The indivisibility of energy security and sustainability

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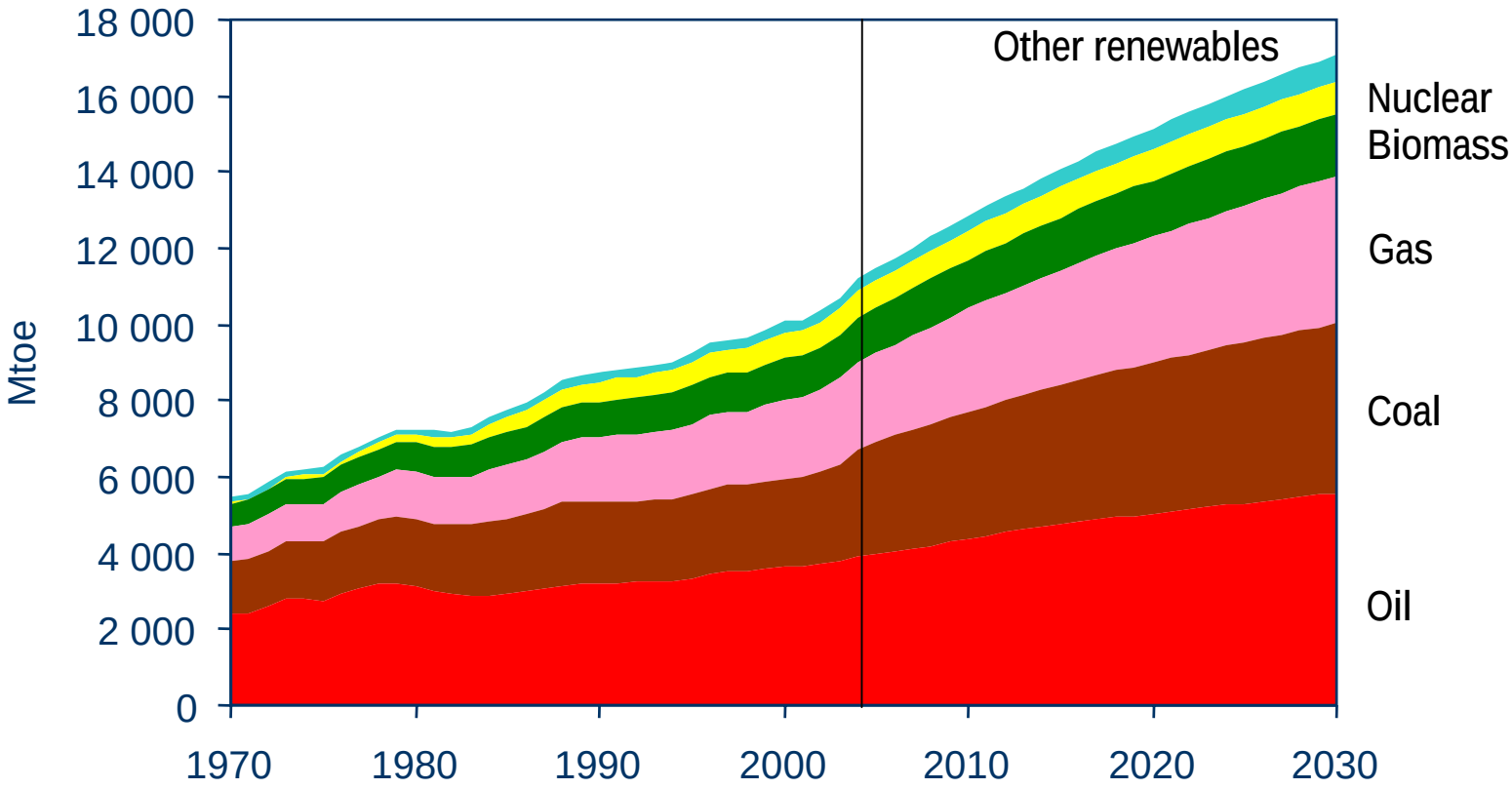
World Primary Energy Demand



Global energy demand is set to grow by more than half over the next quarter of a century, raising serious security and sustainability challenges

Source: World Energy Outlook 2006

"The indivisibility of security and sustainability must guide each and every aspect of our work"

-- From 2007 IEA Ministerial Communiqué


Australia


Canada


Finland


Greece


Italy


Luxembourg


Norway


Sweden


United Kingdom


Austria


Czech Rep.


