



# ***EU4Energy***

## ***NZEB buildings EPCs***

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**1<sup>ST</sup> MEETING OF THE TASK-FORCE ON ENERGY EFFICIENCY IN BUILDINGS**

**NEARLY ZERO ENERGY BUILDING AND BUILDING ECO-LABELLING**

**IN ARMENIA, 17 OCTOBER 2019**

**IBIS HOTEL, YEREVAN, ARMENIA**

# Climate and Energy Framework

## Climate-Energy Framework 2030

[COM(2014)15&COM(2014)520]

European Council 23 et 24/10/2014

- 40% greenhouse gas (GHG) reductions
- 32% Renewable Energy
- 32,5% Improving energy efficiency

2030

## Climate-Energy Framework 2020

[COM(2010)639]

- 20% GHG reductions
- 20% Renewable Energy
- 20% Improving energy efficiency

2020

## Path roads 2050

[COM(2011)112]

- 80-95% GHG reductions

2050

# The Energy performance of buildings directive (EPBD) is the main instrument addressing building performance

## *Energy performance approach:*

- **Cost-optimal minimum energy performance standards for new buildings and existing buildings undergoing major renovation**
- **Energy Performance Certification**
- **Nearly zero-energy building targets for new buildings**

## Evaluation of the EPBD

**EPBD is effective** (will deliver the 60-80 Mtoe energy savings by 2020)

**The overall architecture is working** (especially for new buildings)

**The NZEB sets a 'future-proof' vision for the sector and mobilise stakeholders accordingly**

**Cost-optimality is an efficient approach to set energy performance requirements**

**EPCs is a useful demand-driven market tool**

**Relatively limited regulatory failures**

Opportunities for simplification

Decarbonisation of buildings in the long-term strategy

Modernisation in terms of technological progress towards 'smarter' buildings

Better linking them with financial support systems

Databases can be a key instrument for reinforced compliance



## Some interesting facts

### Why are NZEBs important

- Buildings responsible for 40% of energy consumption and 36% of GHG emissions in EU
- Buildings to contribute significantly to GHG emission reductions of around 90% compared to 1990 by 2050
- 75% of the housing stock is energy inefficient, missing the benefits of increased renovation
- Renovation rates are too low and renovation depth is too shallow

Need to:

- accelerate and finance building renovation investments
- tap the potential of smart building technologies
- increase the use of renewables

# Legal requirements for NZEBs

## EPBD, 2010/31/EU

### Article 9, National plans

Member States must develop national plans for increasing the number of nearly zero-energy buildings, which shall include:

- **Practical application of definition, including a numerical indicator of primary energy use in kWh/m<sup>2</sup> per year**
- **Measures to promote NZEBs (also for existing buildings)**

## Legal requirements for NZEBs EPBD, 2010/31/EU

### Article 2, definition

A building that has a **very high** energy performance whereby the **nearly zero or very low amount** of energy required should be covered to a **very significant extent** by energy from renewable sources, including RES **onsite or nearby**

### Article 9 (1)

- **After 31 December 2018**, new buildings occupied and owned by **public authorities** are nearly zero-energy buildings
- **After 31 December 2020** **all new** buildings occupied are nearly zero-energy buildings

# Commission's Support

## DG ENER website

<https://ec.europa.eu/energy/en/topics/energy-efficiency/energy-performance-of-buildings/nearly-zero-energy-buildings>

- National plans
- A progress report (2013)
- Information from individual countries (2014),
- A guidance study providing recommendations (2012) and an overview of MS information on NZEBs report 2014)
- JRC Synthesis Report on the national plans for NZEBs, based on the progress of MS (2016)
- Concerted Action EPBD detailed overview of national applications of the NZEB definitions (2014)
  - Recommendations (2016) on guidelines for the promotion of nearly zero-energy buildings and best practices



# Commission Recommendation



<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016H1318&from=EN>

In 2016, the Commission prepared guidelines for the promotion of nearly zero-energy buildings and best practices to ensure that, by 2020, all new buildings are nearly zero-energy buildings

- Application of the NZEB definition in practice: when is the ambition of a NZEB level of energy performance too low
- Meeting the obligation to ensure that new buildings are NZEB as of end of 2020
- Policies and measures for the promotion of NZEB
- Supporting the transformation of existing buildings towards NZEB



## Progress towards NZEB targets

National values of primary energy use in kWh/m<sup>2</sup> per year:

- **Residential buildings: ranges between 33 kWh/m<sup>2</sup> per year and 95 kWh/m<sup>2</sup> per year, with the majority of Member States target aiming at 45 or 50 kWh/m<sup>2</sup> per year**
- **Hospitals and other non-residential buildings remain a challenge in several Member States, with values up to 270 kWh/m<sup>2</sup> per year**

## Numeric benchmarks for NZEB primary energy use indicators at EU level

<b>Mediterranean</b>			
	Net primary use kWh/(m <sup>2</sup> .y)	Primary energy use kWh/(m <sup>2</sup> .y)	On-site RES coverage kWh/(m <sup>2</sup> .y)
<b>Offices</b>	20-30	80-90	60
<b>New single family house</b>	40-55	85-100	45
<b>Oceanic</b>			
<b>Offices</b>	40-55	85-100	45
<b>New single family house</b>	15-30	50-65	35
<b>Continental</b>			
<b>Offices</b>	40-55	85-100	45
<b>New single family house</b>	20-40	50-70	30
<b>Nordic</b>			
<b>Offices</b>	55-70	85-100	30
<b>New single family house</b>	40-65	65-90	25

## Article: "Towards Nearly Zero Energy Buildings in Europe: A Focus on Retrofit in Non-Residential Buildings", 2017

Delia D'Agostino , Paolo Zangheri and Luca Castellazzi

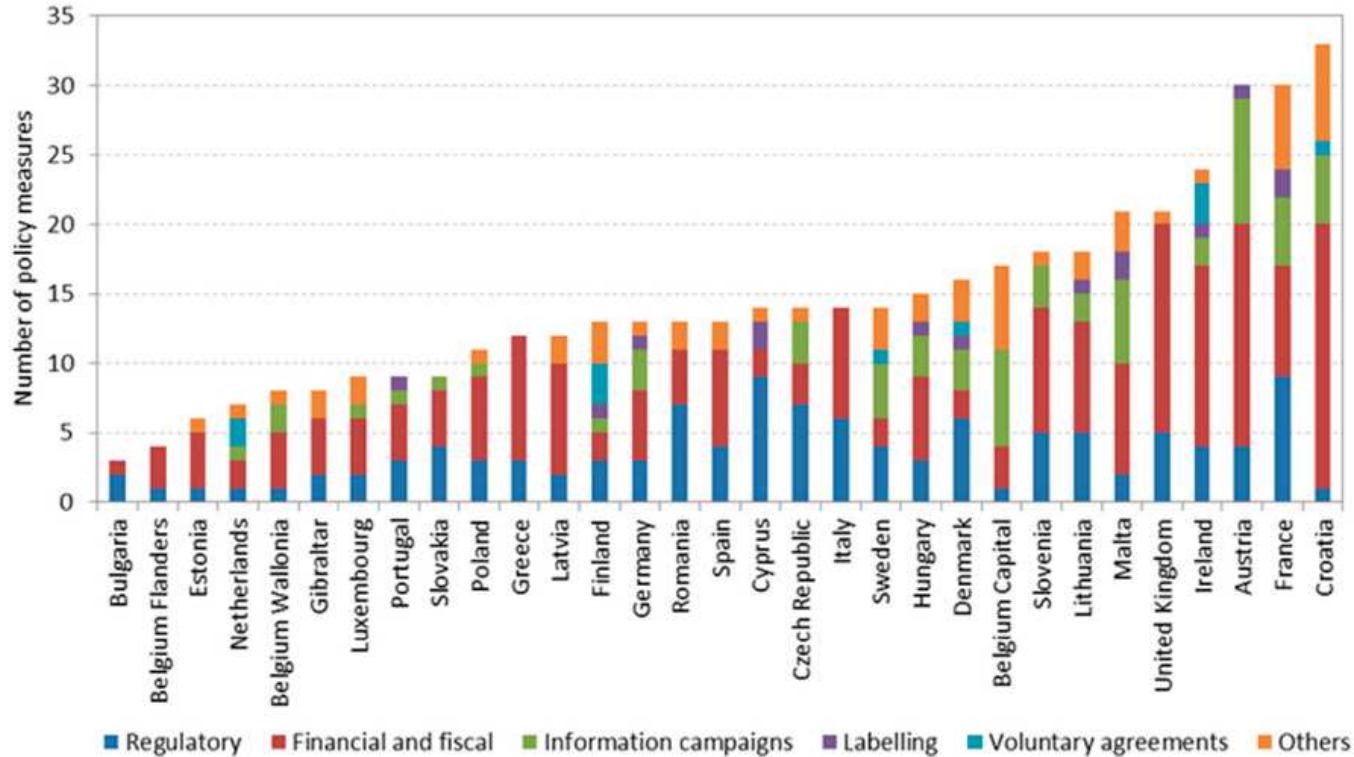


Figure 6. Number of all the measures in the building sector (implemented and planned) by country and type.



