



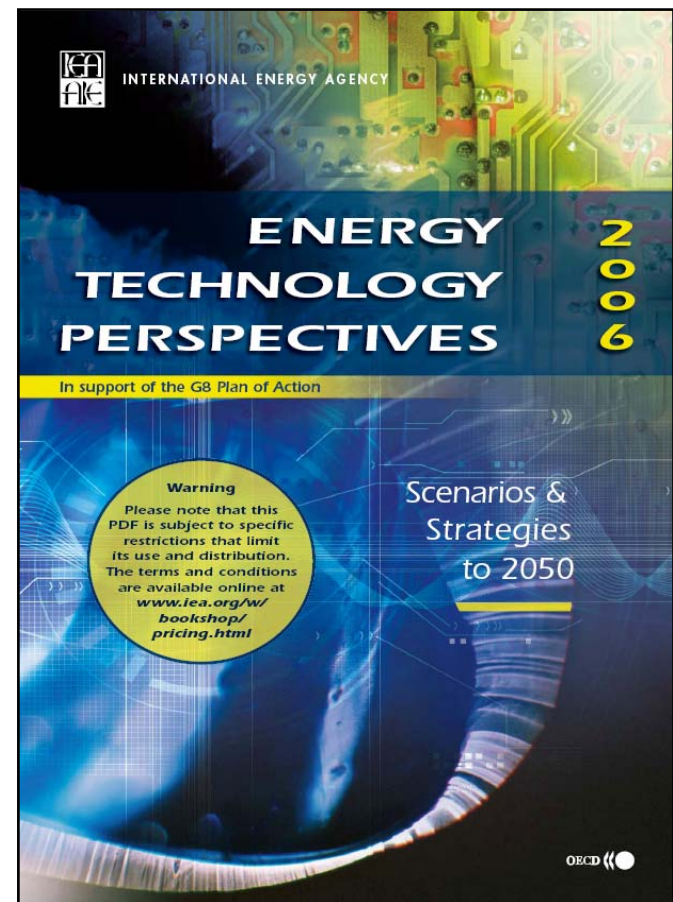
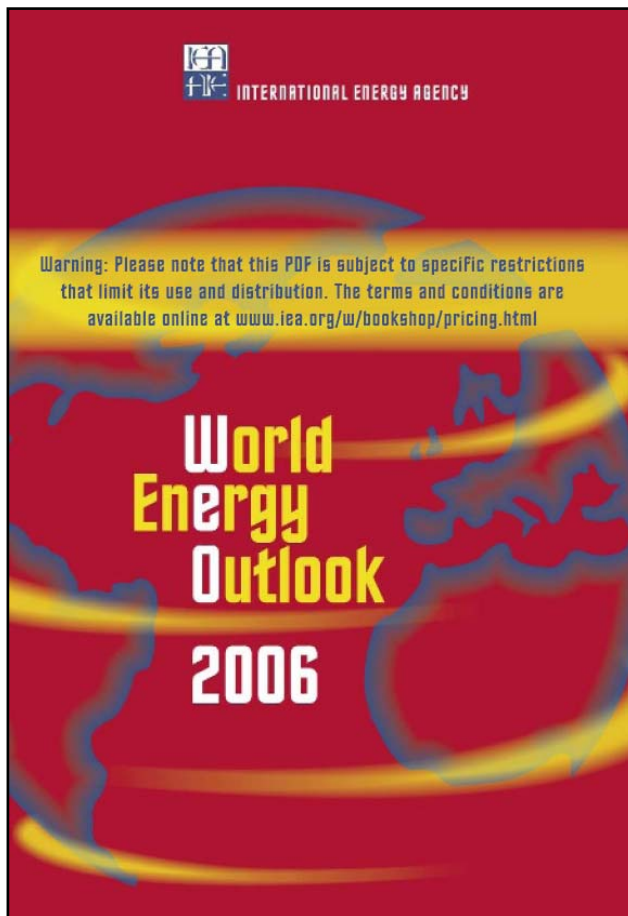
Technology Penetration and Capital Stock Turnover

