



European
Commission



Energy efficiency in Buildings

MEDBEE Forum
Brussels, 22 November 2012

Robert Nuij
European Commission
Directorate General for Energy
Unit C3, Energy efficiency

Broader policy framework

Europe 2020 strategy

- **greenhouse gas emissions 20% lower than 1990**
- **20% of energy from renewables**
- **20% increase in energy efficiency**

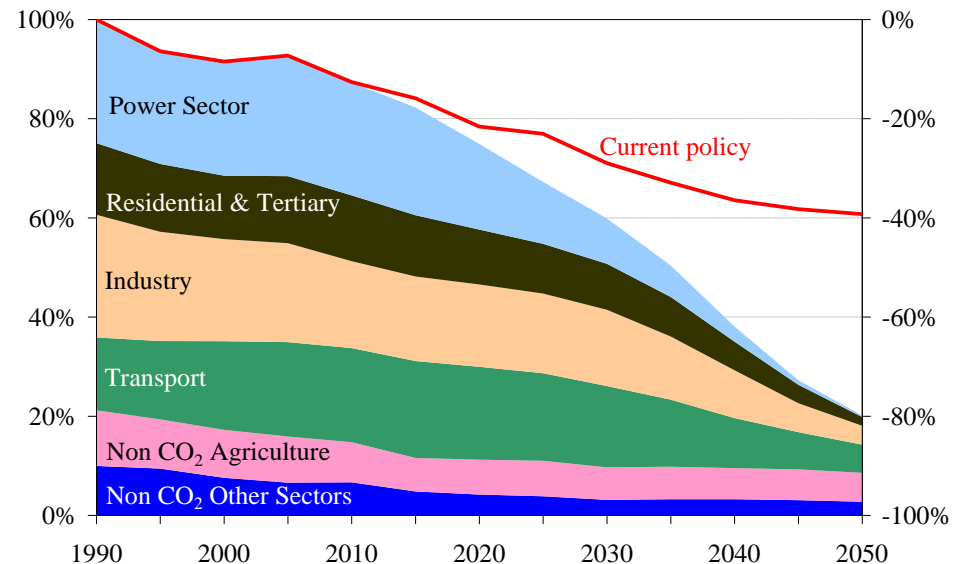
November 2010: Energy 2020 - European strategy for a competitive, sustainable and secure energy

- **Energy efficiency one of five priorities**
- **Focus on two sectors with the biggest energy saving potential: transport and buildings**

...and beyond 2020?

Low-carbon economy roadmap 2050 (March 2011)

- **20% reduction in energy efficiency = 25% reduction in CO₂ by 2020**
- **Crucial role of building sector: emissions could be reduced by 90 % by 2050**



...and beyond 2020?

Energy Roadmap 2050 (December 2011)

- **Explore routes towards a low-carbon energy system by 2050**
- **Give more certainty to governments and investors**
- **Energy efficiency and renewables are 'no-regrets' options**
- **Well-functioning energy markets are key**

Energy Performance of buildings

- **Directive 2002/91/EC was revised in 2010**
- **Directive 2010/31/EU on the energy performance of buildings (recast) entered into force: July 2010**
- **Transposition deadline for Member States: 9 July 2012**
- **24 Member States missed this deadline and infringement procedures have started**



European Commission

The EPBD makes energy efficiency visible

Certificação Energética e de Interior Edifícios

CERTIFICADO DE DESEMPENHO ENERGÉTICO E DA QUALIDADE DO AR INTERIOR

TIPO DE EDIFÍCIO: EDIFÍCIO HABITAÇÃO UNIFAMILIAR / FRAÇÃO AUTÓNOMA DE IMÓVEL

Localidade: _____ Freguesia: _____
 Concelho: _____ Município: _____
 Data de emissão do certificado: _____ Validade do certificado: _____
 Nome do portador(a): _____ Número de porta-qual: _____
 Localidade na Conservatória do Registo Predial de: _____
 Edifício nº: _____ Aut. municipal nº: _____ Fração do edifício: _____

