



**EU PROGRESS IN REDUCING  
GHG EMISSIONS  
TOKYO  
October 2009**

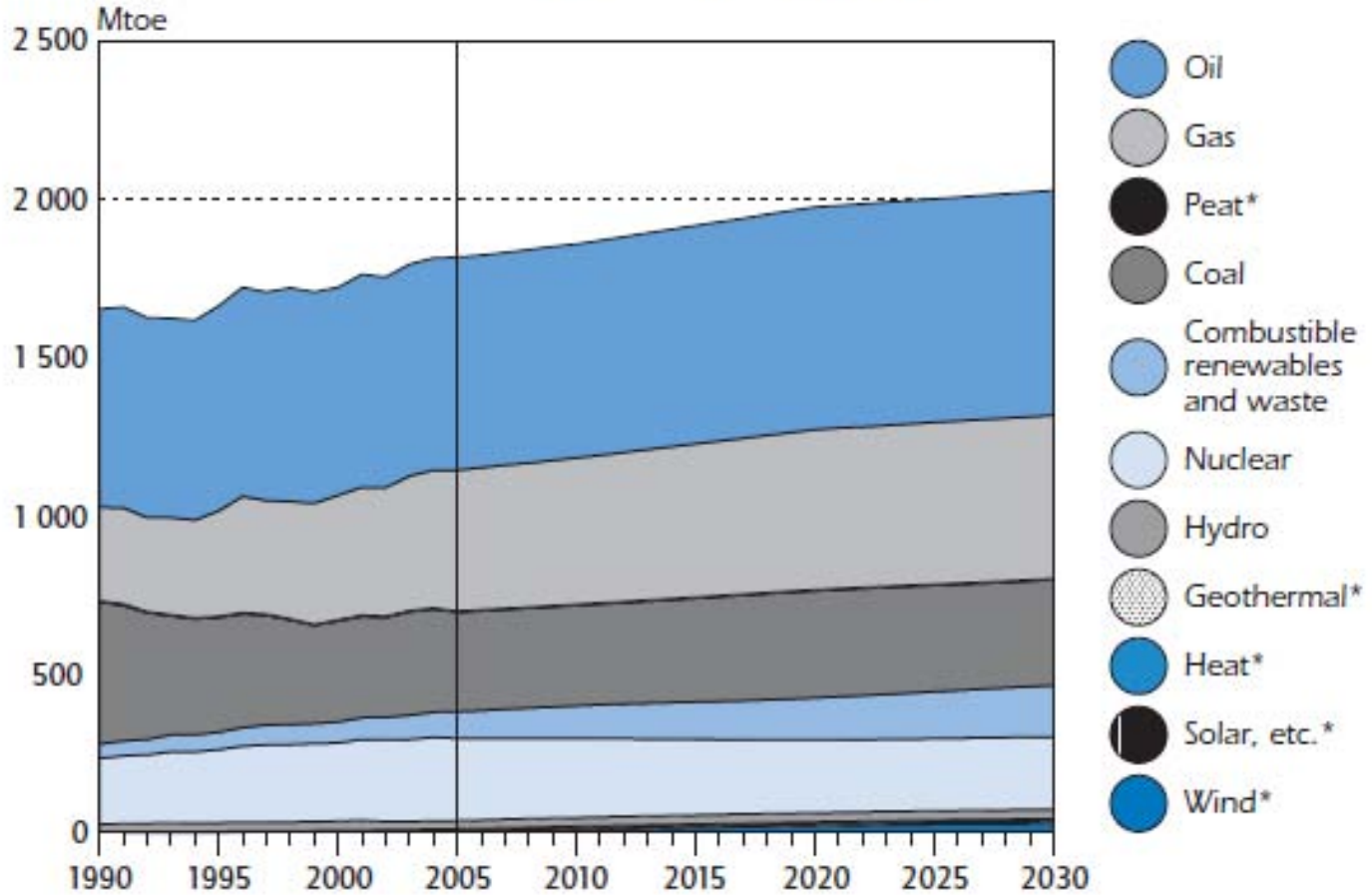
**William C. RAMSAY**  
Senior Fellow, Director, Ifri Energy program

## European Energy Policy Priorities

- **Market Reform**
- **Energy Security**
- **Energy Efficiency**
- **Renewable Energy**
- **Carbon Capture and Storage**

# Total Primary Energy Supply EU 27, 1990 to 2030

Total Primary Energy Supply, 1990 to 2030

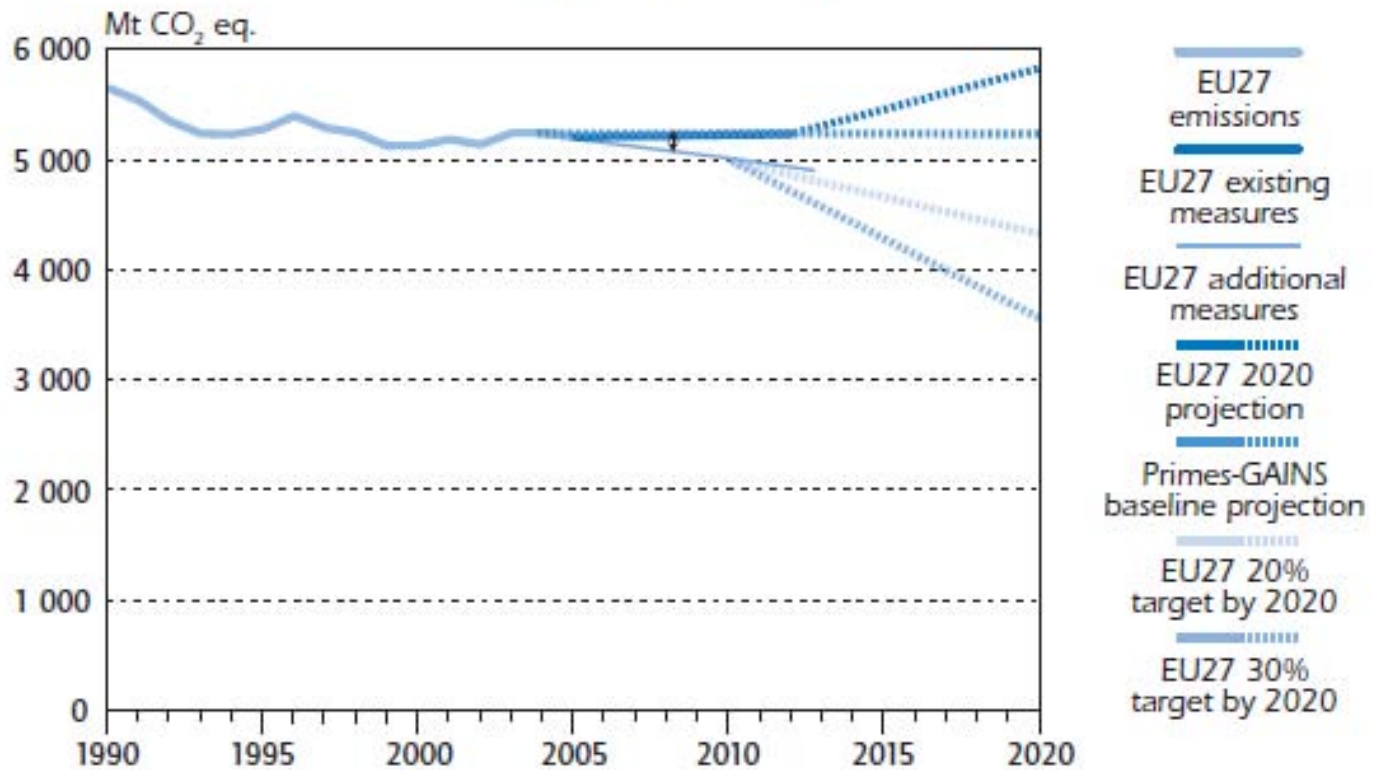


\* negligible.

Sources: *Energy Balances of OECD Countries*, IEA/OECD Paris, 2007 and EU submission.

