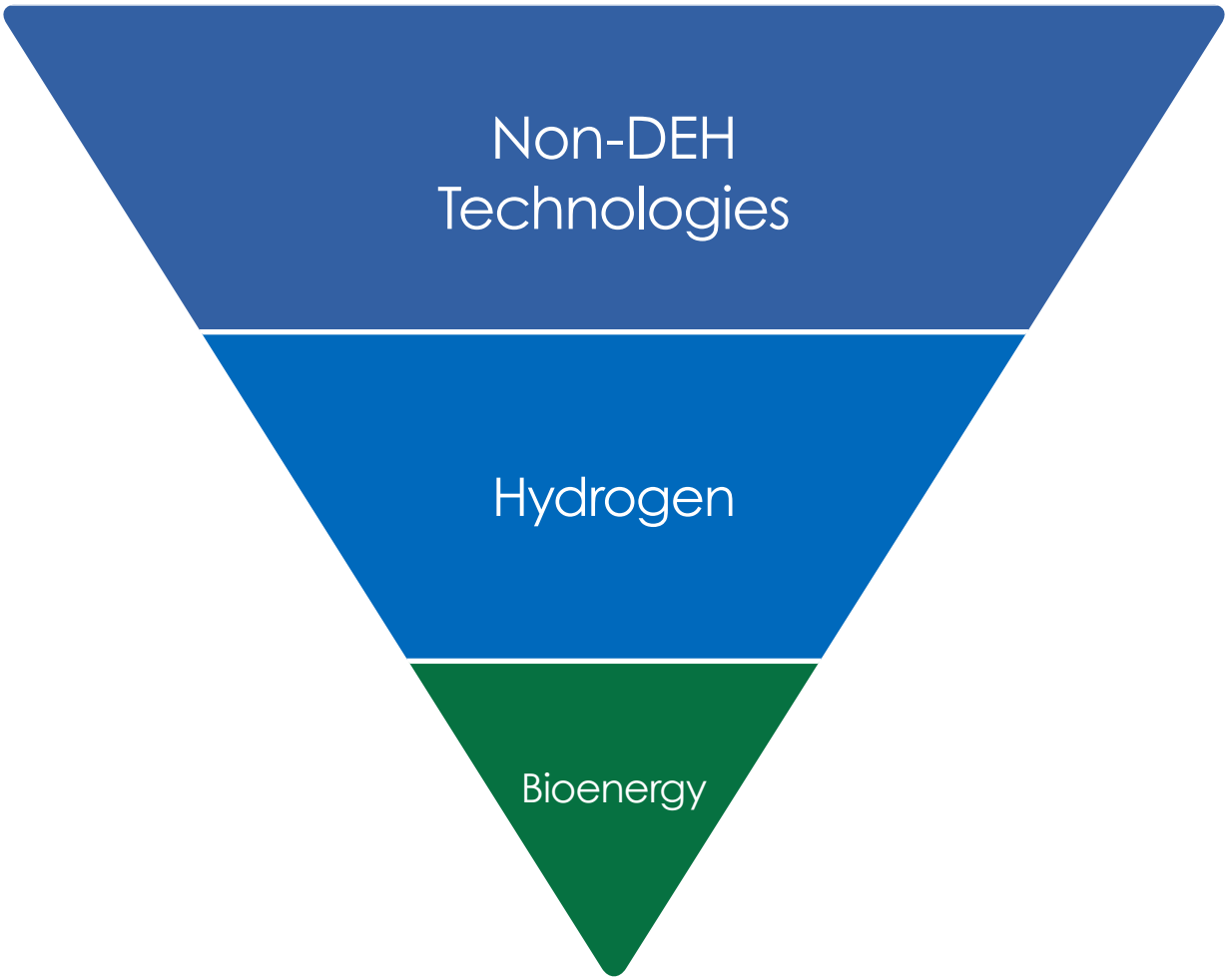
Feedback received to the *Part I* called for '*a technology-agnostic approach which would allow for a range of different technologies to be considered in order to meet different needs*'. Being technology-neutral ensures that newly developing ZDEH technologies would not be prohibited in future.

To identify existing and emerging technologies that could be compliant with the NBHS, the Scottish Government commissioned independent research, which was undertaken by ClimateXChange (CXC).

This research considered the direct greenhouse gas emissions associated with the most common and readily available zero and low carbon heating technologies (research available here).