1. ETIQUETA DE DESEMPENHO ENERGÉTICO

INDICADORES DE DESEMPENHO

Necessidades anuais globais estimadas de energia para climatização e águas quentes sanitárias	<input type="checkbox"/> Melhor que	A
Necessidades anuais globais estimadas de energia primária para climatização e águas quentes sanitárias	<input type="checkbox"/> Igual ou melhor que	B
Valor limite máximo regulamentar para as necessidades anuais globais de energia primária para climatização e águas quentes sanitárias	<input type="checkbox"/> Igual ou melhor que	C
Emissões anuais de gases de efeito estufa associadas à energia primária para climatização e águas quentes sanitárias	<input type="checkbox"/> Menor que ou igual	D
		E
		F
		G
		H
		I

2. DESAGREGAÇÃO DAS NECESSIDADES NOMINAIS DE ENERGIA

Necessidades nominais de energia útil para...	Valor mínimo para as condições de conforto térmico de referência
Esquentar água	Edifício A/B/C
Aquecimento	Edifício A/B/C
Fornecimento de água quente sanitária	Edifício A/B/C

NOTAS ESPECÍFICAS

As necessidades anuais globais estimadas de energia (E_{req}) correspondem a uma previsão teórica baseada em dados de referência para edifícios com características semelhantes às do edifício em questão. Estas necessidades são estimadas com base em dados de referência para edifícios com características semelhantes às do edifício em questão. Estas necessidades são estimadas com base em dados de referência para edifícios com características semelhantes às do edifício em questão.

As necessidades anuais globais estimadas de energia primária (E_{req,EP}) correspondem a uma previsão teórica baseada em dados de referência para edifícios com características semelhantes às do edifício em questão. Estas necessidades são estimadas com base em dados de referência para edifícios com características semelhantes às do edifício em questão.

As emissões anuais de gases de efeito estufa (E_{req,EE}) correspondem a uma previsão teórica baseada em dados de referência para edifícios com características semelhantes às do edifício em questão. Estas emissões são estimadas com base em dados de referência para edifícios com características semelhantes às do edifício em questão.

CRÉDITO DE ENERGIA

Este certificado é emitido em conformidade com o Regulamento (UE) nº 1317/2013 da Comissão Europeia, de 17 de dezembro de 2013, relativo ao Regulamento da União Europeia sobre o desempenho energético dos edifícios e a qualidade do ar interior.

ENERGIEAUSWEIS für Wohngebäude

gemäß § 10 ff. Energieeffizienzenergie (EHE)

Berechneter Energiebedarf des Gebäudes

Energiebedarf

Endenergiebedarf (kWh/m²a) **229**

Primärenergiebedarf (kWh/m²a) **174**

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

Heizungsanlagen: Heizungsanlagen vorhanden

Wärmeisolierung: Wärmeisolierung vorhanden

Sanitärer Warmwasserversorgung: Sanitärer Warmwasserversorgung vorhanden

Endenergiebedarf

Beheizungsart	Heizung	Wärmeisul.	Sanitärer W.W.

Sonstige Angaben

Einbauelemente des Gebäudes

- Heizung: Heizungsanlage vorhanden
- Wärmeisolierung: Wärmeisolierung vorhanden
- Sanitärer Warmwasserversorgung: Sanitärer Warmwasserversorgung vorhanden

Vergleichswerte Endenergiebedarf

Endenergiebedarf (kWh/m²a) **229**

Erläuterungen zum Berechnungsverfahren

Das berechnete Endenergiebedarfskennwert (E_{req}) ist die Energie, die zur Erreichung der im Gebäude definierten Raumtemperatur benötigt wird. Er setzt sich aus dem Heizwärmebedarf und dem Sanitärer Warmwasserversorgungsbedarf zusammen.

