



Security of Supply: Energy as a Prime Variable in the Geopolitical Game

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International Energy Agency**

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IEA: who are we?

- **Founded in 1974**
 - as an autonomous agency of the OECD - based in Paris

- **27 Member countries** (plus Poland in process)

- **Decision making body:**
 - **Governing Board**
 - **Under the GB, several committees monitor work of each functional division of the Secretariat**

- **Secretariat:**
 - **Under the aegis of the Executive Director**
 - **Less than 200 staff.**



The IEA Shared Goals

3Es: Energy Security, Economic Development
Environmental Protection

1. Diversity, efficiency and flexibility in the energy sector
2. Prompt, flexible (and, when needed, collective) response to energy emergencies
3. Environmentally sustainable provision and use of energy
4. Development of more environmentally acceptable energy sources
5. Improved energy efficiency
6. Continued research, development and market deployment of new and improved energy technologies
7. Undistorted energy prices
8. Free and open trade and a secure framework for investment
9. Co-operation among all energy market participants

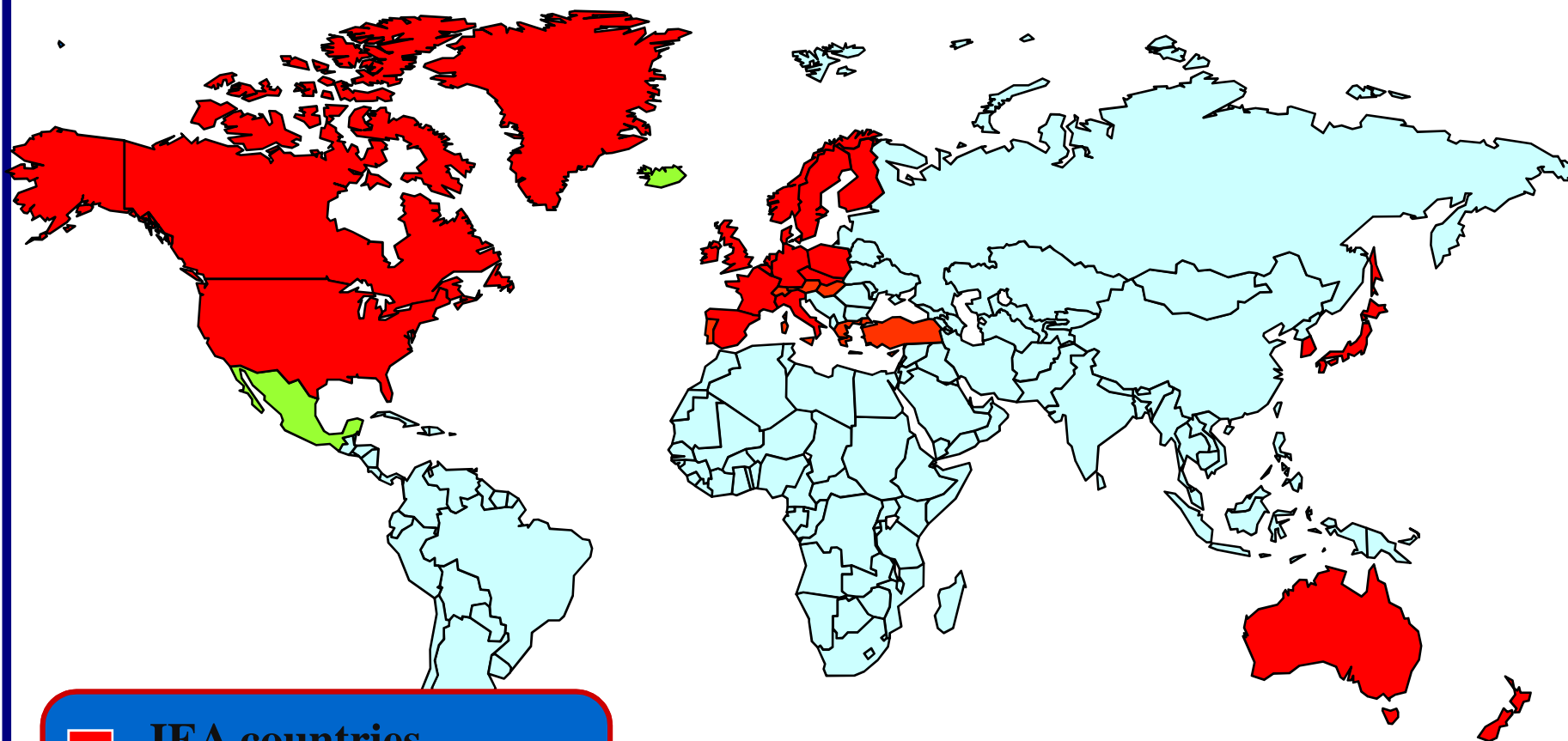
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Membership of the IEA



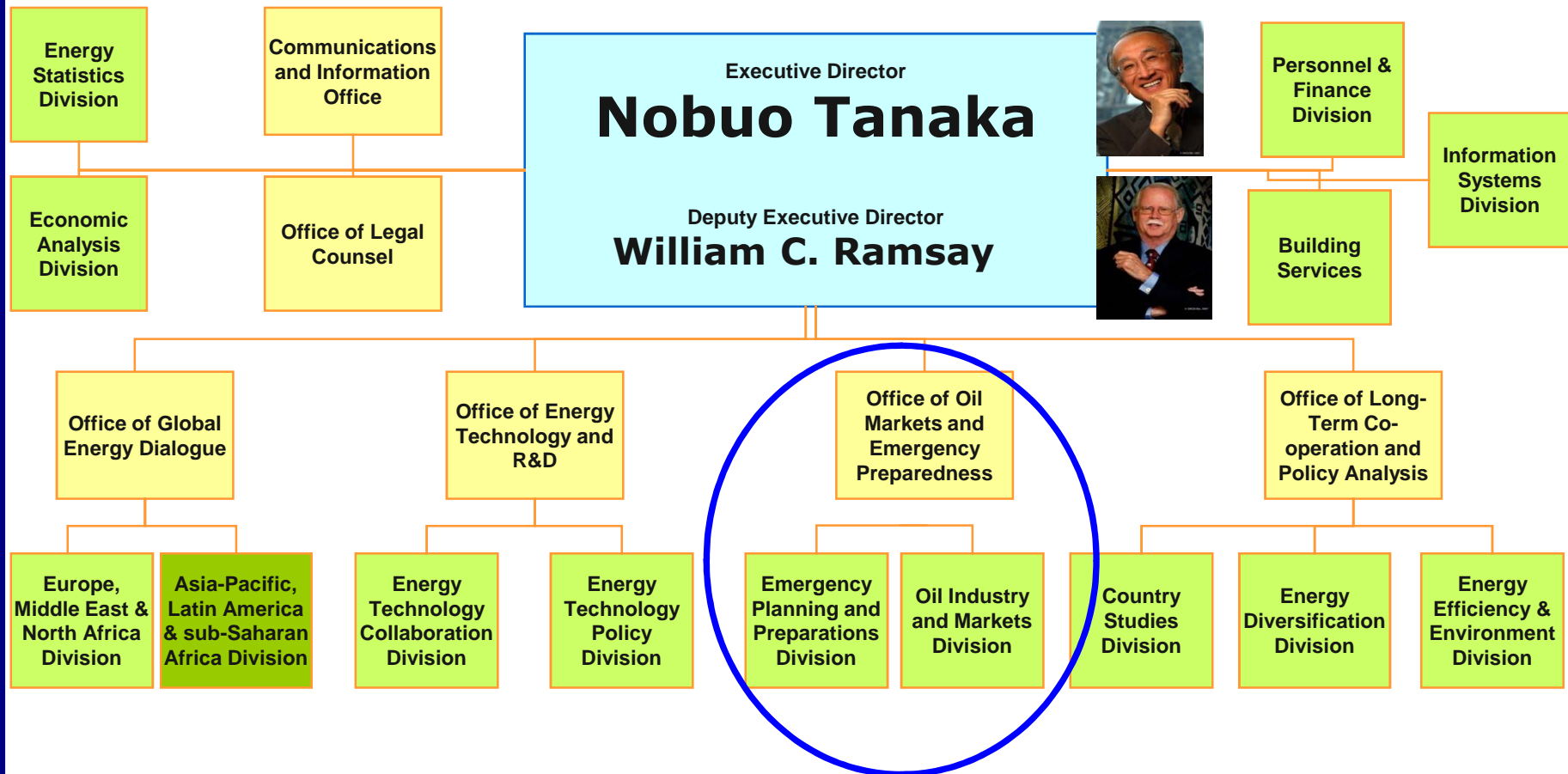
-  IEA countries
-  OECD countries, but not yet IEA members

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IEA Secretariat

Office of Oil Markets & Emergency Preparedness



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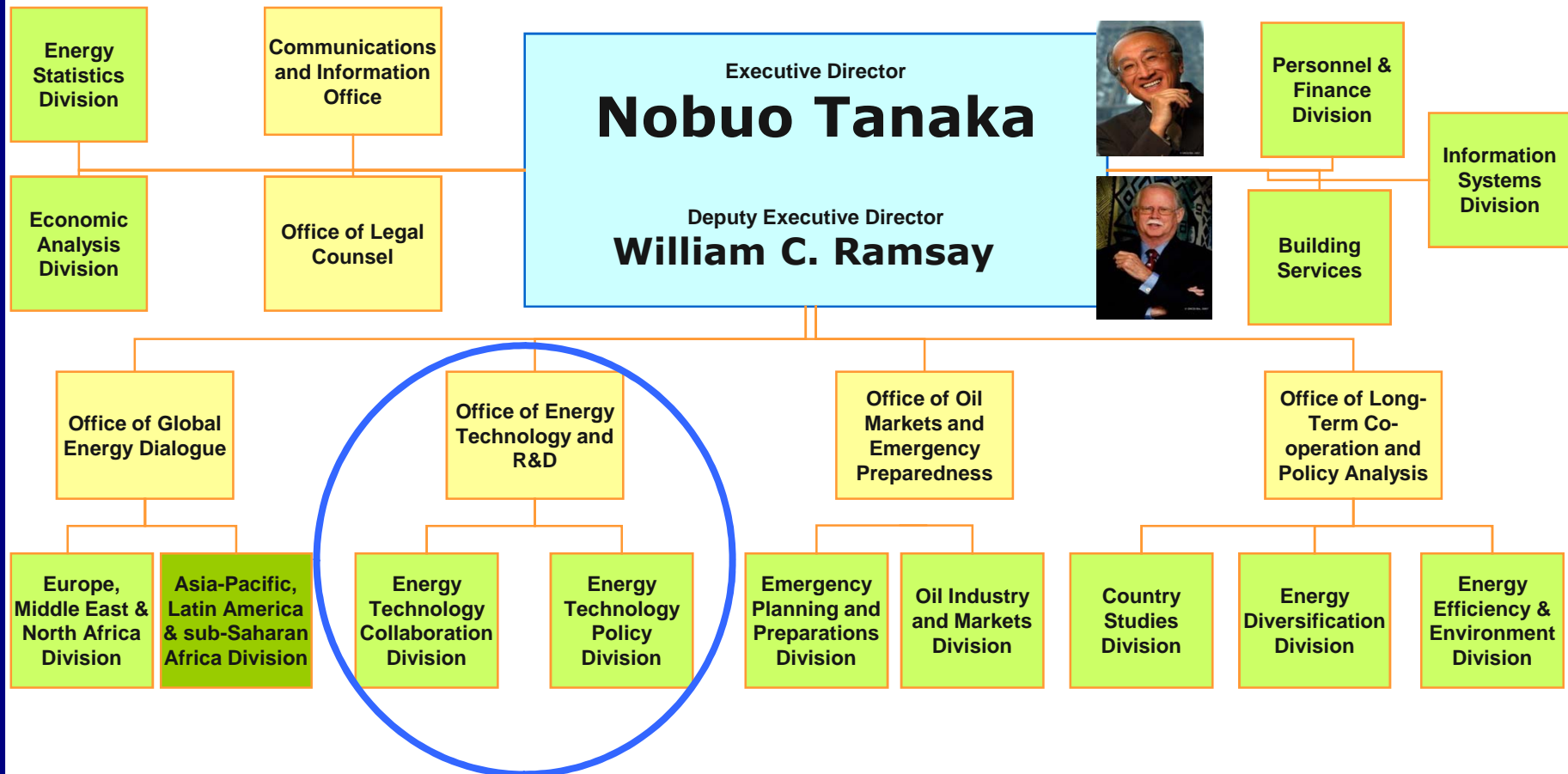
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IEA Secretariat

