

The role of MEPS as a key driver for energy renovation

Thursday, 22nd September

9:30 - 11:00 AM

Online

Introduction



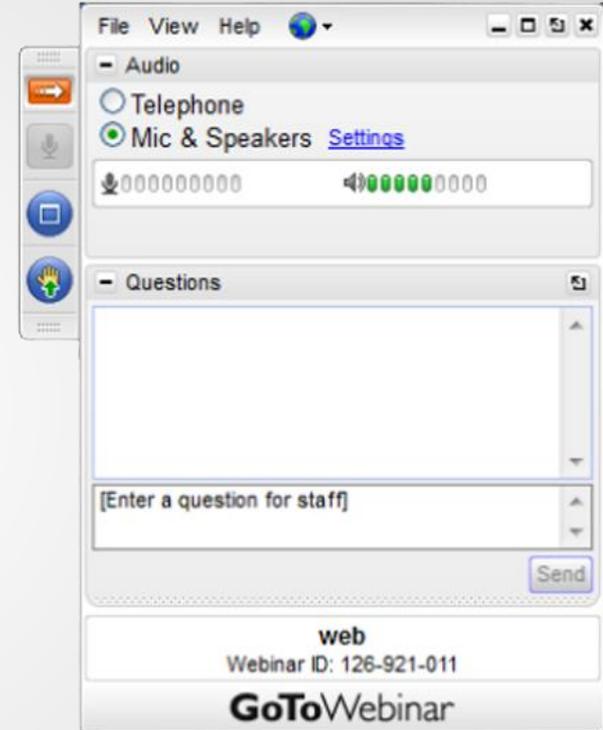
Céline Carré
Saint Gobain – President of EuroACE



Instructions

Please send your questions via the Q&A box.

For YouTube: Use the chat



EuroACE – Energy Efficient Buildings

- The European Alliance of Companies for Energy Efficiency in Buildings
- Formed in 1998 by Europe's leading companies involved with the manufacture, distribution and installation of energy saving goods and services
- A business association working together with the European institutions to help Europe move towards an efficient use of energy in buildings (new and renovated)



EuroACE – Energy Efficient Buildings

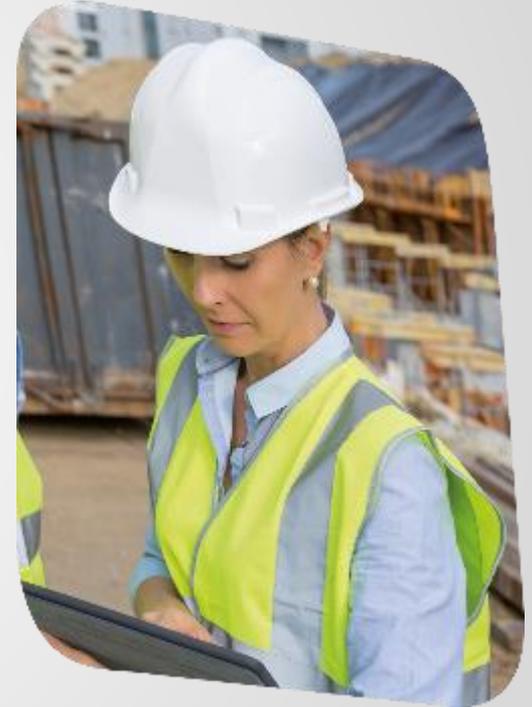
Our members provide the products, equipment, and services that go together to provide energy efficient buildings for the peoples of the EU



EuroACE – Energy Efficient Buildings

We know that improving the energy efficiency of buildings, especially renovating existing buildings, is the most cost-effective method of:

- Creating employment and securing economic growth
- Alleviating energy poverty over the long-term
- Achieving energy security
- Providing people with comfortable and healthy homes
- Meeting carbon reduction targets



2022 EPBD Webinar Series

Series of webinars focusing on different aspects of the EPBD which have the potential to considerably increase energy renovation rates in the EU.

Episode 1

<https://youtu.be/Q831ueWSszY>

Episode 2

<https://youtu.be/ws5oOxBABRY>

THE PLACE OF BUILDINGS IN THE FIT FOR 55
10 May | 14h00 - 15h00 | online

Ciarán Cuffe,
EPBD rapporteur (Greens/EFA)

Paula Rey Garcia,
DG Energy

Arianna Vitali,
Coalition for Energy Savings

Brian Motherway,
International Energy Agency

Moderator
Adrian Joyce, EuroACE

Femke de Jong,
European Climate Foundation

EuroACE
Energy Efficient Buildings

RENOVATING HISTORY

Event moderated by
Céline Carré, President of EuroACE

Speakers

Marco Mari,
Italian Green Building Council

Alexandra Troi,
Eurac Research

MEP Marcos Ros Sempere
(S&D, Spain)

