



**Delivering on the European  
Green Deal and Fit for 55**

# **Selected EU policies and initiatives impacting the transition of the construction sector**

**European Commission – 04.06.2024**

**DG ENER - Brigitte JACQUEMONT - Buildings and Products Unit**

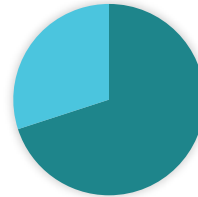
**DG GROW - Oscar NIETO SANZ - Construction Unit**

# Energy Performance of Buildings Directive

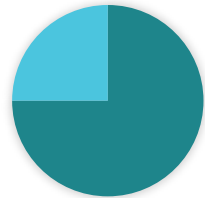
# EU building stock

EU building sector is one of the **largest energy consumers** (approx. 42%) in Europe, responsible for **more than one third of the energy-related emissions.**

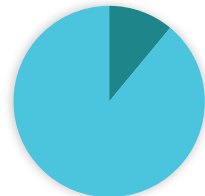
About **24 billion m2** permanently occupied floor area, more than **70 % residential**



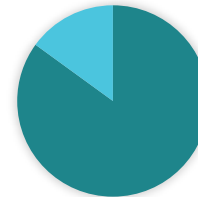
... **75 %** of the building stock **has poor energy performance** ...



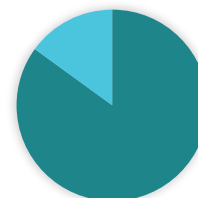
Approx.. **11%/yr** of existing buildings undergo some level of **renovation**, while only about **1%/yr** concerns **deeper energy renovation**



About **85 %** of existing EU dwellings were **built before 2000**, of which ...