## The role of RES

*Improving the energy performance means both more energy efficiency and renewable solutions*

### EPBD: reduction of energy demand & use of RES

- calculation of cost-optimal levels of minimum requirements
- definition NZEB
- calculation of energy performance

## The way towards NZEB

- Right mix of energy efficiency measures and renewable energy
- Longer term vision (life cycle costs)
- Deep renovation variety measures
- High efficient façade
- Technical solutions (incl. renewables)
- Optimization and management
- District solutions (heating, cooling networks + renewables)
- Interaction (e-storage, smart grid, e-mobility, smart buildings)

## Looking forward

Member States to further develop their national plans to create stable outlook for the market

Improve awareness of demonstration projects on a larger scale, focusing also on renovation of existing buildings into NZEBs

**Develop workforce skills, ideally through national strategies (i.e. Build-UP Skills implementation)**

Sector to deliver energy efficiency and RES technologies to market

Plan (financial) support measures to stimulate NZEBs and market development as part of the building renovation roadmaps under EED



## How to encourage energy renovation

- Link energy and non-energy renovations
- Use maintenance, replacements or repairs as opportunity to recommend and perform energy renovation
- Provide information on how best to invest in building renovations
- Provide information on health-related benefits of buildings in good condition
- Promote energy performance certificates and energy labels
- Encourage the provision of information on energy consumption on the energy bill
- Provide capacity building opportunities in energy renovation measures to building professionals
- Get building professionals on board with the energy and climate targets to increase energy renovation recommendations
- Offer favourable financing options for consumers, especially to socio-economic disadvantaged consumers
- Reduce administrative barriers to energy renovation - both for consumers and professionals
- Strengthen cooperation and dialogue between building professionals and with manufacturers



# Clean Energy for All Europeans



Energy Union  
Governance



## Energy Efficiency

(Energy Efficiency  
Directive, European  
Performance of  
Buildings Directive)



## Renewables

(Revised Renewable  
Energy Directive)



New Electricity  
Market Design  
(including Risk  
Preparedness)



Energy prices  
and costs  
report



## Energy Performance Certificates (EPCs)

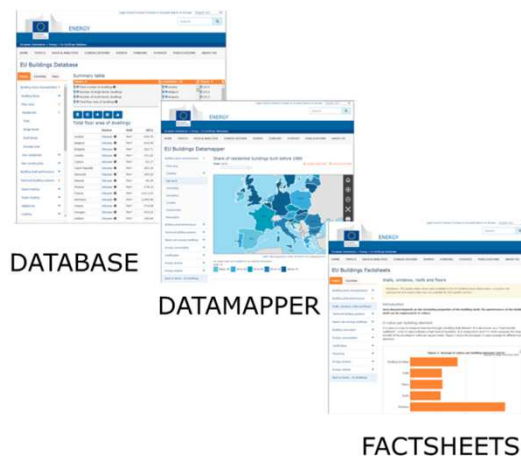
- Compulsory when selling or renting a building
- Must be shown to the prospective buyer or tenant and handed over to the buyer or new tenant
- Must be shown in advertising media
- Must be displayed in public buildings or buildings frequently visited by the public
- Produced by qualified independent experts
- Subject to an independent control system (including penalties)

## Energy Performance Certificates (EPCs)

- Rating based on kWh/m<sup>2</sup>\*year (additional ratings may be used, for example kg CO<sub>2</sub>/m<sup>2</sup>\*year)
- Rating depends on Member State, based on current state of the building stock and energy legislation
- Current coverage between 10% and 60% of the building stock depending on Member State -> representative sample
- Most Member States make some of the EPC information publicly available (subject to privacy legislation)
- Evidence of increased value of properties with good ratings
- Initiatives to ban properties with bad ratings from the rental market

# Need for better data: EU Building Stock Observatory

- Provide a snapshot of the energy performance of the EU building stock
- Set a framework / methodology for the continuous monitoring of the building stock



<https://ec.europa.eu/energy/en/eubuildings>

## Topics covered

1. Building stock & energy needs and consumption
2. Technical building systems
3. Certification
4. Financing
5. Energy poverty & social aspects



**THANK YOU!**  
**For more information**

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.@FederalMog: "This is not about geopolitics, managed to deliver results, which are good for #EaP10 #strongertogether"

European Union in Armenia  
@eudelegationtoarmenia

Accueil

J'aime déjà | Déjà abonné(e) | Partager

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