

CLEAN GROWTH, CARBON EMISSIONS AND BREXIT

10th April 2018

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Technical Director

Chartered Institution of Building Services Engineers



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My direction of travel this evening

the Climate Change Act commits us to an 80% cut in carbon emissions relative to 1990 levels by 2050;

Dame Judith Hackitt is leading the most far reaching review of legislation covering how we build and how we manage safety and operation of buildings in a working lifetime;

we are committed to leaving the EU.



And my destination this evening

This is a time of unprecedented change for building related legislation.

Whilst “Brexit” and “Hackitt” attract attention and headlines, the progressive tightening of the Climate Change Act and the targets set out in the five yearly carbon budgets will constrain any changes to legislation relating to energy use in buildings.



Presentation outline

- Energy related policy meets Building related legislation
- Climate Change Act & Carbon Budgets 4 & 5
- UK government's Clean Growth Strategy
- Climate Change Committee & the Clean Growth Strategy
- Independent Review of Building Regulations & Fire Safety
- Life after Brexit...?
- European Union (Withdrawal) Bill 2017-19
- Building Regulations
- Minimum Energy Efficiency Standards (MEES)
- ESOS & Metering and Billing
- Energy Performance of Buildings Directive





“There are known knowns. These are things we know that we know. There are known unknowns. That is to say, there are things that we know we don't know. But there are also unknown unknowns. There are things we don't know we don't know.”

