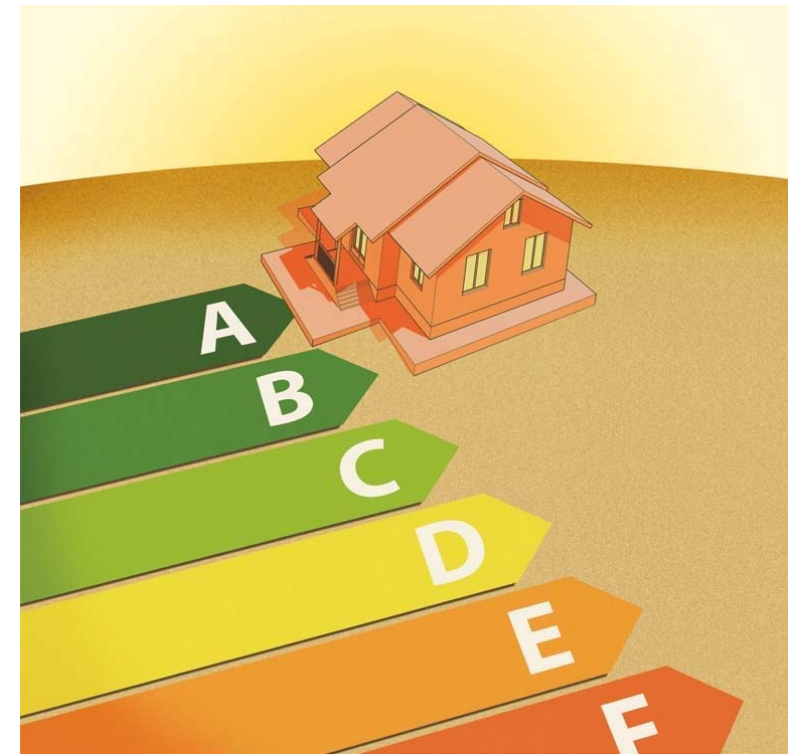


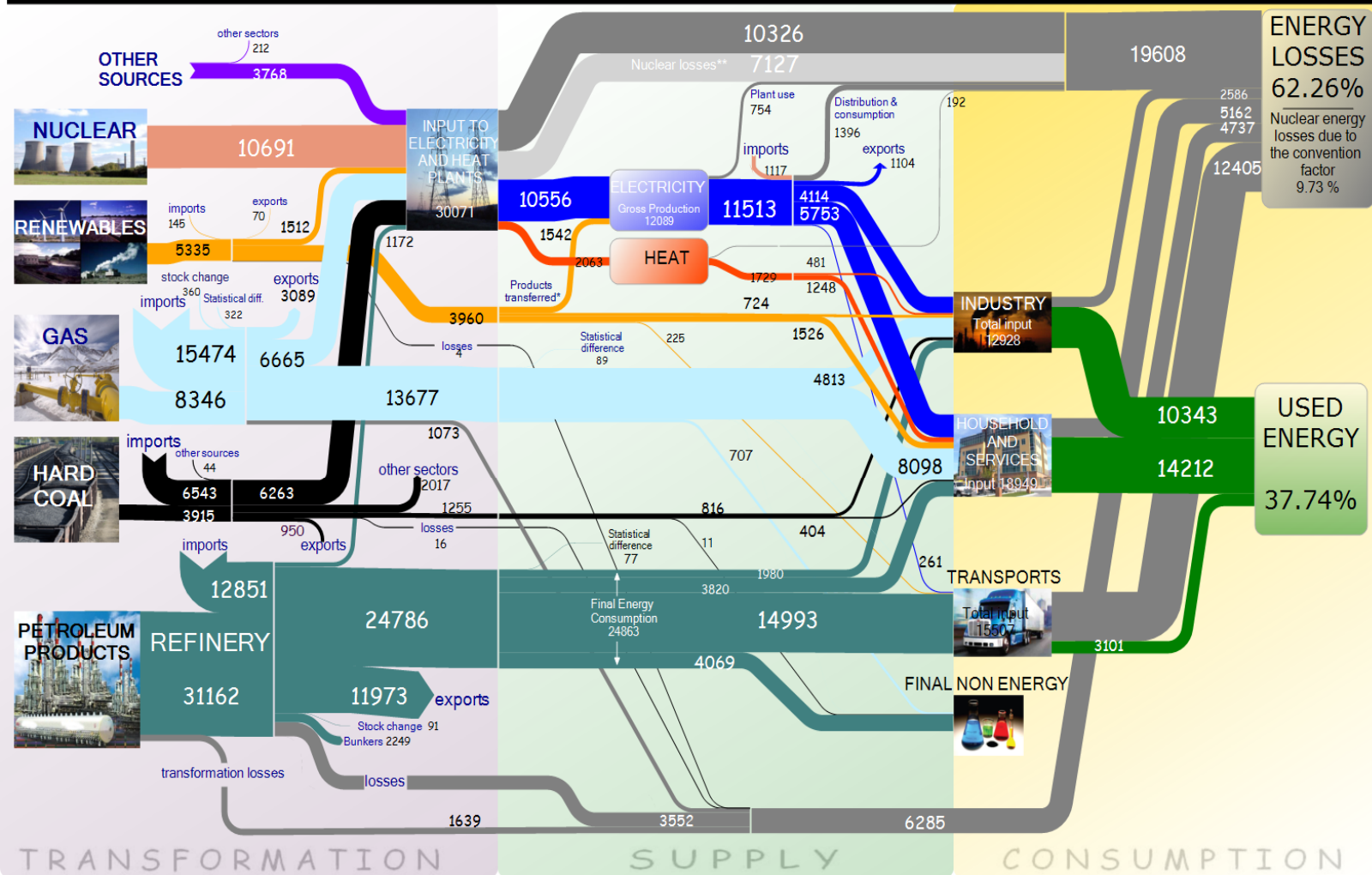
EU Energy Efficiency Policies and JRC Activities

