



- The EU policy on energy efficient buildings

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JRC workshop, Moscow 2-3 September 2010

# Content

- Key features of the new EU Directive on energy efficiency in buildings (EPBD)
- Other ongoing EU policy initiatives in the area of energy efficient buildings
- Lessons to be learnt from the EU experience

# The new EU Directive for energy efficiency in buildings (2010/31/EU)

Directorate-General  
for Energy



# The EU Directive on EE on buildings

- EU had a Directive for EE in buildings since 2002, the new Directive is a recast
- The recast keeps the main features of the previous legislation:
  - MS have to develop a methodology for setting MEPR
  - MS have to set MEPR for new buildings and existing buildings undergoing major renovation
  - MS have to establish a scheme for inspection of air conditioning and heating systems
  - MS have to establish an energy performance certificate
- Framework Directive, no harmonised requirements in EU!
- Publication in EU Official Journal in June 2010, has to be transposed by July 2012 in EU MS

# ● Comprehensive set of legislation to enhance energy efficiency

▲ Revision in 2008

Generation

- Directive on the promotion of **cogeneration**
- ▲ ● Directive on the promotion of the use of **energy from renewable sources**

Products

- ▲ ● Directives for **labelling of domestic appliances**
- Regulation of Energy Star labelling for office equipment
- ▲ ● Directive establishing a framework for the setting of **eco-design requirements** for energy-using products
- **Construction products** Directive (Proposal for a regulation laying down harmonised conditions for the marketing of the construction products)
- ▲

Buildings

- ▲ ● Energy performance of **buildings Directive (EPBD)** *addresses buildings in holistic manner, Framework Directive*

Services

- Energy **end-use efficiency and energy services** Directive

Taxation

- ▲ ● Directive for the **taxation** of energy products and electricity

# ● Energy Performance of Buildings Directive – recast (1)

- a) All new build “nearly zero energy buildings” as of end of 2020 (public sector: end of 2018). Remaining energy need mainly covered by RES
- b) Directive covers now all existing buildings irrespective of their size both residential and non residential sector (previously only >1000 m<sup>2</sup>)
- c) Requirement for Member States to lay down min. energy performance levels for technical building systems and building elements when installed, replaced or upgraded
- d) Level of minimum energy performance requirements  
Benchmarking to achieve cost-optimal levels



# ● Energy Performance of Buildings Directive – recast (2)

- e) Display of Energy Performance Certificates in public buildings  
(decrease of threshold to 500 m<sup>2</sup> and 250 m<sup>2</sup> after 5 years)
- e) Strengthening the role and the quality of energy performance certificates – i.a. by quality checks and obligatory use of the performance indicator in all advertisements for sale or rent
- f) Strengthening the role and the quality of HVAC inspections
- g) Stimulating financing mechanisms for energy efficiency investments in the building sector
- h) Exemplary role of public authorities






# EPBD – Energy Performance Certificate

Different formats, layout and rules for advice on energy efficiency improvements in EU Member States

## Energy labelling

**Energy labelling of the following building:**

**Address:** Storgade 27 A og B  
**Postal code/city:** 9990 Storstaden  
**BBR-no.:** 12345-1  
**Energy labelling no.:** 122780  
**Valid 5 years from:** 8. august 2006  
**Energy consultant:** Jens Pedersen



**Company:** Aktuel Energirådgivning

The energy labelling informs about the building's energy consumption, the possibility of obtaining energy savings, the break-down of the building's energy costs and the average energy consumption of individual apartments. The energy labelling is prepared by certified energy consultants for apartment buildings and is required by law.

## Reported energy consumption for heating

- Costs including VAT and duties:** 293.000 DKK/year
- Consumption:** 526 MWh/year
- Reported for the period:** January 1st 2005 – December 31st 2005

The reported energy consumption and costs are climate corrected by the energy consultant. Thus, the figures express an average year temperature-wise.

## Energy label

### Low consumption



### High consumption

A1 is the best energy label that can be achieved, then A2, then B1, etc. G2 is the worst.

## Cost-effective savings

Here are the energy consultant's proposals to reduce the energy and water consumption in the building. There may be more proposals on the next page. The proposals below are elaborated in the building inspection section.

## ENERGIEAUSWEIS für Nichtwohngebäude

gemäß den §§ 16 ff. Energieeffizienzverordnung (EnEV)

**Berechneter Energiebedarf des Gebäudes** 2

**Primärenergiebedarf** „Gesamteffizienz“

Dieses Gebäude: kWh/(m²·a)

EnEV-Anforderungswert Neubau | EnEV-Anforderungswert modernisierter Altbau

CO<sub>2</sub>-Emissionen \* kg/(m²·a)

**Nachweis der Einhaltung des § 3 oder § 9 Abs. 1 der EnEV (Vergleichswerte)**

Zulässiger Endenergiebedarf	Energetische Qualität der Gebäudehülle
Gebäude Ist-Wert: kWh/(m²·a)	Gebäude Ist-Wert H <sub>t</sub> : kWh/(m²·a)
EnEV-Anforderungs-Wert: kWh/(m²·a)	EnEV-Anforderungs-Wert H <sub>t</sub> : kWh/(m²·a)

