China, the European Union and the Restructuring of Global Governance
The Challenges of Energy

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The challenge of energy

- China, together with India, is the emerging giant of the world economy and of international energy markets.
- The consequences for China , the other emerging countries, the USA, the EU and the rest of the world of unfettered growth in global energy demand (+ 50% from 2005 to 2030) are, however, alarming in terms of both energy security (depletion of non renewable resources and increased dependance on the Middle East and Russia) and environmental sustainability (CO2 emissions)
- The challenge for all countries, including the EU and China, is to put in motion a transition to a more secure, lower-carbon energy system, without undermining economic and social development.

Expansion of China's share of world energy demand

- China's primary energy demand is projected to more than double from 2005 to 2030 (3.2% annual growth)
- China will overtake soon the US to become the world's largest energy consumer
- Oil demand for transport could almost quadruple between 2005 and 2030 , contributing more than two-thirds of the overall increase in Chinese oil demand.
- Rising incomes will underpin strong growth in housing, the use of electric appliances and space heating and cooling.

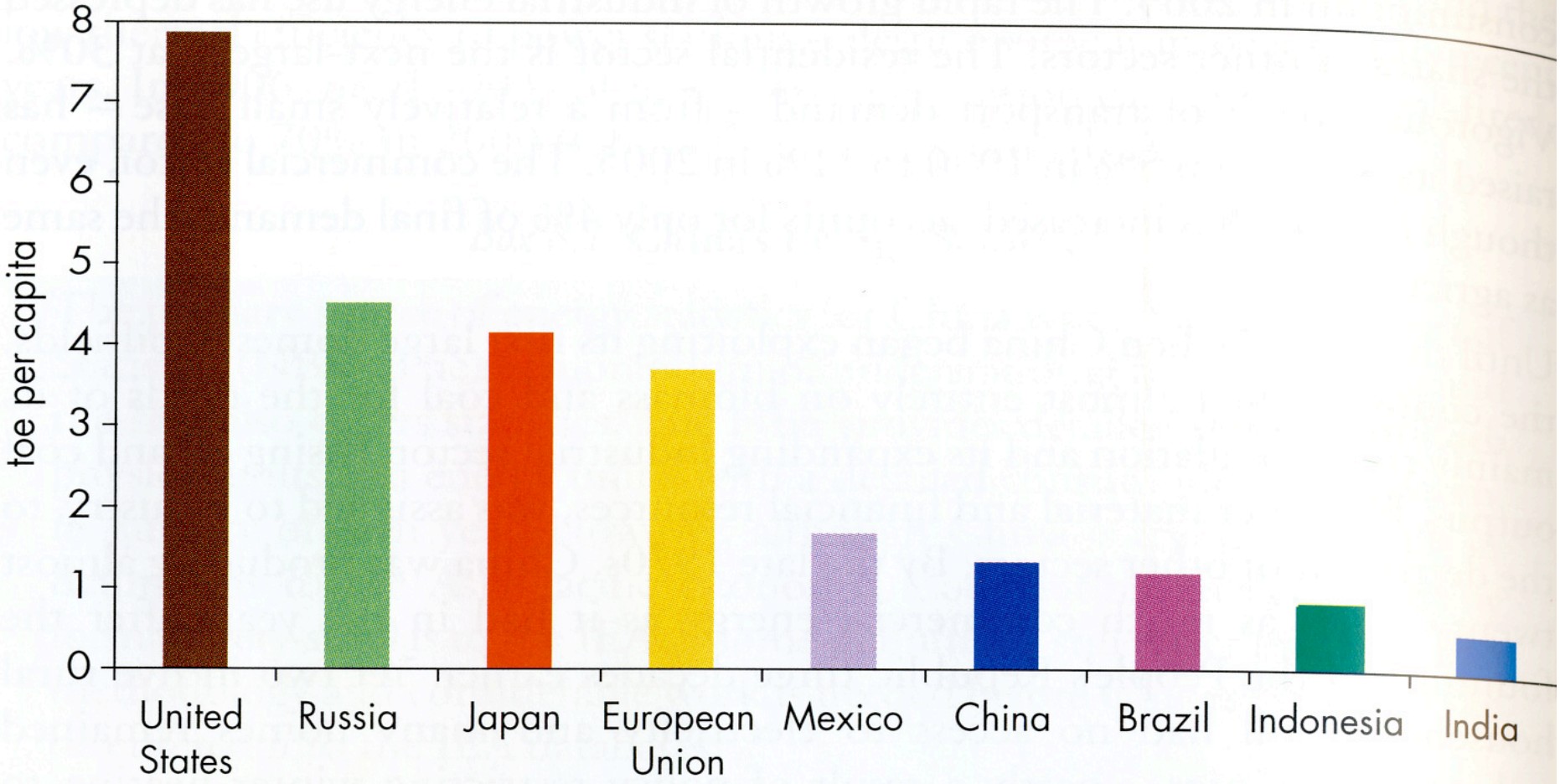
China's energy resources will not be sufficient

- China's energy resources – especially coal – are extensive, but will not meet all the growth in its energy needs . Oil imports could jump from 3.5mb/d in 2006 to 13.1 mb/d in 2030, while the share of imports in demand rises from 50% to 80%.
- Natural gas imports will also increase quickly.
- China will need to add more than 1,300 GW to its electricity-generating capacity, more than the total current installed capacity in the US. Coal will remain the dominant fuel in power generation

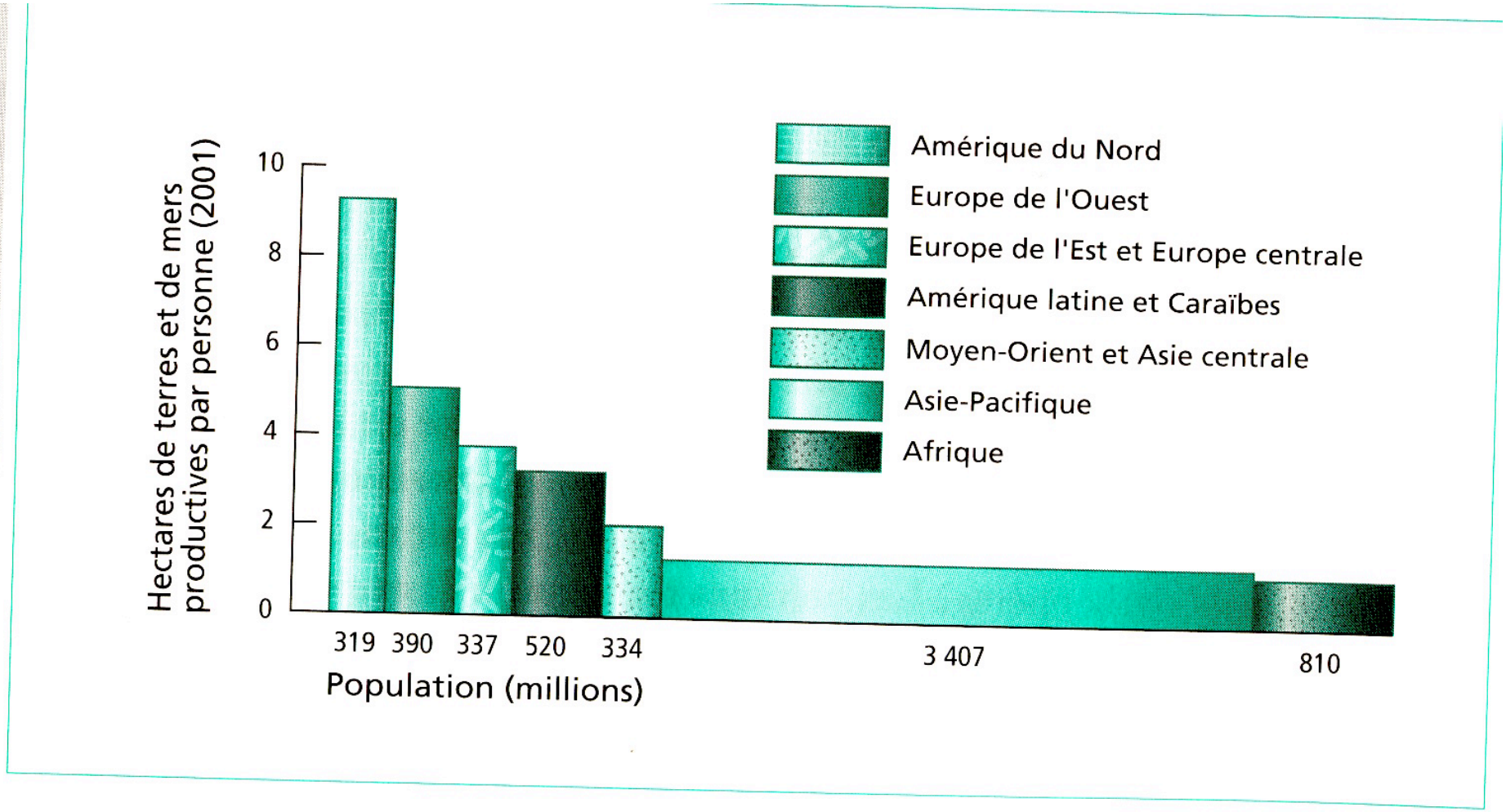
Stronger action is needed

- China is already making major efforts to address the causes and consequences of burgeoning energy use but even stronger measures will be needed.
- Government action must focus on curbing the rapid growth in CO2 emissions from coal-fired power stations- the primary cause of the surge in global emissions in the last few years;
- Many of the policies available to alleviate energy insecurity can also help to mitigate local pollution and climate change, and vice versa.
- There are large potential gains to the OECD countries, on the one hand, and China and the other emerging countries, on the other , from enhanced policy cooperation

Figure 8.2: **Per-Capita Primary Energy Demand in China, India and Other Selected Countries, 2005**