Donald Rumsfeld, February 2002



Known Knowns

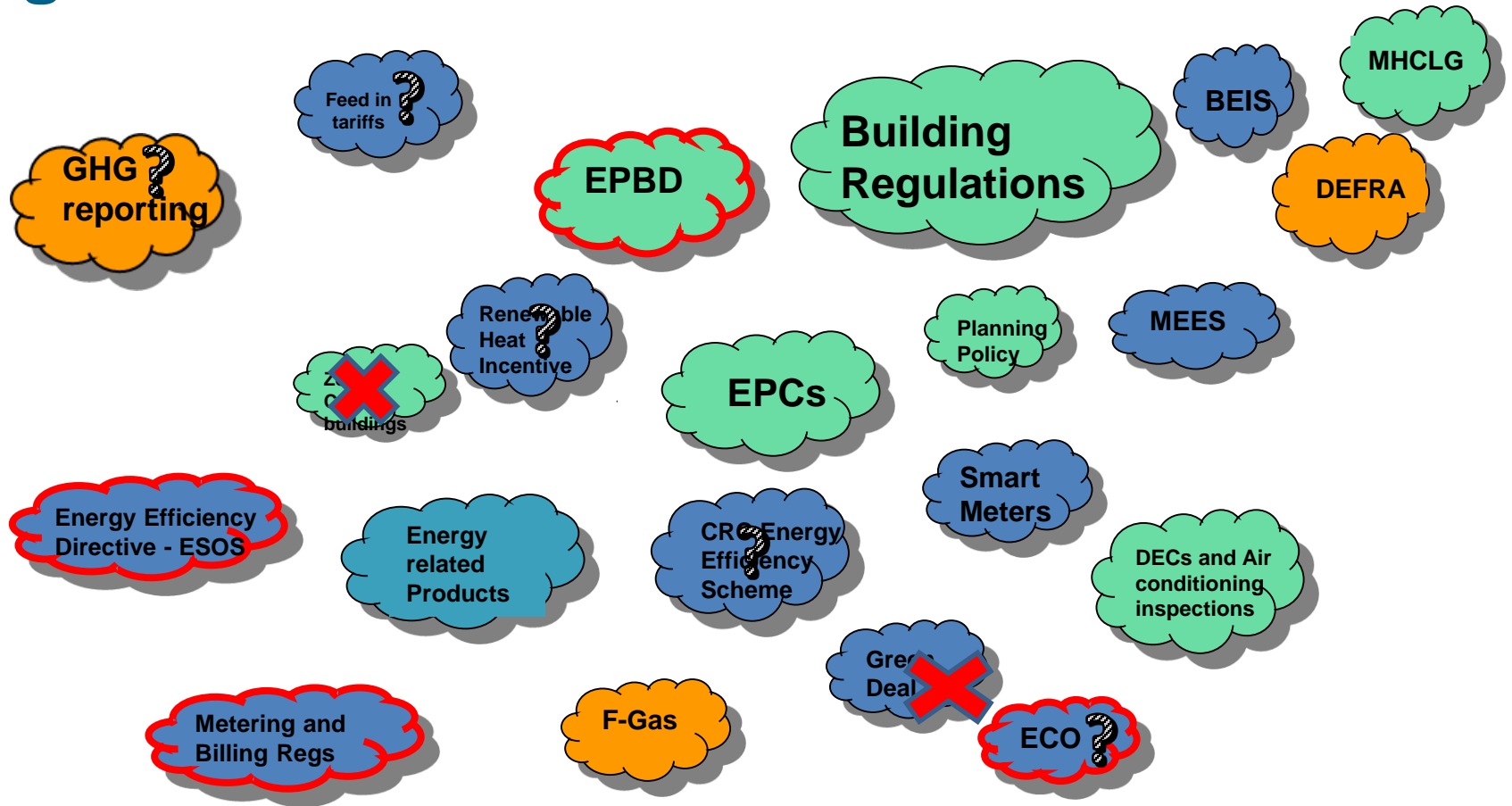


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