

# DIW Berlin

Deutsches Institut  
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## Energy Security and Sustainability- What counts most?

Prof. Dr. Claudia Kemfert

DIW Berlin, Humboldt University  
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# What means energy security?

**“It is one in which the world’s economic regions are dependent on each other for ensuring energy security and stable economic conditions, and for ensuring effective action against climate change”. EU Green Paper 2006**

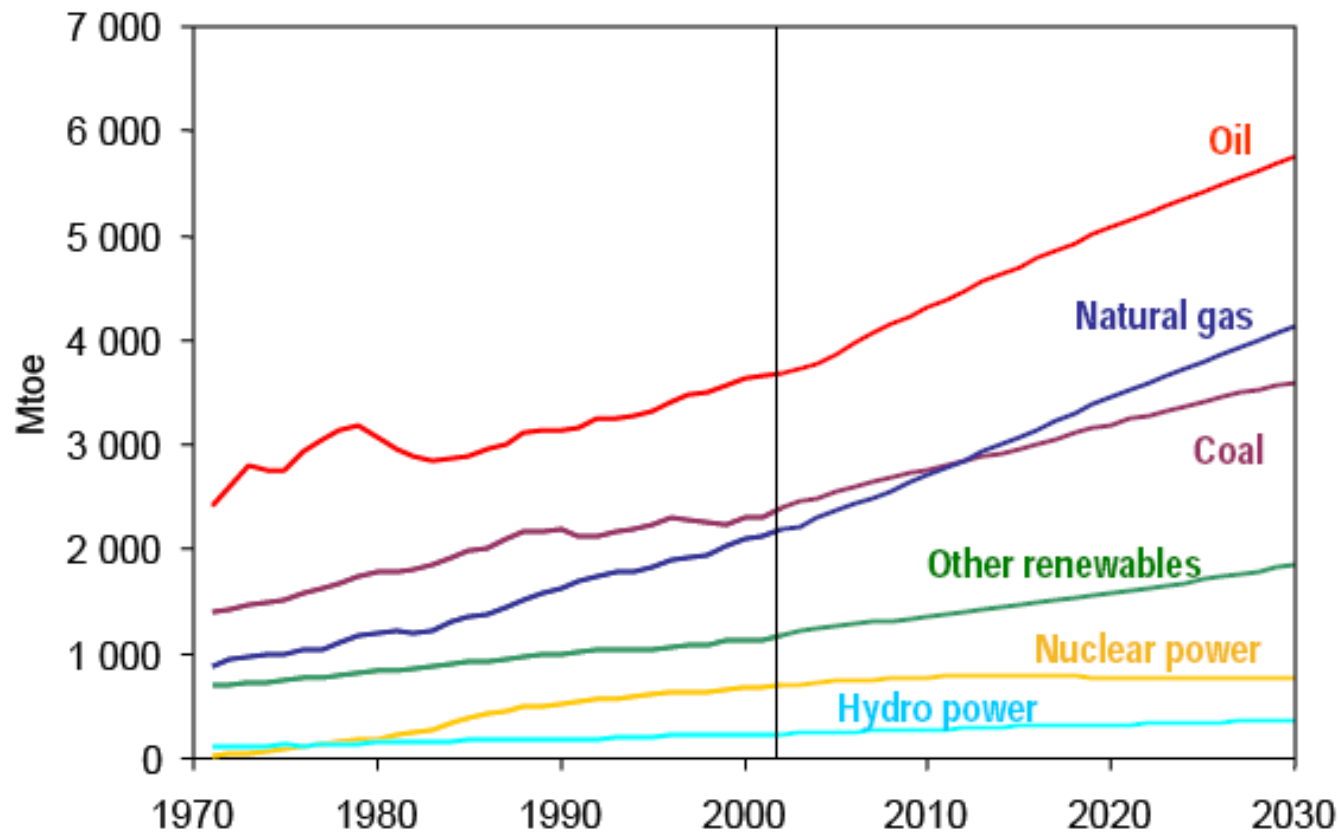
**“The environment is an important aspect of energy security“ President Putin, March 2006**

**“We are delighted that G8 leaders have agreed to increase efforts to adopt ways that are technically feasible and economically justified to address tensions in energy markets and put the world on a more sustainable energy path” Claude Mandil (IEA), April 2006**

## What means energy security?

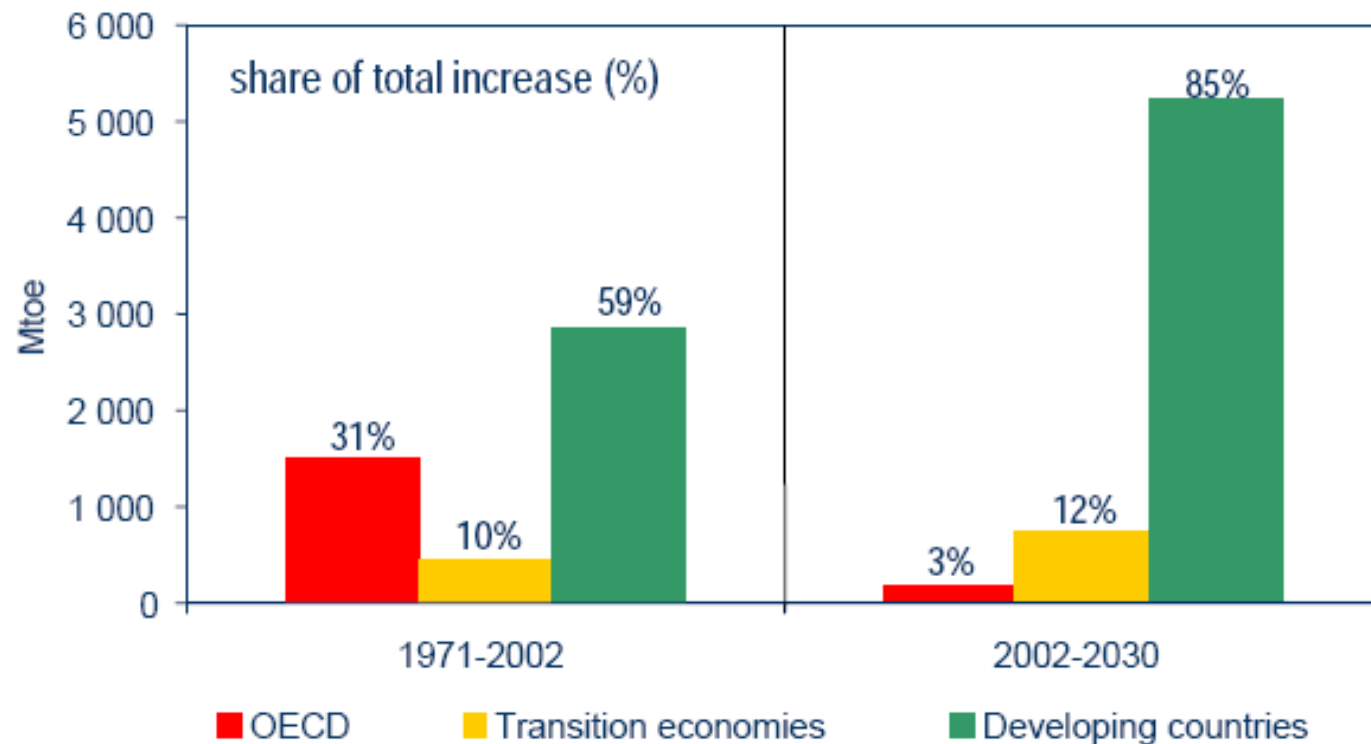
- Low energy Imports
- Promotion of domestic energy
- Secure Infrastructure
- Secure energy supply (nuclear, CCS)