Cédric Philibert

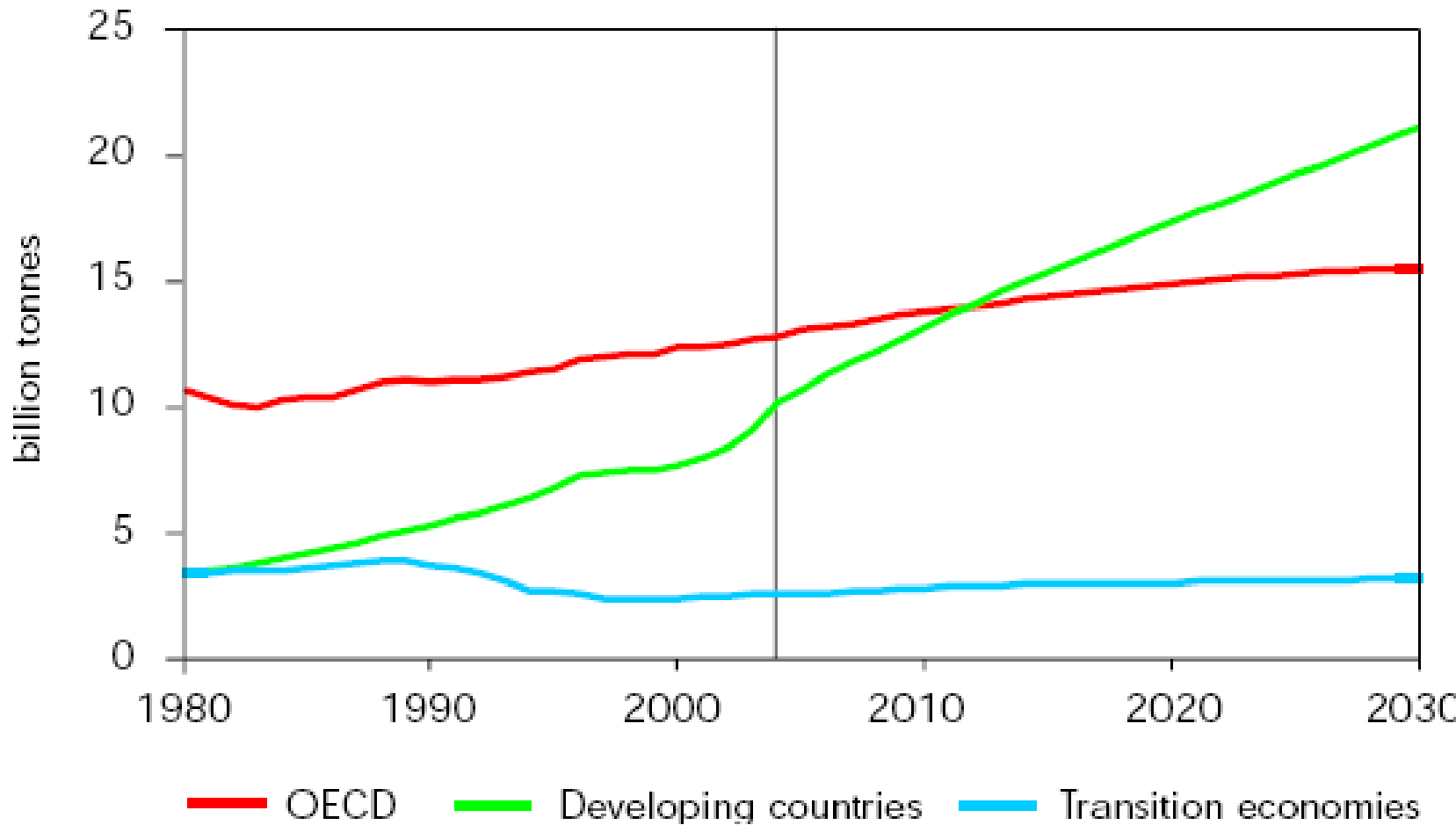
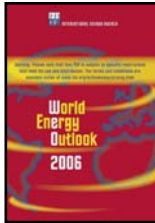
International Energy Agency