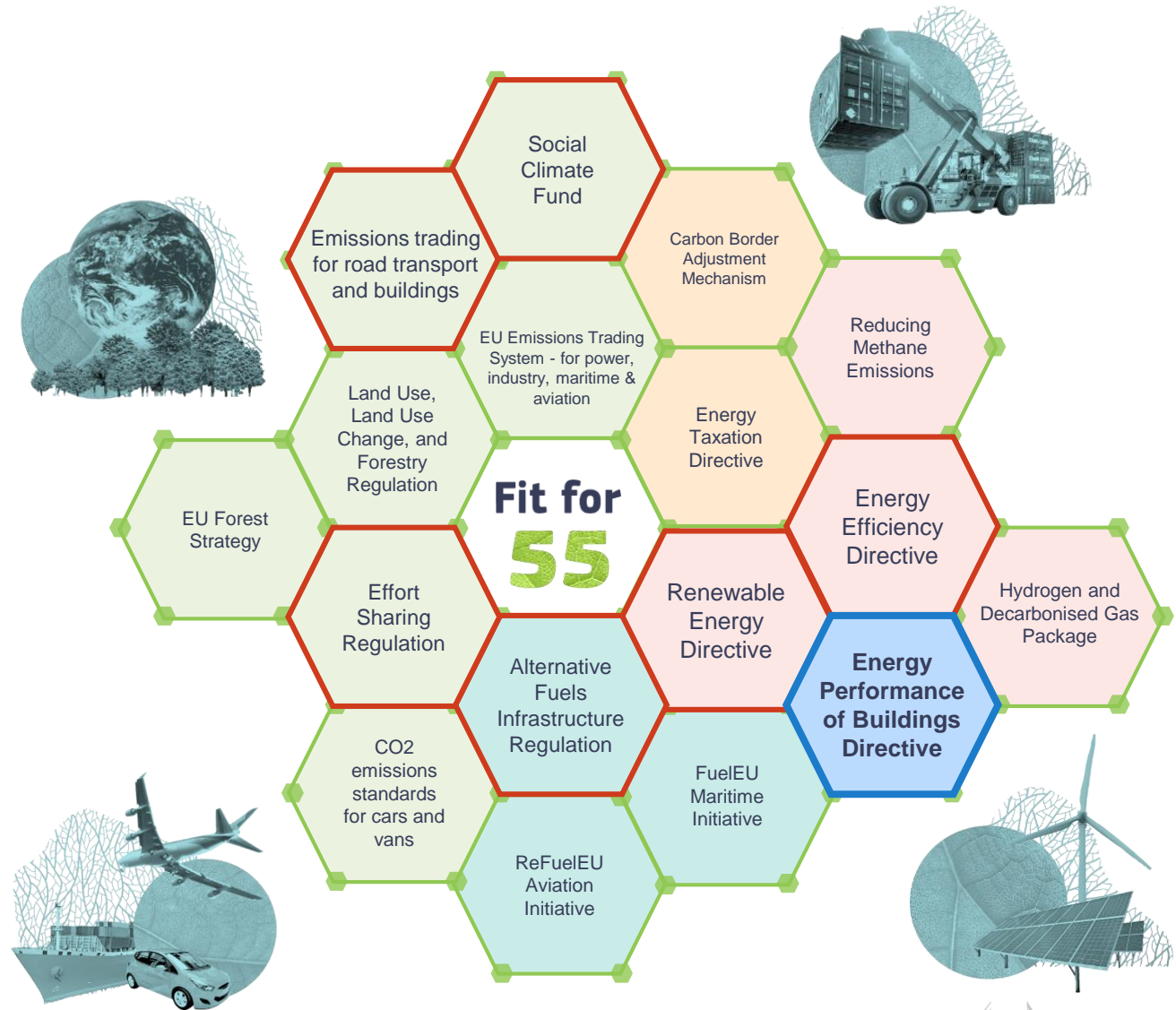


... **more than 85 %** of current stock will **still be in place in 2050**



# “Fit for 55” package - 55% GHG emission by 2030

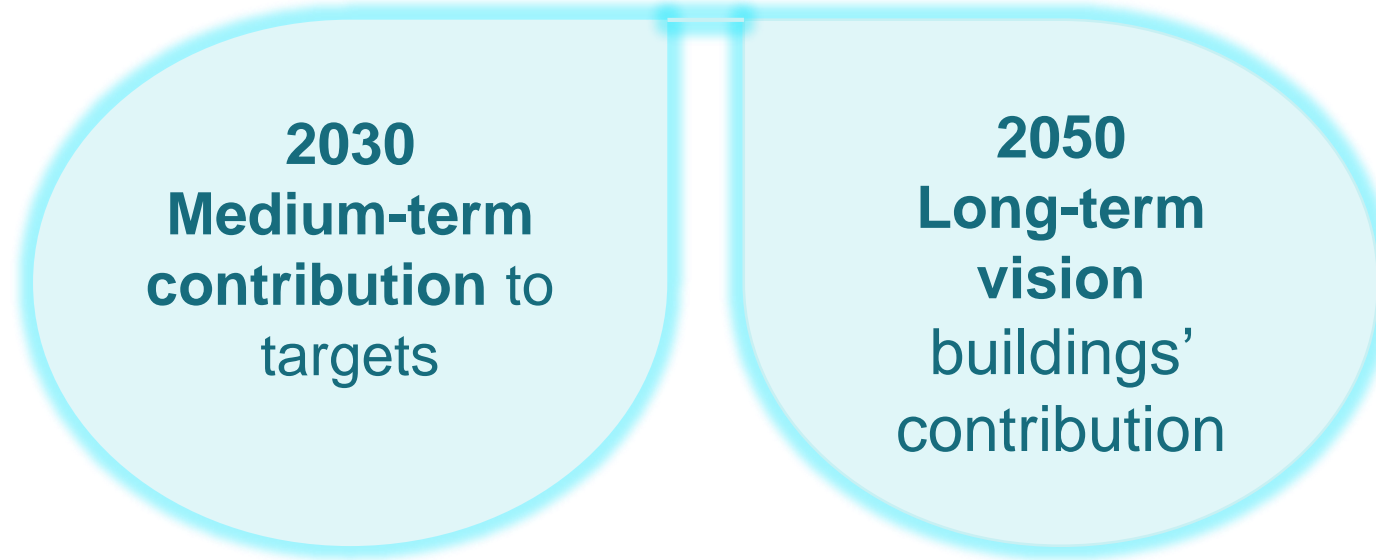
**EPBD recast = effective delivery mechanism for the buildings sector**



# Timeline of the recast EPBD process

- End of May 2026 ● 24 months after EPBD entry into force
- 8 May 2024 ● [Publication in Official Journal](#) - entry into force 20 days after
- 12 April 2024 ● Formal adoption by Council
- 12 March 2024 ● Adoption in the EU Parliament plenary
- 7 December 2023 ● 4th political trilogue: provisional agreement reached
- March 2023 ● European Parliament's position on the EPBD revision
- October 2022 ● Council General Approach on the EPBD revision
- 15 December 2021 ● EPBD proposal adopted by COM

# Objectives of the recast EPBD



- Renovation Wave Strategy: aims at doubling renovations by 2030 and foster deep renovations
- Climate target plan 2030: reduce buildings' GHG emissions by 60%, their final energy consumption by 14% and energy for heating and cooling by 18%.
- RePowerEU Strategy and EU Save Energy Campaign: asking co-legislators for more
- 2050 Long Term Strategy: climate neutral economy
- Climate Target Plan 2040: reduction of 90% of net GHG emissions

# Focus areas of the recast EPBD

## Renovation

- Minimum Energy Performance Standards
- National trajectories for the progressive renovation of the residential building stock
- National Building Renovation Plans