# World Primary Energy Demand



**Fossil fuels account for almost 90% of the growth in energy demand between now and 2030**

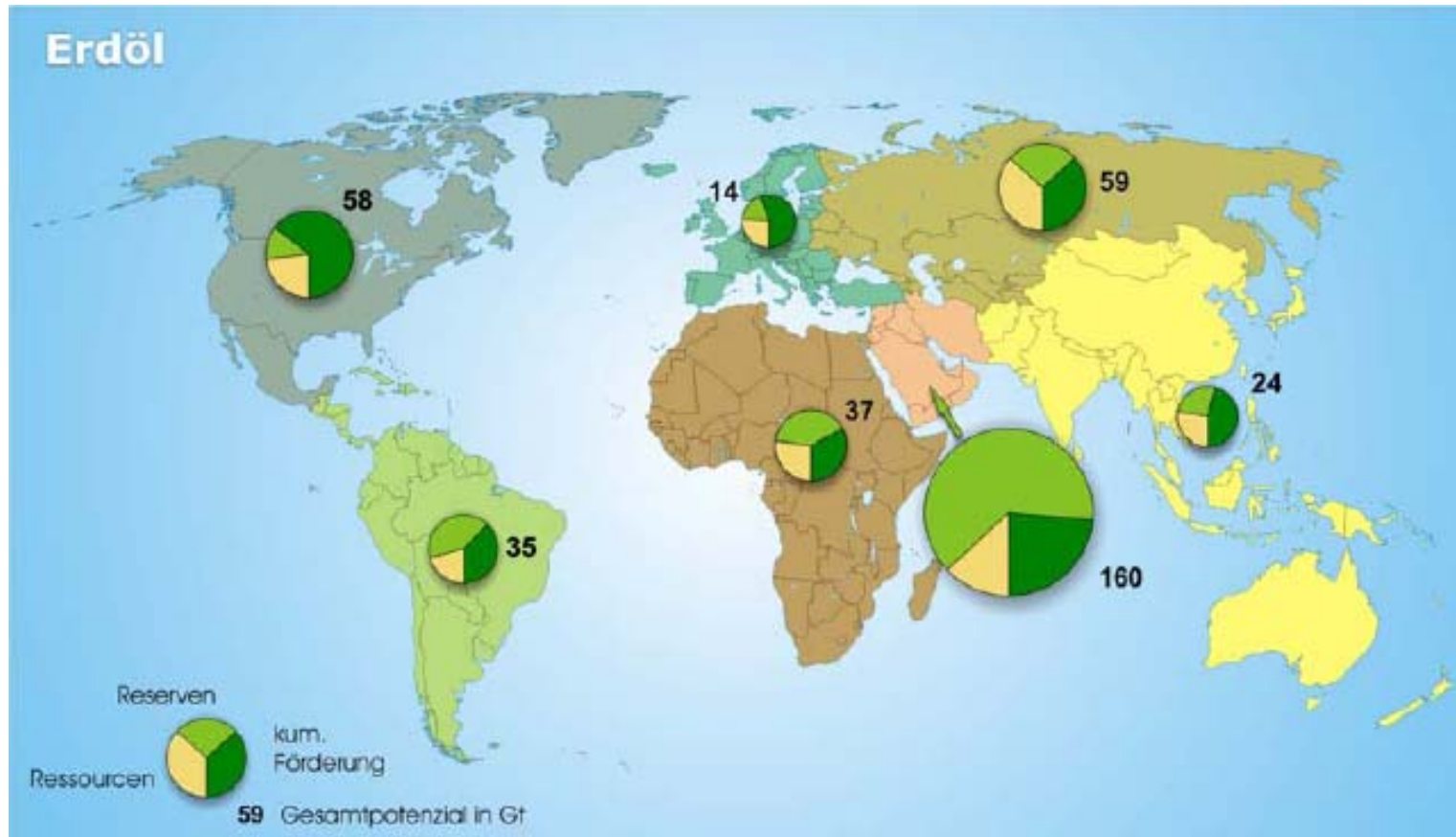
# Increase in World Primary Energy Production by Region





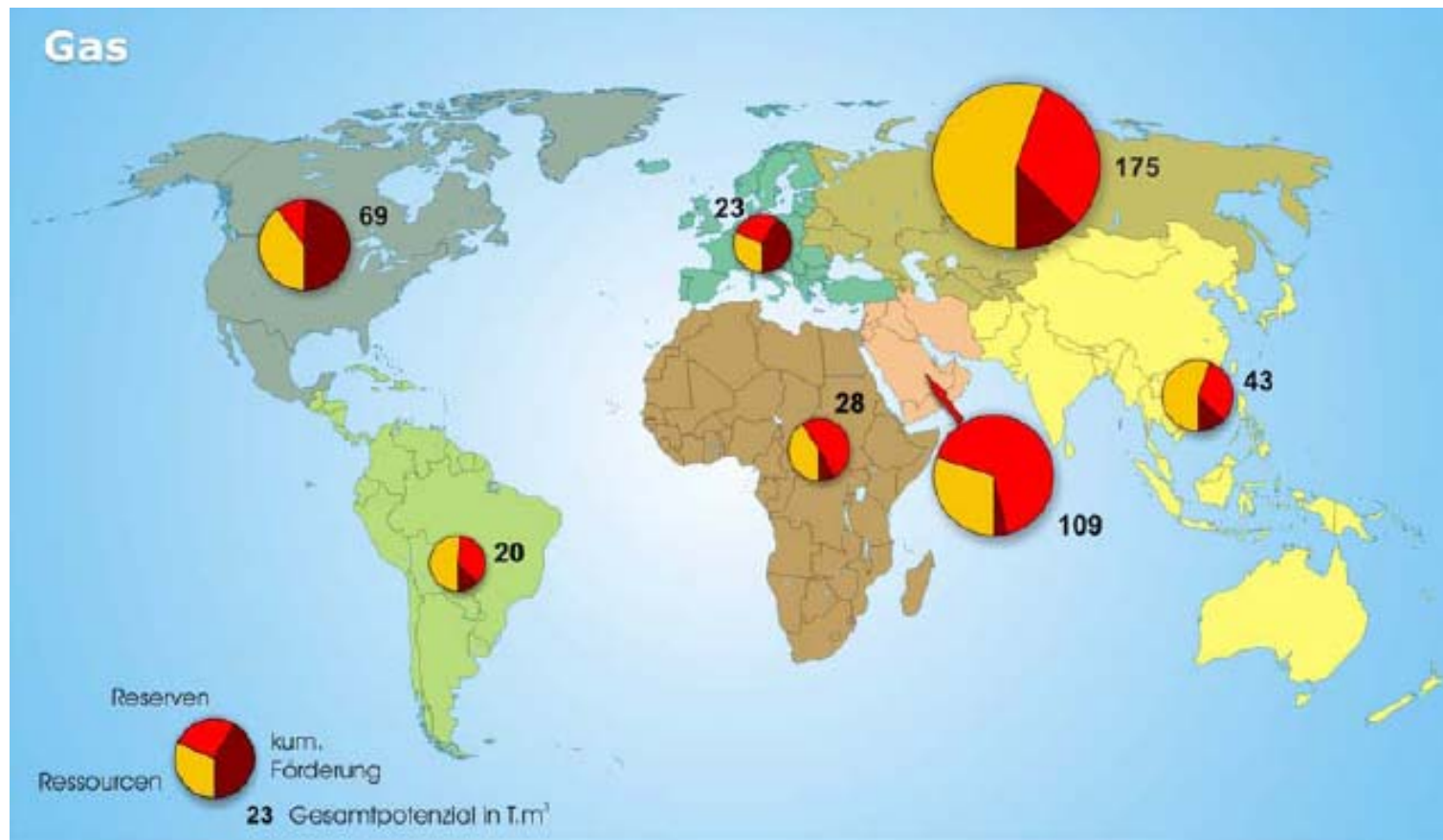
# Where is energy coming from?