The research split these technologies into the following three categories:

Non-DEH Technologies, Hydrogen and Bioenergy Pyramid

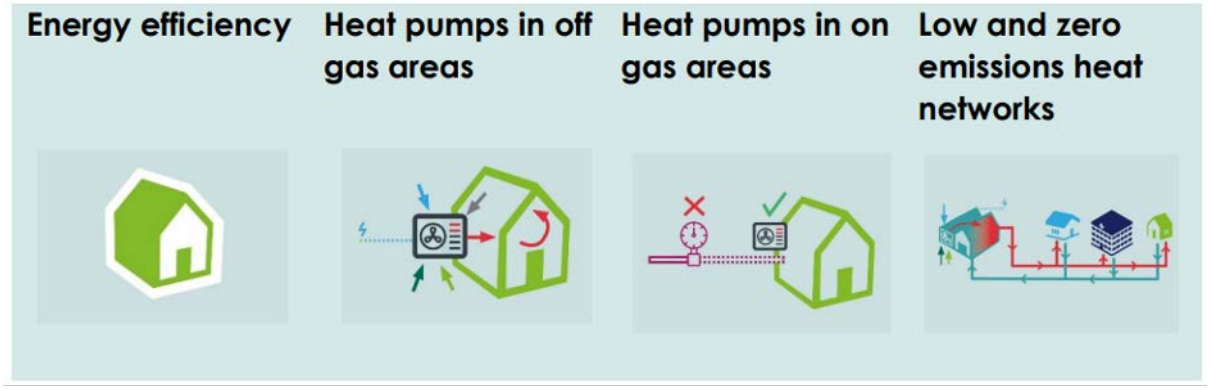


2.2.1 Non-DEH Technologies

The research confirmed that the following technologies produce no direct, in-building greenhouse emissions from normal operation at point of use – and would, therefore, **be compliant with the NBHS:**

- ✓ heat pumps[25];
- ✓ heat networks;
- ✓ solar thermal and solar thermal storage systems;
- ✓ electric storage heaters;
- ✓ electric boilers;
- ✓ fuel cells; and
- ✓ direct electric heaters (including electric panel heaters, electric fan heaters, thermal fluid-filled radiators, and electric radiant heaters).

As set out within our Heat in Buildings Strategy, heat pumps and heat networks are the two technologies (other than improvements to the energy efficiency of buildings) which have been identified as being no/low-regret options for existing buildings:



The Scottish Government proposes that this principle is also considered for new buildings: meaning that, while there will be flexibility in how compliance with the NBHS can be achieved, there should be a focus on the deployment of technologies which are considered to be 'no or low regrets'.

25 The release of potent greenhouse gases by heat pumps (HFCs) are prohibited by separate regulation that meets our obligations under the UN Montreal Protocol. The Ozone-Depleting Substances and Fluorinated Greenhouse Gases (Amendment etc.) (EU Exit) Regulations 2019. In the absence of evidence of leakage of HFCs during normal operation of the heat pump, these regulations consider them to be ZDEH-compliant.

2.2.2 Hydrogen

With regards to direct emissions, the findings of the research were inconclusive for 100% hydrogen due to a lack of available real-life data.

The Scottish Government is seeking to clarify this and will commission independent laboratory testing of hydrogen appliances to determine what, if any, greenhouse gas emissions are produced from the combustion of 100% pure hydrogen (under normal operating conditions).

Once the testing has concluded, we will set out our position on the use of 100% hydrogen for space and hot water heating in new buildings.

2.2.3 Bioenergy

The research, which had a biomass focus, found that combustion of this fuel is associated with direct emissions of carbon dioxide (CO2), methane (CH4) and nitrous oxide (N2O).

With the focus of the NBHS being on direct emissions, this means that **bioenergy systems would not be considered to be compliant with the regulations** (in relation to both new domestic and non-domestic buildings).

This stance is aligned with that set out within our Heat in Buildings Strategy, where the Scottish Government made clear our agreement with the Committee on Climate Change (CCC) recommendation[26] that bioenergy does not have a significant long-term role in providing heat in buildings as it emits greenhouse gases at point of use.

Furthermore, at any one time there is only a finite amount of sustainable bioresource available and there are a number of potentially competing demands for its use[27]. **We must consider how it should be prioritised for the most appropriate use in the wider economy.**

Our approach is to see bioenergy used where it has the greatest value in reducing emissions, and where the value of wasted bioresources can be harnessed efficiently – therefore, **we have established a Bioenergy Policy Working Group which will consider these issues before publishing a Bioenergy Action Plan in 2023**.

2.2.4 Wider Considerations for Technology Choice: Heat Networks

As noted, the NBHS will not mandate the use of any specific non-DEH technologies. However, **developers should be aware of heat network zones, existing or permitted heat networks, and local heat and energy efficiency strategy (LHEES) plans when designing new developments.**

The *NBHS Consultation: Part I* responses indicated broad support for new buildings being required to be designed in such a way as to enable a connection to any existing heat network, where that development is in a designated heat network zone[28] or where there is a heat network zone permit.