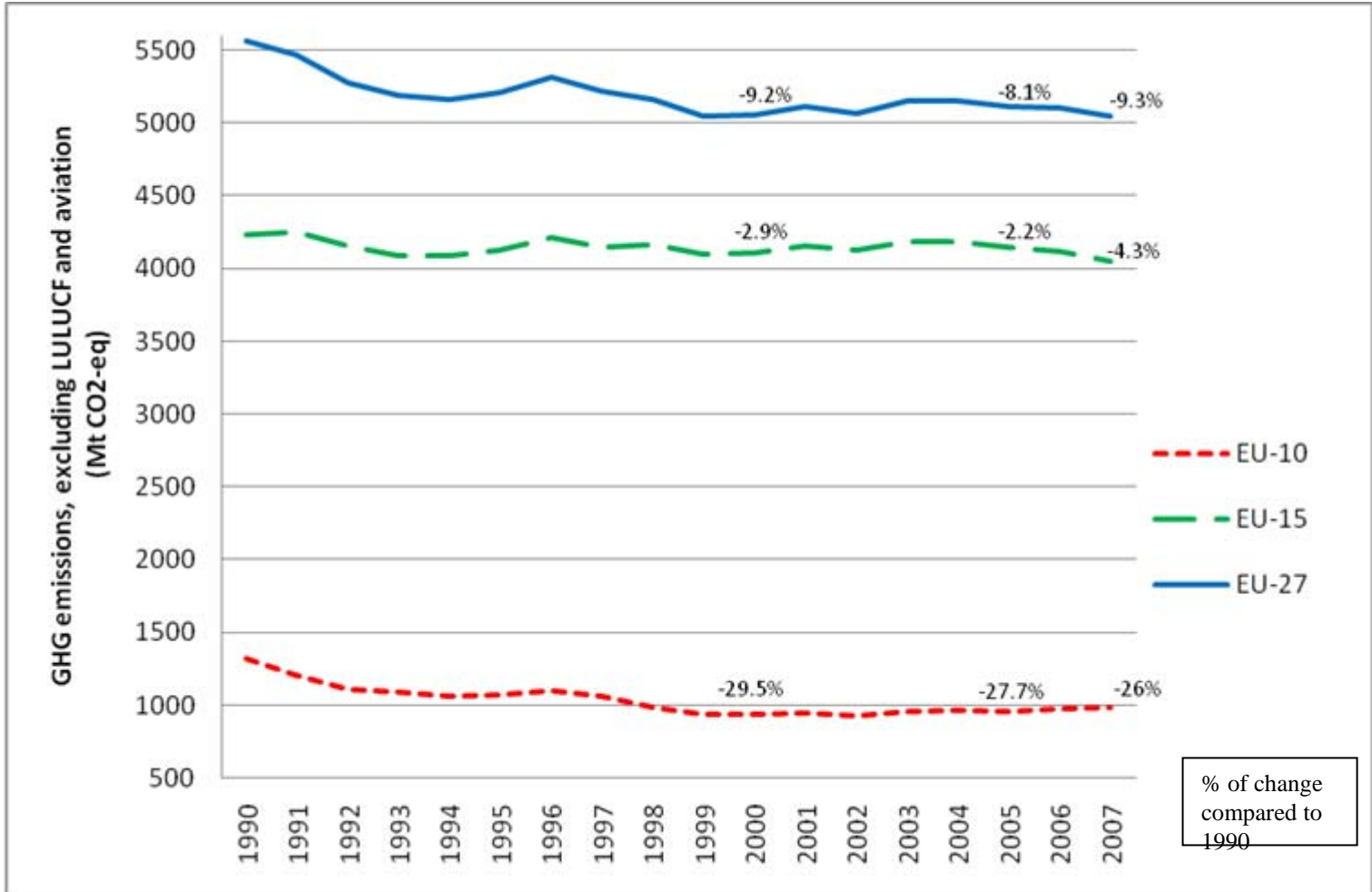
# Actual and Projected EU 27 Emissions 1990 to 2020 (MtCO<sub>2</sub> equivalent)

Actual and Projected Emissions for EU27, 1990 to 2020  
(Mt CO<sub>2</sub>-equivalent)

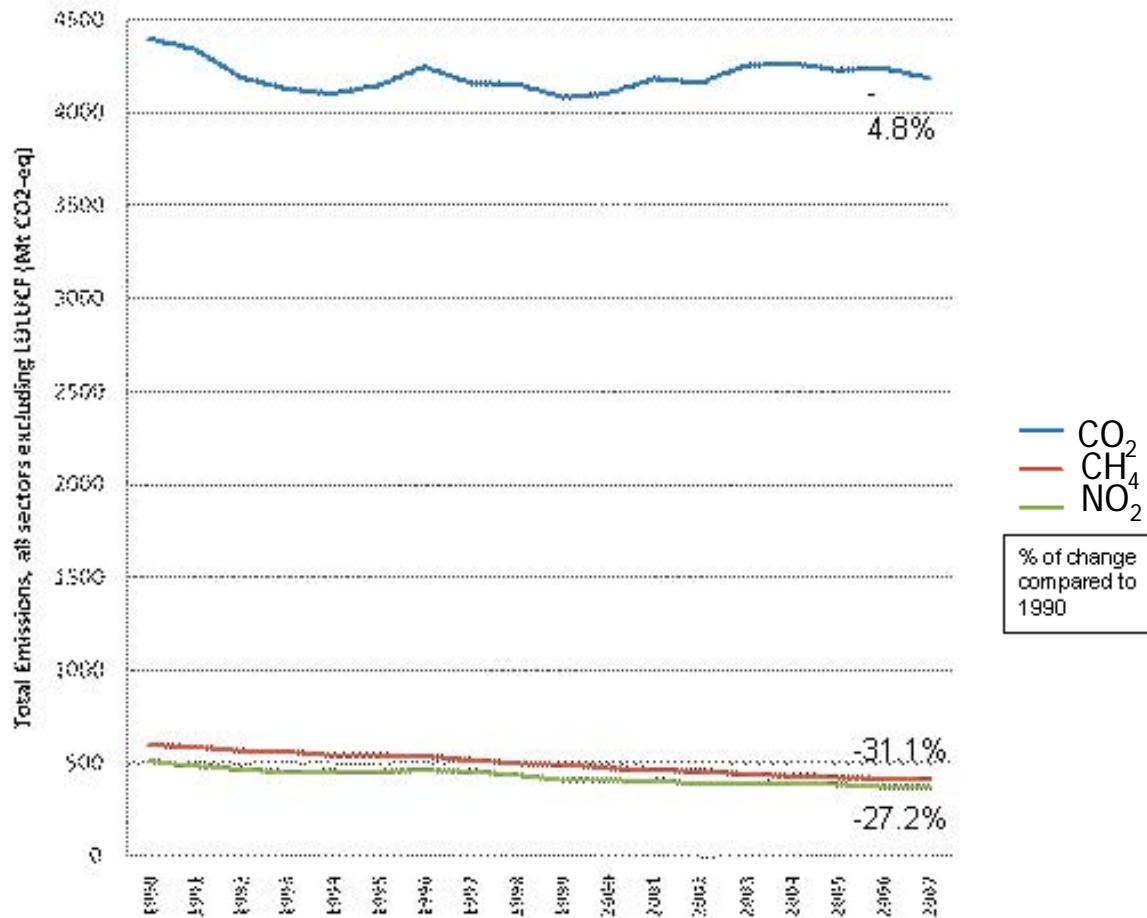


Source: EC Communication SEC(2007)1576.