## Regional Distribution of conventional Oil, 2005

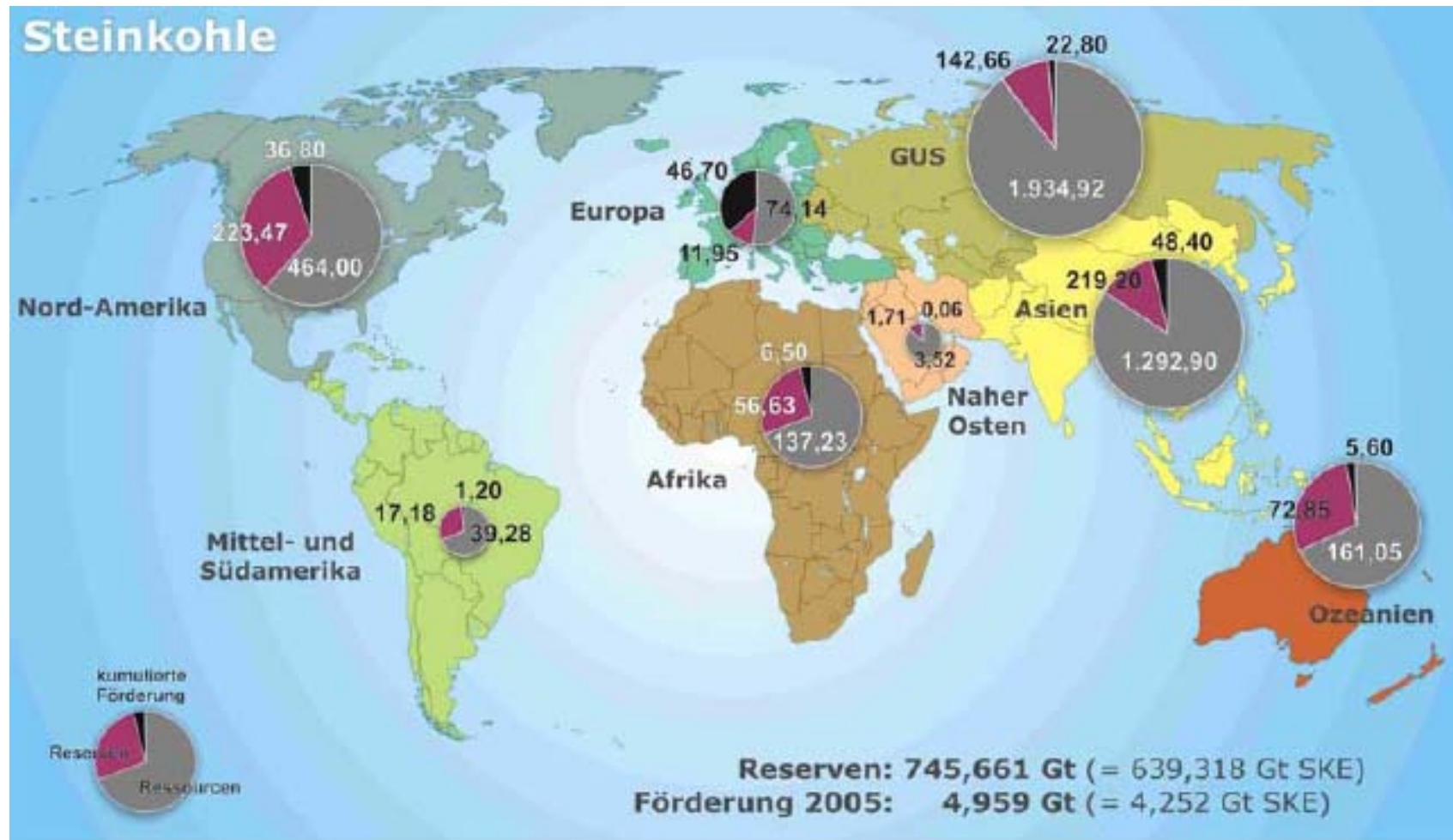




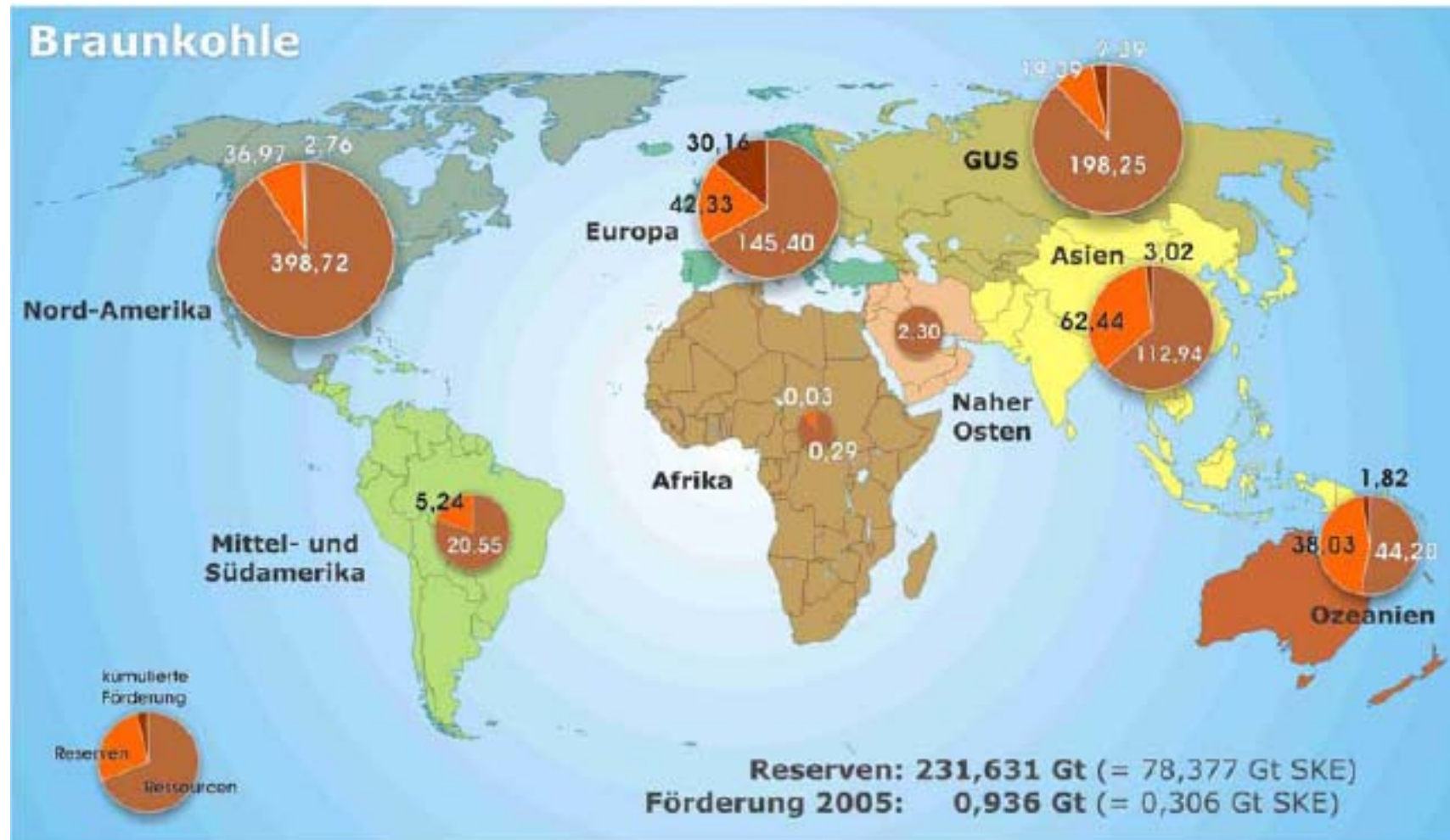
## Regional Distribution of reserves and resources of gas, 2005