March 2007

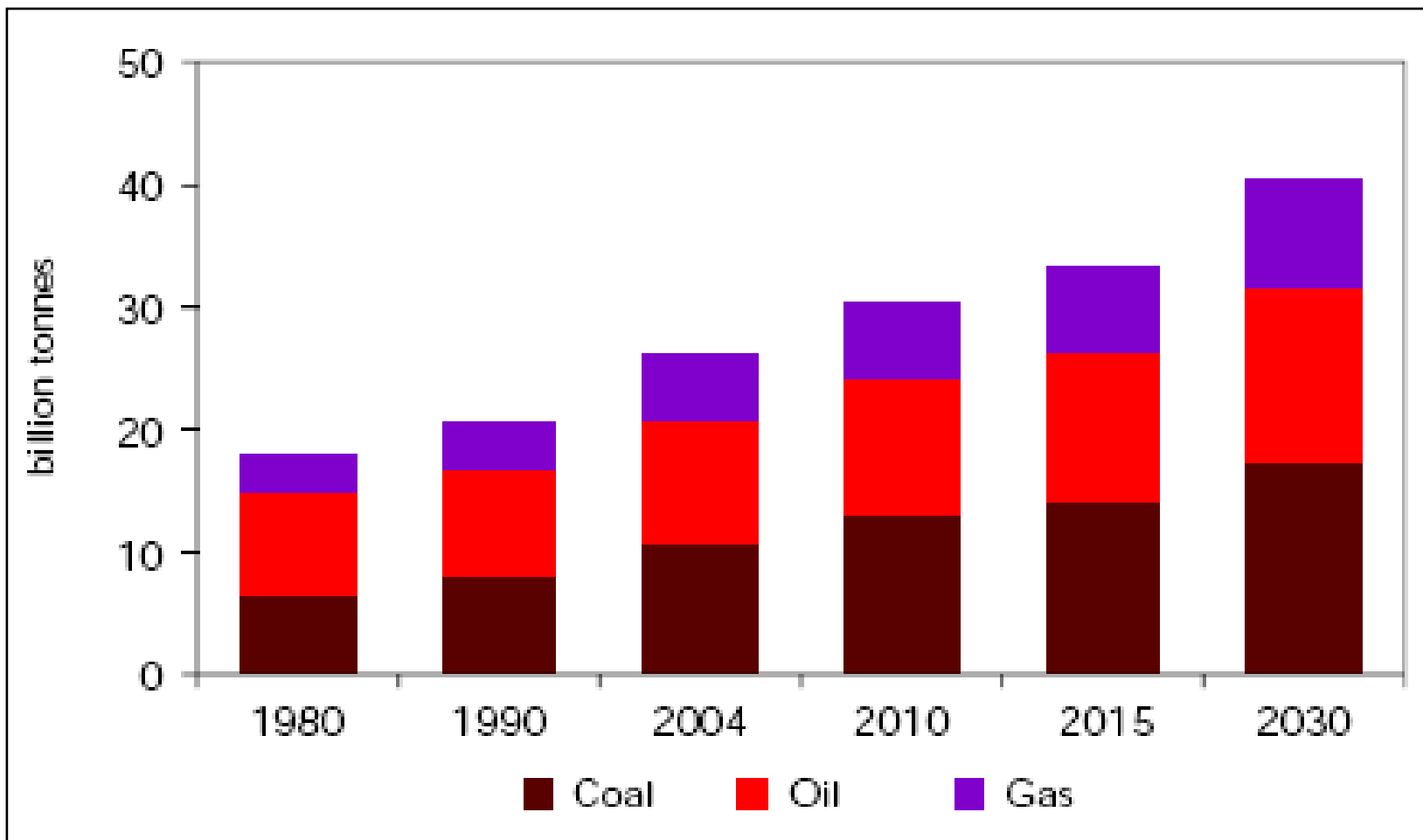
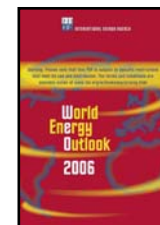
Lessons from IEA scenario analysis



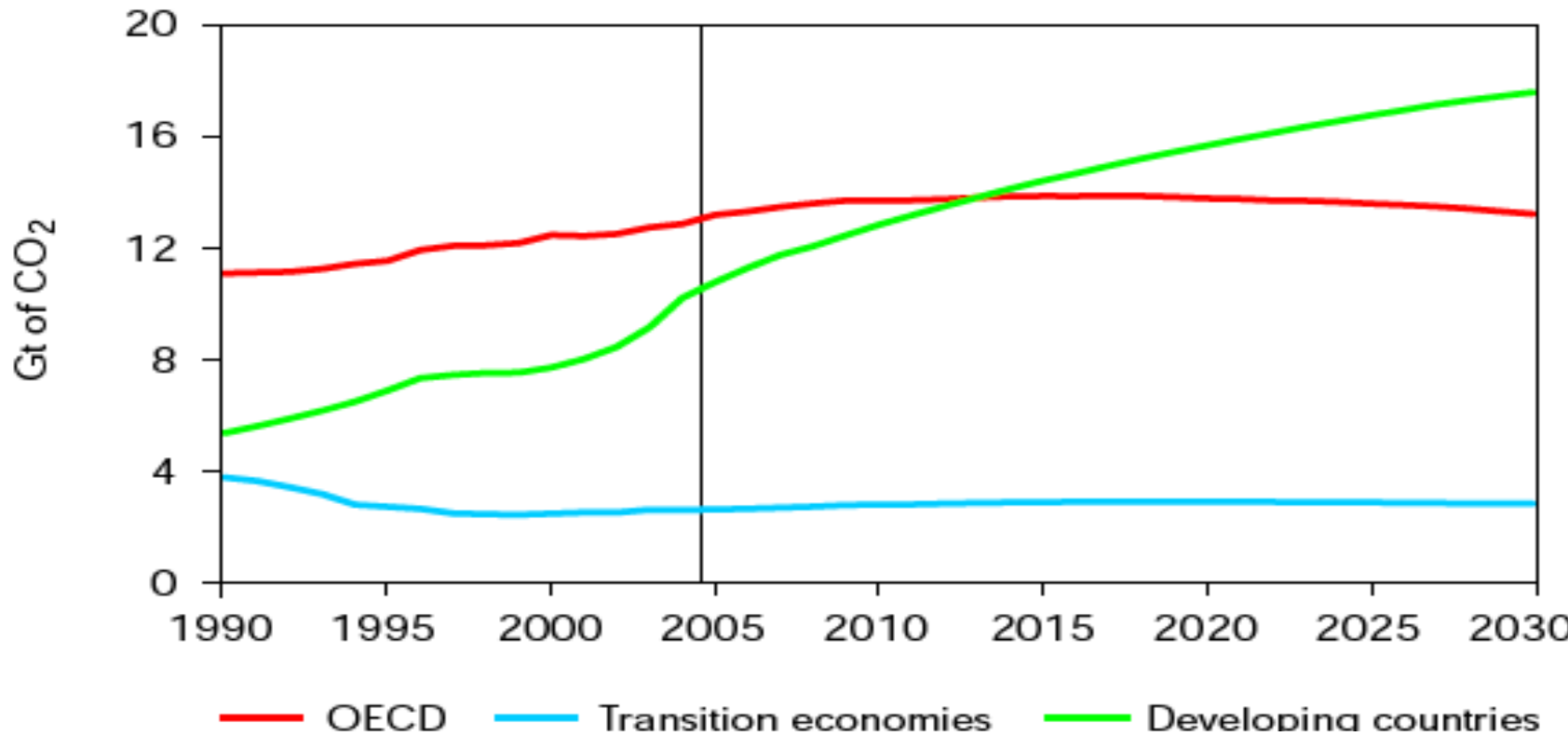
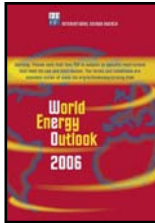
Energy-related CO₂ emissions by region (Reference Scenario)