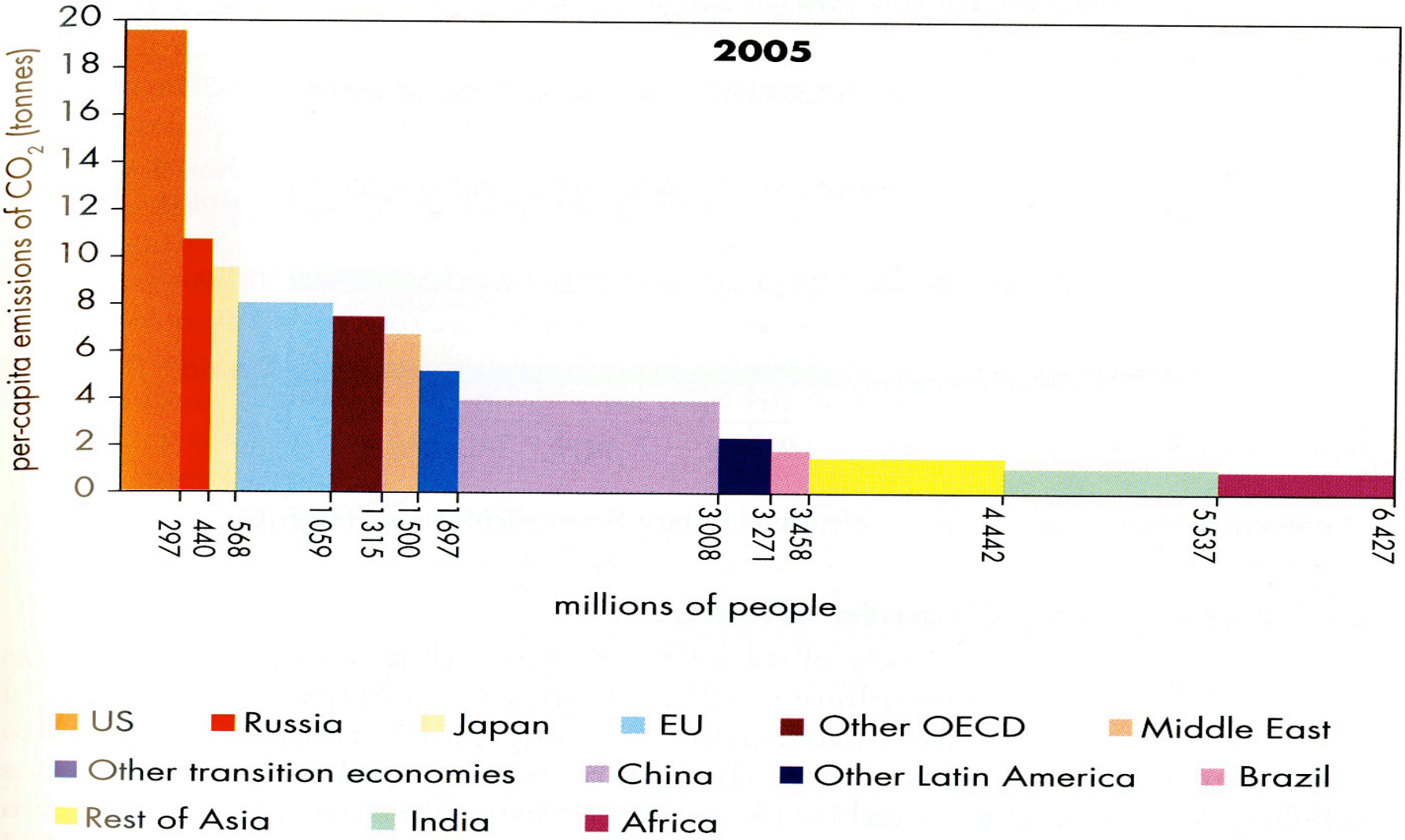
Source : International Energy Agency : World Energy Outlook 2007
China and India insights



Empreinte écologique par région :
– un Américain du Nord consomme près de 10 ha ;
– un Européen 5,1 ha ;
– un Africain 1,2 ha.

Source : Mérenne-Schoumaker, Géographie de l'énergie

Figure 5.10: **Per-Capita Energy-Related CO_2 Emissions and Population by Region in the Reference Scenario**



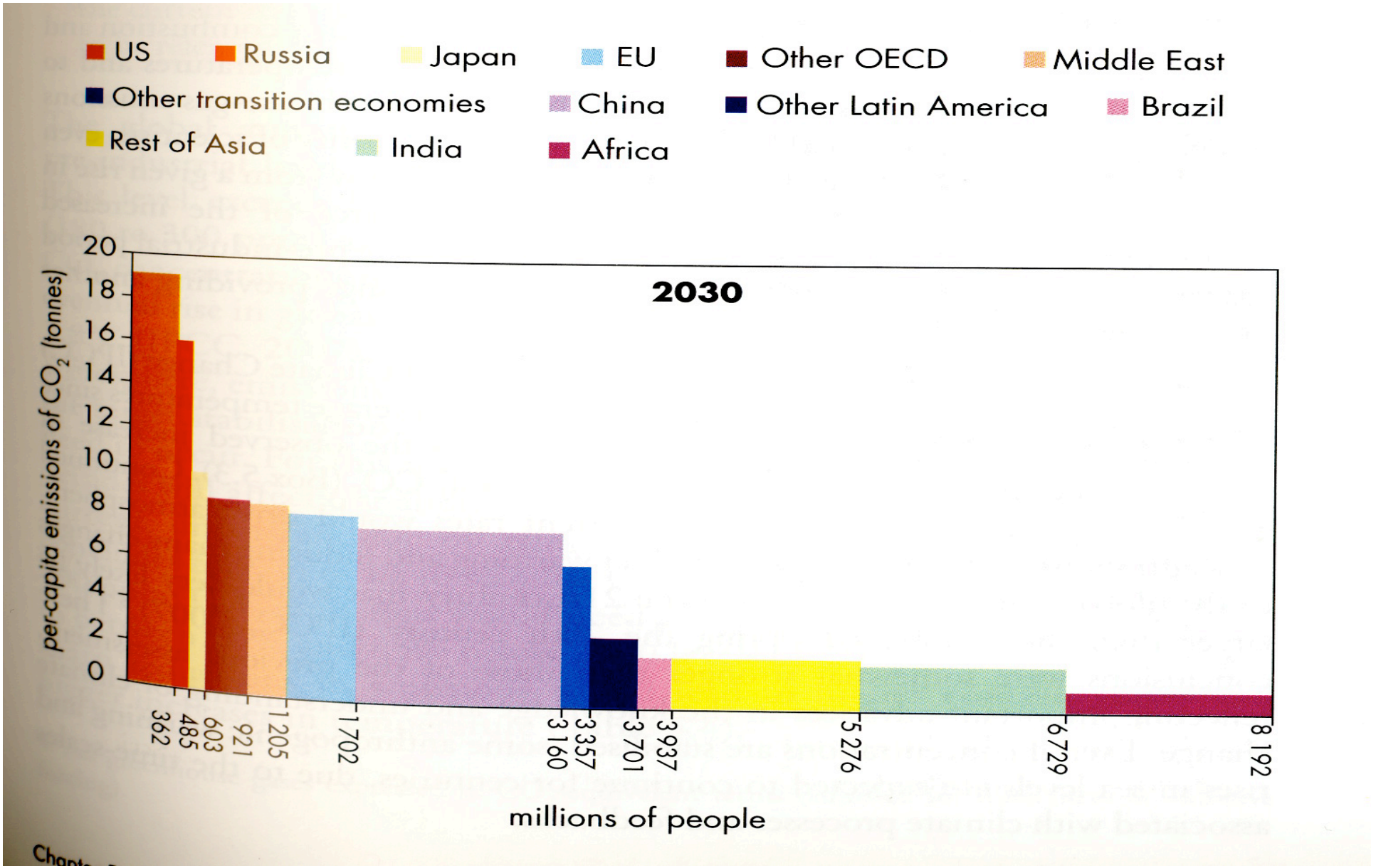
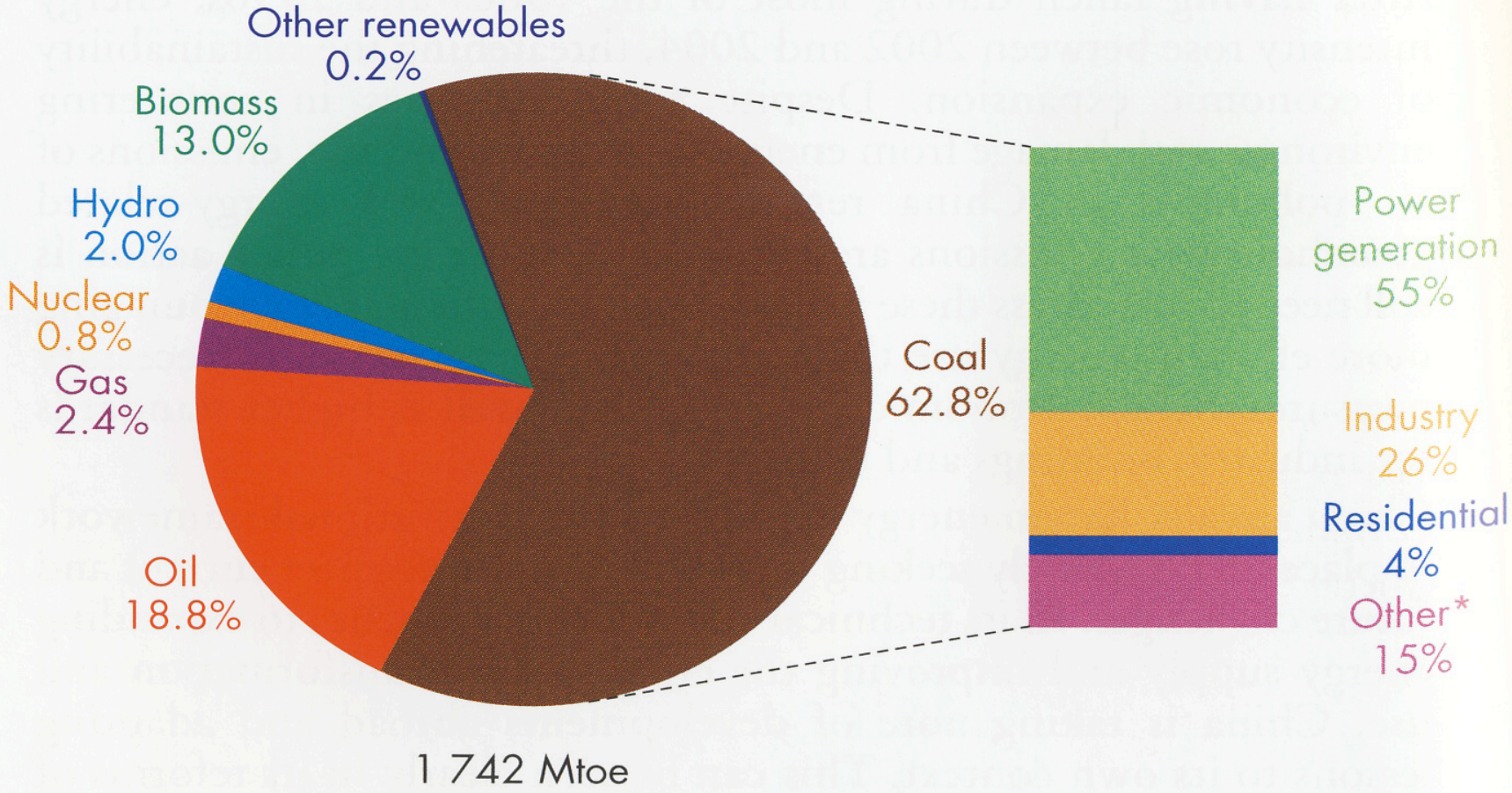
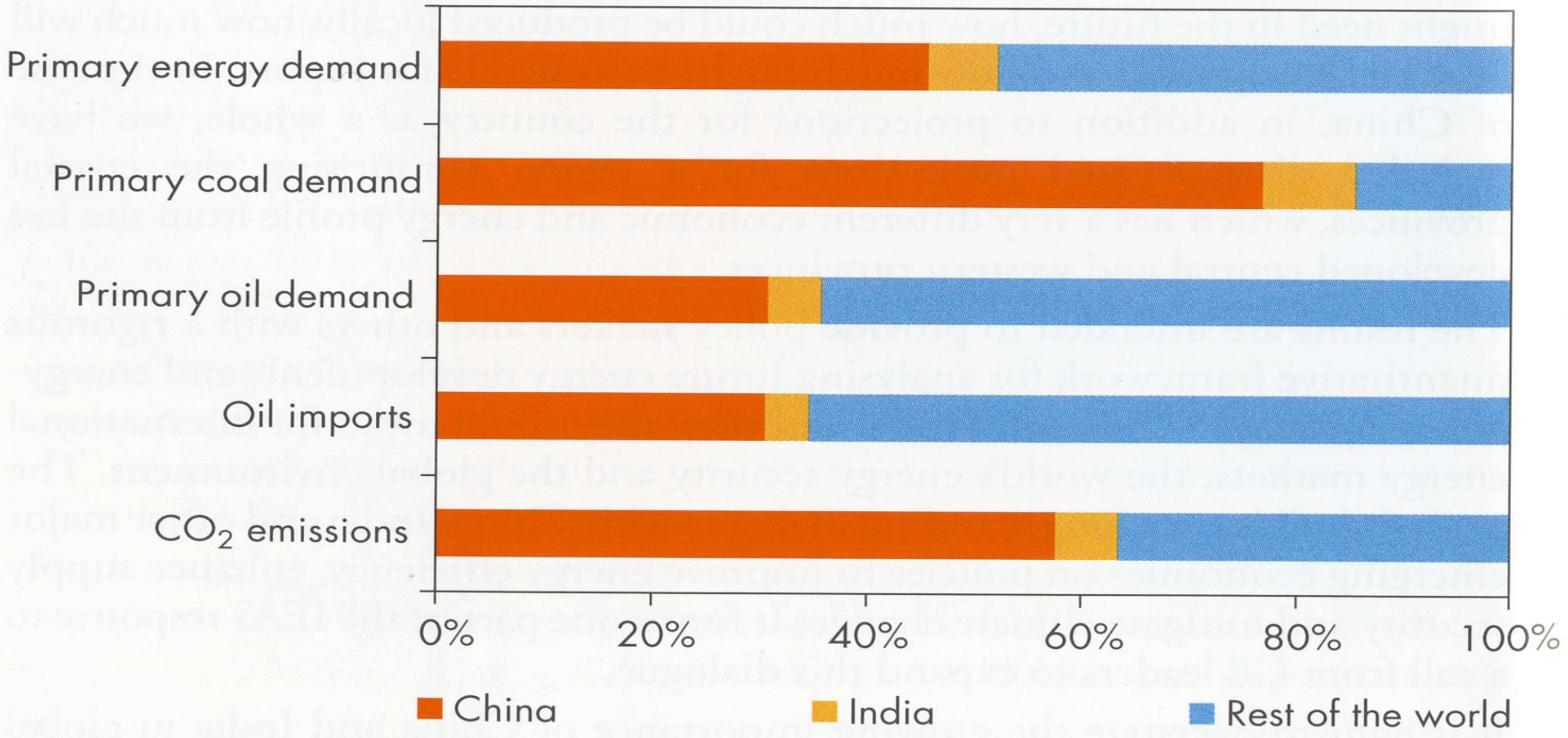