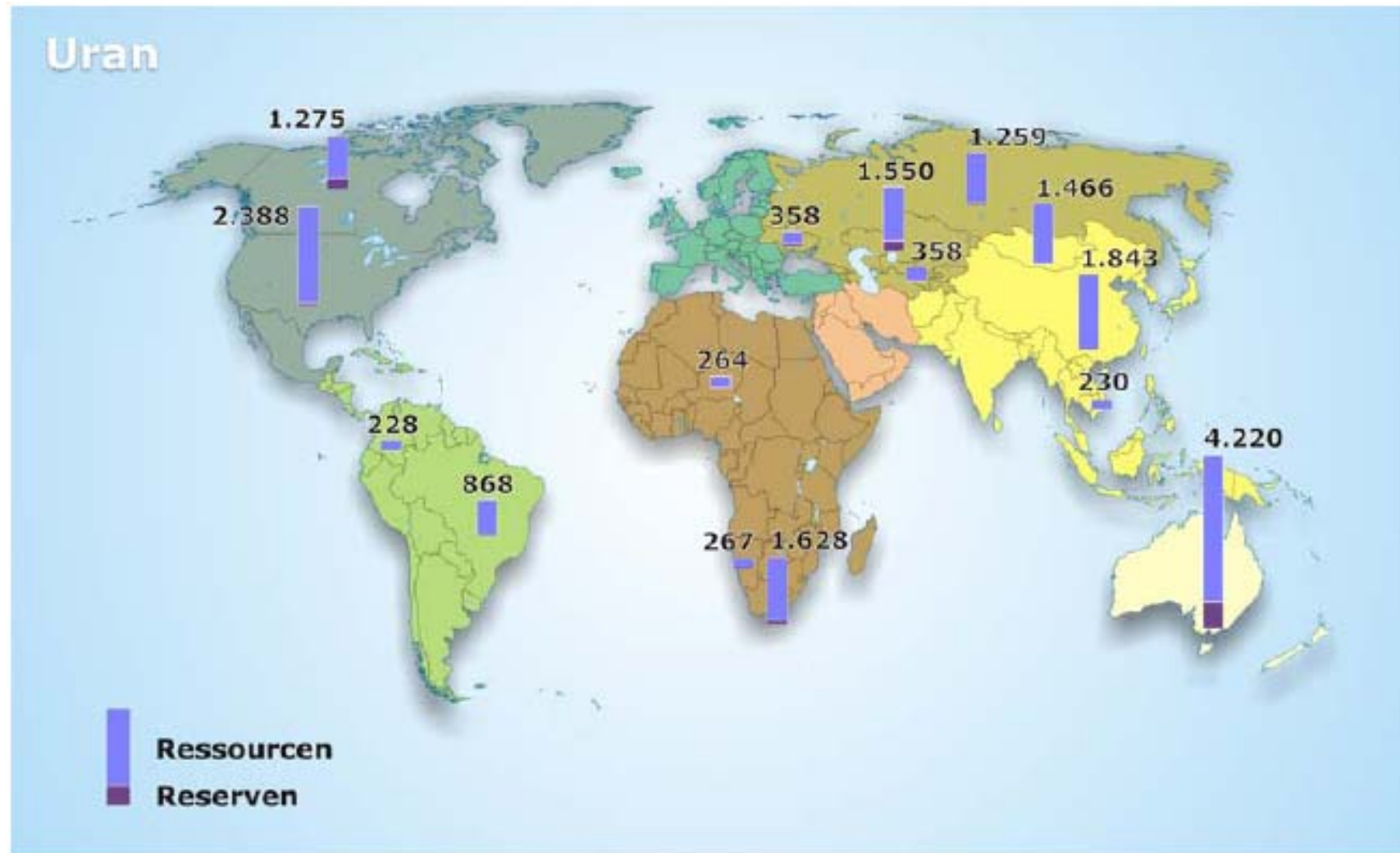
## Regional Distribution of Hard Coal, 2005



## Regional Distribution of Brown Coal, 2005



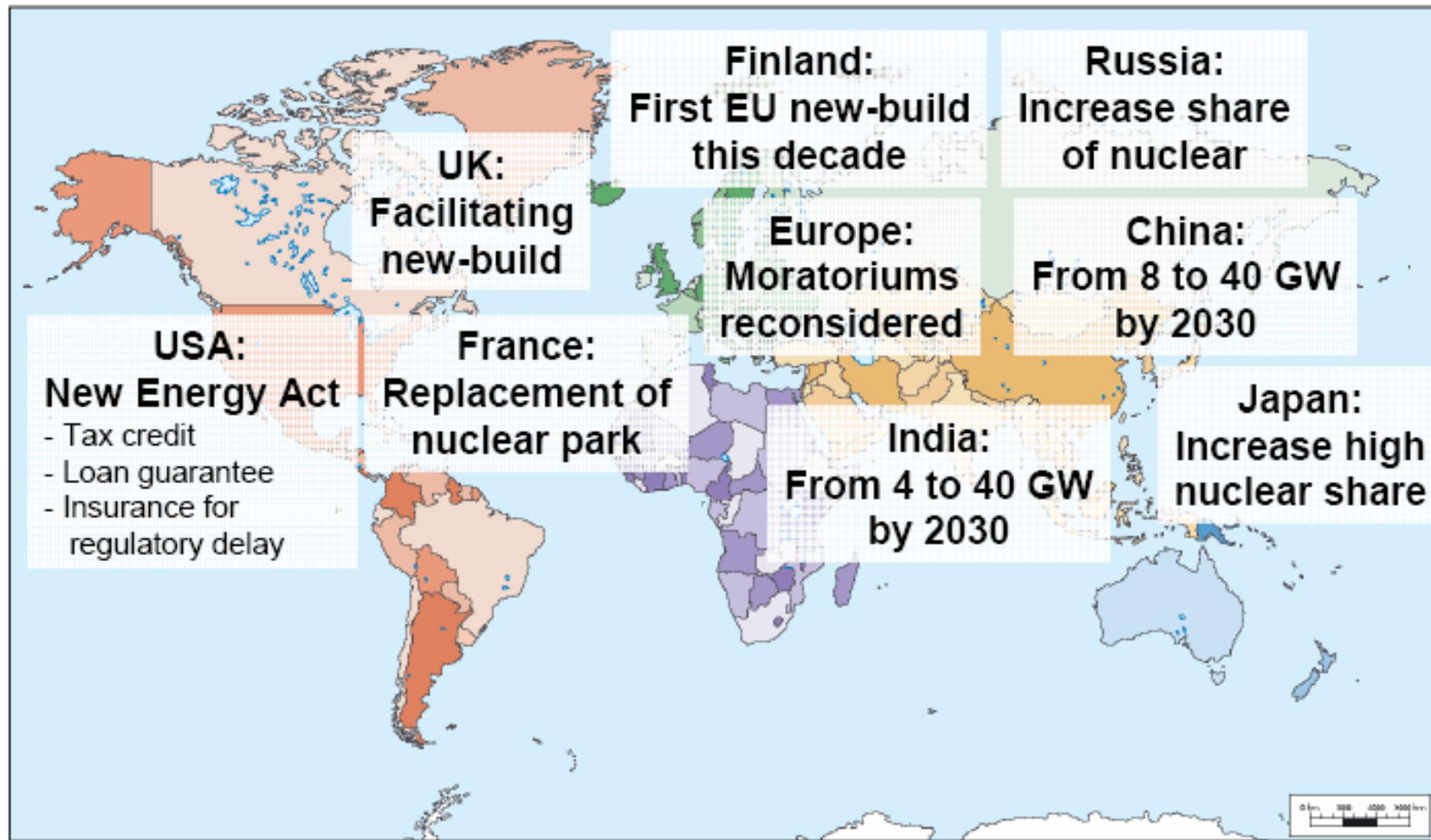
# Regional Distribution of Uranium resources and reserves 2005 (< 200kt U)



Source: BGR (2006)