## Enabling framework

- Strengthened Energy Performance Certificates
- Renovation passports
- Sustainable finance & energy poverty
- One-stop-shops
- Deep renovation standard
- National energy performance databases

## Decarbonisation

- Introduction of zero-emission buildings as standard for new buildings
- Solar deployment in buildings
- Calculation of whole life cycle carbon
- Phasing out incentives for fossil fuels and new legal basis for national bans

## Modernisation & system integration

- Infrastructure for sustainable mobility
- Smart Readiness Indicator
- Indoor air quality: ventilation and other technical building systems
- Digitisation & national databases

# Zero-emission buildings (Articles 7, 11, Annex III)

- **All new buildings to be zero-emission buildings (ZEBs):**
  - From 2028 public buildings owned by public bodies
  - From 2030 all new buildings
- **ZEB will require:**
  - **Zero on-site emissions from fossil fuels**
  - **A very low amount of energy with a view to cost-optimal level but at least (NZEB -10%)**
  - **Supplied by:**
    - **renewables from onsite, nearby, renewable energy communities**
    - **energy efficient DH&C**
    - **energy from carbon-free sources**
  - **Life cycle GWP calculation**
    - from 2028 for new bdgs >1000m<sup>2</sup> useful floor area, from 2030 for all new buildings) and disclosure through EPC







# Focus on zero-emission buildings & whole life-cycle carbon



## Article 7 – New buildings

(2.) Member States shall ensure that the life-cycle GWP is calculated in accordance with Annex III and disclosed in the energy performance certificate of the building:

- (a) from 1 January 2028, for all new buildings with a useful floor area larger than 1000 m<sup>2</sup>;
- (b) from 1 January 2030, for all new buildings.

(3.) The Commission is empowered to adopt delegated acts in accordance with Article 32 to amend Annex III to set out a Union framework for the national calculation of life-cycle GWP with a view to achieving climate neutrality. The first such delegated act shall be adopted by 31 December 2025.

## Annex III

### Calculation of life-cycle GWP of new buildings pursuant to Article 7(2)

For the calculation of the life-cycle GWP of new buildings pursuant to Article 7(2), the total life-cycle GWP is communicated as a numeric indicator for each life-cycle stage expressed as kgCO<sub>2</sub>eq/(m<sup>2</sup>) (of useful floor area) calculated over a reference study period of 50 years. The data selection, scenario definition and calculations shall be carried out in accordance with EN 15978 (EN 15978:2011 Sustainability of construction works. Assessment of environmental performance of buildings. Calculation method) and taking into account any subsequent standard relating to the sustainability of construction works and the calculation method for the assessment of environmental performance of buildings.

The scope of building elements and technical equipment is as defined in the Level(s) common EU framework for indicator 1.2. Where a national calculation tool or method exists, or is required for making disclosures or for obtaining building permits, that tool or method may be used to provide the required disclosure. Other calculation tools or methods may be used if they fulfil the minimum criteria established by the Level(s) common EU framework. Data regarding specific construction products calculated in accordance with Regulation (EU) No 305/2011 of the European Parliament and of the Council shall be used when available.

# National Roadmap

## Article 7, New buildings, 5.

By 1 January 2027 Member States shall publish and notify to the Commission a roadmap detailing the introduction of limit values on the total cumulative life-cycle GWP of all new buildings and set targets for new buildings from 2030, considering a progressive downward trend, as well as maximum limit values, detailed for different climatic zones and building typologies.

Those maximum limit values shall be in line with the Union's objective of achieving climate neutrality.

The Commission shall issue guidance, share evidence on existing national policies and offer technical support to Member States, at their request.

# Service contract on WLC for buildings in EPBD

Beginning 2024 – End 2025

- Contracted by DG Energy, running around 2 years 2024-2025
- Lead: Viegand Maagøe, support from COWI and Exertia
- Technical assistance on whole-life greenhouse gas emissions provisions in the EPBD

Let's get in touch

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# Carbon storage in buildings certification methodology: Concept overview

# Carbon storage in the built environment

Bio-based construction products like timber or agricultural crops offer significant potential for long-lasting storage of CO<sub>2</sub>. By promoting sustainably sourced bio-based materials and advanced construction techniques, we can create energy-efficient buildings that serve as carbon sinks.

- **Reduces carbon footprint**

Lowers GHG emissions by storing carbon in construction materials.

- **Promotes sustainability**

Encourages use of sustainably sourced, renewable and circular materials.

- **Supports climate goals**

Contributes to achieve EU climate neutrality targets.

- **Improves air quality**

Enhances overall environmental quality and public health.

**Certification methodology** as incentive for long-term use of (innovative) bio-based products & proof of carbon storage capacity of building.