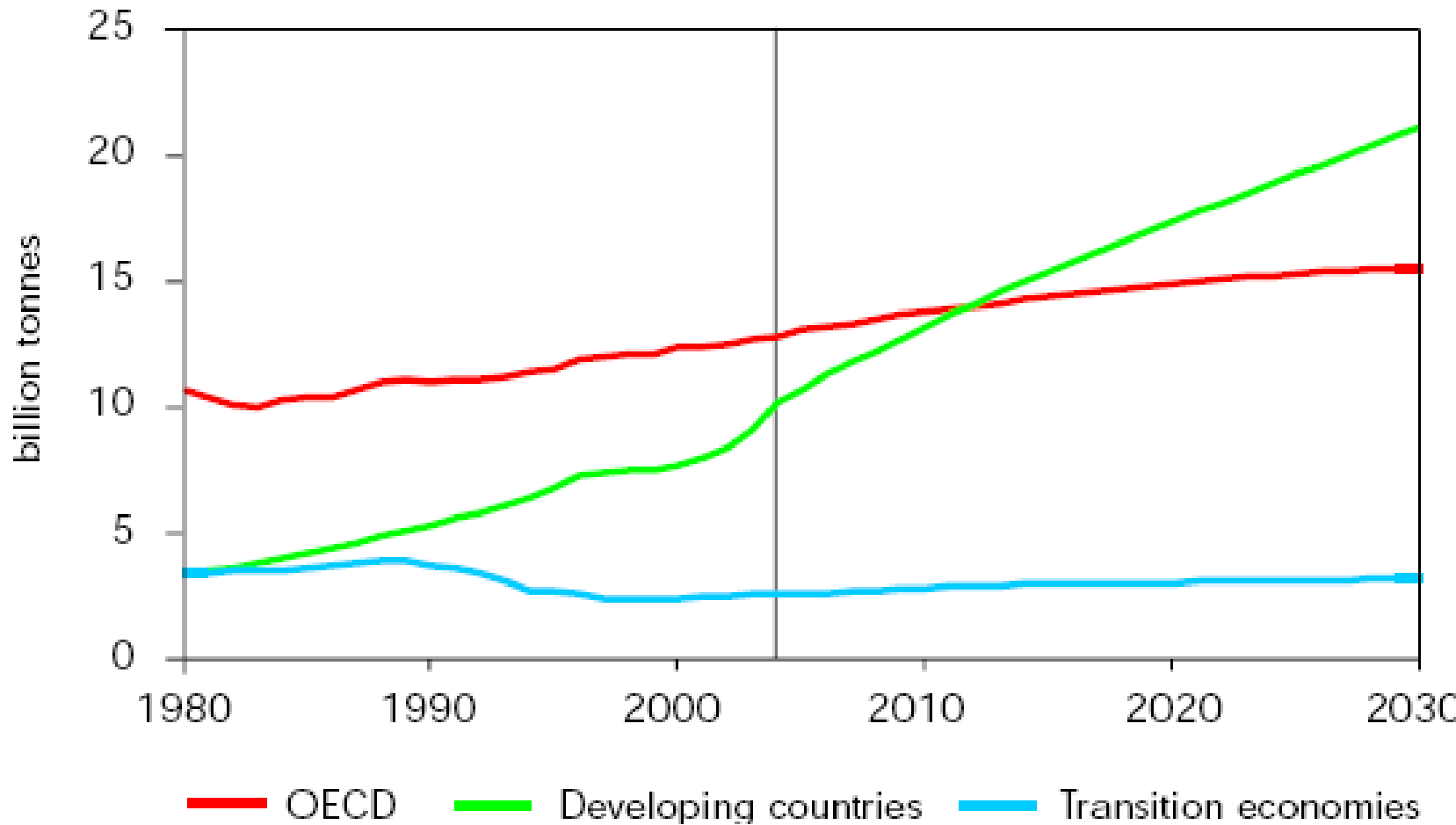
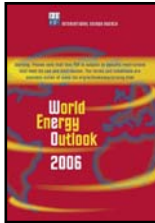
World energy-related CO₂ emissions by fuel (Reference scenario)