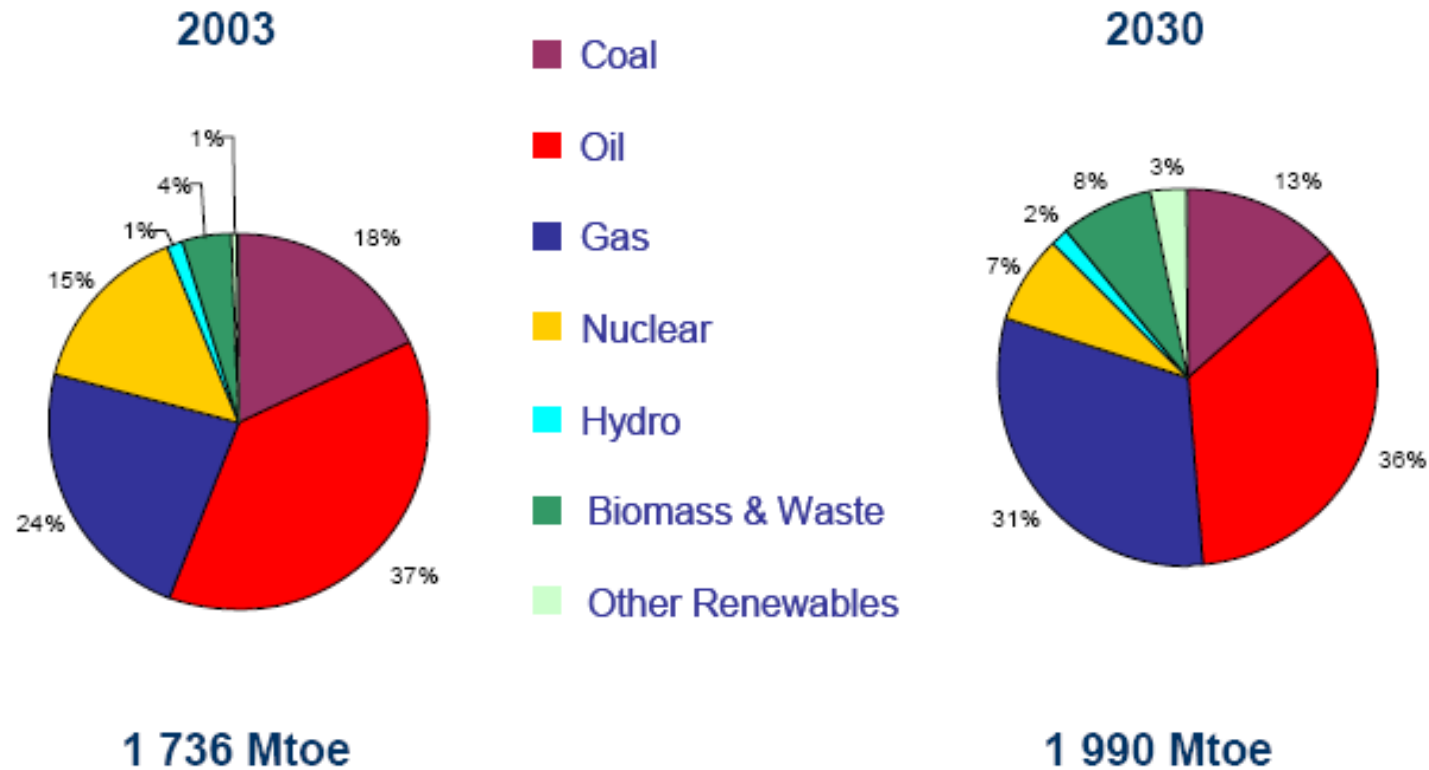


# Main global trends and plans for nuclear



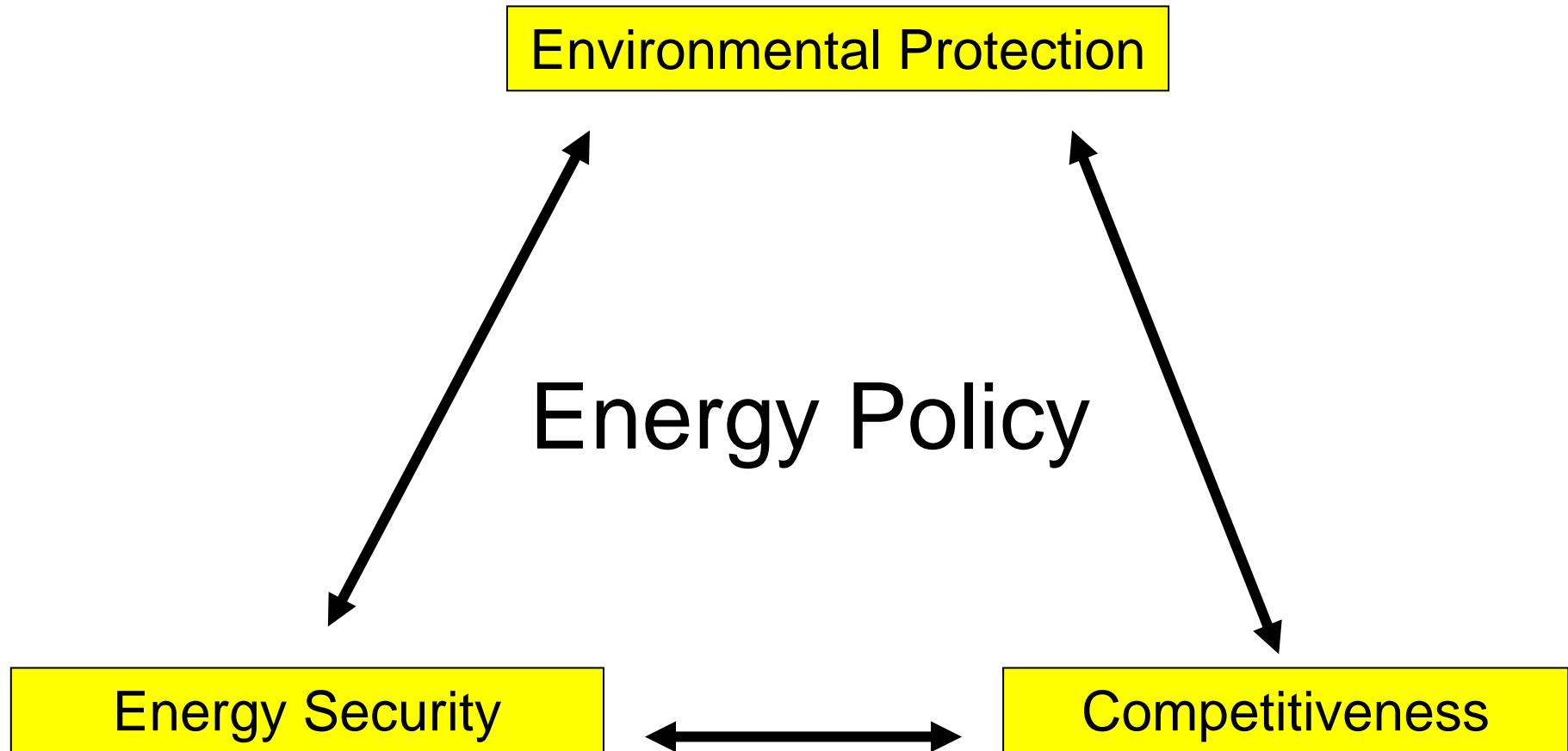


# EU Primary Energy Mix





# The Challenge

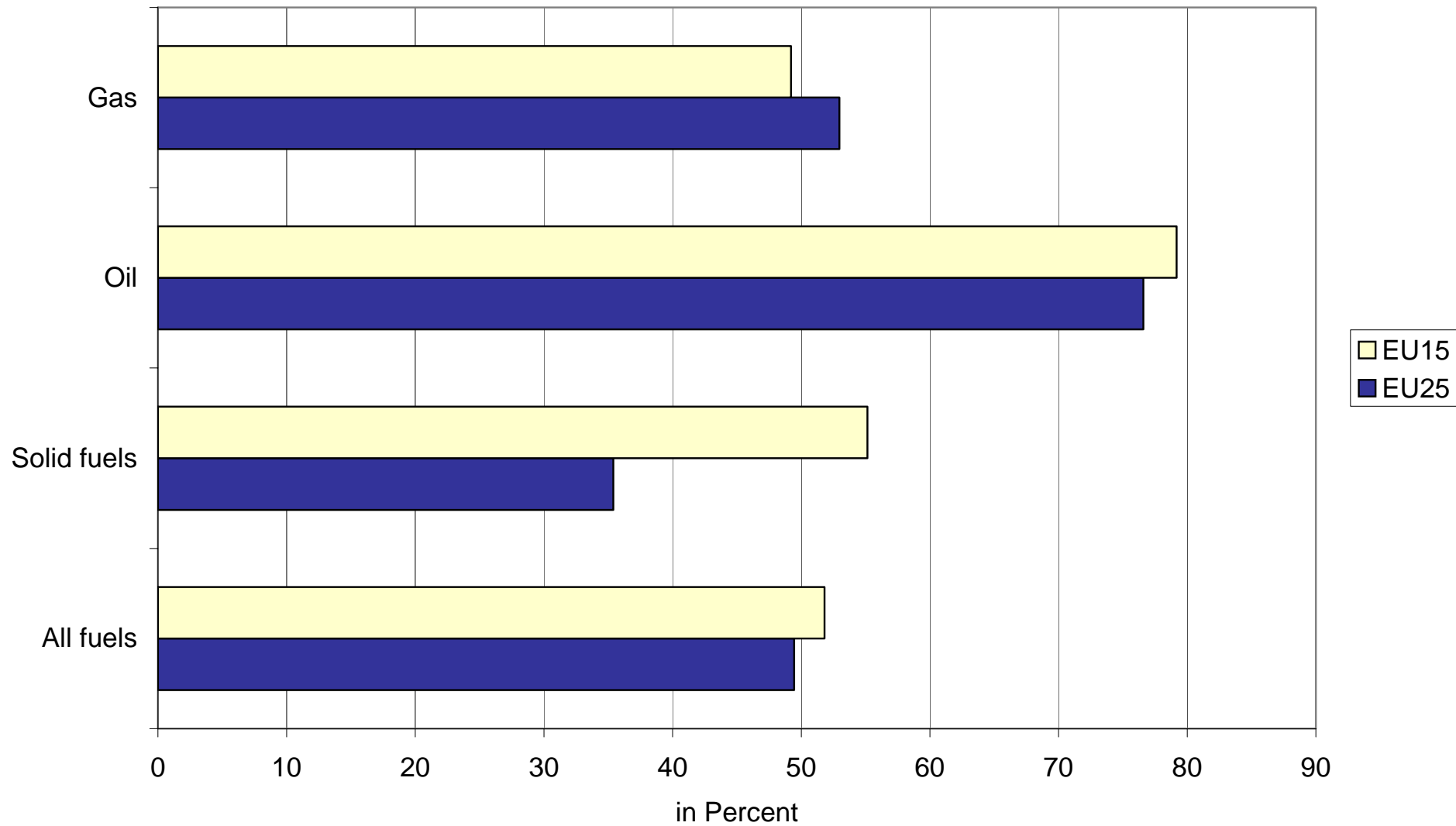




## EU Green Paper 03/2006

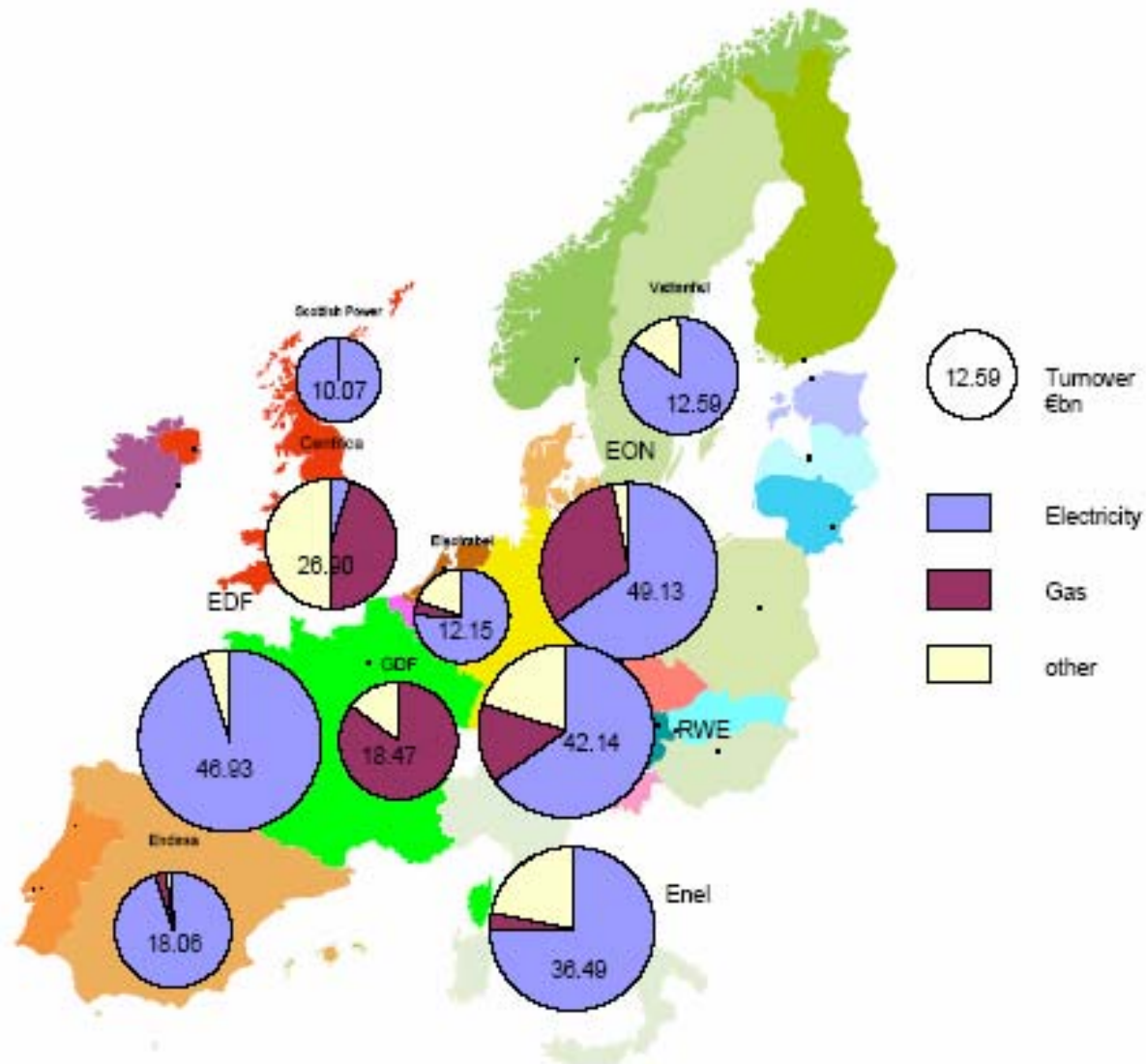
- Energy Imports Increase by 70 %
- Oil- Gas Prices remain high
- EU Investment in Infra Structures: 1 Billion Euro
- Transparent and Objective Debate about nuclear energy
- Promotion of renewable Energy: 2010: 21 %
  
- Strengthen internal solidarity
- Strong Climate Protection
- Security and Competitiveness
- Promotion of innovative Technologies
- Strengthen EU market for electricity and gas