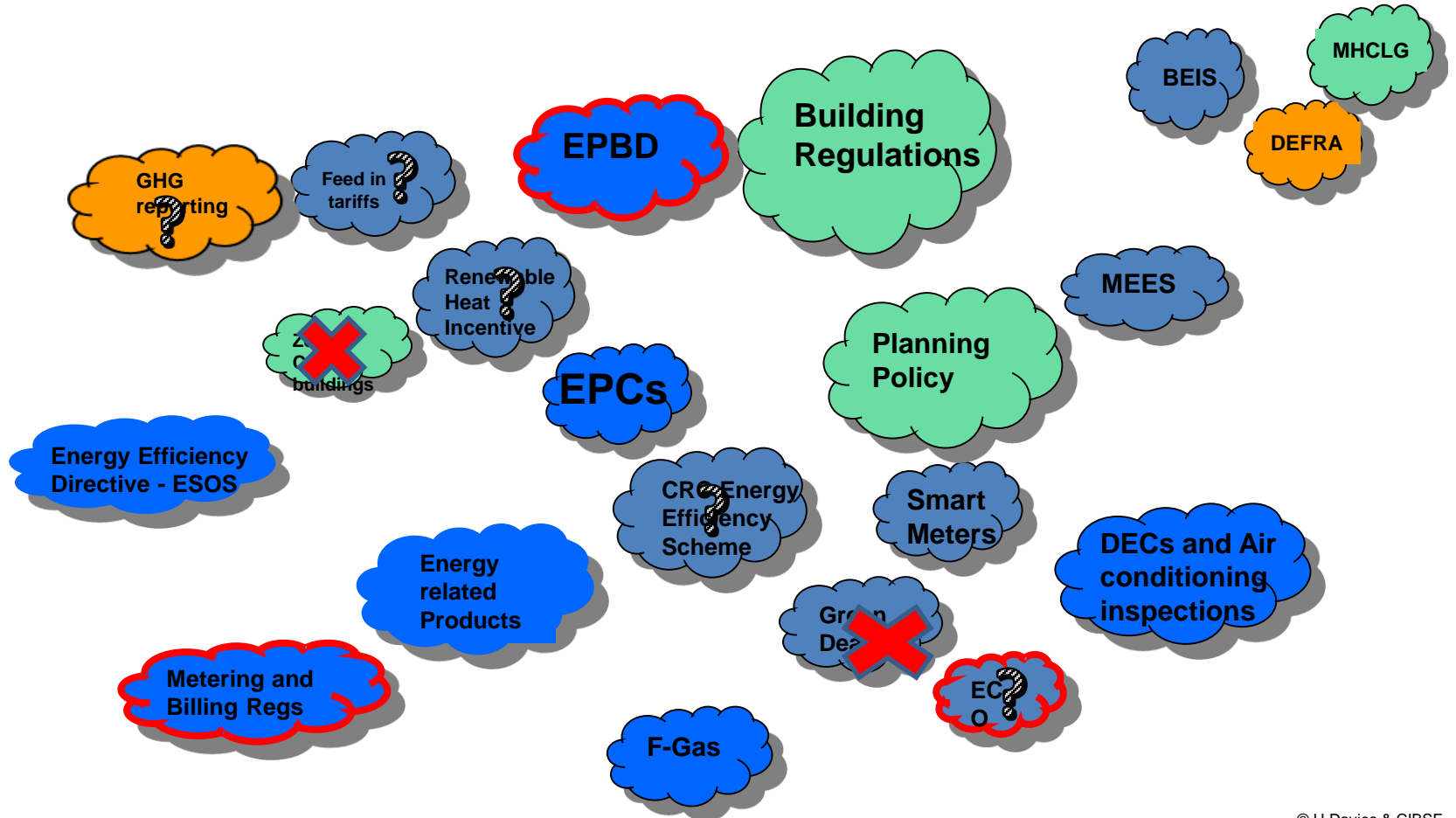
- Energy related policy meets Building related legislation



