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World Energy Outlook
Energy demand in new international markets

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Reference Scenario

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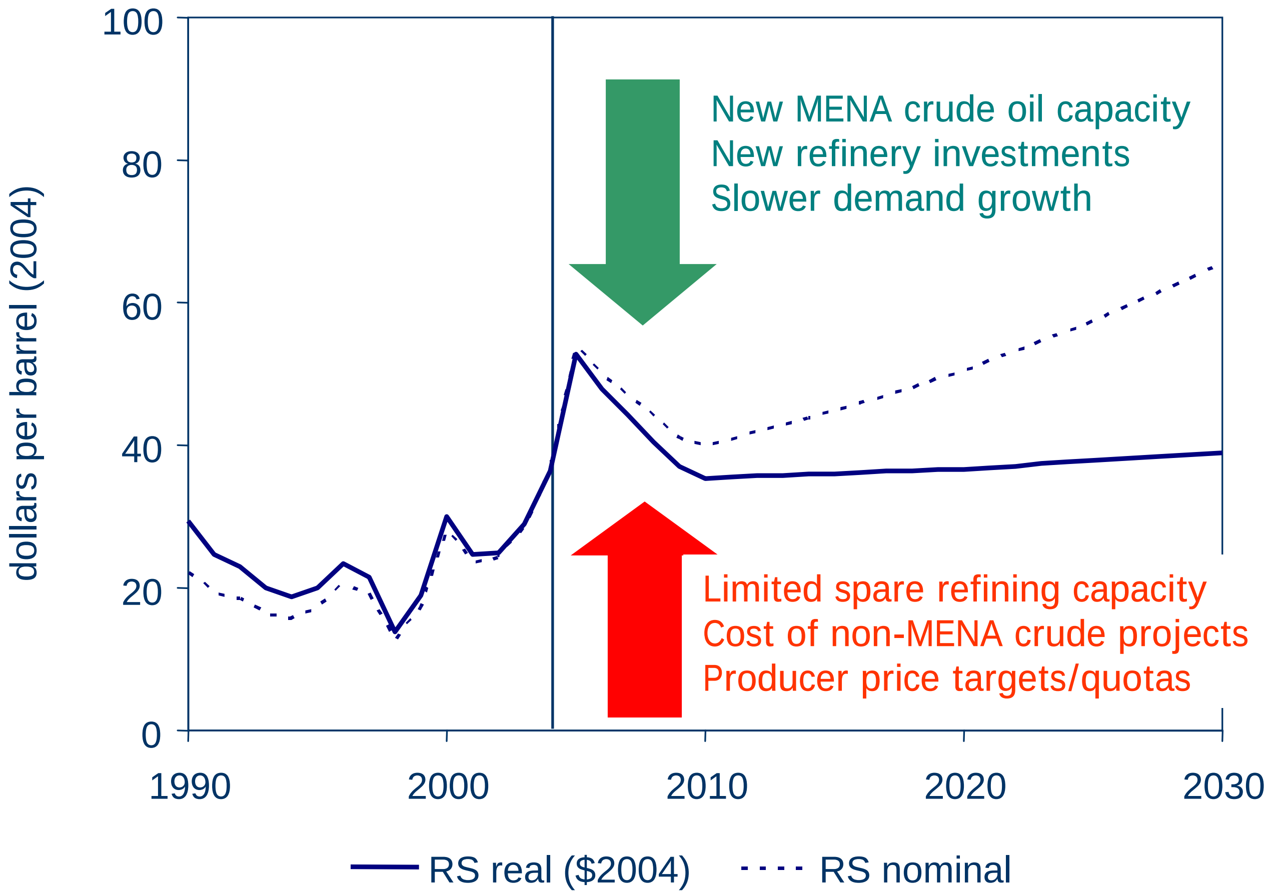
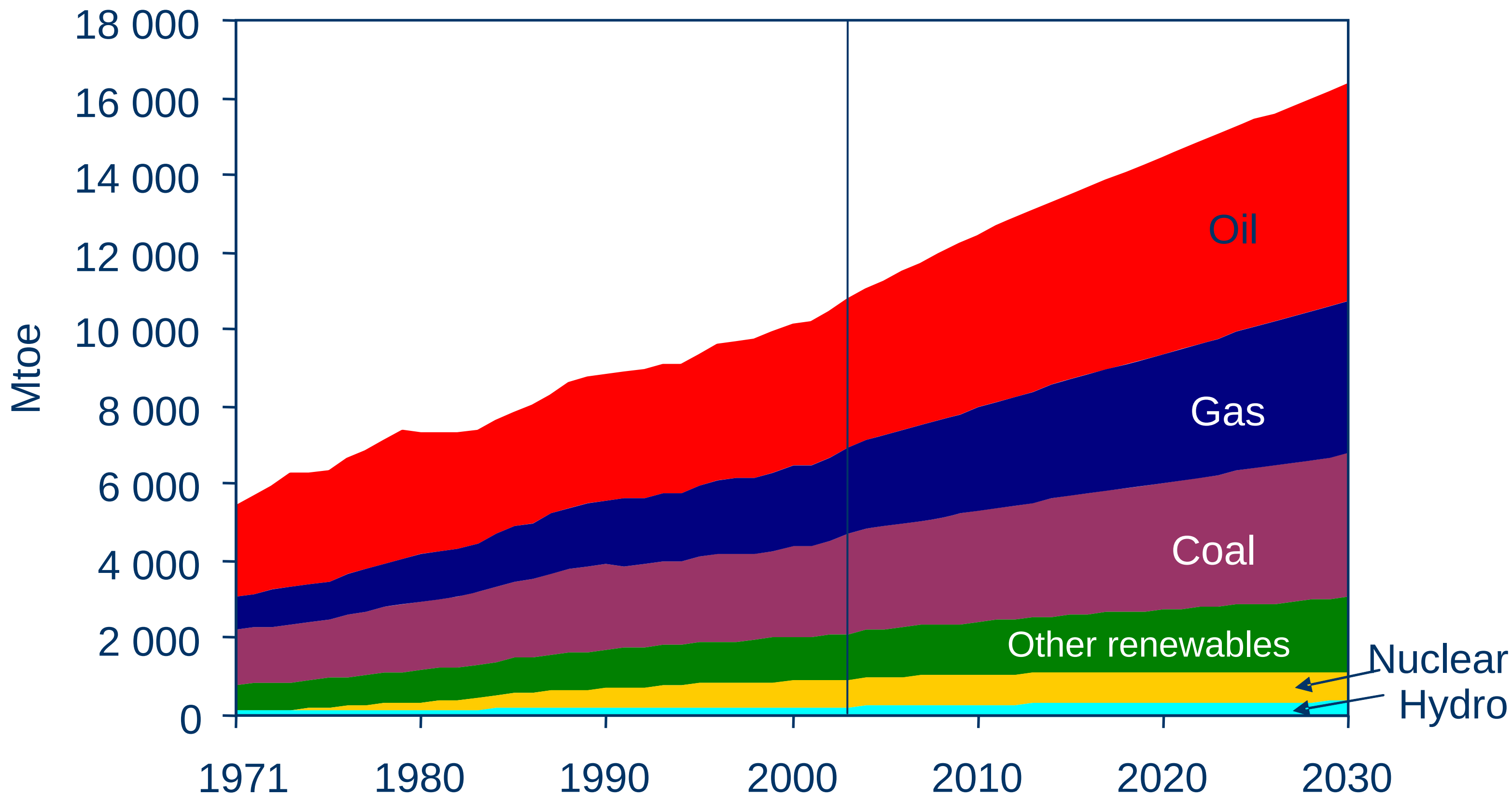
Average IEA Crude Oil Import Price in the Reference Scenario