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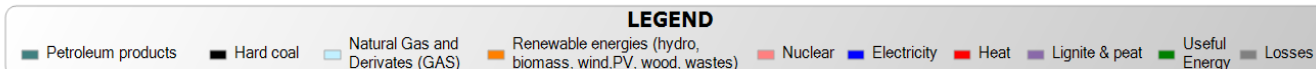
Istanbul, 29 September 2009 – JRC Workshop

EU-27 streamlined energy flow trends - 2006 Supply, transformation, consumption (PJ)



* It refers to electricity produced from Hydro, Wind and Photovoltaic Power which is directly counted as gross electricity production. It has been added also the gross electricity generation from pumped storage plants.

** Losses occurred due to the convention factor for nuclear power. These are not properly losses.



EU Key Climate and Energy Objectives for 2020

By 2020 -20% **EU GHG**

By 2020 +20% **ENERGY
SAVING**

By 2020 binding 20% **RENEWABLES** in final
energy consumption at EU level

**RES in
transport**
Min 10%
binding

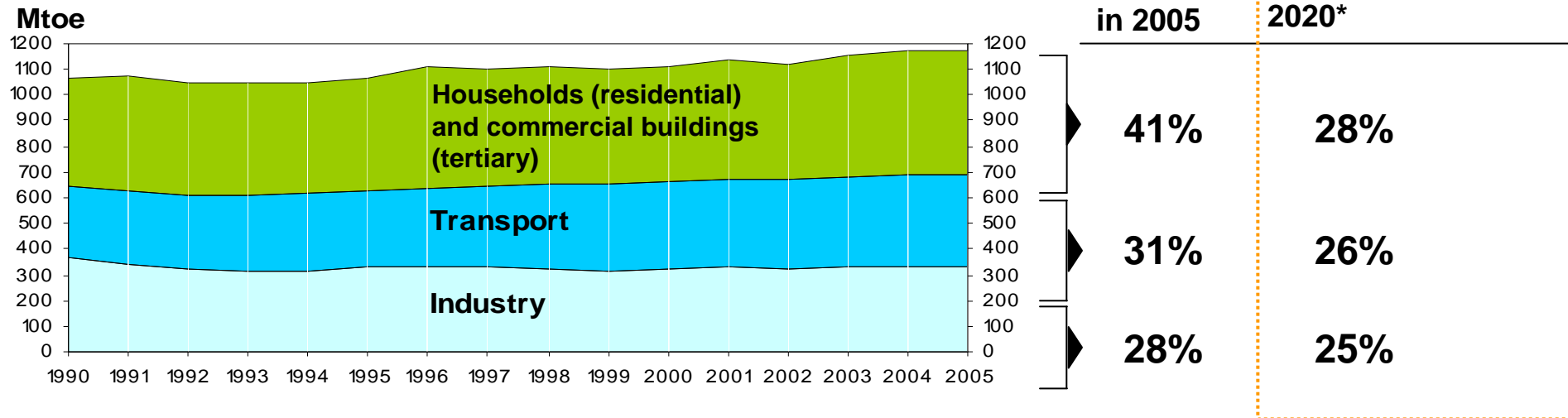
ELECTRICITY
MS binding
choice

**HEATING &
COOLING**
MS binding
choice

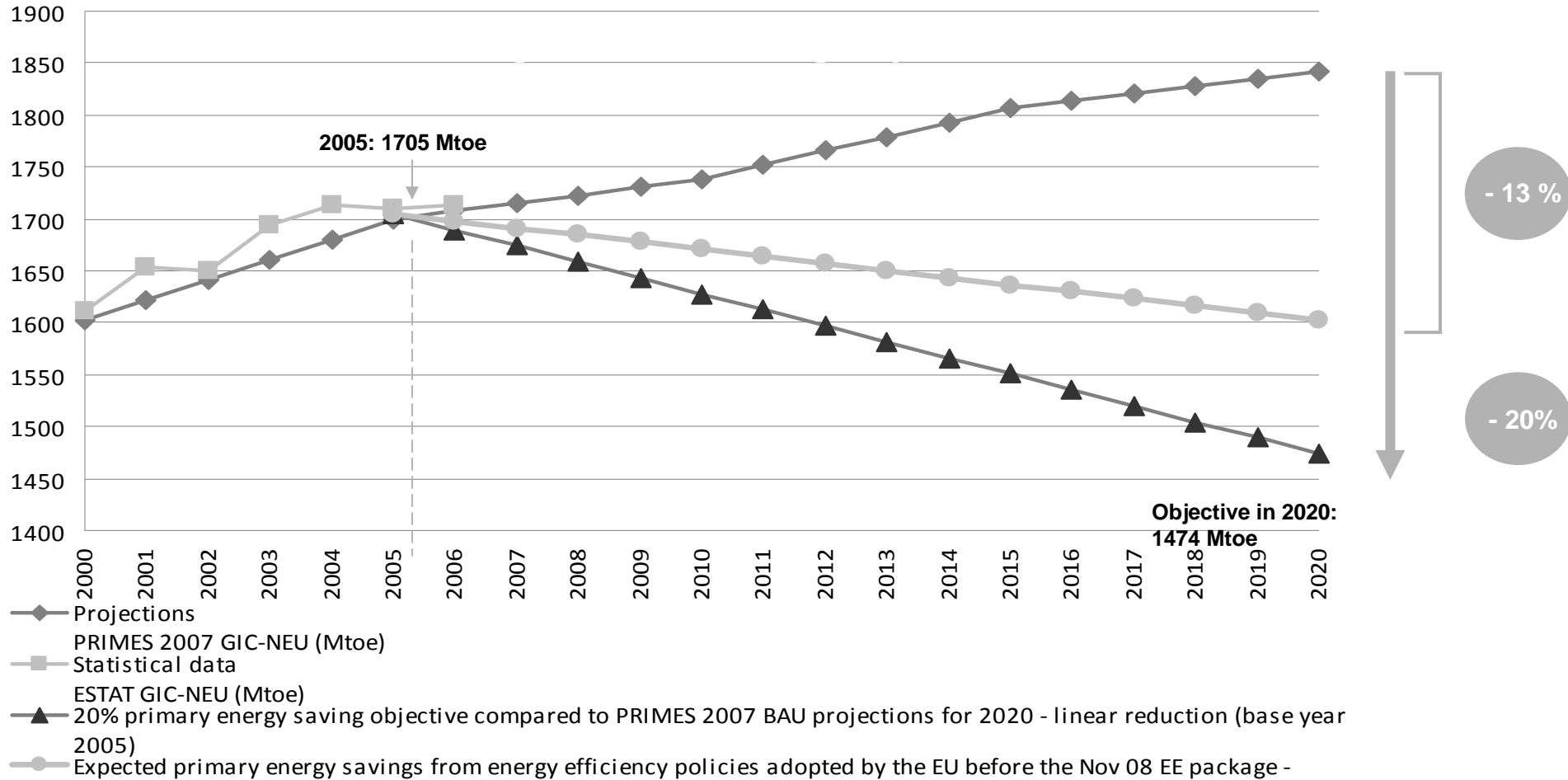
NATIONAL TARGETS & ACTION PLANS

Important energy saving potentials to be realised by 2020 through energy efficiency measures

EU total final energy consumption in 2006: 1.176 Mtoe



* Compared to the “business as usual” energy consumption projections for 2020
Source: Eurostat (2007), Wuppertal Institute (2005).