**Endenergiebedarf „Normverbrauch“**

Energieträger	Heizung	Warmwasser	sonstiger Endenergiebedarf in kWh/(m²·a) für	Kühlung einschl. Beleuchtung	Gebäude insgesamt
		Einbautube Beleuchtung	Lüftung		

**Aufteilung Energiebedarf**

[kWh/(m²·a)]	Heizung	Warmwasser	Einbautube Beleuchtung	Lüftung	Kühlung einschl. Beleuchtung	Gebäude insgesamt

**Erneuerbare Energien**

Einsetzbarkeit alternativer Energversorgungs-systeme nach § 5 EnEV vor Baubeginn berücksichtigt

Erneuerbare Energieträger werden genutzt für:

Heizung  Warmwasser  Einbautube Beleuchtung

Lüftung  Kühlung

**Lüftungskonzept**

Die Lüftung erfolgt durch:

Fensterlüftung  Lüftungsanlage ohne Wärmerückgewinnung

Schachtlüftung  Lüftungsanlage mit Wärmerückgewinnung

weitere Zonen in Anlage

**Gebäudezonen**

Nr.	Zone	Fläche (m²)	Anteil (%)
1			
2			
3			
4			
5			
6			

**Erläuterungen zum Berechnungsverfahren**

Das verwendete Berechnungsverfahren ist durch die EnEV vorgegeben. Insbesondere wegen standardisierter Randbedingungen erlauben die angegebenen Werte keine Rückschlüsse auf den tatsächlichen Energieverbrauch. Die ausgewiesenen Bedarfswerte sind spezifische Werte nach der EnEV pro Quadratmeter Gebäudenutzfläche (A<sub>n</sub>). Die oben als EnEV-Anforderungswert bezeichneten Anforderungen der EnEV sind nur im Falle des Neubaus und der Modernisierung nach § 9 Abs. 1 EnEV bindend.

\* HeißeWasser Anlage

## DZIVOJAMAS MAJAS ENERGOPASE

Reģistrācijas numurs: BA 8097

**Pušķina 90, Daugavpils**

Īpašs tips: Daugavpils rajons, 487. ietīva  
 Apdzīvotājam: SIA „DZĪVĀJUMS”  
 Izmantojamā telpība: ... m²  
 Īpašs izstrādātājs: ...  
 Īpašs izstrādātājs: ...  
 Izstrādājis: ...  
 Energoaudits veikšanas datums: 23.03.2009

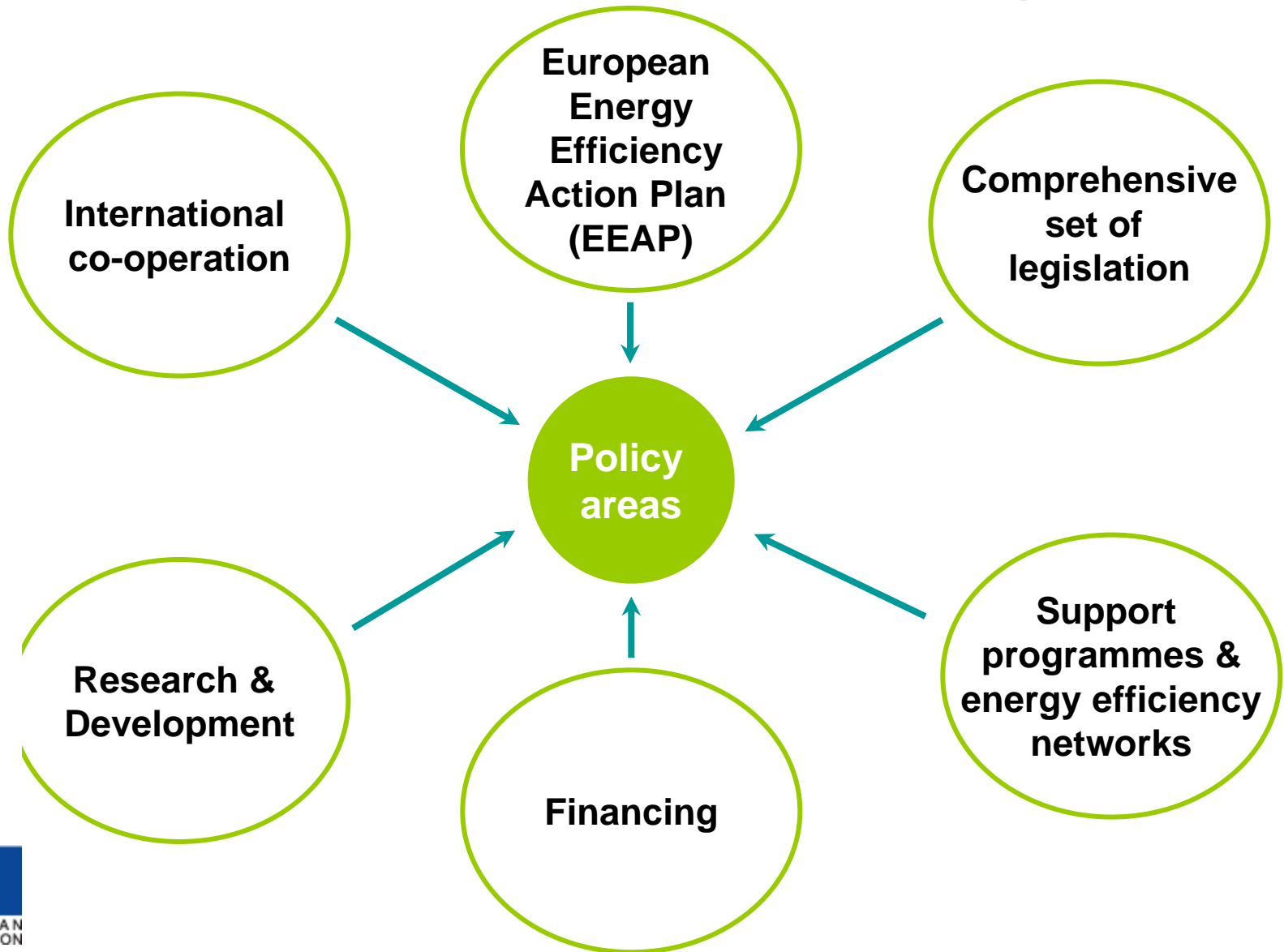
The report includes a color-coded energy efficiency scale, a breakdown of energy consumption by zone, and recommendations for improvement.