France


Hungary


Japan


The Netherlands


Portugal


Switzerland


United States


Belgium


Denmark


Germany


Ireland

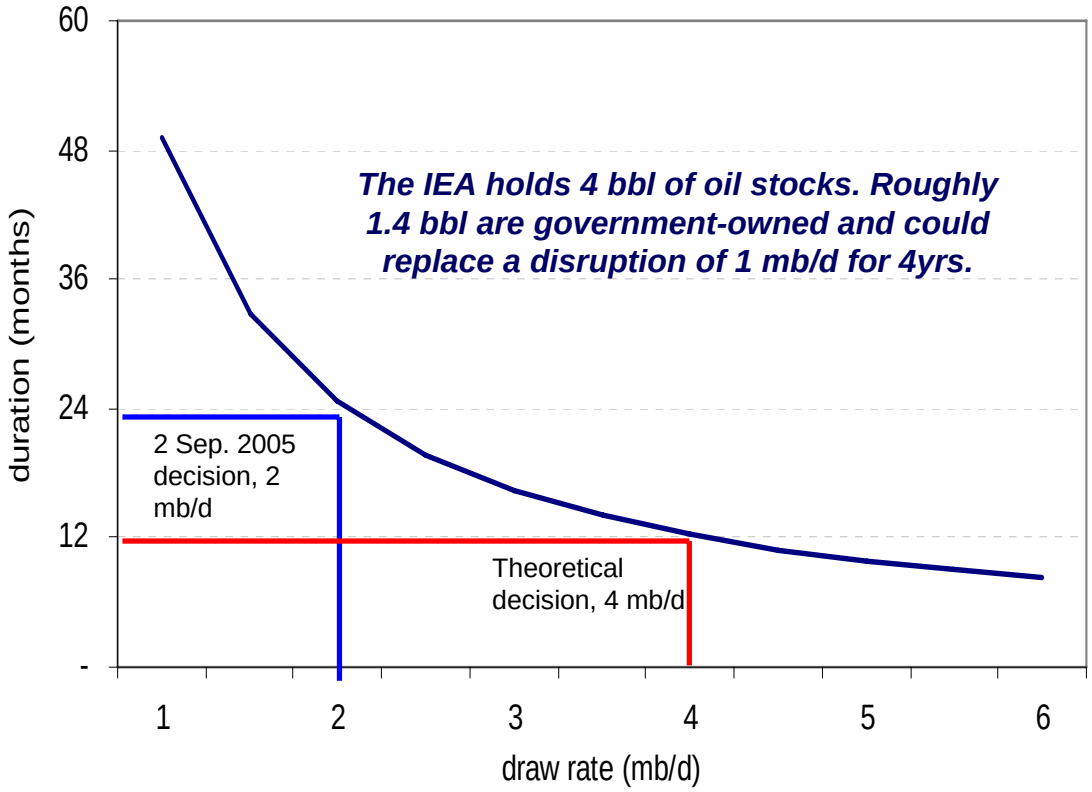

Korea


New Zealand


Spain


Turkey

Energy Security: The Driving Force Behind the Creation of the IEA



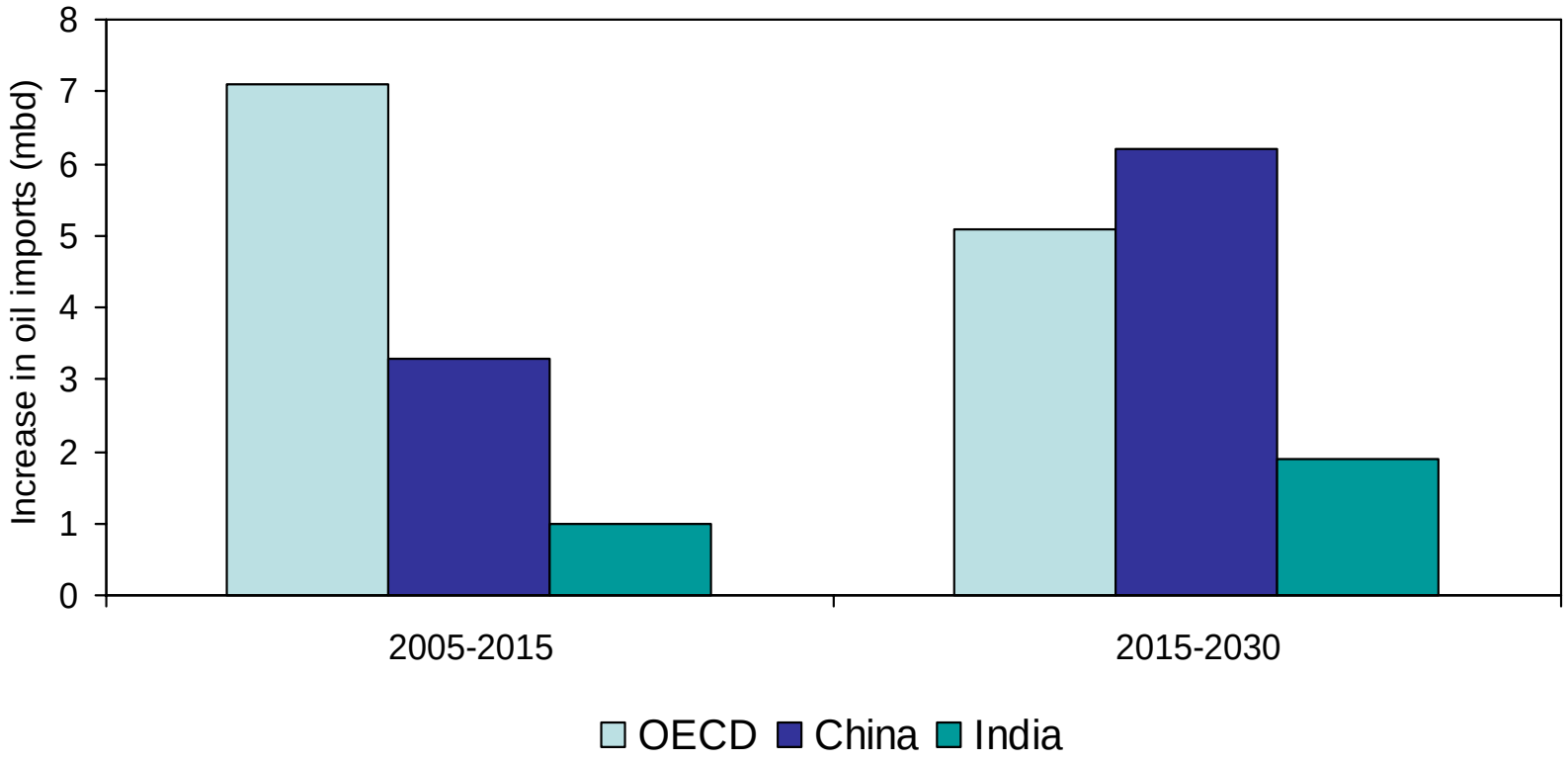
Hurricane Katrina

- **Hit shore 31 August 2005**
- **IEA consulted with its members, oil producing countries and industry**
- **Collective action launched 2 Sept, making available 60mb**
- **Response calmed markets and prevented long queues at filling stations**

The IEA's response to Hurricanes Katrina and Rita demonstrated that its oil emergency preparedness mechanisms work. But we need to continue to adapt to changing market realities.