Building, Energy and Emissions Legislation



Building, Energy and Emissions Legislation



Energy & Carbon Regulations for Buildings

1. CRC Energy Efficiency Scheme (CRC) (until 2019)
2. Climate Change Agreements (CCAs) & Climate Change Levy (CCL)
3. Energy Performance Certificates (EPCs), Display Energy Certificates (DECs) & Air conditioning inspections
4. Building Regulations (Part L, ADL2A, ADL2B)
5. Minimum Energy Efficiency Standards (for rented buildings)
6. F-Gas Regulation & related requirements
7. Smart Meters
8. Metering and Billing Regulations
9. Enhanced Capital Allowances (ECAs)
10. EU minimum energy performance standards and labelling (ErP)
11. Mandatory Greenhouse Gas (GHG) reporting
12. Energy Savings Opportunity Scheme (ESOS)

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Climate Change Act



Climate Change Act 2008

- UK Domestic Legislation
- Commits UK to significant emissions reductions to 2050 – 80% relative to 1990 emissions levels
- Not directly linked to EU legislation
- But EU led measures contribute to emissions reductions...
- So how might Brexit and Climate Change Act interact?



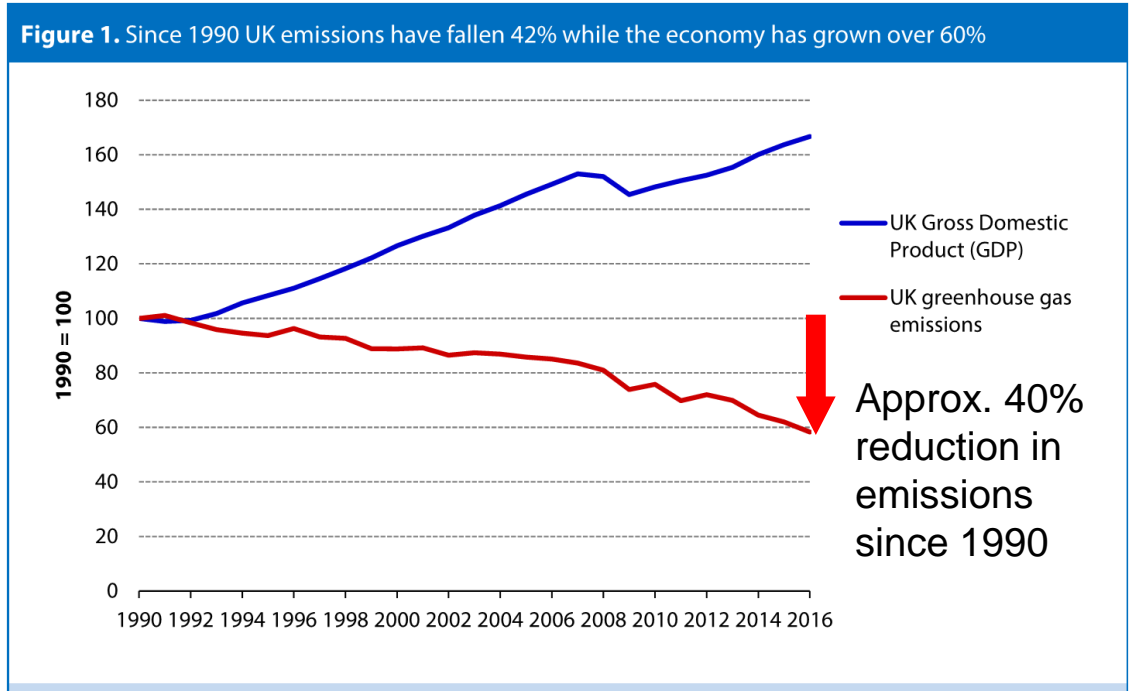
Climate Change Act 2008

It is the duty of the Secretary of State to ensure that greenhouse gas emissions are reduced by 80% by the year 2050, relative to 1990 levels

Carbon Budget 5 aims to reduce emissions by 57% by 2030, relative to 1990 emissions

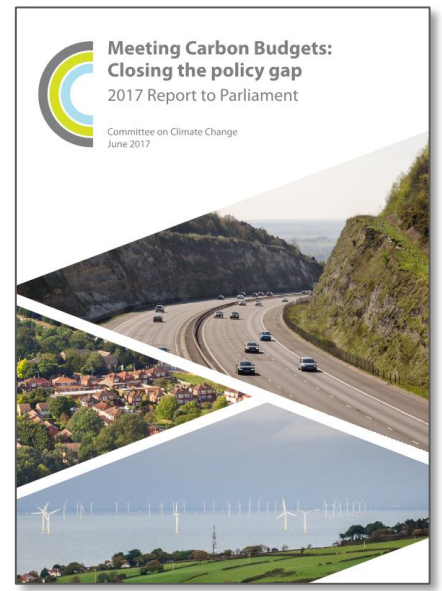


Good news...



(Source: Committee on Climate Change, 2017)

But...



We have decoupled GDP from energy and emissions

Carbon Budgets 1 to 5

Budget	Carbon budget level	Reduction below 1990 levels
1st carbon budget (2008 to 2012)	3,018 MtCO ₂ e	25%
2nd carbon budget (2013 to 2017)	2,782 MtCO ₂ e	31%
3rd carbon budget (2018 to 2022)	2,544 MtCO ₂ e	37% by 2020
4th carbon budget (2023 to 2027)	1,950 MtCO ₂ e	51% by 2025
5th carbon budget (2028 to 2032)	1,725 MtCO ₂ e	57% by 2030

Source: Committee for Climate Change



Climate Change and EU Exit

We have already ratified the Paris Agreement: in the EU or outside the EU we are committed to those actions and carbon reductions.

An EU exit does not directly undermine any targets set by the Climate Change Act

An EU exit may have an impact on policies and measures which contribute towards achieving the targets set by the Climate Change Act



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- UK government's Clean Growth Strategy



Clean Growth Strategy



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Clean Growth Strategy

Published by UK Government in
October 2017

“In order to meet the fourth and fifth carbon budgets (covering the periods 2023-2027 and 2028-2032) we will need to drive a significant acceleration in the pace of decarbonisation and in this Strategy we have set out stretching domestic policies that keep us on track to meet our carbon budgets.”

Clean Growth Strategy, pg9



Clean Growth Strategy

The Strategy then continues:

“But hitting our carbon budgets and expanding the low carbon economy will not be easy. We have achieved significant results in the power and waste sectors and now need to replicate this success across the economy, particularly in the transport, business and industrial sectors.

We also need to reduce the emissions created by heating our homes and businesses, which account for almost a third of UK emissions.

If done in the right way, cutting emissions in these areas can benefit us all through reduced energy bills, which will help improve the UK’s productivity, and improved air quality, while the innovation and investment required to drive these emissions down can create more jobs and more export opportunities.”



Clean Growth Strategy

- 102 policies and measures overall
- 51 relate to buildings and industry
- 17 to industry and commercial buildings
- 17 relating to improving our homes

Significant potential opportunity – if followed through



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Committee for Climate Change



Committee on
Climate Change

Independent advice to government on building a low-carbon economy and preparing for climate change



An independent assessment of the Clean Growth Strategy

This report provides the Committee on Climate Change's response to the UK Government's Clean Growth Strategy.