Source: European Commission

Nov 2008 – Energy Efficiency package / Cover Communication

“Energy efficiency: Delivering the 20% target”:

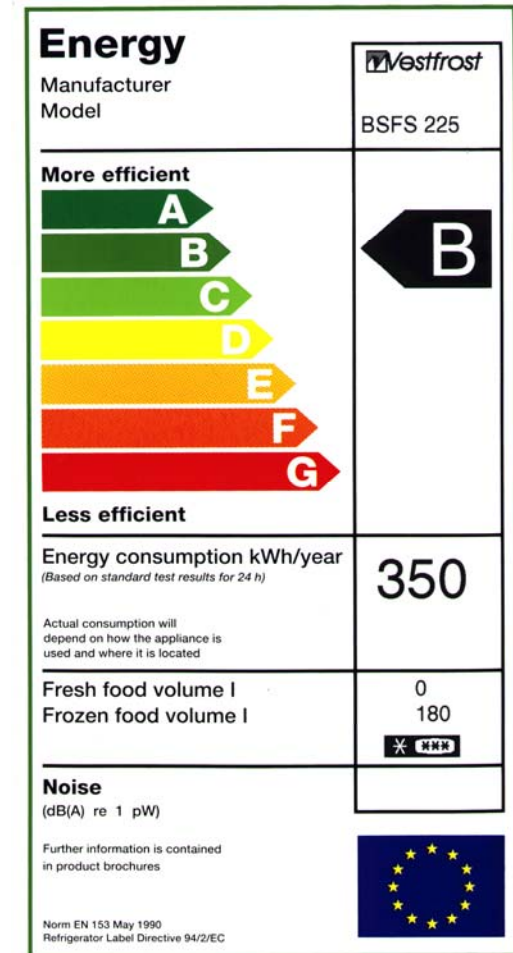
- current policy measures are insufficient to achieve the 20% energy saving objective in 2020 (they would achieve only 13%)
- appeal to *MS to implement energy efficiency legislation* more swiftly and effectively
- immediate initiatives are proposed for buildings (recast of EPBD), products (Eco-design) and CHP
- more financing tools will be developed to enhance energy efficiency
- assessment of 2006 EEAP in 2009 as a basis for a new EU Energy Saving Action Plan (ESAP)

- In the EU policies have been developed both for the **buildings** and for the **appliances/equipment** inside buildings (TV, lightings, refrigerators, standby, PCs, washing machine, room air conditioners, etc.).
- In the EU policies includes **information** (e.g. labelling), **minimum efficiency standards** (eliminating from the market inefficient equipment, and new building only well insulated, Eco-Design), **awareness and promotion**, and **financial incentives** (mainly at Member States level).

- Traditional European Energy Efficiency Policies:
 - Energy tax (at EU and national level)
 - Incentives for investments in energy efficiency (national)
 - Information campaigns (mainly national)
 - Promotion of energy services (ESCOs) (weak EU measures, plus national action, but not enough!)
 - Minimum Efficiency Requirements (MEPS) for end-use equipment (at EU level)
 - Equipment Labelling (at EU level)
 - Buildings Codes (standards) (at national level)
 - Energy Audits (at national level)
 - Voluntary programmes (mainly in industry at national level, but also for equipment and cars, these are at EU level)
 - Energy Audits
 - DSM programmes (not many, at national level or regional level)

- **More Recent European Energy Efficiency Policies:**
 - Better use of taxation (reduced VAT, accelerated depreciation, tax deductions);
 - Opening up public purchasing (procurement);
 - Measures in the transport sector (road toll, congestion avoidance, etc.);
 - White certificates, a new market-based instrument;
 - Emission Trading;
 - Develop Energy Services and ESCOs;
 - Develop Financial Instruments;
 - Guarantee of Origin for the promotion of Co-generation;
- **Uncommon Policies:**
 - Demand-side utility programmes (Germany, DK), Integrated Resource Planning (DK);
 - Public Benefit Charges (UK, DK);
 - Demand response;
 - Demand-side bidding (tendering);