How to bring historic buildings into the 21st century
Monday 11 July 2022
10:30 - 11:30

EuroACE
Energy Efficient Buildings

Today's agenda

9:30 | **Introduction and setting the scene** – Céline CARRÉ, President of EuroACE

9:35 | **Why the MEPS in the EPBD proposal are important for an energy-resilient building stock**

Serena Pontoglio, Team Leader - Buildings policy and Renovation Wave implementation, DG ENER.B.3, European Commission

9:45 | **Minimum energy performance standards: a key driver for deep renovation**

Camille Defard, Research Fellow in EU Energy Policy, Jacques Delors Institute

9:55 | **The impact of renovating worst-performing buildings on energy security**

Dr. Andreas Hermelink, Director, Guidehouse

10:05 | **The role of MEPS & financing: the example of Belgium**

Sabine Pauquay, representative of Renovate Belgium

10:15 | **Heat in Buildings Strategy: Achieving Net Zero Emissions in Scotland's Buildings**

James Hemphill, Head of Heat Regulation, Scottish Government

10:25 | **Discussion**

10:55 | **Conclusions**

Why the MEPS in the EPBD proposal are important for an energy-resilient building stock



Serena Pontoglio
DG ENER, European Commission

Why are minimum energy performance standards a key driver for deep renovation ?



Camille Defard
Jacques Delors Institute

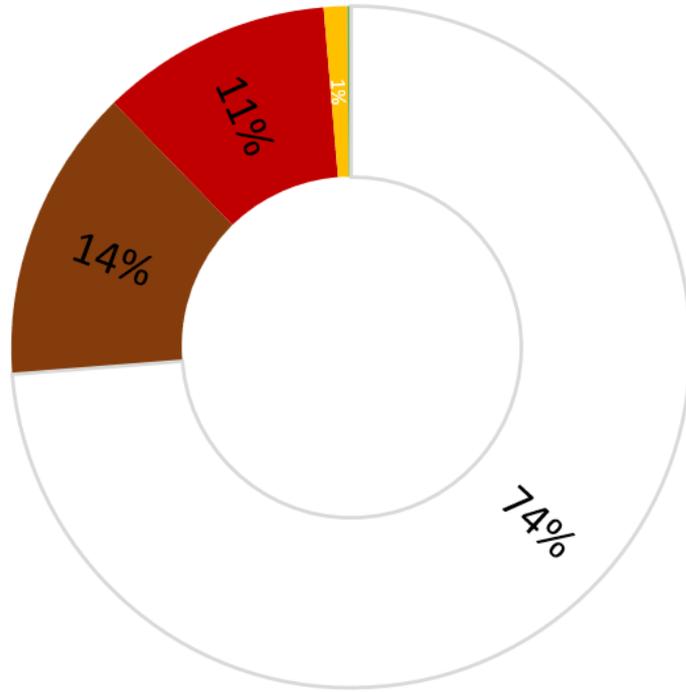
Why are minimum energy performance standards a key driver for deep renovation ?

EuroAce webinar 22/09/2022

Camille Defard,
Research Fellow EU Energy Policy

Renovation depth and pace must increase

Shares of annual renovation for the residential buildings in the EU

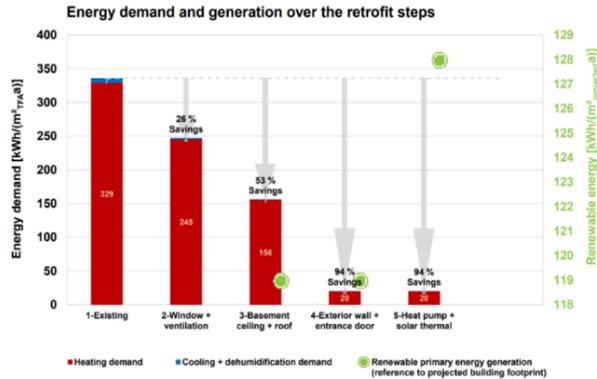


- non energy renovation
- below threshold / light energy renovation (below 30% savings)
- medium energy renovation (30% to 60% savings)
- deep energy renovation (60% savings and above)
- rest of the residential building stock

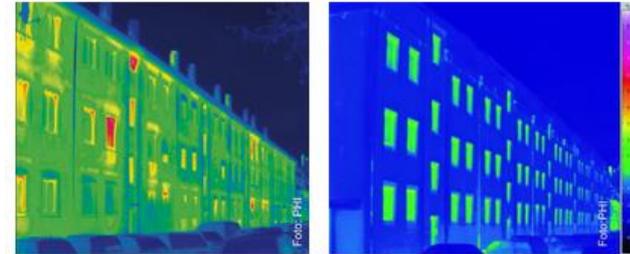
Decreasing energy demand

- Reach 3% average annual renovation rate
- The bulk of renovations should reach at least 60% savings

