



# ● European policies on energy efficiency in buildings

Sustainable Energy and Social Housing  
Ancona - 21.04.08

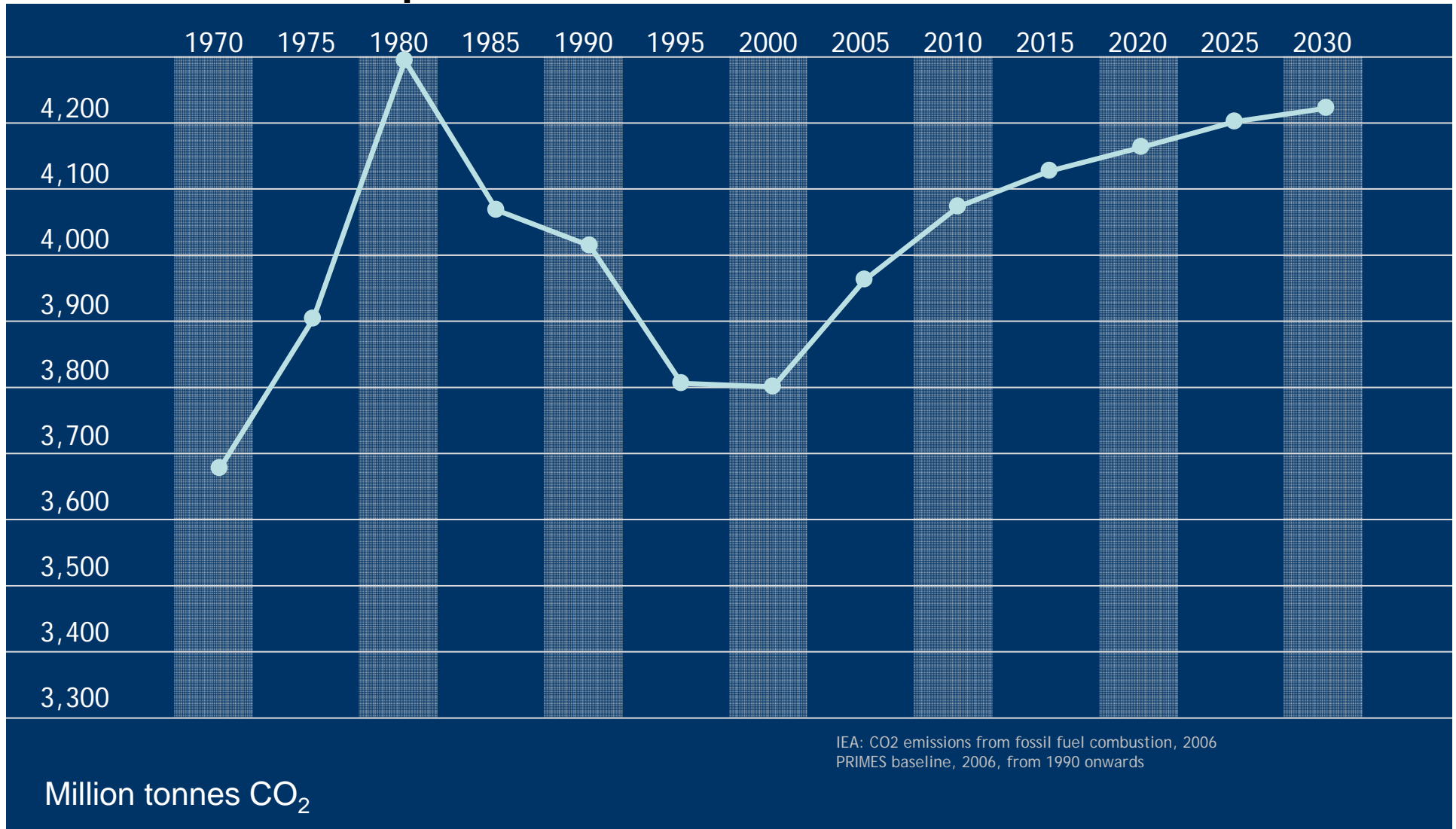




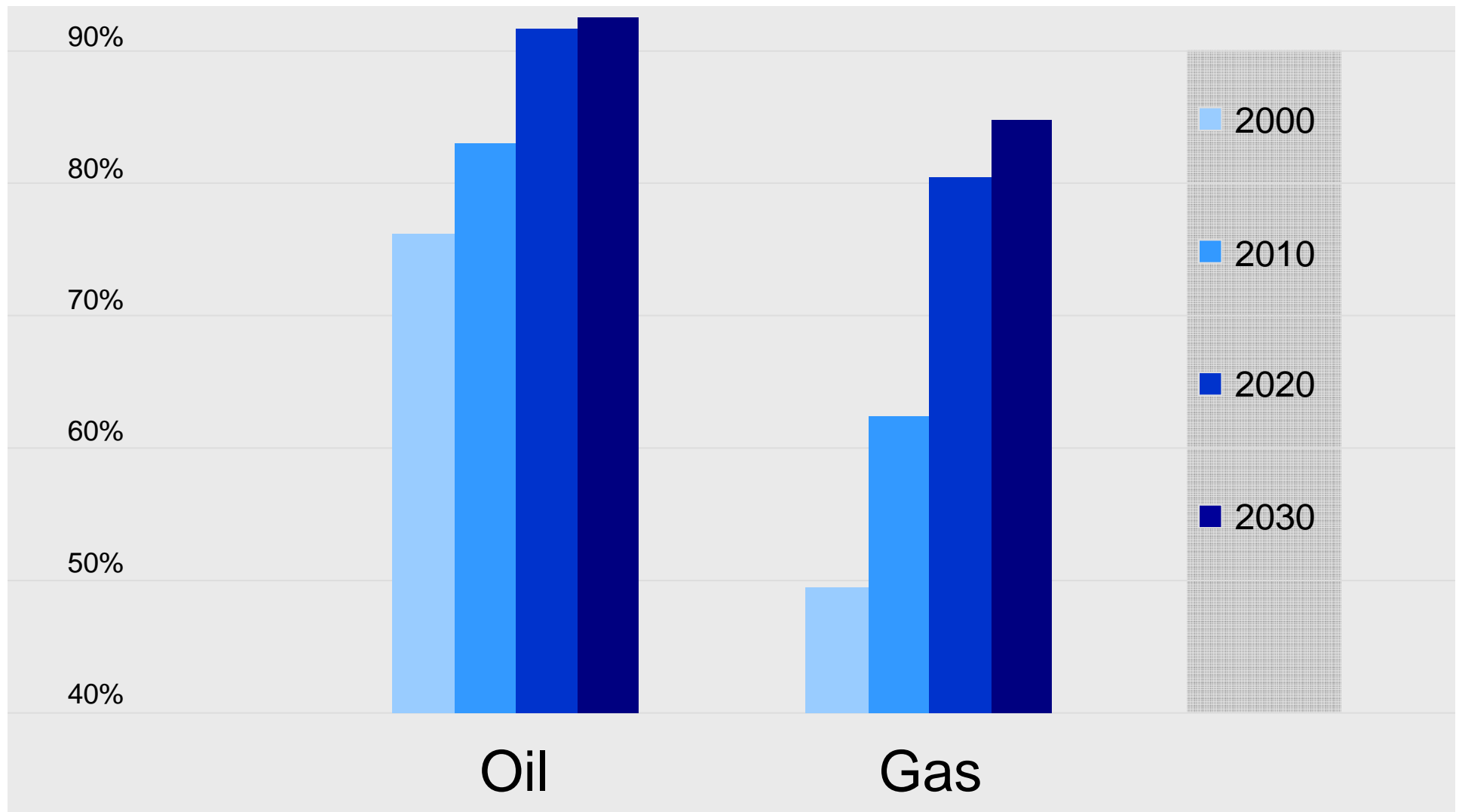
## European policy targets

- 20% reduction of greenhouse gases by 2020
- 20% share of renewable energy in final energy consumption by 2020
- 20% saving in primary energy consumption by 2020
- 10% share of bio-fuels in transport fuels by 2020

## ● EU-27: CO2 emissions from energy consumption



## ● EU-27 Baseline projection: Import dependency



# ● Main policy areas

- Energy Efficiency Action Plan, EEAP
- Legislation, e.g. EPBD
- Support programs, networks, standards
- Financing, RTD, technology demonstration



# ● Action Plan on Energy Efficiency

*The energy savings potential in different sectors\**

- Manufacturing industry: **up to 27%**
- Commercial buildings: **up to 26%**
- Households: **up to 25%**
- Transport: **up to 30%**