# Carbon removal certification framework Regulation

Quantification & monitoring regulation for carbon farming, carbon storage in products, permanent carbon removals

## EU certification methodology

Commission establishes certification methodology in consultation with expert group

**QUALITY** criteria:

- Quantification •
- Additionality •
- Liability •
- Sustainability

## Certification process

Private and public certification schemes recognised by the Commission

Independent certification bodies to issue audit reports & certificate of compliance

## Certification registries and Union-wide CRCF registry from 2028

Publicly accessible information on activities and operators audit reports & certificates of compliance

Quantity and status of certified units, e.g. carbon storage in products unit



# Certification of biogenic carbon storage in buildings



**Beneficiary:** Building owner as liability carrier



**Certification & verification processes** integrated into existing building check-up routine



**Voluntary certification** to declare carbon storage indicator in Energy Performance Certificate (EPBD)



**Scope:** Bio-based materials in structural building elements and insulation materials



**Certification as proof for sustainability reporting**



**Applicable to:** New builds & renovations

Next step: scope extension to carbonated concrete

# Along the CRCF quality criteria

## Quantification

- Building on existing EN standards

## Additionality

- Standardised baseline
- Distinguished between region/ country & building archetype

## Storage & liability

- Timely limited certificates (min 35 years)
- Possibility to recertify

## Sustainability

- Sourcing perspective: Sustainability criteria from RED3
- User perspective: ensure sustainable buildings, e.g. with specific energy label, EPBD
- Promote circularity through co-benefits

# Potential uses of the certificate

- **Help ensure compliance with specific sustainability standards**

- **Net-zero claims (within value chain) & climate neutrality claims**

Corporate sustainability reporting regulation & green claims demonstrate leadership in environmental stewardship: "net-zero/carbon-negative/climate-positive building stock"

- **Unlock financial incentives/ attract investments**

As credible and transparent proof for green bonds, green mortgages or favourable loan or investment terms.

- **Increase property value**

Sustainable buildings often have higher property values due to their energy efficiency, lower operating costs, and appeal to eco-conscious tenants.

Carbon storage certification can thus enhance the overall value of the real estate portfolio.

- **Future-proofing investments**

Sustainable buildings are better equipped to handle environmental risks such as extreme weather events, reducing the likelihood of damage and associated costs.

This risk mitigation can lead to lower insurance premiums and increased property resilience.

# Next steps

## March 2024

Provisional agreement between the European Parliament and the Council on CRCF Regulation

## April 2024

4th Expert Group meeting

## September 2024

Public webinar: Carbon storage in buildings - How does it practically look like?

User cases, monetisation options, practicality of certification methodology

## March 2024

Draft Technical Assessment Paper with technical recommendations for certification methodology

## June 2024

Publication of Technical Assessment Paper

## October 2024

5th Expert Group meeting: First draft methodology

# Useful links

- [Provisional agreement on the CRCF Regulation](#)
- [FAQ on CRCF Regulation](#)
- [Press release: Commission welcomes political agreement on EU-wide certification scheme for carbon removals](#)
- [CRCF website](#)
- [Subscribe to our EU carbon removals and carbon farming newsletter](#)

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# Level(s) European framework for sustainable buildings

# Small revisions of Level(s)

- Level(s) is being used to bring in circularity and life cycle aspects into EU legislation such as the Energy Performance of Buildings Directive and the Sustainable Finance Taxonomy.
- Certain additions are required to the Level(s) framework, to fully meet the expectations of policy development.
- This concerns primarily macro objective 1 (greenhouse gas emissions) and 2 (material use), which in turn has an impact on macro objective 6 (lifecycle cost).
- This is ongoing work by ARUP, main changes ready shortly.

# 6 macro objectives, 16 indicators

Thematic areas	Macro-objectives	Indicators			
Resource use and environmental performance	1. Greenhouse gas emissions along a building's life cycle	1.1 Use stage energy performance (kWh/m <sup>2</sup> /year)	1.2 Life cycle Global warming potential (CO <sub>2</sub> eq/m <sup>2</sup> /year)		
	2. Resource efficient and circular material life cycles	2.1 Bill of quantities, materials and life cycle	2.2 Construction and demolition waste	2.3 Design for adaptability and reuse	2.4 Design for circular construction
	3. Efficient use of water resources	3.1 Use stage water consumption (m <sup>3</sup> /occupant/year)			
Health and comfort	4. Healthy and comfortable space	4.1 Indoor air quality	4.2 Time out of thermal comfort range	4.3 Lighting	4.4 Acoustics
Cost, value and risk	5. Adaption and resilience to climate change	5.1 Protection of occupier health and thermal comfort	5.2 Increased risk of extreme weather	5.3 Sustainable drainage	
	6. Optimised life cycle cost and value	6.1 Life cycle costs (€/m <sup>2</sup> /year)	6.2 Value creation factors		