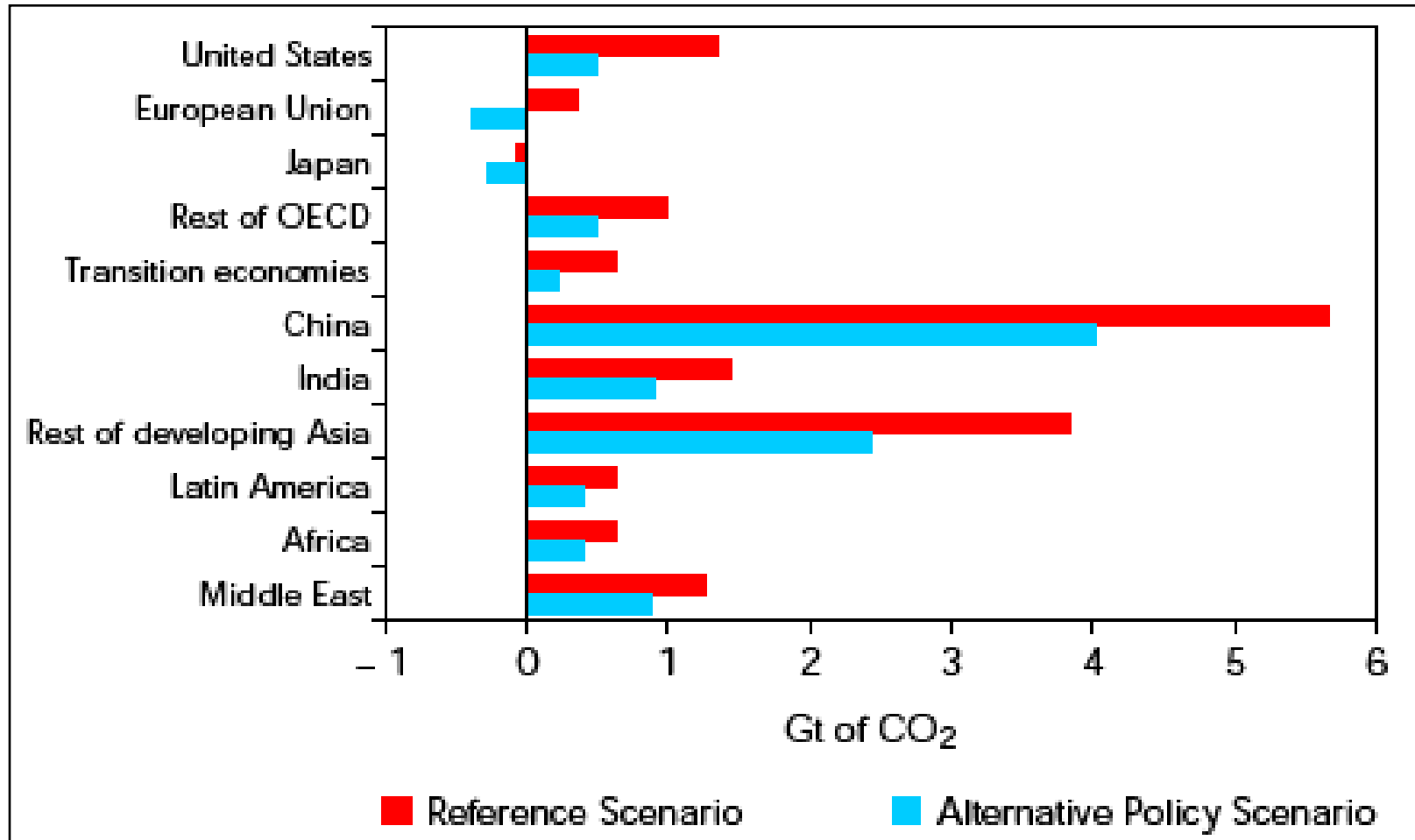
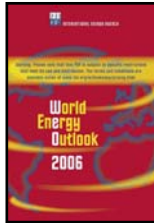
Energy-related CO₂ emissions by region (Alternative Policy Scenario)