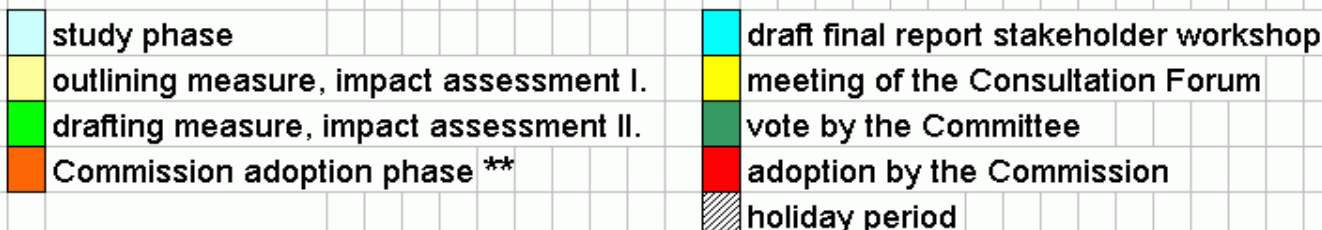
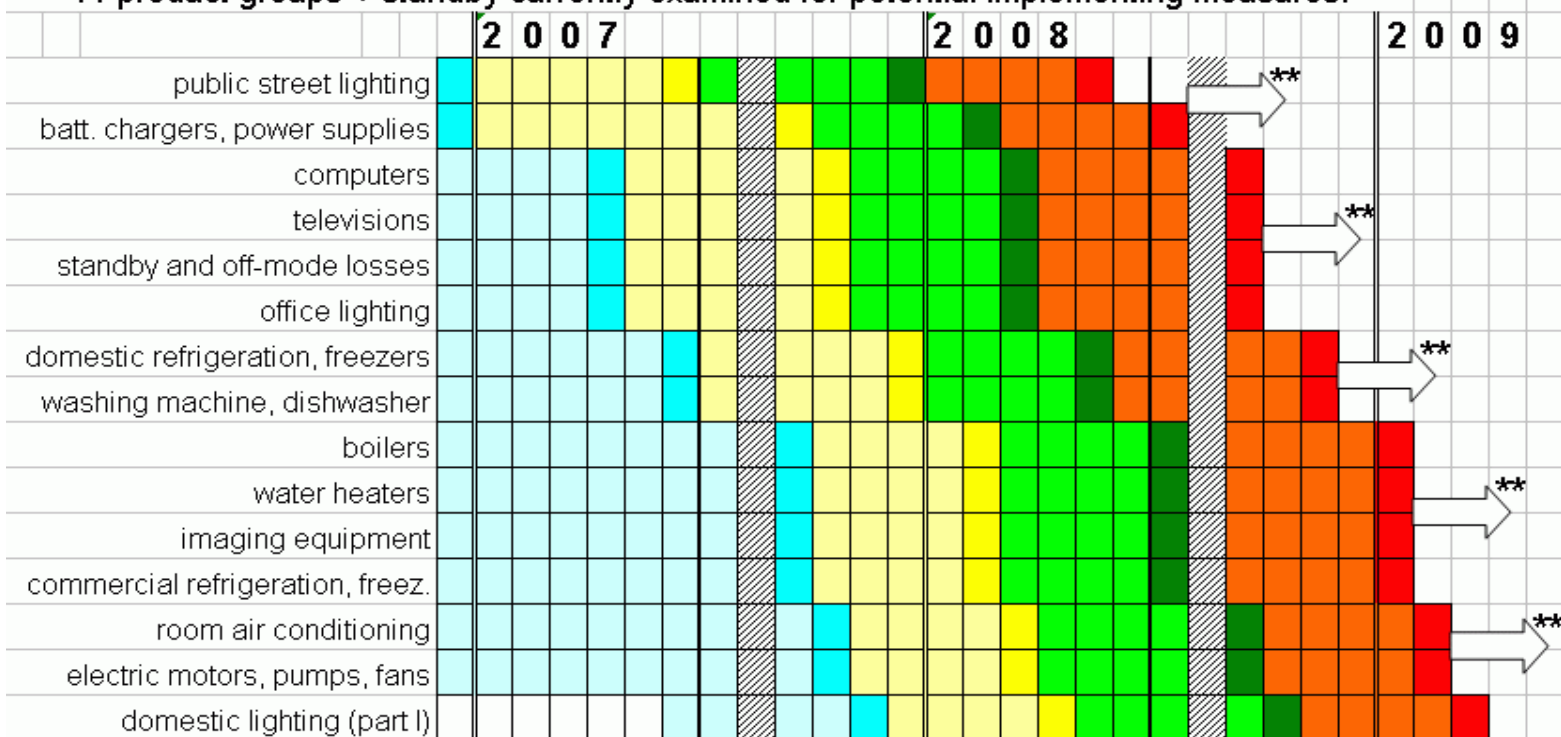
- The EU adopted a Framework Appliance Energy Labelling Directive in 1992 (92/75/EEC) followed by implementing Directives for the following appliances:
- Cold appliances (Directive 94/2/EC of 21.1.94)
- Clothes washers (Directive 95/12/EC of 23.5.95)
- Clothes dryers (Directive 95/13/EC of 23.5.95)
- Washer-dryers (Directive 96/60/EC of 23.5.95)
- Dishwashers (Directive 97/17/EC of 7.5.97)
- Household lamps (Directive 98/11/EC of 27.1.98)
- Air-conditioners (Directive 2002/31/EC of 22.3.2002)
- Electric ovens (Directive 2002/40/EC of 8.5.2002).
- Directive 2003/66/EC on refrigerators and freezers (A+/A++)



- Mandatory minimum efficiency requirements have been introduced in the EU for:
 - Cold appliances
 - Heating Boilers
 - Ballast for fluorescent lighting
- The new Eco-Design of Energy Using Products Directive allows a faster adoption of Mandatory minimum efficiency requirements. The Eco-Design Directive does not create immediate obligations for manufacturers but allows the Commission to do so through implementing Directives/Regulations;

