

Summary of responses to the Call for Evidence on the regulation of energy efficiency in existing non-domestic buildings

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1. Introduction

The 2018 Energy Efficient Scotland: Route Map set out a programme for the review of regulations on the energy performance of existing non-domestic buildings. In October 2021 the Scottish Government published the Heat in Buildings Strategyⁱ confirming the intention to develop a new regulatory framework for zero emissions heating and energy efficiency in non-domestic buildings by 2025.

The framework will build on the Scottish Government's existing commitments to extend regulation to improve energy efficiency and, where possible within our legal competence, to require the adoption of zero emissions heating systems. The aim is to ensure that all non-domestic buildings are energy efficient and use zero emissions heating and cooling systems by 2045. The Scottish Government will consult on the new regulatory framework during 2022, with a view to introducing regulations by 2025.

1.1 Consultations

In December 2021 a Call for Evidenceⁱⁱ was issued as the first public engagement stage in the development of this new regulatory framework. It sought evidence of existing approaches (regulatory or non-regulatory schemes and programmes) to improve the energy efficiency and drive the conversion of non-domestic buildings to zero emissions heating sources. We sought examples which could operate at the level of individual buildings, building groups or regions.

1.2 Responses to the Call for Evidence

We received 14 responses to this Call for Evidence from the following organisations:

- The Association for Decentralised Energy (ADE)
- Built Environment Forum Scotland (BEFS)
- Climate Emergency Response Group (CERG)
- BRE
- Danish Energy Agency
- Elmhurst Energy
- Energy Savings Trust (EST)
- KJ Tait Engineers
- Mineral Wool Insulation Manufacturers Association (MIMA)
- The National Trust for Scotland
- Royal Institution of Chartered Surveyors (RICS)
- Scottish Power
- Scottish Property Federation
- South Lanarkshire Council

There were six responses to the question “**How satisfied were you with this consultation?**” and of these, three responses were “very satisfied” and three responses were “neither satisfied nor dissatisfied”.

2. Questions

The ten questions within this Call for Evidence requested information on examples of existing approaches to decarbonising non-domestic buildings (i.e. already in operation). However some of the responses included proposals or recommendations for future regulations. We have not included these recommendations within this analysis, but they are available within the published responses.

2.1 Options for Regulation

The CO_{2e} emissions associated with the performance of existing non-domestic buildings during operation can be linked to both the form and fabric of each building and the building’s occupancy. We sought evidence for approaches that could address both of these. We sought evidence concerning three possible approaches to regulation for energy efficiency and the use of zero emissions heating in existing non-domestic buildings:

- a) Measures-based approach** – specifying a list of improvement measures that must be considered to reduce the energy demand associated with a non-domestic building.
- b) Minimum standards approach** – setting a standard for the building’s operation under standardised conditions, most typically based on achieving a certain EPC rating for modelled energy use or emissions.
- c) Operational ratings approach** – using the actual energy consumption and CO_{2e} emissions from use of non-domestic buildings, as the basis for a regulatory approach.

Q1: Can you provide examples of existing regulatory frameworks which use any or a combination of these approaches?

There were 12 responses to this question.

Respondents provided the following examples of regulatory schemes, policies, tools and support mechanisms in Scotland, England & Wales, Belgium, Denmark, France and Washington DC:

- BREEAM
- Building Energy Scotland Loan Scheme
- Display Energy Certificates (DEC)
- Energy Action Plans (EAP)
- Energy Performance Certificates (EPC)
- Energy Efficiency Business Support Scheme
- Energy Efficiency Standard for Social Housing
- Energy Savings Opportunity Scheme (ESOS)
- Energy Star
- European Energy Network
- The UK Government's proposed Future Building Standard from 2025
- Minimum Energy Efficiency Standards (MEES)
- NABERS
- PAS 2038
- Performance Energy Efficiency Ratings Scheme (PEERS)
- PropTech
- Public Sector Decarbonisation Fund
- Real Estate Environmental Benchmark (REEB)
- Regulatory Assistance Programme (RAP)
- Simplified Building Energy Model (SBEM)
- Streamlined Energy and Carbon Reporting (SECR)
- UK Green Building Council Net Zero Carbon Buildings Framework
- X-tendo

The following reports were cited as evidence by respondents:

- Filling the policy gap: Minimum energy performance standards for European buildings - Regulatory Assistance Project (raponline.org)ⁱⁱⁱ
- Case studies: Minimum energy performance standards for European buildings - Regulatory Assistance Project (raponline.org)^{iv}
- Next steps for MEPS: Designing minimum energy performance standards for European buildings - Regulatory Assistance Project (raponline.org)^v
- Regulating for Zero Emissions Homes – research report and policy briefing | The Existing Homes Alliance | Scotland (existinghomesalliancescotland.co.uk)^{vi}
- New Energy Efficiency Obligations for Real Estate Located in the Flemish Region (linklaters.com)^{vii}
- Energy regulations in France: news and implications (Longevity Partners USA (longevity-partners.com))^{viii}

- Guide to the 2021 Building Energy Performance Standards | ddoe (dc.gov)^{ix}
- DC BEPS is Coming! Building Energy Performance Standards in DC (ghltld.com)^x

The question did not ask for preference on which option would be most suited for the regulation of non-domestic buildings, however 8 respondents expressed a preference:

- Option A – no respondents
- Option B - Scottish Power and Elmhurst Energy
- Option C - KJ Tait Engineers, Scottish Property Federation and the Mineral Wool Insulation Manufacturers Association
- Mix of Options - the Association for Decentralised Energy, the Royal Institution of Chartered Surveyors and BRE

2.2 Effectiveness

We sought evidence and examples of regulations that have had a concrete and measurable effect on any combination of the following:

- Non-domestic buildings' energy efficiency
- Energy consumption for heating purposes
- Greenhouse gas (CO_{2e}) emissions from heating

We also sought evidence of how regulations have led to changes in any of the following:

- installation of zero emissions heating systems
- building fabric
- building users' behaviours
- business operating costs
- capital investment
- business productivity

Q2: Can you provide quantitative evidence of the costs and effects driven by regulatory frameworks in the areas specified above?

Q3: Can you provide examples of regulatory frameworks which you consider successful/unsuccessful in their operation, and the factors responsible for this?

There were six responses to Q2 and eight responses to Q3.

Respondents described elements of the regulatory frameworks in place in Upper Austria, Baden-Württemberg, Netherlands and Finland. The following examples were cited:

- Display Energy Certificates (DEC)
- Energy Performance Certificates (EPC)
- Tax deduction subsidy for heat pumps in Finland
- Minimum Energy Efficiency Standards (MEES)
- NABERS
- PAS 2038

One of the responses to Q2 noted that “there is ... limited quantitative evidence of the costs and effects driven by regulatory frameworks”. One response to Q2 provided cumulative totals of energy and emission reductions driven by Australia’s NABERS programme.

Further reports were provided as evidence:

- Performance and energy efficiency of traditional buildings: Gap Analysis, Update 2020 | Historic England^{xi}
- Evaluating the renewable heating and efficiency obligation for existing buildings – insights into the mechanisms of mandatory building requirements (ecee.org)^{xii}
- Skills Investment Plan for Scotland's Historic Environment Sector^{xiii}

Although Q3 asked for examples of successful or unsuccessful regulatory frameworks, some of the responses did not specify whether the framework(s) described were considered successful or not.

The following schemes were cited as examples of regulatory regimes:

- Energy Performance Certificates (EPC)
- Minimum Energy Efficiency Standards (MEES)
- NABERS
- London Energy Plan
- BREEAM
- Norway’s Carbon Tax
- Denmark’s voluntary requirements
- Traditional Buildings Health Check
- Belgium Monumentenwacht
- Energy Saving Opportunities Scheme (ESOS)
- Streamlined Energy and Carbon Reporting (SECR)

The following papers were cited for Q3:

- Best practice in heat decarbonisation policy | UKERC | The UK Energy Research Centre^{xiv}
- A Review of Heat Decarbonisation Policies in Europe (climatexchange.org.uk)^{xv}
- Success Story - Decarbonising heating in buildings (agora-energiewende.de)^{xvi}
- The decarbonisation of the EU heating sector through electrification: A parametric analysis - ScienceDirect^{xvii}

2.3 Identification

We sought evidence of routes to define and identify individual properties, premises and buildings using identifiers such as:

- Premises or units within buildings
- Individual buildings
- Groups of buildings that form one campus or site
- Companies

Q4: Can you provide evidence of regulatory frameworks which use these, or any other units, to identify or define buildings?

There were three substantive responses to this question. One respondent listed planning guidance documents which relate to historic buildings. The remaining two responses listed the following frameworks used to identify buildings:

- Energy Performance Certificates (EPC)
- Display Energy Certificates (DEC)
- Unique Property Reference Numbers (UPRN)

2.4 Triggers

We sought evidence of the events or activities which could be used to set the point at which buildings or organisations become subject to regulations. Examples of these events are:

- Building sale or rental
- Refurbishment
- The point of financial, corporate or local tax returns
- Inspections of building or equipment

Q5: Can you provide evidence of frameworks which have used these, or any other events, to trigger regulatory actions?