1. Heizungsanlage
2. Sanitärer Warmwasserversorgungsbedarf
3. Wärmeisolierung
4. Sanitärer Warmwasserversorgungsbedarf

PASTATO ENERGINIO NAUDINGUMO SERTIFIKATAS

Unikalus pastato Nr.: 1997-3000-9019
 Pastato adresas: Architektų 89, Vilnius, Vilniaus m. savivaldybė
 Pastato plotas: Miesto parkietas pastatas
 Pastato naudingasis plotas: 1743,74 m²

Pastato energinio naudingumo klasė (Klasė):

A B C D E F G

Skaitmeninis šiluminis energijos sąnaudos vienam kvadratiniam metrui pastato naudingąjo plotu: **229 kWh/m²a**

Pagrindinis pastato šildymo naudojamas šilumos šaltinis: **Centralinis šildymas**

Sertifikato išdavimo data: **2013-12-17**
 Sertifikato galiojimo terminas: **2018-12-17**

Sertifikatą išdavė pastato energinio naudingumo sertifikavimo ekspertas: **Dr. Tolekėrnė, al. 0051**

V) "Statybos produkcijos sertifikavimo centras"

Direktorius: **Robertas Enciuš**

* A klasė nuoroda labai energijai efektyvų pastatą, G klasė - surūdo energijos sąnaudos pastatą, I klasė - neturintis šilumos šaltinio pastatą.

Ea Energiepass

Ausweis über die Gesamtenergieeffizienz eines Wohngebäudes 1/5

Passnummer: P.20080102.1234.123.1.2 N. Aussteller: XY737315 Erstellt am: 02/01/2008 Gültig bis: 01/01/2018

Energieeffizienzklasse
geringer Energiebedarf

Wärmeschutzklasse
C
Energieparhaus

Energieeffizienzklasse
Die Einstufung in die Energieeffizienzklasse erfolgt nach dem sogenannten Primärenergiebedarf. Dieser berücksichtigt neben dem Wärmeschutz des Gebäudes auch die verwendete Anlagentechnik, sowie die Umweltverträglichkeit der eingesetzten Energieträger in einer Gesamtbetrachtung.

Wärmeschutzklasse
Die Einstufung in die Wärmeschutzklasse erfolgt nach dem sogenannten Heizwärmebedarf. Dieser berücksichtigt die Qualität der verwendeten Wärmedämmung in Wänden, Dach, Boden und Fenstern, die Bauweise und Bauausführung (Dichtigkeit) und die Orientierung.

Klassen
Die Klasseneinteilung erfolgt von A (beste Klasse) bis I (schlechteste Klasse)

Passivhaus - alle Klassen S A
Niedrigenergiehaus - alle Klassen S B
Energieparhaus - alle Klassen S C

Angaben zum Gebäude

Nutzungsart/Gebäudetyp: Wohnen EFH
 Anzahl der Wohneinheiten: 1
 Hülle (Bestand), Anlagen (Bestand):
 Adresse (Strasse): Rue du Soleil, 123
 Adresse (PLZ-Ort/Stadt): 1234, Luxembourg
 Baujahr Gebäude: 2004
 Baujahr Heizungsanlage: 1996
 Energiebezugsfläche: 280,4 m²

Aussteller

Energie: Stéphane Tailleur
 Jeanne Eau: 321, rue de l'Énergie
 L-1234 Luxembourg
 L-4321 Luxembourg
 Tel. 12345678
 Fax: 87654321

Unterschrift Aussteller: _____ Ort, Datum: _____

Key elements of the EPBD

Cost-optimal minimum energy performance requirements

Introduction of “nearly zero energy buildings”

Requirements for technical building systems

Energy Performance Certificates (EPC)

Inspection of heating and cooling systems

Independent experts and quality control system

Nearly zero-energy buildings

Recital 15:

- *“alternative supply systems should be considered for new buildings pursuant to the principle of first ensuring that energy needs for heating and cooling are reduced”*

Article 2, Directive 2010/31/EU:

- 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**

Nearly zero-energy buildings

Article 9 (1): Member States shall ensure, that

- **After 31 December 2018, new buildings occupied and owned by public authorities are nearly zero-energy buildings, and;**
- **After 31 December 2020 all new buildings occupied are nearly zero-energy buildings**
- **Develop national plans for increasing the number of nearly zero-energy buildings**

Renewable Energy Sources Directive

Sets mandatory national targets for share of RES by 2020

- **Defined by Member State**

Introduction of RES in national strategies

- **Development of NREAP**

Minimum RES levels for new and existing buildings by end 2014

- **Public buildings to lead by example by beginning 2012**

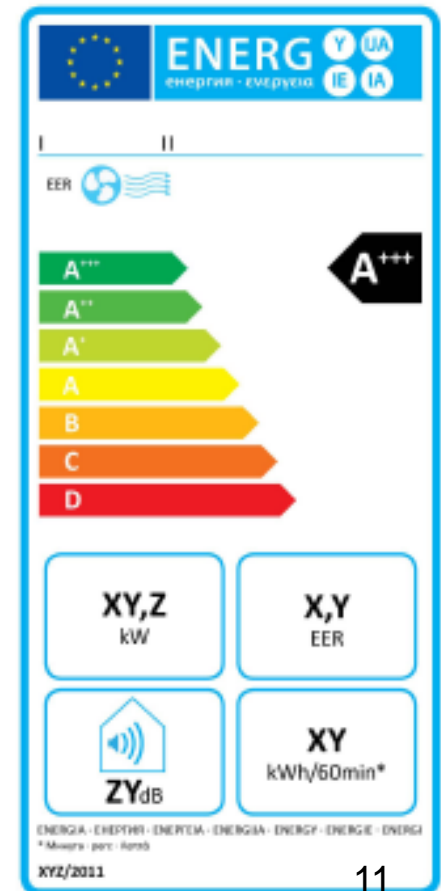
Ecodesign and energy labelling

Buildings-related products:

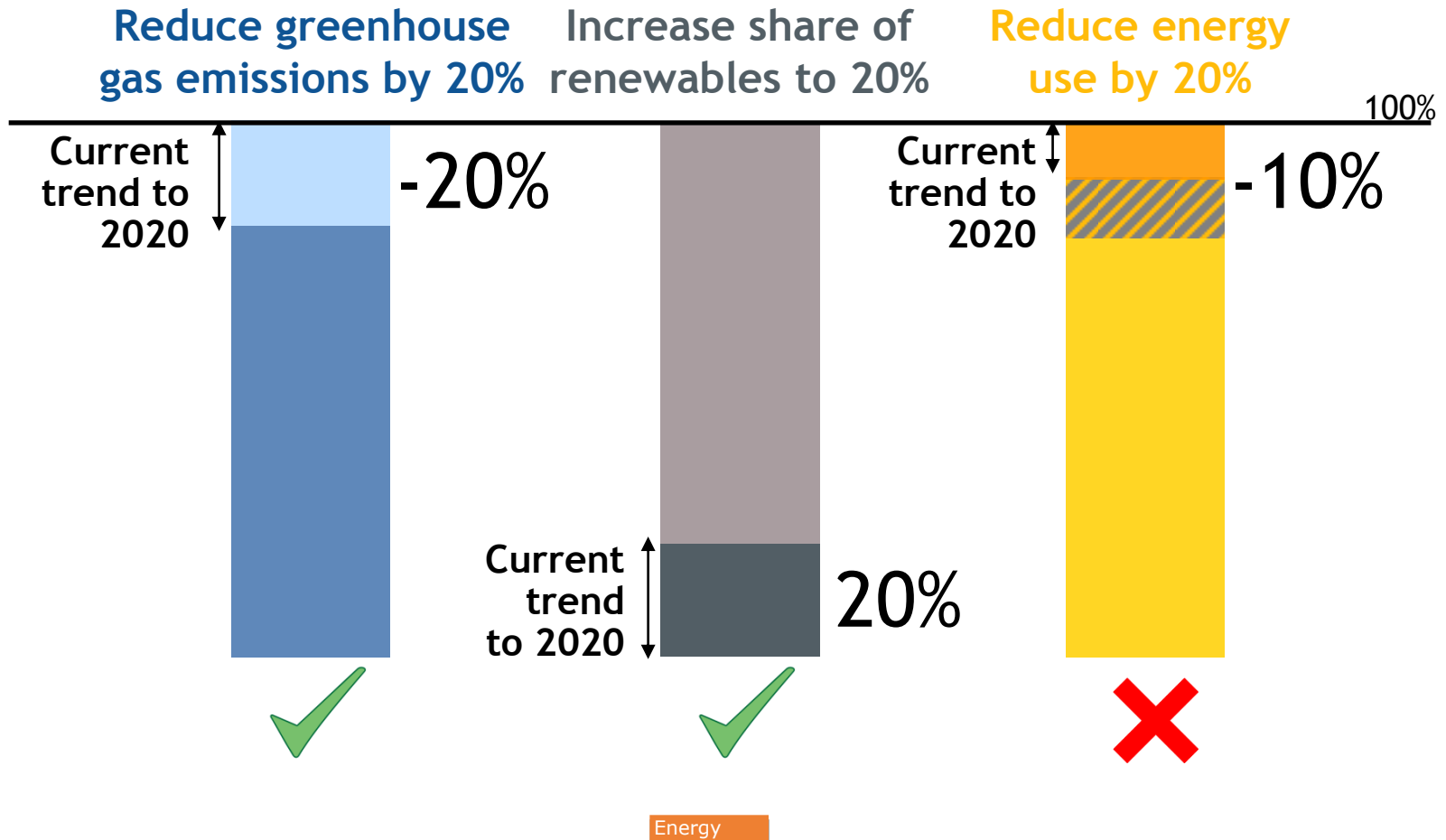
- **Circulators**
- **Electric motors**
- **Fans**
- **Domestic lighting I - light bulbs**
- **Tertiary sector lighting I - lamps and ballasts**
- **Airco & comfort fans**