The assumed oil-price path in the RS incorporates the shifting expectations of market fundamentals

World Primary Energy Demand



Oil, gas and coal together account for 83% of the growth in energy demand between now and 2015 in the Reference Scenario

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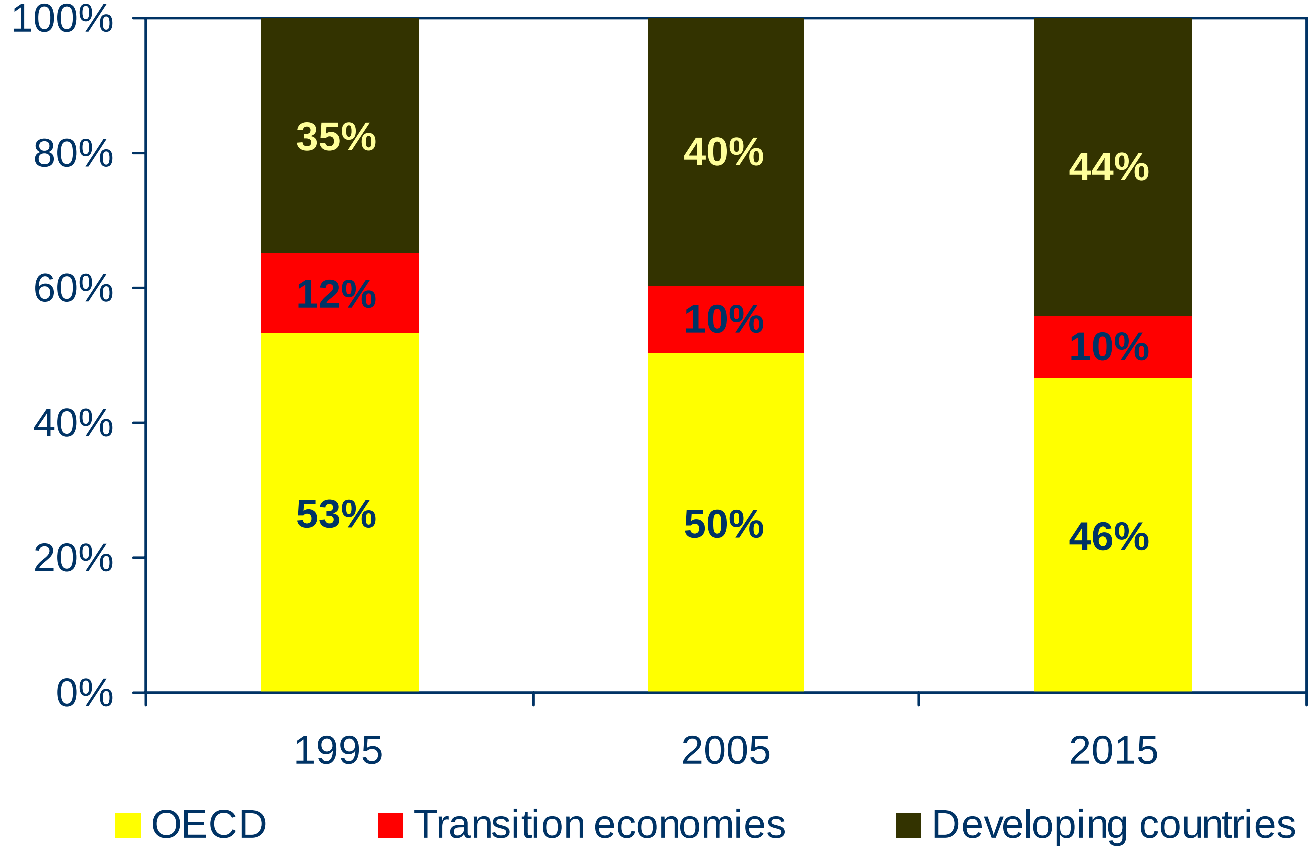
Regional Shares in World Primary Energy Demand



60% of the increase in world demand between 2003 and 2015 comes from developing countries, bulk of it from Asia