Energy Security: in the face of changing market realities

Increase in oil imports (mbd)

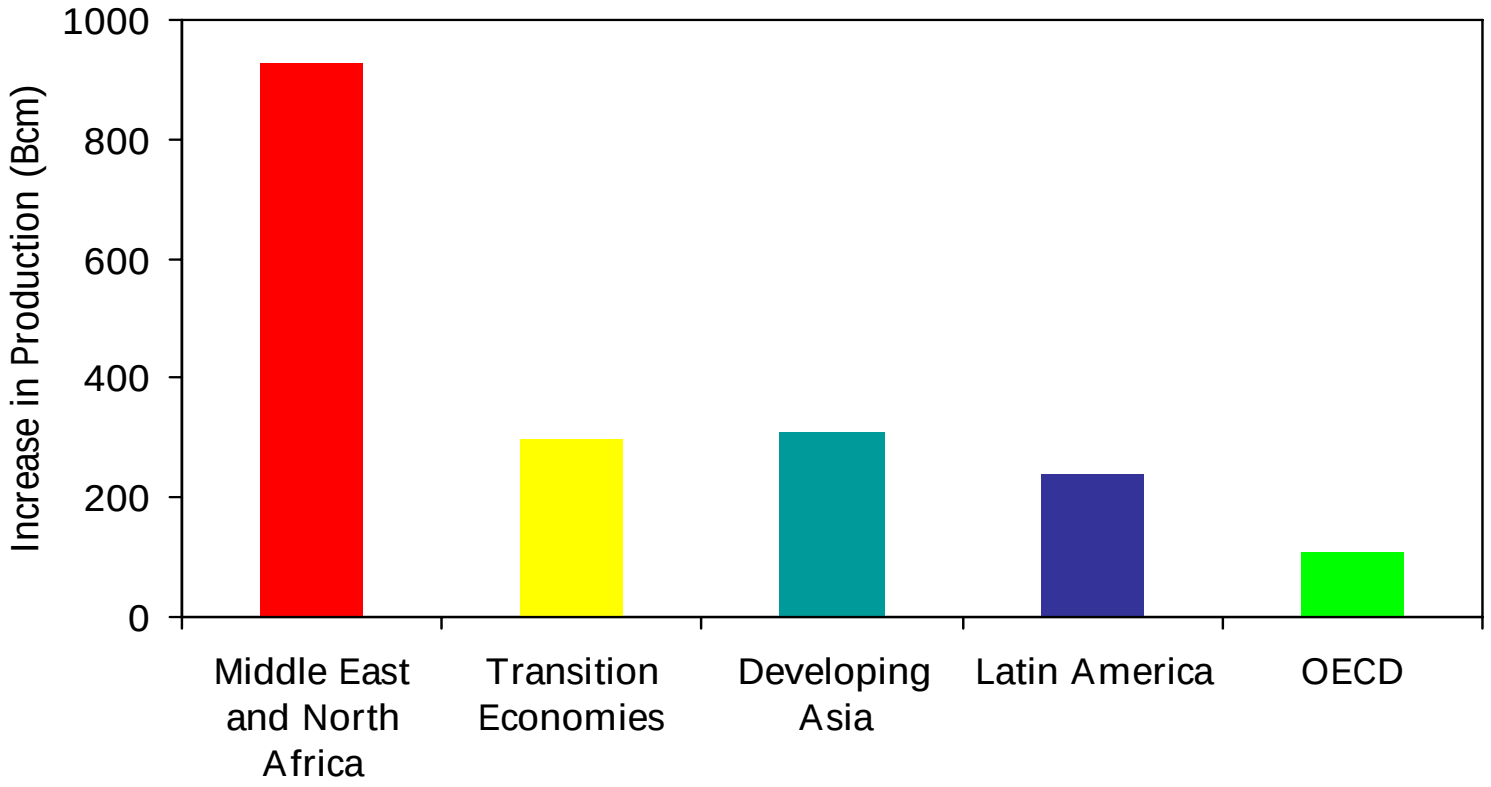


In the decades ahead, China and India will increasingly influence oil markets as the pace of the growth in their imports far surpasses that in the OECD.