Office of Energy Technology and R&D



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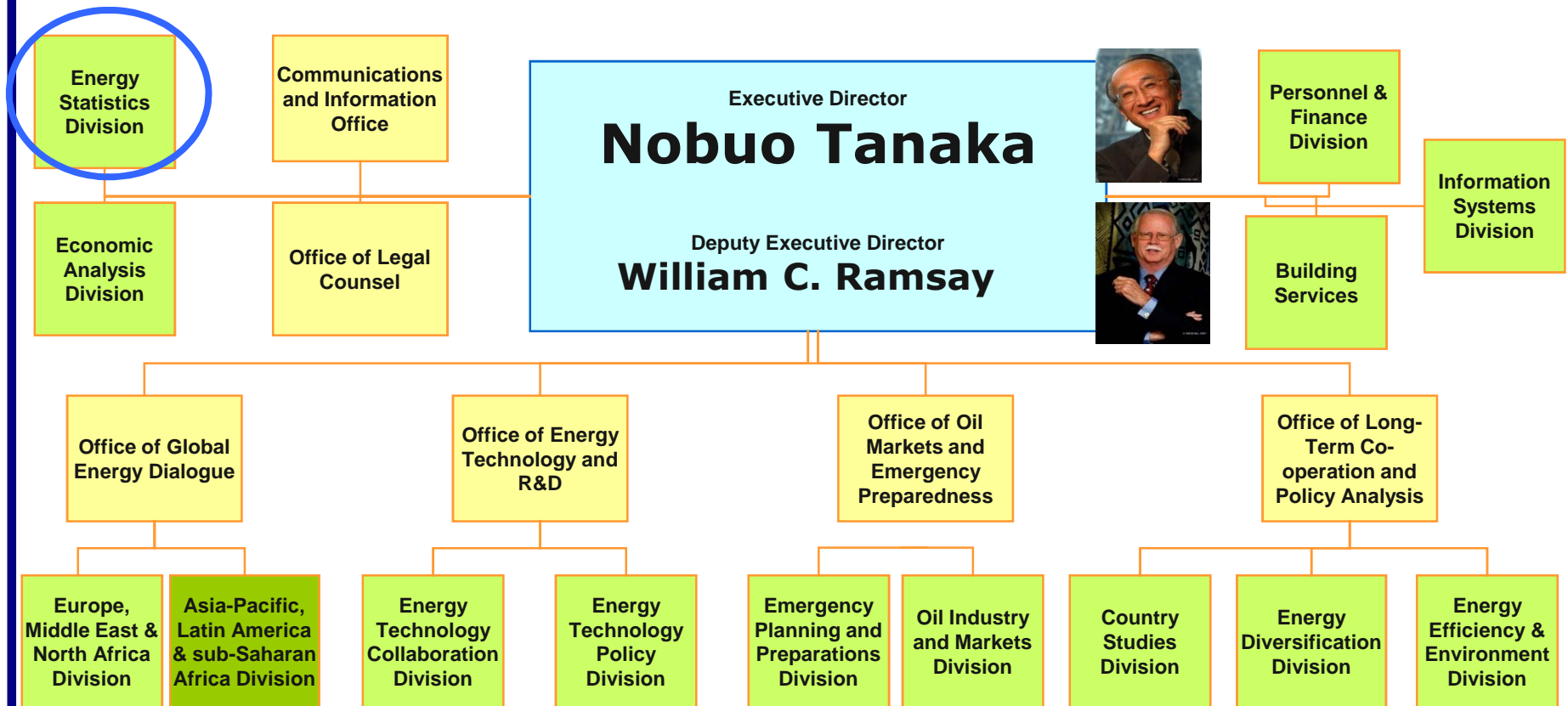
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IEA Secretariat

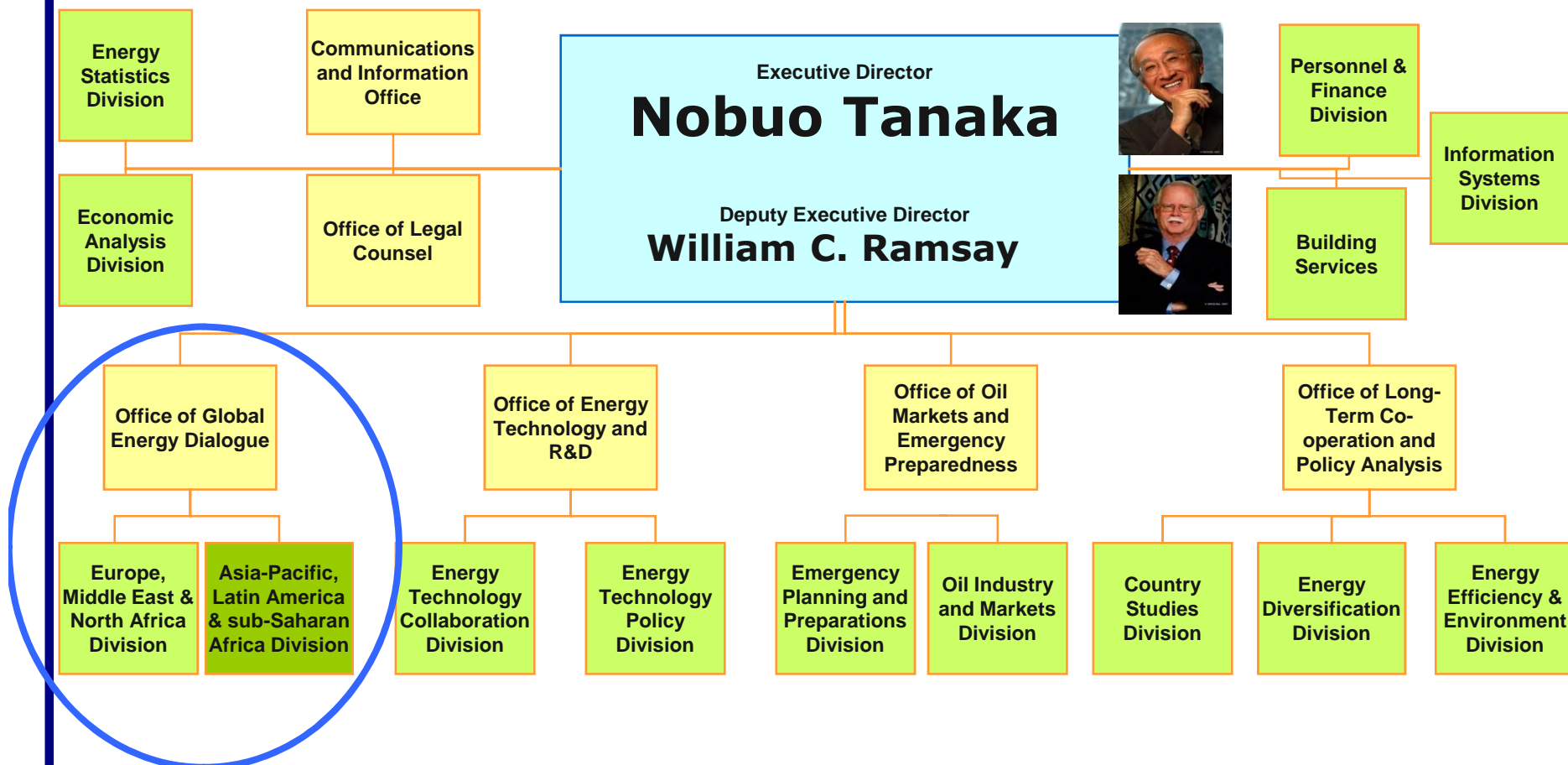
Energy Statistics Division





IEA Secretariat

Office of Global Energy Dialogue



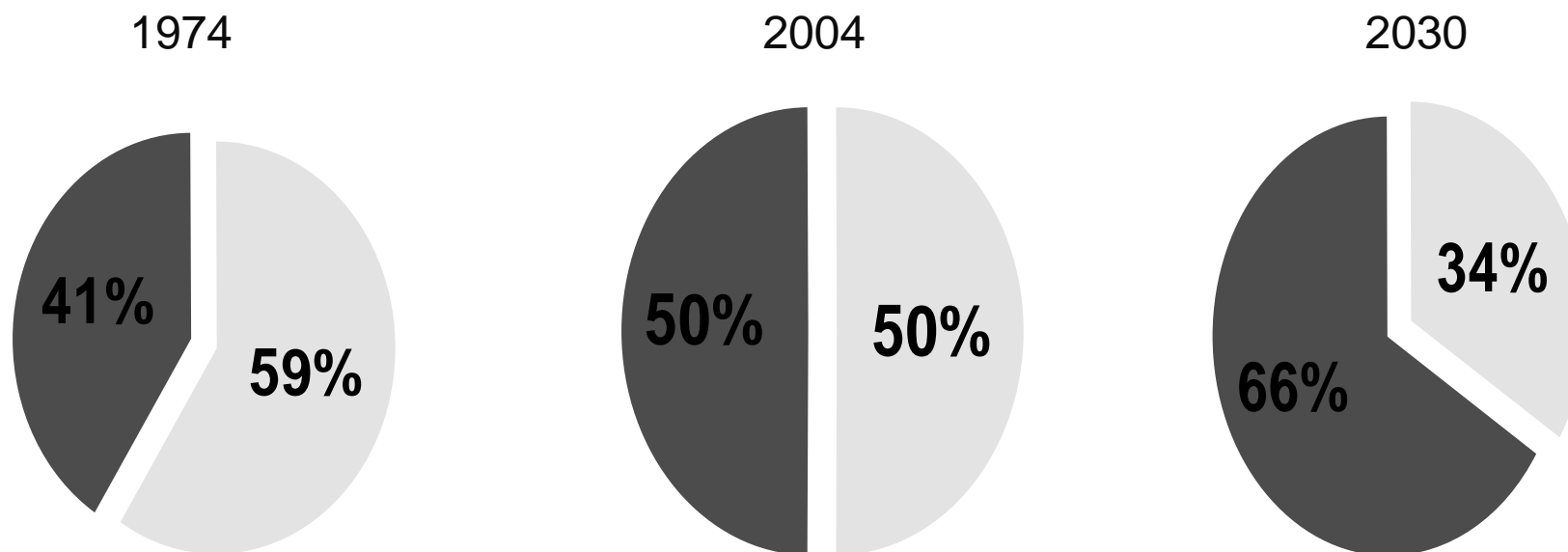
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Changing Share of Global Energy Demand



IEA Non-Member



IEA Member

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

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Source: World Energy Outlook 2006

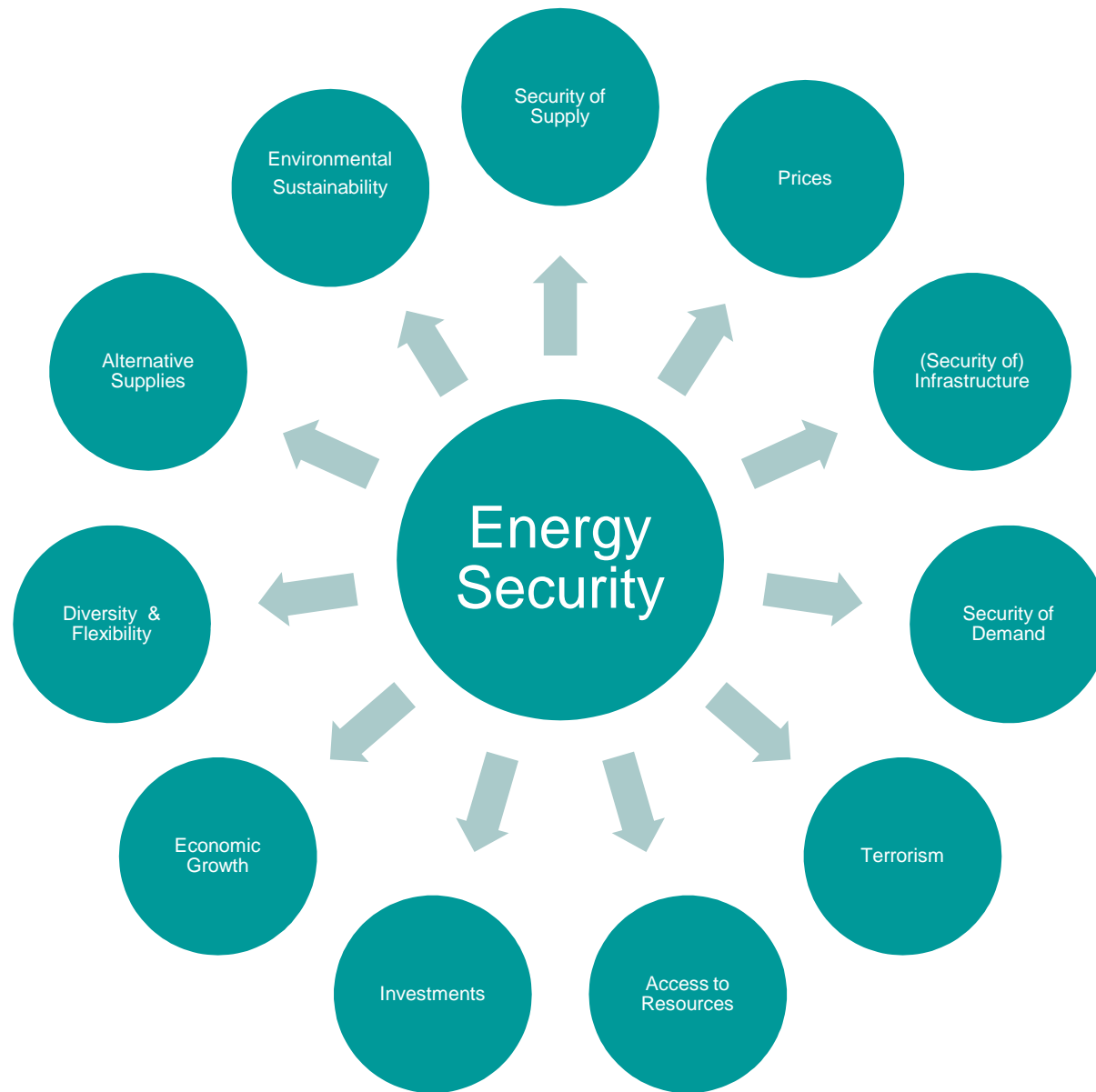


What is Energy Security?