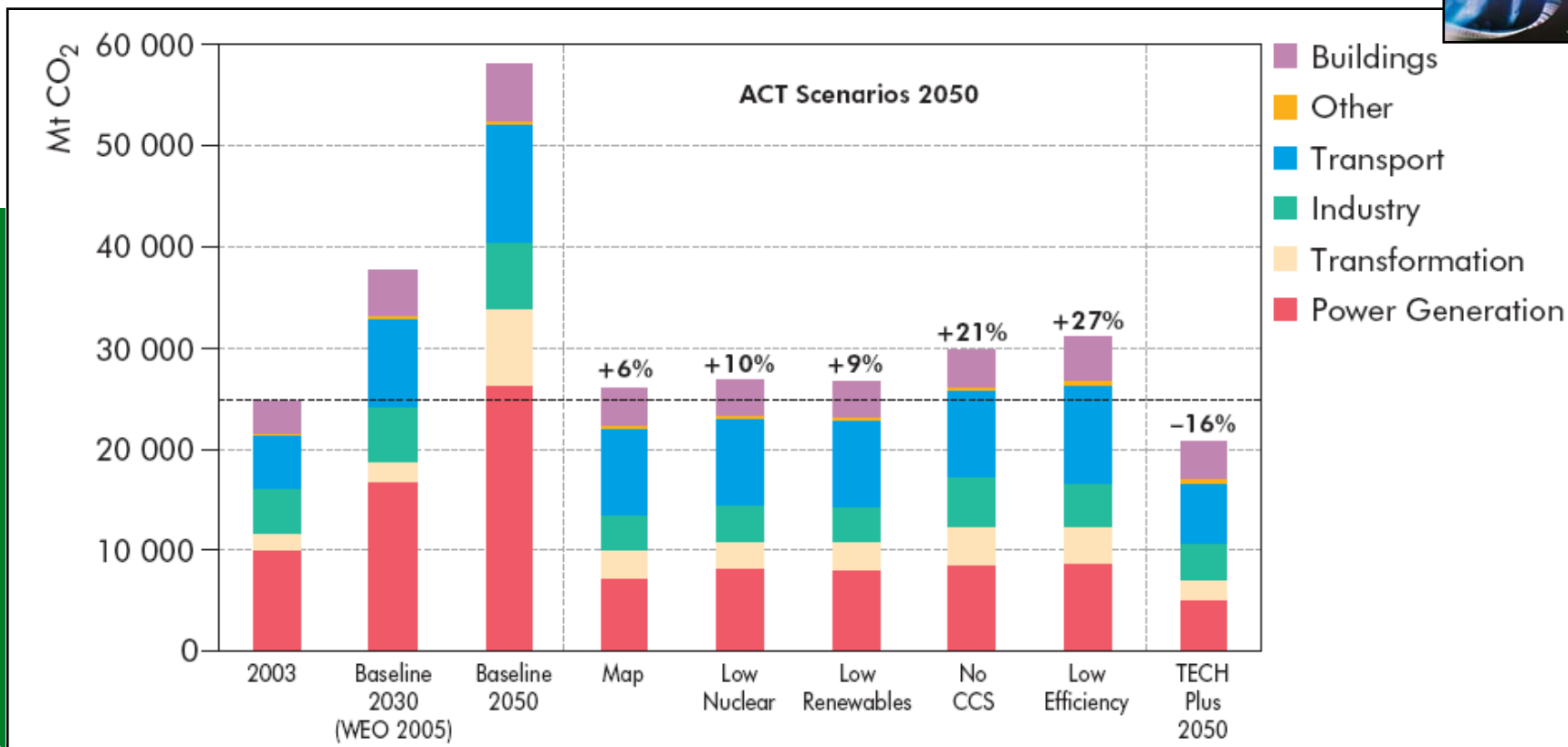
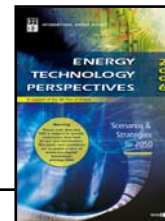
Energy-related CO₂ emissions by region (Reference Scenario)



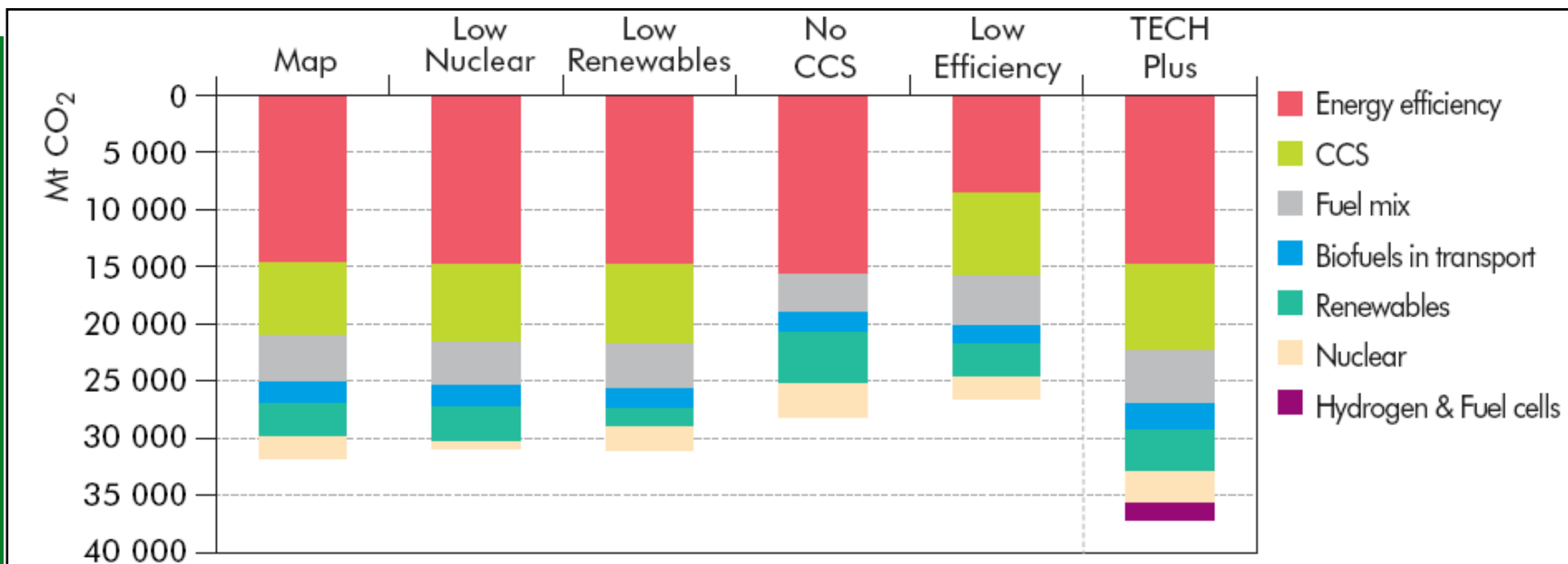
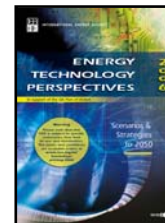
Changes in energy-related CO₂ emissions