Deep renovation can cut up to 90% of building's energy consumption



Source: Bastian (2016)



Apartment block, Tevestraße Frankfurt, Germany

Before modernisation

After modernisation



Figure B : schéma des 6 postes de travaux nécessaires à la performance thermique (source : Dorémi)

Key obstacles to deep renovation

Knowledge and awareness barriers

- Lack of well communicated decarbonisation trajectory
- Lack of awareness of the benefits from households
- Lack of technical support

Financial barriers

- High up-front cost of deep renovation
- Access to finance
- Split incentives

Supply chain

- Fragmented market with multiple stakeholders
- Lack of skilled workforce
- Lack of quality insurance for quality renovation

Deep renovation =
a new car (20k€ to
50k€)

Key obstacles to deep renovation

Solutions to tackle these barriers already exist but need to scale up.

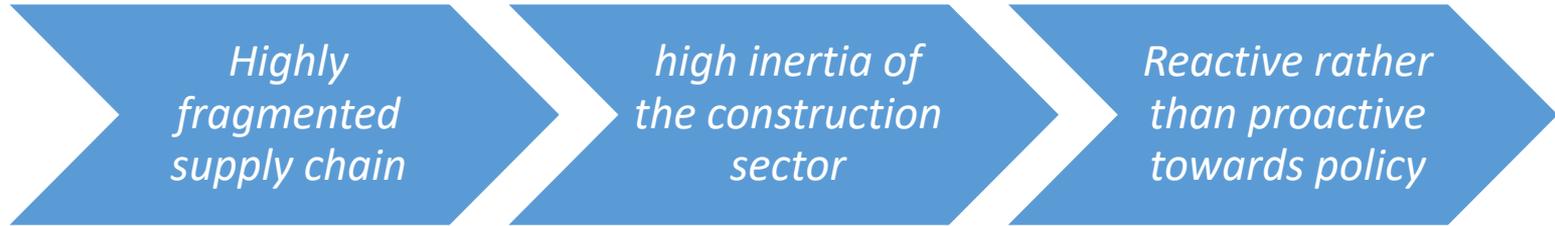
- Only 5% of projects carried out with the support of one-stop-shops integrated solutions.
- 36% of the French housing stock could be renovated using the Energiesprong approach.

Key obstacle to scale-up identified by entrepreneurs : **customer base uncertainty** ([JRC 2021](#), own exchanges with Energiesprong France)

> Lack of long-term commitment to deep renovation in the residential sector (Italy, Germany, France...).



Policy actions to lift obstacles to deep renovation



- Goal : to align the construction sector with deep renovation needs
- Most important policy action : send a **clear and predictable signal** towards the decarbonization of the whole building stock (JRC 2021, [EP 2016](#))
- Most effective policy tool : **minimum energy performance standards** with compliance dates

Energy Performance of Buildings 2021 revision : introducing Mandatory Energy Performance Standards for existing buildings ?

Table 1. Examples of MEPS around the world

Where	Introduced	Fully enforced	Building stock sector, tenure, building type	Metric	Minimum standard
Netherlands	2018	2023	Office buildings	EPC	EPC C
France	2019	2028	Private homes	EPC	EPC E
France	2019	2023	Rented homes	Energy performance	Worst-performing: using >450 kWh/m ² /year
France	2019	2030, 2040, 2050	Tertiary sector buildings over 1,000m ²	Final energy consumption	40% in 2030, 50% in 2040, 60% in 2050
Flanders, Belgium	2015, 2019	2020, 2023	All homes, but only enforced for privately rented homes	Technical measures	Minimum roof insulation Double glazing
Brussels-Capital, Belgium	2019 (Announced) 2021 (Regulation)	2030, every five years	All domestic and non-domestic buildings	Technical measures	Measures specified by EPC
England and Wales	2016 (Regulation)	2020, 2028	Privately rented homes	EPC	EPC E, 2020 EPC C, 2028 (proposed) ¹²

MEPS are regulated standards that require targeted buildings to meet a minimum level of energy performance at a future date or trigger point like rent or sale.

Guarantees a minimum level of renovation

Source : Sunderland, L., Santini, M., [Next Steps for MEPS: designing minimum energy performance standards for European buildings](#). Regulatory Assistance Project. 2021.