26 Biomass in a low-carbon economy - Climate Change Committee (theccc.org.uk)
27 Comparing Scottish bioenergy supply and demand in the context of Net-Zero target project
28 The Heat Networks (Scotland) Act 2021 gives both local authorities and Scottish Ministers the authority to 'designate an area in its area that is particularly suitable for the construction and operation of a heat network'.

As set out in the Heat Networks Delivery Plan[29] in more detail, subject to devolved competence, we will consult on proposals to address the issue of demand assurance. In doing so, we will consider the UK Government's proposals to mandate connection to heat networks in England.

The Decarbonisation of Heat Networks

The Heat Networks (Scotland) Act will see the introduction of the licensing of heat networks as part of a wider regulatory regime, which the Scottish Government aims to have in place by early 2024. The licensing regime will require existing networks (in existence prior to the licensing regime) to transition to zero emission heat sources. Details on the Heat Network Decarbonisation Plans, which we propose that licence holders who operate existing networks in Scotland will be required to prepare and then implement, are provided in the Heat Networks Delivery Plan and will be built on in a subsequent consultation relating to the heat networks regulatory regime.

From early 2024, the legislative framework will require that new heat networks, and extensions of existing networks, are powered using low and zero emissions heat sources. Heat from sources such as surplus or waste heat, electric heat pumps, solar thermal or plant using green hydrogen would be considered low and zero emissions.

The Scottish Government also recognises that, in the near term, a small percentage of annual heat provided through some new networks may need to be sourced from natural gas for the purposes of peaking and backup, while the vast majority of heat provided by those networks will be using low and zero emissions heat sources. The exact percentage will be determined on a case-by-case basis and the need for heat from natural gas will have to be evidenced, while showing other options have been explored. Such new networks will be required to have a plan as to how that percentage is expected to reduce over time, with significant progress made by a set year: for example, by 2035.

With the successful passage of the Heat Networks (Scotland) Act, the Scottish Government has published the First Nationwide Assessment of Potential Heat Network Zones (FNA)[30], which has taken the first steps to identify potential heat network zones across Scotland, where heat networks can be considered a suitable long-term solution[31].

29 Heat networks delivery plan - gov.scot (www.gov.scot)

30 Potential heat network zones: first national assessment (www.gov.scot)

31 As set out in the Heat Networks Delivery Plan, during 2022 we will develop and consult on further guidance for the designation of heat network zones, building on any Local Heat and Energy Efficiency Strategies (LHEES) guidance with the aim of introducing any secondary regulations required on zoning in early 2023. By early 2024, subject to public consultation, we aim to put in place a functioning regulatory system for heat networks.

2.2.5 Wider Considerations for Technology Choice: Local Heat and Energy Efficiency Strategies (LHEES)

LHEES[32] aim to establish local authority area-wide plans and priorities for systematically improving the energy efficiency of buildings, and decarbonising heat. The Scottish Government has suggested that LHEES adopt a local authority area-wide approach and cover a long-term period (15-20 years).

In line with the goals of Energy Efficient Scotland, LHEES should reflect and support local and national policies, frameworks, strategies and targets, and identify opportunities for energy efficiency improvements and heat decarbonisation.

The first LHEES are due to be finalised by the end of 2023 and will identify key areas in the local authority for heat decarbonisation.

Consultation Questions: Technologies

3. **Are there any limited, specific situations where the use of bioenergy[33] systems would be required in new buildings?**

4. **If 'Yes', what do you believe the criteria should be for introducing such an exemption? Please provide evidence to support your answer.**

32 Local Heat and Energy Efficiency Strategies (LHEES): phase 2 pilots evaluation - gov.scot (www.gov.scot)
33 In any circumstance, this would be expected to meet the EU rules on sustainable biomass.

2.3 Approach to Conversions

Scottish building regulations define situations where the change to the occupation or use of a building cause building regulations to apply. These changes are defined as a 'conversion'.

The subject of a conversion, and any work needed to support the change in occupation and use, is subject to the building regulations in force at the time the conversion is proposed. A building warrant must be obtained for a conversion before undertaking such work.

There are 10 categories of change which constitute a defined conversion. These are set out in Schedule 2 to Regulation 4[34] of the building regulations. The same information on conversions can be found in section 0 (general) of the Domestic and Non-Domestic Technical Handbooks.

Within the *NBHS Consultation: Part I*, the Scottish Government proposed that the NBHS would cover both (a) any property built for the first time and (b) any property created by the conversion of an existing building.