# Construction Products Regulation



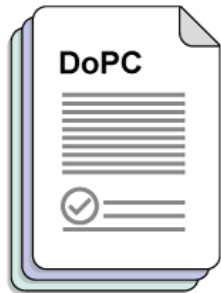
# Construction Products Regulation

Product related regulatory needs

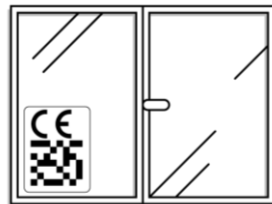
# National construction codes

## Single market for construction products

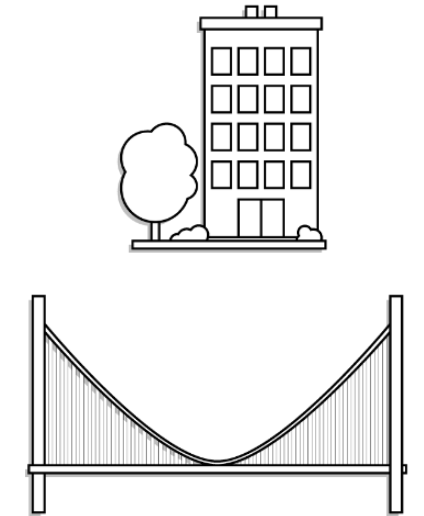
Declaration of performance and conformity