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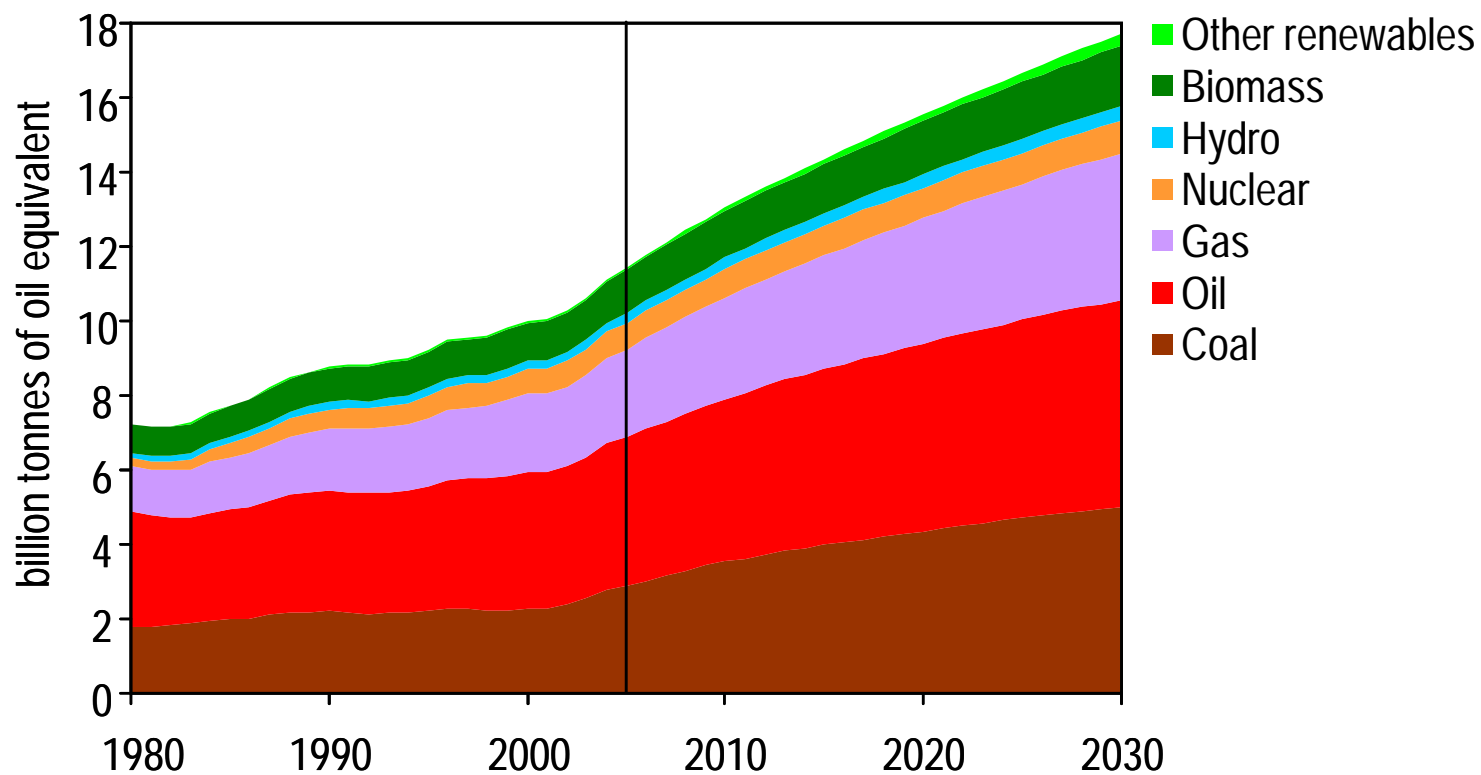
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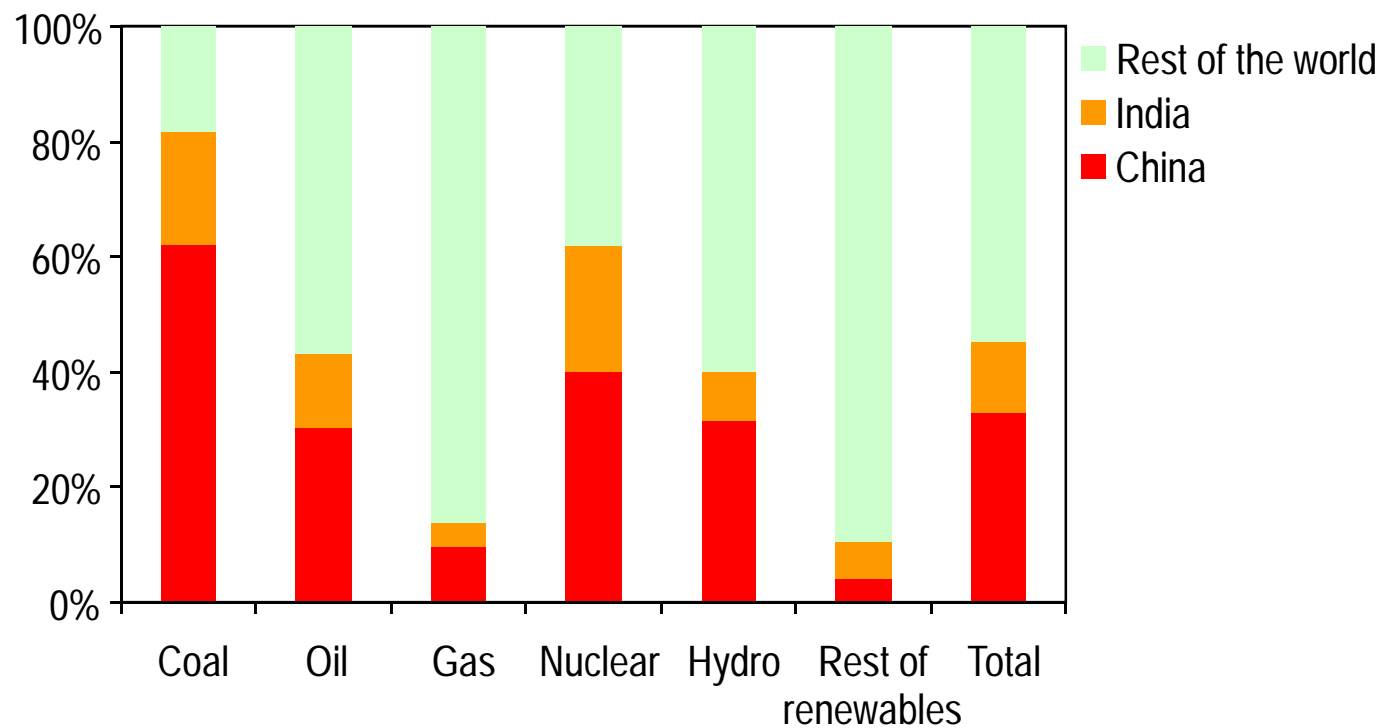
World Primary Energy Demand



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Increase in World Primary Energy Demand (2005-2030)



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Implications for World Oil Markets

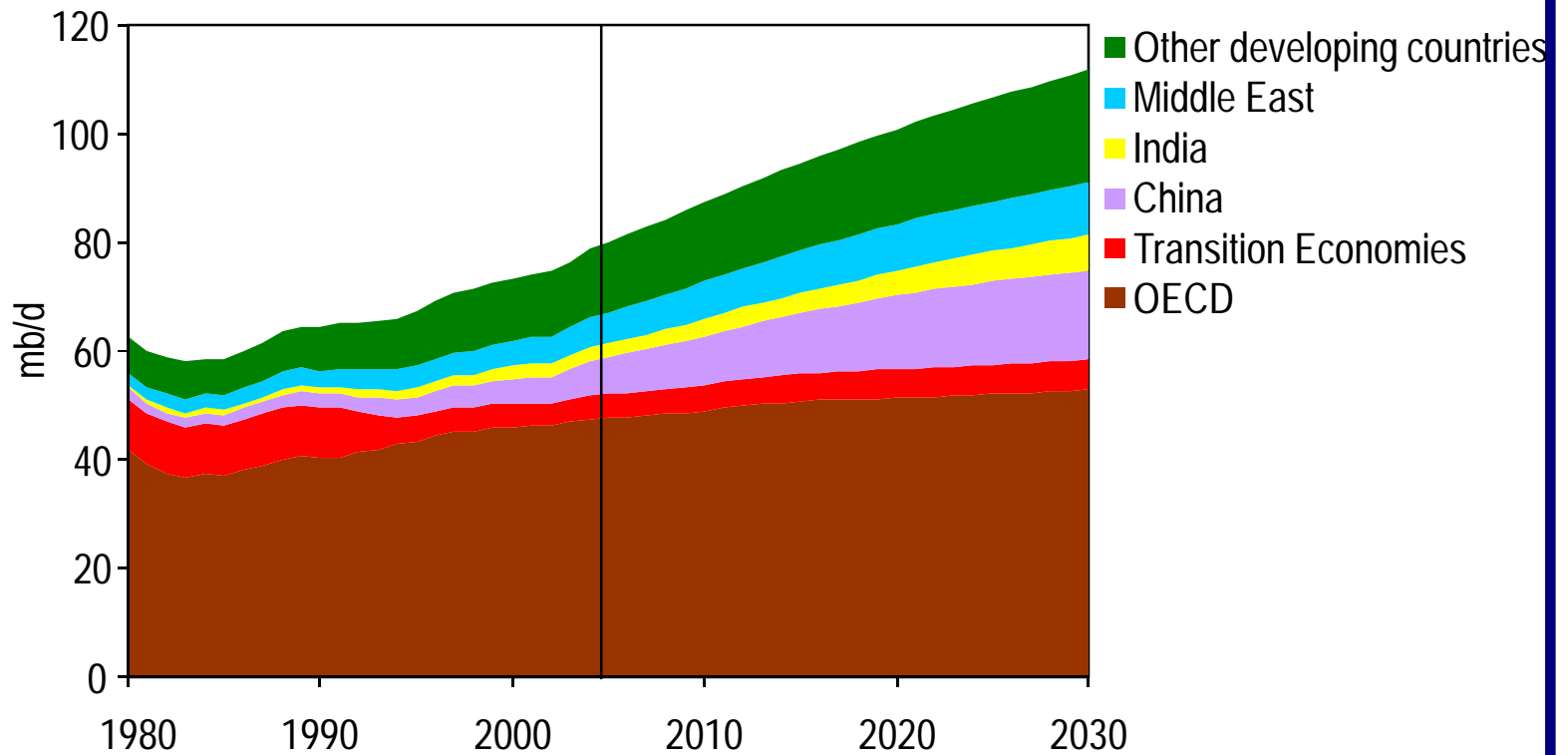
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World Oil Demand



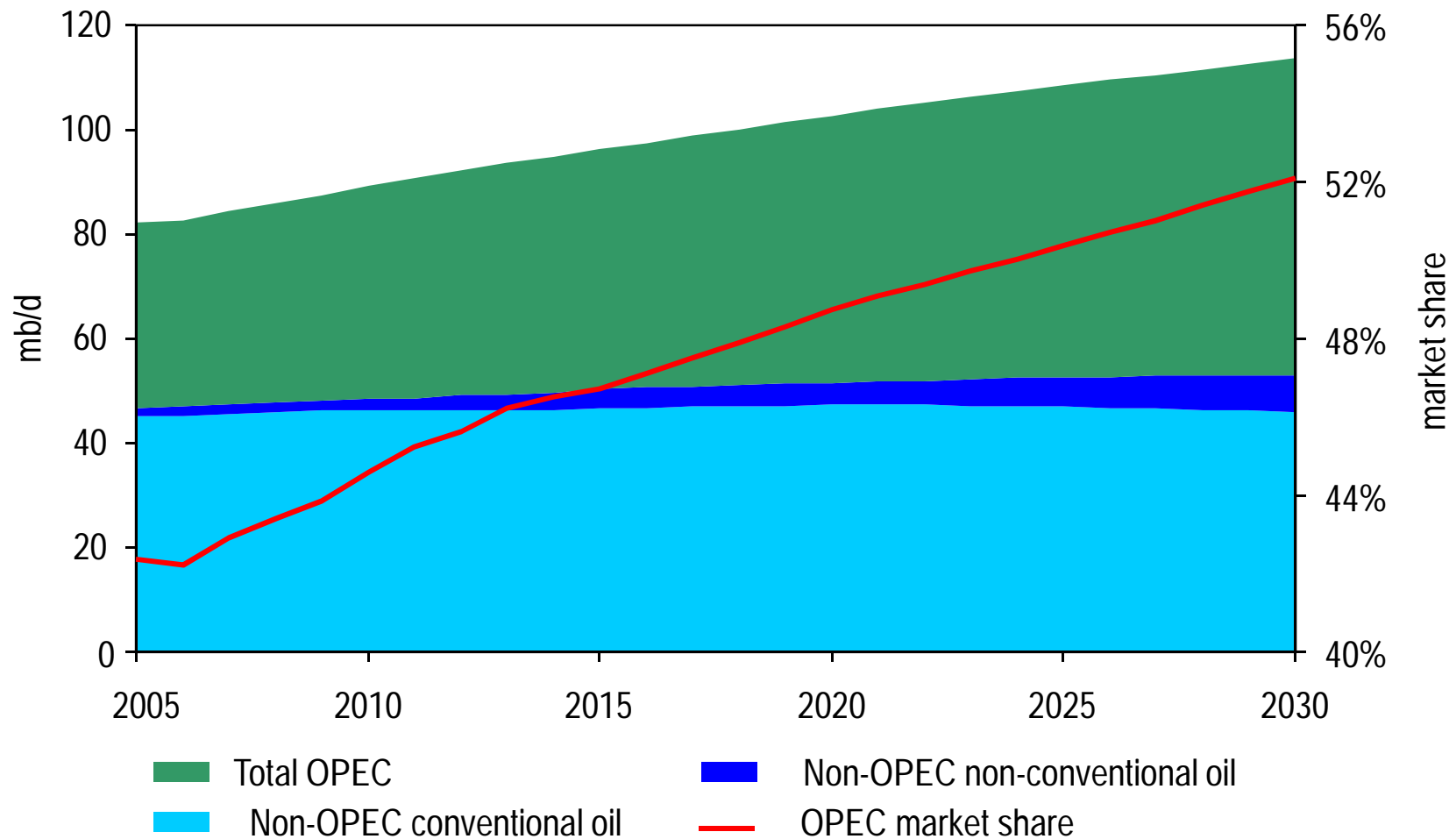
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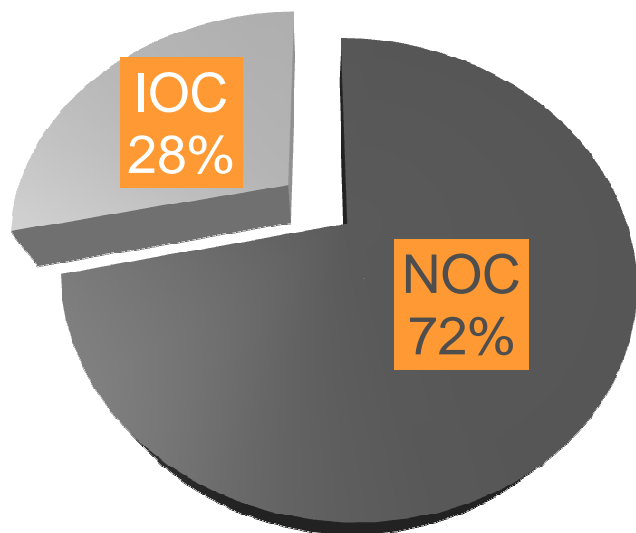
World Oil Production