# GHG Emissions trends in the EU, 1990-2007



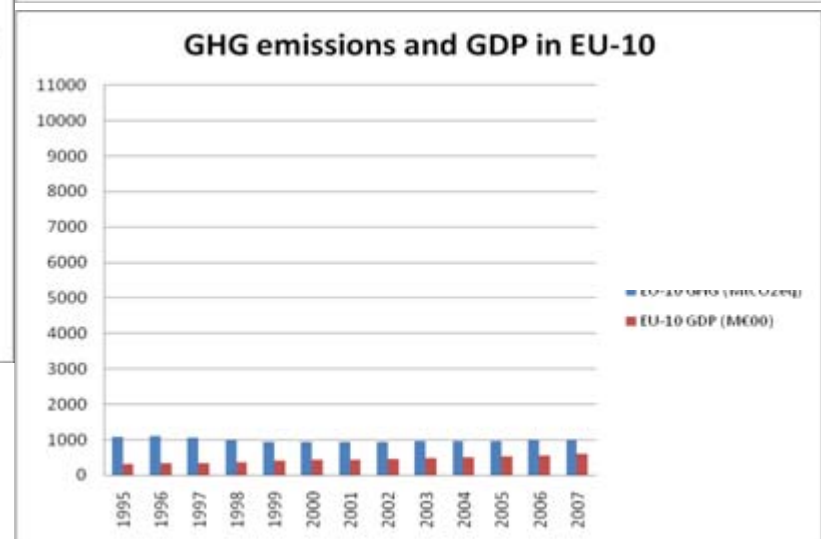
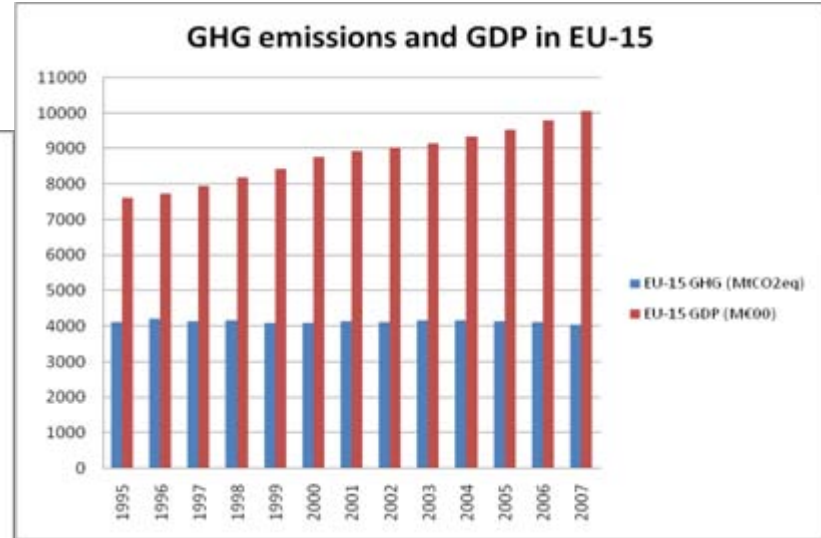
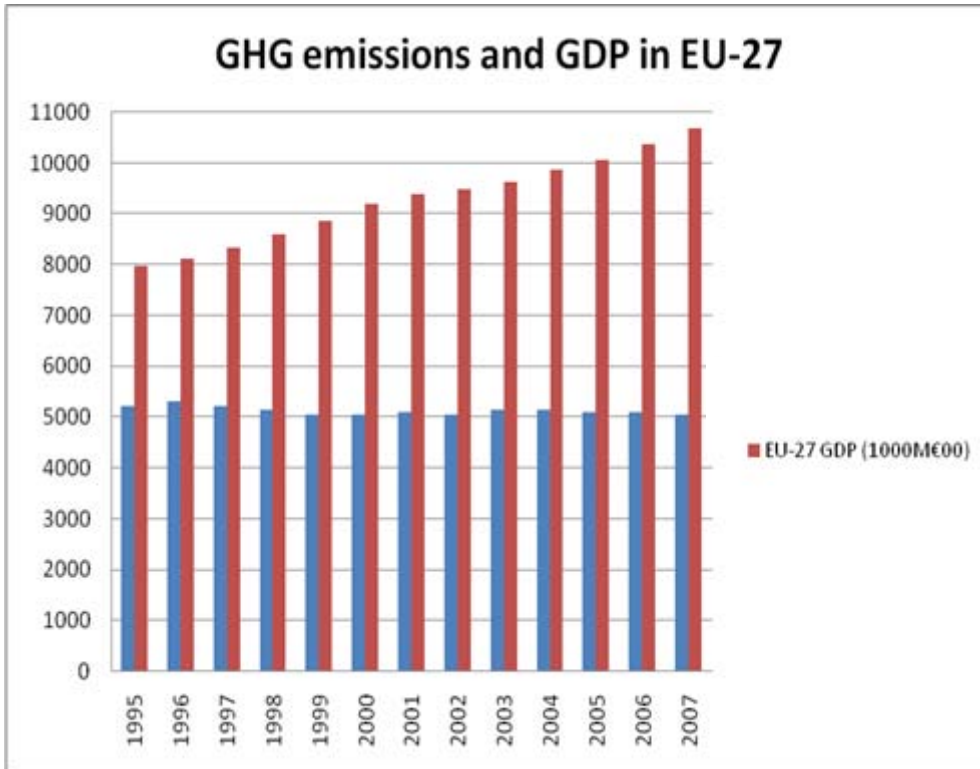
# Main GHG Emissions Trends in the EU27 1990-2007 (For all sectors excluding LULUCF)



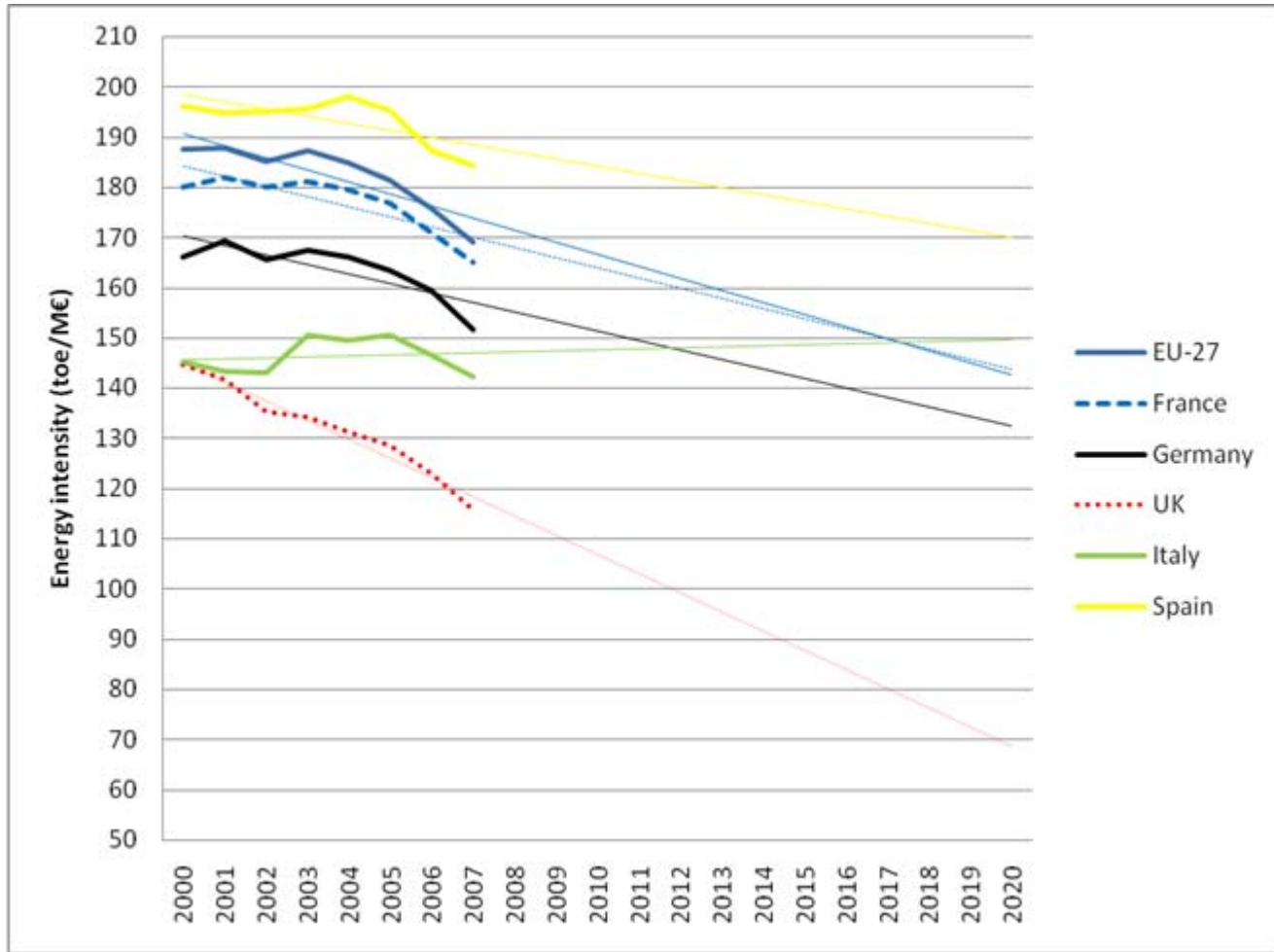
Source: data from EEA Technical Report n°4/2009

# GDP/GHG emissions relationship in the EU from 1995 to 2007

- EU GHG (MtCO<sub>2</sub> eq)
- EU GDP (1000M€)



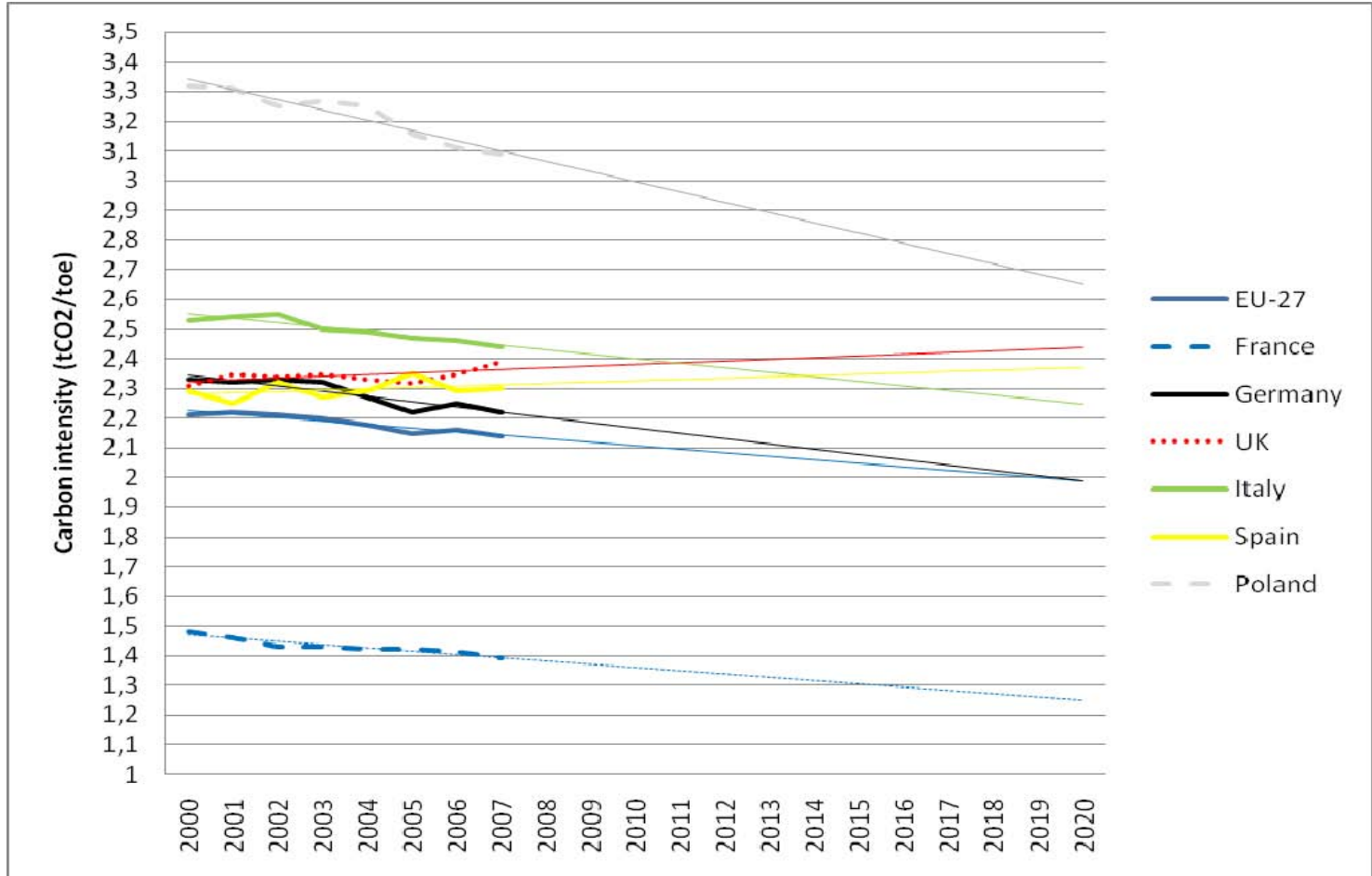
# Energy Intensities for EU and Top 5 since 2000 Projections to 2020



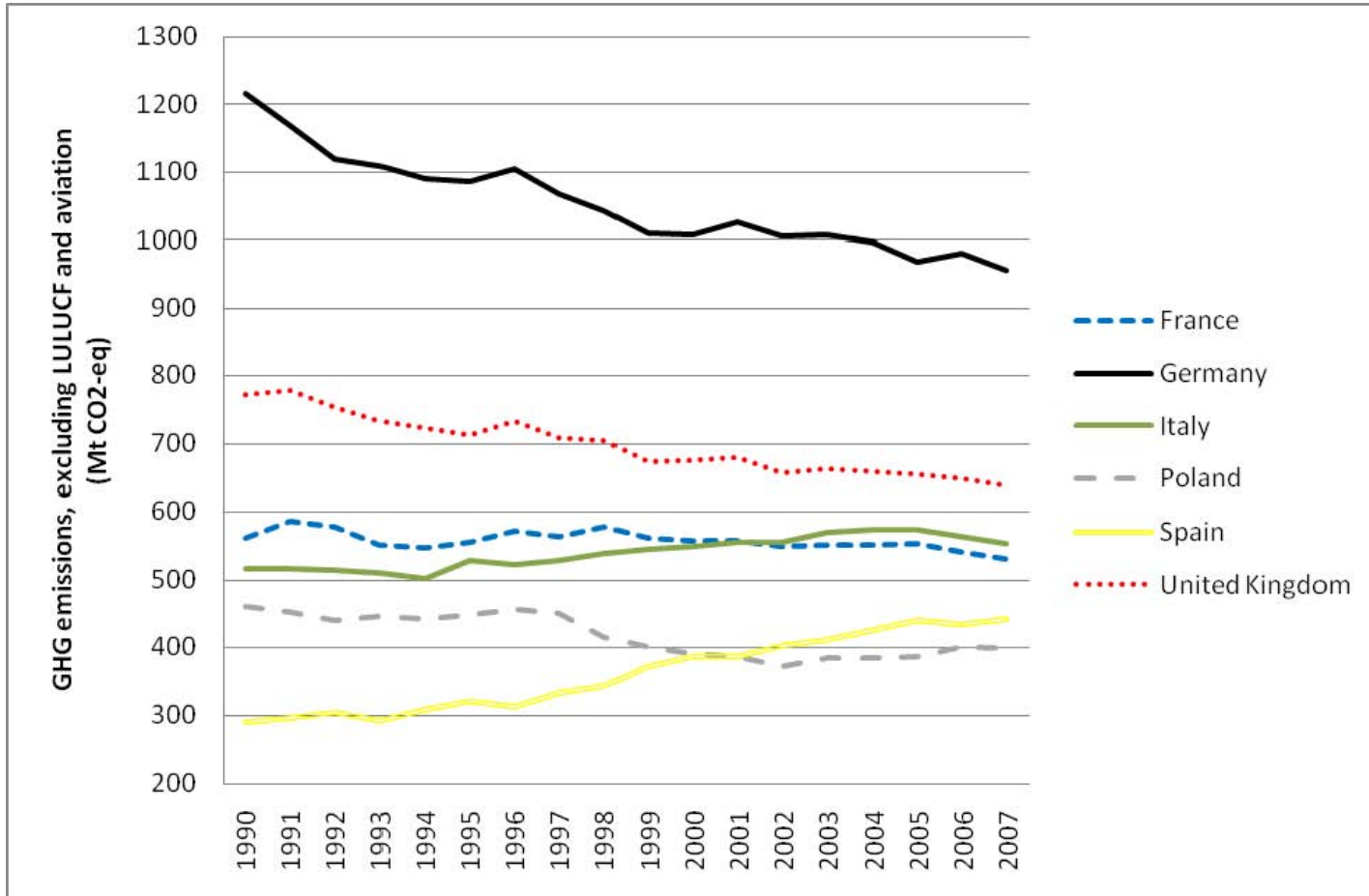
Source: data from EEA Technical Report n° 4/2009 and EUROSTAT Statistics Database; trend line projection based on Excel



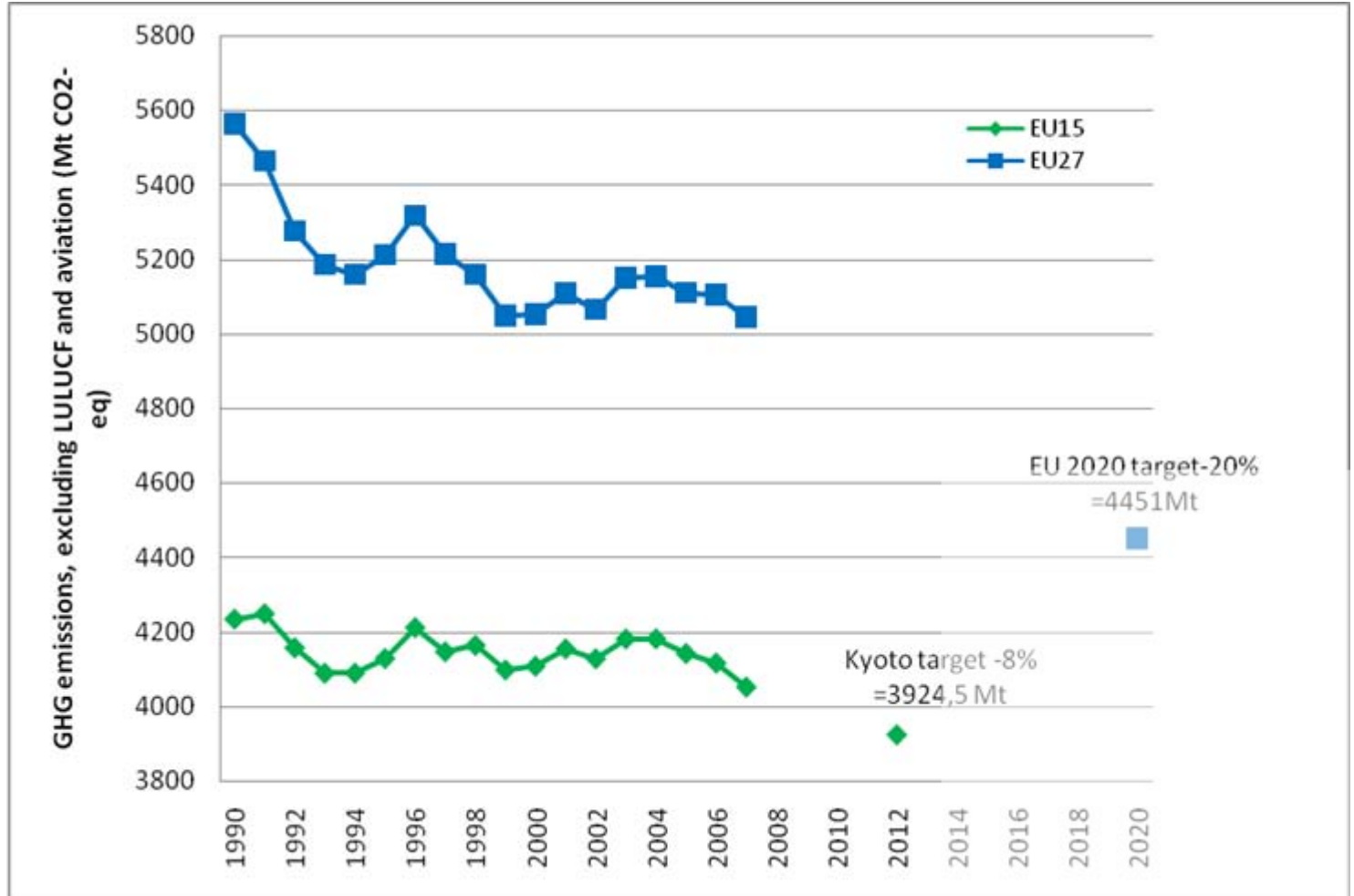
# Carbon Intensities in EU and Top 6 Emitters Since 2000 and Projected to 2020



# GHG Emissions Trends in 6 Largest EU Emitters 1990-2007



# EU-15 and EU-27 GHG Emissions 1990-2007 Versus Political Targets



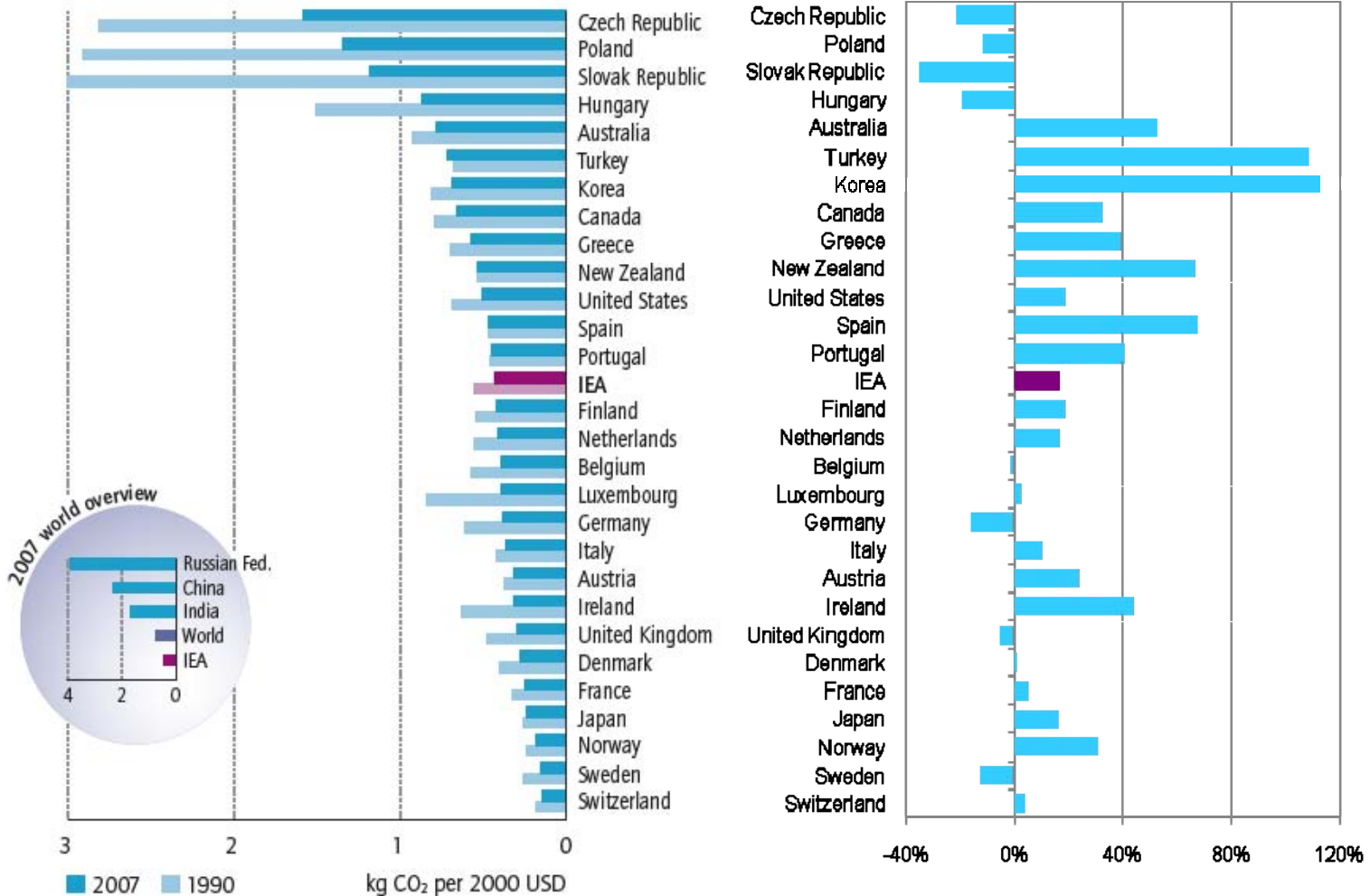
- EU 27 GHG reductions still needed from 2007
  - Feasible?

α	GHG emissions in 2007 (Mt CO <sub>2</sub> eq) <sup>α</sup>	Emission reduction effort to make from 2007 to 2020 (Mt CO <sub>2</sub> eq) <sup>α</sup>	GHG emission targets in 2020 (Mt CO <sub>2</sub> eq) <sup>α</sup>
ETS sectors <sup>α</sup>	2165 <sup>α</sup>	-445 <sup>α</sup>	1720 <sup>α</sup>
Non-ETS sectors <sup>α</sup>	2880 <sup>α</sup>	-149 <sup>α</sup>	2731 <sup>α</sup>
Totals <sup>α</sup>	5045 <sup>α</sup>	-594 <sup>α</sup>	4451 <sup>α</sup>

# Decoupling CO<sub>2</sub> emissions and GDP Still a 20% increase for IEA emissions as a whole

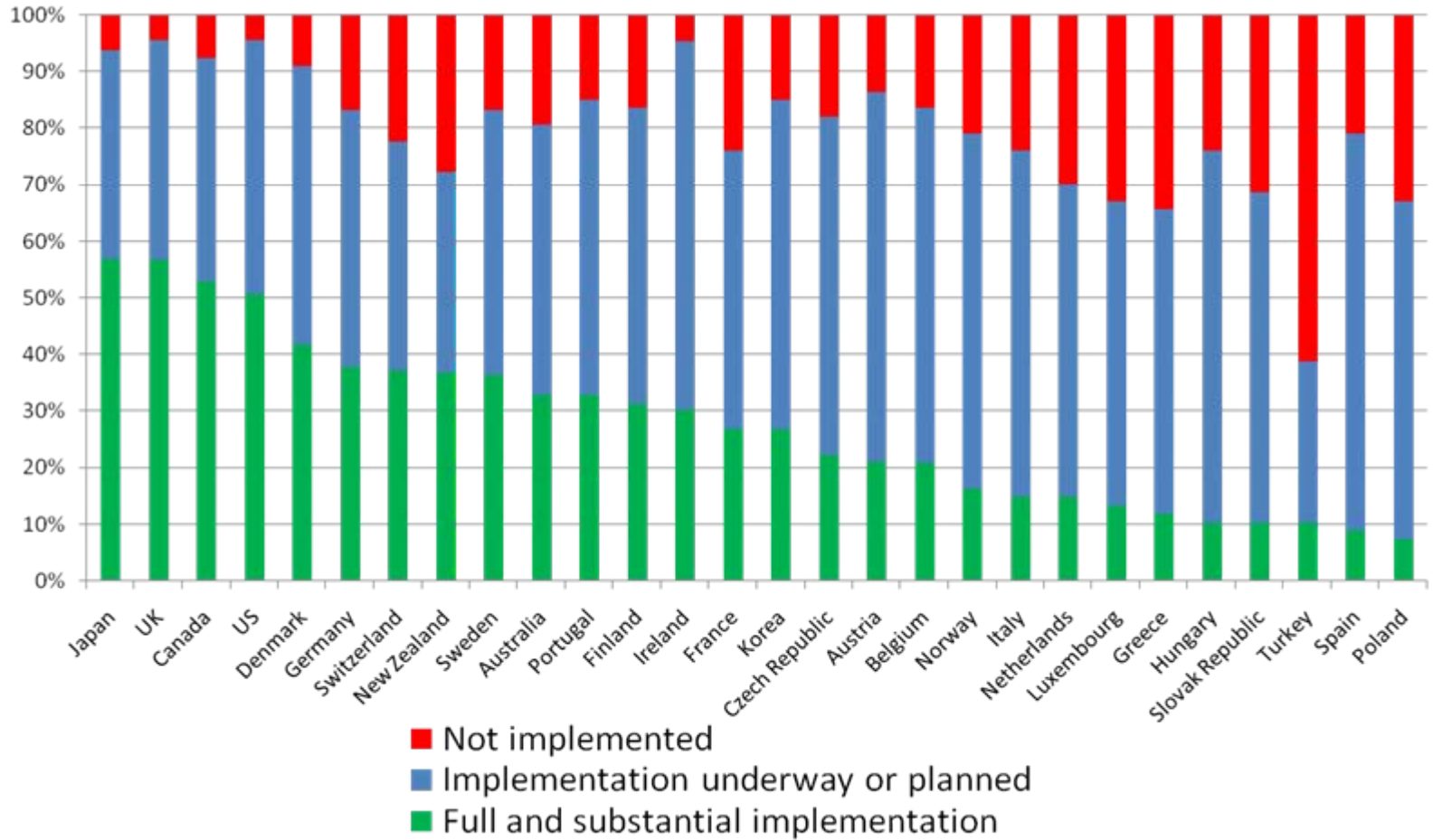
CO<sub>2</sub> emissions per GDP

Percentage change in CO<sub>2</sub> emissions between 1990 and

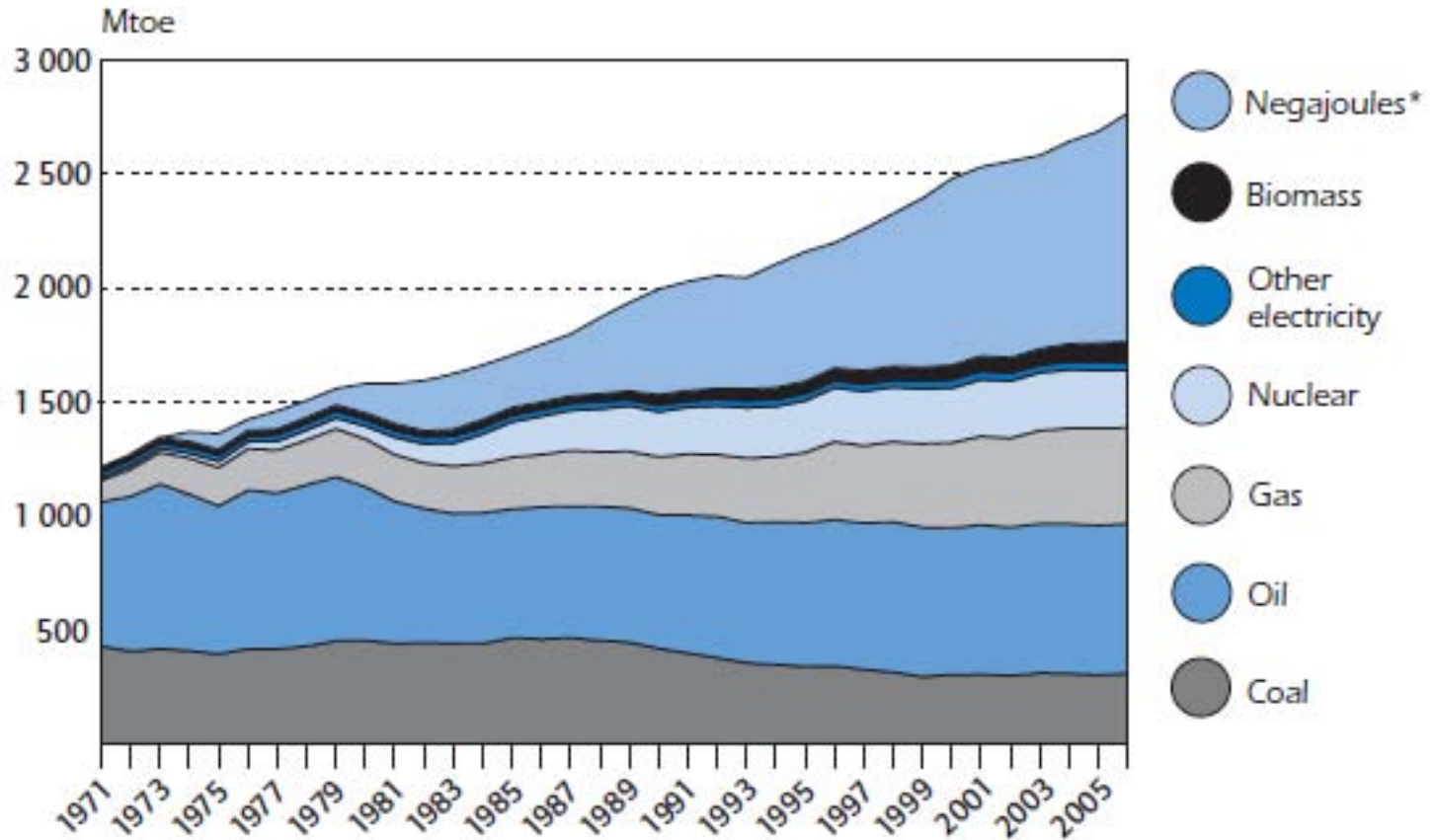


● Only 8 countries have reduced their emissions since 1990

## 25 Efficiency Recommendations - Modest Progress



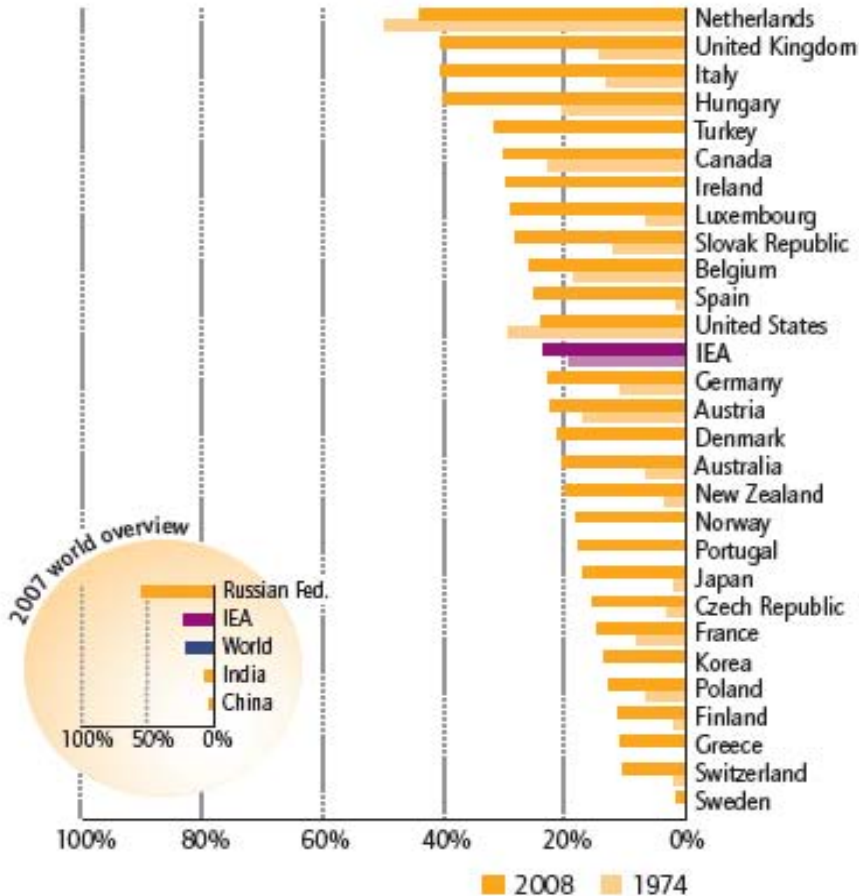
# « NEGA-JOULES » (Avoided Energy) Cheapest, Most Secure Energy EU25, 1971 to 2005