# Support with implementation

- (1) **Intelligent Energy Europe Programme (SAVE)**
- (2) European Commission's information service
  - **“BUILD-UP Initiative”** ([www.buildup.eu](http://www.buildup.eu))
- (3) Holistic set of European Standards on energy performance of buildings and their components (**CEN standards**)

# Main policy action to achieve energy savings



# Other related EU-initiatives

- Development of **Eco-Design** minimum standards and **Energy labelling** for AC, ventilation, boilers, water heaters, washing machines, dishwashers in 2010-2011
- **Lead market “sustainable construction” initiative** since 2007, to identify non-technical barriers
- Voluntary **Eco label for Buildings** by DG ENV in 2012
- **E2B** Public-private partnership for energy efficient buildings as part of the European Economic Recovery Programme (2 bln euro)

Preparation to transfer uncommitted money from **EERP** to energy efficiency and renewables (115 mio Euro)

**Smart Cities** to be proposed soon

**Green Paper on Public procurement** in support of Europe 2020

# The EU methodology framework on cost-optimality

## Comparative methodology framework for cost-optimal levels of minimum energy performance requirements

1. Commission will provide a methodology framework which provides principles for MS to calculate
  - (i) energetic performance of a building and its installations (technical building systems) - taking into account climate conditions etc. - by using EPBD CEN standards and
  - (ii) life-cycle costs for measures to achieve certain energy performance levels (similar to CEN standard prEN 15459)
2. Typical reference buildings shall be defined by MS (e.g. small, medium, big residential buildings, office building, hospital, hotel, etc., see also recast EPBD Annex I(5)).

## Comparative methodology framework for cost-optimal levels of minimum energy performance requirements

3. Member States apply variations of energy efficiency measures to reference buildings and calculate the building's life-cycle costs and energy performance by using the EPBD CEN standards and their nationally fixed variables (national/regional climate data, investment costs, average energy price outlook etc.).
4. Member States report these national/regional results incl. calculation and variables used to the Commission.
  - Member States "translate" and compare the result of (3.) into/with their current national requirements and adjust them if these are less ambitious than the cost-optimal ones of (3.).

# General principles for a future Russian EE policy for buildings



# Russian savings potential

- 550 mio Gcal/a savings in residential sector, if only 1/3 of the stock would be brought up to western European standards (this is equivalent to half of Russia's gas export to EU) *source: dena*
- Half of Russia's residential buildings need refurbishment

*But:*

Rents are not cost-covering, very low energy prices, lack of expertise, difficult administrative procedures for financial support for refurbishment, owners reluctant to participate as they still have to bear around  $\frac{1}{4}$  of the cost

# Lessons learnt from 2002/91/EC

- In particular existing buildings need supporting policies: funding/financing and information/awareness/training
- Exemplary role of the public sector is important to push the market
- Certificate can be a crucial tool to render visible the invisible value of energy efficiency and its associated savings – if it is applied seriously, otherwise only considered as an “administrative burden”
- Important role of ambitious requirements that are know medium to long term to all construction sector actors  
Importance of municipalities and local level (cf Covenant of Mayors)  
Need for sanctions and penalties and independent control system

Thank you!

Directorate-General  
for Energy