# ● Action Plan on Energy Efficiency

*6 areas, 10 priorities, 75 actions*

- Dynamic energy performance requirements for energy-using products, buildings and energy services
- Energy transformation
- Transport
- Financing energy efficiency, economic incentives and energy pricing
- Changing energy behaviour
- International partnerships

# ● Energy Efficiency legislation

- Directive on energy performance of buildings
- Directive on the promotion of cogeneration
- Directive for the taxation of energy products and electricity
- Directive on energy efficiency requirements for boilers, refrigerators and ballasts for fluorescent lighting
- Directives for labelling of electric ovens, air-conditioners and refrigerators and other appliances
- Regulation of Energy Star labelling for office equipment
- Directive on eco-design requirements for energy using products
- Directive on energy end-use efficiency and energy services

# ● Actions and Initiatives 2008

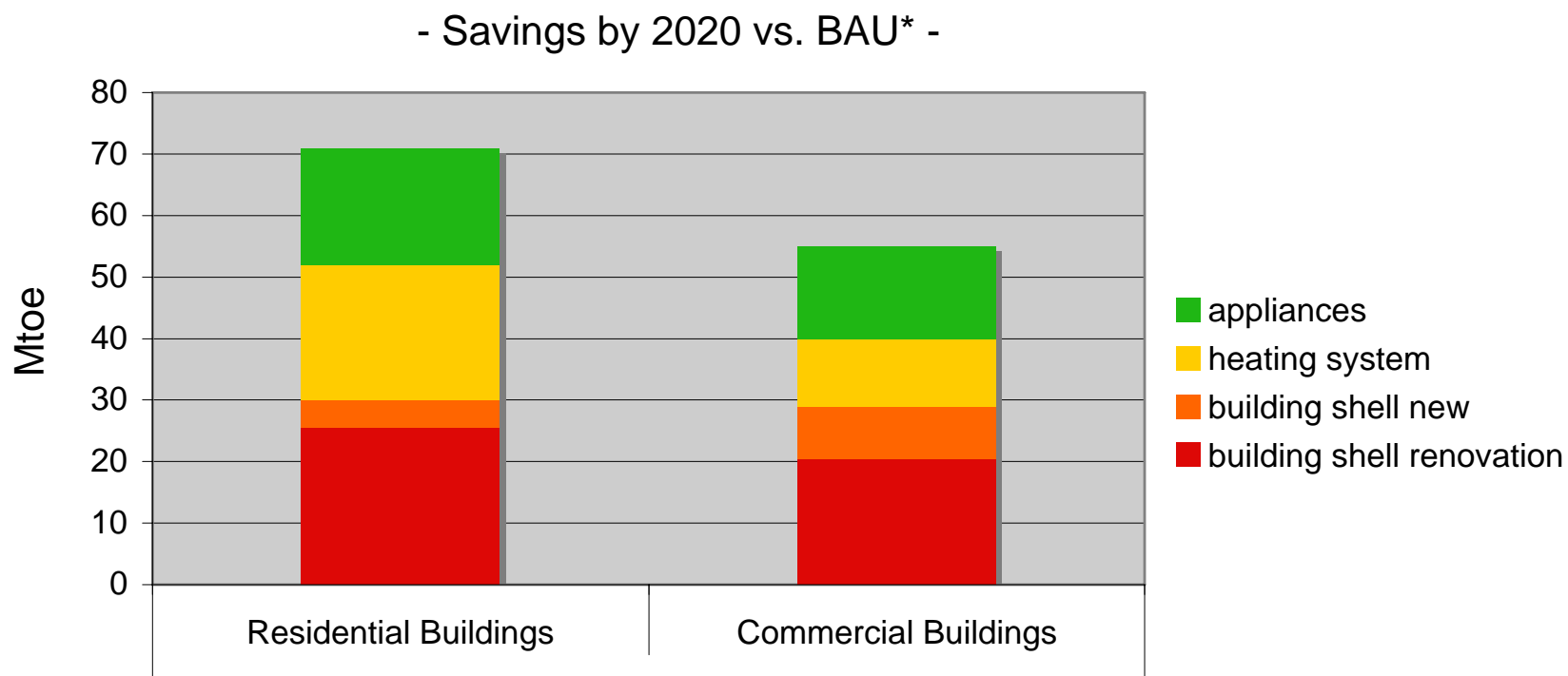
## *Overview*

- Proposal for a recast of Energy Performance of Buildings Directive
- Proposal for a revision of the framework Energy Labelling Directive
- Eco-design implementing measures for 5 product groups, including a horizontal measure on the standby consumption of electrical appliances
- Review of the Energy Taxation Directive and of existing legislation on VAT reduced rates