US
Russia
Japan
EU
Other OECD
Middle East
Other transition economies
China
Other Latin America
Brazil
Rest of Asia
India
Africa
2030
per-capita emissions of CO_2 (tonnes)
20
18
16
14
12
10
8
6
4
2
0
362
485
603
921
1 205
1 702
3 160
3 357
3 701
3 937
5 276
6 729
8 192
millions of people

Figure 8.1: **Total Primary Energy Demand in China, 2005**



* Includes other energy sector, transport, services, agriculture, non-energy use and non-specified.
Note: Totals and shares are different from those shown in Chinese statistics (see Box 8.1).

Figure 1: **Share of China and India in Incremental Energy Demand, Imports and Energy-Related CO_2 Emissions, 2000-2006***



* Based on preliminary estimates for 2006.

Figure 1.1: **World Primary Energy Demand in the Reference Scenario**

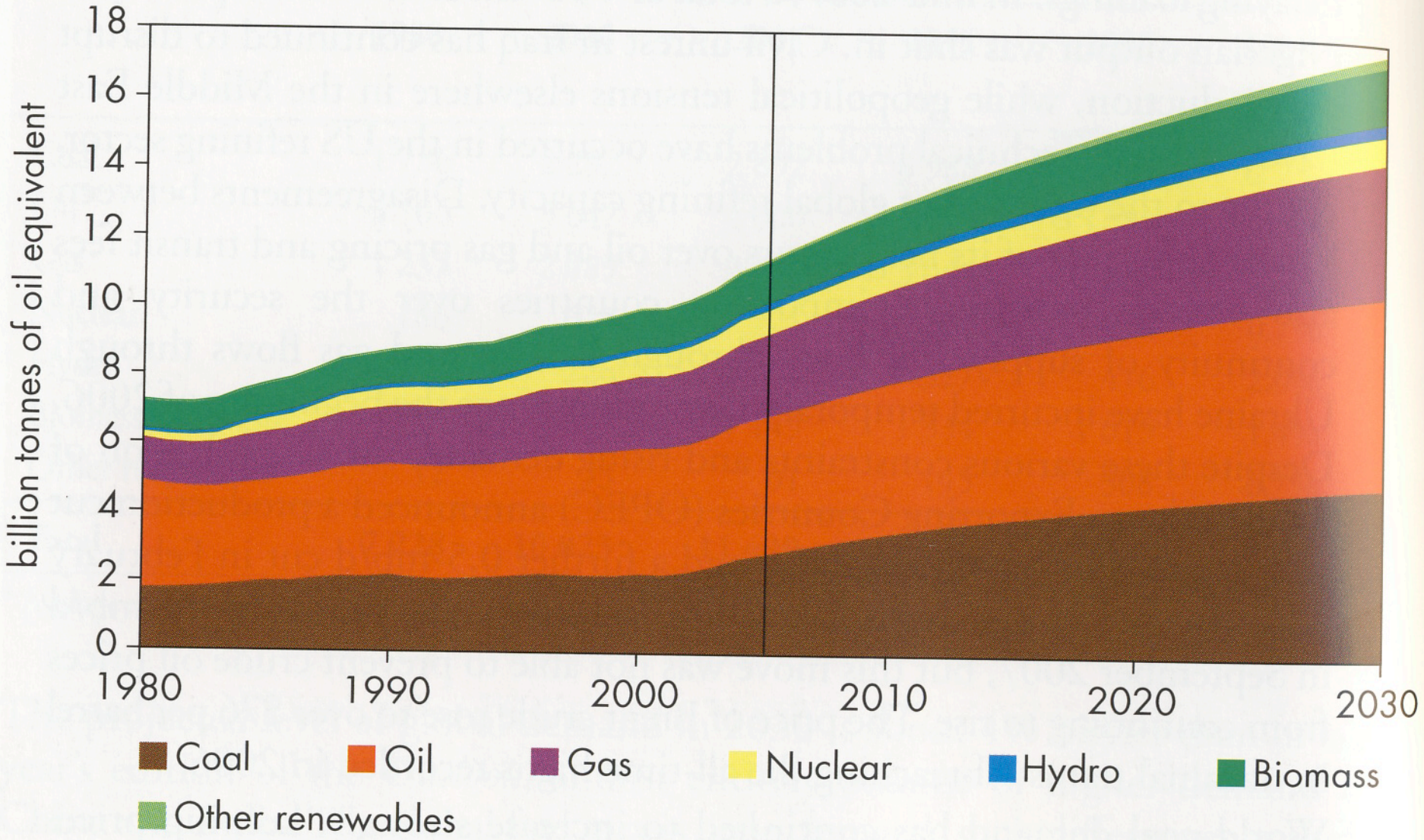


Figure 1.2: **Increase in World Primary Energy Demand by Fuel in the Reference Scenario**

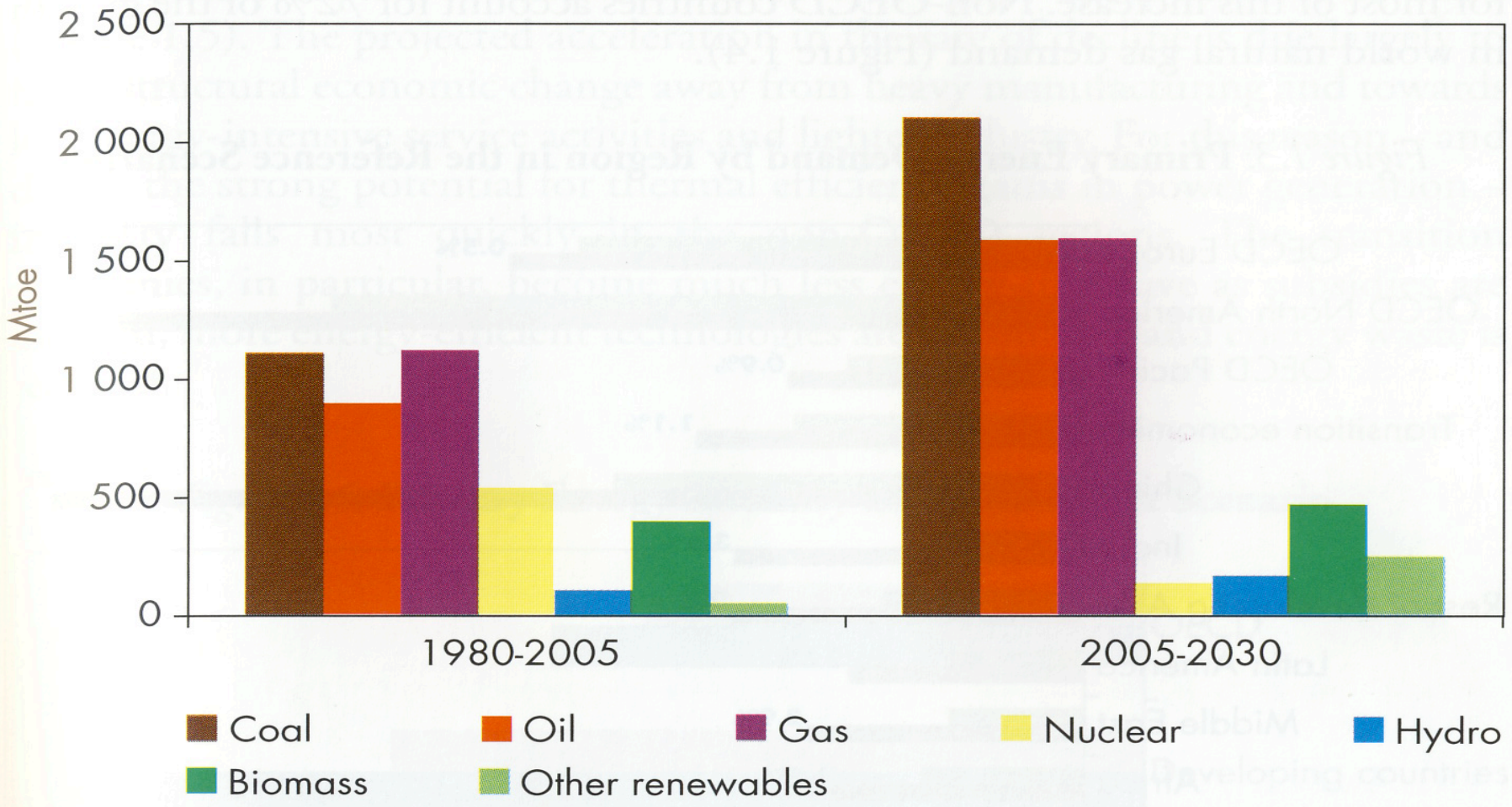


Figure 2.1: **Shares of China and India in the Increase in World Primary Energy Demand by Fuel in the Reference Scenario, 2005-2030**