Potential impact of MEPS

- Creating market certainty over future demand with MEPS will allow :
 - ❑ **Manufacturers** of high-quality insulation components to industrialize their production
 - ❑ **Local artisans** to upskill and hire additional workers
 - ❑ **One-stop-shops** to invest in marketing and ads to reach out new customers
 - ❑ **Banks** to set up in-house expertise and appropriate financial products (discounted rates in case of a good energy performance)

MEPS should be supported by stable government technical assistance, training, and funding programs



Source of the figure : Regulatory Assistance Project

Designing ambitious MEPS

- **Target stock** : covering all segments, prioritize worst-performing buildings
- **Target performance level** : prioritize deep renovation wherever possible, A, B, C, D ; heat-pump readiness
- **Target compliance date** : 2030 (typically 5 to 7 years required to ramp up solutions), 2040, 2050

The strong signal the construction sector needs to get moving, provided that framework is **aligned with climate neutrality** and coupled with credible monitoring and reporting requirements (public funding conditional to MEPS achievement, penalties in case of non-compliance, ect).



The impact of renovating worst-performing buildings on energy security



Andreas Hermelink
Guidehouse

The impact of renovating worst- performing buildings on energy security

22nd September 2022



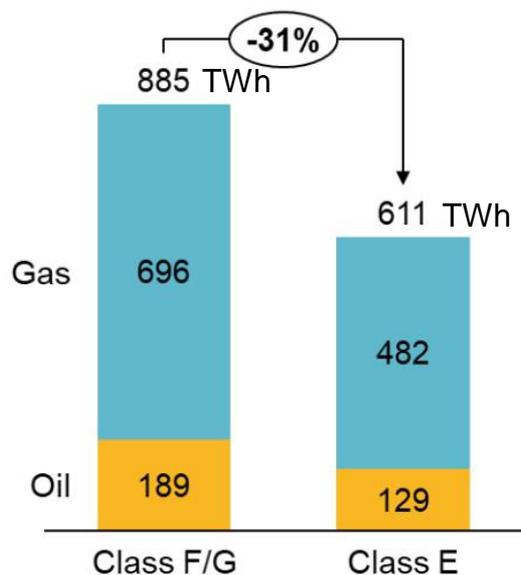
Worst performing buildings in the EU

- EPC classes **F & G** (after re-scaling)
- Today about **one third of total floor area** in the EU
- of which about **three quarters are residential buildings**
- before the war in Ukraine the amount of gas used in worst performing EU buildings for heating equaled about **45% of total gas imports from Russia**

Source: Bettgenhäuser, Kjell; Manteuffel, Bernhard von; Yordanova, Silvia (2022): Energy security impacts of renovating the EU's F and G class buildings. Policy brief. Available online at <https://guidehouse.com/-/media/www/site/insights/energy/2022/energy-dependency-f-and-g-class-buildings-20220505.pdf>

Savings by moving from F/G to E („EU level MEPS“)

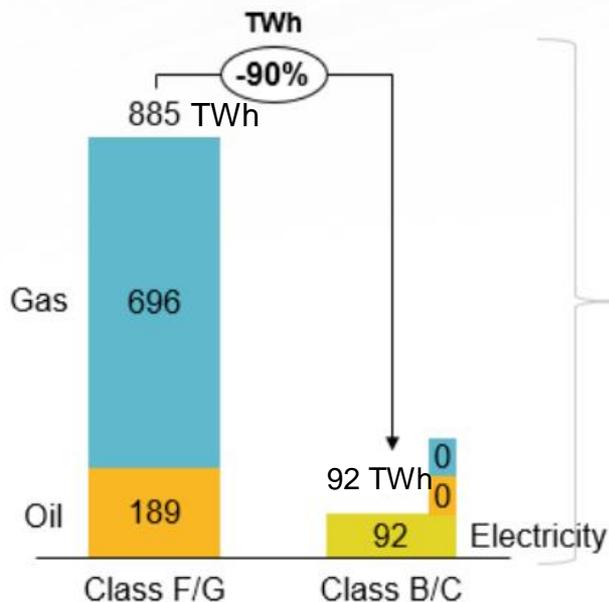
Final energy purchased by user



	Before renovation Class F/G	After renovation Class E	Savings
	696 TWh (69.6 bcm gas)	482 TWh (48.2 bcm gas)	-214 TWh (-21.4 bcm gas)
	189 TWh (18.9 bn litres oil)	129 TWh (12.9 bn litres oil)	-60 TWh (-6.0 bn litres oil)

Source: Bettgenhäuser, Kjell; Manteuffel, Bernhard von; Yordanova, Silvia (2022): Energy security impacts of renovating the EU's F and G class buildings. Policy brief. Available online at <https://guidehouse.com/-/media/www/site/insights/energy/2022/energy-dependency-f-and-g-class-buildings-20220505.pdf>