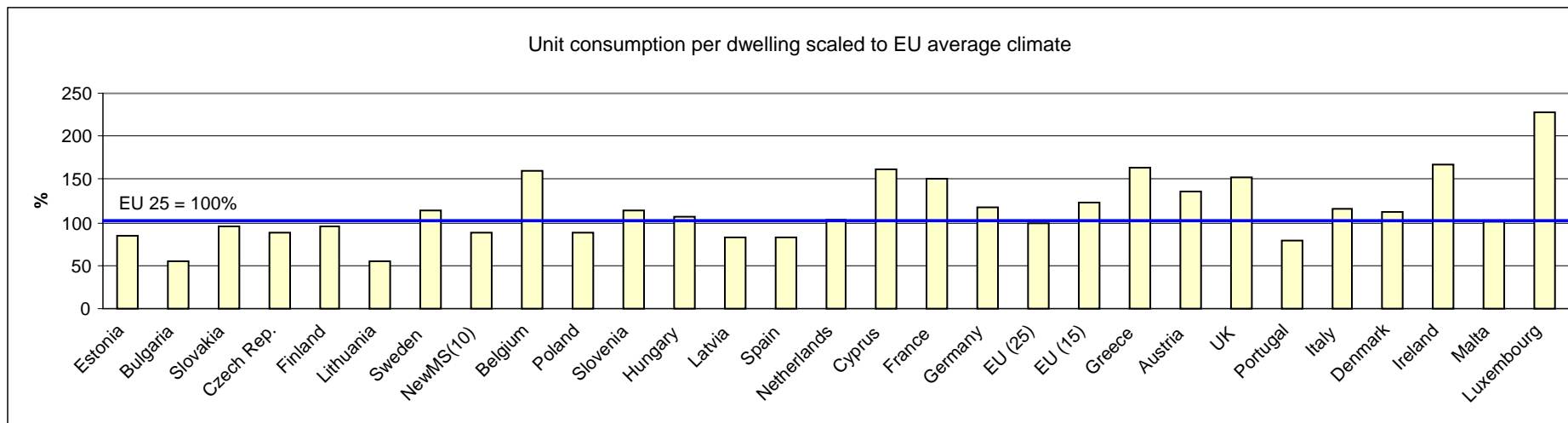
## ● EU's building stock

- Buildings (residential and commercial) make a significant share in Europe's energy end-use consumption: 40 %
- Important cultural, historic, and economic value
  - 480 million inhabitants living in ~ 150 million homes
  - Once built, buildings last for decades
  - Architectural protection of historic buildings
  - Large market for the construction sector, appliances and equipment covered by EU minimum efficiency requirements, performance labels and other standards
  - Business opportunities, especially for SMEs
- Potential for significant and cost-effective energy savings

# Savings potential in buildings



# Energy efficiency varies in EU



# ● Energy Performance of Buildings Directive

## *Overview*

- Adopted in 2002
- Holistic approach towards energy use in buildings
  - Setting up of a minimum energy performance standards
  - All new and existing buildings (>1000m<sup>2</sup>) should comply with these standards
  - Energy performance certificates to be presented when buildings are constructed, sold, rented out
  - Requirement for a regular inspection of boilers and air conditioning systems above minimum sizes
- Deadline for implementation: January 4, 2006
- Derogation possible for Art. 7 to 9 until January 4, 2009
- Unsatisfactory progress in a number of MS
- However, a number of good examples available and growing

# Energy Performance certificates

**Building Energy Rating (BER)** DEAP Version X.Y

BER for the building detailed below is:

Name of House, Street Name One, Street Name Two, Town name One, Town Name Two, County name One, County name Two,

BER Number: XXXXXXXXXX  
Date of Issue: Day Month Year  
Valid Until: Day Month Year  
BER Assessor No.: XXXX  
Assessor Company No.: XXXX

The Building Energy Rating (BER) is an indication of the energy performance of this dwelling. It covers energy use for space heating, water heating, ventilation and lighting, calculated on the basis of standard occupancy. It is expressed as primary energy use per unit floor area per year (kWh/m<sup>2</sup>/yr).