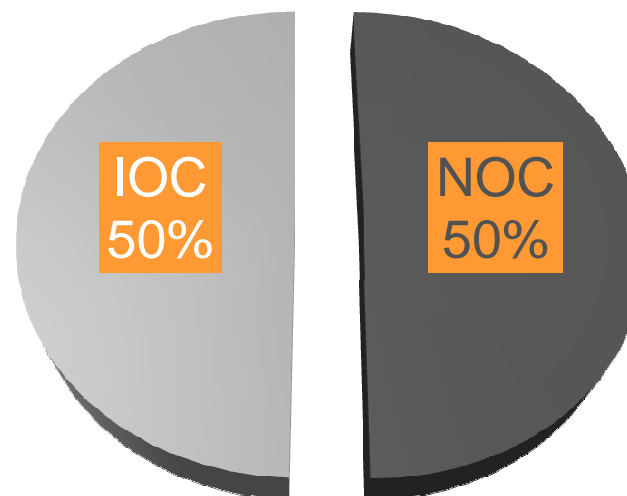
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World oil reserves & production

Oil Reserves, end-2006

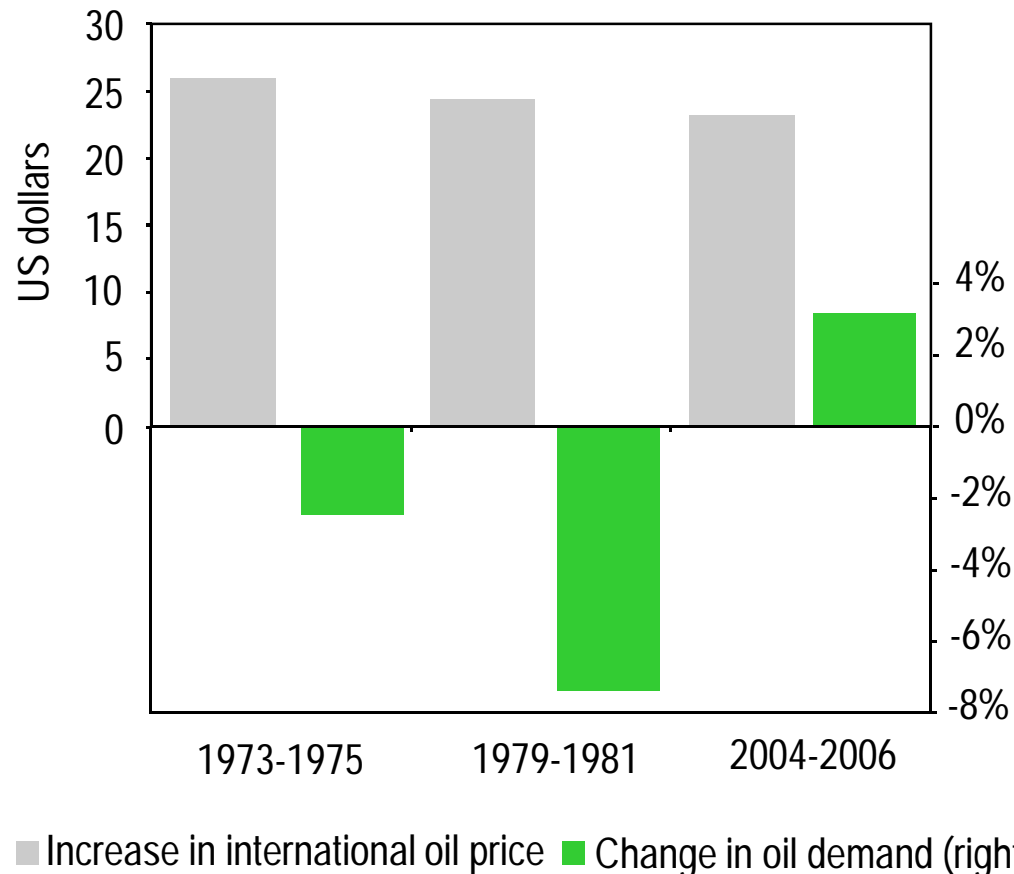


Oil Production, 2006





Change in international oil price & global oil demand



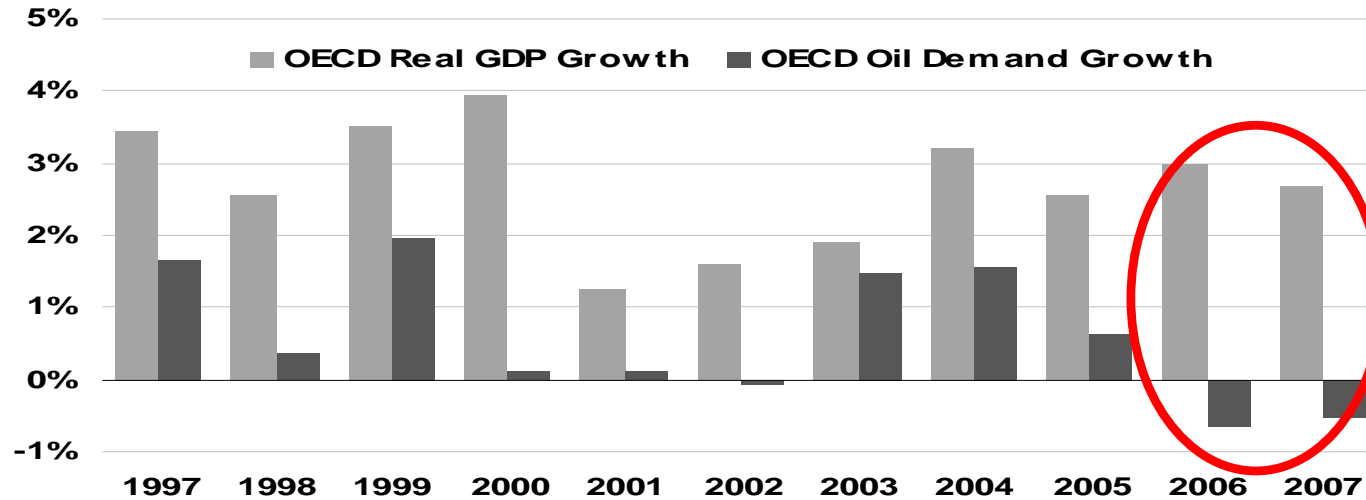
Oil demand is much less responsive to higher crude prices than in the past – partly due to the impact of subsidies & the diminishing scope for substitution in end uses

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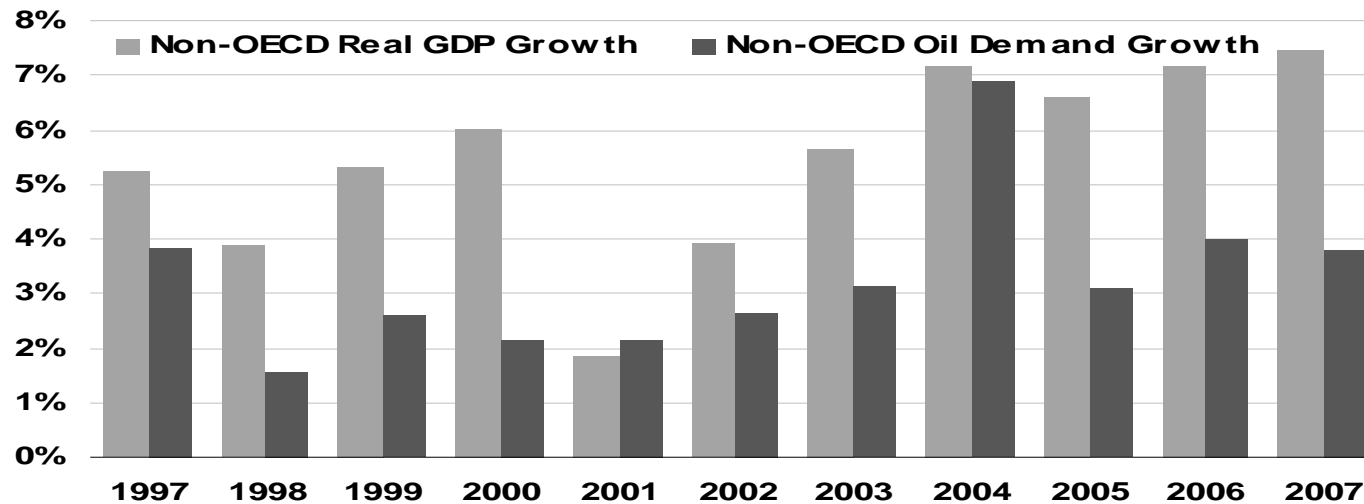


Mature vs emerging economies

OECD Oil Demand Growth vs. GDP Growth



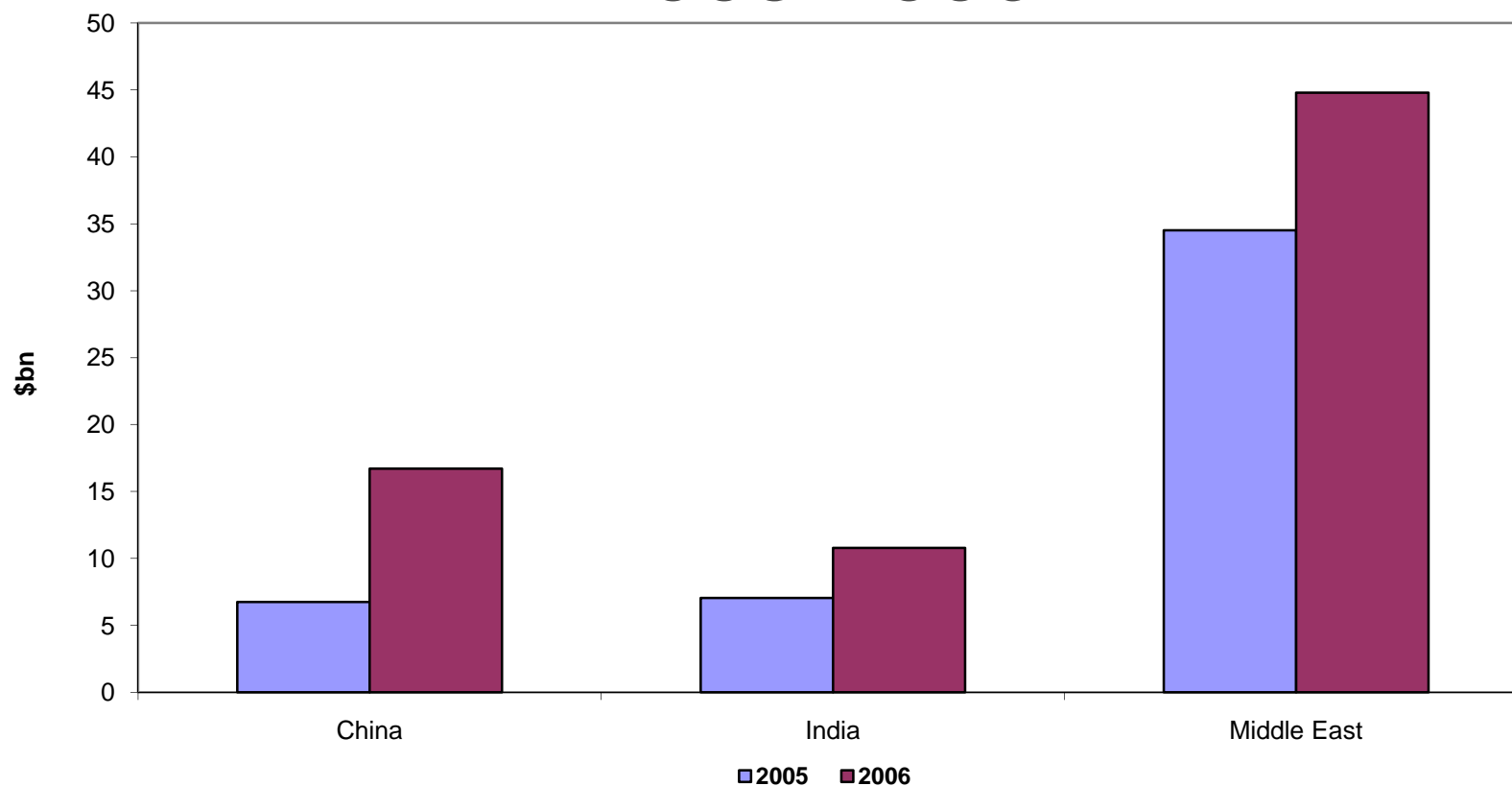
Non-OECD Oil Demand Growth vs. GDP Growth



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Subsidies to Oil Products 2005-2006



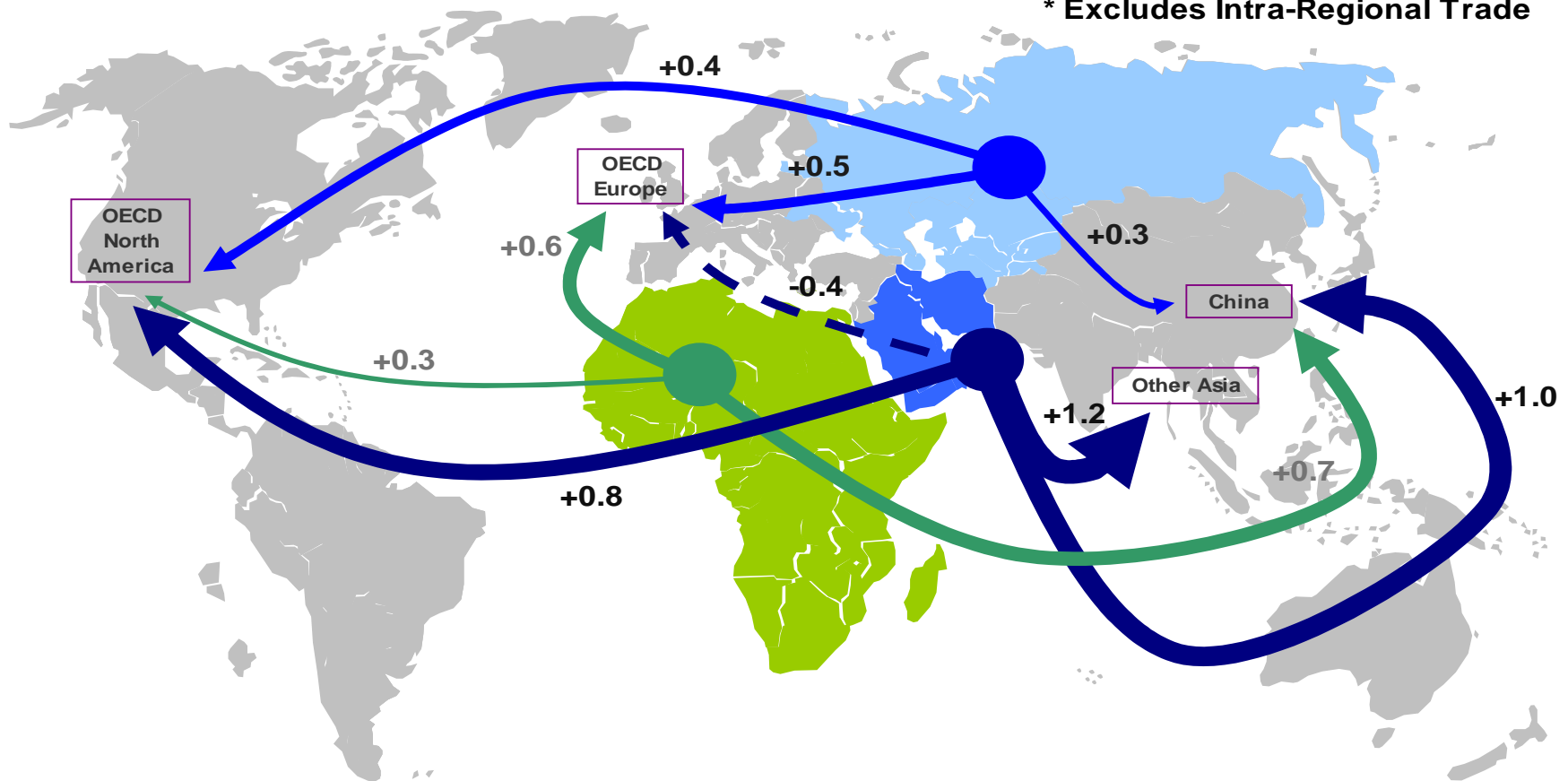
Increases in international oil prices are not passed to consumers in countries from where the bulk of global oil demand growth comes.



China, other Asia and OECD N. America lead pull on incremental crude flows through 2012

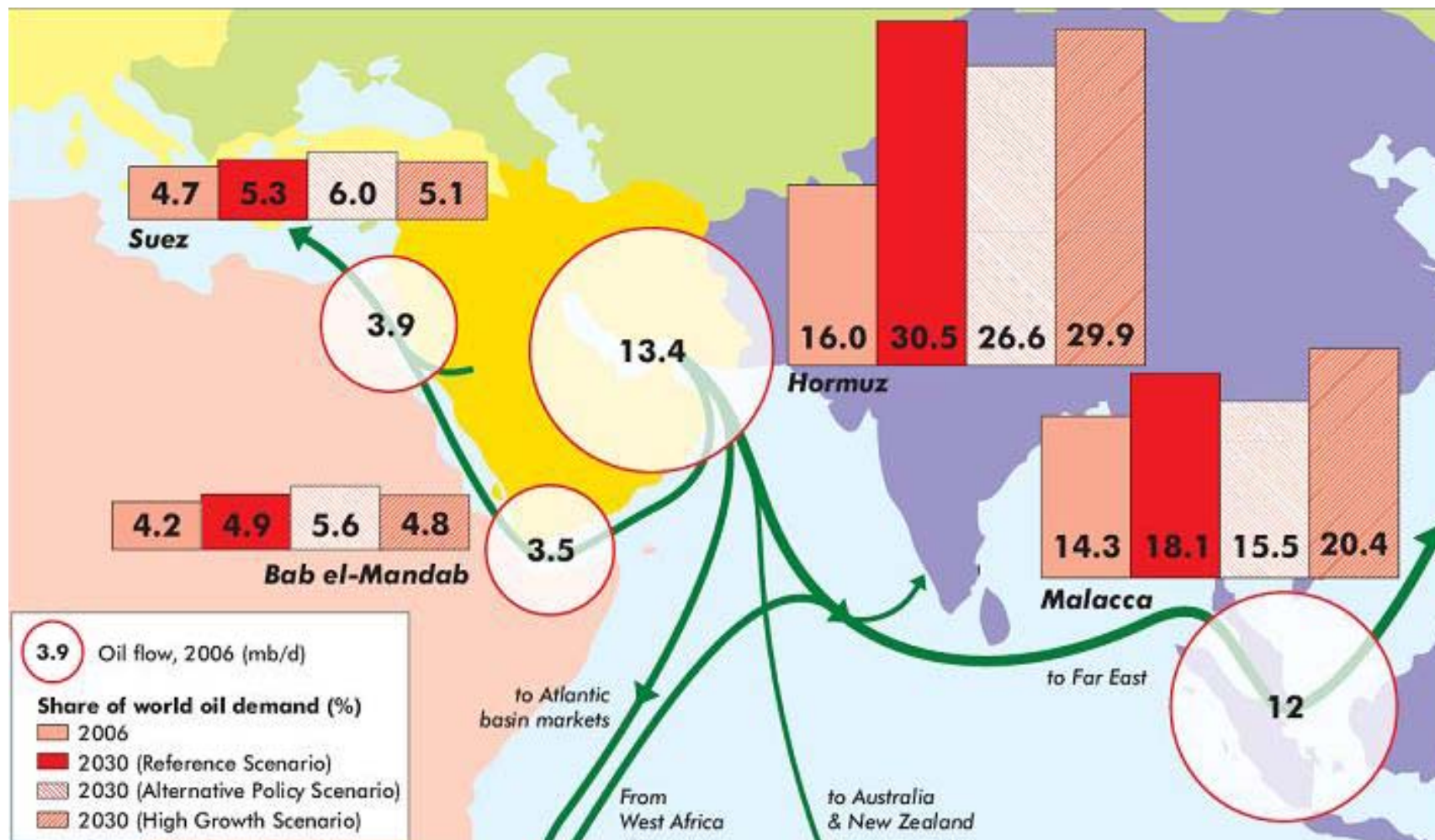
Net Export Growth 2007-12 for Key Trade Routes*
(million barrels per day)

* Excludes Intra-Regional Trade



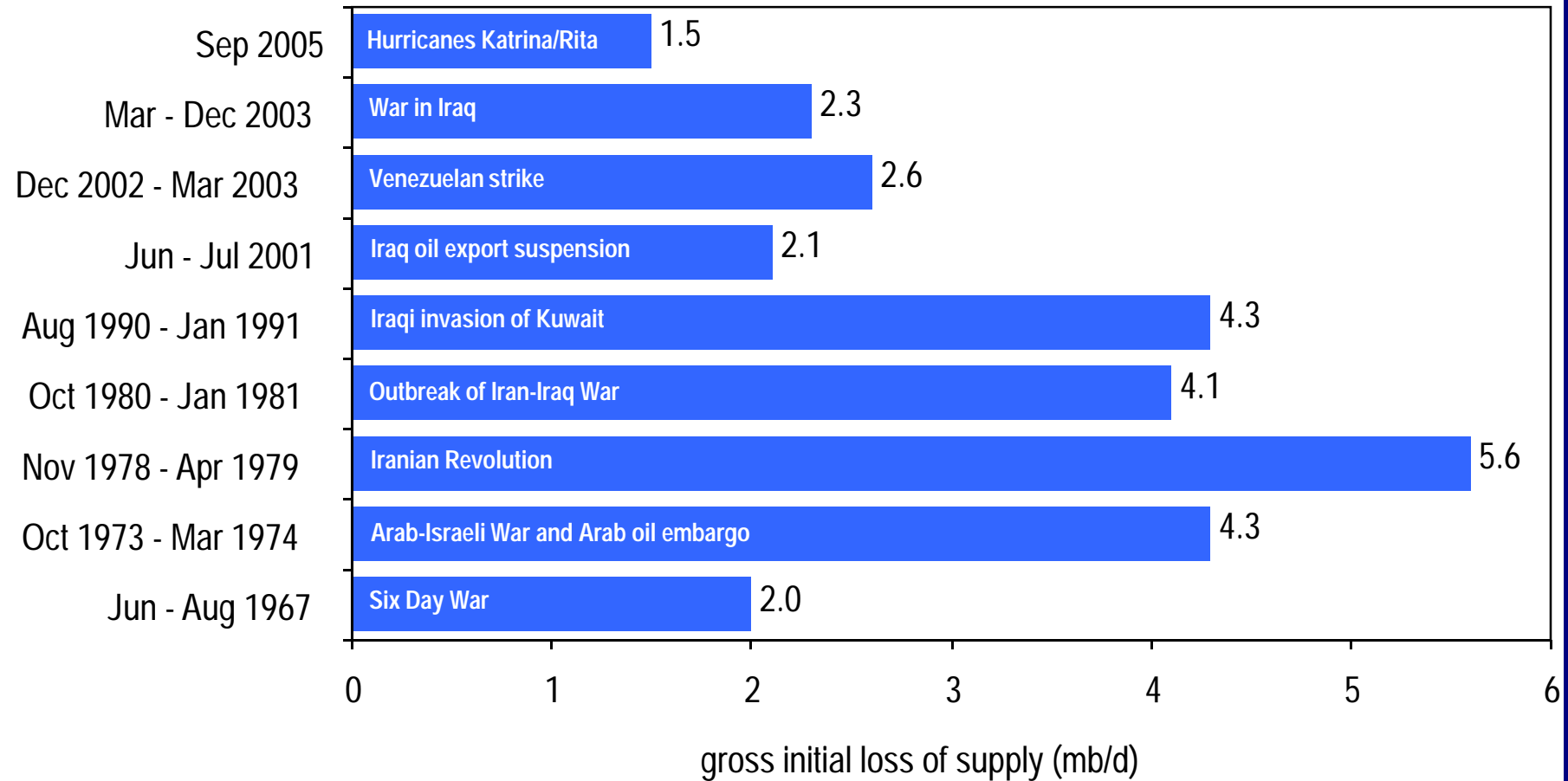
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The "Dire Straits": Oil Export Flows from the Middle East





Major World Oil Supply Disruptions



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Trans-Asian Oil Network



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Implications for World Gas & Coal Markets