There were eight responses to this question which suggested the following triggers:

- Listed Building Consent
- Scheduled Monument Consent
- Conservation Area Consent
- EPC on construction, sale or rental
- MEES on rental
- EAP on sale or rental
- Social Housing requiring EPC C on rental
- All social housing required to be as energy efficient as practically possible by 2032
- Norway's 2017 ban on fossil-fuel heating in new buildings and major renovations
- Flanders' 5-year limit from rental date for compliance
- Flanders' use of renovation as a trigger point
- Finland's integration of energy efficiency improvements into design and maintenance decisions
- The 25% change to the building envelope as a trigger point for any new requirements as currently used in Building Regulations?

2.5 Categories

We sought examples of regulations that are applied according to different categories such as:

- Building size
- Building location
- Tenure

- Industry sector
- Energy use
- Emissions

Q6: Can you provide evidence of frameworks which use these, or any other categories, to vary the form of regulations?

Q7: Can you provide evidence of how and to what extent regulations are varied by category?

There were five substantive responses to Q6. There were four responses to Q7, all of which referred to answers provided in Q6. The following uses of categories were listed in the responses:

- The Energy Efficiency Standard for Social Housing (ESSH) applies to social landlords only
- The requirement for Display Energy Certificates (DEC) is applied to public sector buildings over 250m²
- Fire safety and cladding requirements vary according to the size of individual buildings
- Minimum Energy Performance Standards vary with building size in France, Flanders, Washington DC and Reno, Nevada
- Minimum Energy Efficiency Standards (MEES) regulations are currently applied to rented-sector buildings in England and Wales
- The European Energy Efficiency Directive requires energy audits for larger companies
- Portugal requires companies with an energy annual consumption of over 500toe to carry out energy audits every eight years
- Proposal for the Energy Saving Opportunities Scheme (ESOS) to extend to SMEs where the business has high energy consumption or is in a high energy consuming sector
- Performance Energy Efficiency Rating Scheme (PEERS) proposed for commercial and industrial offices above 1,000m²

2.6 Enforcement

We sought evidence of successful and unsuccessful enforcement methods used in regulatory frameworks. We were particularly interested in the use of exemptions within regulatory frameworks and evidence that these are operating as planned.

Q8: Can you provide evidence of the use of exemptions within regulatory frameworks?

Q9: Can you provide evidence of enforcement methods used to drive compliance within a regulatory framework?

There were ten responses to Q8. The following examples of exemptions were provided in the responses:

- Ecclesiastical Exemption to Business Rates in Scotland

- Listed Building Consent
- Scheduled Monument Consent
- Conservation Area Consent
- Energy Performance of Buildings Directive (EPBD) allows exemptions for “buildings officially protected as part of a designated environment or because of their special architectural or historical merit, in so far as compliance with certain minimum energy standards would unacceptably alter their character or appearance”. This exemption has been used in Denmark, Ireland and England
- Proposals for the Scottish Government’s Short Term Lets licensing regime include exemptions and qualifying criteria
- Flanders’ requirements do not apply to buildings which will be demolished within five years
- In France exemptions are made for buildings used for defence or security operations and places of worship
- Proposals for staged standards in France allow exemptions related to the cost of renovation works and their payback period
- The requirement for office buildings to reach EPC C in the Netherlands include a cost threshold of payback within 10 years
- Proposals for Minimum Energy Efficiency Standards (MEES) include a 7 year payback limit
- The Private Rented Sector (PRS) exemptions register allows exemption on an individual basis

There were eight responses to Q9. A number of responses noted that existing enforcement of energy efficiency regulations was weak. The examples of enforcement methods and issues were:

- the lack of agreed responsibilities for enforcement in advance of the regulations for interlinked smoke alarms in Scotland
- the difficulty of accurately identifying properties, landlords and non-compliance in the non-domestic private rented sector for the enforcement of Minimum Energy Efficiency Standards (MEES)
- Washington DC used the absence of a benchmark report to assume that a building is non-compliant with the Building Energy Performance Standard
- In the Netherlands enforcement is through periodic penalty payments, a fine or closure of the office building
- Compliance Scheduled Monument Consent
- Planning and environmental appeal
- Enforcement of the Private Rented Sector (PRS) exemptions register is strengthened by lenders requirements

The work of the Organisation for Economic Co-operation and Development (OECD) with regard to regulatory enforcement was noted in the responses.