'A' rated properties are the most energy efficient and will tend to have the lowest energy bills.

**Building Energy Rating kWh/m<sup>2</sup>/yr MOST EFFICIENT**

<25	A1
>25	A2
>50	A3
>75	B1
>100	B2
>125	B3
>150	C1
>175	C2
>200	C3
>225	D1
>260	D2
>300	E1
>340	E2
>380	F
>450	G

**Carbon Dioxide (CO<sub>2</sub>) Emissions Indicator kgCO<sub>2</sub>/m<sup>2</sup>/yr**

BEST 0

WORST >120

The less CO<sub>2</sub> produced, the less the dwelling contributes to global warming.

**IMPORTANT:** This BER is calculated on the basis of data provided to and by the BER Assessor, and using the version of the assessment software quoted above. A future BER assigned to this dwelling may be different, as a result of changes to the dwelling or to the assessment software.

**dena** 能源证书 **ENERGIEAUSWEIS**  
Deutscher Energie-Agentur 非居住建筑 für Nichtwohngebäude  
德国联邦能源署

颁发于 日期 2006 年 9 月 21 日  
Erstellt am: 21. September 2006

**原始能源需求总体评价** Gesamtbewertung Primärenergiebedarf

该建筑物 Dieses Gebäude

250 kWh/m<sup>2</sup>/a

0 100 200 300 400 500 600 700 800 900 >1000

中欧地区带有空调装置的节能办公楼能耗水平  
Energieeffizientes klimatisiertes Verwaltungsgebäude in Mitteleuropa

中欧地区带有空调装置的普通办公楼能耗水平  
Durchschnittliches klimatisiertes Verwaltungsgebäude in Mitteleuropa

中国带有空调装置的普通办公楼能耗水平  
Durchschnittliches klimatisiertes Verwaltungsgebäude in China

主要使用功能 Hauptnutzung	办公 / Bürogebäude
地址 Adresse	上海市闵行区浦江镇联航路浦江智谷办公楼 Pujang Intelligence Valley, Uanhang Road Pujang Town, Minhang District, Shanghai, 201112
建筑物建造年份 Baujahr Gebäude	2005 年 8 月 - 2006 年 9 月 / 08.2005-09.2006
供热设备建造年份 Baujahr Wärmezeuger	2006 年 / im Jahr 2006
空调建造年份 Baujahr Klimaanlage	2006 年 / im Jahr 2006
建筑物净面积 Nettogrundfläche	11.665 m <sup>2</sup>

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**能量需求分配** Verteilung Energiebedarf

采暖需求 [kWh/m<sup>2</sup>/a] Heizungsbedarf [kWh/m<sup>2</sup>/a]

照明需求 [kWh/m<sup>2</sup>/a] Beleuchtungsbedarf [kWh/m<sup>2</sup>/a]

通风需求 [kWh/m<sup>2</sup>/a] Lüftungsbedarf [kWh/m<sup>2</sup>/a]

制冷需求 [kWh/m<sup>2</sup>/a] Kühlungsbedarf [kWh/m<sup>2</sup>/a]

采暖 Heizung 热水 Warmwasser 照明 Beleuchtung 通风 Lüftung 制冷 Kühlung

# ● Monitoring

- Commission receives and analysis the EU 27 MS national implementation measures
- Initiated a number of infringement cases
  - 17 at present, 21 max, mainly for non-communication
  - Many cases at the last stage before referral to the Court
  - 01/2008 - First Court ruling in favor of the Commission
  - Possibly the number of cases for non-conformity will increase

# ● Energy Performance of Buildings Directive

## *Next steps*

- Clarification and simplification
- Broadening the scope
- Strengthening the energy performance certificates
- Strengthening the inspection of boilers and air-conditioning systems requirements
- Establishing cost-effective energy performance requirements

# ● Support measures on energy efficiency

- IEE Programme
- 31 CEN standards
- EPBD Platform, Concerted Action
- EU Structural funds : in 2007-13 about 6 billion € for RES and efficiency projects
- Collaboration with EIB and EBRD on energy efficiency
- Projects in FP 7 including Civitas, Concerto



Energy efficiency is everybody's business.

Your contribution is valuable!

Thank you for your attention.