Savings by moving to deep renovation: ZEB-insulation, phasing out of fossil fuels and switching to heat pumps



	Before renovation Class F/G	After renovation Class B/C	Change
	696 TWh (69.6 bcm gas)	0 TWh (0 bcm gas)	↓ -696 TWh (-69.6 bcm gas)
	189 TWh (18.9 bn litres oil)	0 TWh (0 bn litres oil)	↓ -189 TWh (-18.9 bn litres oil)
	0 TWh	92 TWh	↑ +92 TWh

Source: Bettgenhäuser, Kjell; Manteuffel, Bernhard von; Yordanova, Silvia (2022): Energy security impacts of renovating the EU's F and G class buildings. Policy brief. Available online at <https://guidehouse.com/-/media/www/site/insights/energy/2022/energy-dependency-f-and-g-class-buildings-20220505.pdf>

Example for successful deep renovation (Hungary)

220 kWh/m²a

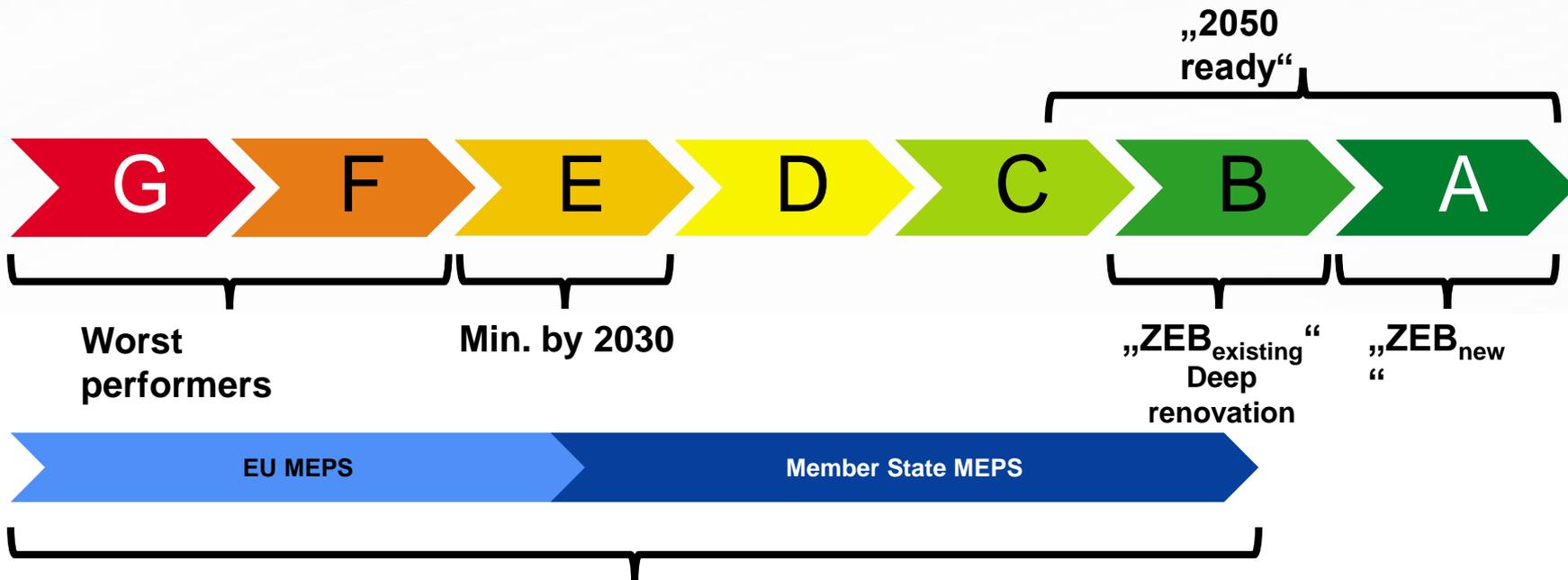
30 kWh/m²a



Source:
www.solanova.org

Two-level MEPS

“EU MEPS” as kick-starter for “Member State MEPS” towards a climate neutral building stock



Seamless renovation journey, ideally implemented by BRP (Building Renovation Passport)

MEPS facilitate persistent and affordable energy security

- **Energy Security 1.0:**

“EU MEPS” drive independency from fossil fuel imports

- **Energy Security 2.0:**

“MS MEPS” must drive independency from renewable energy imports

- **Energy efficiency first safeguards**

- **persistent energy security**

- **persistent affordability**

- lowest cost and highest acceptance of a climate neutral energy system

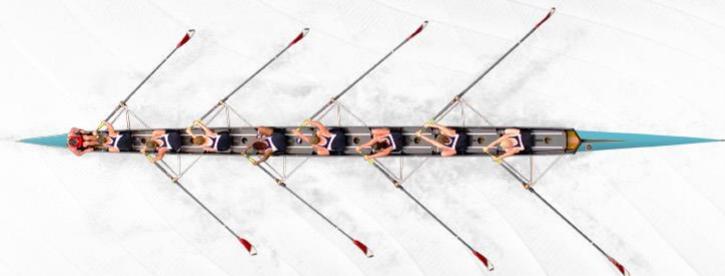
- low electricity consumption and OPEX of heat pumps through high efficiency