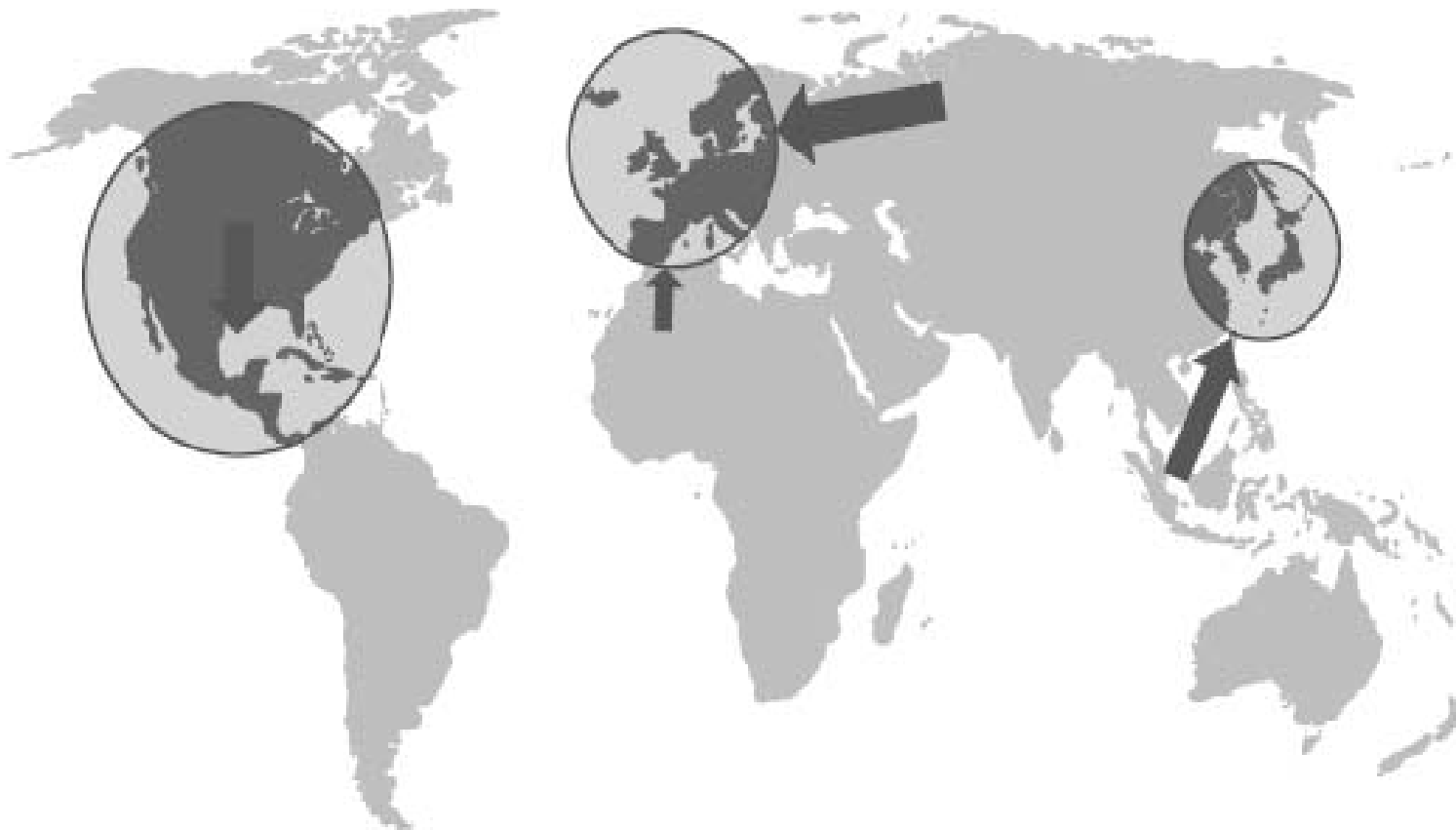
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The traditional gas world is changing...



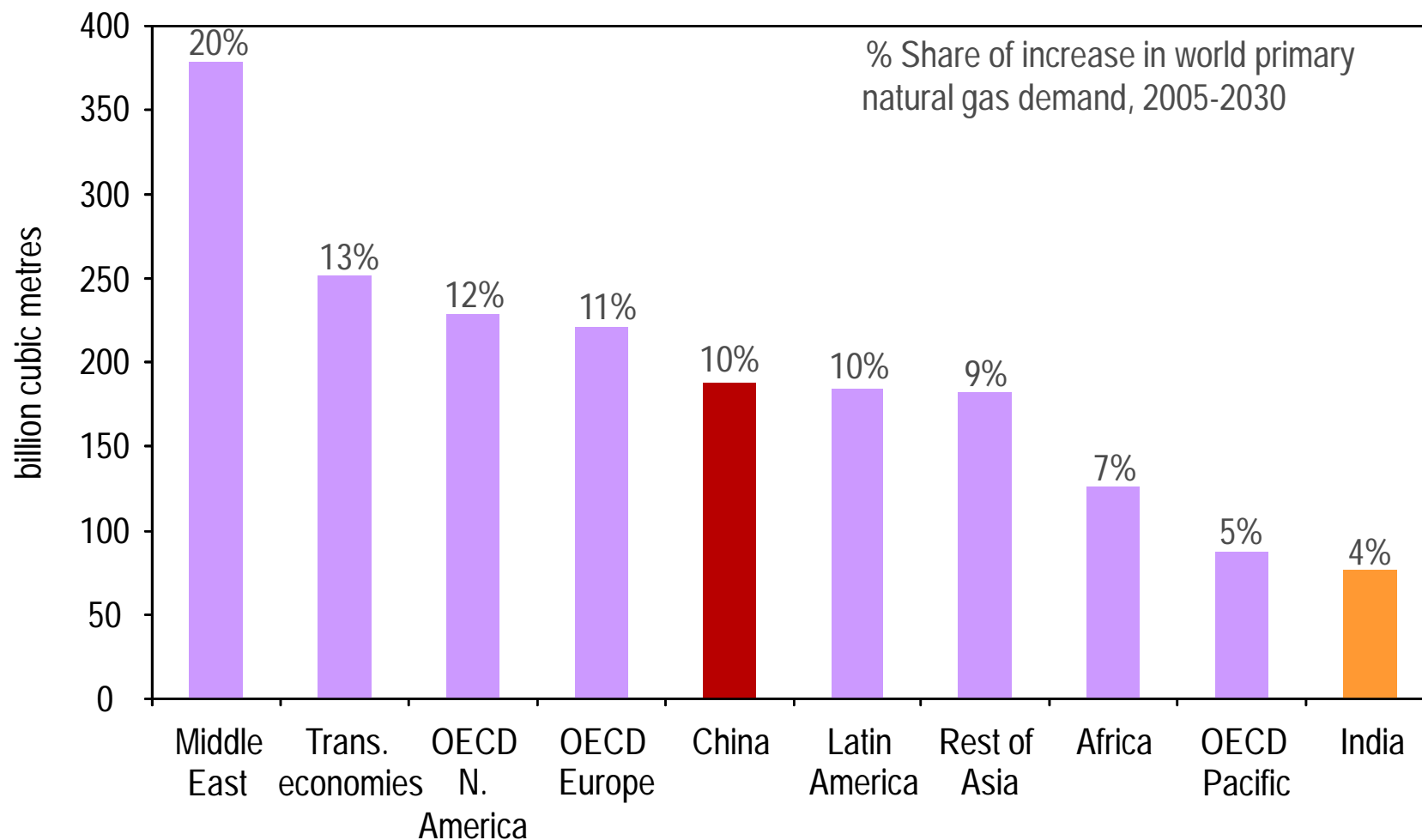
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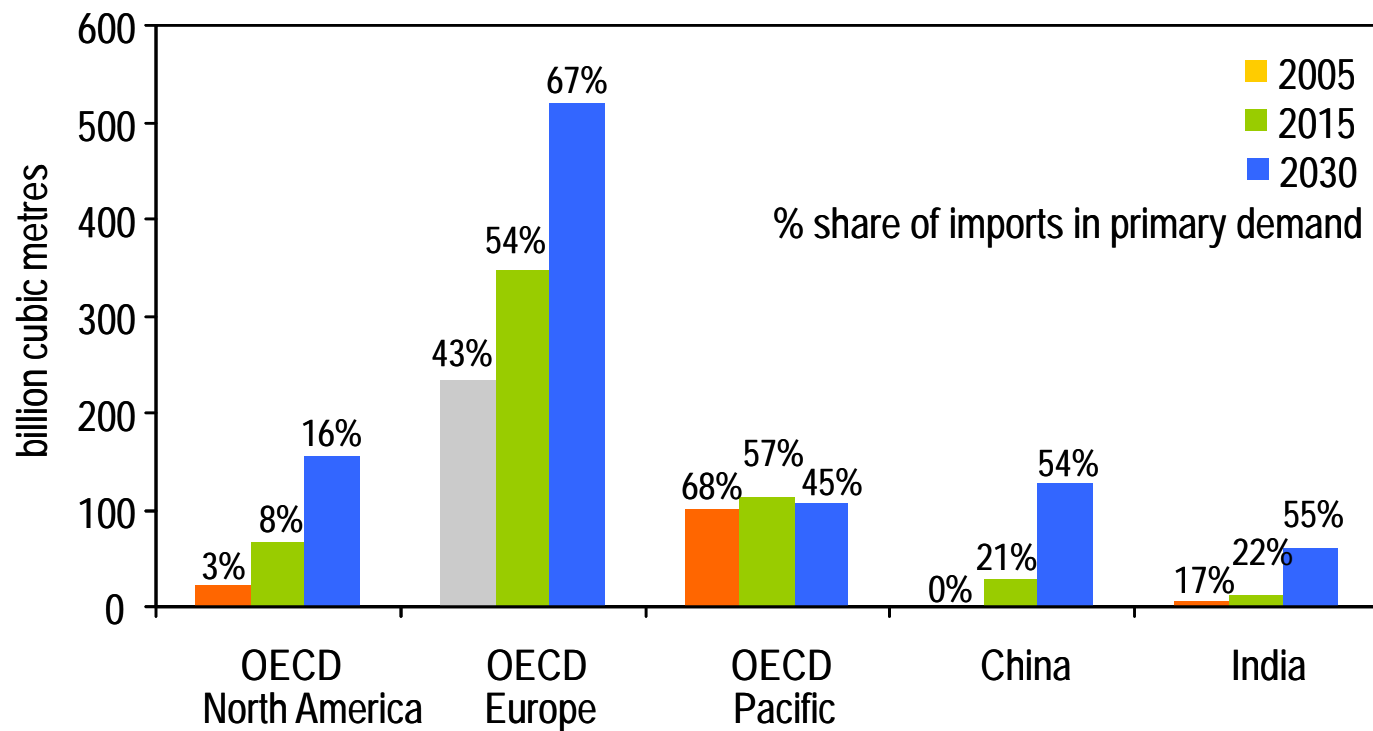
Increase in Primary Natural Gas Demand (2005-2030)



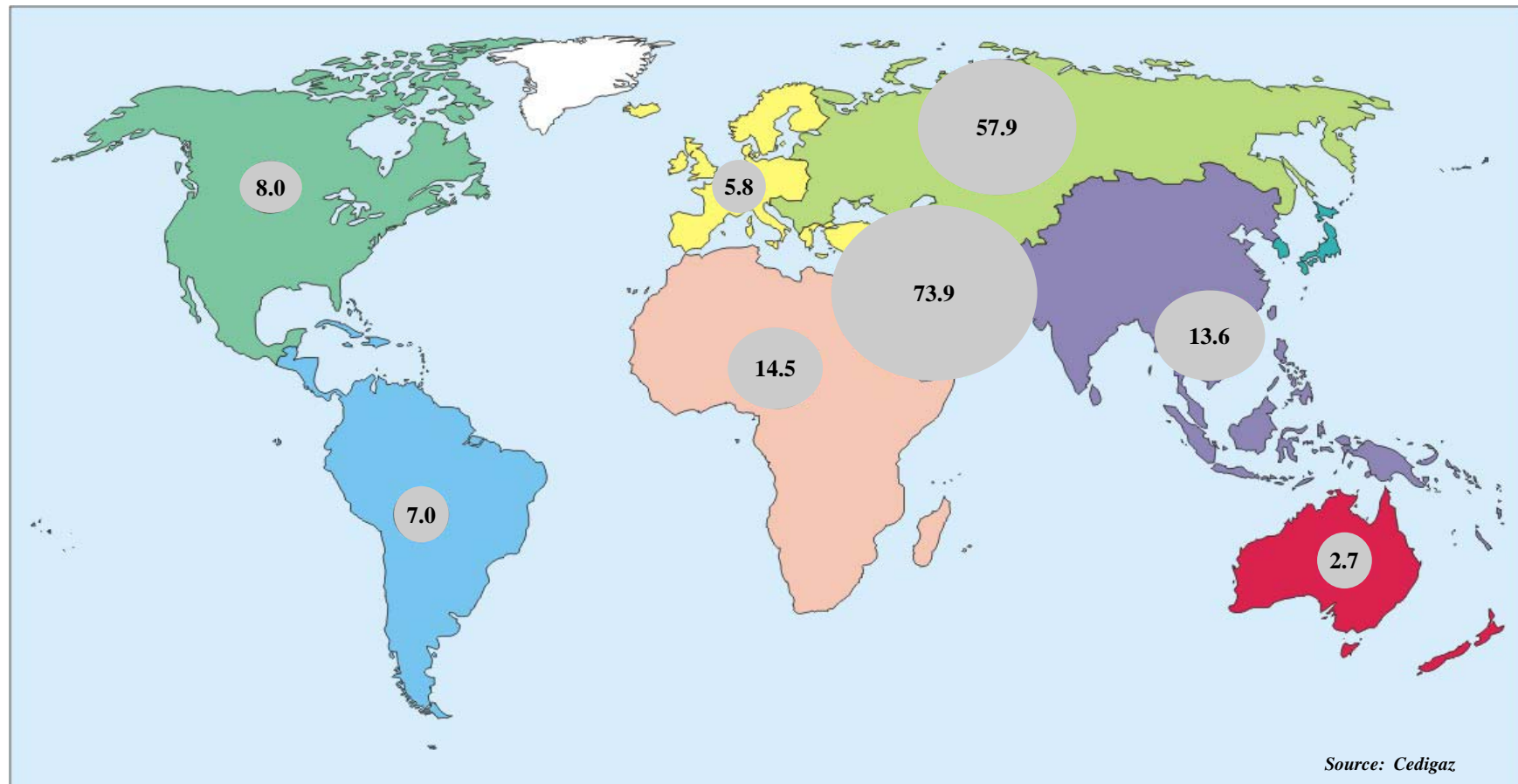
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Net Natural Gas Imports