While our Heat in Buildings Strategy outlines Scottish Government plans for decarbonising all buildings from 2025 (both newly constructed and existing ones whether there is a conversion or not)[35], we recognise that, at this stage, more significant changes to buildings should be treated differently to minor works.

To balance these objectives, we propose that conversions would be prohibited from installing a DEH system where the work to be undertaken would already require the installation of a new heat generating system.

Including conversions with a specified criteria ensures that we utilise the opportunity presented by disruptive works to install ZDEH systems, while balancing this with not unduly burdening minor conversions.

We propose that the NBHS will apply to conversions as defined within Schedule 2 to Regulation 4 of the Building (Scotland) Regulations) 2004. However, the regulations would only apply where:

a) heating is introduced to the building for the first time; or

b) an existing heat generator is located within a part of the building which is the subject of the conversion.

Further advice will be provided on the circumstances where it may be shown that replacement of the heat generator is not 'reasonably practicable'[36].

34 0.4 Changes in the occupation or use of a building that cause the regulations to apply - Building standards technical handbook 2019: domestic - gov.scot (www.gov.scot)

35 As set out in our Heat in Buildings Strategy, the Scottish Government is committed to introducing regulations which will prohibit the use of DEH systems in all homes by 2045. It is proposed that these regulations will apply at certain trigger points (with point of sale being considered), with a backstop of 2045 for all remaining homes. The Scottish Government will consult on these proposals in the forthcoming year, and will subsequently introduce primary legislation that will provide the regulatory framework to achieve this. Any new building warranted after 1 April 2024 will automatically be assumed to meet standards for existing buildings.

36 At present, a conversion is required to meet current building standards, either in full or as far as is reasonably practicable. Schedule 6 to Regulation 12 of the building regulation sets out which standards must be met in full and which may be met as far as is reasonably practicable.

Consultation Question: Conversions

5. **Do you agree with the proposed approach to conversions as set out in section 2.3?**

6. **Do you envisage any unintended consequences as a result of this? Please provide reasons for your answer.**

7. **What criteria would you use to define the replacement of a direct emissions heating (DEH) system as being 'reasonably practicable'?**

8. **What criteria would you use to define it as being 'not reasonably practicable'?**

2.4 Ensuring Equality

In continuing to develop the NBHS, we are mindful of the three needs[37] of the Public Sector Equality Duty (PSED) as set out in section 149 of the Equality Act 2010[38].

Therefore, given the importance of assessing the impact on each of the protected characteristics listed in the Act (sex, age, disability, race, sexual orientation, gender reassignment, religion and belief, pregnancy and maternity, and marriage/civil partnership), the Scottish Government wishes to consider:

- how the NBHS may affect people with one or more of the protected characteristics;
- whether these proposals could constitute direct and/or indirect discrimination;
- how these proposals might advance equality of opportunity; and
- how they might foster good relations persons who share a protected characteristic (and those who do not).

Consultation Questions: Equality

9. **How might these proposals impact upon people with one or more of the protected characteristics listed in the Equality Act 2010 (for example: a positive, negative or neutral impact)?**

10. **How might these proposals help the Scottish Government ensure due regard of the three needs of the public sector equality duty (PSED)?**

37 The need to: eliminate discrimination, harassment and victimisation; advance equality of opportunity; and to foster good relations between persons who share a protected characteristic (and those who do not).

38 Equality Act 2010 (legislation.gov.uk)

3. Non-Domestic Buildings

3.1 Approach to New Non-Domestic Buildings

NBHS Consultation: Part I focused on domestic new build, but stated that the Scottish Government was considering phasing in the NBHS for non-domestic buildings too.

Scotland's non-domestic building stock is diverse, ranging from the service sector to industrial facilities, using heat for a variety of purposes including space heating, hot water, drying, electricity generation, cooking, manufacturing and industrial processes.

Consequently, there is a wide range of different space and hot water heat and cooling demand profiles (such as grade of heat, time, and reliability).

The Heat in Building Strategy is focused on decarbonising the space and hot water demand from buildings, and **the NBHS applies to space and hot water heating and cooling only.**

No feedback was received to the Part 1 consultation on the need for phasing the NBHS according to sector for non-domestic buildings. Therefore, the final Heat in Buildings Strategy and Bute House Agreement[39] both set out the intention that **the NBHS will be introduced for all non-domestic buildings applying for a building warrant from 2024.**

Therefore, we intend to proceed with introducing the NBHS as set out in the previous chapter, **prohibiting DEH for space heating and hot water demand in all new non-domestic buildings from the same date as for domestic buildings.**

As for domestic new build, DEH will be defined as heating and cooling systems generating direct greenhouse gas emissions at the point of use – and, therefore, will include combustion of bioenergy (except where this serves a heat network as defined under the Heat Networks (Scotland) Act).