Your Guide

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The role of MEPS & financing: the example of Belgium



Sabine Pauquay
Renovate Belgium

The role of MEPS & financing: the example of Belgium

Sabine Pauquay,

Coordinator of Renovate Belgium

Belgium = a federal state



MEPS as of 2023

MEPS considered. Current work on improving EPCs

- 3 different Long Term Renovation Strategies
- 3 different government coalitions
- 3 different approaches to subsidies & MEPS

Financing renovation : the Belgian Recovery & Resilience Plans



60% of the RRF invested in the building sector, 17% in renovation

VAT reduction (21 to 6 %) for buildings older than 10 years

Brussels : by 2024, 1 billion for housing policy, with additional budget of 112 million for renovation of private and public housing

Wallonia : by 2024, 1.2 billion for renovation of social housing (55.00 units)

Flanders: by 2024, 4.5 billion for social housing, 1.2 billion to support private renovation, additional budget of 422 millions for energy renovations

The link between MEPS & financing : the example of Flanders



Flanders : step 1



Table 1 - Insulation efforts in Flemish houses

	(ALMOST) EVERYWHERE	PARTIAL PRESENCE	ABSENT
INSULATING GLASS	86,2%	9,5%	4,3%
ROOF/LOFT INSULATION	76,5%	8%	13,6%
WALL INSULATION	49,3%	14,9%	35,9%
FLOOR INSULATION	33,4%	13,9%	52,7%

Source: VEA (2019). *Verhogen van de renovatiegraad van bestaande woningen. Werkdocument 2019: Renovatiepact 2.0, September 2019.*
<https://www.energiesparen.be/sites/default/files/atoms/files/Werkdocument%202019%20Renovatiepact%202.0.pdf>

First obligation through “housing quality” code : (limited) insulation obligatory for roof (2015), prohibition of single glazing (2020)

=> Housing declared “not fit for renting” if not compliant

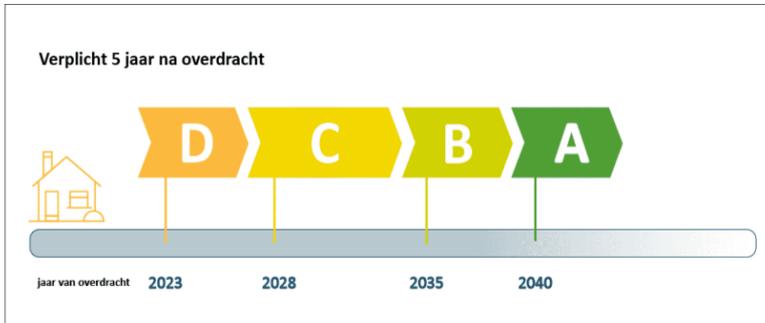
Flanders : step 2: increased & simplified financing

Mijn VerbouwPremie (= “My RenovationSubsidy”)

- One-stop-shop merging renovation & energy efficiency subsidies
- Increased subsidy level (post COVID)
- Can be combined with reduced property taxation after renovation works
- Can also be combined with interest-free loan up to 60.000 €



Flanders: step 3 : MEPS



Obligation to renovate dwellings :

- As of 01/01/2023
- within 5 years of sale
- Label E or F must be renovated to label D or better
- Path will be strengthened progressively

Financing renovation in Belgium (1/2)



The financial barrier to climate and comfort renovations

Study by Prof. Albrecht carried out in Flanders in 2020:

- 40 to 51% of owners not able to finance climate renovations
- Offering limited subsidies make no difference : most owners lack 50.000 € or more
- Climate renovations are not a priority for homeowners (comfort, utilization or resale value are).
- Huge majority of phased renovations

Previous study (Broin et al, MURE database):

- 3 types of measures : financial, regulatory, informative
- Technical regulation has a predictable positive impact
- Impact of financial incentives & information is smaller
- Choice up to now : focus on information & financing

Financing renovation in Belgium (2/2)



June 2022

Pre-financing mechanisms for climate renovations accessible to all Flemish homeowners

CLIMACT's report intends to inform BBL. It is strictly for internal use at BBL. It cannot be directly used as communication material by BBL without prior written consent from CLIMACT. The study reflects the views of the authors.

