

EuroACE

THE EUROPEAN ALLIANCE OF COMPANIES
FOR ENERGY EFFICIENCY IN BUILDINGS



Impact of Amended Directive EPBD on Energetics of Buildings in the EU

Randall Bowie
Eurima

Trends in the European Energy Industry
Prague, 20 September 2010

Content

1. The legislation thus far
2. What else is needed?
3. Deep renovations necessary to meet 2020 & 2050 goals

The political context in EU



EU in numbers:

500 mill inhabitants in 27 widely different Member States

EU EE legislation: Mainly framework Directives → “flexibility” in national implementation

Long term target 2050:

- limit global temperature increase to 2°C - 85% GHG

2020 Goal: 20-20-20% (CO₂; Renewables and *energy saving*)

Existing measures will deliver 11% consumption reduction in 2020

Legislation thus far: the EPBD Recast

Existing buildings

- Minimum energy performance requirements of **all¹** existing buildings, building units and **building elements** that are subject to **major renovation**
- Minimum requirements for **building elements** (e.g. wall, roof, floor, foundation) when **retrofitted or replaced**
- Minimum requirements to be set for **building elements** with a view to achieving **cost-optimal level**; **renewables encouraged**
- Improved quality and promotion of **Energy Performance Certificates (EPC)** (*but still need to ensure ambitious implementation*)
- Control system for EPC and boiler inspection; Penalties for **non-compliance²**

¹Removal of 1000 m² threshold increased scope 29% → 100%.

²BE 70%

Legislation thus far: the EPBD Recast

New buildings

- All new buildings shall be "nearly zero energy buildings" (NZEB) by 2021(2019 for public bldgs.) (*Generic definition. VHEP, with remaining energy need met by renewables*)
- For all new buildings, renewables-based energy supply considered
- MS to set intermediate targets for 2015 for improving the energy performance of new buildings to achieve NZEB by 2021
- Cost-optimal methodology to be established by Commission by July 2011 & reported by MS by 30 June 2012 & every 5 years thereafter (**incl.renewables**)
- MS to inform on training & accreditation of certifiers & inspectors. Establish registers.
- Compliance control systems & penalties for non-compliance communicated to COM by 2013

Missing in the EPBD Recast

- Mandatory target (& road map) for upgrading **existing building stock**, specifying **renovation rates** & providing guidance on deep renovations
- Common recognition/definition of renovation levels for **deep renovation levels** (When to apply factor 10, factor 6, factor 4 and factor 2 renovations.)
- Encouragement of **holistic (integrated design)** renovations
- Promotion of off-grid **building-integrated** systems (E.g., PV, solar thermal in glass & roofing.)
- A **driver or trigger** (“smart regulation for renovation”) e.g. energy certificate, to make it mandatory to renovate non-residential buildings
- **Stepwise (progressive) financing obligations** on EU & Member States for renovations
- Investment grade **quality** Energy Performance Certificate; better education & training
- A more precise and operational **definition of NZEB**

Examples of “best practice implementation and VLEB”, etc.

Road map for energy requirements

Country /year	2009	2010	2012	2013	2015	2016	2020
Denmark		- 25 %			- 50 %		- 75 %
Finland		-30-40%		-20%	LEB - PB (PH)		
France			LEB 2)				E+
Germany	- 30 %		- 30 % 3)				NFFB
Ireland		-60%		NZEB			
Netherlands		- 25 %			- 50 % (PH)		ENB
Norway	20-25%						LEB (PH)
United Kingdom		-25 %		(PH) - 44 %		NZEB	

1) Percentage of the 2006 minimum level, 2) Effinergie standard, 3) Percentage of the 2009 minimum level, 4) Passive House level. LEB: Low Energy Buildings. E+: Energy positive buildings. NFFB: Buildings to operate without fossil fuels. ENB: Energy Neutral Buildings. NZEB: 0 net. CO₂, incl. heating, lighting domestic hot water and all appliances

2 Limit & Reducing CO₂ 50% - 85% by 2050: Not Without Large-scale Deep Renovations Now

- **Largest potential:** 40% of energy consumption is in buildings
- **Action needed in existing buildings:** New buildings built are only 1% - 1.3% of stock annually
- **Poor renovation rate:** Current rate 1.2% - 1.4% annually - should increase 3X
- **Poor renovations:** Current energy performance improvement 15% - 20% per energy renovation; cost optimal (LCC) is 60% - 90% (“deep renovation”)
- **Missed chances:** Sub-optimal renovations “lock in” large savings potential
- **Yes, we can pay for it:** Financing is available if public funds leverage private funds
- **Additional legislation needed:** Recast EPBD doesn't address deep renovations