Given the complexity of non-domestic new builds, we are using this consultation as a final opportunity to seek specific evidence on whether there are any issues with this approach. **If there is compelling evidence presented, we will consult further on exemptions for non-domestic NBHS later this year.**

Consultation Questions: Non-Domestic

11. **Do you anticipate any form of heating within a non-domestic building which will require DEH after 2024? Please provide details of the factors – whether technical, economic or social – which would require DEH after 2024?**

39 Scottish Government and Scottish Green Party: draft shared policy programme - gov.scot (www.gov.scot)

4. NBHS Part I Consultation Feedback

4.1 Introduction

This chapter sets out the Scottish Government's response to the *NBHS Consultation: Part I* analysis, and the steps either taken or planned by the Scottish Government to address the key issues identified.

4.2 Energy Networks

While the proposals set out in this consultation paper are, and will continue to be, technology-agnostic, the Scottish Government does understand that the move away from DEH will – most likely – result in a shift towards a greater electrification of heat. This was also recognised within *NBHS Consultation: Part I,* where respondents were asked: **what are the key challenges for the energy networks regarding the deployment of zero emissions heating in new developments? How could this sector be supported to address those challenges?**

The NBHS Consultation: Part I analysis key findings were as follows.

- Concerns were noted over the likely **additional demand on the electrical network and a lack of grid capacity** to deal with the changes in heating systems being proposed.
- Similar to this, there were concerns over the **cost of changes** that would be needed for the grid infrastructure.

In an effort to address this, we have:

✓ worked closely with Scottish network companies to support successful bids to the Ofgem green recovery funding. To date, **over £40 million** of this fund has been allocated to projects in Scotland to support further innovation in green energy and unlock capacity in Scotland's energy networks.

✓ provided an official response to Ofgem's consultation on changes to network charges and access. Within this response, we also called for **additional support for network projects that are already underway.** This could help to reduce the upfront capital costs for new demand connections – ensuring these projects are not delayed so that they can also benefit from this change (as it does not come into force until 1 April 2023).

We will also:

- continue to engage through our Heat Electrification Strategic Partnership (HESP), in conjunction with the Transport Strategic Partnerships, to ensure that whole-system consideration of electricity demand, heat, transport, and electricity generation is considered. These partnerships are a forum with the Scottish DNOs to further develop our understanding of the scale, pace and location of network investment needed, including the role of DNOs in local area planning.
- work with the DNOs through our Heat Electrification Strategic Partnership to identify progress and report on further research and development requirements to support heat decarbonisation.
- continue to review changes to the current charging regime to ensure that it aligns with our ability to meet out legally binding climate targets.

It is important to highlight that, as energy network costs are a reserved matter, **the Scottish Government does not have control over the way that networks recover costs from their customers.**

However, we have seen a number of positive steps in this regard.

- ✓ Ofgem's recent decision on its charging and access review will mean that, **from April 2023, reinforcement costs for demand connections (including heat pumps) will be socialised.**
- ✓ A threshold known as **the high cost cap (HCC) will be used to protect customers from excessive costs, which will create a more level playing field for new demand connections.**
- ✓ Ambitious proposals in both Scottish DNOs draft business plans[40] were submitted to Ofgem for approval in January. Together, **these plans have sought approval for over £3 billion of investment based on scenarios that align with Scottish Government targets for energy, including heat and transport decarbonisation.**

40 Our RIIO-ED2 Business Plan - SP Energy Networks
Home - SSENFuture

4.3 Supply Chain

Within *NBHS Consultation: Part I*, we asked: **how can opportunities be maximised for the supply chain involved in the delivery of new homes (ranging from product suppliers to on-site operatives) including skills?**

NBHS Consultation: Part I analysis key findings were as follows.

- The **need for a robust supply chain** was cited, with some concerns that the current supply chain does not have the capacity to manufacture and install heat pumps in high volumes.
- There were some queries over **operational issues, the lifespan of appliances and perceived high maintenance costs.**
- Allied to the need for a robust supply chain, there were also a number of references to the need for **education, training and upskilling of the existing workforce** in order to meet the requirements of the Standard.
- There were references to a need for **financial incentives for both the industry and consumers,** in order to ensure a robust supply chain, a skilled workforce and take-up of new technologies.