2012-2014 Work plan:

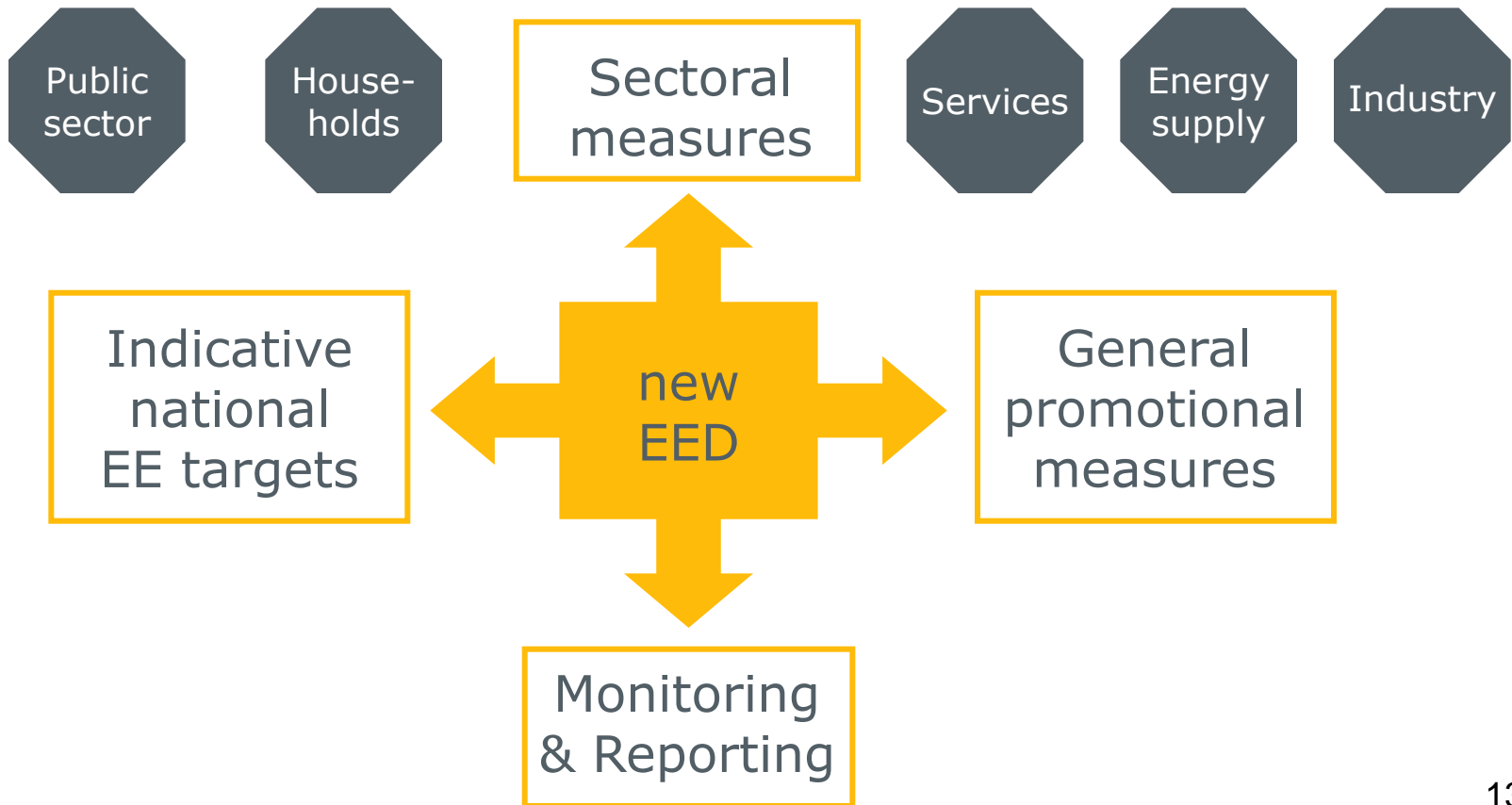
- **Windows**
- **Taps and shower heads**
- **Light and heating controls (conditional)**
- **Thermal insulation (conditional)**



Are we meeting our targets?



A new Energy Efficiency Directive



EED measures for buildings

Building renovation

- **by 04/2014 MS must make long-term strategies for mobilising investments for building renovation**

Exemplary role of the public sector

- **MS must renovate 3% (by floor area) of their central government buildings per year or adopt measures to achieve equivalent energy savings in these buildings (voluntary for other authorities)**
- **Central government to purchase only products, services and buildings with high energy efficiency performance**

EED measures for buildings

Energy savings obligations

Accurate and frequent individual metering and billing

Remove barriers to energy performance contracting

Address split incentive problems (including in multi-owner properties)

Facilitate establishment of financing facilities

Financing energy efficiency

Cohesion policy funds (2007-2013):

- 4,6 billion € for energy efficiency

ELENA Facility:

- 97 million € for technical assistance to mobilise investments

European Energy Efficiency Fund (EEE-F):

- 265 million € for investments into mature, bankable efficiency/renewables projects
- 20 million € for technical assistance

Intelligent Energy Europe Programme (2007-2013):

- 735 million € for 'soft' energy efficiency/renewables projects

EU financial facilities in future

Next Multi-Annual Financial Framework (2014-2020) proposals:

- **Cohesion funding to allocate some 17 billion € to energy efficiency and renewable energy (doubling current allocations)**
- **Horizon 2020: 6.5 billion € is to be allocated to research and innovation in "Secure, clean and efficient energy"**

Other key challenges

- **Difference between 'designed' and 'built'**
- **Implementation and enforcement**
- **Indoor air quality**
- **Behavioural aspects**
- **Workforce skills**
- **Financial support (both public and private)**



Thank you for your attention



Robert Nuij

Tel: +32 (0)2 298 6183

Email: robert.nuij@ec.europa.eu