Global Energy-Related CO₂ emissions by 2050 in the various ETP scenarios



Reduction in CO₂ emissions by technology area



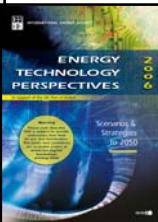
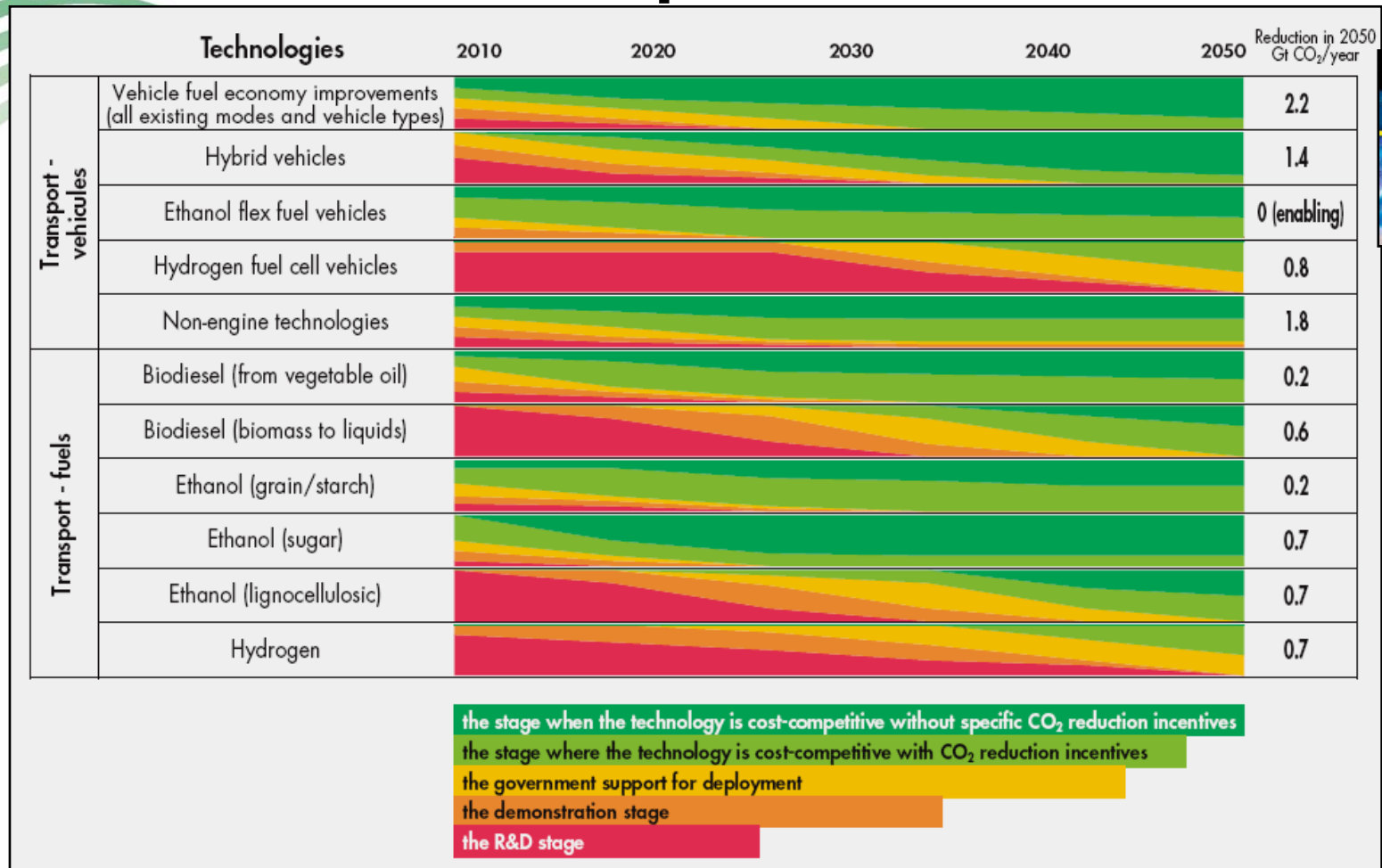
Reduction in CO₂ emissions by region