In an effort to address this, **we have:**

✓ worked with the heat pump industry to explore the potential for a **Heat Pump Sector Deal for Scotland**[41]**.**

✓ made available over £1.3 million through our **National Transition Training Fund** for zero emissions heating and energy efficiency retrofit skills. This includes funding through the Energy Skills Partnership to provide free access to heat pump training in 13 colleges across Scotland with additional capital funding to help colleges purchase training infrastructure.

We will also:

- introduce the NBHS legislation before the Scottish Parliament in early 2023, with a view to these regulations coming into force on 1 April 2024, to give industry much-needed certainty which will (a) build supply chain confidence and (b) allow further investment in the necessary training and skills to deliver these changes.
- produce a new **Heat in Buildings Supply Chain Delivery Plan** later this year, specifically focused on strengthening the broad supply chains needed to deliver at the pace and scale we need.
- continue to work with industry through the Climate Emergency Skills Action Plan Heat Decarbonisation Subgroup to support a continued growth in sectoral skills in support of the provisions in this consultation.
- **invest at least £1.8 billion in this parliament,** as outlined in the Heat in Buildings Strategy, to strengthen demand and support an increase in jobs and skilled workers.

41 Heat Pump Sector Deal Expert Advisory Group: final report - gov.scot (www.gov.scot)

4.4 Public Engagement

When *NBHS Consultation: Part I* was published in December 2020, it was recognised, within the paper itself, that public awareness around the transition to ZDEH in buildings (new and existing) was not widespread.

As part of *NBHS Consultation: Part I*, the Scottish Government asked respondents: **what can be done to encourage greater consumer awareness and understanding?**

NBHS Consultation: Part I analysis key findings were as follows.

- **Increased consumer awareness** was identified as a key issue, so that consumers understand proposed changes in heating systems and how these will impact on them.
- The need to **provide consumers with education and training** on new technologies, how to operate these and how to achieve maximum efficiency.
- **Collaboration between all key stakeholders** across the industry was cited as being important in order to ensure a smooth transition, with some respondents perceiving that the Scottish Government should be taking the lead on this.

Details on our approach to public engagement, and the importance of this in ensuring the implementation of the NBHS is a success, is set out earlier within the introductory section of this consultation document. This includes an overview of the Scottish Government's work to develop a new Heat in Buildings Public Engagement Strategy in 2023, and develop a National Public Energy Agency in 2025 (with a virtual agency due to be created this year).

4.5 Cost Impacts

NBHS Consultation: Part I endeavoured to be clear and upfront with regards to the cost implications that the requirements of the NBHS may bring – both in terms of capital costs to developers, as well as operational/maintenance costs to building owners/users.

As part of the consultation process, the Scottish Government sought respondent views on two key issues related to costs:

- **What do you envisage the key challenges would be for developers, and the wider building industry, in meeting this proposed Standard? How could this sector be supported to address those challenges?**
- **By introducing this Standard, what challenges or opportunities might result for households on low incomes (for example, around affordability or access), and how can the Scottish Government best take account of these?**

NBHS Consultation: Part I analysis high-level key findings were as follows:

- Concerns over **increased costs to consumers,** with the resulting negative impact on affordability of energy, **and increased levels of fuel poverty.**

In order to gain a greater understanding of the potential costs associated with the transition to ZDEH systems in new buildings, **we have:**

- commissioned independent research to gain an understanding of the capital and running costs of installing ZDEH systems in new buildings[42].

We will also:

- use the findings from these research reports to inform the development of a Business and Regulatory Impact Assessment (BRIA).
- prior to the laying of the regulations before Parliament, publish the findings of this impact assessment, alongside a cost/benefit assessment.

4.6 Technological Issues

While there were no specific questions relating to ZDEH technologies within *NBHS Consultation: Part I* (due to our intentions to ensure that the NBHS remains technology-agnostic), respondents did raise a number of key concerns relating to the installation and maintenance of ZDEH systems.

NBHS Consultation: Part I analysis key findings were as follows:

- There was a perception that some form of **certification or quality assurance scheme would be beneficial,** along with monitoring and evaluation for compliance with the Standard.

In an effort to address this, **we have:**

- recently published our Quality Assurance Policy Statement[43], which sets out our proposals to develop a new energy efficiency quality assurance scheme for Scotland, improve standards and skills, tackle scams and mis-selling, increase engagement with the public and industry, and which sets the milestones and timescales to achieve this.

We will also:

- work with TrustMark to develop a quality assurance scheme for Scotland.
- set up a Scottish Quality Assurance Consumer Oversight Group to oversee the implementation of the new Scottish TrustMark energy efficiency approval scheme and oversee changes and improvements to the existing MCS scheme in support of our Heat in Buildings Strategy.