Key findings of the assessment

An independent assessment of the UK's Clean Growth Strategy: From ambition to action

The Government's Clean Growth Strategy sets out the next phase of action on climate change into the 2020s and 2030s. The Strategy...

- Is required by law, under the terms of the Climate Change Act 2008
- Commits to delivering continued action to reduce the UK's greenhouse gas emissions
- Reaffirms the UK's desire to remain at the forefront of tackling climate change globally

⚠️ But, the Strategy doesn't go far enough. Without **urgent action** to firm up existing policies and identify additional measures, the UK is set to miss its legally-binding climate change targets.

How the plans and actions in the Clean Growth Strategy stack up



Current plans are off track to deliver the required emissions reductions

To meet the 4th and 5th carbon budgets, plans must be firmed up urgently

By 2025, all actions must be on course to deliver



The report finds that

- The Government has made a strong commitment to achieving the UK's climate change targets.
- Policies and proposals set out in the Clean Growth Strategy will need to be firmed up.
- Gaps to meeting the fourth and fifth carbon budgets remain. These gaps must be closed.
- Risks of under-delivery must be addressed and carbon budgets met on time.

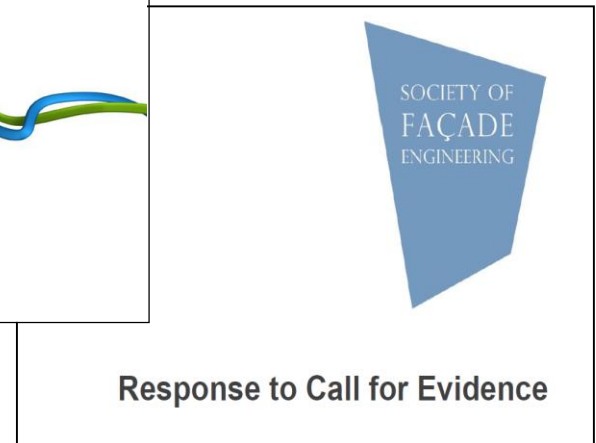
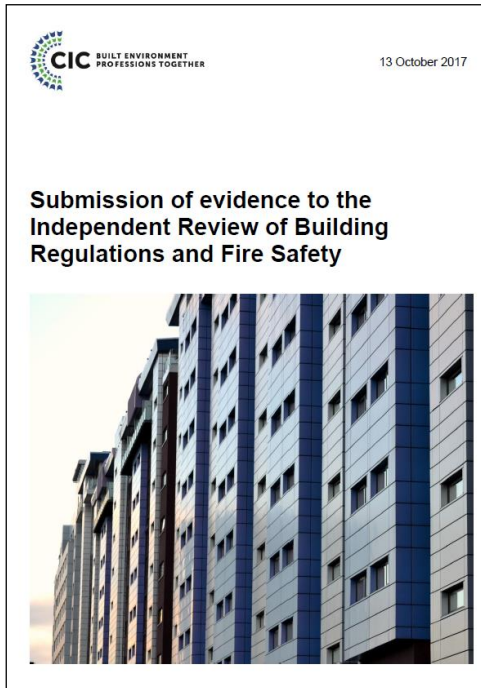


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Building Regulations – Independent Review





Building a Safer Future Independent Review of Building Regulations and Fire Safety: Interim Report

Presented to Parliament
by the Secretary of State for Communities and Local Government
by Command of Her Majesty

December 2017

Interim report key findings

The work of the review to date has found that **the current regulatory system for ensuring fire safety in high-rise and complex buildings is not fit for purpose**. This applies throughout the life cycle of a building, both during construction and occupation, and is a problem connected both to the culture of the construction industry and the effectiveness of the regulators.

Dame Judith Hackitt

“I have been shocked by some of the practices I have heard about and I am convinced of the need for a new intelligent system of regulation and enforcement for high-rise and complex buildings which will encourage everyone to do the right thing and will hold to account those who try to cut corners.

“Changes to the regulatory regime will help, but on their own will not be sufficient unless we can change the culture away from one of doing the minimum required for compliance, to one of taking ownership and responsibility for delivering a safe system throughout the life cycle of a building.”