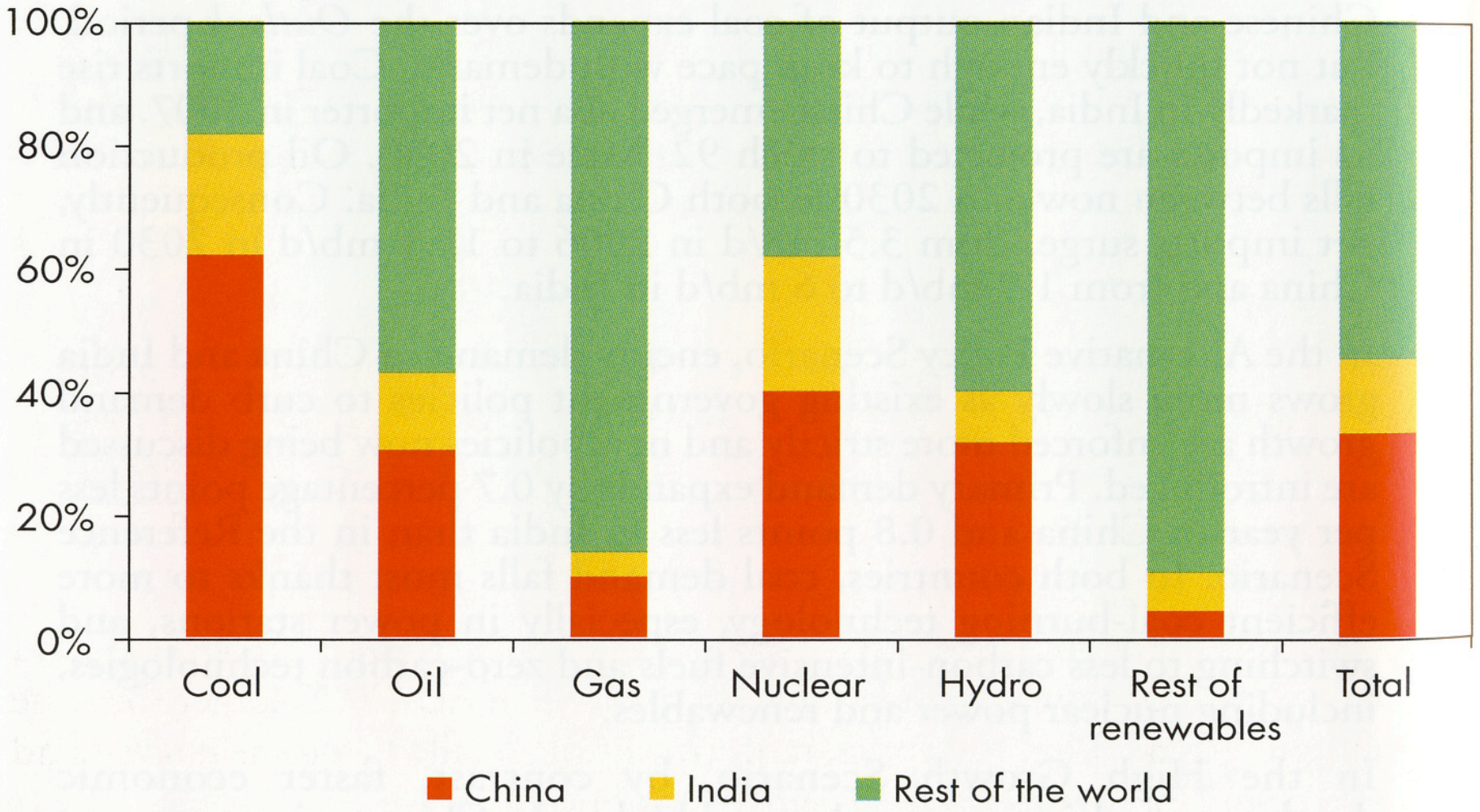
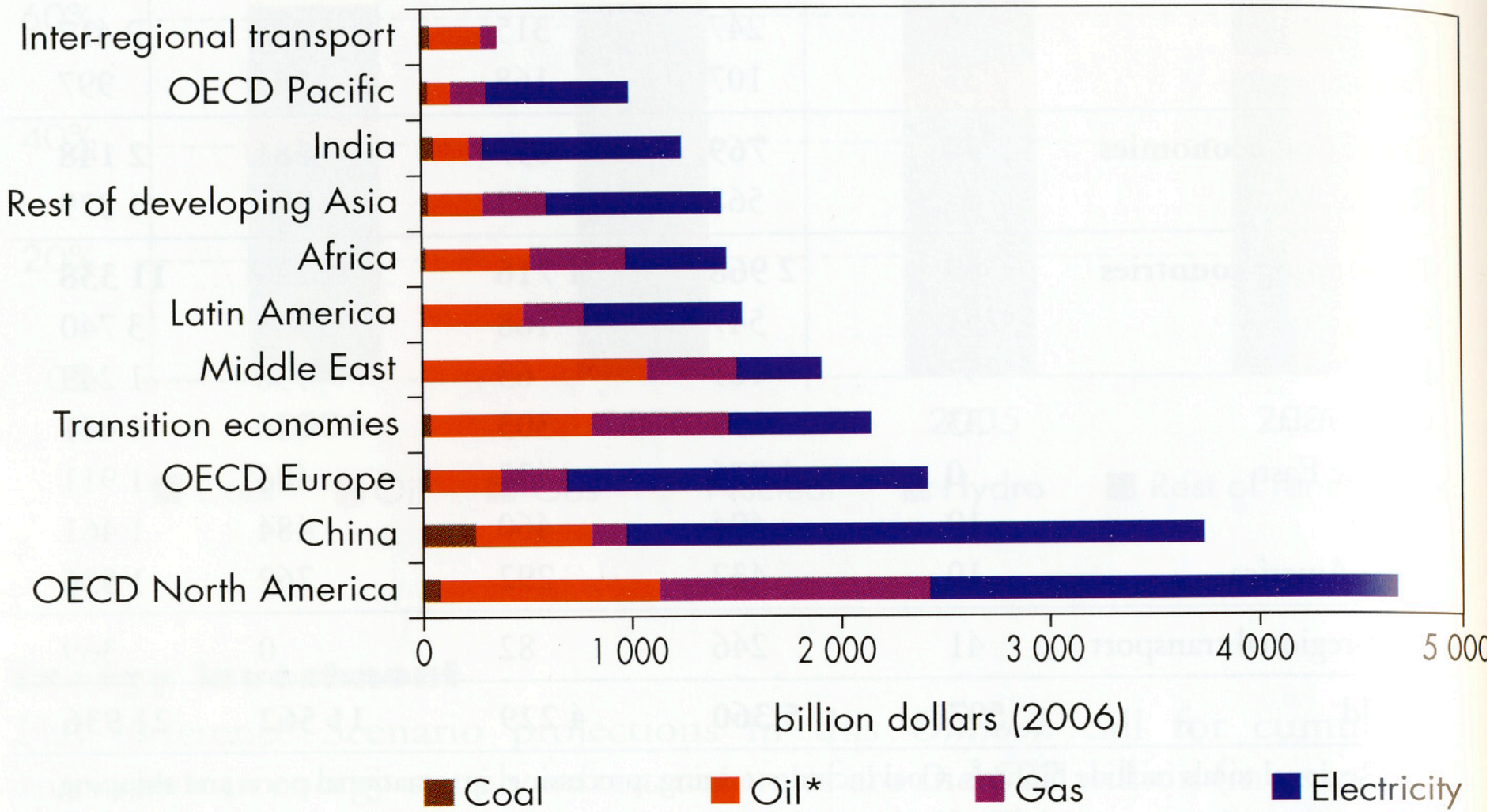
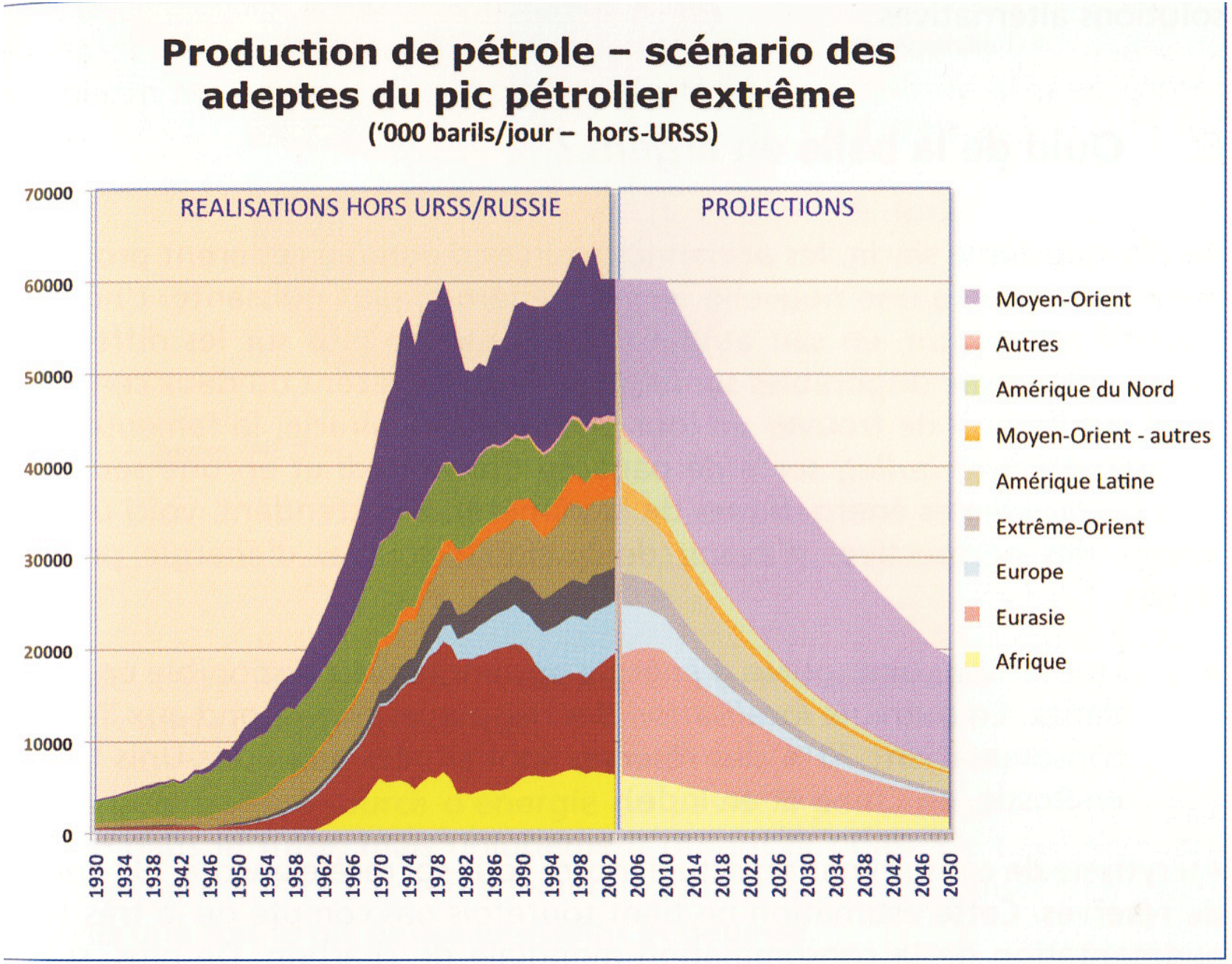