Manufacturer



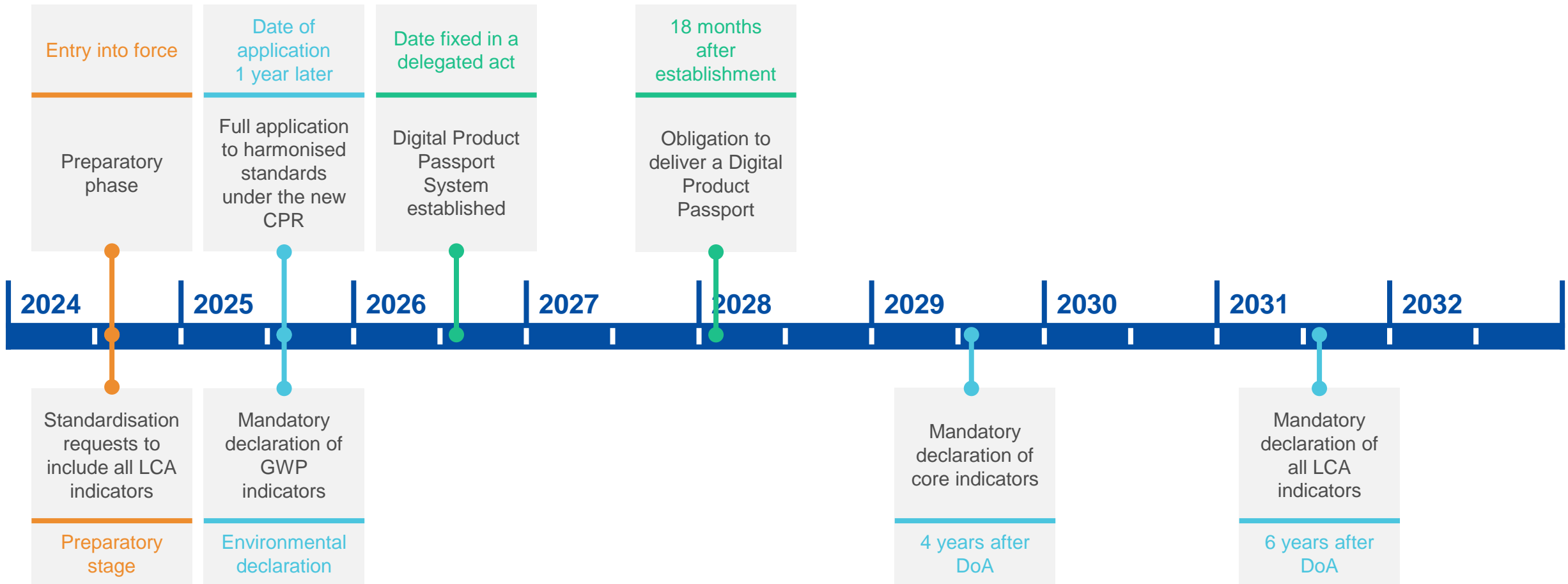
CE marking



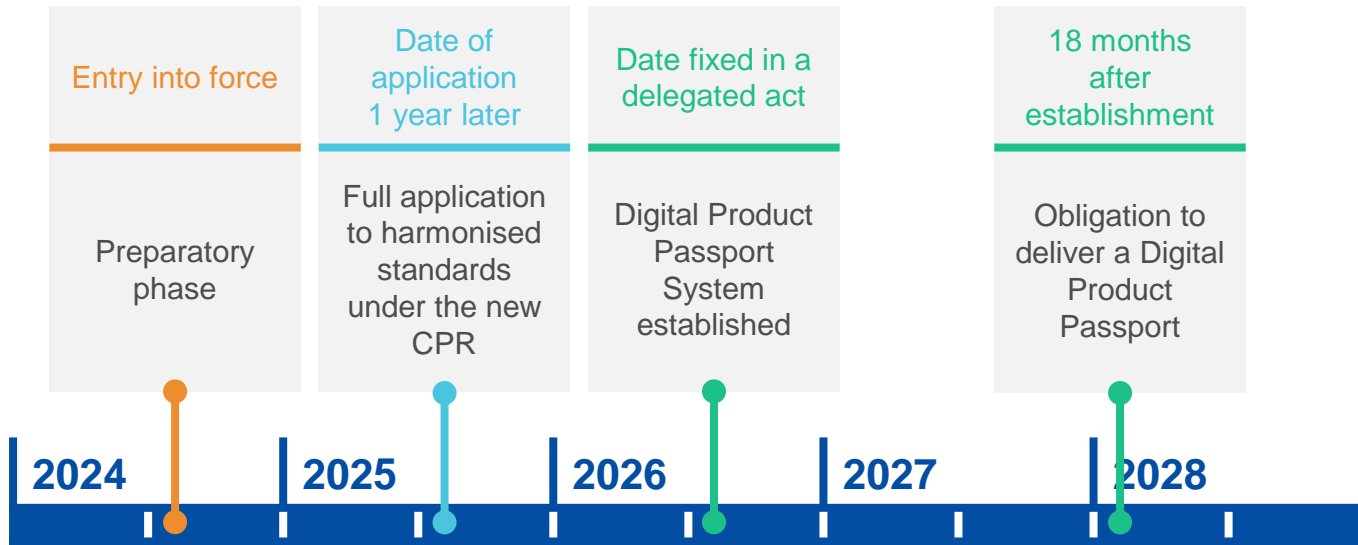
Construction works

Placing on the market

# Overview of environmental related provisions



# Digitalisation



## Information

based on open standards

