



---

# DEEP RENOVATION

Shifting from exception  
to standard practice in  
EU policy?

---

08/06/2022

Hélène SIBILEAU &  
Rutger BROER

eccee Summer Study





## INTRODUCTION

### Deep renovation: why discussing it?

**Importance of deep renovation\*** is recognised politically and technically

= reaching climate targets, alleviating energy poverty, protecting citizens from increased energy prices, other benefits

**But “nowhere” in reality!** Annual rate (0.2% to 3%), annual investments (6.8% to 70%)...

**Objective:** suggesting a way forward for an EU wide definition of deep renovation as well as a delivery approach (context of EPBD revision)

**Questions:** What is Deep Renovation exactly? Is the EU policy framework fit to deliver? If not, how can we change it? How do we make deep renovation a reality for all?





## 1. DEEP RENOVATION STATUS IN THE EU

### EU level legal void leading to varying views

**Legal clarity is missing for a long time in the existing EU framework**

- Not yet fully adopted legally binding definition at EU level
- ‘Major renovation’ (EPBD) triggering compliance with minimum requirements  
= focus on size or cost criteria, not depth
- Minimum 60% energy savings (proxy)

**A multitude of national examples** (interesting to extract best practices)

- Overview of 2020 long-term renovation strategies: 7 Member States and 2 regions refer to deep renovation in their 2020 LTRS
- Variety of ambition levels, indicators, and even “usage” of the definition





# 1. DEEP RENOVATION STATUS IN THE EU

## Analysis and assessment of EPBD definition

**Deep renovation:** a renovation bringing the building up to NZEB standard (until 2030) or to Zero Emission Building standard (as of 2030 onwards).

**ZEB (= building with EPC class A):** *“a building with a very high energy performance, where the very low amount of energy still required is fully covered by renewable energy, generated on-site, from a renewable energy community or from a district heating and cooling system”.*

**Staged deep renovation:** *“a deep renovation carried out in several steps, following the steps set out in a renovation passport”*





# 1. DEEP RENOVATION STATUS IN THE EU

## Analysis and assessment of EPBD definition

### About the definition itself

- Unclear about energy performance levels to apply (new/existing being renovated)
- No consideration of the building starting point (B to A = G to A)

### About how the definition is used

- Not mainstreamed into the architecture of the Directive (only use as threshold setter for financing programmes) = deep renovation still seen as one ('exceptional') category of renovations

### A common approach at EU level for more clarity

But referring to NZEB...means 27 definitions of deep renovation (until 2030)

- Subsidiarity principle respected
- Less clear and less ambitious (cf. NZEB implementation analysis)





## 2 DEEP RENOVATION

*Deep renovation is a process capturing, in one or, when not possible, a few steps (maximum number to be defined), the full potential of a building to reduce its energy demand, based on its typology and climatic zone. It achieves the highest possible energy savings and leads to a very high energy performance, with the remaining minimal energy needs fully covered by renewable energy. Deep renovation also delivers an optimal level of Indoor Environmental Quality to the building occupants*

value

definition

anal  
from  
e

on  
indicators

definition to  
building segments  
considering ownership

structure

Quality  
indicators

- De
- Link to Ren
- Link with (progressive) **financial support**





## 2. DEEP RENOVATION DEFINITION

### Suggestions for maximal climate and social value

#### EPBD definition includes some but not all parameters

- Indirectly: thresholds for maximum level of energy needs + RES share
- Missing: reduction of energy consumption
- None of additional: passport (but in “staged deep”), IEQ and WLC (only for new)

#### A subtle (complicated but needed) calibration exercise between two metrics, guided by climate neutrality by 2050

*Solution pathway suggested: achieving at least 75% energy savings, with the possibility to do less if the building achieves 80 kWh/m<sup>2</sup>/year (second requirement to be tightened over time)*

*[NB: current ZEB levels requirements for residential = 65 kWh/m<sup>2</sup>/year with the exception of the Nordic climate zone allowed to go until 75 kWh/m<sup>2</sup>/year]*







**How to read the table?** *Requiring every building to achieve, for example, 75% of energy savings with the possibility to do less, as soon as it achieves 80 kWh/m<sup>2</sup>/year in useful energy (energy needs for heating) would reduce the overall useful energy in the entire stock by 36%.*

Relative change in useful energy consumption at EU level for all buildings		Minimum renovation target (kWh/m <sup>2</sup> /year)				
		60	65	70	75	80
Relative reduction (% of energy savings)	60%	-45%	-42%	-40%	-38%	-35%
	65%	-47%	-44%	-41%	-39%	-36%
	70%	-48%	-45%	-42%	-39%	-36%
	75%	-49%	-46%	-42%	-39%	-36%
	80%	-49%	-46%	-42%	-39%	-36%
	85%	-49%	-46%	-42%	-39%	-36%
	90%	-49%	-46%	-42%	-39%	-36%

The highest reduction in useful energy consumption at building stock level (-49%) takes place if every building is required to achieve between 75-90% energy savings, with the possibility to do less as soon as it achieves 60 kWh/m<sup>2</sup>/year.







### 3. DEEP RENOVATION

## Making it common practice for all in the EU

**Why should deep renovation become the ‘compass for ambition’** used to leverage all policy measures upwards in terms of climate and social ambition?

- **Needed to reach climate targets**
  - Climate neutrality by 2050 impossible without the buildings sector
  - Reduction of energy consumption key for full decarbonisation through RES rollout
  - Specific benefits of one-step deep renovation (now)
- **Desirable to unlock the full potential of other benefits, especially to alleviate energy poverty**
  - Multiple benefits of deep renovation of schools, hospitals, offices
  - Protecting the most vulnerable from high (and volatile) energy prices
  - Deep renovation not (yet) the most common answer





### 3. DEEP RENOVATION

## Shifting to the default approach in policy

**Definition without wider implications** for the renovation policy ecosystem risks introducing wording which would only act as a ‘threshold setter’ in an ‘in/out’ approach

**Financing (EPBD Art 15):** risk of sub-optimal use of financial and advisory resources

- Member States shall link (but no explicit proportion) their financial measures for energy performance improvements to the targeted or achieved energy savings
- Member States shall incentivize, through higher support, “**deep renovation** and sizeable programmes addressing a high number of buildings and resulting in an overall reduction of at least 30% of primary energy demand”

**Policy Recommendation:** relevant for MEPS = deep renovation should evolve from a niche exception to mainstream excellence which everybody deserves (future proof standards for expectation management)





## CONCLUSIONS: deep renovation is crucial

### Leading questions for exchange of views

- **Practical definition of deep renovation**
  - How to make it reflect what it is, trigger change while not being overly complicated?
  - To what extent can an EU definition nudge government to set up programmes which would support deep renovation for a majority?
- **Implementation pathways**
  - What is the most important policy measure/area where deep renovation thinking should be mainstreamed? And how?
  - Which building segment to start with? Where can we already find the perfect balance between the technical potential and the political acceptability to have impact on the ground?





---

**Hélène SIBILEAU**

Senior Policy Advisor

[helene.Sibileau@bpie.eu](mailto:helene.Sibileau@bpie.eu)

+32 497 27 35 47

[www.bpie.eu](http://www.bpie.eu)

Follow us:

