

# EURACOAL

European Association  
for Coal and Lignite



## EU Initiatives on Clean Coal and Carbon Capture

London – 13<sup>th</sup> September 2007

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Secretary-General

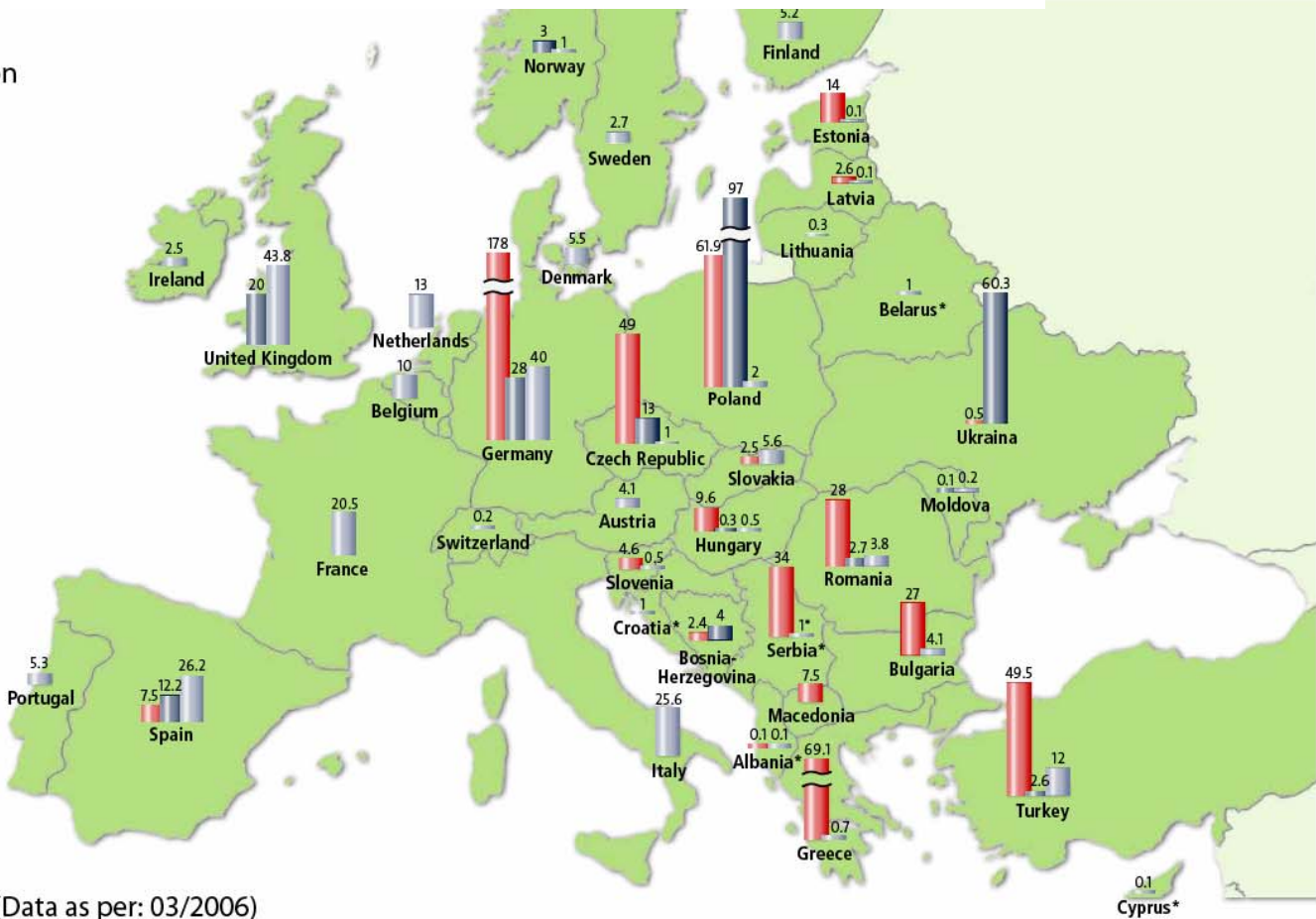
# Overview

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1. EU energy policy – coal in the Commission's Energy Package published on 10<sup>th</sup> January 2007
2. Latest developments and activities
3. Impacts on coal and power industries
4. Removing barriers and enabling storage: cornerstones of a legal framework for CCS at EU level
5. Role of coal as part of the EU energy policy – some remarks about the future EUETS

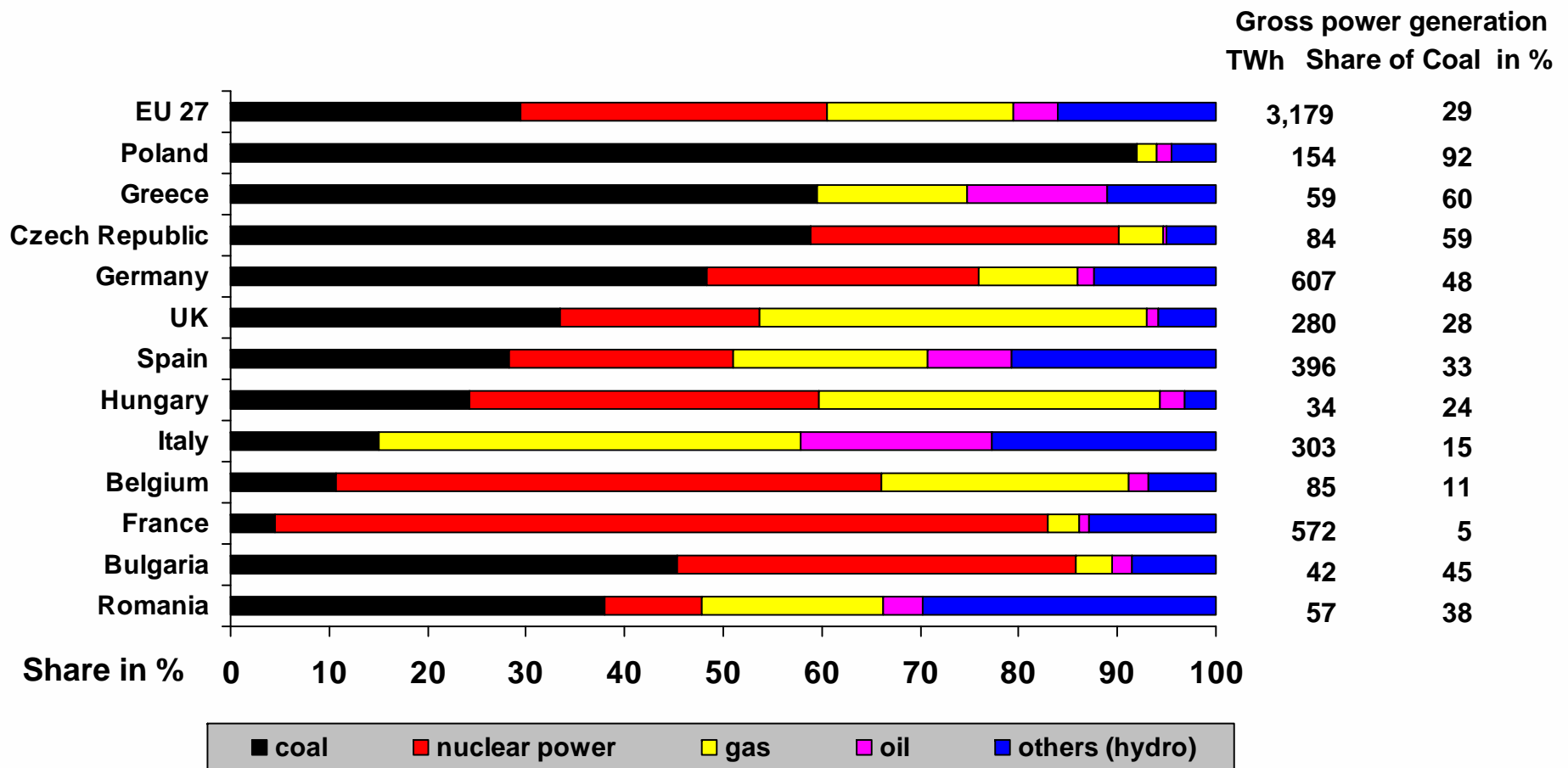
# Coal in Europe 2005

- Lignite production
- Hard coal production
- Hard coal imports



provisional / forecast (Data as per: 03/2006)  
 \*2003/2004

# Power Generation Structure in Selected EU-27 Member States - 2005



Data as at: 08/2006

Source: EUROSTAT – Energy / Yearly Statistics 2005

# The Commission's Energy Package

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<b>AN ENERGY POLICY FOR EUROPE</b>		
Renewable Roadmap	Sustainable Power Generation from Fossil Fuels	Internal Market for Gas and Electricity
Renewables in Electricity	Nuclear Safety and Security	Gas and Electricity Infrastructures
Biofuels in Transport		Strategic Energy Technology Plan

# An Energy Policy for Europe

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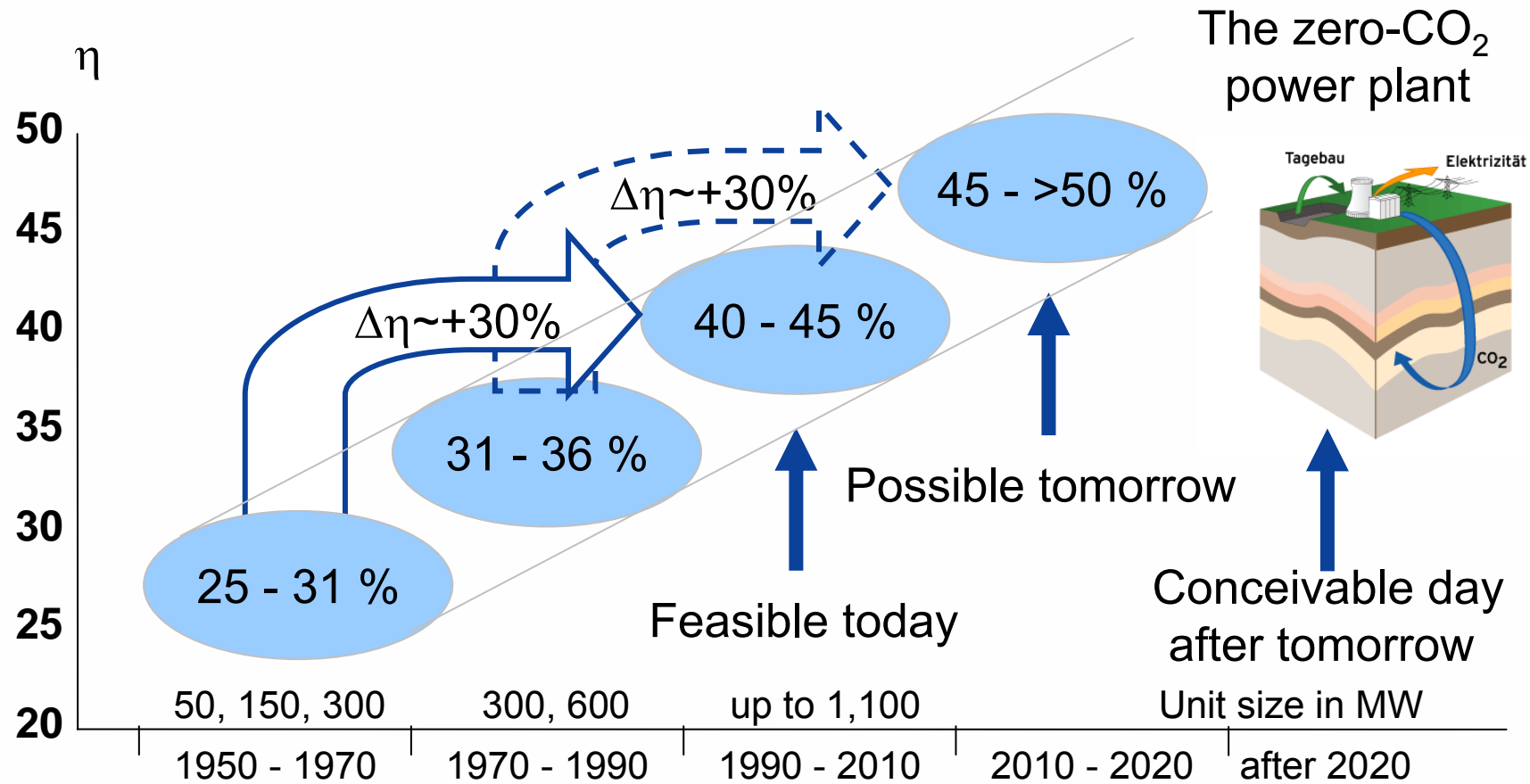
## Major Objectives

- Greenhouse gas reduction of 20 % in EU-27 (2020 compared to 1990) – Objective of 30 % to be proposed in international negotiations – Aim of 50 % reduction by 2050.
- 13 % less energy use from now to 2020
- 20 % energy efficiency increase (1990 to 2020)
- 20 % share of renewables in 2020; even more in electricity production.

# The EU Energy Package Includes a Vision for 'Sustainable Coal' (1)

- 'Coal is a key contributor to the EU's security of supply and will remain so'
- 'For 2050 and beyond ... an overall European energy mix that could include large shares of renewables, sustainable coal and gas, sustainable hydrogen and, for those Member States that want, Generation IV fission power and fusion energy'
- 'Coal can continue to make its valuable contribution to the security of energy supply and the economy ... only with technologies allowing for drastic reduction of the carbon footprint of its combustion'
- 'Technological solutions involving only efficiency improvements ... or only CCS technologies are not able to meet in the long term the combined objectives of achieving near-zero CO<sub>2</sub> emissions at acceptable costs while preserving ... security of supply'

# Continuous Modernization and Increased Efficiency is a Pre-requisite to CCS...



**The right approach: continuous power plant modernization/renewal**



# The EU Energy Package Includes a Vision for 'Sustainable Coal' (2)

- 'CCS to be developed until 2020; 10 to 12 demonstration plants until 2015'
- 'Capture-readiness as an integral part to avoid a "technology lock-in"'
- 'By 2030.....extensive near-zero emission fossil fuel power plants with CO<sub>2</sub> capture and storage'
- 'To provide global leadership, the EU must provide a clear vision for the introduction of CO<sub>2</sub> capture and storage in the EU, establish a favourable regulatory framework for its development, invest more, and more effectively, in research, as well as taking international action'

# Latest Developments and Activities

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- Discussion on how to operate up to 12 CCS demonstration projects by about 2015 (including EU and state aid) – DG TREN's Fossil Fuels Forum and TP ZEP's Flagship Programme
- DG Environment: Stakeholder consultations on the legal framework for CCS, particularly storage
- Draft Emissions Trading Scheme 2013+ including a possible burden sharing discussed within the Commission – a draft is to be expected still in 2007. Will there be clarity about the scheme before 2010?

Important issues for European coal production and use to be discussed in the months and years to come.

# Planned Pilot and Demonstration Plants

Project	Country	Capacity (MWe)	Power plant capture techn.	Proposed start	Participants
Schwarze Pumpe	Germany	30	Oxyfuel	2008	Vattenfall
Lacq	France	30	Oxyfuel	2008	Total
Karsto	Norway	385	NGCC	2009	?
Teeside	UK	800	IGCC	2009	Progressive Energy
Peterhead Miller	UK	350	NG to H <sub>2</sub>	2010	BP, SSE
Hatfield	UK	900	IGCC	2010	Powerfuel
Killingholme	UK	450	IGCC	2011	E.ON
Magnum	Netherlands	1200	IGCC multifuel	2011	Nuon
RWE, Germany	Germany	450	IGCC	2014	RWE
Mongstad	Norway	280	NGCC	2014	Statoil
IGCC uses pre-combustion capture technology, NGCC and SCPC use post-combustion Status: July 2007					

# Demonstration Installations – Subjects to be Included

- Major efficiency improvements
- All capture technologies
- Large-scale geological storage: deep saline formations to be included
- Possibly: transport infrastructure issues.

# Impacts on Coal

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- Better image for coal; global coal use appreciated again
- R&D on increased efficiency as a pre-requisite for CCS accelerated – pre-drying of lignite and higher pressure/temperatures in both hard coal and lignite power plants
- Commission and industry work on CCS demonstration plants to be operated by 2015 as well as the legal framework for CCS, particularly storage
- Threat that coal extraction and use may be politically linked with CCS without being sure that CCS will be available on a commercial scale.

With CCS, coal is again seen as a part of the solution.

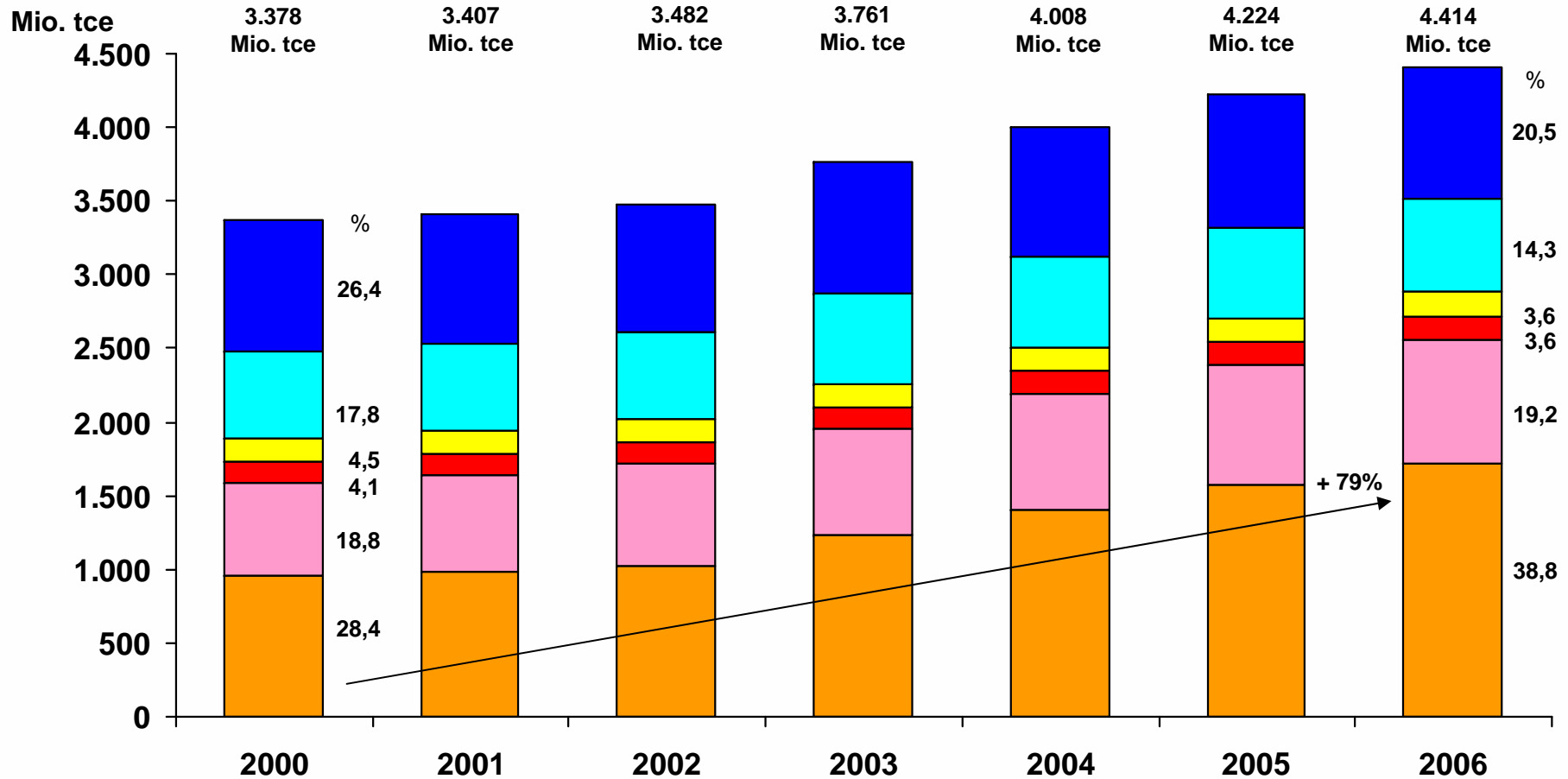
# Legal Framework for CCS – Selected Elements

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- Management of the environmental risks
- Effective and reliable permits for storage sites - do not allow CCS only theoretically
- Remove barriers with regard to EU water regulations
- Exclude CCS from Waste Directives
- Possible conflicts between landowners and storage site operators to be dealt with at the level of national law
- Non discriminatory access to CO<sub>2</sub> infrastructure.

# World Coal Consumption Increasing, 2000 to 2006 + 31 %

## Coal is No 1 Fuel for Power Generation, 39 % Share of World Power Generation



Source: BP, Statistical Review of World Energy, June 2007

■ China 
 ■ Asia & Australia 
 ■ Africa/Near East 
 ■ Russia 
 ■ Europe 
 ■ America

Whatever Europe decides, coal is an indispensable source of energy.

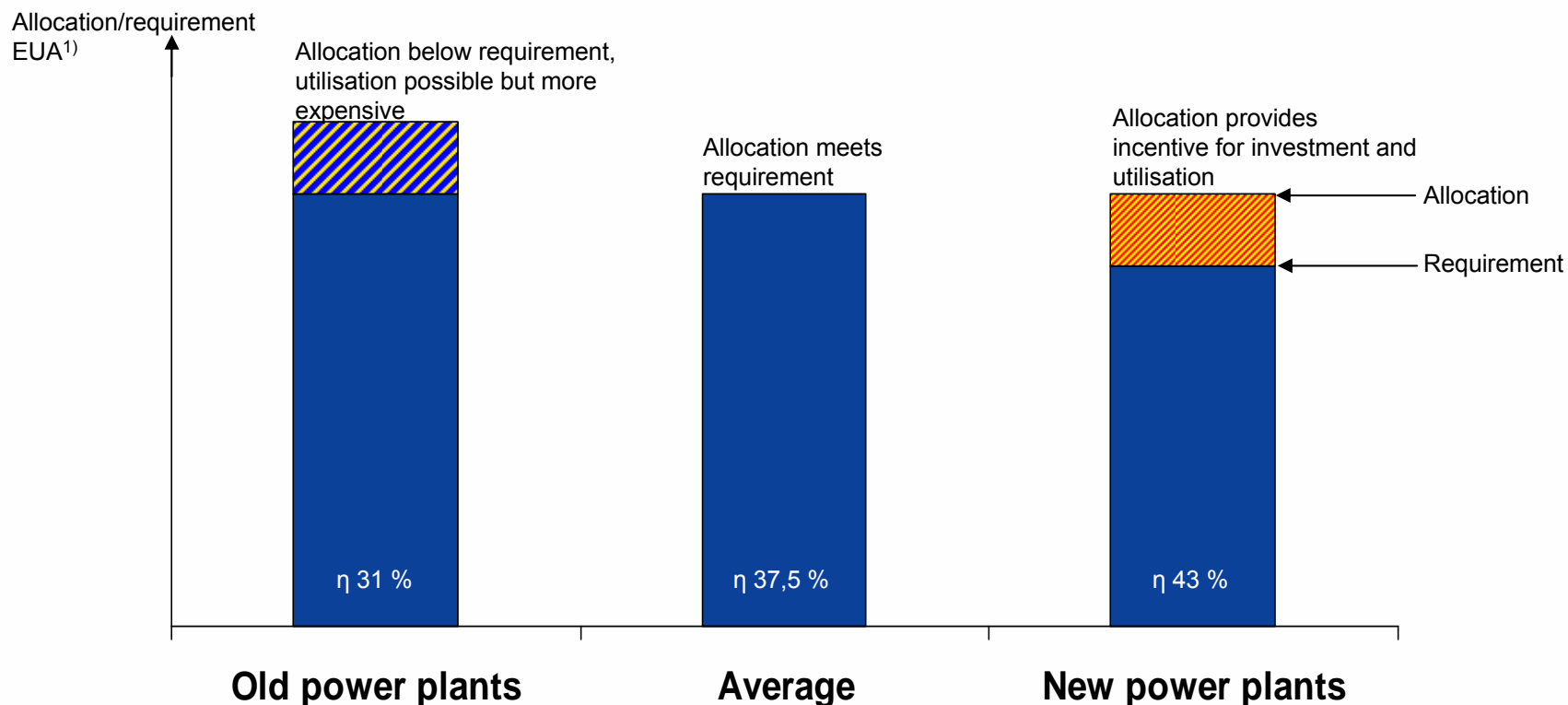
# EUETS 2013+ Crucial for European Coal Use

- World coal consumption increased by 31% (2000 to 2006) – the issue is not if coal will be used, but how. Europe can better influence this and follow its climate protection targets with own coal production and use.
- The ETS as *the* climate protection instrument of the EU can become a heavy burden (high fuel and electricity prices, less security of supply) or it can create a climate for modernisation of fossil fuel power plants.
- The EUETS may become the model on a global scale. With auctioning it will probably not be acceptable for third countries depending on coal.
- A fuel specific benchmark system can combine the emission levels to be reached with a strong drive to invest, the necessary investment security, transparency and the principle of proportionality.



# Impact of Benchmarks and Load Factors

Case study: Benchmark geared to the average emissions of a specific class of installations, e.g. lignite-fired power plants\*



\* Can be applied to all fuels/power plant types and also process e.g. steel, cement

<sup>1)</sup> EUA = European Union Emissions Allowance

Allocation secures liquidity of power supply and provides incentive for investments, especially for newcomers. Less stimulus for prices and no incentive to switch fuel.

# Conclusions

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- The EU institutions have recently emphasized the role of coal in the energy mix; they have called for up to 12 large-scale demonstration plants with CCS to be built by around 2015 with the objective of bringing CCS to markets by 2020
- Industry backs CCS as a future technology route and also develops efficiency improvements as a pre-requisite to CCS
- A reliable regulatory framework for CCS, particularly storage, is needed as soon as possible to enable the planning of CCS
- The ETS needs designing to create an incentive for investments in higher efficiency and CCS and to enable other world regions with major coal use to follow - a benchmark system would allow this.

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## Thank you

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