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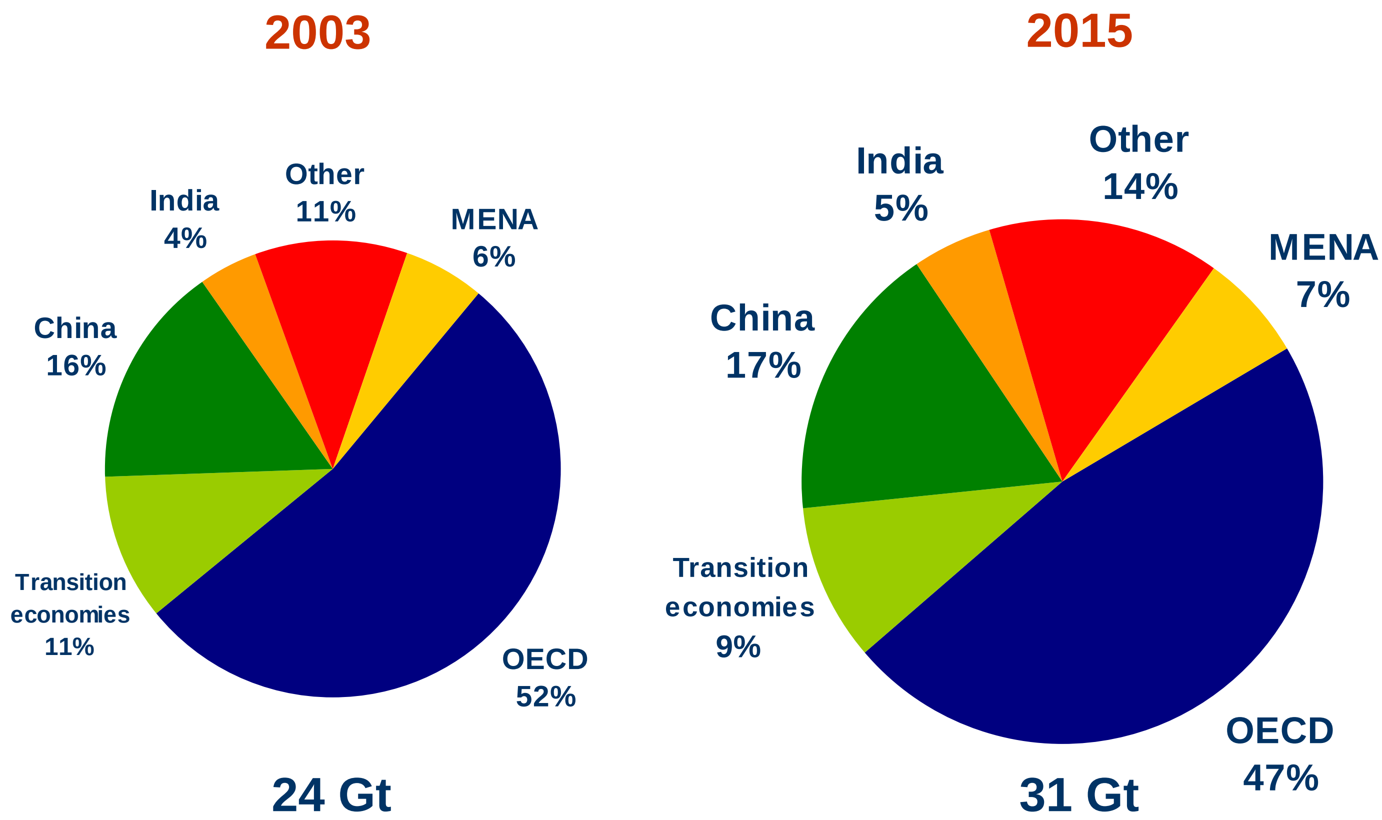
Energy-Related CO_2 Emissions by Region



OECD CO_2 emissions growth is the same as Chinese CO_2 rise; but on a per capita basis, OECD CO_2 will be still three times higher in 2015

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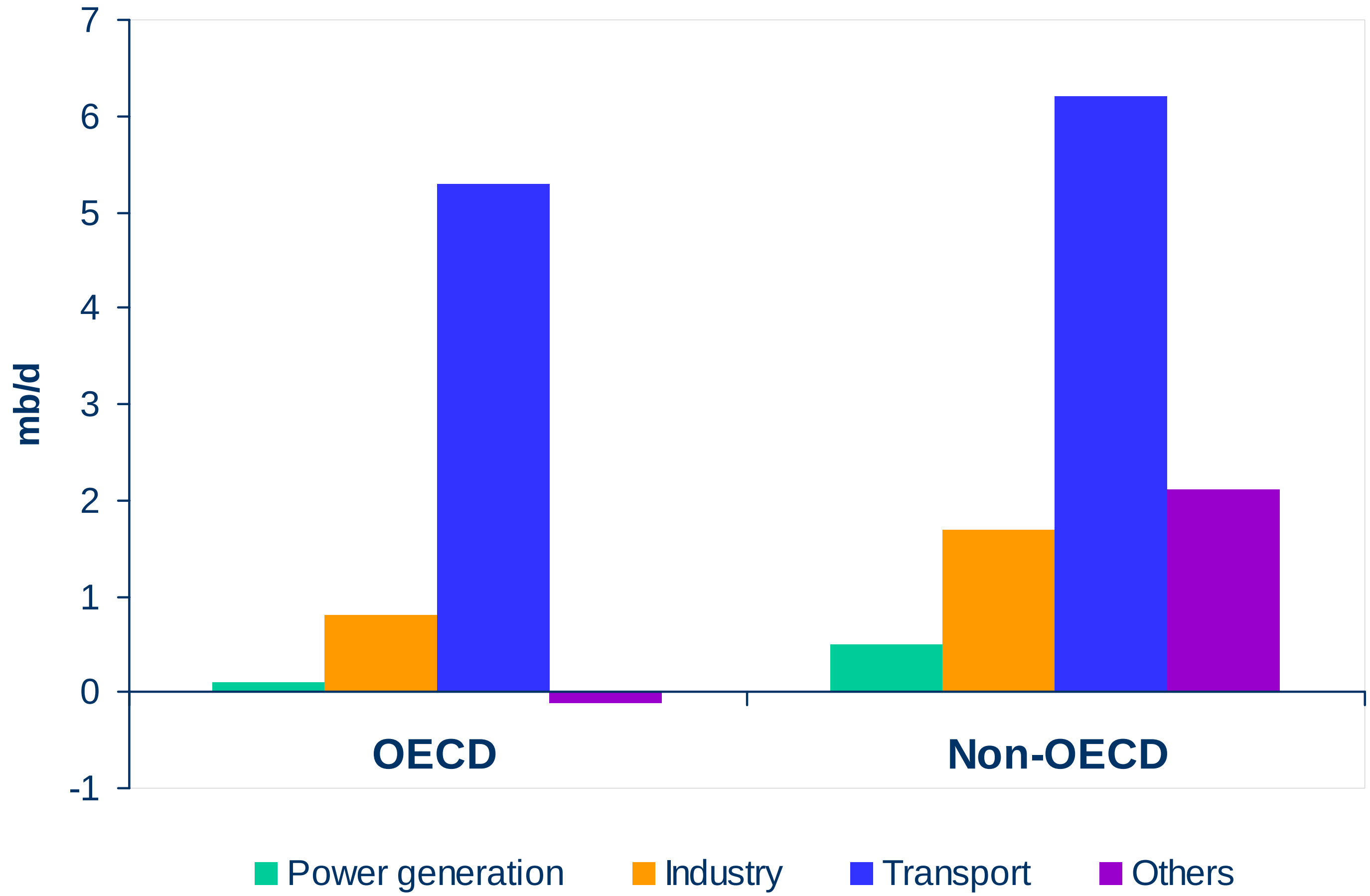
Increase in Primary Oil Demand, 2004-2015