Planning for the adoption of ecodesign implementing measures *

14 product groups + standby currently examined for potential implementing measures:

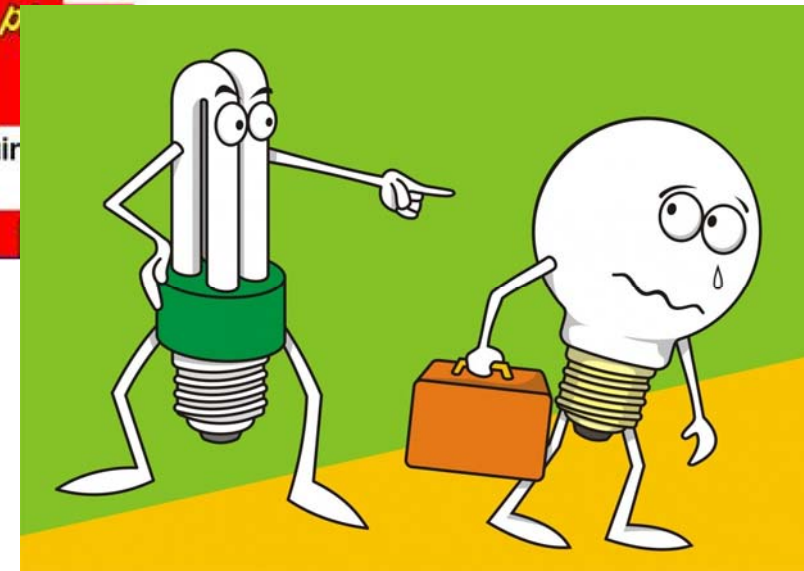


* Assumption: Committee and EP are immediately in favour of the draft

** Could take from 4 to 12 months depending in particular on discussions on reinforced scrutiny by EP - includes WTO notification and translations

In March 2009 the European Commission adopted the Eco-design Regulation to improve the energy efficiency of household lamps, which envisages the progressive phase-out of incandescent bulbs starting in 2009 and finishing at the end of 2012.

Date	Requirement energy class	Non-clear lamps			Clear lamps						
		Incandescent	All halogen	CFLs	Requirement energy class	Conventional halogen				Halogen C	Halogen B
						≥100 W	≥75 W	≥60 W	<60 W		
Today	None				None						
Sep-09	A	phased-out			C for ≥100W, E for the rest ¹						
Sep-10	A				C for ≥75W						
Sep-11	A				C for ≥60W						
Sep-12	A				C for all						
Sep-13					Second level of functionality requirement						
Review 2014					Review						
Sep-16	A	phased-out			B / C ²						



..but improvements in efficiency are offset by additional consumption



Including standby consumption





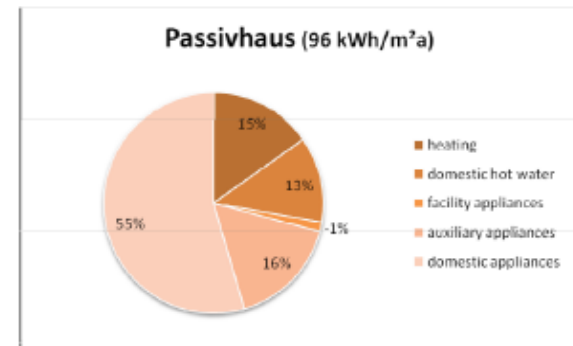
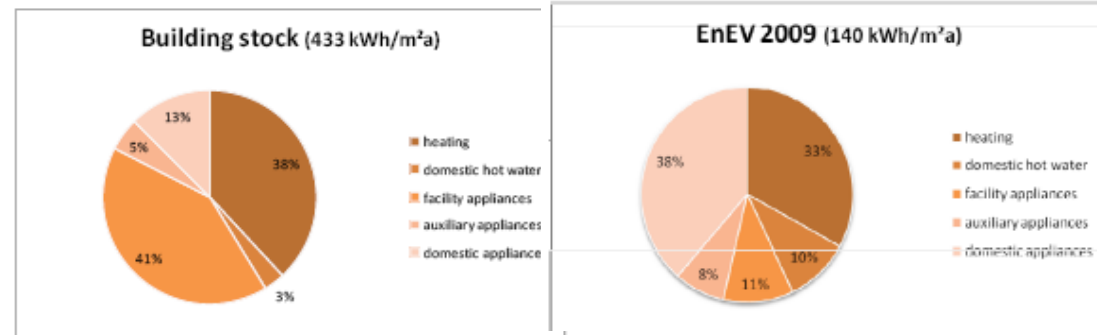
Objectives

- Promoting the improvement of energy performance of buildings within the EU through cost-effective measures
- Convergence of building standards towards those of Member States which already have ambitious levels