CLIMACT: Quentin Jozsen, Elise Songurakin, Vadim Lacroix, Marion Leliers, Pieter-Willem Lemmens, Pascal Vermaelen
Energinvest: Jean-François Marchand, Lieven Vaestraeten.



Study by CLIMACT for BBL:

- 40% of households can only renovate if they have access to prefinancing
- 3 types of prefinancing, depending on the “fragility” of target groups:
 - a. Interest free loans (up to 30 years)
 - b. Payback based on saving on energy bill
 - c. “bullet loan” : pay back when you sell the property

Heat in Buildings Strategy: Achieving Net Zero Emissions in Scotland's Buildings



James Hemphill
Scottish Government



Heat in Buildings Strategy: Achieving Net Zero Emissions in Scotland's Buildings

EuroACE Webinar: The Role of MEPS as a
Key Driver for Energy Renovation

22 September 2022



Scottish Government
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Climate Change Emission Reduction Targets (Scotland) Act 2019

- Net-zero emissions by 2045; and
- 75% reduction in emissions by 2030.

Heat Networks (Scotland) Act 2021

- 2.6TWh supplied by 2027; and
- 6TWh supplied by 2030

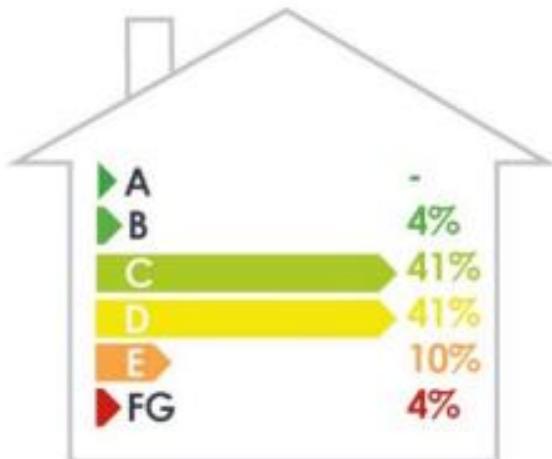
Fuel Poverty (Targets, Definitions and Strategy) (Scotland) Act 2019

- In 2040: no more than 5% of households are fuel poor with <1% in extreme fuel poverty

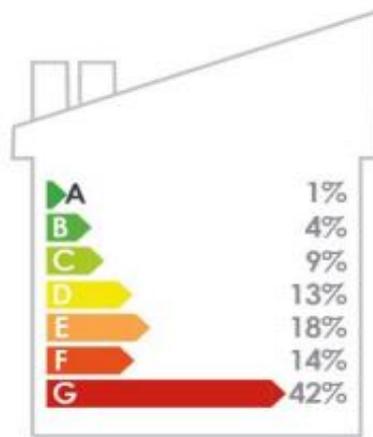


- Buildings = **20%** of Scotland's total emissions (third-largest emitter)
- 2030 climate change target = c. **1,000,000 homes** moving from fossil fuel heating (>45%)
- Total capital cost = c. **£33bn** (c. £14bn by 2030)
- Retail electricity = **x3.3** > gas.
- Current installations = c. **3,000 p.a.**

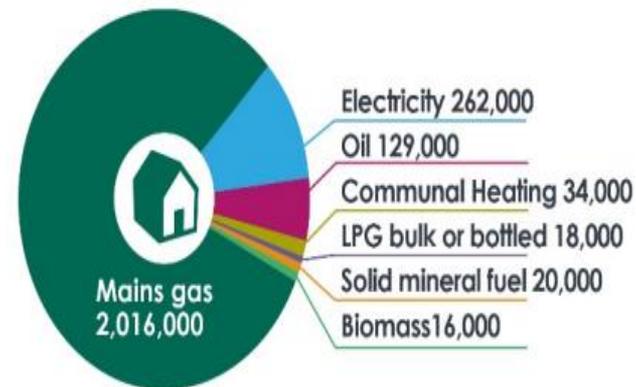
Energy Efficiency Standards (Domestic)



Energy Efficiency Standards (Non-domestic)



Primary Heating (Domestic)



Heat in Buildings Strategy (HiBS)

Heat in Buildings Strategy

Achieving Net Zero Emissions in Scotland's Buildings



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Highlights:

- Investing at least **£1.8bn** in this Parliament (to 2025/26);
- New **Public Engagement Strategy** (2022)
- New National **Public Energy Agency** (2022-25)
- Commitment to **primary legislation** which will:
 - require all homes to reach EPC C (equivalent) by 2033;
 - phase out the installation of new fossil fuel boilers from 2025; and
 - Standards for non-domestic buildings from 2025.