Most of the increase in oil demand comes from the transport sector – especially in OECD countries

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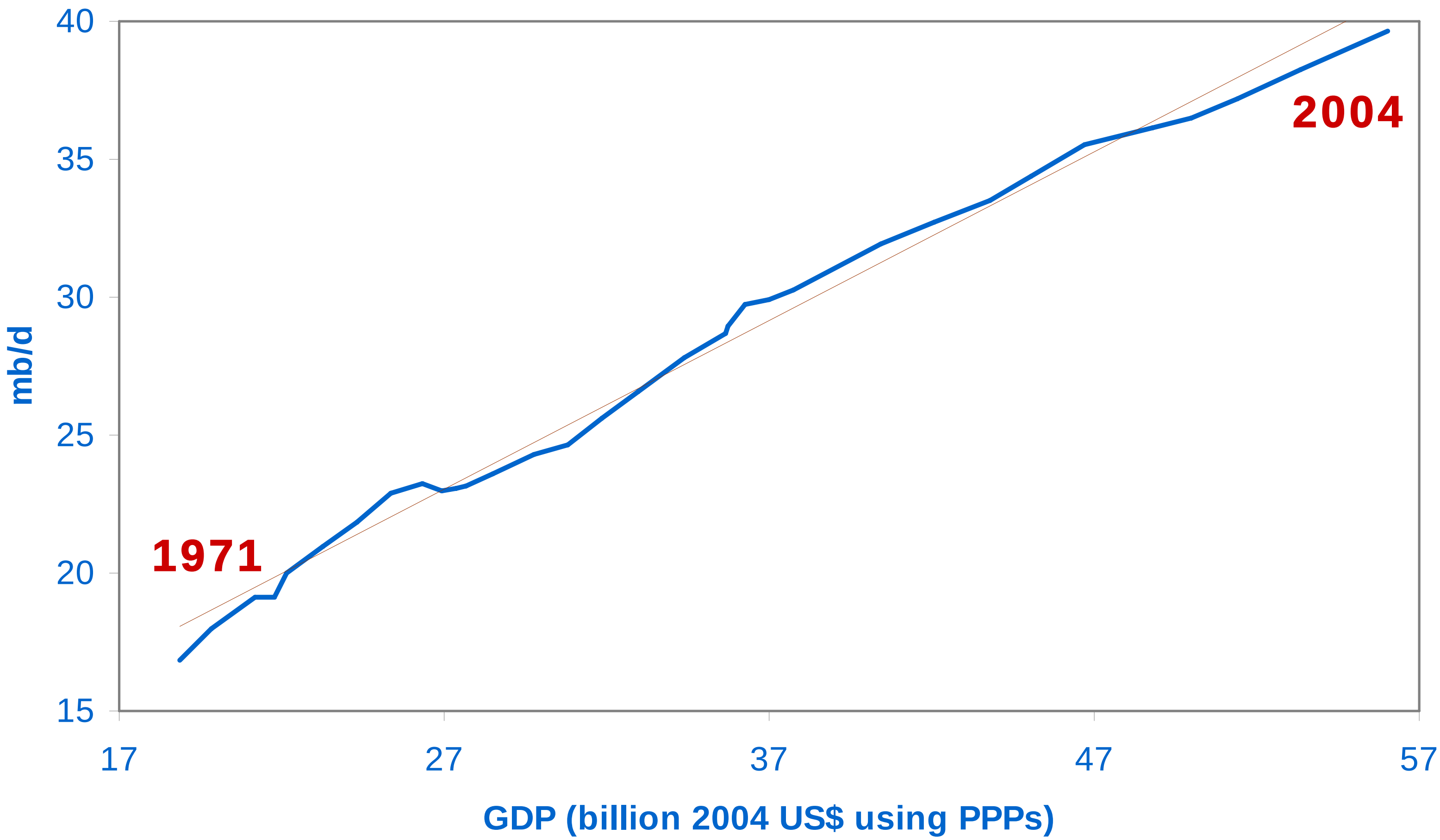
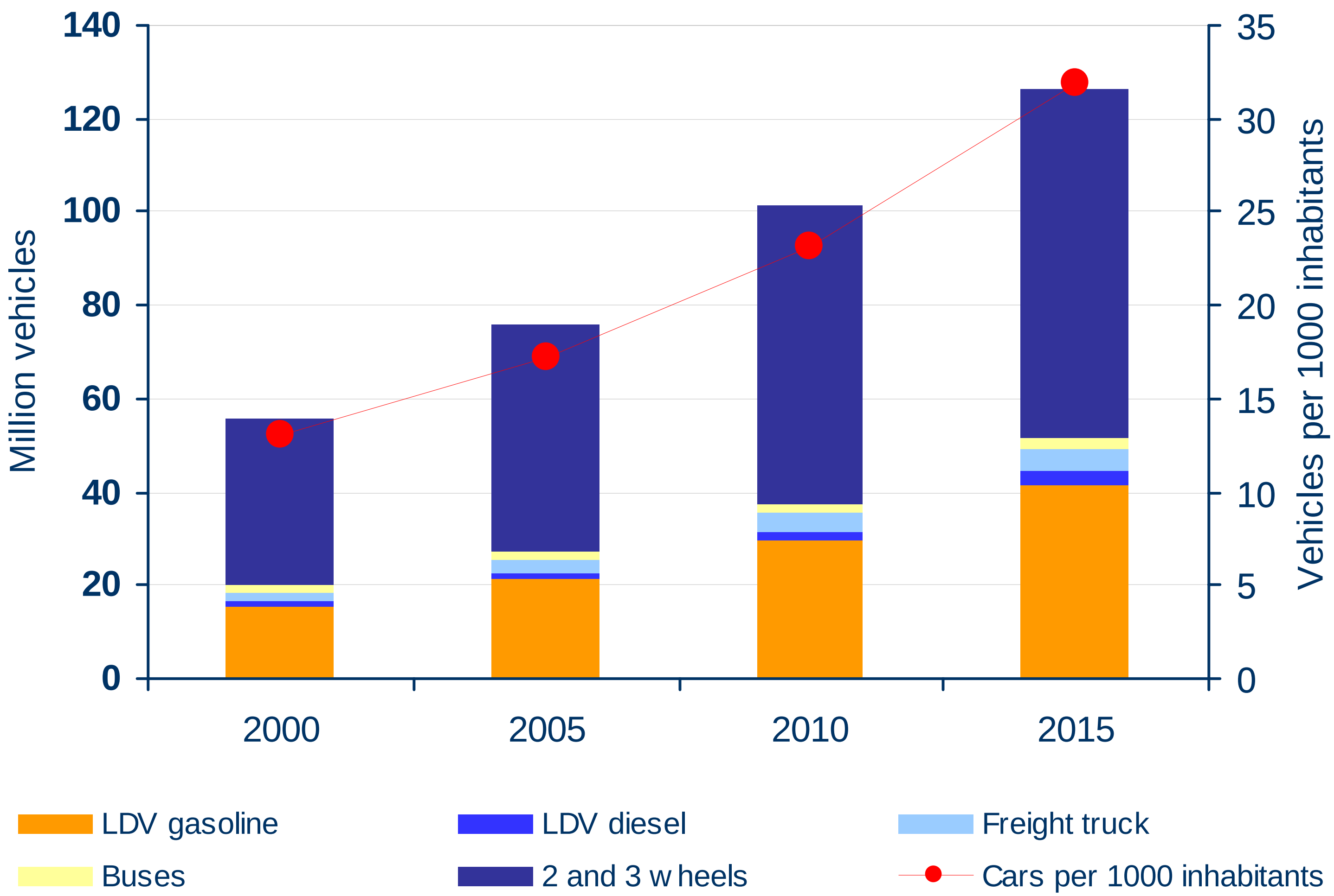
World Transportation Oil Demand