Energy savings and other benefits

Retrofit rate sensitivity- A small step with huge consequences

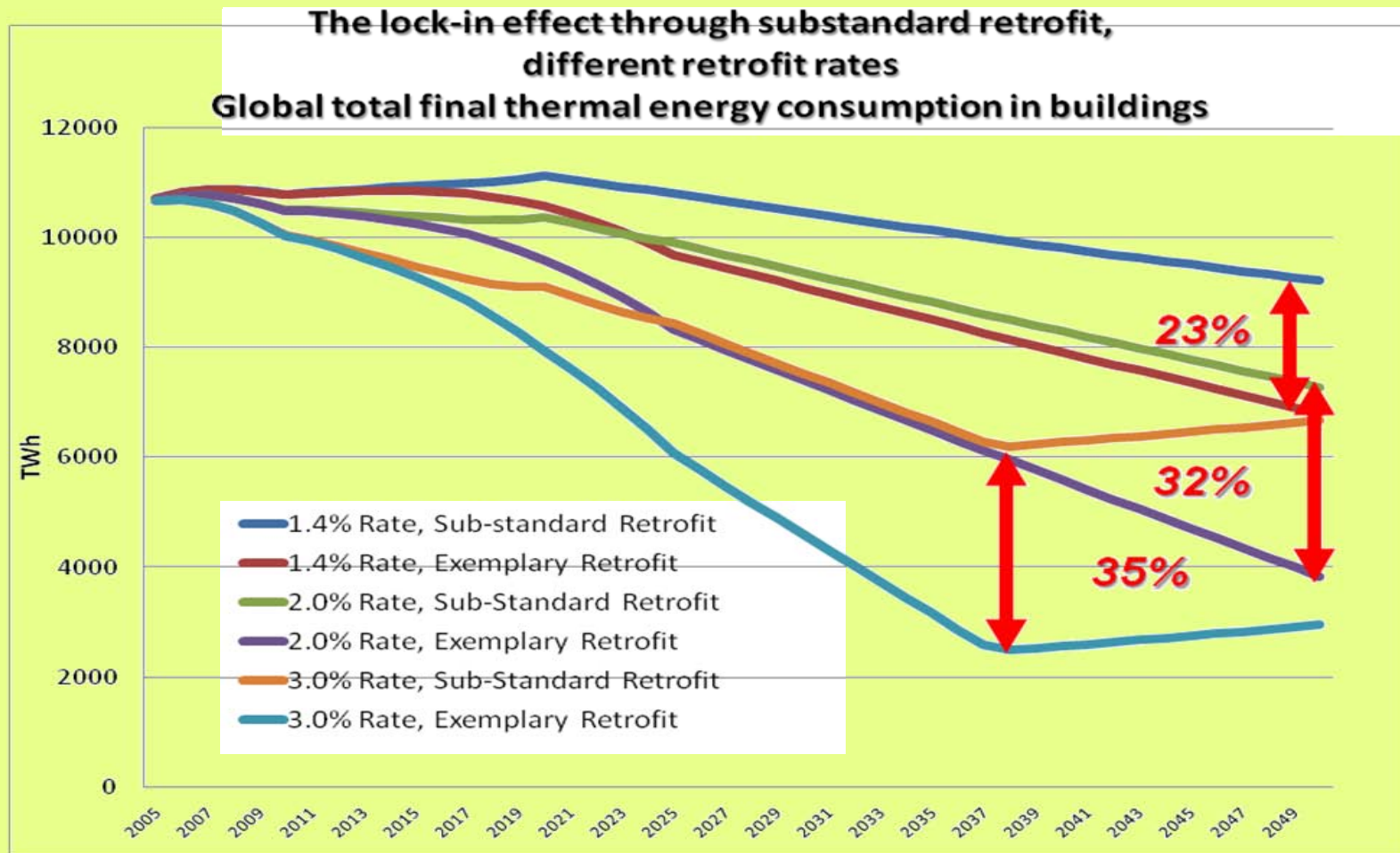
Retrofit rate	Global energy savings
1.4%	40%
2%	74%