42 Costs of zero emissions heating in new buildings (climatexchange.org.uk); Renewable and zero emissions heating systems in affordable housing projects: evaluation - gov.scot (www.gov.scot)

43 Heat in Buildings strategy - quality assurance: policy statement - gov.scot (www.gov.scot)

- integrate the Scottish installer skills matrix into both the BSI PAS 2030 installer standards and MCS installer standards in 2022.
- work with Trading Standards Scotland to prevent scams and support improved enforcement action against rogue traders within Scotland.
- investigate the development of an online portal powered by TrustMark and MCS to help consumers find approved suppliers in Scotland.

Consultation Questions: Summary

1. Do you agree with the approach set out in 2.1 to regulate direct emissions heating systems in new buildings?

2. Do you envisage any unintended consequences as a result of this approach? Please provide reasons for your answer.

3. Are there any limited, specific situations where the use of bioenergy systems would be required in new buildings?

4. If 'Yes', what do you believe the criteria should be for introducing such an exemption? Please provide evidence to support your answer.

5. Do you agree with the proposed approach to conversions as set out in section 2.3?

6. Do you envisage any unintended consequences as a result of this? Please provide reasons for your answer.

7. What criteria would you use to define the replacement of a direct emissions heating (DEH) system as being 'reasonably practicable'?

8. What criteria would you use to define it as being 'not reasonably practicable'?

9. How might these proposals impact upon people with one or more of the protected characteristics listed in the Equality Act 2010 (for example: a positive, negative or neutral impact)?

10. How might these proposals help the Scottish Government ensure due regard of the three needs of the public sector equality duty(PSED)?

11. Do you anticipate any form of heating within a non-domestic building which will require DEH after 2024? Please provide details of the factors – whether technical, economic or social – which would require DEH after 2024?

Responding to this Consultation

We are inviting responses to this consultation by 20 October 2022.

Please respond to this consultation using the Scottish Government's consultation hub, via Citizen Space. Access and respond to this consultation online from 00:01 am 28 July 2022. You can save and return to your responses while the consultation is still open. Please ensure that consultation responses are submitted before the closing time and date of 11:59 pm 20 October 2022.

If you are unable to respond using our consultation hub, please complete the Respondent Information Form to:

Zero Emissions Heat in Buildings Regulations Unit
Scottish Government
5 Atlantic Quay
Glasgow, G2 8LU

Handling your response

If you respond using the consultation hub, you will be directed to the About You page before submitting your response. Please indicate how you wish your response to be handled and, in particular, whether you are content for your response to published. If you ask for your response not to be published, we will regard it as confidential, and we will treat it accordingly.

All respondents should be aware that the Scottish Government is subject to the provisions of the Freedom of Information (Scotland) Act 2002 and would therefore have to consider any request made to it under the Act for information relating to responses made to this consultation exercise.

If you are unable to respond via Citizen Space, please complete and return the Respondent Information Form included in this document.

To find out how we handle your personal data, please see our privacy policy.

Next steps in the process

Where respondents have given permission for their response to be made public, and after we have checked that they contain no potentially defamatory material, responses will be made available to the public through our online portal. If you use the consultation hub to respond, you will receive a copy of your response via email.

Following the closing date, all responses will be analysed and considered along with any other available evidence to help us. Responses will be published where we have been given permission to do so. An analysis report will also be made available.

Comments and complaints

If you have any comments about how this consultation exercise has been conducted, please send them to the contact address above or at the mailbox- 2024heatstandard@gov.scot.

Scottish Government consultation process

Consultation is an essential part of the policymaking process. It gives us the opportunity to consider your opinion and expertise on a proposed area of work.

You can find all our consultations online. Each consultation details the issues under consideration, as well as a way for you to give us your views, either online, by email or by post.

Responses will be analysed and used as part of the decision making process, along with a range of other available information and evidence. We will publish a report of this analysis for every consultation. Depending on the nature of the consultation exercise the responses received may:

- indicate the need for policy development or review.
- inform the development of a particular policy.
- help decisions to be made between alternative policy proposals.
- be used to finalise legislation before it is implemented.

While details of particular circumstances described in a response to a consultation exercise may usefully inform the policy process, consultation exercises cannot address individual concerns and comments, which should be directed to the relevant public body.

Scottish Government
Riaghaltas na h-Alba
gov.scot

New Build Heat Standard Consultation: Part II

Respondent Information Form

Please note this form **must** be completed and returned with your response.

To find out how we handle your personal data, please see our privacy policy

Are you responding as an individual or an organisation?