The key reasons for this are:

- Current regulations and guidance are too complex and unclear. This can lead to confusion and misinterpretation in their application to high-rise and complex buildings.
- Clarity of roles and responsibilities is poor. Even where there are requirements for key activities to take place across design, construction and maintenance, it is not always clear who has responsibility for making it happen.
- Despite many who demonstrate good practice, the means of assessing and ensuring the competency of key people throughout the system is inadequate. There is often no differentiation in competency requirements for those working on high-rise and complex buildings.

Key reasons - continued

- Compliance, enforcement and sanctions processes are too weak. What is being designed is not what is being built and there is a lack of robust change control. The lack of meaningful sanctions does not drive the right behaviours.
- The route for residents to escalate concerns is unclear and inadequate.
- The system of product testing, marketing and quality assurance is not clear.

Review Phase 2 workstreams

- Design, construction and refurbishment - establishing what industry and regulators need to do to fully embed building safety during the design and construction phase.
- Occupation and maintenance - identifying what building owners, landlords and regulators need to do differently to ensure that building safety is prioritised when a building is occupied and throughout its life cycle.
- Products - determining how the product testing and marketing regime can be improved.
- Competency - establishing how competency requirements for key individuals involved in building and managing complex, high-risk buildings should change.
- Residents' voice - determining the best way for residents to be given a clear, quick and effective statutory route for raising concerns on fire safety.
- Regulation and guidance - resolving whether central Government ownership of technical guidance is the most appropriate model for complex and high-risk buildings.
- Procurement – looking at the influence of procurement on our buildings

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Known Unknowns



What might Brexit mean for current legislation?



Life After “Brexit”

- What can we expect to happen to legislation around energy and emissions related to buildings?
- Climate Change Act commits us to further emissions reductions,
- Clean Growth Strategy confirms those commitments and sets out a range of policies, some previously announced, to deliver lower emissions, in particular low carbon heat,
- Committee for Climate Change emphasises that we need to do MORE, and we need to start doing it SOON!
- (Carbon Budget four starts in 4 years....)



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European Union (Withdrawal) Bill



EU Withdrawal Bill

- Whilst the stated objective is to incorporate **ALL** currently applicable EU law into UK law, including EU Directives **and** Regulations:
- This does not cover the overall or underlying principles set out in:
 - The Treaties
 - The Recitals to the Directives and Regulations – all the numbered paragraphs at the start before the Articles, that begin “Whereas” ...



So What?

- Important principles such as “Polluter Pays” may not be directly transposed into UK law
- Specific statements in recitals may not apply, eg:

(9) The energy performance of buildings should be calculated on the basis of a methodology, which may be differentiated at national and regional level. That includes, in addition to thermal characteristics, other factors that play an increasingly important role such as heating and air-conditioning installations, application of energy from renewable sources, passive heating and cooling elements, shading, indoor air-quality, adequate natural light and design of the building. The methodology for calculating energy performance should be based not only on the season in which heating is required, but should cover the annual energy performance of a building. That methodology should take into account existing European standards.

EPBD Recast (2010) Recital (9)



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Building Regulations

they are not just about Part L:
also

Part F (Ventilation)

Part J (Combustion Appliances)

Part P (Electrical Safety – Domestic)

In total 23 Approved Documents and
Compliance Guides



Building Regulations Review

- Clean Growth Strategy gives commitment to review Building Regulations:

“Following the outcome of the independent review of Building Regulations and Fire Safety, and subject to its conclusions, we intend to consult on

- improving the energy efficiency of new and existing commercial buildings
- strengthening energy performance standards for new and existing homes under Building Regulations, including futureproofing new homes for low carbon heating systems”

So we are “Waiting for Hackitt” (with apologies to Samuel Beckett)

We are also awaiting the EPBD required five yearly review

And we have EPBD waiting just around the corner....