2.7 Measurement

We sought evidence of the effective use of measurements within regulations such as:

- Actual measured direct or indirect emissions
- Estimated direct or indirect emissions
- Fuel consumption or costs
- Installation of specified heating or cooling equipment
- Thermal resistance of building elements
- Internal operating temperatures

We also sought evidence of the measurement of any consequential impacts which were outside the original intended scope of regulations, such as:

- Land Use
- Fuel Poverty
- Comfort Levels

Q10: Can you provide evidence of measurements used by regulatory frameworks?

There were seven responses to this question. The following examples of measurement were provided in the answers to this question:

- Fuel consumption
- Installation of heating/cooling equipment
- Thermal resistance of building elements
- Internal operational temperatures
- Whole Building Emissions
- Calculated energy consumption
- Calculated carbon emissions
- Calculated energy costs
- Real Estate Asset Value
- Scope 1: Emissions from combustion of gas and fuel
- Scope 2: Emissions from purchased electricity
- Scope 3: Emissions from business travel
- embodied carbon
- delivered energy
- Electric Vehicle Charging

The following frameworks for measurement were noted in responses to Q10:

- NABERS
- Building Regulations (England & Wales) Part L
- International Building Operation Standard (IBOS)
- Streamlined Energy and Carbon Reporting (SECR)
- Energy Saving Opportunity Scheme (ESOS)
- Climate Change Agreements Scheme (CCA)
- EU Emissions Trading Scheme (ETS)
- France's Environmental Regulation RE2020
- PAS 2038
- Inform Guide: Improving Energy Efficiency in Traditional Buildings

- Technical Paper 34: Energy consumption and behaviour profiles for eight traditionally built dwellings
- Guide to Energy Retrofit of Traditional Buildings

3. Next Steps

The Scottish Government will consider the evidence provided in response to this Call for Evidence to inform the development of options to regulate the energy efficiency and zero-emissions heating of existing non-domestic buildings. A further public consultation on the proposed options for regulation will be published in late 2022 as outlined in the Scottish Government's Heat in Building Strategy 2021. All responses to the Call for Evidence have been published at:

<https://consult.gov.scot/energy-and-climate-change-directorate/energy-efficiency-non-domestic-buildings/>

Although the Call for Evidence has closed we would welcome the submission of any further evidence relating to the questions above to: nondom.heatinbuildings@gov.scot

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4. Scottish Government consultation process

Consultation is an essential part of the policy-making 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: <http://consult.scotland.gov.uk>.

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; and
- 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.

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- ⁱ [Heat in Buildings Strategy – Achieving Net Zero Emissions In Scotland’s Buildings](#)
 - ⁱⁱ [Energy efficiency - regulation in existing non-domestic buildings: call for evidence - gov.scot \(www.gov.scot\)](#)
 - ⁱⁱⁱ [Filling the policy gap: Minimum energy performance standards for European buildings - Regulatory Assistance Project \(raponline.org\)](#)
 - ^{iv} [Case studies: Minimum energy performance standards for European buildings - Regulatory Assistance Project \(raponline.org\)](#)
 - ^v [Next steps for MEPS: Designing minimum energy performance standards for European buildings - Regulatory Assistance Project \(raponline.org\)](#)
 - ^{vi} [Regulating for Zero Emissions Homes – research report and policy briefing | The Existing Homes Alliance | Scotland \(existinghomesalliancescotland.co.uk\)](#)
 - ^{vii} [New Energy Efficiency Obligations for Real Estate Located in the Flemish Region \(linklaters.com\)](#)
 - ^{viii} [Energy regulations in France: news and implications \(Longevity Partners USA \(longevity-partners.com\)\)](#)
 - ^{ix} [Guide to the 2021 Building Energy Performance Standards | ddoe \(dc.gov\)](#)
 - ^x [DC BEPS is Coming! Building Energy Performance Standards in DC \(ghtltd.com\)](#)
 - ^{xi} [Performance and energy efficiency of traditional buildings: Gap Analysis, Update 2020 | Historic England](#)
 - ^{xii} [Evaluating the renewable heating and efficiency obligation for existing buildings – insights into the mechanisms of mandatory building requirements \(eceee.org\)](#)
 - ^{xiii} [Skills Investment Plan for Scotland's Historic Environment Sector](#)
 - ^{xiv} [Best practice in heat decarbonisation policy | UKERC | The UK Energy Research Centre](#)
 - ^{xv} [A Review of Heat Decarbonisation Policies in Europe \(climatexchange.org.uk\)](#)
 - ^{xvi} [Success Story - Decarbonising heating in buildings \(agora-energiewende.de\)](#)
 - ^{xvii} [The decarbonisation of the EU heating sector through electrification: A parametric analysis - ScienceDirect](#)



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