Figure 1.13: **Cumulative Investment in Energy Infrastructure in the Reference Scenario by Fuel and Region, 2006-2030**





Source : Geert Noels, Econochoc

Figure 1.7: **Net Oil Trade* in the Reference Scenario**

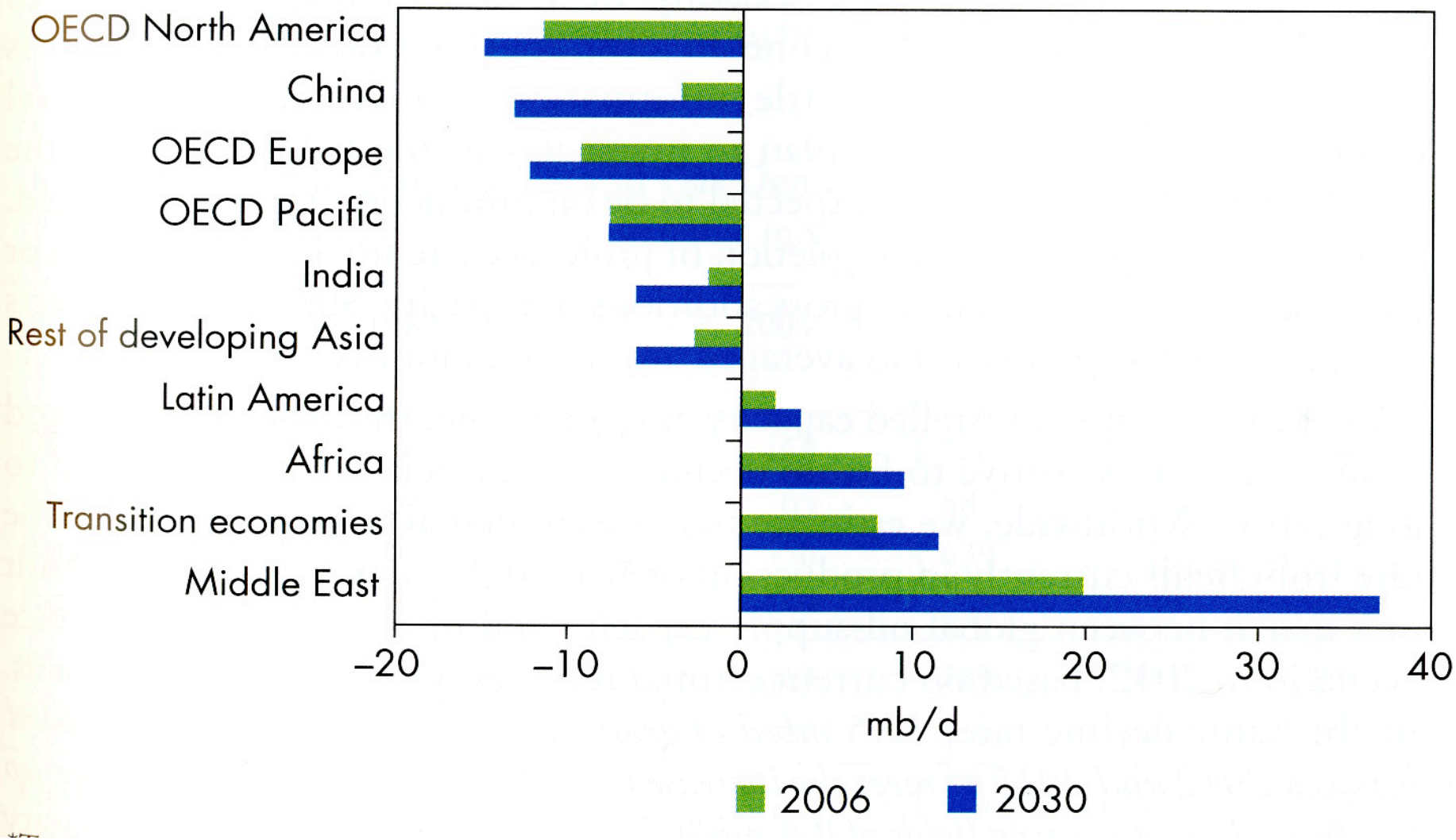


Figure 2.5: **Net Oil Imports in China and India in the Reference Scenario**

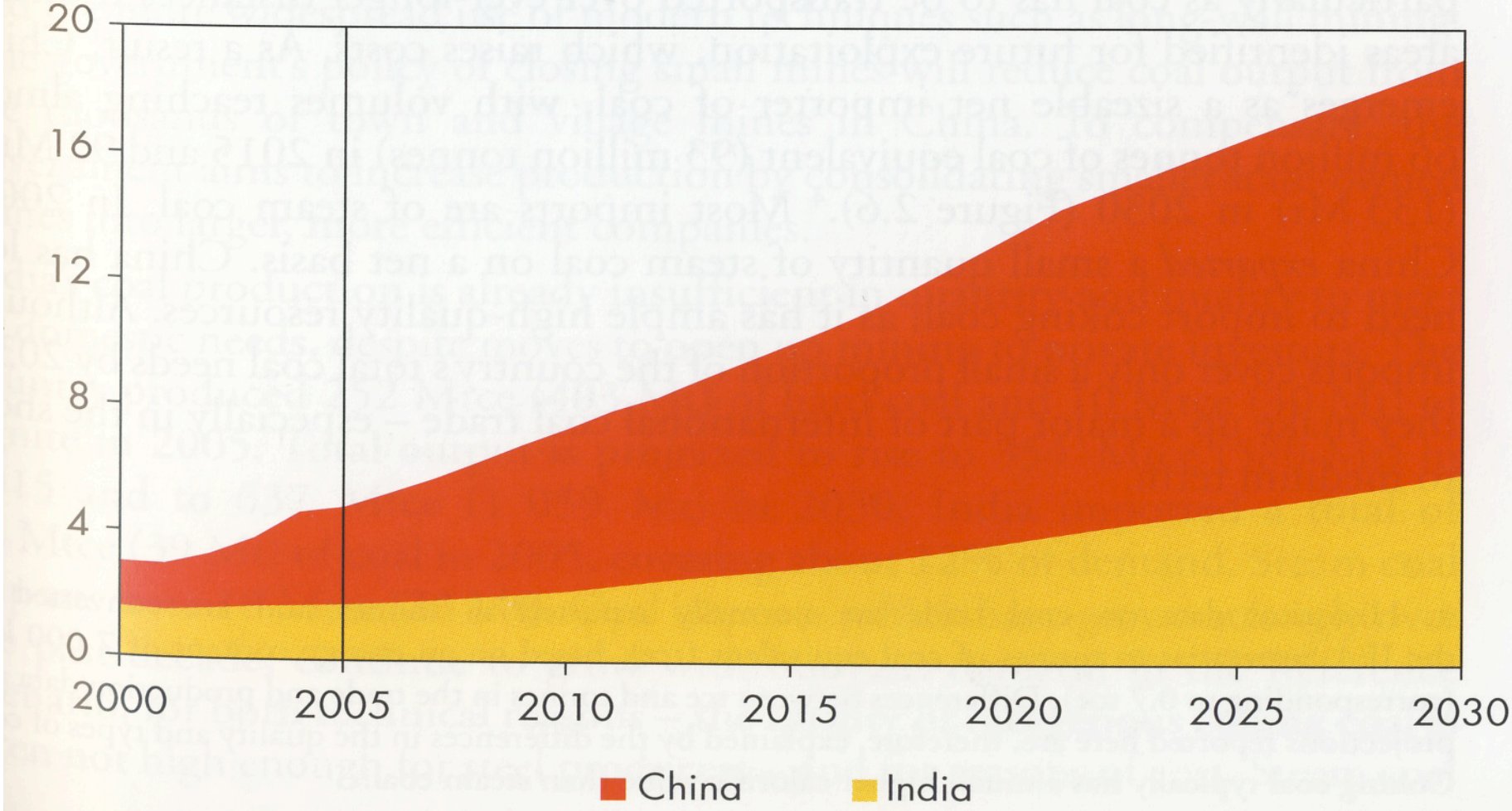
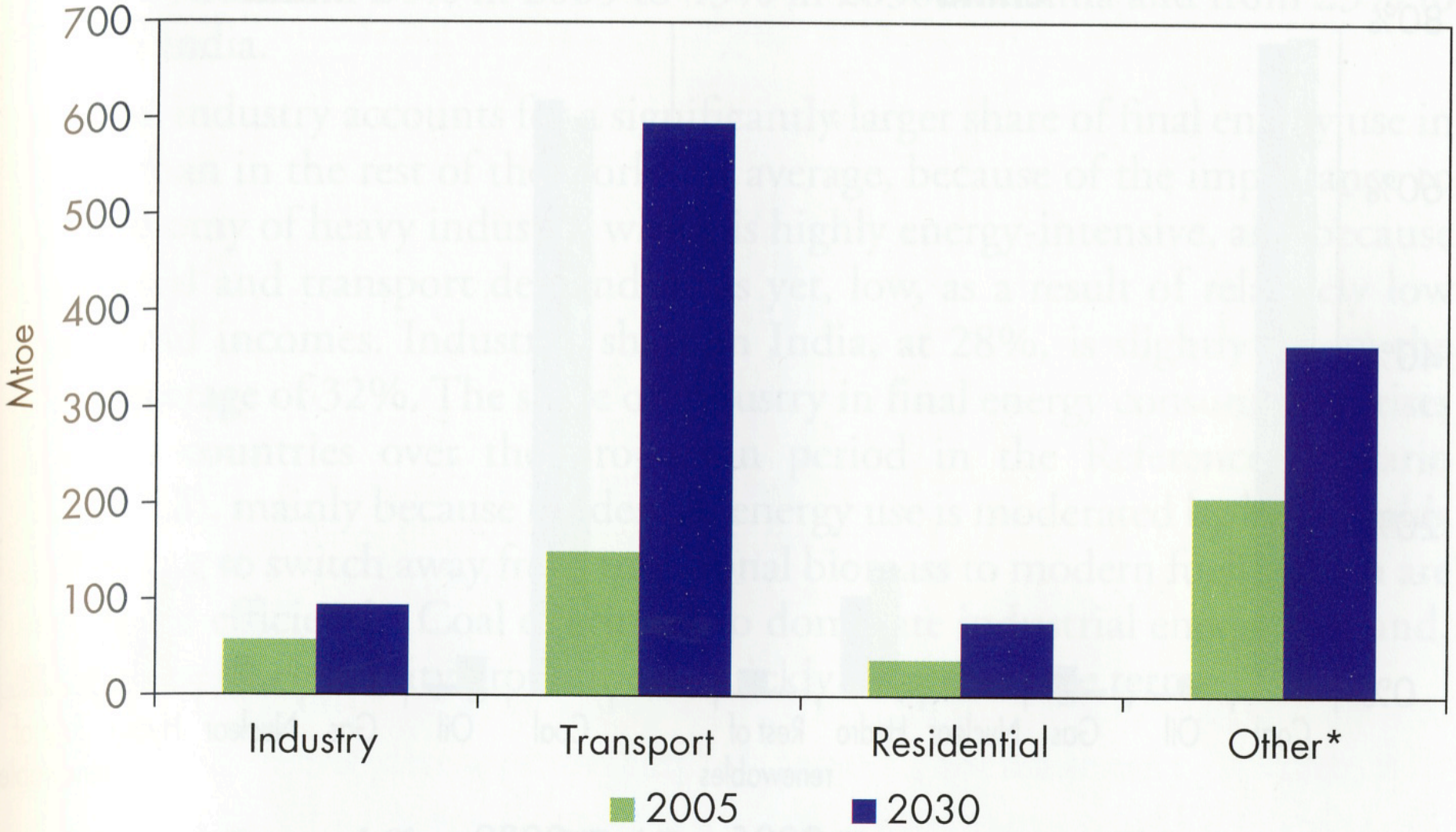
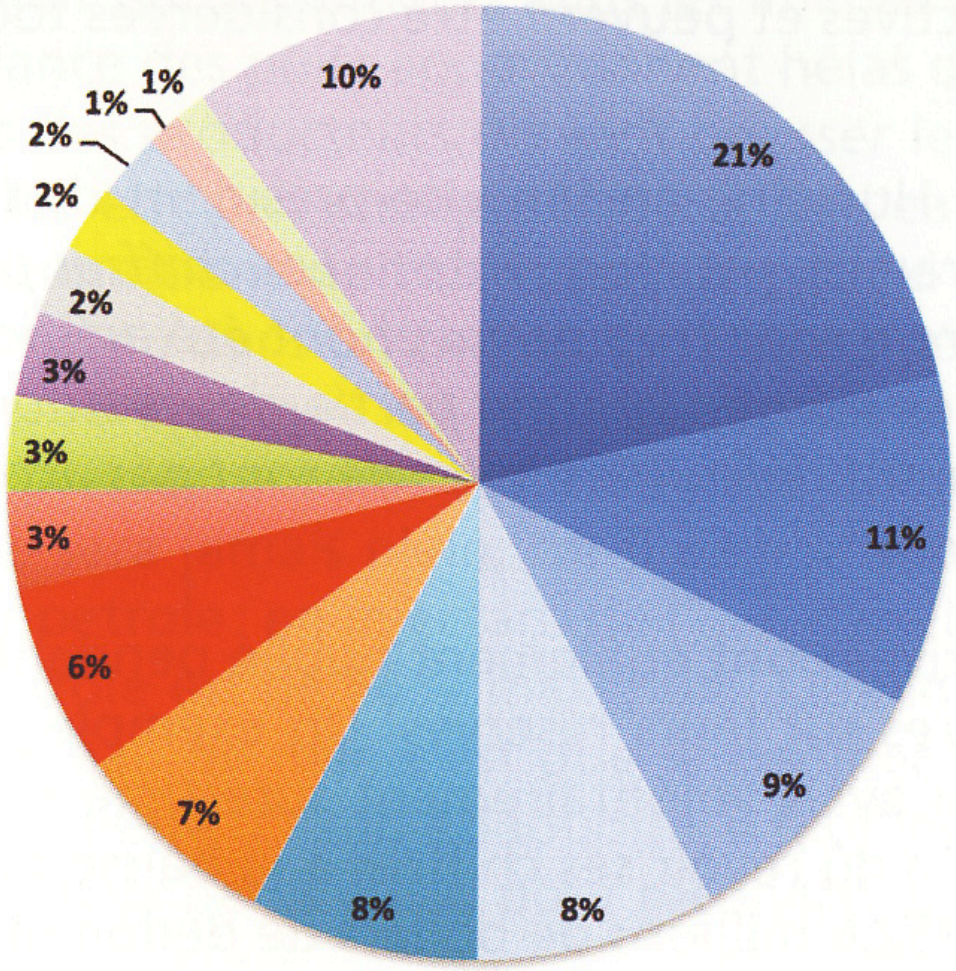


Figure 2.2: **Primary Oil Demand in China and India by Sector in the Reference Scenario**



Réserves de pétrole en % du total



- Arabie saoudite
- Iran
- Iraq
- Koweït
- Émirats arabes unis
- Venezuela
- Russie
- Libye
- Kazakhstan
- Nigéria
- États-Unis
- Canada
- Qatar
- Chine
- Brésil
- Reste du monde