Oil demand for transport increases very closely in line with GDP

Road Vehicle Stock in China



Scope for continued expansion of China's fleet is enormous: only 13 cars for every 1,000 Chinese vs. 770 in N. America & 500 in Europe

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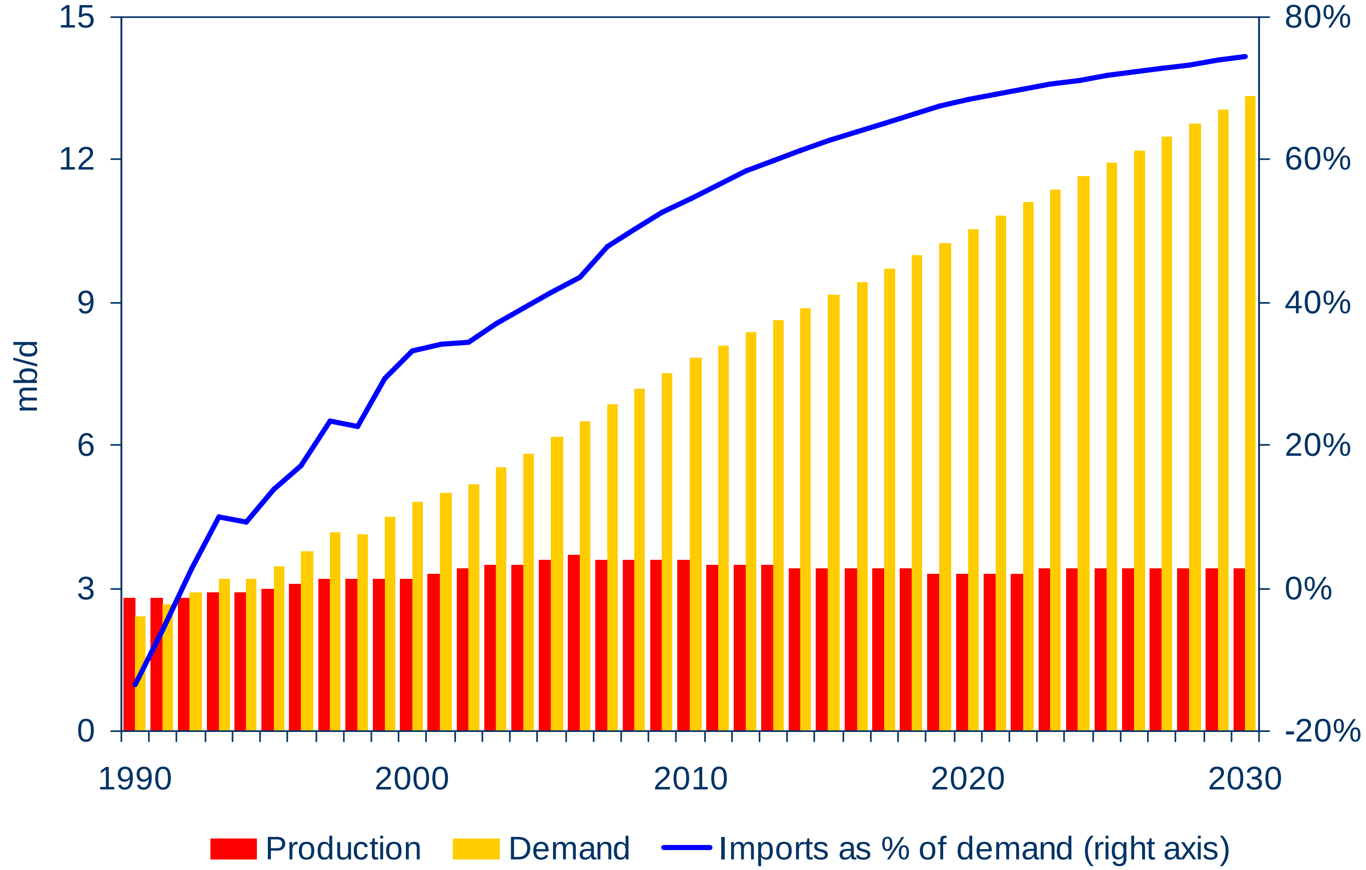
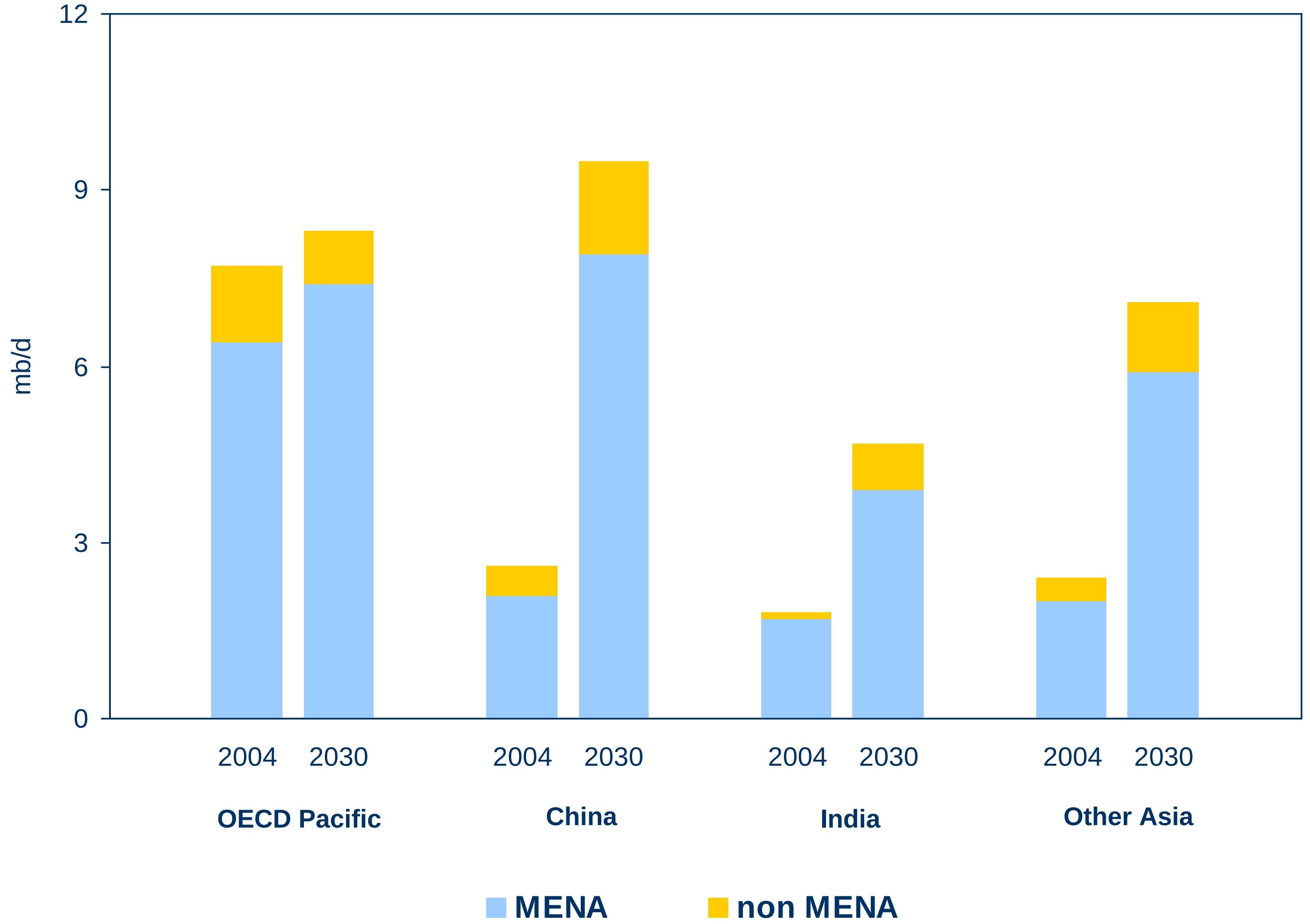
China Oil Balance