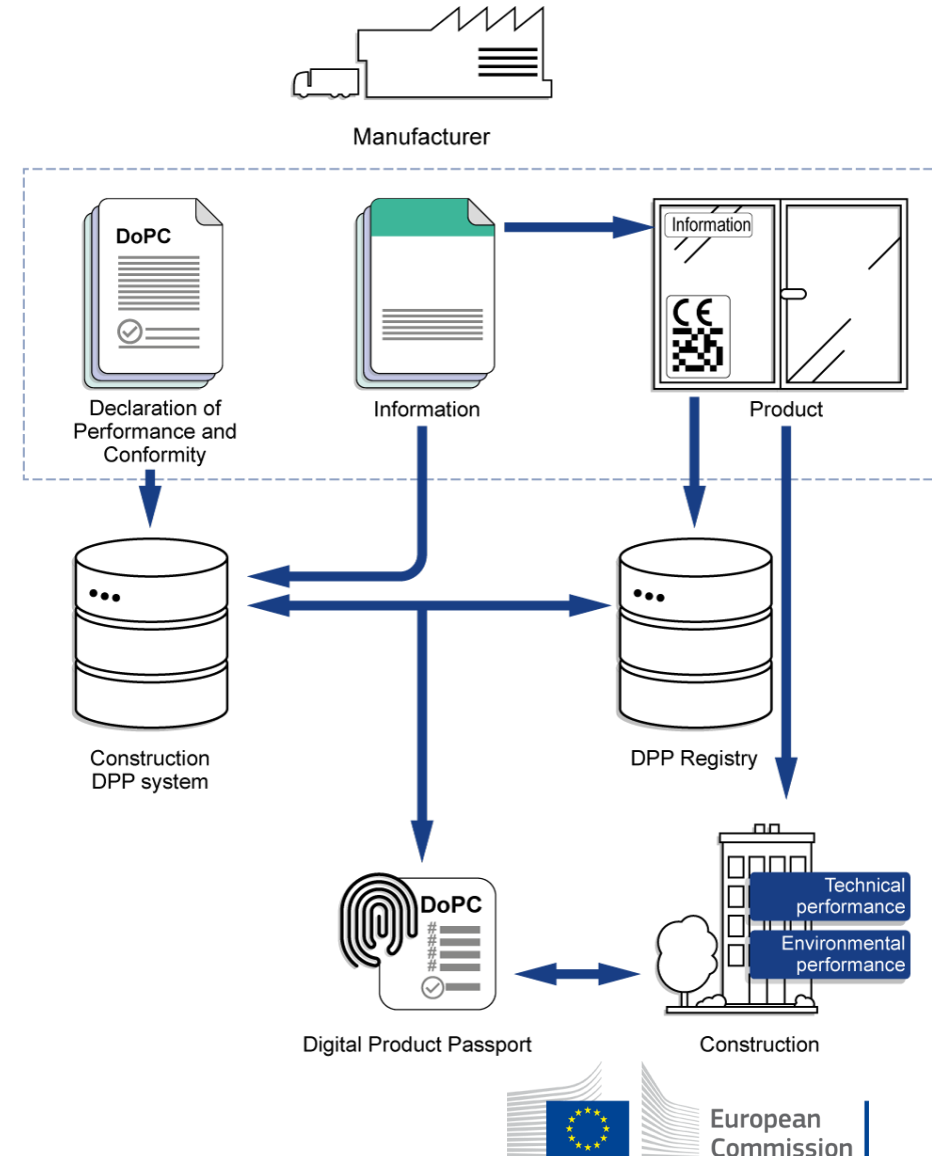
structured

machine-readable

searchable






developed with an interoperable format

transferable through an open interoperable data exchange network without vendor lock-in