Proven Natural Gas Reserves



World total: 183 tcm as of 1 January 2007

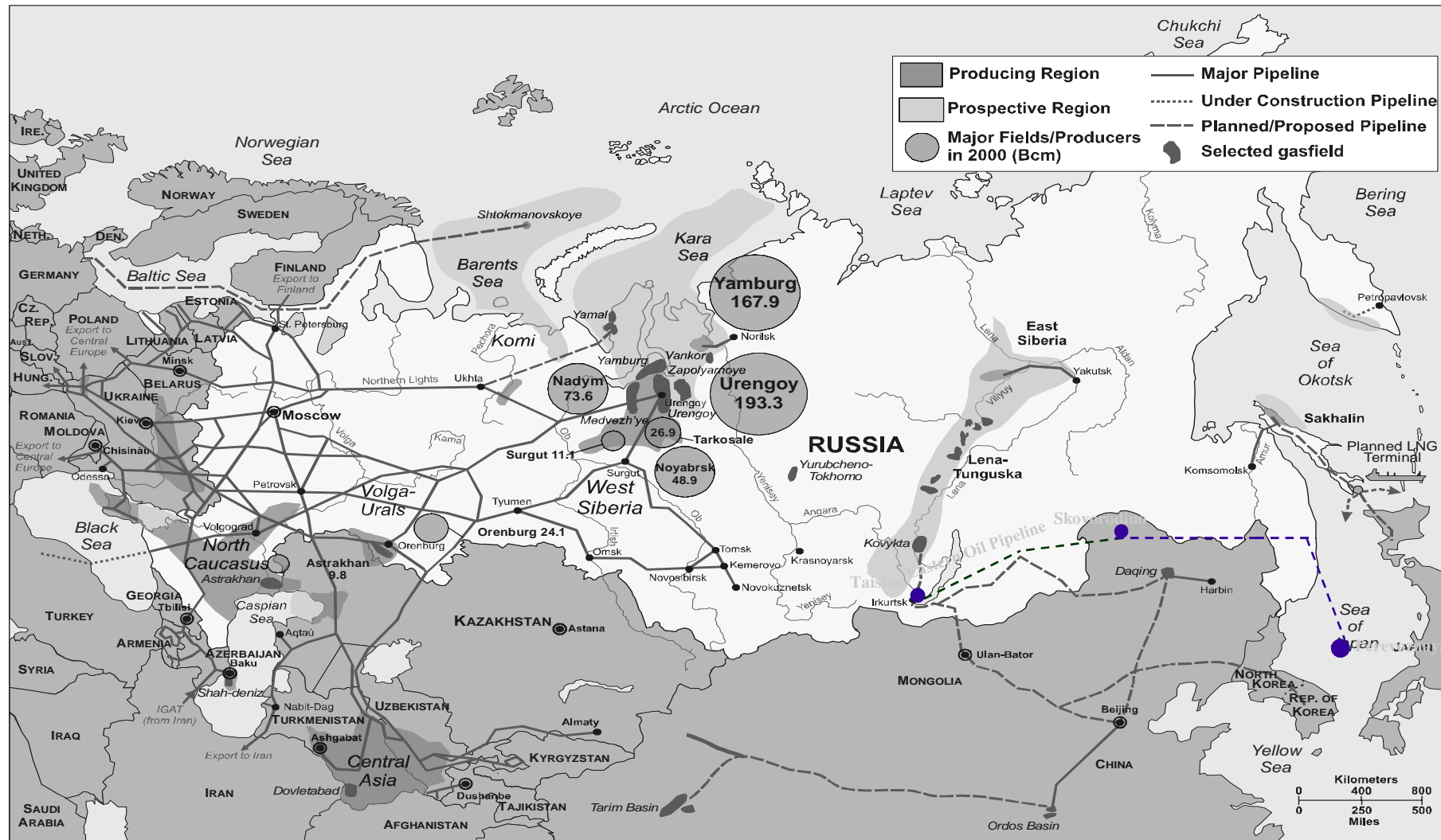


Euro-Asian Gas Network





Russia Natural Gas Picture (...and its outlook to the East)



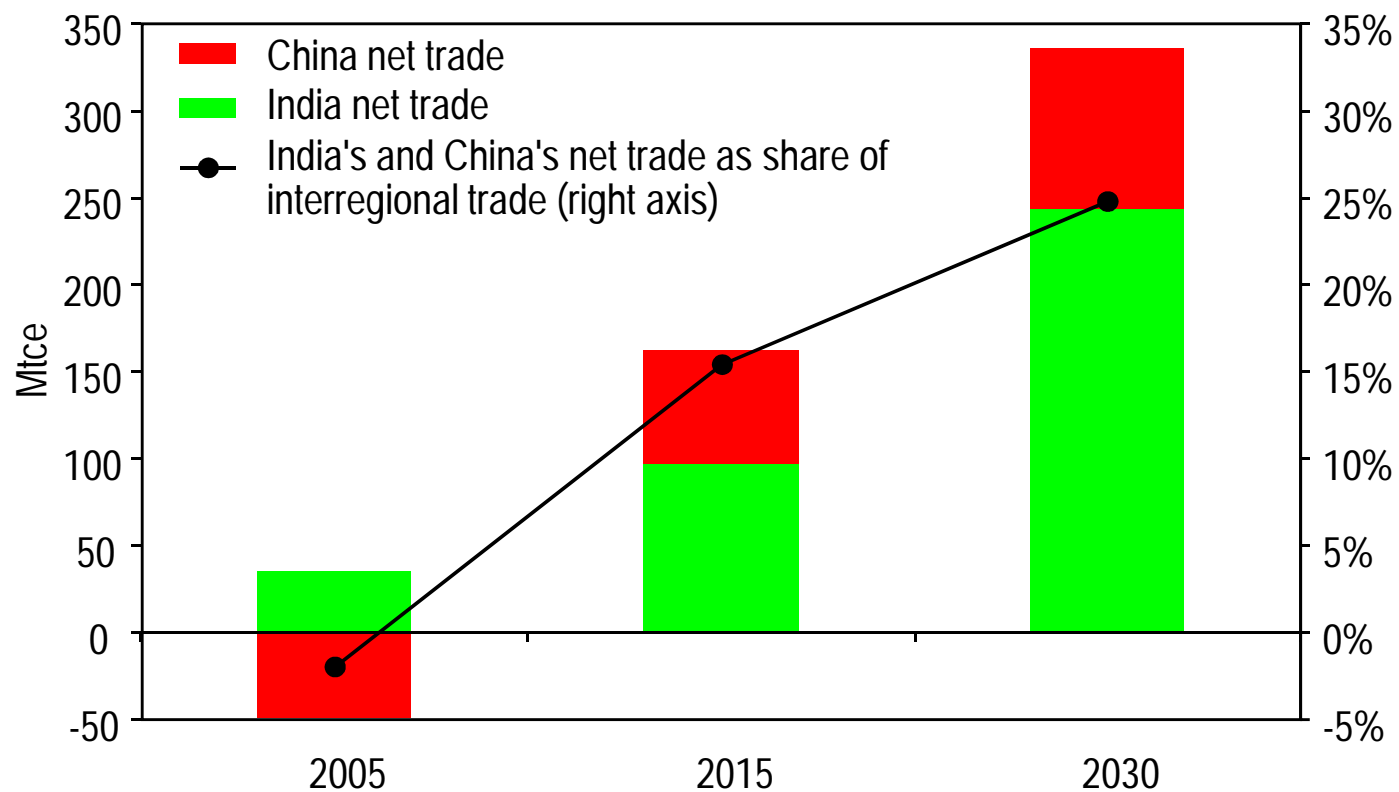
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China & India Coal Imports



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Environmental Impact and Climate Change

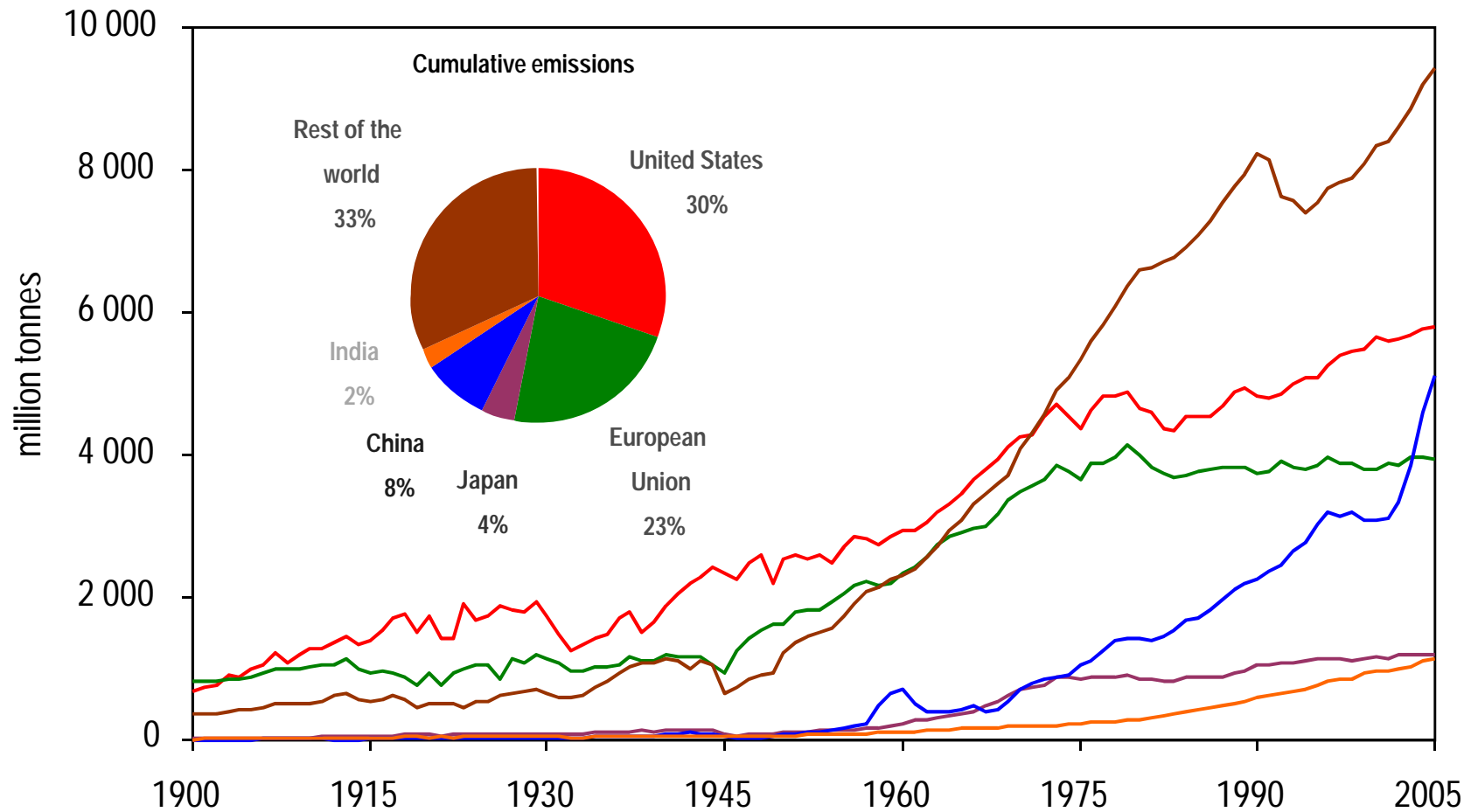
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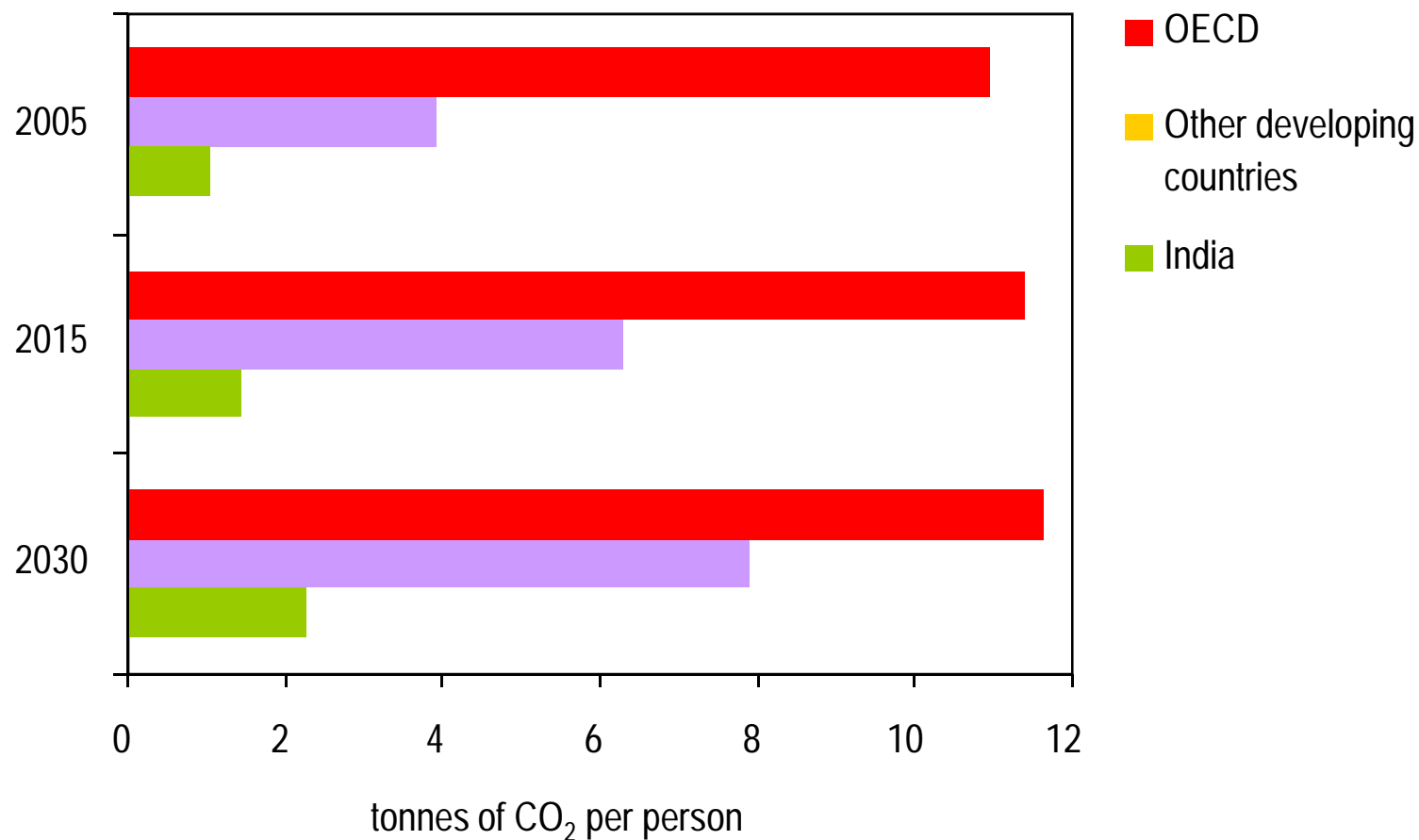
Energy-Related CO₂ Emissions by Region, 1900-2005