Source : annuaire statistique 2008 de BP

Figure 4.4: **Oil Export Flows from the Middle East**

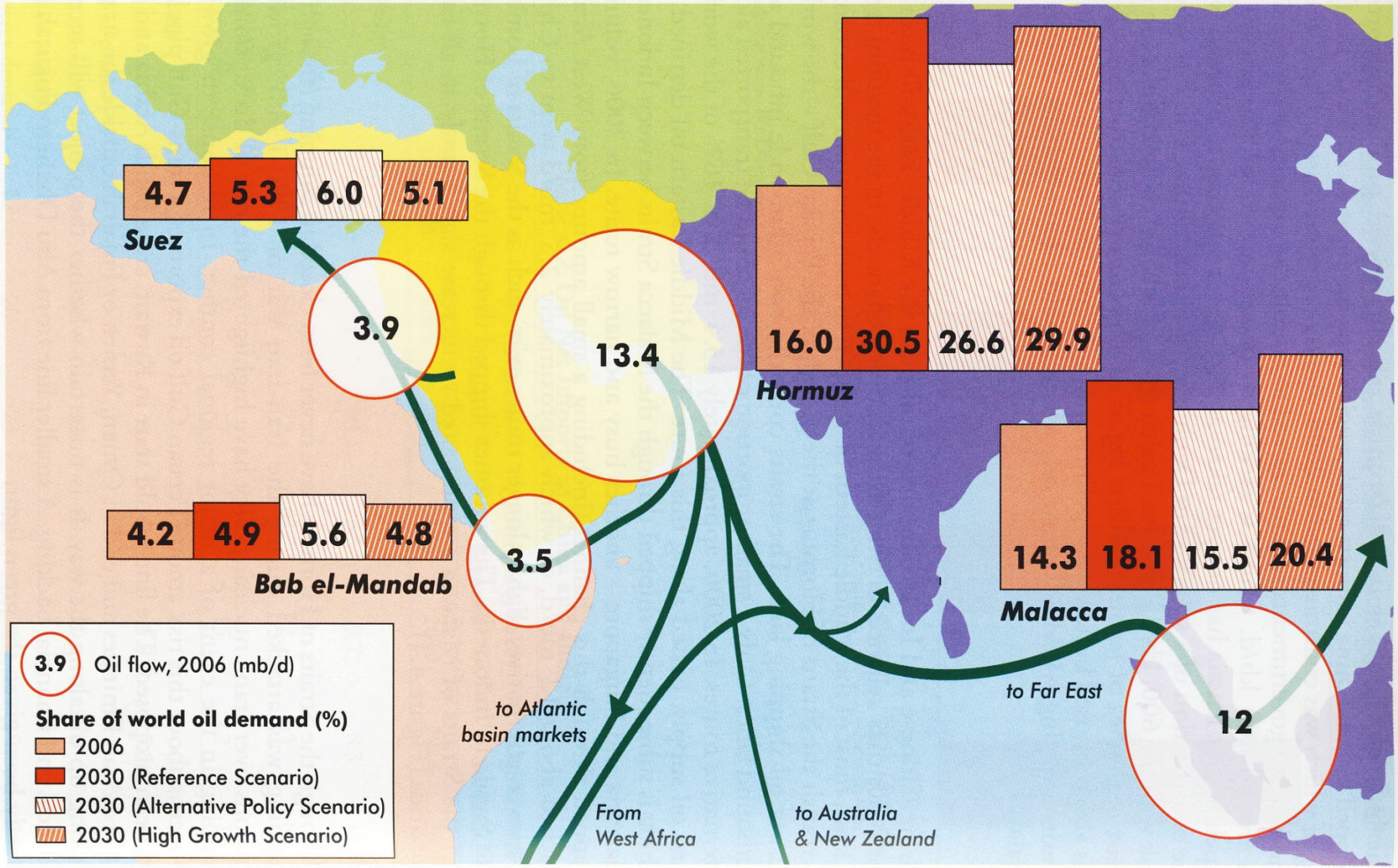
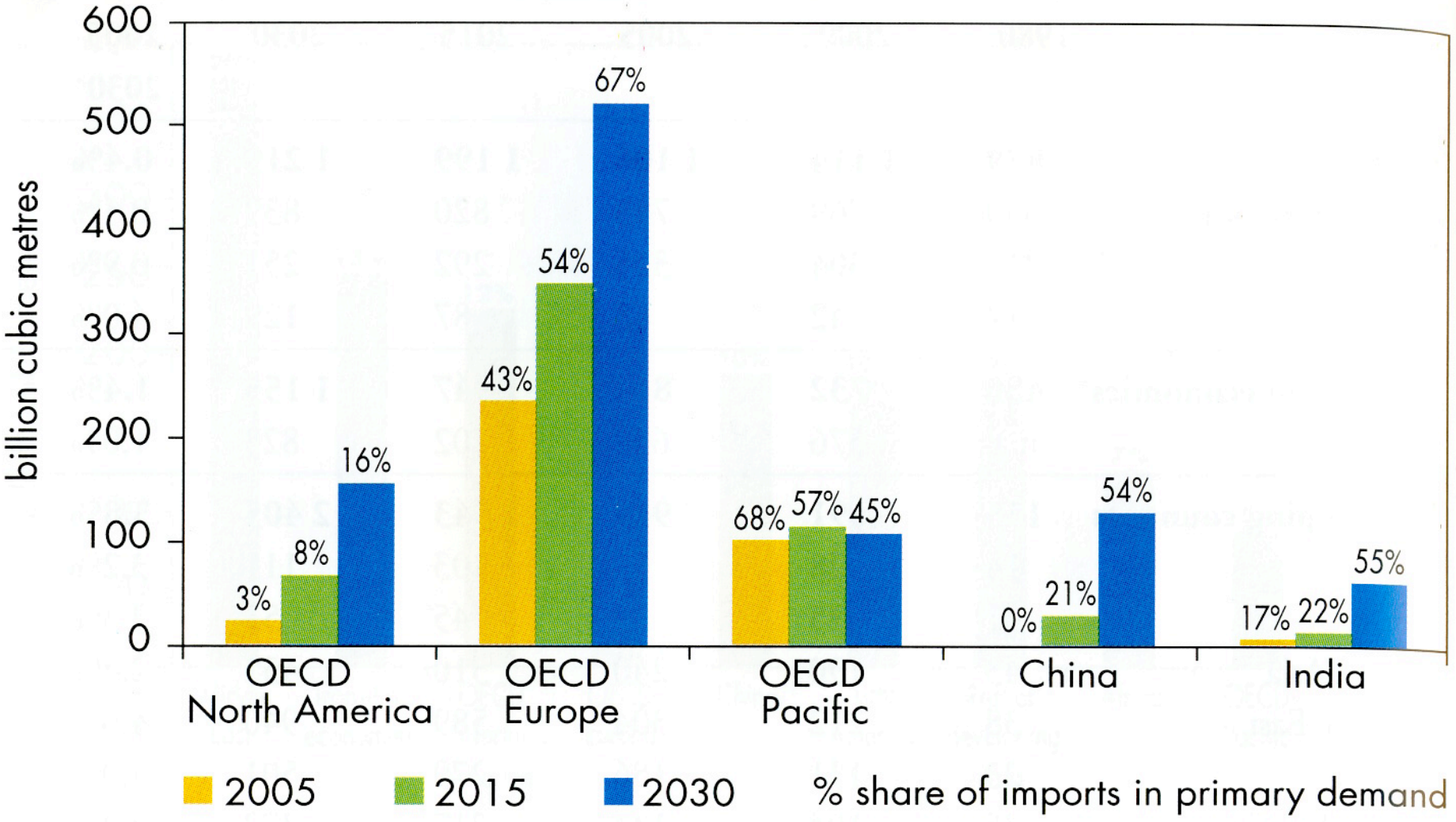
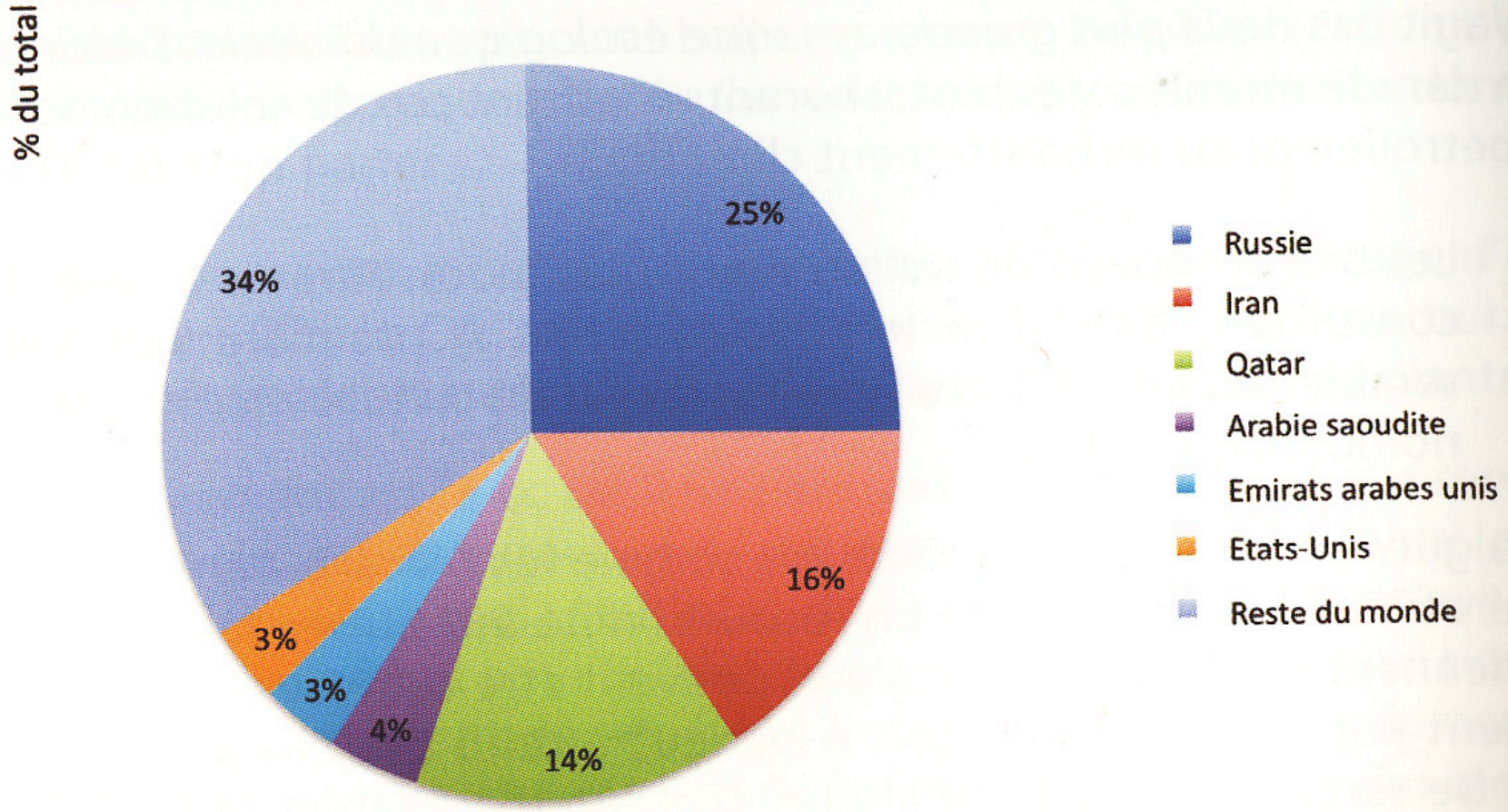


Figure 1.9: **Net Imports of Natural Gas by