Source: World Energy Outlook 2006

Energy Security: It is not just about oil

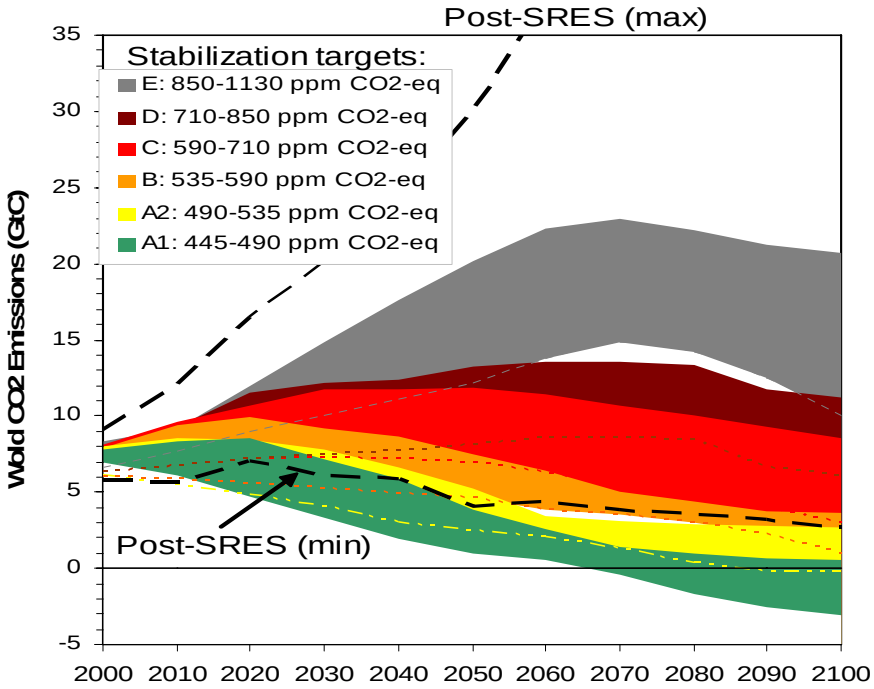
Increase in Natural Gas Supply (2004-2030)

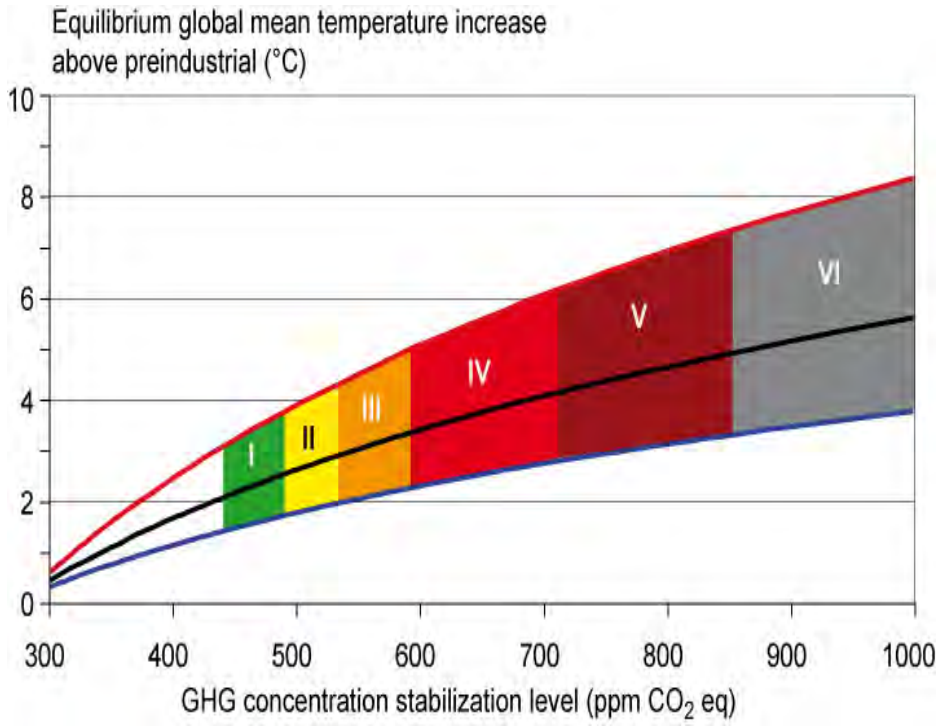


The world will become increasingly dependent on a dwindling number of natural gas producers, compounding energy security concerns.