Proposed measures

- Methodology for integrated buildings energy performance standards
- Application of these standards on new and existing buildings
- Certification schemes for all buildings
- Inspection & assessment of boilers/heating and cooling installations

- **Passive house** (15kWh/m²/year, heating only)
- **Zero Net Energy House** (renewable energies: PV, wind, geothermal, etc.) to provide all the energy needed. It requires very efficient appliances and lighting (LEDs)



Source: Hannes Guddat*, Michael Keller**, Christoph Thim***

* Soap architecture GbR, Darmstadt

** TU Darmstadt, department of architecture, energy-efficient building design group

*** ZTV, BSH Bosch und Siemens Hausgeräte GmbH, Munich



- Introduce the national energy saving target
- Measured from 1.1.2008 until end of 2016.
- 9-year 9 % target.
- Indicative but carefully monitored & reported.
- Fixed amount of energy (TWh) calculated as 1% of 5-year average of unadjusted final cons.
- Credit for some “early actions” >1995.
- All measures must be verifiable and measurable or estimable. (Details Annexes I, II, III & IV.).
- Member States have to submit Action Plans (NEEAPs)

- The Energy Services Directive requires Member States to put in place **institutional and legal frameworks and measures** needed to remove **barriers** to the efficient end-use of energy.
- The Directive is intended to act as a catalyst for renewed and more ambitious energy efficiency initiatives at all levels of European society – local, regional, national and Community.
- The Directive should create the necessary conditions for the development and promotion of a **market for energy services** and the delivery of energy efficiency to end-users – the two main objectives of the Directive.
- NEEAPs are intended to set out the **national strategies** of Member States towards the overall and intermediate national indicative targets, reflecting the spirit of the Directive and its overall objectives. Member States should show, in particular, how they intend to comply with the provisions on the exemplary role of the public sector and the provision of information and advice on energy efficiency to end-users

- The Public Sector in Member States will be obliged to fulfil an exemplary role;
- Publish energy efficiency guidelines as assessment criteria in tendering for public contracts;
- Select two mandatory measures from a list in Annex VI, requiring energy-efficient public procurement, energy audits and energy performance contracting.

- Member States and suppliers to promote energy services & energy efficiency measures.
- Obligation for energy distribution and/or retail energy sales companies to provide energy services, energy audits, energy efficiency measures
- Energy companies to help remove market barriers, and not hinder EE market development
- Energy suppliers to provide to net-bound & domestic hot water customers: competitively priced, accurate individual meters + information on time of use.
- Billing based on actual & relative consumption & presented in understandable terms.
- Appropriate information on energy costs & previous consumption.
- Billing frequently enough to enable customer to regulate consumption

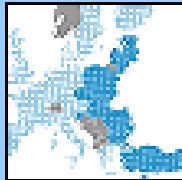
- Removal of legislation that restricts use of financial instruments for energy savings
- Promotion of financial instruments for energy savings, e.g. third-party financing and energy performance contracting.
- For tariffs and regulations for net-bound energy, regulators to use tariff structures that avoid unnecessary volume driving incentives.



End-use Energy Efficiency <http://re.jrc.ec.europa.eu/energyefficiency/>



Scientific & Technical Reference on Renewable Energy and End-use Energy Efficiency



1. Electricity end-use efficiency in buildings in MS and Candidate Countries



2. Policy Analysis

- Energy Service Companies
- Financing
- Energy Star, Ecodesign, EPBD
- background support for EU energy efficiency policy (white certificates)

4. EC voluntary programmes



MotorChallenge



GreenBuilding



GreenLight

3. Codes of Conduct & Energy Star



EU actions to improve energy efficiency on electrical equipment while either off and stand-by

GreenLight



EC Voluntary initiative to reduce lighting energy use in the commercial sector and street lighting
today: 520 partners, 206 endorsers

MotorChallenge



EC voluntary programme through which companies commit to energy efficiency measures in Motor Driven Systems (pumps, compressor, motors, fans)

today: 95 partners, 69 endorsers

GreenBuilding



EC voluntary programme through which companies commit to energy efficiency measures in non-residential buildings

today: 130 partners, 32 endorsers

Support to the Energy Service Directive (2006/32/EC)

2. Policy Analysis: Tradable certificates for energy savings (white certificates)

- Analysis of white certificate schemes in place in Europe: results, lessons learned;
- Comparison of white certificate schemes with other policy tools to promote energy efficiency;
- Integrating white certificates (project credits) into carbon markets.
- New study for DG TREN completed (October 2009)

**TRADABLE CERTIFICATES FOR
ENERGY SAVINGS
(WHITE CERTIFICATES)**

- THEORY AND PRACTICE -

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Institute for Environment and Sustainability