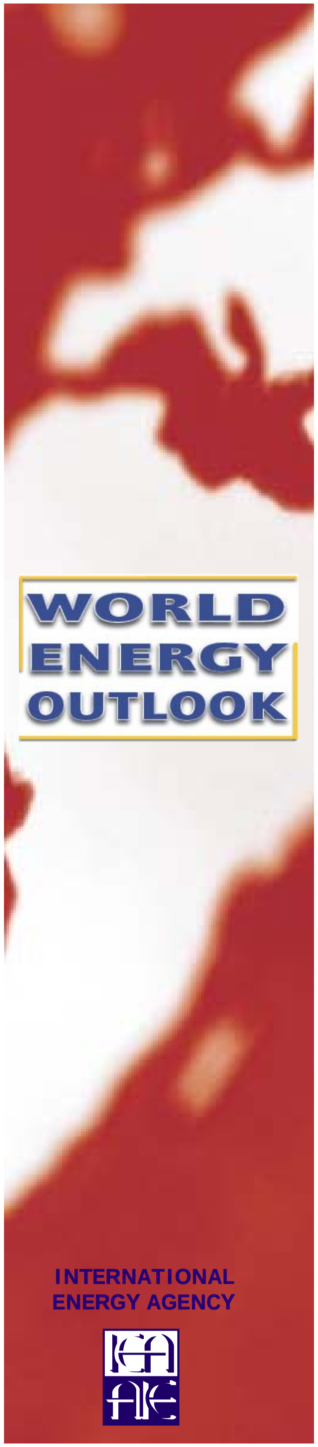


China's oil imports will soar from around 3 mb/d now to almost 10 mb/d in 2030 – equal to over 74% of domestic demand