Source: World Energy Outlook 2006

Environmental Sustainability: The IPCC Message

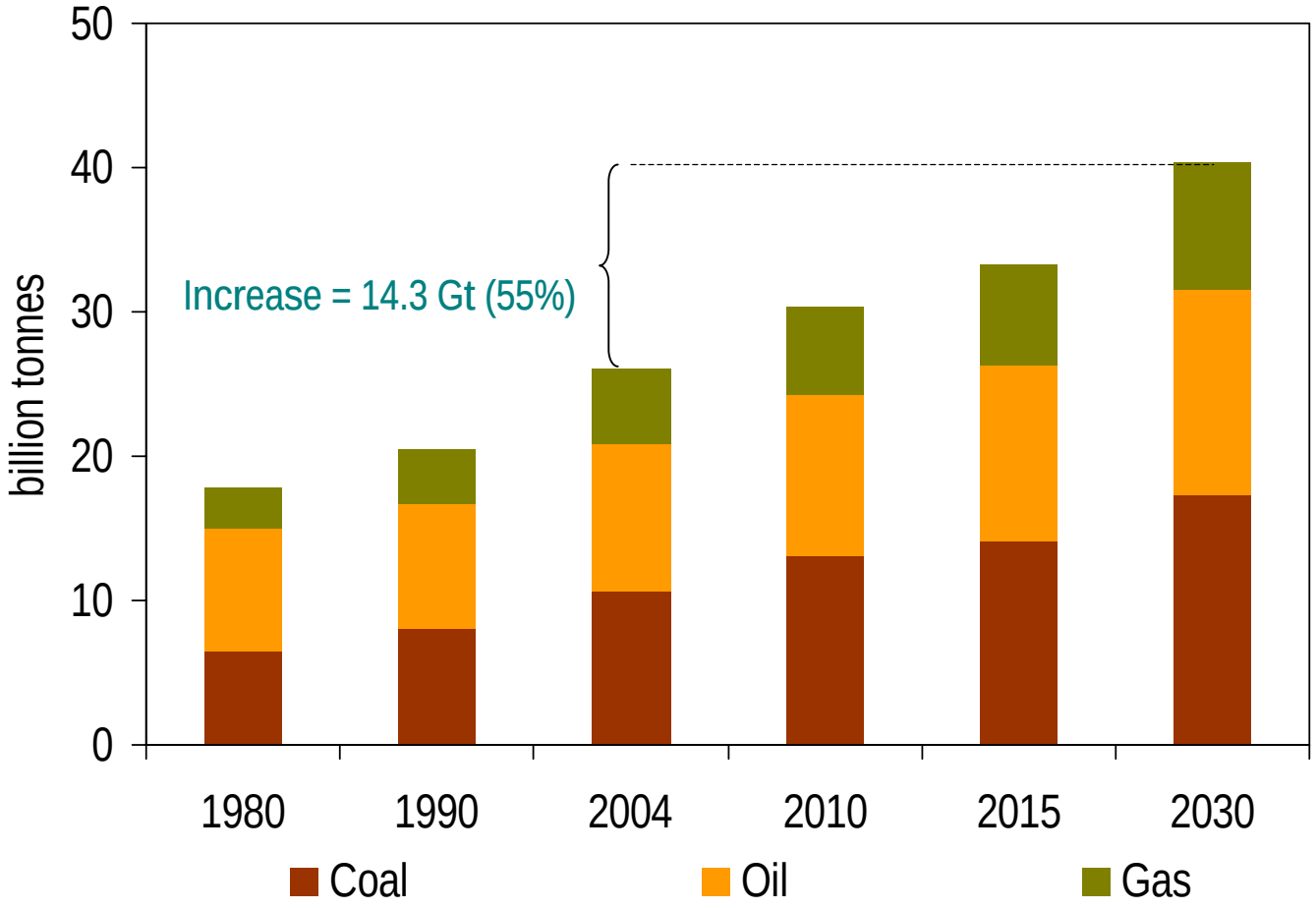




The lower the final CO_2 stabilisation target level, the earlier global CO_2 emissions have to peak (eg. < 2.5 ^{0}C ~ 445-490ppm ~ 2015)

Source: IPCC(2007)

Environmental Sustainability: Current trends in CO_2 emissions



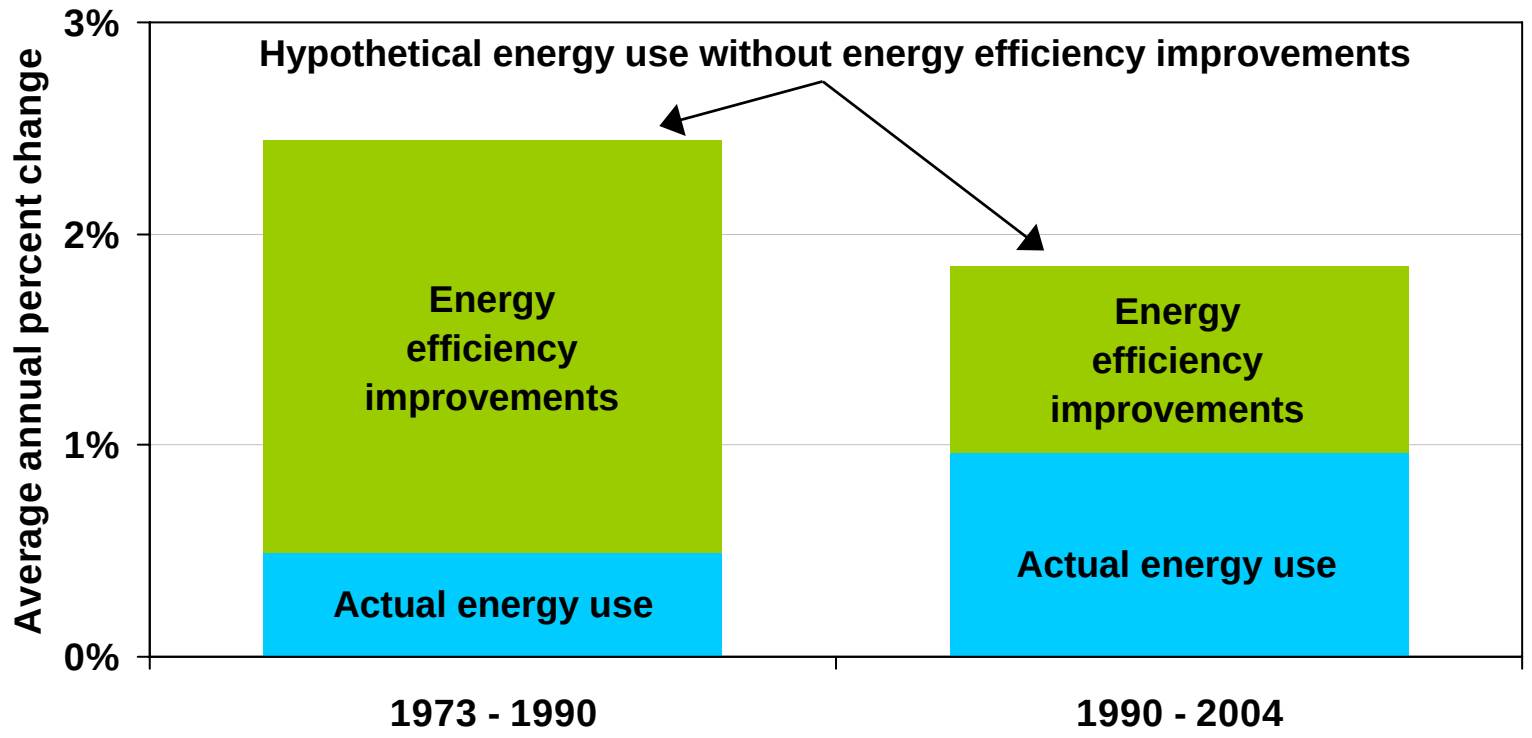
Half of the projected increase in emissions comes from new power stations, mainly using coal & mainly located in China & India

Source: World Energy Outlook 2006

Action Agenda for Energy Security and Sustainability

1. Improve energy efficiency
2. Speed-up the uptake of new energy technologies
3. Strengthen engagement with key non-member countries

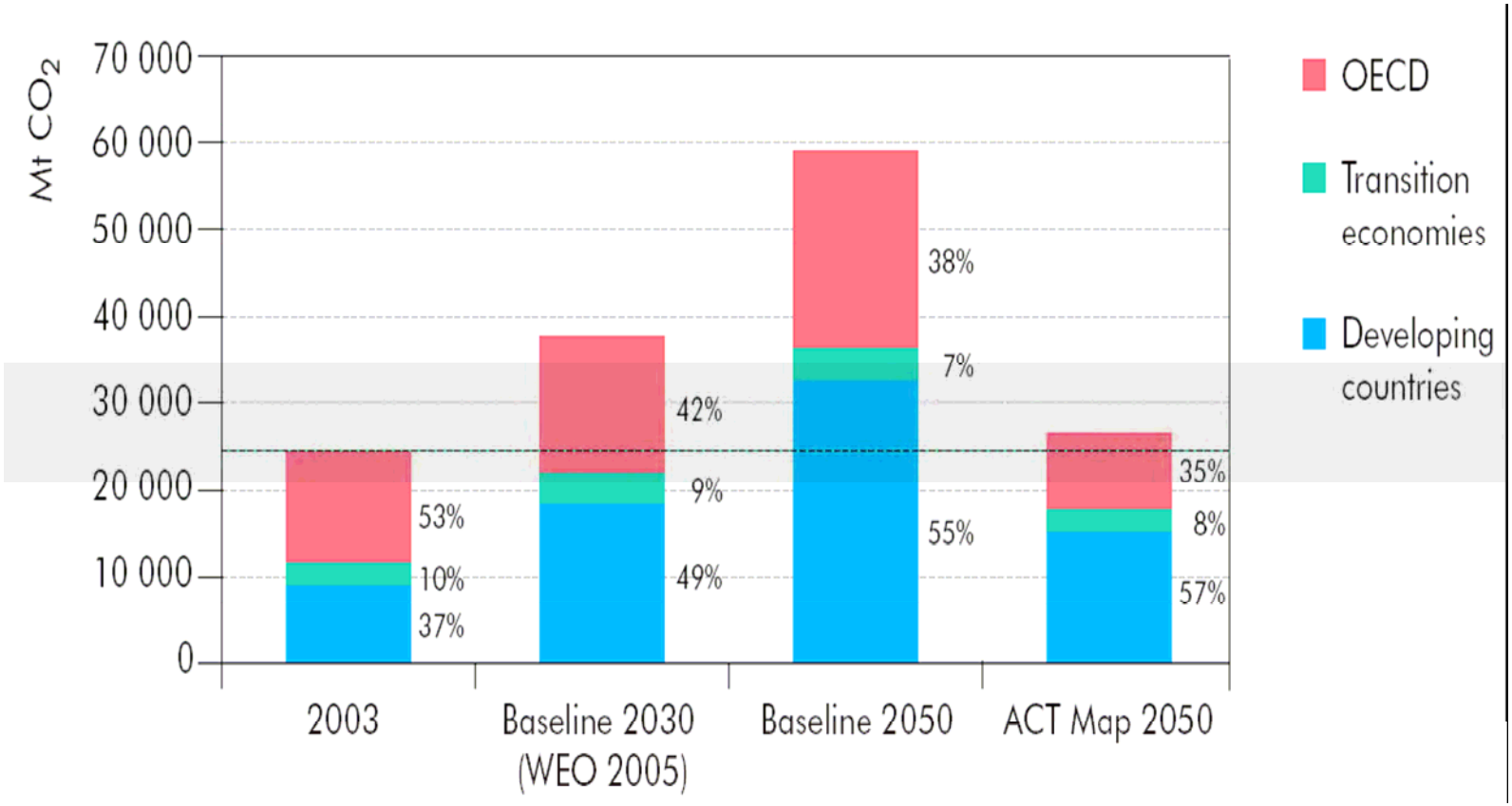
Promote energy efficiency: The essential first step



Since 1990, the rate of energy efficiency improvement in IEA countries has been less than 1% per year – much lower than in previous decades. We must - and we can - do better!

Source: Energy Use in the New Millennium (IEA, 2007)

CO_2 Emission Reductions to 2050: Where is the Potential?