	Map vs. Reference	Map vs. 2003
OECD	-60%	-32%
Transition	-42%	-10%
Developing	-54%	+65%



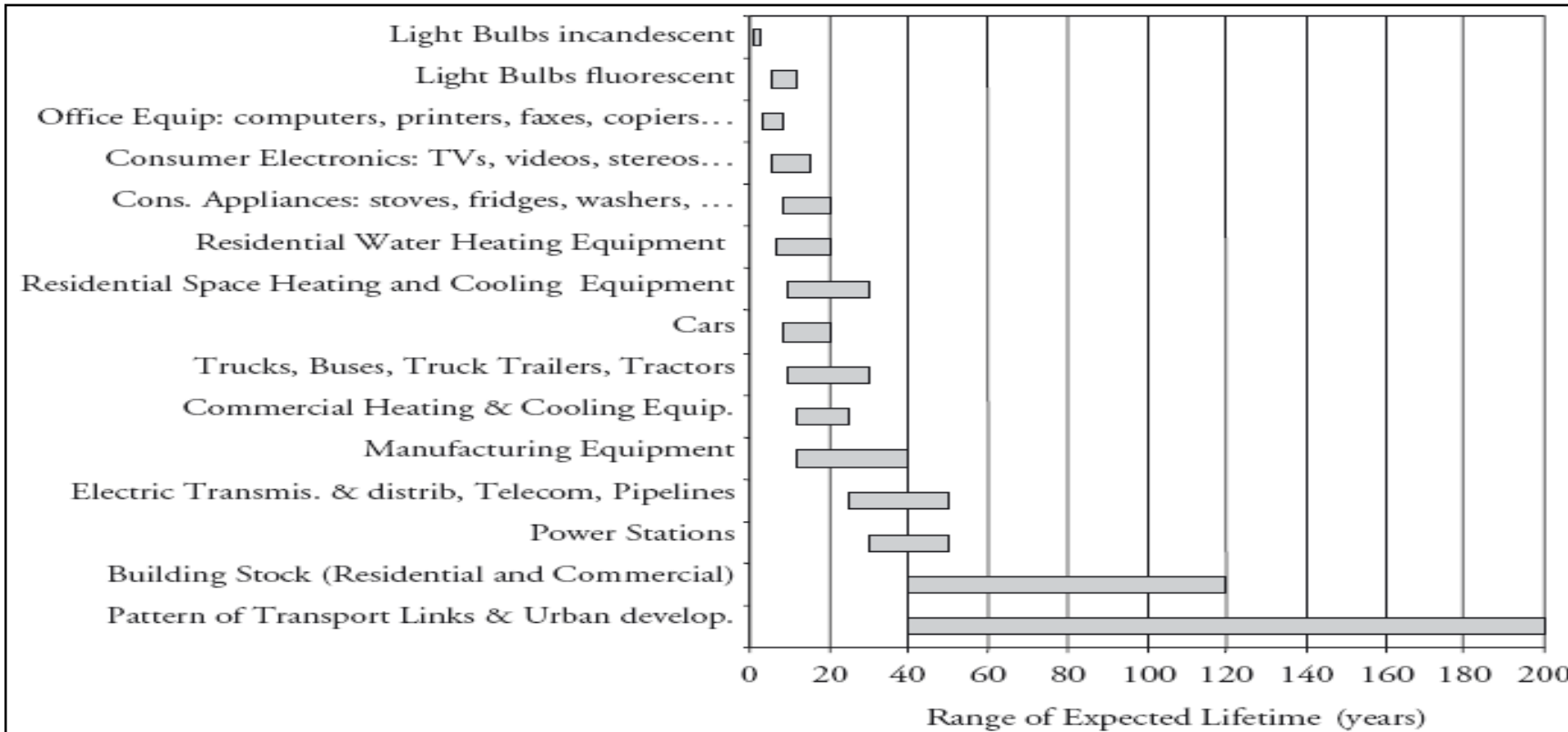
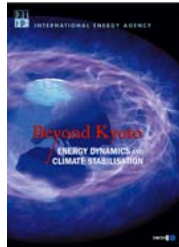
**It is possible to do
much more by 2050
than by 2030**

The development of new technologies requires time



Pathways towards cost competitiveness for transport technologies

Capital stock turnover slows progress



Average life-spans for selected energy-related capital stock

Policy conclusions

- 1. Important changes beyond 2030 require important efforts before 2030**
- 2. Long-term price/policy signals are required**
- 3. Short-term emission targets cannot drive all necessary action**
- 4. Developing countries offer significant opportunities – and challenges**