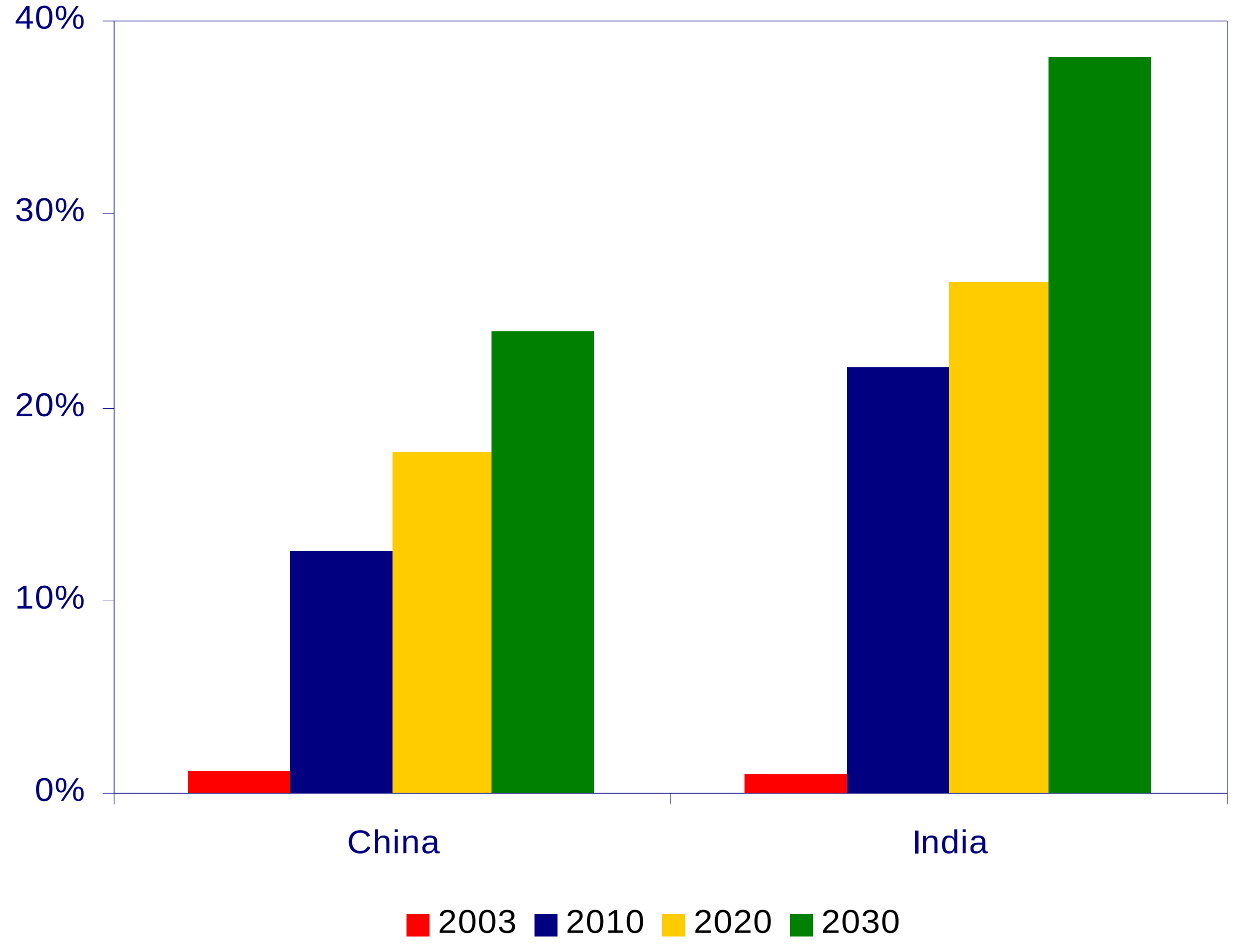
Oil Exports to Asia from MENA and Non-MENA Countries



MENA increases its exports to major consuming regions, especially to developing Asian countries

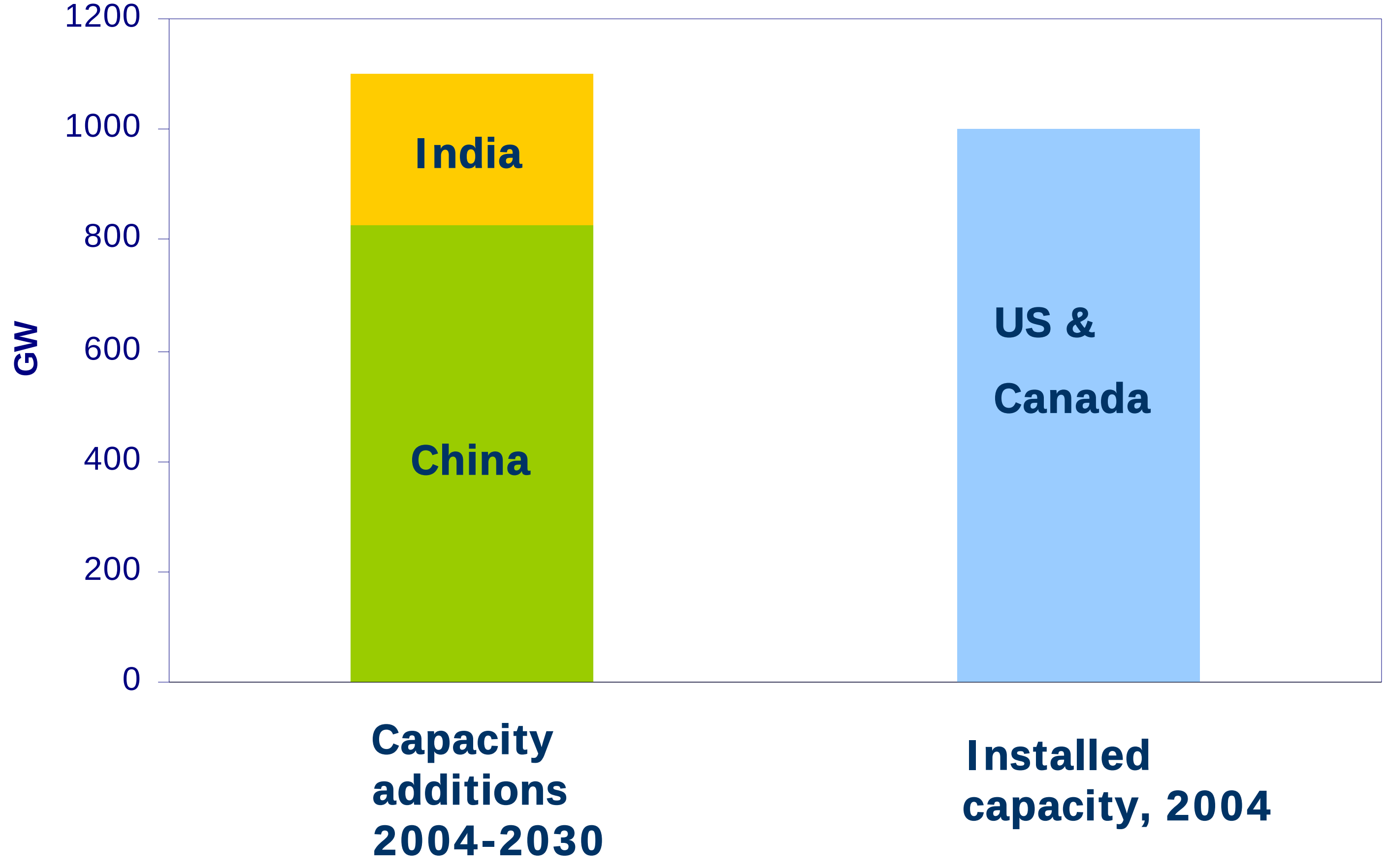


Gas Import Dependence of China and India



China and India will emerge as important gas importers – their import dependences increase sharply

Power-generation Capacity Additions in China and India



Capacity additions in China and India between 2004 and 2030 will reach 1,100 GW – more than the current installed capacities of US & Canada

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Alternative Policy Scenario

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World Alternative Policy Scenario