2006

EUR 22196 EN



Support to the Energy Service Directive (2006/32/EC)

3. Financing Energy Efficiency Projects

Market Development for Energy Efficiency Projects' Financing

(A) Benchmark Analysis of Existing Financial Schemes

(B) Country Status Reports

(C) Survey on Financial Institutions

(D) New Innovative Solutions

**WE ARE COLLECTING DATA ON NATIONAL ESCO MARKETS IN 2008/09,
PLEASE SEND YOUR DATA AND INFORMATION**

Report ready by end of 2009

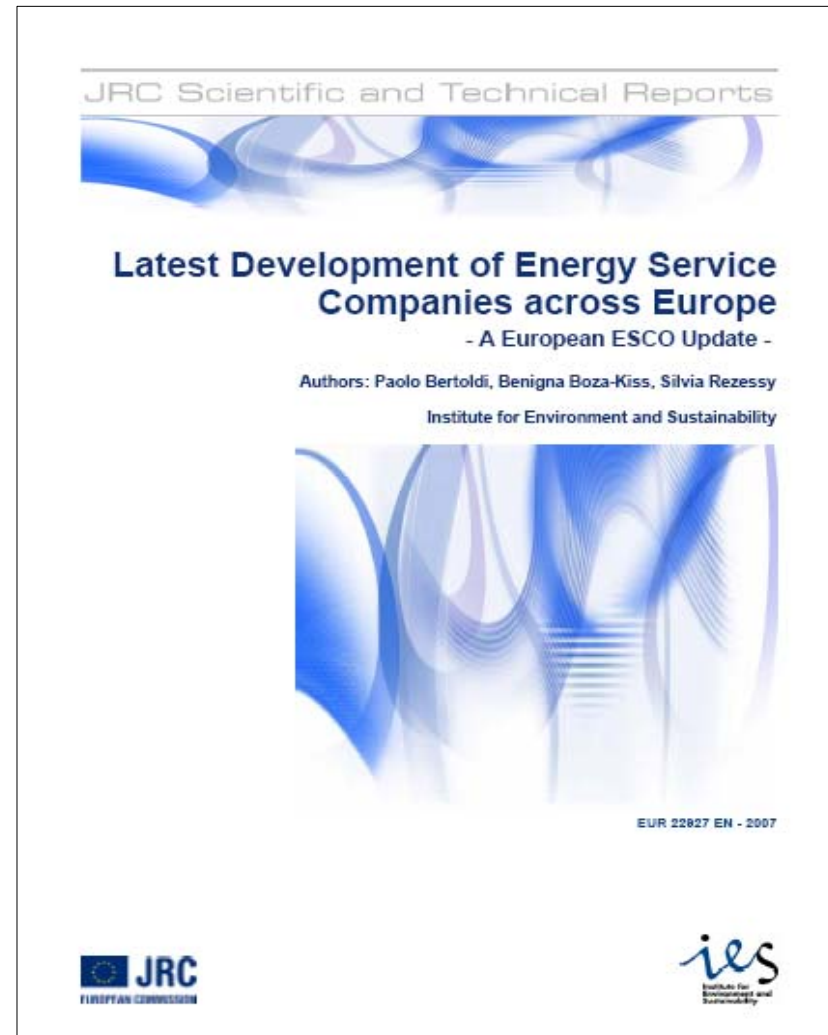
Support to the Energy Service Directive (2006/32/EC)

4. Energy Service Companies (ESCOs) across the European Union and beyond

Contribution by the JRC

- **Monitoring of market development since 2002;**
- **Review of state of the art, update reports;**
- **Workshops – initiating exchange of experience;**
- **ESCO databases (companies and projects).**

- **WE ARE COLLECTING DATA ON NATIONAL ESCO MARKETS IN 2008/09, PLEASE SEND YOUR DATA AND INFORMATION**
Report ready by end of 2009



Support for the Covenant of Mayors

- More than 700 cities (from London and Paris to small villages) have committed to reduce CO₂ emission by more than 20%
- JRC developing methodologies and guidelines for Sustainable Energy Plans, supply assistance to cities to develop SEAP, and finally will assess all SEAPs

- There is a **large potential** to further improve energy efficiency in buildings (about **25%**) in Europe and elsewhere.
- It requires efficient solutions and **new technologies** both for the **buildings** shell and for the **equipment**, including **renewable energy sources**.
- Attention must be paid to **existing** buildings, and incentives and solutions for the building refurbishment needs to be introduced.
- **Policies and programmes** are needed: information (labelling and smart metering), minimum efficiency standards, and incentives.
- Finally it is required a **change in behaviour and life style** (smaller homes, less equipment, less cooling, walking, etc.).

Thank you for your attention



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