☐ Individual

☐ Organisation

Full name or organisation's name

Phone number

Address

Postcode

Email

Information for organisations:
The option 'publish response only (without name)' is available for individual respondents only. If this option is selected, the organisation name will still be published.

If you choose the option 'do not publish response', your organisation name may still be listed as having responded to the consultation in, for example, the analysis report.

The Scottish Government would like your permission to publish your consultation response. Please indicate your publishing preference:

☐ Publish response with name

☐ Publish response only (without name)

☐ Do not publish response

We will share your response internally with other Scottish Government policy teams who may be addressing the issues you discuss. They may wish to contact you again in the future, but we require your permission to do so. Are you content for Scottish Government to contact you again in relation to this consultation exercise?

☐ Yes

☐ No

Full List of Document URLs

[1] https://www.legislation.gov.uk/asp/2019/15/enacted

[2] https://www.gov.scot/publications/new-build-heat-standard-scoping-consultation/

[3] https://www.legislation.gov.uk/ssi/2022/136/part/3/made

[4] https://consult.gov.scot/local-government-and-communities/building-regulations-energy-standards-review/

[5] https://www.gov.scot/publications/heat-buildings-strategy-achieving-net-zero-emissions-scotlands-buildings/

[6] https://www.gov.scot/publications/protecting-scotlands-future-governments-programme-scotland-2019-20/

[7] https://www.gov.scot/publications/scoping-consultation-new-build-heat-standard-analysis-responses/

[8] https://es.catapult.org.uk/report/net-zero-a-consumer-perspective/

[9] https://www.homeenergyscotland.org/wp-content/uploads/2021/06/Home-Energy-Scotland-Market-research-report.pdf

[10] https://www.theccc.org.uk/publication/progress-reducing-emissions-in-scotland-2021-report-to-parliament/#

[11] https://www.scottishepcregister.org.uk/CustomerFacingPortal/DataExtract

[12] https://www.gov.uk/government/consultations/the-future-homes-standard-changes-to-part-l-and-part-f-of-the-building-regulations-for-new-dwellings

[13] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/836925/REQUEST.pdf

[14] https://www.legislation.gov.uk/asp/2003/8/contents

[15] https://www.legislation.gov.uk/ssi/2004/406/contents

[16] https://www.legislation.gov.uk/ssi/2022/136/made

[17] https://www.legislation.gov.uk/asp/2021/9/2021-03-31

[18] https://www.legislation.gov.uk/asp/2009/12

[19] https://www.legislation.gov.uk/uksi/2020/1265

[20] https://www.gov.scot/policies/building-standards/monitoring-improving-building-regulations/

[21] https://www.gov.scot/publications/building-standards-technical-handbook-2020-non-domestic/6-energy/6-1-carbon-dioxide-emissions/

[22] No link

[23] https://www.legislation.gov.uk/ssi/2008/309/contents/made

[24] https://www.gov.scot/publications/domestic-epc-reform-consultation/

[25] https://www.legislation.gov.uk/uksi/2019/583/contents

[26] https://www.theccc.org.uk/publication/biomass-in-a-low-carbon-economy/

[27] https://www.climatexchange.org.uk/research/projects/comparing-scottish-bioenergy-supply-and-demand-in-the-context-of-net-zero-targets

[28] No link

[29] https://www.gov.scot/publications/heat-networks-delivery-plan/

[30] https://www.gov.scot/publications/first-national-assessment-potential-heat-network-zones/

[31] No link

[32] https://www.gov.scot/publications/local-heat-energy-efficiency-strategies-lhees-phase-2-pilots-evaluation/

[33] https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/biomass_en#eu-rules-on-sustainable-biomass

[34] https://www.gov.scot/publications/building-standards-technical-handbook-2019-domestic/0-general/0-4-changes-occupation-use-building-cause-regulations-apply/

[35] No link

[36] https://www.gov.scot/publications/building-standards-technical-handbook-2020-domestic/appendix-defined-terms/definitions-explanation-terms-used-document/

https://www.legislation.gov.uk/ssi/2004/406/schedule/6/made

[37] No link

[38] https://www.legislation.gov.uk/ukpga/2010/15/contents

[39] https://www.gov.scot/publications/scottish-government-and-scottish-green-party-shared-policy-programme/

[40] https://www.spenergynetworks.co.uk/pages/our_riio_ed2_business_plan.aspx

https://ssenfuture.co.uk

[41] https://www.gov.scot/publications/heat-pump-sector-deal-expert-advisory-group/

[42] https://www.climatexchange.org.uk/research/projects/costs-of-zero-emissions-heating-in-new-buildings/

[43] https://www.gov.scot/publications/heat-buildings-quality-assurance-statement/

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