Major Region in the Reference Scenario**



Gaz naturel – réserves estimées

(% du total)



Source : AIE 2008

Figure 10.8: **China's Gas Balance in the Reference Scenario** (bcm)

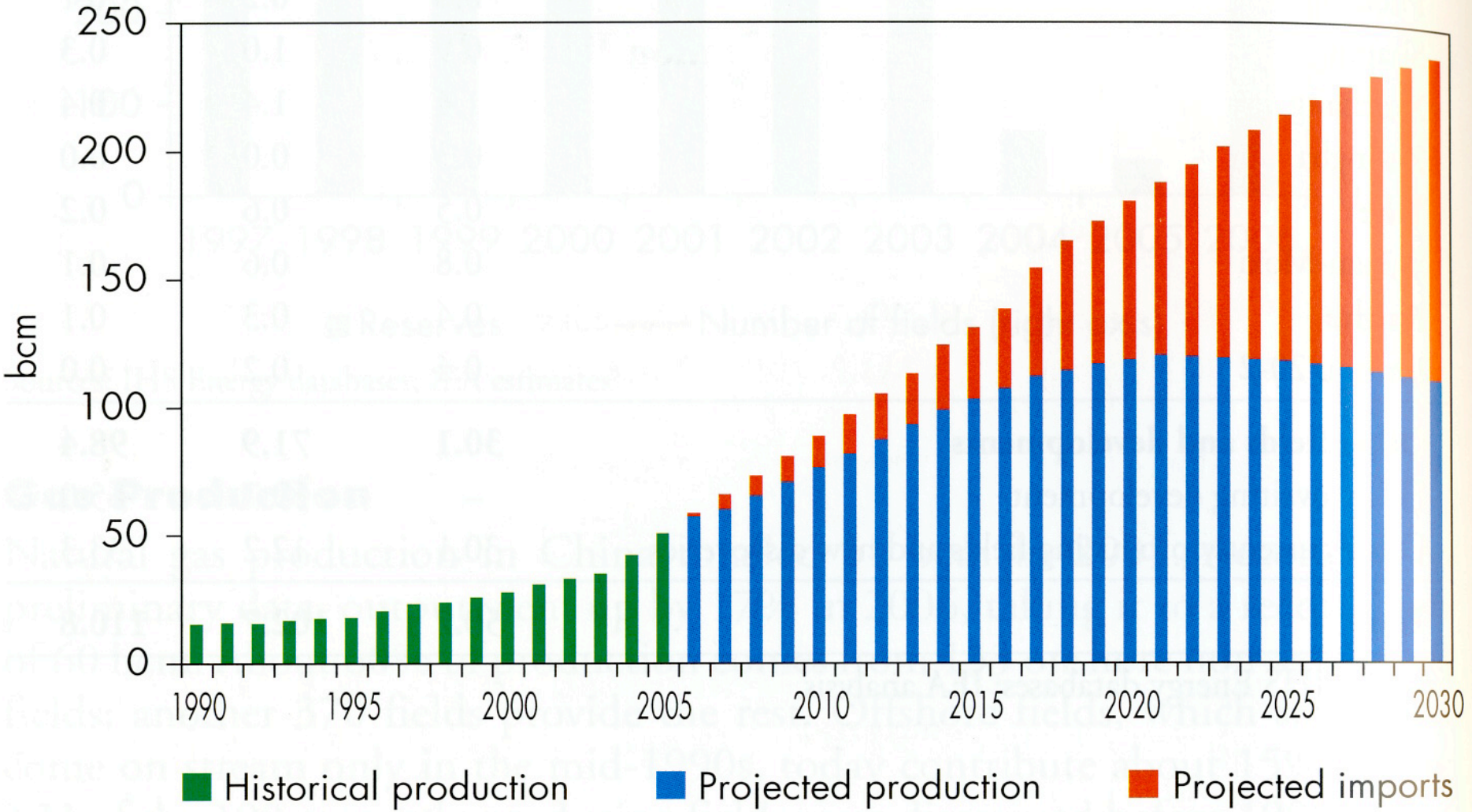
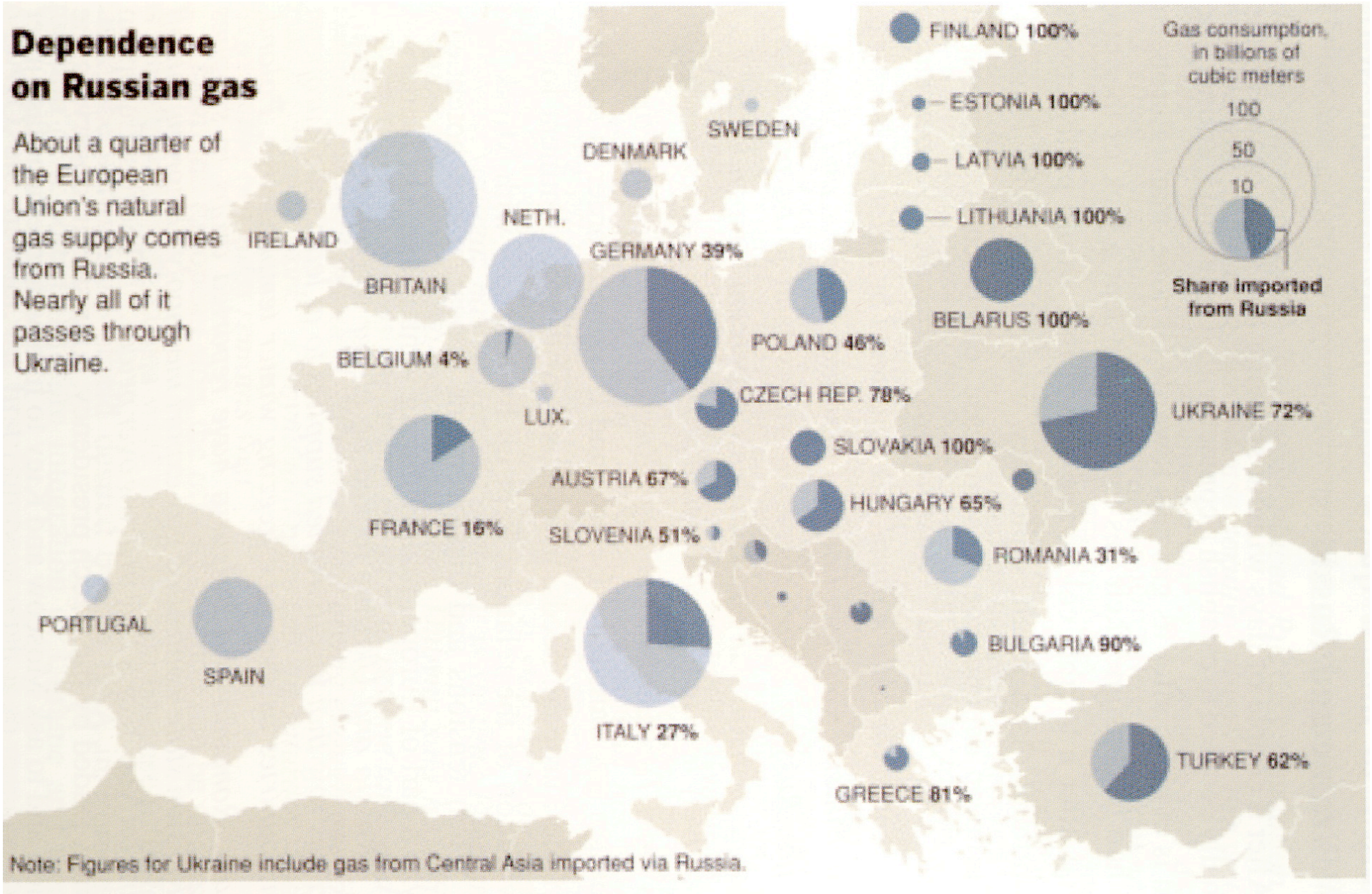