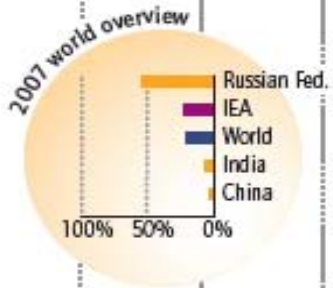
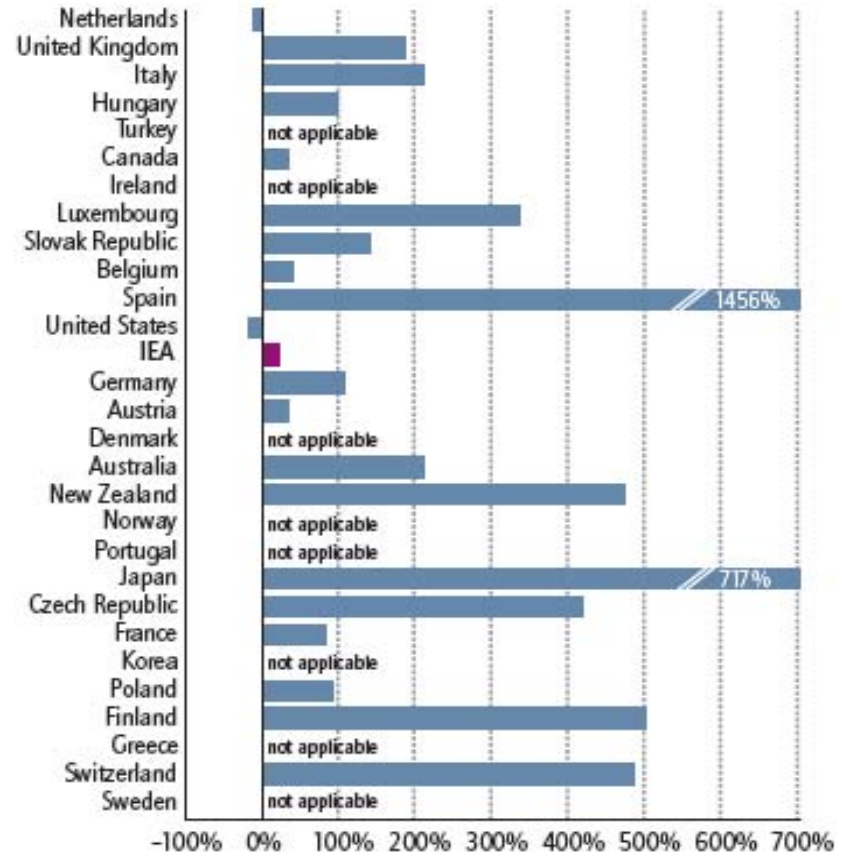
\*\*negajoules\*": energy savings calculated on the basis of 1971 energy intensity.  
Sources: COM(2006)545 and Enerdata 2006.

# Natural Gas Now 2nd Largest Fuel in IEA Mix

Share of natural gas in TPES\*



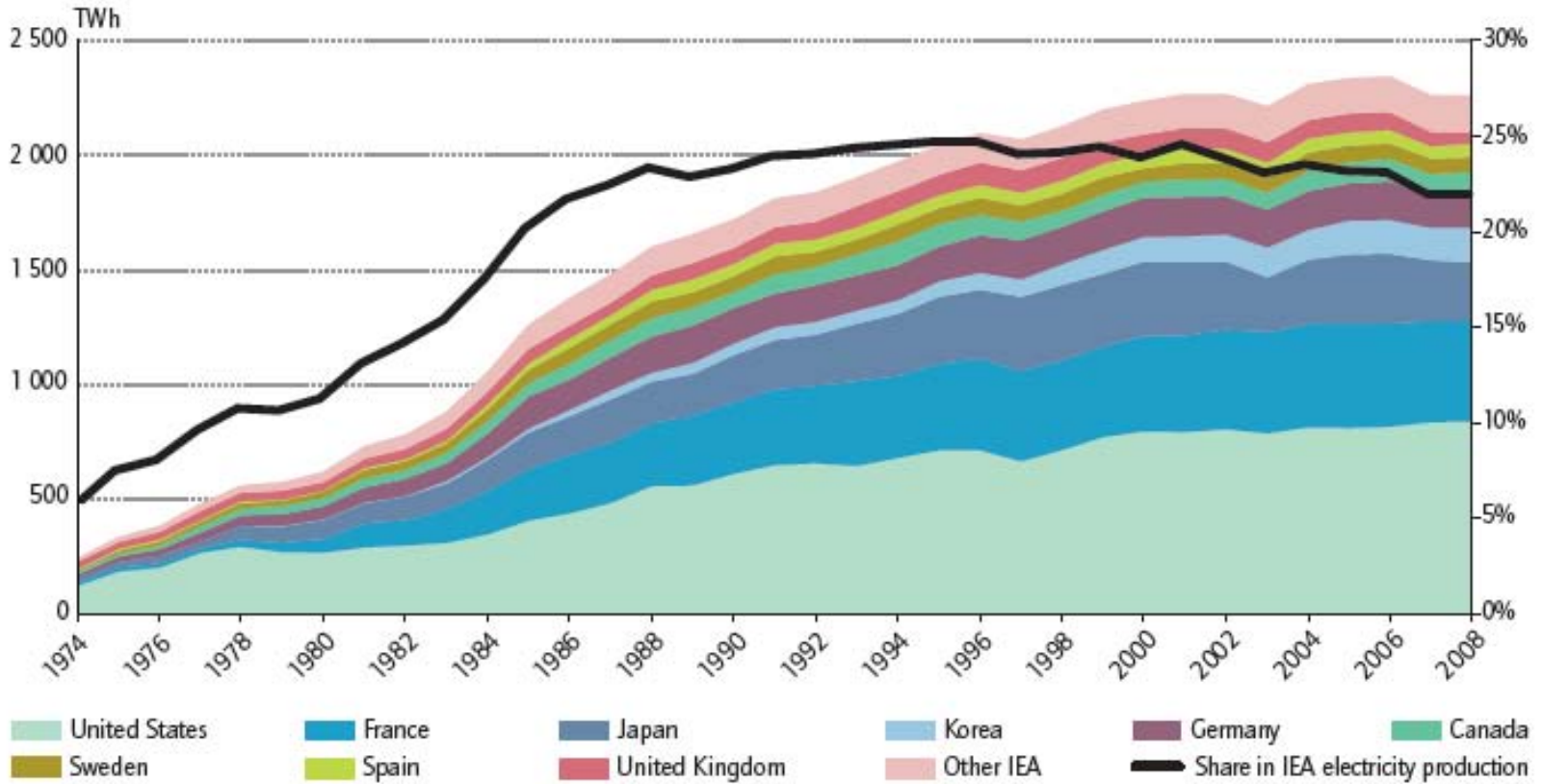
Percentage change of share of natural gas in TPES\* between 1974 and 2008



- The overall increase in IEA consumption (excluding the US) would be much higher - 23%
- Electricity generation is now the largest natural gas consuming sector at 34% up from 18%