Building Regulations are now devolved



The Building Regulations 2010

**Conservation of
fuel and power**

APPROVED DOCUMENT

L2A

**L2A Conservation of fuel and power
in new buildings other than dwellings**

The Building Regulations 2010

Conservation of fuel and power

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L2A

L2A Conservation of fuel and power
in new buildings other than dwellings



Llywodraeth Cymru
Welsh Government

The Building Regulations 2010

Conservation of fuel and power

Approved Document **L2A**

New buildings other than dwellings

In effect from July 2014

Scottish Building Standards – Section 6

The screenshot shows a web browser window with multiple tabs open. The active tab is titled "Technical Handbook" and displays the URL <https://beta.gov.scot/publications/building-standards-technical-handbook-2017-non-domestic/2017>. The page content is titled "Energy" and "6.0 Introduction". The left sidebar shows a navigation menu with "Energy" expanded to "6.0 Introduction". The main content area contains the following text:

Energy

6.0 Introduction

6.0.1 Background

Within Scottish building regulations, improvements in energy standards have been made over many years, including in 2007, the move to a single carbon dioxide emission based methodology for assessing carbon and energy performance in new buildings.

The Sullivan Report - in 2007, Scottish Ministers convened an expert panel to advise on the development of a low carbon building standards strategy to increase energy efficiency and reduce carbon emissions. This resulted in The Sullivan Report – 'A Low Carbon Building Standards Strategy for Scotland' (<http://www.scotland.gov.uk/Sullivanreport>). A key recommendation of this Report was staged improvements in energy standards in 2010 and 2013, with the aim of net zero carbon buildings (emissions for space heating, hot water, lighting and ventilation) in 2016/17, if practical.

In May 2013 Scottish Ministers reconvened the Sullivan panel with a view to revisiting some of their original recommendations, taking account of the impact of the economic downturn on the construction sector. Whilst maintaining the level of ambition, the 2013 Update report [<http://www.scotland.gov.uk/Publications/2013/11/8593/0>] recommended a more moderate pace of change and offered recommendations in three areas:

- eventual and staged standards – Percentage improvements recommended in 2007
- process – Extending carbon compliance beyond site - related measures and

The browser's taskbar at the bottom shows various application icons, and the system tray on the right indicates the time as 13:08 on 06/02/2018.

Building Regulations

- Most recently updated in 2013, except for domestic boilers
- New efficiency requirements announced October 2017, coming into force in April 2018
- Amendments to the Domestic Building Services Compliance Guide published October 2017, to support the new requirements



Building Regulations – “Boiler Plus”

From 6th April 2018 all gas-fired and oil-fired boilers installed in existing dwellings are to be installed with thermostat and timer.

b. All replacement gas-fired boilers installed in existing dwellings are to have a minimum efficiency of 92% ErP4.

c. Gas-fired combination boilers installed in existing dwellings are to have at least one of the following controls:

- i. Flue gas heat recovery
- ii. Weather compensation
- iii. Load compensation
- iv. Smart thermostat with automation and optimisation



Cost Optimal Review

- The EPBD requires Member States to review their minimum energy efficiency standards using a methodology set out in a Commission Regulation.
- First review was due in 2012 but was delayed to 2013 by the late arrival of the Regulation. Next review due in 2017.
- Part L was broadly cost optimal in the first report to EU.
- With the reduced prices of some energy efficiency measures, learning rates and innovation we might expect a shortfall in 2017, although energy prices will also have an impact.
- No industry engagement in this review.



Review of ‘minimum energy efficiency standards’

- This must be done at least every five years, so next review is due to be complete in 2018;
- Applies to England and the devolved administrations
- Must be informed by the cost optimal analysis;
- Will need to adopt those measures deemed to be cost optimal;
- Does NOT need to go beyond “cost optimal”!



Part L timetable

England will review Part L once the Independent Review is complete

Scotland is already reviewing the Technical Standards

Scotland has specific targets set out in the Sullivan Review for reducing emissions from the built environment. These were scaled back in the wake of the financial crisis, but may be reconsidered as part of the overall review of Section 6

Wales is considering how to move forward; in 2010 there was a proposal to adopt more ambitious standards which was not adopted then, but could also re-emerge

Northern Ireland has its own requirements



Nearly Zero Energy Buildings



Nearly zero energy' buildings & regulations

Nearly zero energy' buildings 'are already in the Building Regulations

Nearly zero-energy requirements for new buildings

25B. Where a building is erected, it must be a nearly zero-energy building.