Home Energy
Scotland

Business
Energy
Scotland

Warmer
Homes
Scotland

Area-based
Schemes

Heat
Networks Act

'LHEES'

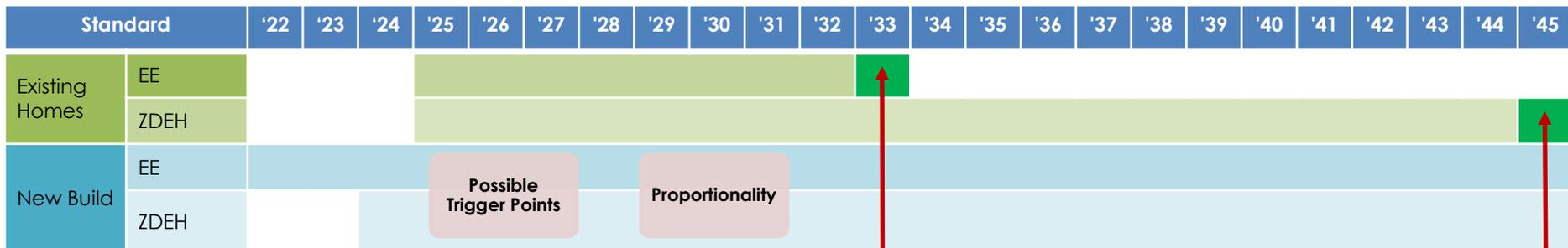


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Heat in Buildings Standard

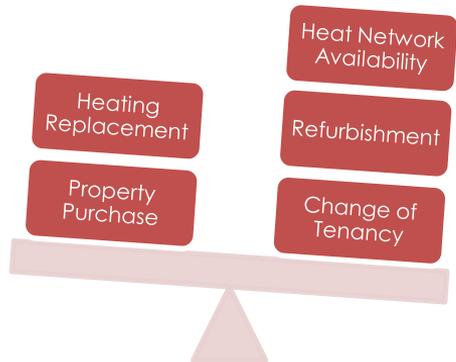
HiBs Standard:

- Requirement** to meet a minimum energy efficiency standard (equivalent to EPC C) by 2033; and,
- Prohibition** on the use of direct emissions heating systems (DEHS) after 2045.



Possible Trigger Points

Proportionality



Defining the Standard

HiBs Standard – will be made up of 2 elements:

1. **Requirement** to meet a minimum energy efficiency standard (equivalent to EPC C) by 2033; and,
2. **Prohibition** on the use of direct emissions heating systems (DEHs) after 2045.

Minimum Energy Efficiency Standard

- a maximum space and hot water heating requirement (in kWh / m² / year) expected to be equivalent to **new** EPC C; or
- Installation of specified list of measures (where relevant), e.g.:
 - 270mm loft insulation;
 - cavity wall insulation (CWI);
 - draught-proofing;
 - heating controls;
 - hot water cylinder insulation (HWCI); and
 - suspended floor insulation.

*Estimated to cost **£14,000** for the average household, made up of approximately £10,000 for heating system and £4,000 for the associated fabric efficiency measures.*

Next Steps:

- Complete research into minimum energy efficiency standard (October 2022).
- Confirm level and form of cost-cap (late-2022).
- Reform EPCs to present max. heating requirement **and** 'checklist' of measures (ongoing).
- Consult (early-2023).



EPC Metric Reform

- EPCs in Scotland currently have two ratings, running cost and CO₂ emissions, alongside the Primary Energy indicator
- Our statutory climate change advisors recommend we reform EPCs to:
 - Remove “perverse incentive” favouring gas boilers over heat pumps / electrification due to high electricity price
 - “Ensur[e] EPCs drive deployment of the necessary energy efficiency measures”
- We are considering adding a new metric based on either energy demand or energy use as an option to meet the energy efficiency standard
- We have commissioned research to develop options for the new metric, and determine how this can be used as a basis for ‘equivalent to EPC C’ regulations
- The reformed EPC will have three metrics:
 - Energy Efficiency Rating (use or demand)
 - Energy Cost Rating
 - Carbon Emissions Rating

Energy Use:

Modelled energy supplied to dwelling from grid, **including** heating system efficiency.

Energy Demand:

Modelled heating and cooling demand, **excluding** heating system efficiency.

Only considers dwelling fabric.

Current Metrics		Proposed Metrics	
Energy Efficiency Rating (£)	Based on running cost per m ²	Energy Cost Rating	Based on running cost per m ²
Environmental Impact Rating	Based on emissions per m ²	Carbon Emissions Rating	Based on emissions per m ²
		Energy Demand / Energy Use Rating	Based on energy per m ²



Questions?

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Discussion

Conclusions



Céline Carré
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Thank you!