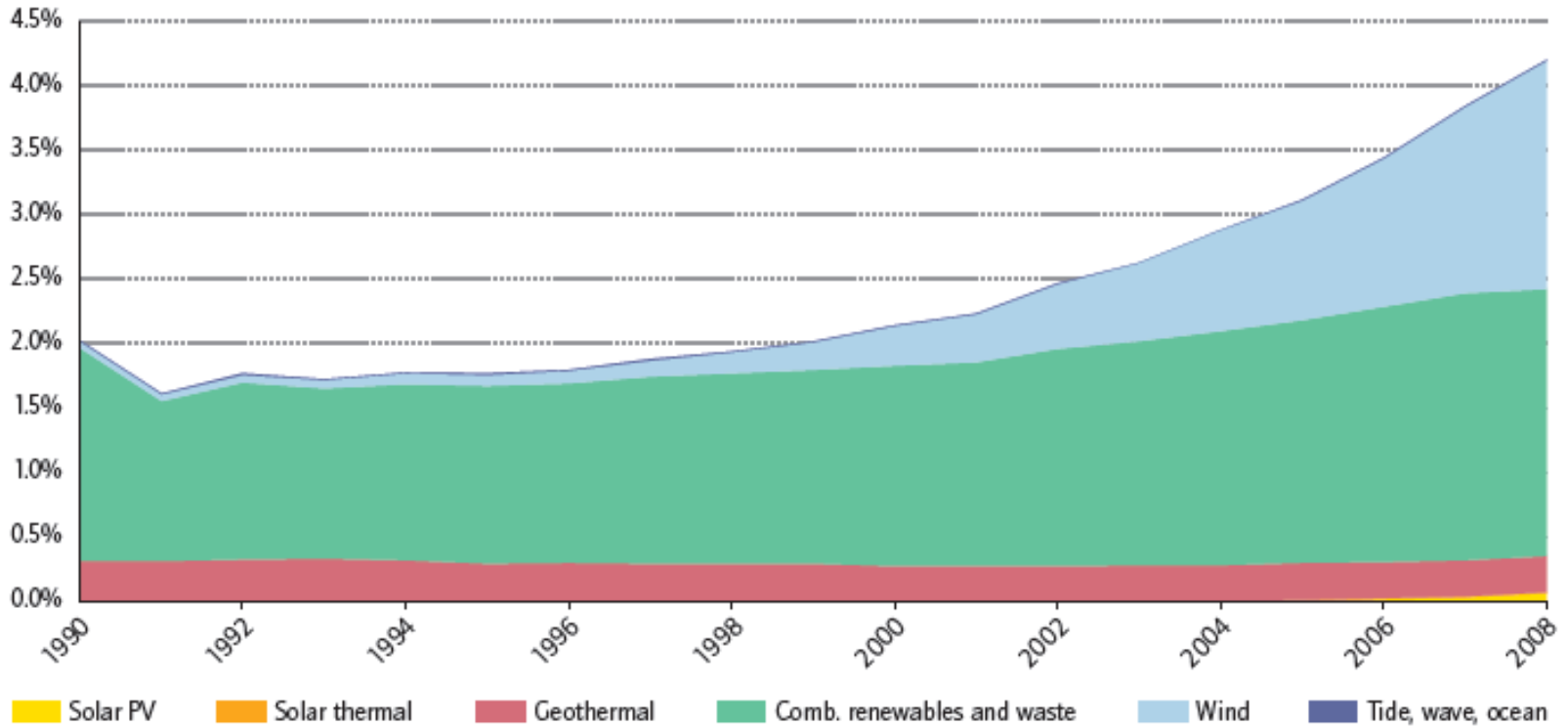


# IEA Nuclear Electricity Production by Country



\* TPES excludes electricity trade.

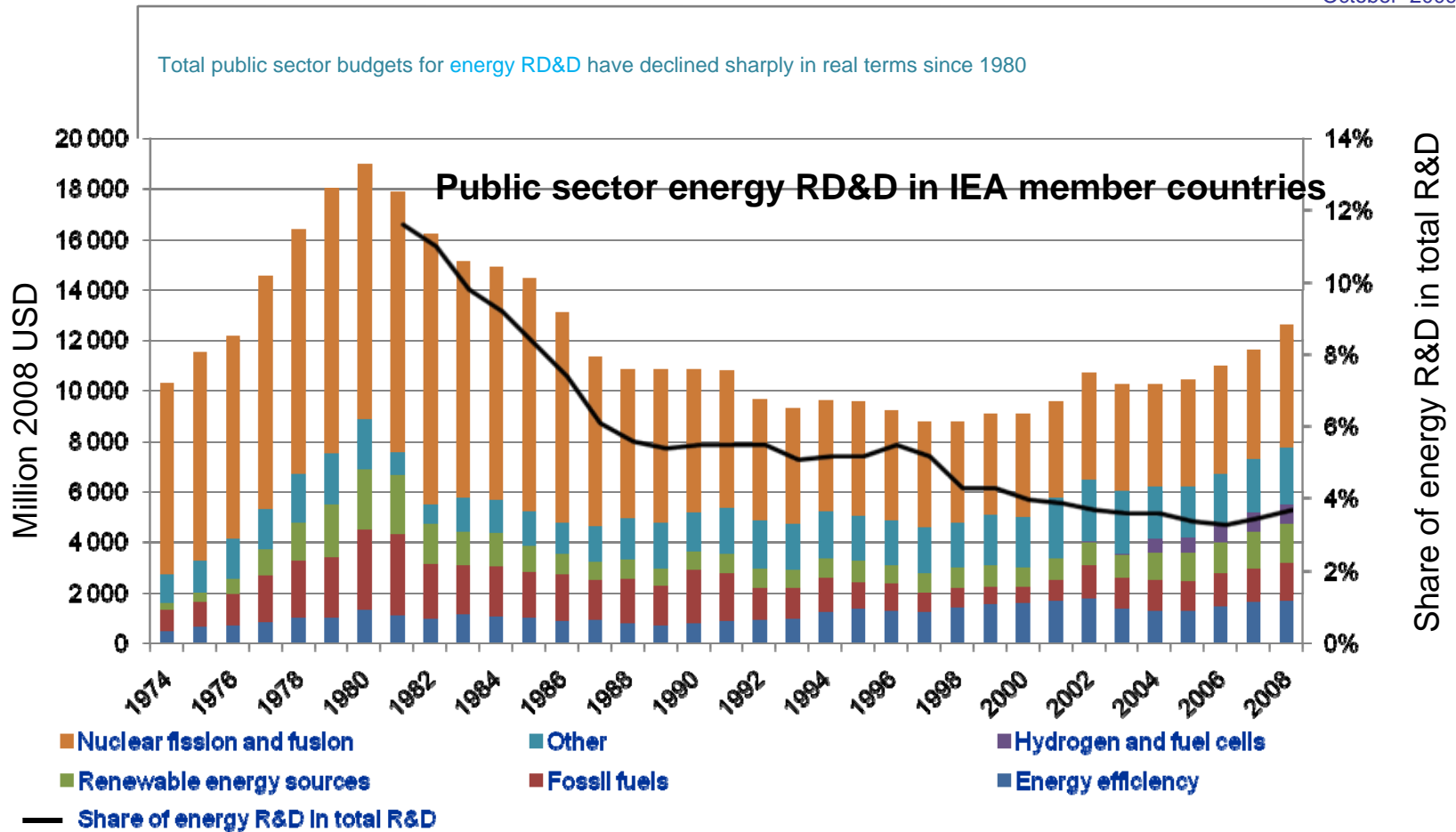
# Share of Non-Hydro Renewables in IEA Electricity 1990 to 2008



\* Installed capacities come from the annual questionnaires received by the IEA Secretariat from its member countries. However, other sources show large variations in the installed capacity for some countries.

# IEA Power Plant Efficiency in 1974 and 2007



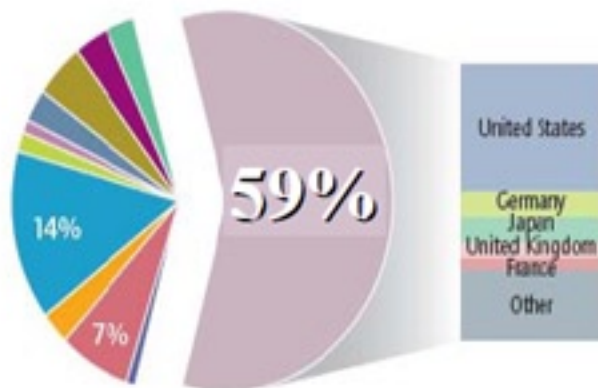


- The share of energy R&D in total research and development has steadily decreased from 12% to 4% since 1981
- The budget has decreased in some areas (fission and fusion) and has increased in other areas such as efficiency and renewables
- On a positive note, IEA member countries have successfully launched numerous Implementing Agreements (currently 42) to accelerate RD&D of energy technologies

# More Energy is Now Consumed Outside IEA

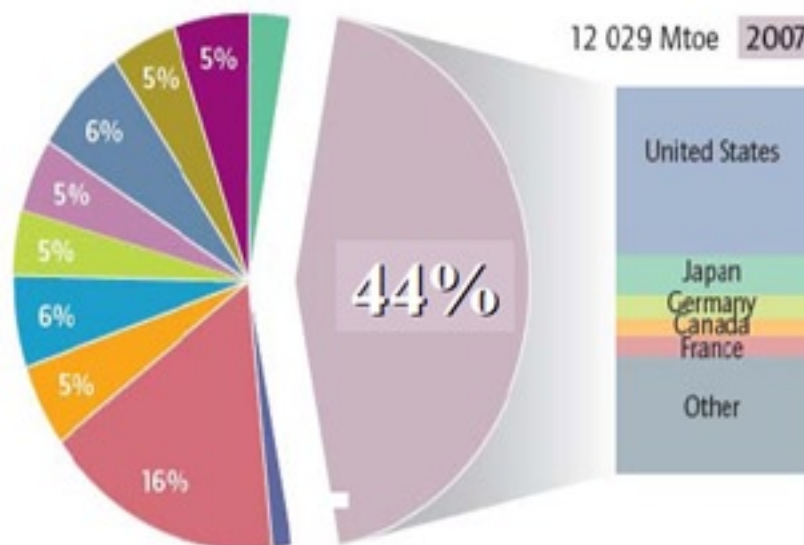
Energy consumption

1974 6 150 Mtoe



Energy consumption

12 029 Mtoe 2007



- IEA
- OECD non-IEA
- China
- India
- Russian Federation\*
- Non-OECD Europe + FSU\*
- Middle East
- Asia\*\*
- Latin America\*\*
- Africa
- International marine and aviation bunkers



Thank you  
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# New Renewables Installed Capacity