[The Building Regulations &c. \(Amendment\) Regulations 2012, SI 2012 No.3119](#)

This is because they are a requirement of the 2010 EPBD Recast



Requirements for nearly zero energy buildings

- Given the timetable for nzeb - 2021 for all and 2019 in some public buildings – the next version of Part L is the version that will apply for “nzeb”
- So from an energy efficiency perspective, anything that is needed to deliver nzeb probably needs to be cost optimal and to be adopted in 2018
- The forthcoming review of Part L is therefore going to be quite significant



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Minimum Energy Efficiency Standards



Minimum Energy Efficiency Standards (MEES)

- Domestic UK initiated legislation -
enacted in the Energy Act 2011
- Depends on EPC Regulations which are implemented within the current Building Regulations – so an EU measure enacted in domestic legislation
- EPCs originate from the EU EPBD
- Commitment to MEES restated in the Clean Growth Strategy, October 2017
- Delivery of MEES is assumed in the CCC response



Minimum Energy Efficiency Standards (MEES)

MEES is perhaps the best example of the interdependence of UK domestic policy and EU initiated policy relating to buildings and energy

The clearly stated direction of travel since October 2017 means that we can be pretty confident that EPCs and MEES are a permanent part of the policy landscape

Now that MEES is upon us, there are further policy measures proposed in the Clean Growth Strategy calling for a target of making all homes C rated or better by 2030

All the language suggests that EPCs and the associated measures are now locked in to current policy development



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Energy Savings Opportunity Scheme



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Energy Savings Opportunity Scheme

Published in November 2012, came into force in stages over 3 years
Introduced four yearly energy audits for “large enterprises”, with a “lead energy assessor” to oversee audits:

implementing Regulations and guidance published late June 2014
may also use Display Energy Certificates, Green Deal assessments
should identify realistic cost effective improvements to energy use in the business (but there is no compulsion to implement)

CIBSE now manages the largest register of ESOS Lead Assessors

First cycle of audits completed by 5th December 2015

Second cycle of audits due by December 2019

Firms certified to ISO 50001 (was BS EN 16001) do not need to undertake ESOS



ESOS

- Further commitment to ESOS Round 2 included in the Clean Growth Strategy.

So ESOS looks set to stay through to 2019 at least

- ESOS may also provide the reporting base for “streamlined energy and carbon reporting” – which is expected to replace the reporting element of the Carbon Reduction Commitment, or CRC, when it ends in 2019

So may be here to stay for longer!



Metering & Billing Regulations



What are they?

- Implemented under the Energy Efficiency Directive
- Regulations which require all communal heating systems to be separately metered (unless it is not cost effective to do so).
- Communal heating means a central boiler in a multi tenanted building
- A case study in unintended impact and consequence
- But now that most of those affected have got to grips, please leave well alone....



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EPBD III



EPBD – the next frontier....

- The European Council and Commission have signed off on the final text
- Goes to European Parliament in April for final approval stage
- Expected to coming into force in December 2019
- If so, then in theory it should be implemented under the “transitional arrangements”
- In theory, theory and practice are the same, but in practice...
- This is clearly a known unknown.



EPBD – the next frontier....

- Smart, simpler, supportive of building renovation
- New Art 2a on long term building renovation strategy
- Stronger links between renovation and availability of finance
- Updated provisions for air conditioning and boiler inspections
- Updated definition of “technical building systems” – to include building automation and control and EV charging capability
- Requirements to provide EV charging infrastructure
- Introduction of a new “smart readiness indicator”



EPBD – the next frontier....

- The national renovation strategy moves to EPBD from EED
- High Efficiency Systems continue to have to be “considered” for new build and major refurbishment
- Considered, not necessarily used....
- EV charging infrastructure for charging points for 1 in 5 parking spaces in new build and major refurbishment of non domestic
- Ducting only for all residential parking spaces
- This is in line with other commitments in Clean Growth Strategy and in R&D plans
- How will this be delivered? Is it one for Building Regulations?
- Answers on a postcard, please....



Unknown unknowns





There are things we don't know we don't know

And my destination this evening

This is a time of unprecedented change for building related legislation.

Whilst “Brexit” and “Hackitt” attract attention and headlines, the progressive tightening of the Climate Change Act and the targets set out in the five yearly carbon budgets will constrain any changes to legislation relating to energy use in buildings.



Thank you for listening

Any Questions?

hdavies@cibse.org