# EU Import Dependency 2005- EU 25 and EU 15



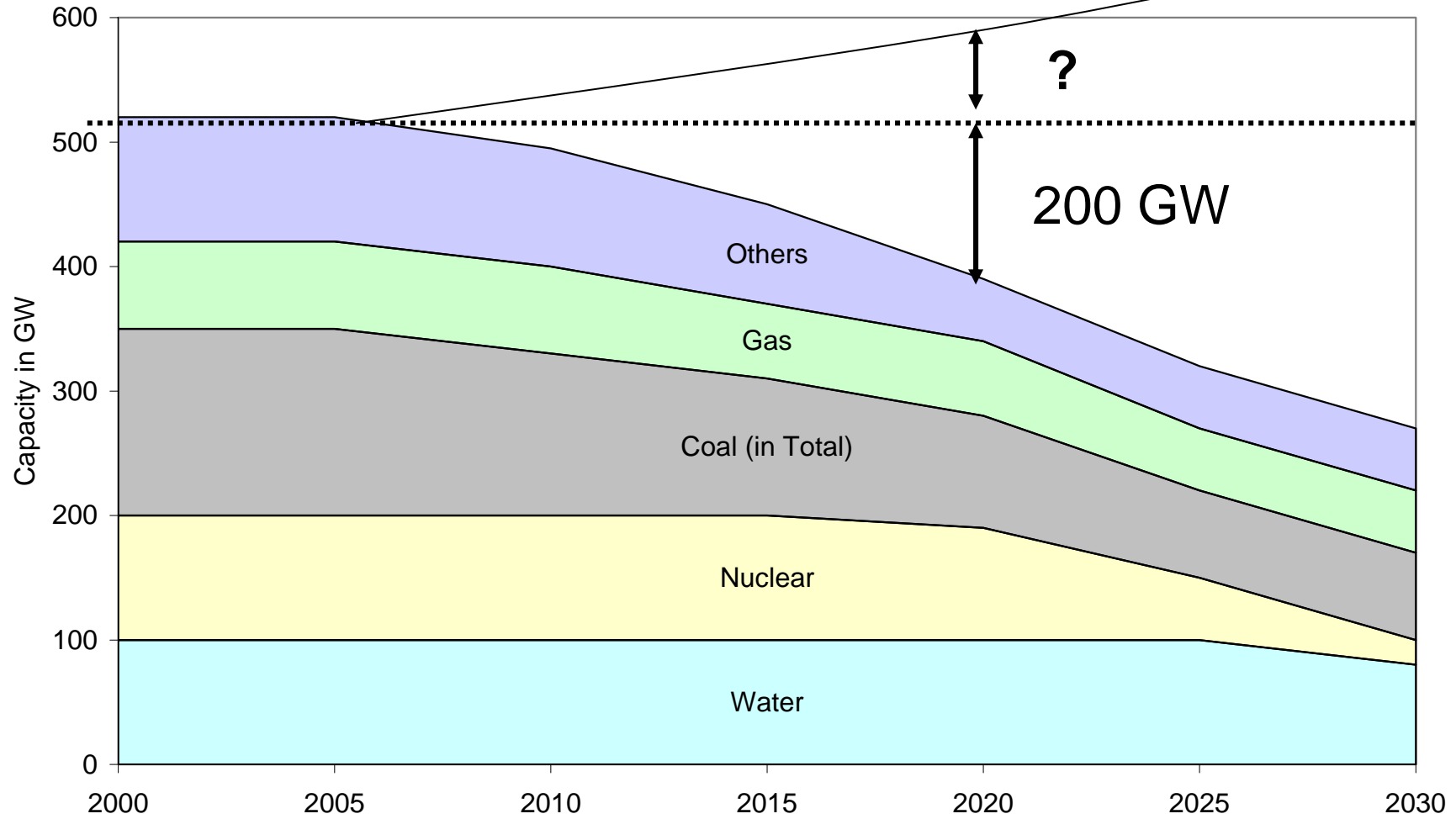
Source: EU Kommission 2005

# Share of European energy companies



Source: EU Kommission 2005

# Electricity Production in Europe/ Replacement



Source: RWE 2003

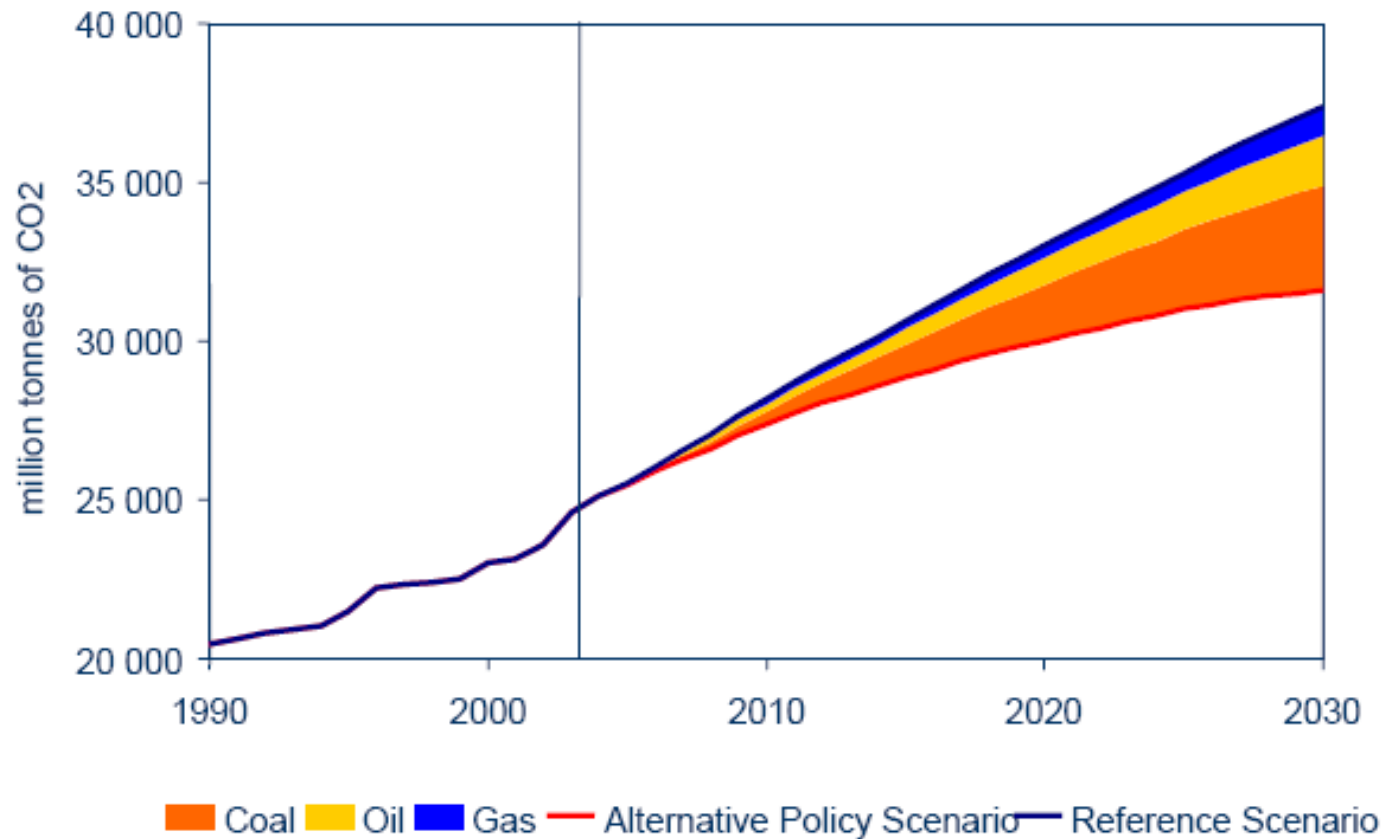


# What means sustainability?

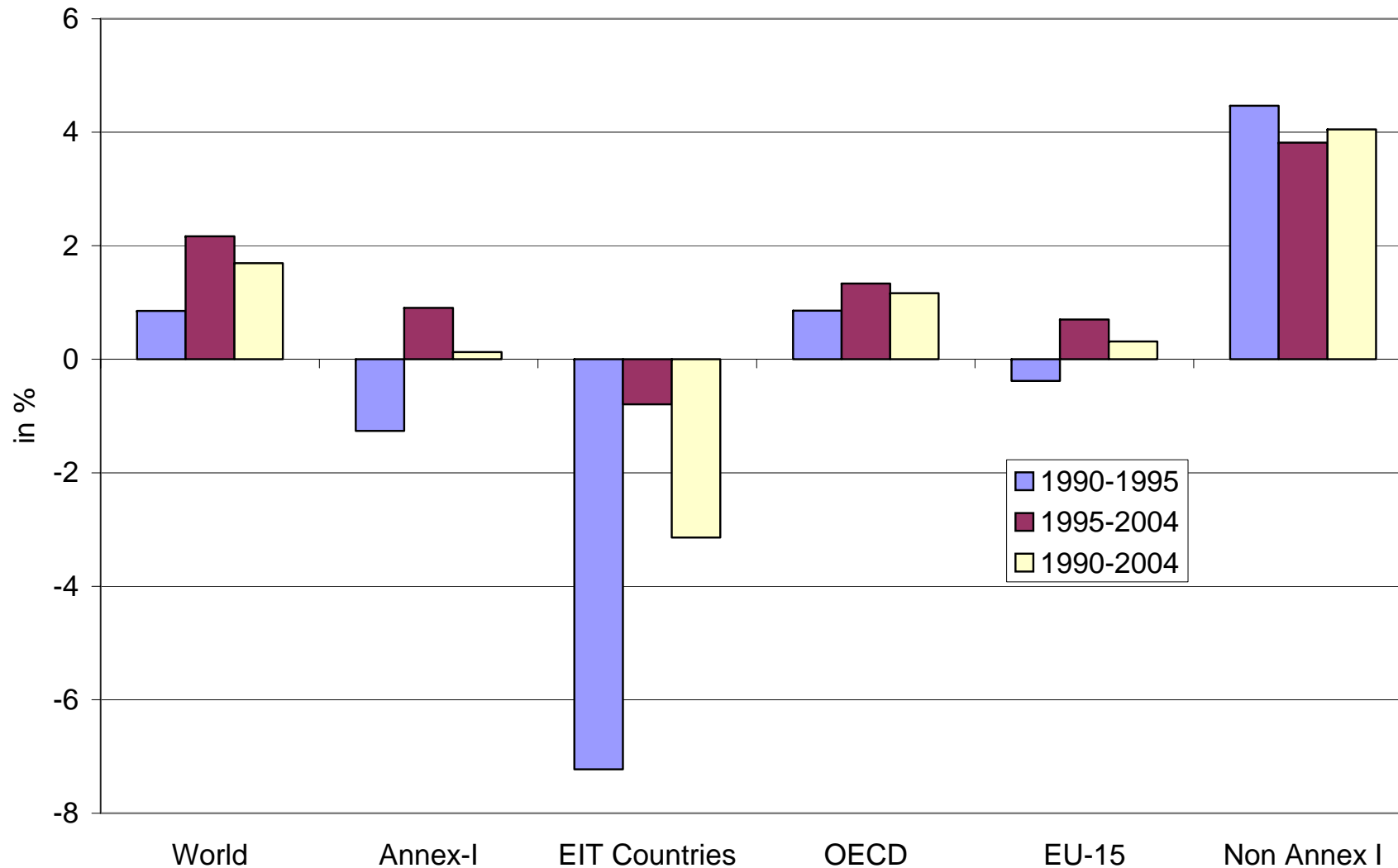
# What means energy security?