(in 2050, compared to 2005 levels - CEU Model)

Other societal benefits:

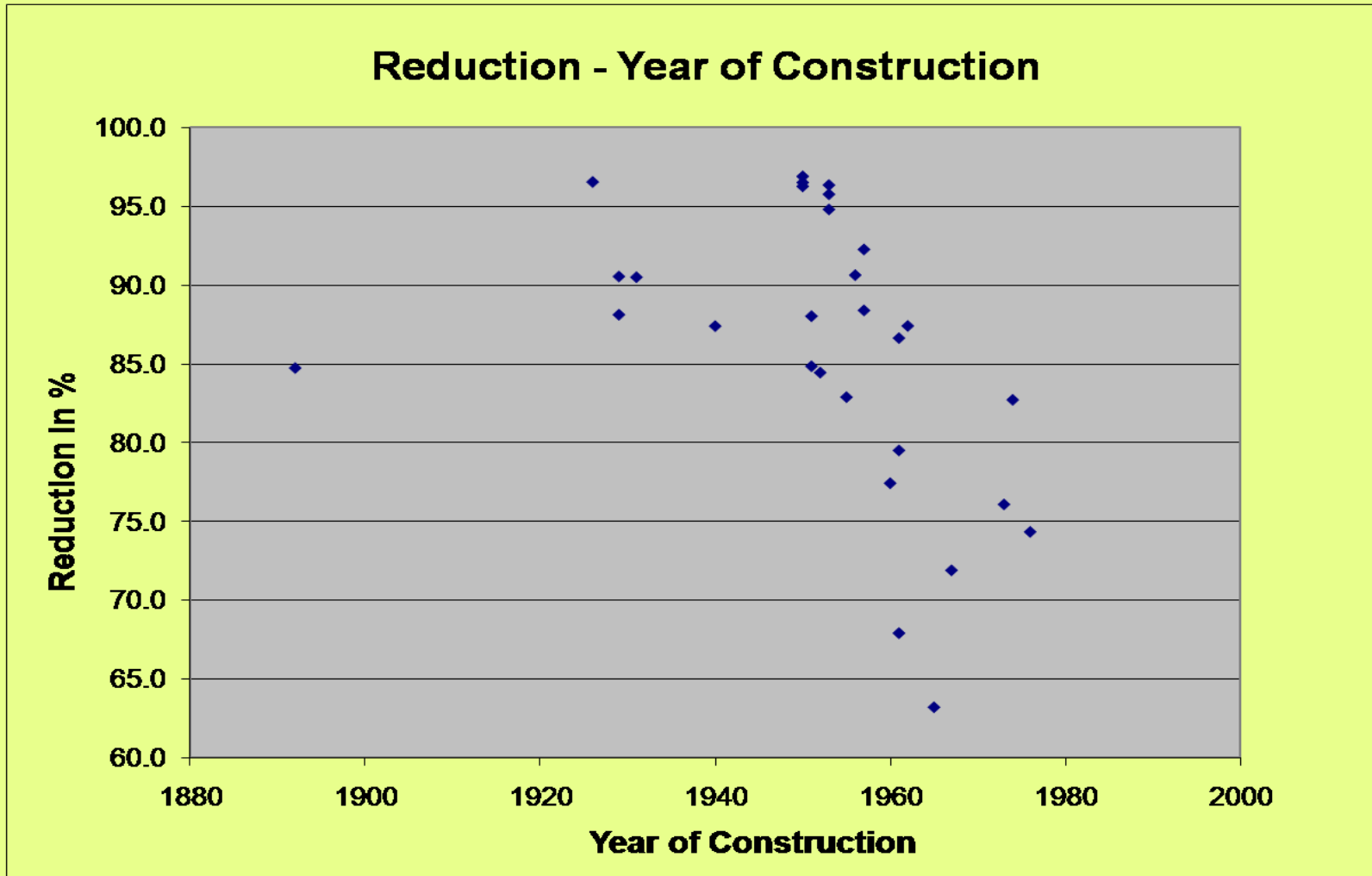
- More than 500.000 green-collar jobs could be created
- Annual cost saving of approximately 270 billion Euros
- Strong Impact on fuel poverty; can reduce cost to Treasury of Fuel Poverty
- Improves Foreign Balance (Payments)
- Improves Competitiveness, Creates EU Industry for Green Technologies;