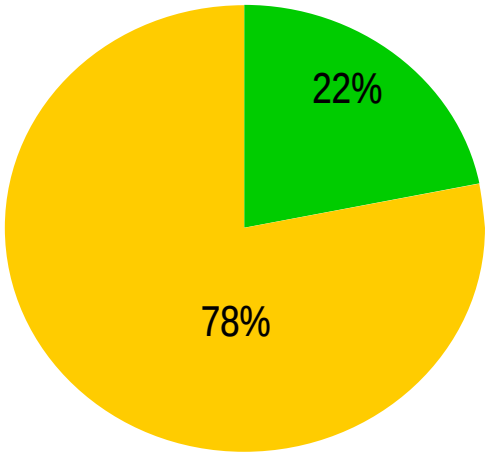


The baseline scenario is not sustainable but known technologies could bring CO_2 emissions back to today's level by 2050 at a cost that is within reach. Savings are needed in both OECD and non-OECD countries.

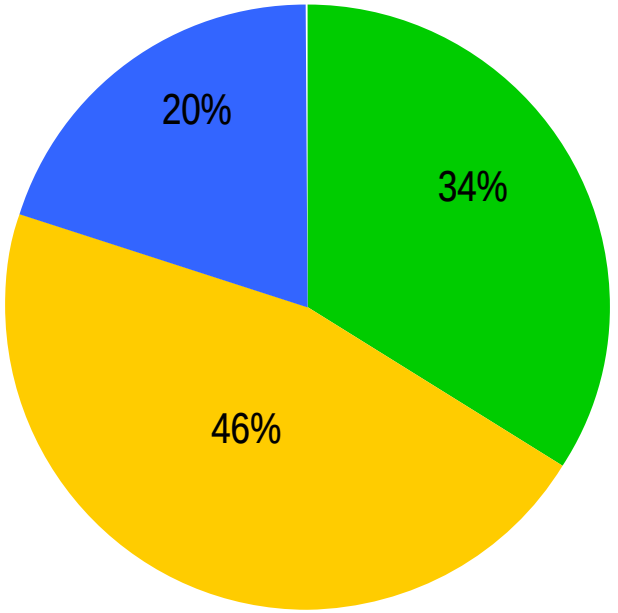
Source: Energy Technology Perspectives 2006

CO_2 Emission Reductions to 2050: Which are the Technologies ?

6 Gt reduction of CO_2 in 2030



32 Gt reduction of CO_2 in 2050

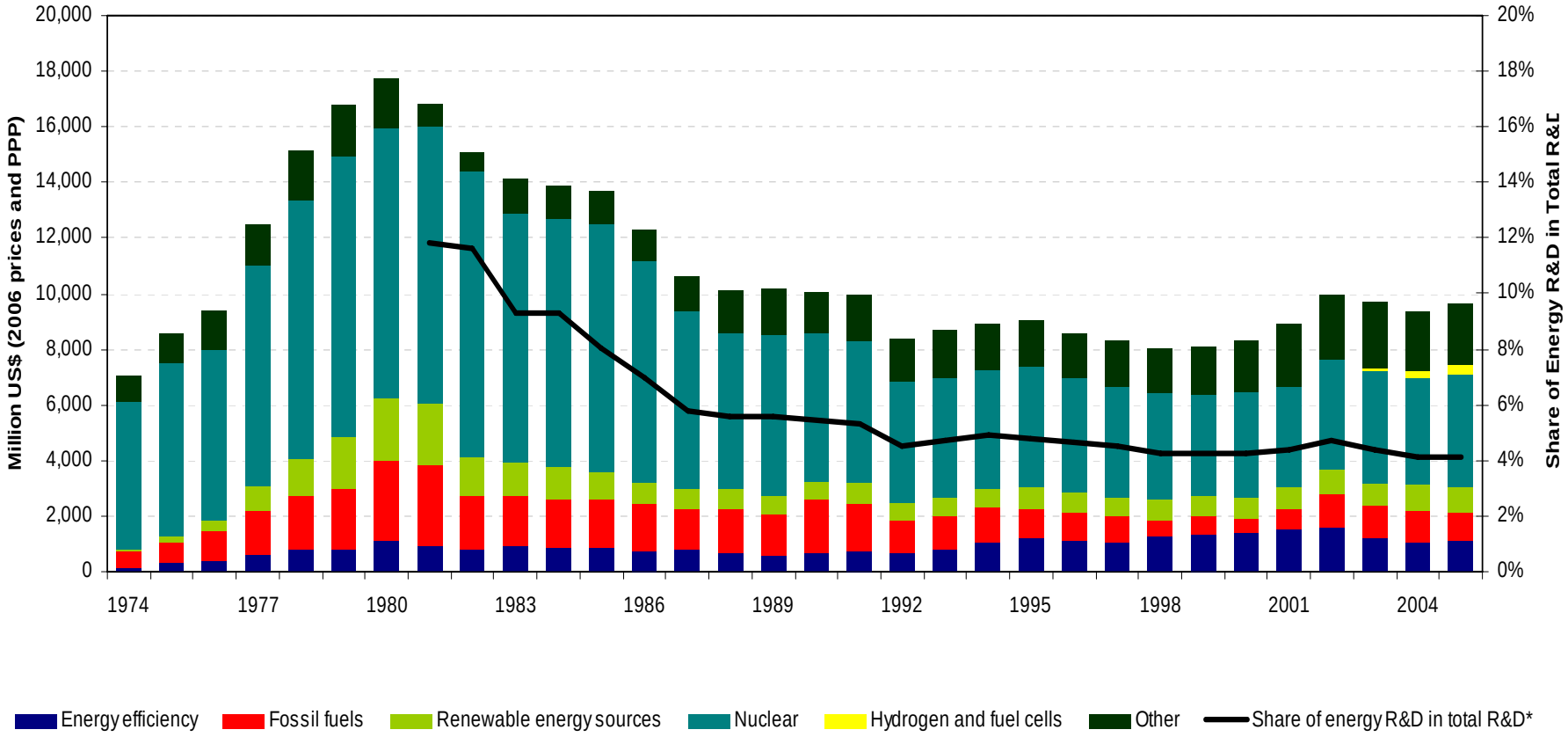


Cleaner energy mix Efficiency improvements CCS

A technology portfolio approach will be needed that includes improved efficiency, CCS, advanced biofuels, nuclear, solar, hydrogen fuel cells, etc…