1. Climate Protection: Emissions Reduction
2. Environmental Effectiveness- Low Risks  
(CCS, Nuclear?)

# Global CO<sub>2</sub> Emissions in the Reference & Alternative Scenarios



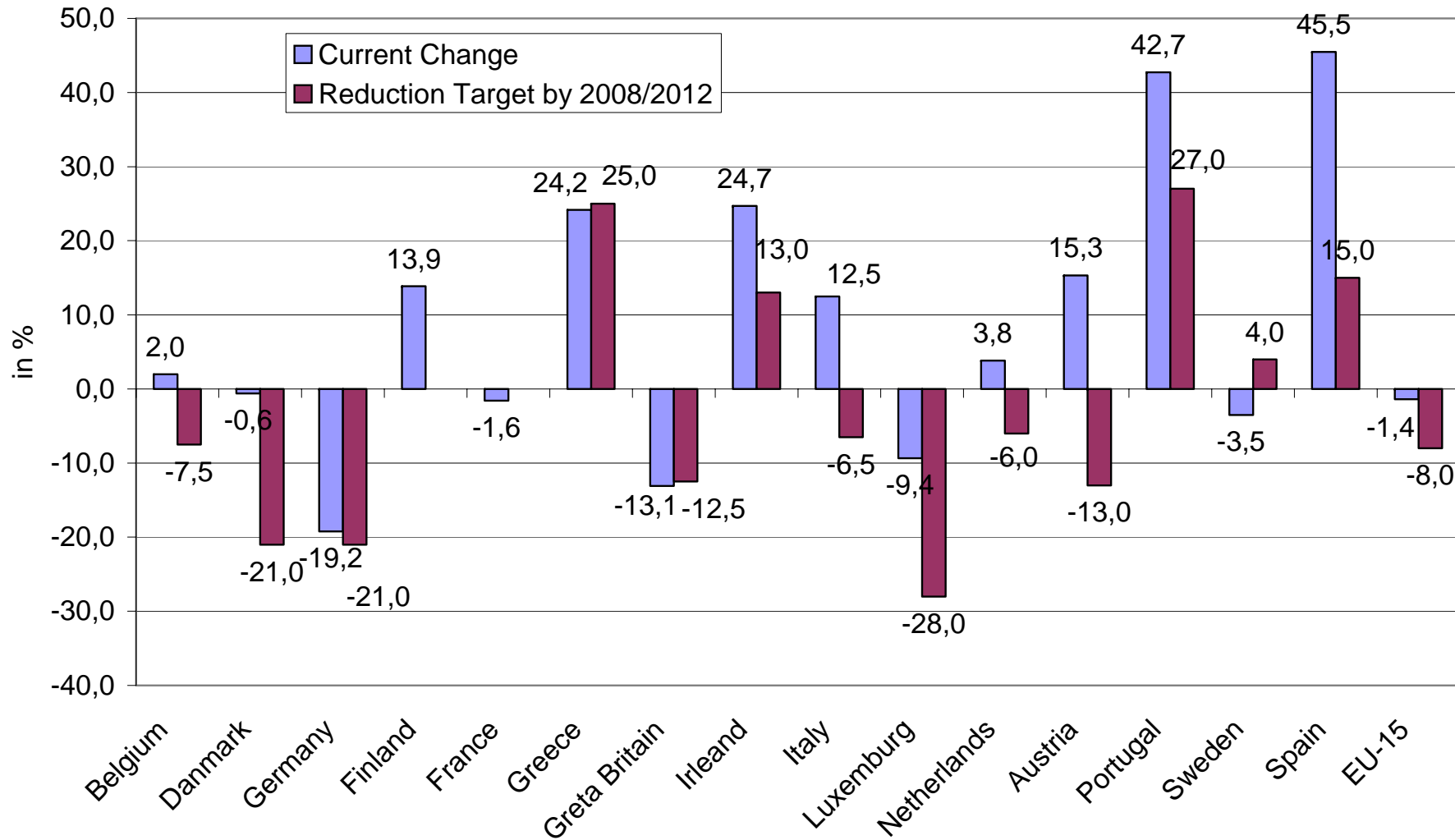
# Global Energy Related CO2 Emissions by Regions from 1990-2004



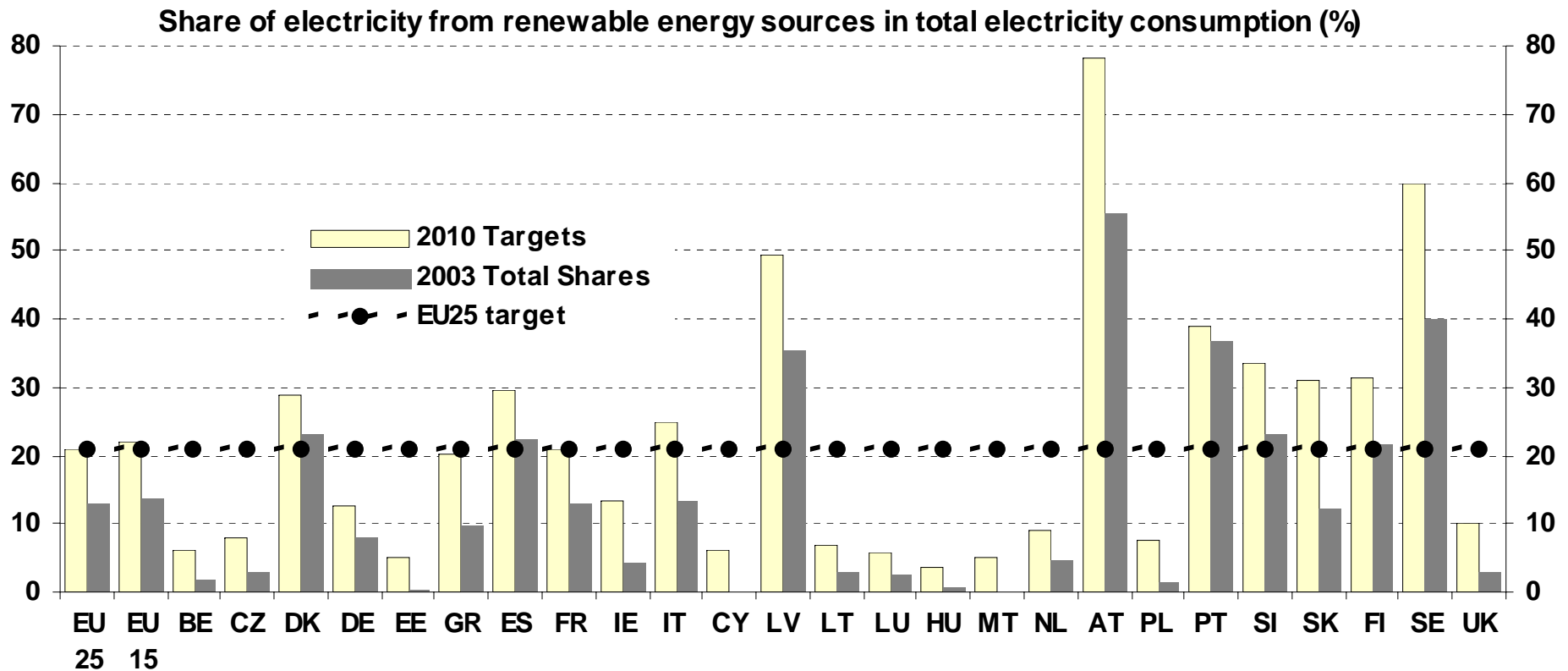
Source: DIW (2005)



# GHG Emission in EU15: 2004 and Kyoto Target



# Share of Renewable Energy on Electricity Production 2003 and Target 2010



## Instruments to promote RE in EU

	Feed in Traif	Eco Electr. Obligation	Tender	Fiscal Incentives	Green Quota
Belgium		X			X
Denmark	X				
Germany	X				
Finland				X	
France	X		X		
Greece	X				
Ireland			X		
Italy		X			X
Luxemburg	X				
Netherlands	X			X	X
Austria	(X)	X			
Portugal	X				
Sweden		X			X
Spain	X				
UK		X		X	X

Source: EU Comission 2004

- **Climate Protection:**
  - Emissions Trading
  - Promotion of Renewable Energy/CCS
- **Competitiveness:**
  - Liberalisation of Electricity Markets
  - Regulation Authority
- **Energy Security**
  - Infrastructure
  - Increase of Share of domestic energy sources: Renewable Energy/ Coal (CCS, Clean Coal)

# **Energy Security and Sustainability should be taken seriously**

**- both count most!**

***“Energy Security and Climate Protection are most important and top priorities”***

**German Chancellor Merkel October 2006 in view of the EU and G8 presidency**



Thank you very much for  
your attention!

[ckemfert@diw.de](mailto:ckemfert@diw.de)