Figure 10.1: China's Oil and Gas Resources and Supply Infrastructure



Source : Spephan C. Roh, Global energy 2008-2009

Main gas fiels in Russia. Source : Stephan C. Roh

It is not a natural law, that Russian gas flows west;
Alexei Miller, Gazprom

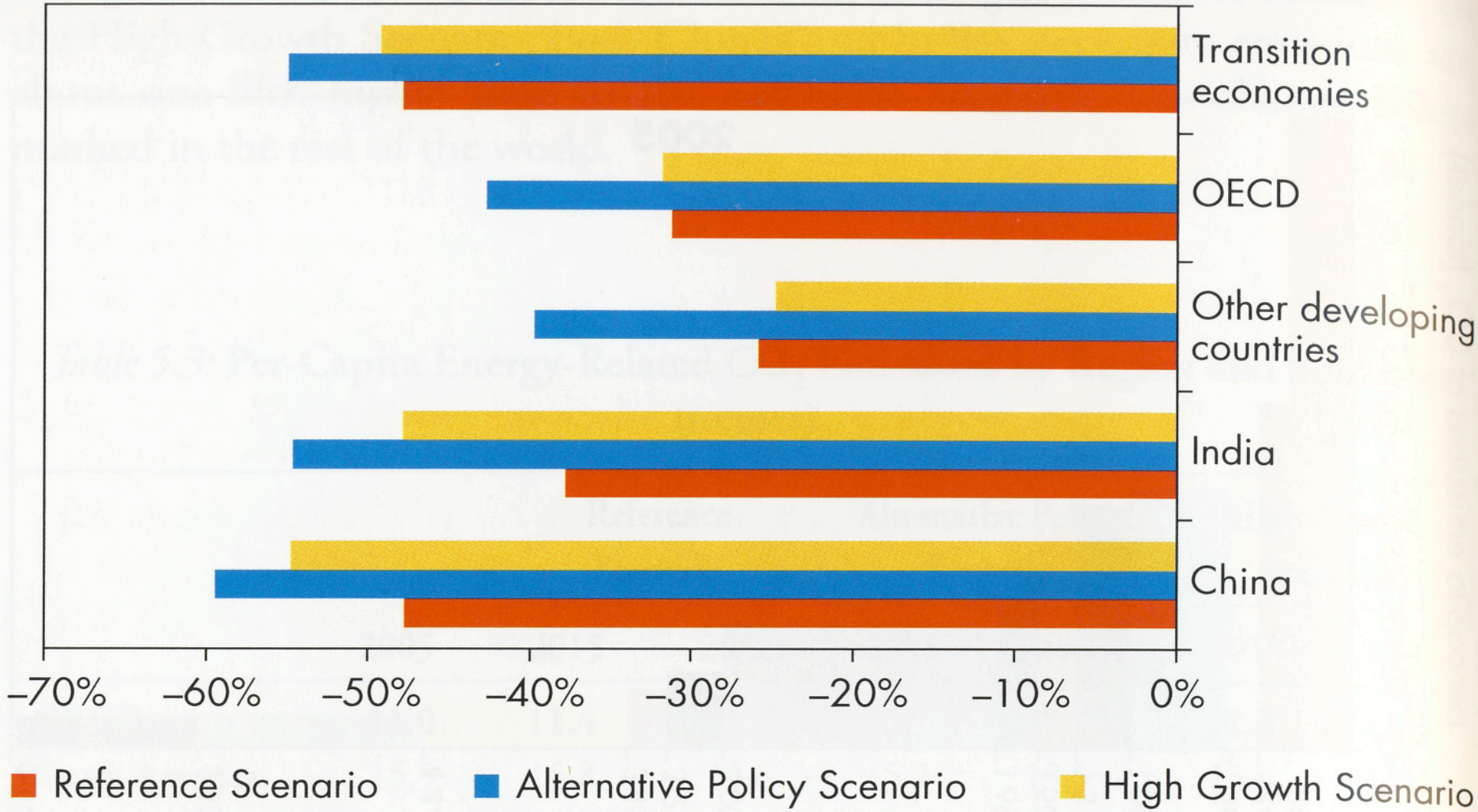
PHILIPPE REKACEWICZ

Source : Stephan C. Roh

Figure 43 Panorama of strategic defended stakes for regional leadership

Source : Stephan C. Roh , Global Energy 2008-2009

Figure 5.11: **Change in Carbon Intensity by Region and Scenario, 2005-2030**



EU Energy Policy

- 2007 Energy Green Paper with three objectives : energy security, competitivity and environmental sustainability ;
- Lisbon Treaty (TFEU), new article 194 defining the objectives of the EU energy policy : functioning energy market, energy supply security, energy efficiency , new and renewable energy, networks interconnections , reference to solidarity spirit.
- Majority decision making but national sovereignty on the exploitation of energy resources and the energy mix.

An external policy to serve Europe's energy interests (2006)
European Commission/SG/HR for the European Council paper
Guiding Principles : functioning markets

1. Promoting transparency and improved governance in the energy sector through energy partnerships with third countries, the objective being to create mutually beneficial, open, transparent, non discriminatory and stable conditions for energy investment and trade;
2. Improving production and export capacities in producer countries and developing and upgrading energy transportation infrastructure in producer and transit countries.
3. Improving the climate for European companies' investments in third countries and opening up the production and export of energy resources to EU industry
4. Improving conditions for trade in energy through non-discriminatory transit and third country access to export pipeline infrastructure

Guiding Principles : physical & environmental security

5. Enhancing physical and environmental security as well as the energy infrastructure safety.
6. Encouraging energy efficiency, use of renewable energies including biofuels, low emission technology and rational use of energy worldwide.
7. Implementing the relevant Kyoto Protocol mechanisms

Guiding principles
diversification & strategic reserves

8. Diversifying energy imports by product and country
9. Creating an international regime for the supply of enriched uranium to countries that have chosen the nuclear option, in line with non-prolmiferation commitments and taking into account the Euratom Treaty provisions
10. Promoting strategic reserve stocks and encouraging joint stock holding with partner countries.

EU-China Energy Conference Initiatives launched in 2005

- Action Plan on Clean Coal
- Action Plan on Industrial Cooperation , Energy Efficiency and Renewable Energies
- Strategic Dialogue on Energy and Transport
- Joint Declaration on Climate Change , setting a cooperation goal by 2020 of developing and demonstrating in China and the EU advanced, near-zero emissions coal technology through carbon capture and storage

6th EU-China Energy Conference, Shangai, 20-21 February 2006

- Reinforcing the security of energy supply
- Promoting renewable energy
- Increasing energy efficiency
- Strenthening nuclear safety and security
- Interactions between energy policy and research and environmental policies

7th EU-China Energy Conference Brussels , 6-7 November 2008

- Renewable energy for power generation (solar & wind)
- Increasing role of biofuels
- Promoting hydrogen energy and fuel cells
- Coal and gas hydrates
- Carbon capture and storage
- Nuclear energy

MoU on Energy Performance and Quality in the Construction Sector (2009)

- Signed on the occasion of the 12th EU-China Summit, Nanjing, 30 November 2009
- Platform for bilateral cooperation and concrete joint projects in the buildings' sector with a view to enhance its efficency in China
- Current building stock of 40 billion m2 in China, whose low efficency records require urgent action
- Booming construction market : 30 billion m2 to be built and 13 billion m2 to be improved by 2020