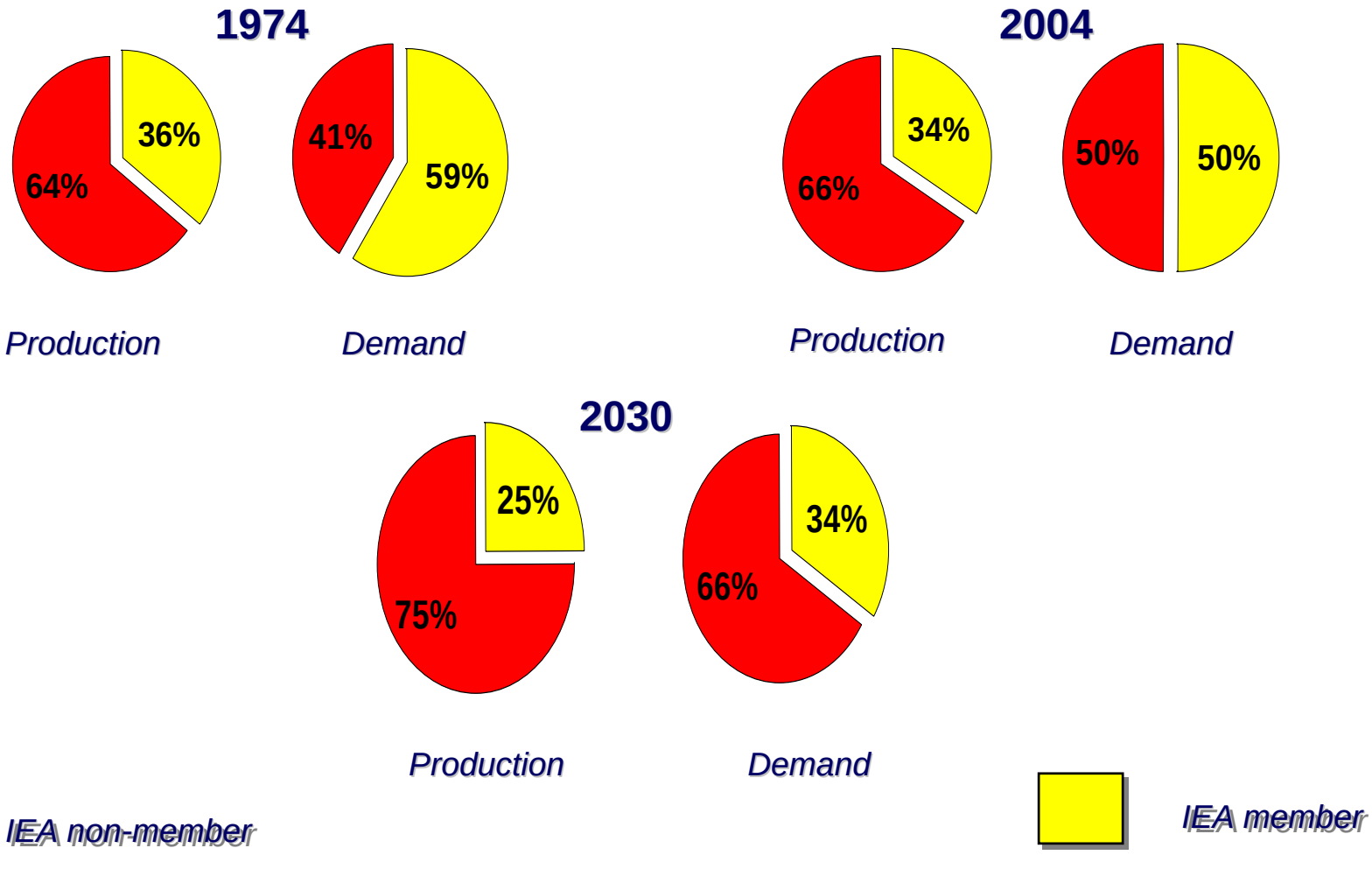
Source: Energy Technology Perspectives 2006, World Energy Outlook 2006

Public Sector Energy R&D in IEA Countries



Current levels of R&D investment are not adequate given the magnitude of the climate challenge. Government spending on energy R&D has fallen, while private-sector R&D is increasingly focused on projects with short-term payoffs

Strengthen engagement with non-members



Engagement with non-members is crucial as actions within IEA borders will never be enough to achieve a truly sustainable or secure energy future

Source: World Energy Outlook 2006

Key Messages

- **The world is facing twin energy-related challenges:**
  - ensuring secure, affordable energy; and
  - managing in a sustainable manner the environmental consequences of producing, transforming and using that energy

- **These challenges can be overcome through an action agenda with the following central pillars:**
  - Promotion of energy efficiency
  - Promotion of new energy technologies
  - Strengthened engagement between key consumers and producers of energy