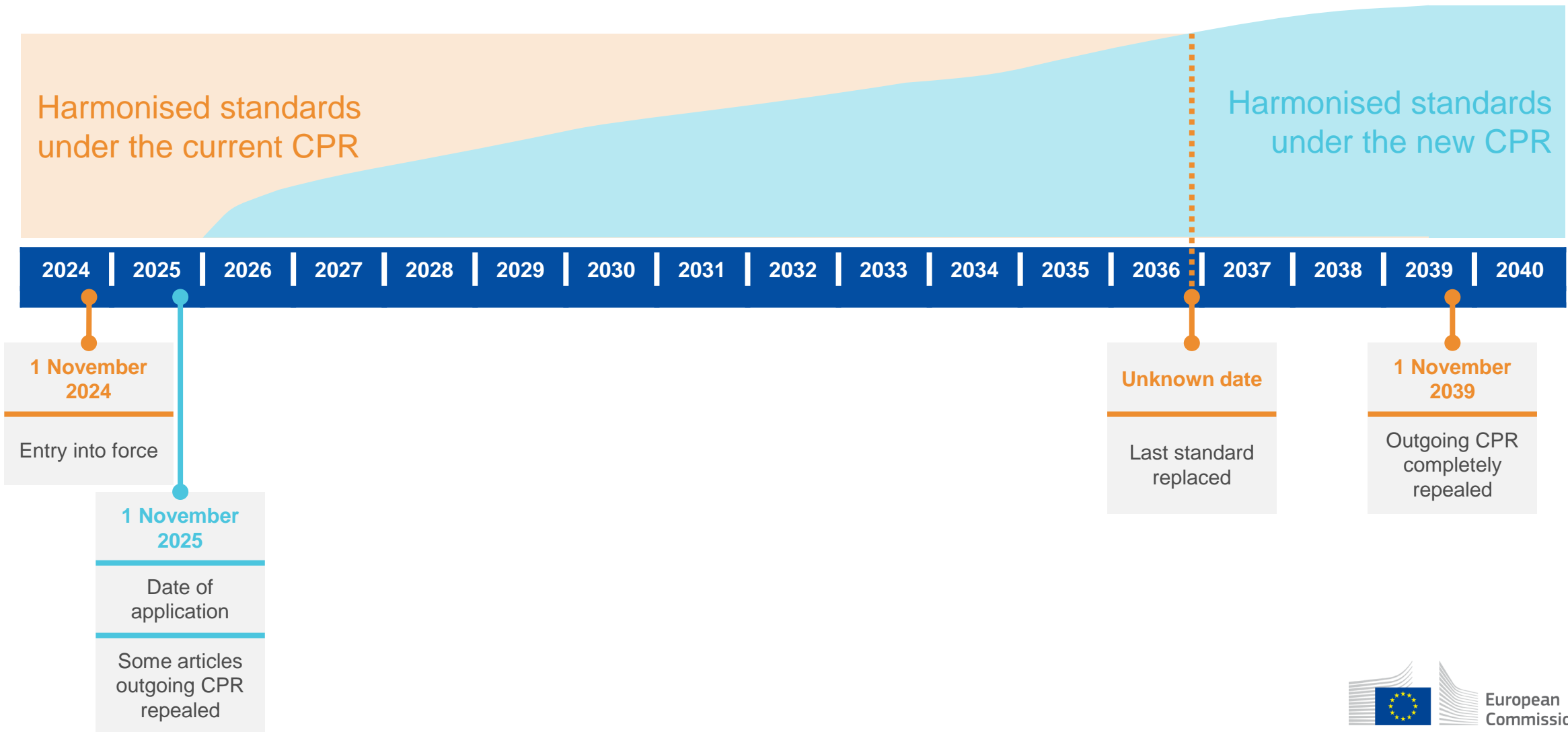


# CPR Acquis Expert Groups – Subgroups

Horizontal topics	Standards under development	Standardisation request under development	Other product families in the pipeline	Priority	
<b>Fire</b>	1 Precast normal/ lightweight/ autoclaved aerated concrete products <b>1</b>	17 Masonry and related products - Masonry units, mortars, and ancillaries. <b>9</b>	5 Structural bearings - Pins for structural joints <b>17</b>	7 Gypsum products <b>25</b>	6 Chimneys, flues and specific products <b>33</b>
<b>Dangerous substances</b>	20 Structural metallic products and ancillaries <b>2</b>	24 Aggregates <b>10</b>	34 Building kits, units, and prefabricated elements <b>18</b>	33 Fixings <b>26</b>	32 Sealants for joints <b>34</b>
<b>Environmental sustainability</b>	16 Reinforcing and prestressing steel for concrete – Post-tensioning kits <b>3</b>	10 Fixed fire fighting equipment <b>11</b>	21 Internal & external wall and ceiling finishes. Internal partition kits <b>19</b>	3 Membranes, including liquid applied and kits <b>27</b>	35 Fire stopping, sealing and protective products - Fire retardant products
	2 Doors, windows, shutters, gates and related building hardware <b>4</b>	23 Road construction products <b>12</b>	27 Space heating appliances <b>20</b>	30 Flat glass, profiled glass and glass block products <b>28</b>	29 Construction products in contact with water intended for human consumption
	15 Cement, building limes and other hydraulic binders <b>5</b>	19 Floorings <b>13</b>	22 Roof coverings, roof lights, roof windows, and ancillary products. roof kits <b>21</b>	8 Geotextiles, geomembranes, and related products <b>29</b>	36 Attached ladders
	4 Thermal insulation products - Composite insulating kits/systems <b>6</b>	4 Thermal insulation products - Composite insulating kits/systems <b>14</b>	12 Circulation fixtures: road equipment <b>22</b>	11 Sanitary appliances <b>30</b>	
	13 Structural timber products/elements and ancillaries <b>7</b>	9 Curtain walling/cladding/structural sealant glazing <b>15</b>	18 Wastewater engineering products <b>23</b>	28 Pipes-tanks and ancillaries not in contact with water for human consumption <b>31</b>	
	26 Products related to concrete, mortar and grout <b>8</b>	14 Wood based panels and elements <b>16</b>	25 Construction adhesives <b>24</b>	31 Power, control and communication cables <b>32</b>	

-  Horizontal topics
-  Standards under development
-  Standardisation request under development
-  Other product families in the pipeline
-  Priority

# CPR timeframe – harmonised standards





# Avoiding emissions from insulation foams



# Avoiding emissions from insulation foams

- Many buildings today contain insulation foams that were blown with ozone-depleting substances (ODS) or Hydrofluorocarbons (HFC)s which have very high global warming potentials (GWP) (many several thousand times higher than CO<sub>2</sub>)
- HFC constitute 2.5% of EU GHG
- For buildings, the use of ODS in the EU ended in 2003 for all foam applications .  
CFC use ended by end 1994 in the EU-15 and ended few years later in Eastern countries.



# Avoiding emissions from insulation foams

- Demolition waste from the building sector can be assumed to contain CFC-11/12 or HCFC 141b/142b, which were popular blowing agents for polyurethane (PU) & extruded polystyrene (XPS) foams until the CFC ban in 1994–1995 and HCFC bans (as blowing agent) in 1998–2000.
- Emissions from these foams occur mostly when buildings are renovated or demolished and no effort is made to prevent the emissions of these gases from the foams
- From 2025, when old buildings are renovated, refurbished or demolished, ODS and Fgas-containing foams in laminated foam boards and foam panels, must be handled in a way to ensure that emissions are avoided and the gases therein are destroyed (Joint obligation on building owners and contractors)
- Cumulative savings of more than 180 million tonnes CO<sub>2</sub> eq possible from that measure by 2050 in the EU

# Avoiding emissions from insulation foams

- Member States shall promote the recovery, recycling, reclamation and destruction of ozone-depleting substances listed in Annex I and shall establish the minimum qualification requirements for the personnel involved.”
- Built up the necessary waste treatment capacity
- IPCC 2021 Special Report: needed emission of F-gases - 90 % by 2050 compared to 2015



Thank you