

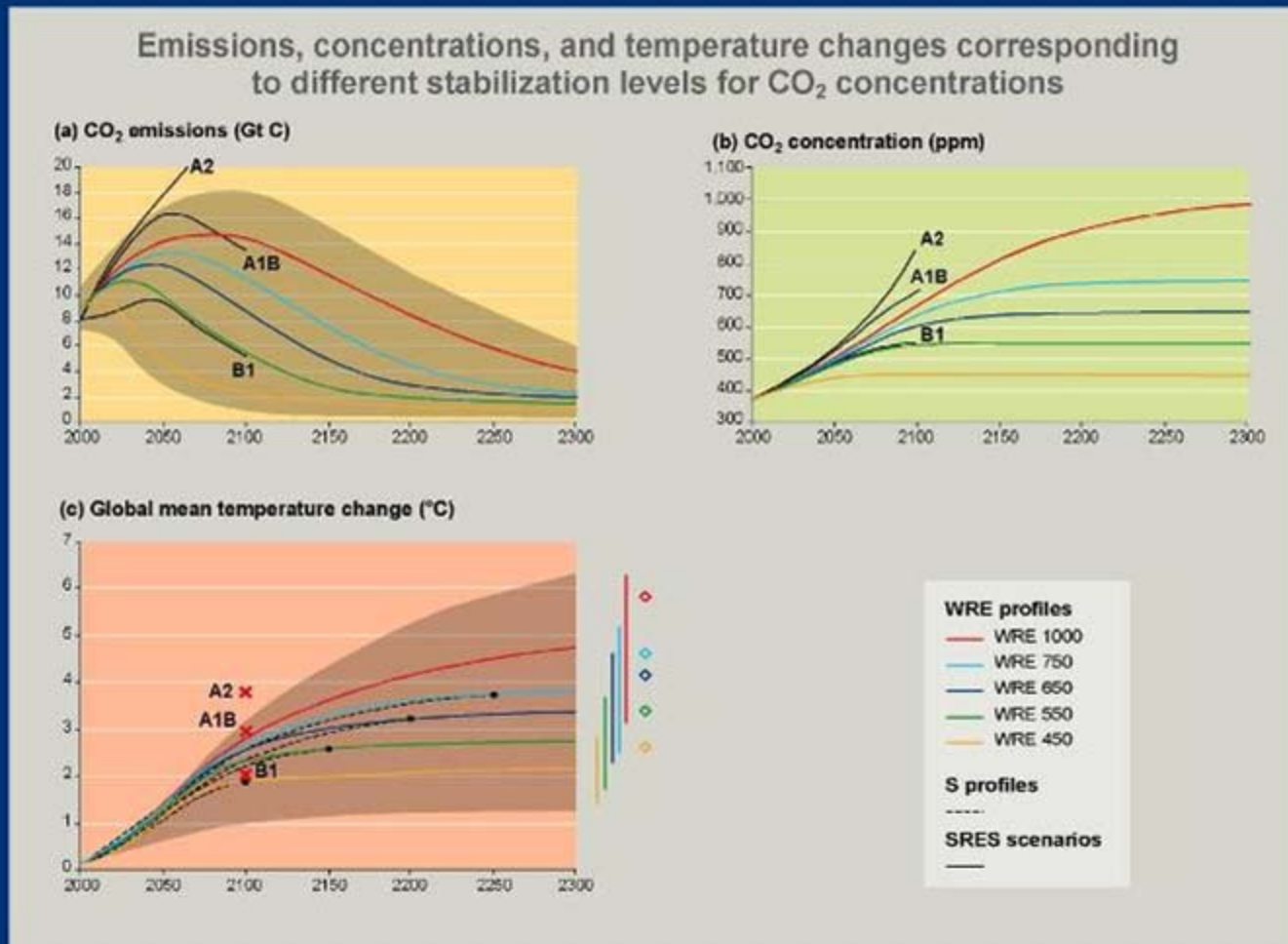
How will climate change and climate change policies affect our economies?

Antonio Soria

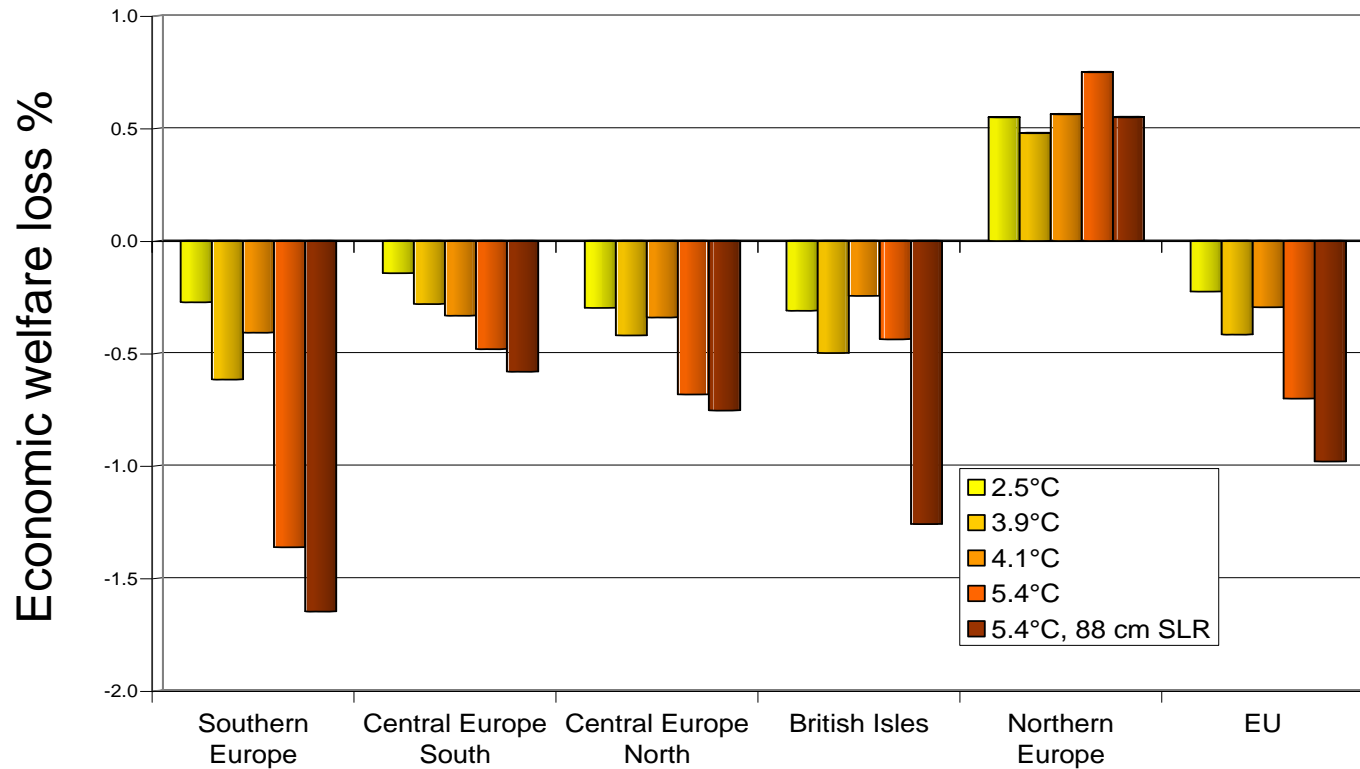
Head of Unit

Economics of Climate Change, Energy, Transport Unit

Joint Research Centre - European Commission



SYR - FIGURE 6-1



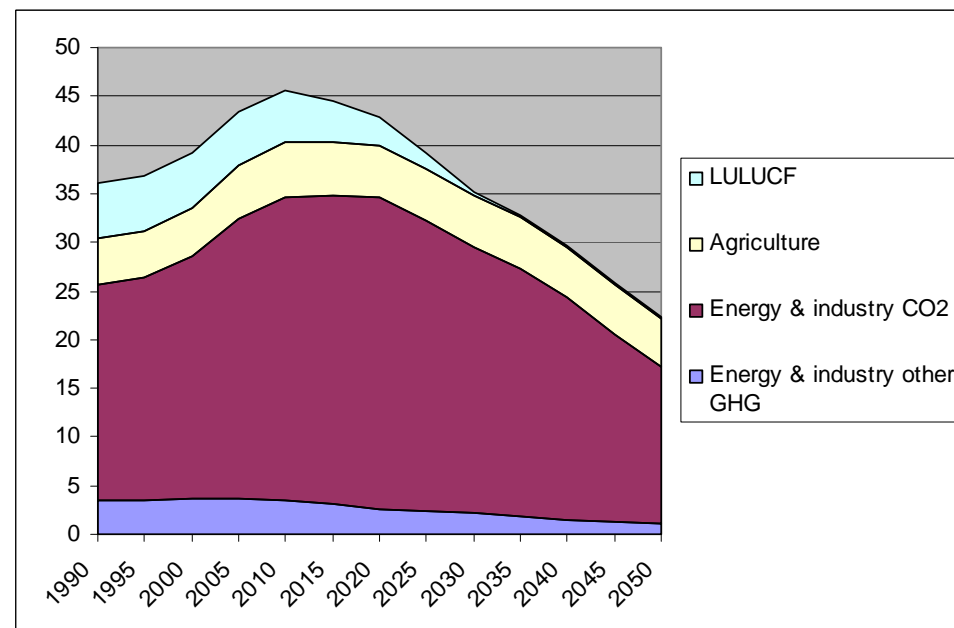
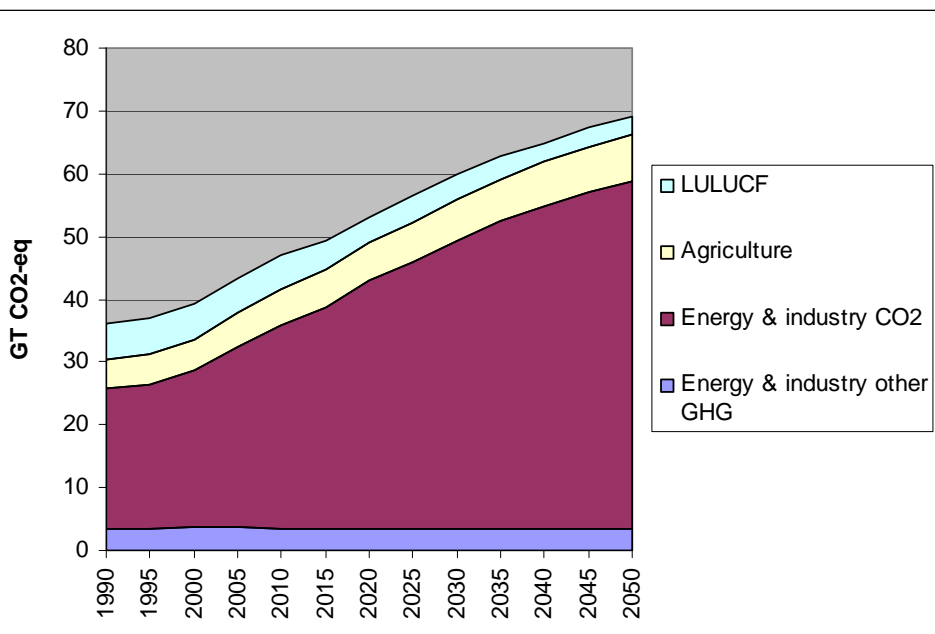
The EC PESETA study projects economic losses that could severely affect the long-term welfare growth of EU

- Only considering 4 market damaging mechanisms, up to halving long-term growth potential
- Including natural disasters and other non-market damages, estimates go up to 20% of GDP (Stern report)



Global GHG emissions have to peak by 2020 under appropriate global action scenarios for not trespassing the +2°C threshold

- In baseline, the bulk of emission growth come from the energy and industrial CO₂
- The same sectors will have to assume most of the future emission cuts



Source: POLES (JRC-IPTS), G4M (IIASA), Image (PBL)



Depending on the organisation of the international carbon markets the macroeconomic welfare cost of an “appropriate reduction pathway” can range between -1.2% and +0.1%

This reduction pathway implies that developed countries would reduce on aggregate terms by -30% by 2020 with respect to 1990 emission levels, and developing countries would have objectives to curb their emission paths according to GDP/cap, Emissions/GDP and demographic trends to lead to a 450 ppmv stabilization level

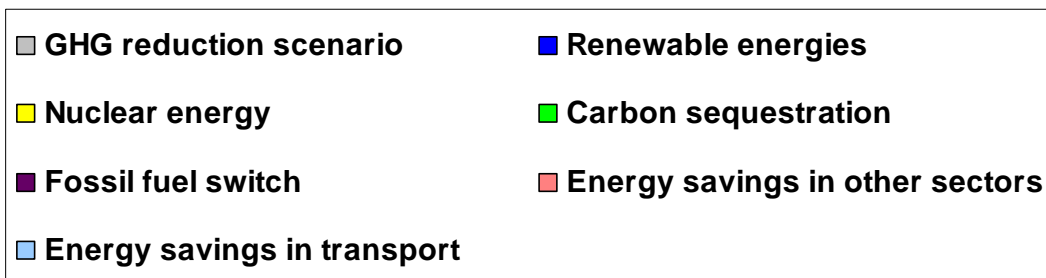
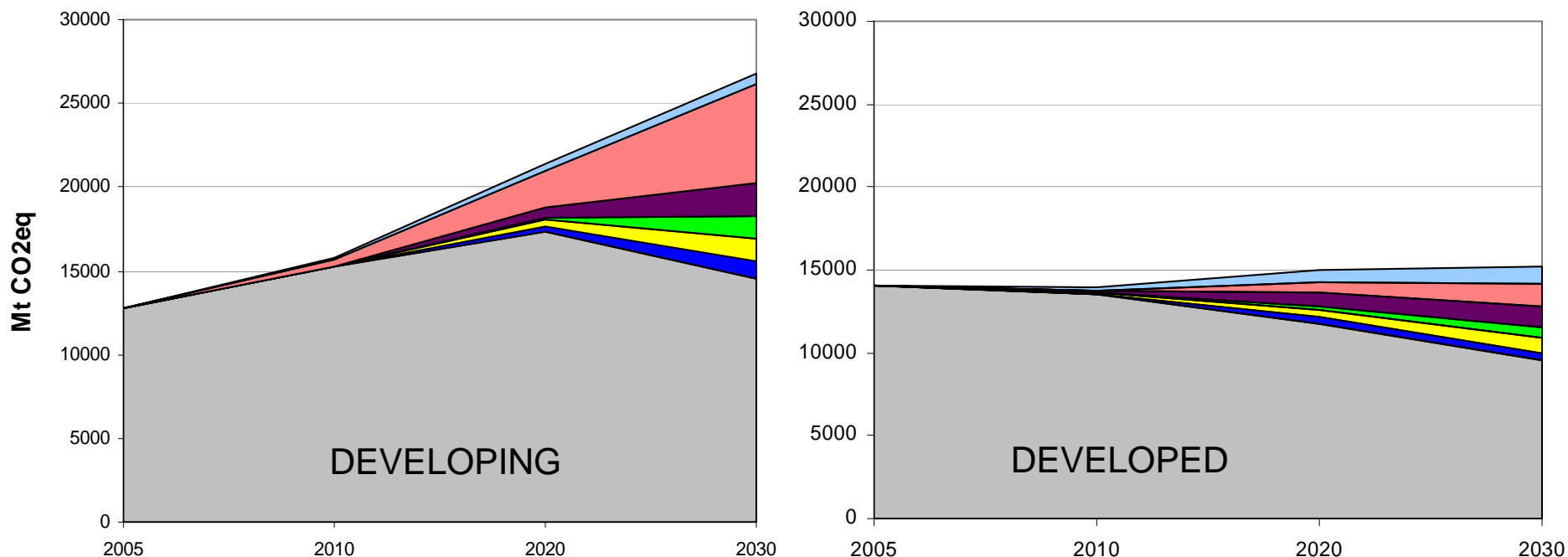
The price that carbon emissions could reach for consumers in developed countries depend on the structure of the global emissions trade:

- ⇒ A perfect, global market with no frictions would yield an carbon price around 22 €/tCO₂
- ⇒ An organization without trade between developed and developing countries would deliver a carbon price around 72 €/tCO₂
- ⇒ A gradually implemented, imperfect carbon market with transaction costs would deliver a price around 44 €/tCO₂

A well organized global emission system can significantly lower the total mitigation costs



The 450 ppmv-stabilization scenarios provide hints on the role of the different technologies in decarbonizing the economy



To promote:

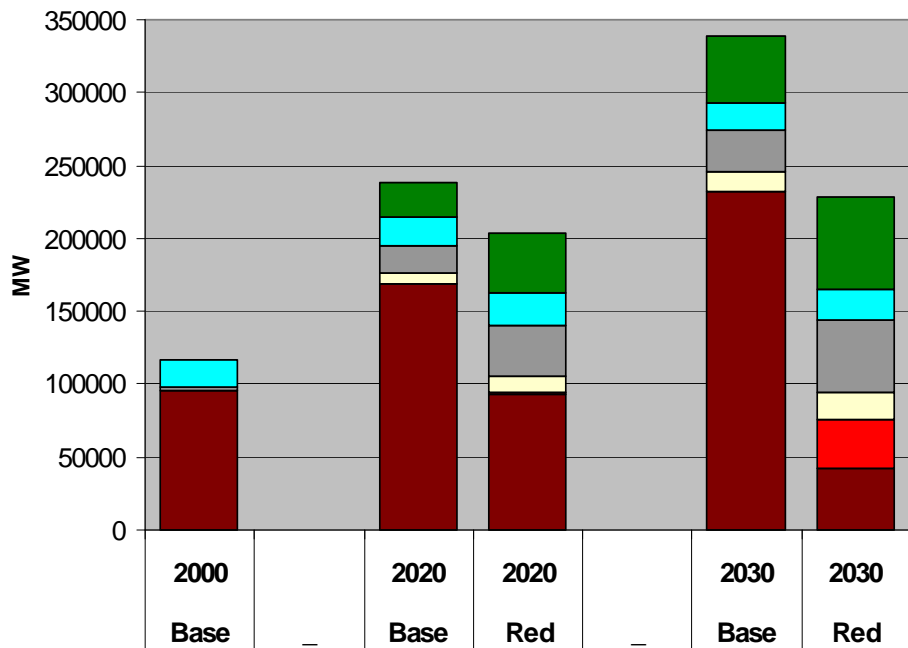
- climate stability
- but also security of supply
- ...and rationalising productive structures

In a sector:

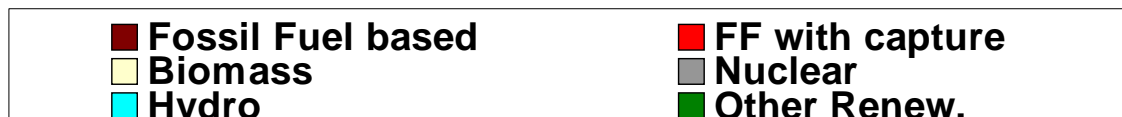
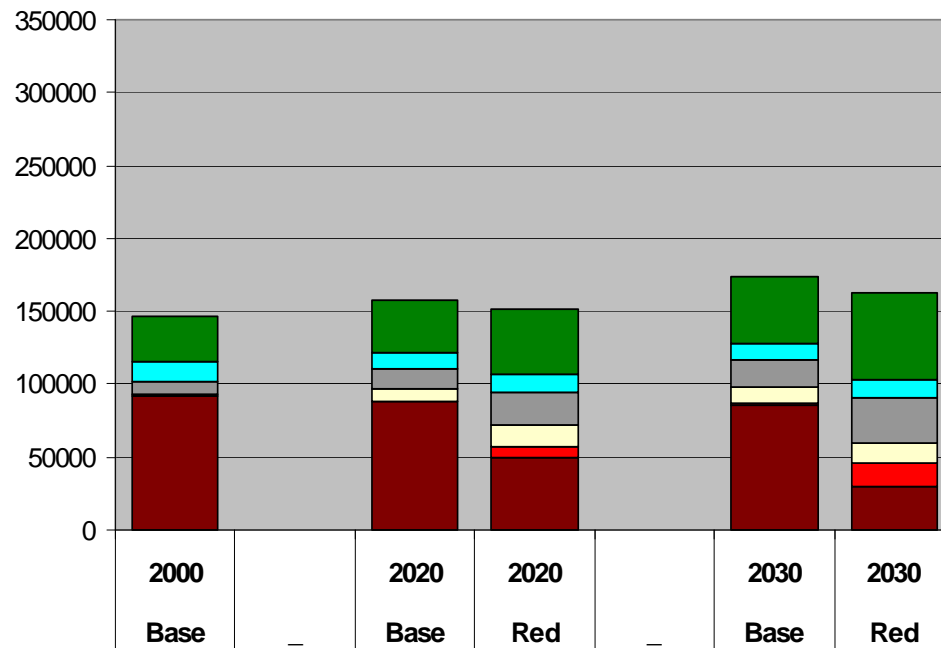
- not favouring disruptive innovations
- capital intensive
- with very long investment payback times
- perceived as a field of global geopolitical confrontation
- with high regulatory uncertainties



DEVELOPING

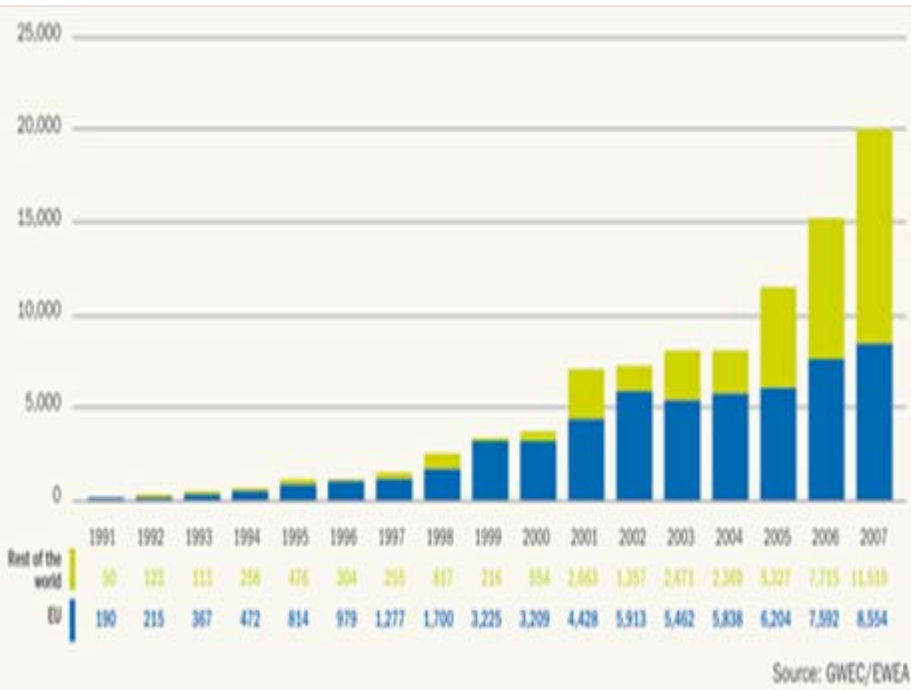


DEVELOPED

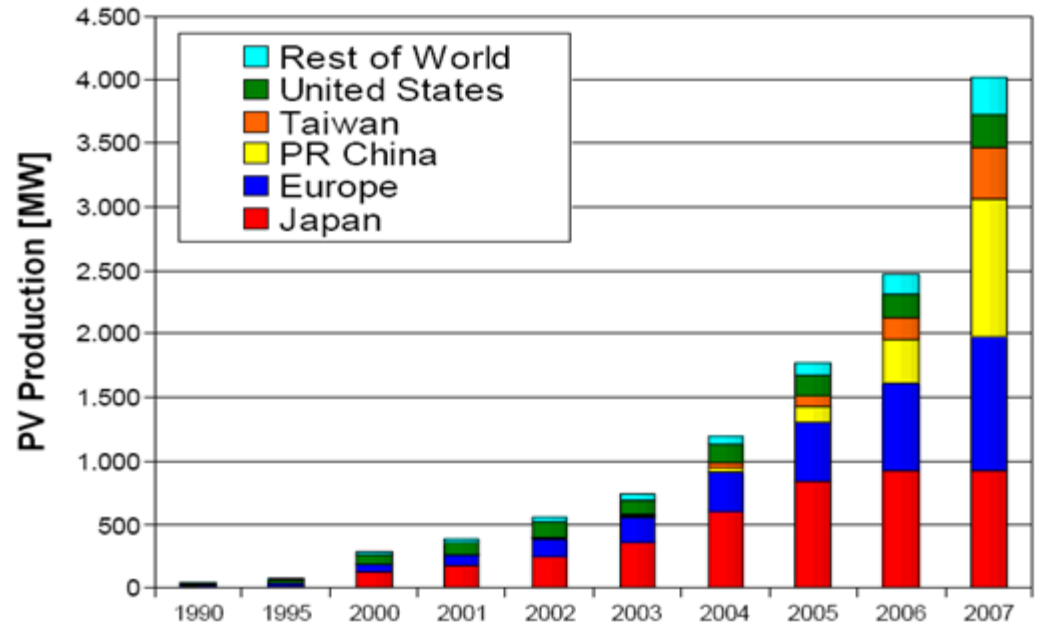


Financing requirements would amount around 450 Billion€/yr at global level in the next two decades (~300 Billion€/yr in developing countries, ~150 Billion€/yr in developed countries, out of which ~55 Billion€/yr in the EU27)

Wind Global Additional Capacity, 1990-2007



PV Production trends, 1990-2007

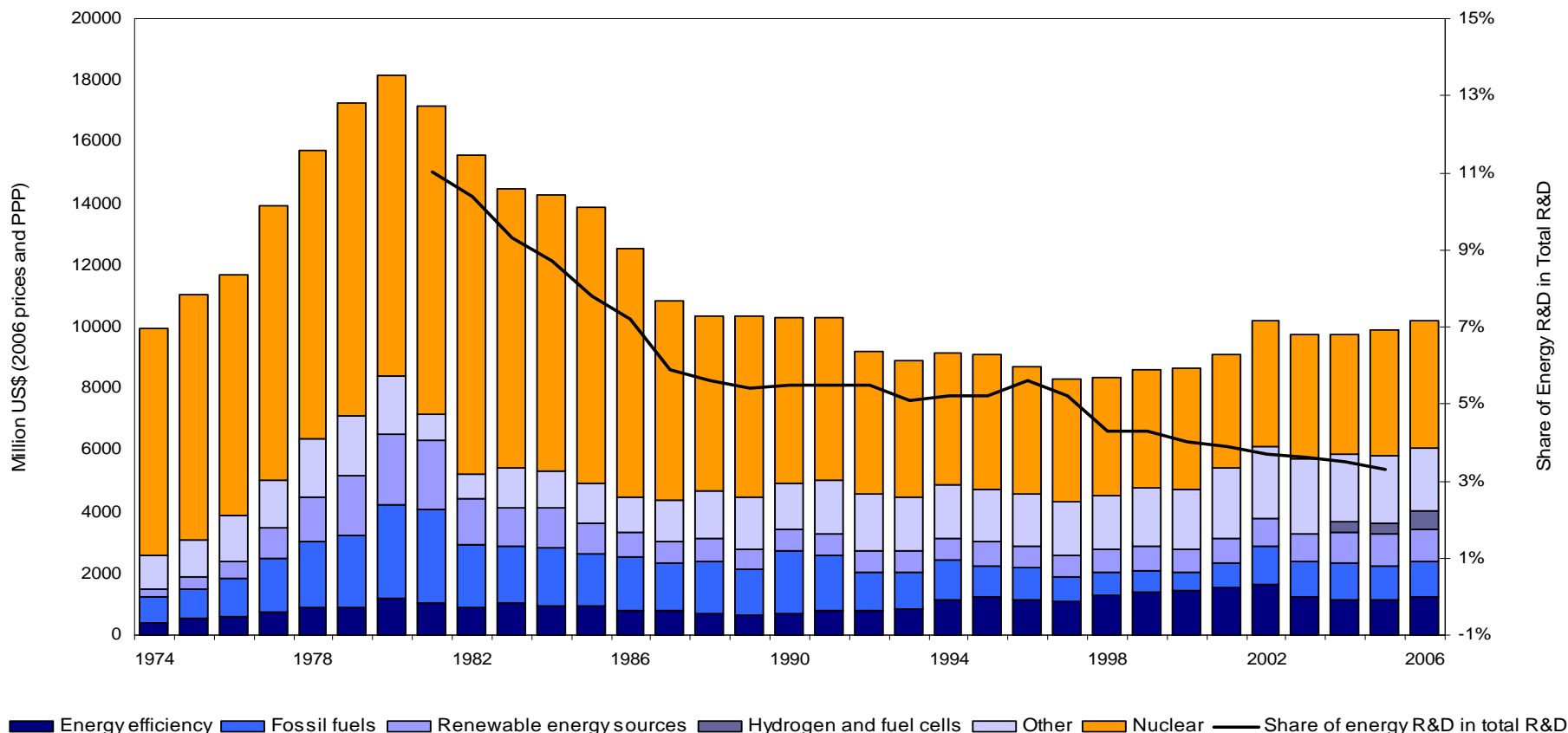


Source: PV Status Report, JRC-IE 2008

...although non-OECD producers are taking off:

Wind: Of the 2007 totals of 19 GW new capacity, about four were installed in the United States, three in China and between 8,5 in Europe. It is the fastest growing part of the energy sector.

PV: The Chinese manufacturers will soon absorb 1/3 of the global market.



Source: OECD/ IEA, 2008

Fostering the emergence of a new technological landscape requires:

- Minding the investors: a review of the regulatory framework of the sector at the broadest possible level
- Providing sustained public RTD support (SET-Plan, DoE)
- Developing a competitive & innovation-oriented sector
- Promoting capital investments, but even more knowledge investments
- Favour Schumpeterian competition...
- ...with global (and fair) agreements with emerging economies
- All this will lead to capital attraction and sector take-off

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Thanks for your attention!