Lock-in Effect



Source : Central European University, 2010 (draft)

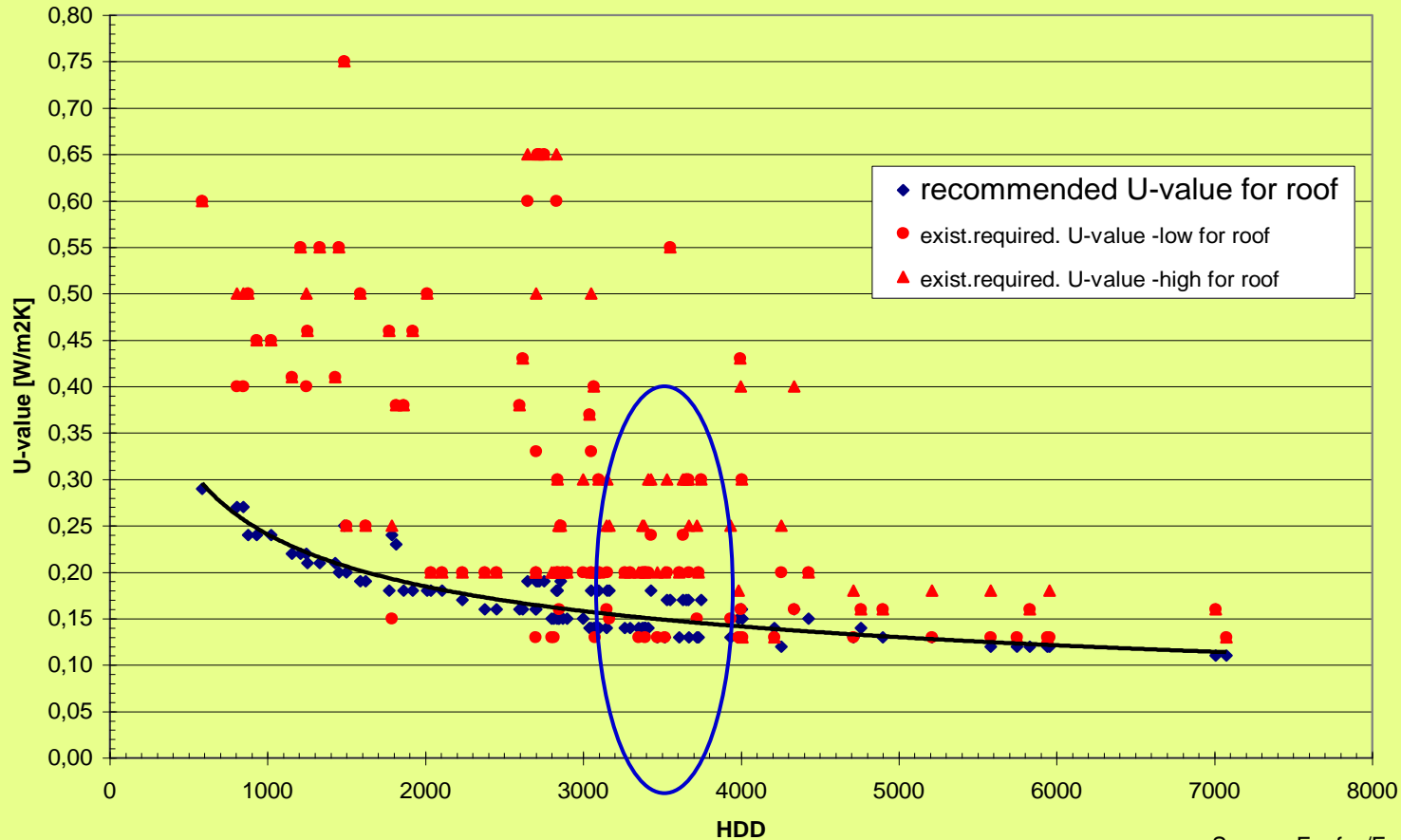
Older buildings need deeper renovations



Source: DENA, 2009

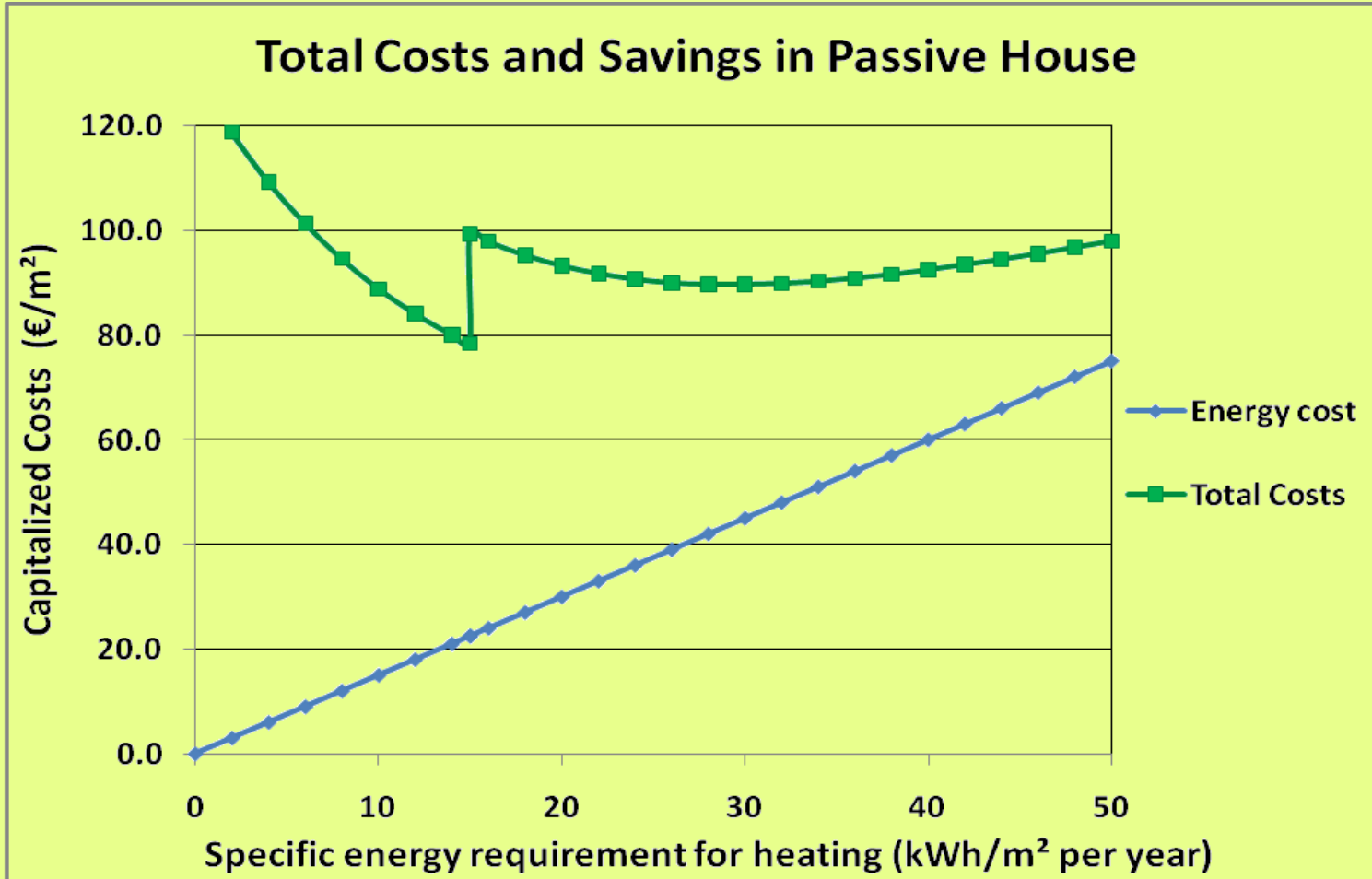
Recommended U-values - Roof

Peak price - roof



Source: Ecofys/Eurima, 2007

Passive Houses are not more expensive



Source: IEA, 2010

In the near future, we need...

**An Energy Efficiency Action Plan with
legislative and non-legislative proposals, incl. standards**

A combination of:

Regulatory measures - Financial measures - Technical measures



EuroACE

THE EUROPEAN ALLIANCE OF COMPANIES
FOR ENERGY EFFICIENCY IN BUILDINGS



THANK YOU!

Eurima

Avenue Louise 375, Box 4

B-1050 Brussels, Belgium

Tel +32 (0)2 626 20 90

www.eurima.org