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Reference Scenario: Per-Capita Energy-Related CO₂ Emissions

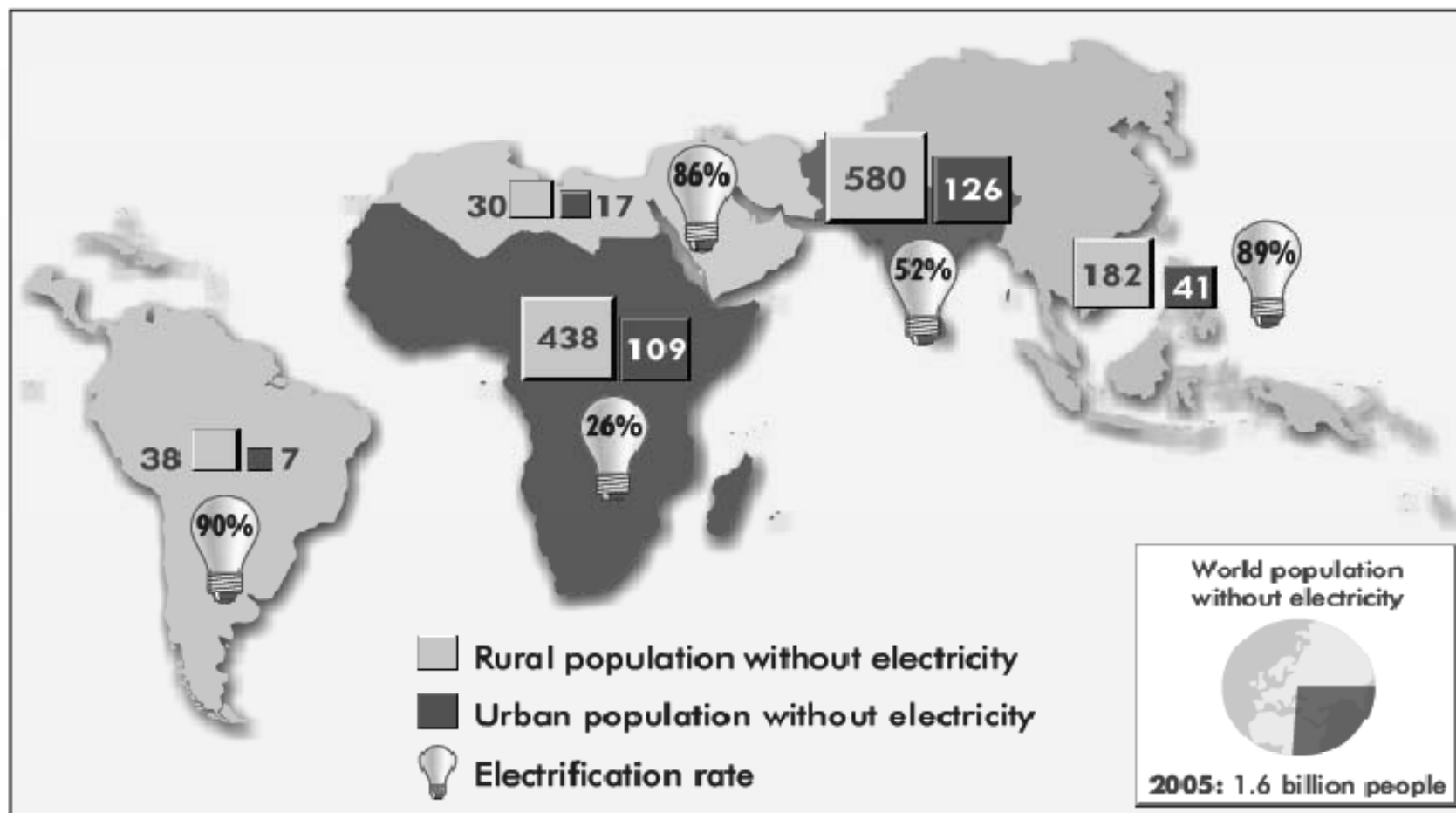


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BUT:
there is still substantial
Global Energy Poverty

Population without electricity, 2006





Energy Use & Human Development

- **Energy is prerequisite for economic & human development:**
 - Meeting basic need for food and shelter
 - Social development through education and public health

- ***The link is complex:***
 1. **Amount of energy used per capita**
 2. **Level of transition to modern energy services**
 3. **Share of population with access to electricity**



How to go beyond?

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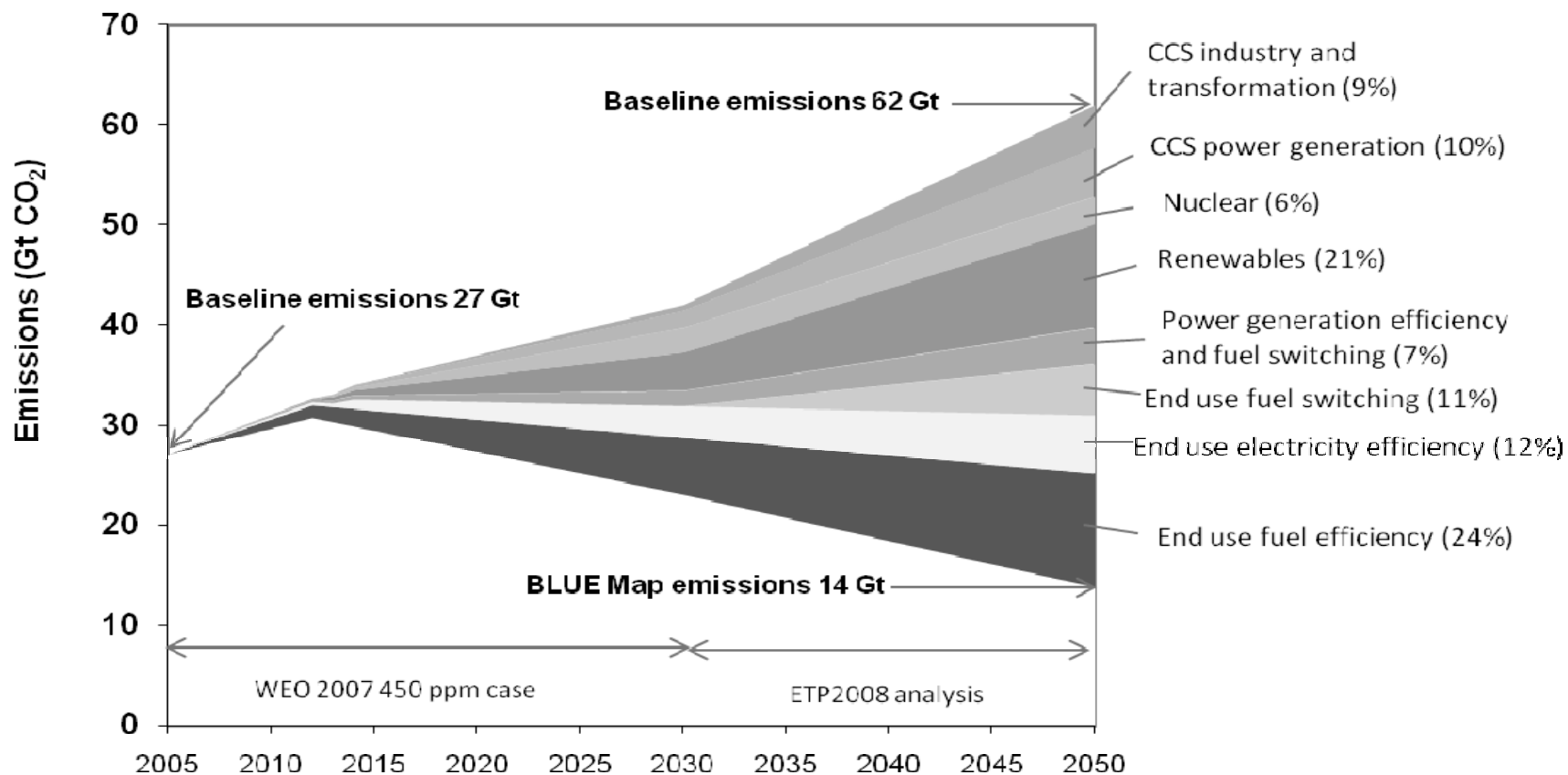
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A New Energy Revolution....

Cutting Energy Related CO₂ emissions

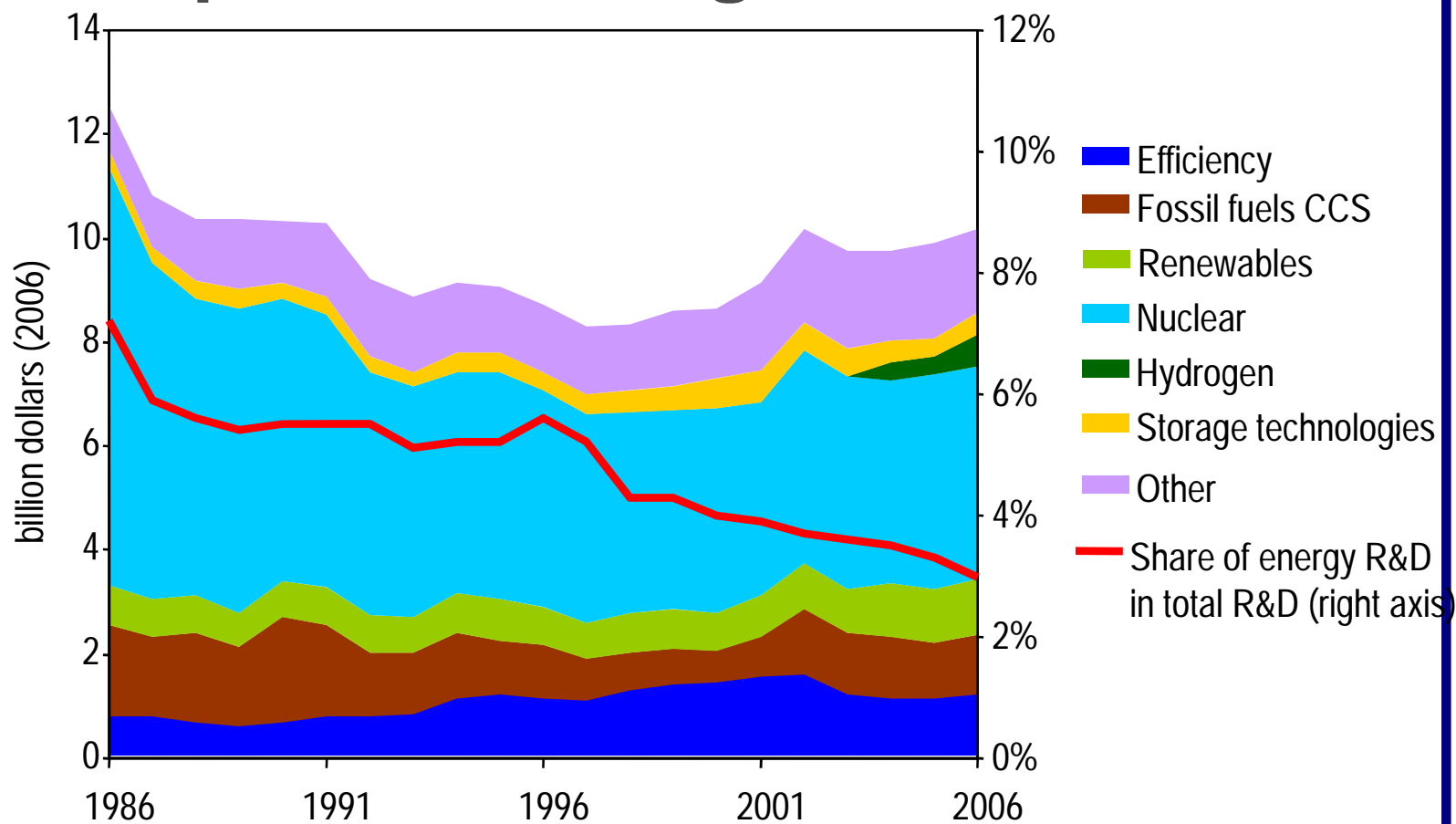


Improved efficiency and decarbonising the power sector could bring emissions back to current levels by 2050. To achieve a 50% cut we would also have to revolutionise the transport sector.

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Public Energy Research and Development Funding in IEA Countries



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