- Endorsed by G8 leaders in Gleneagles
- Analyses impact of new **environmental** and **energy-security** policies worldwide
  - *OECD:* Policies currently under consideration
  - *Non-OECD:* Also includes more rapid declines in energy intensity resulting from faster deployment of more-efficient technology
- Impact on fuel-mix, environment & cost

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World Alternative Policy Scenario
Main Policies for Transport

- Improve vehicle fuel efficiency

  (e.g. strengthen of US CAFE standards, prolongation of Chinese standards)

- Increased sales of alternative fuel vehicles and fuels

  (e.g. biofuels in Europe, Brazil)

- Mode switching

  (e.g. increased high speed rail in Japan)

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APS - Main Policies for China

Sector	Programme / measure	Impact
Power & Heat	Refurbishment of existing coal-fired plants	Incr.d thermal efficiency of old coal-fired plants
	Expanded support for more efficient and cleaner coal-fired plants	Incr.d thermal efficiency of new coal-fired plants
	Expanded government support for gas-fired plants	Increased gas-fired generation
	Extended support for renewables-based generation	Increased renewables-based generation
	Policies to promote combined heat and power	Increased share of generation from CHP plants
	More government support for nuclear power	Increased nuclear power production
Trspt.	Tighter vehicle-fuel efficiency standards	Improved vehicle-fuel efficiency
	Increased R&D and tax credits for clean vehicles	Increased use of CNG, LPG, fuel-cell and hybrid powered vehicles, and biofuels
	Expansion of intra- and inter-city railway networks	Slower growth in passenger vehicle transport and modal shift to mass transport
Indst.	Energy-efficiency standards for industrial equipment	Improved energy efficiency of boilers, furnaces, electric motors, fans, pumps and transformers
	Voluntary agreements including energy auditing, target setting and monitoring	Improved efficiency of new technologies and accelerated deployment
	Tax incentives and low-interest loans for investment in new efficient technologies	Accelerated deployment of new boilers, machine drives, and process-heat equipment
	Environmental restrictions on coal use	Switching from coal to gas
	Further restructuring of state-owned and small producers	Investment in larger-scale and more efficient processes
Res. & Comm.	Tighter efficiency standards for appliances and equipment	More efficient appliances and equipment
	New mandatory energy labelling for domestic appliances, updating voluntary energy labelling	More efficient refrigerators, air-conditioners and other appliances and equipment
	China Green Lights Programme	Improved efficiency of new lighting equipment
	Building codes for residential and commercial buildings	More efficient new buildings, leading to lower lighting, heating and cooling loads

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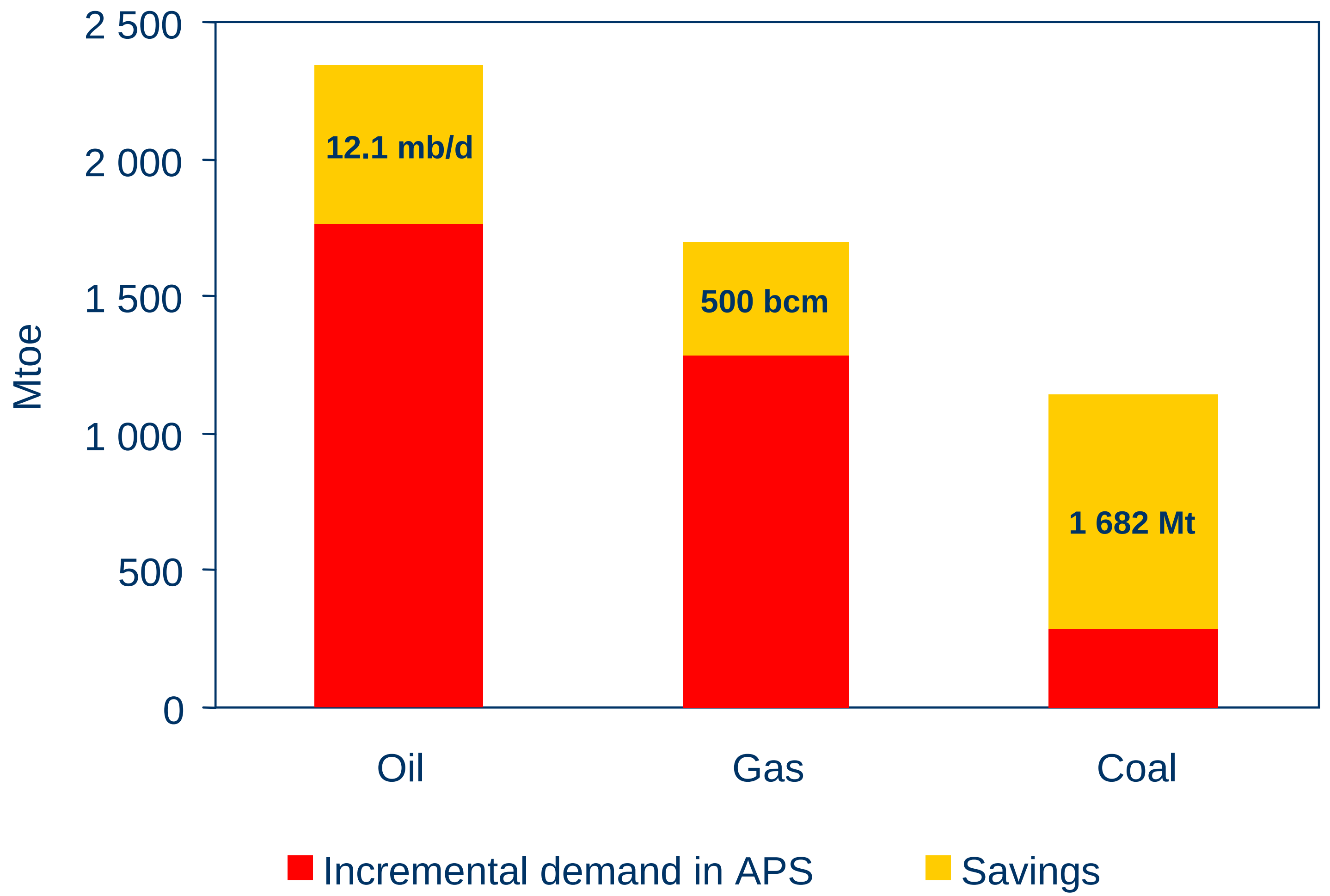
World Primary Demand Growth in the APS & Savings Relative to the RS, 2004-2030



Oil and gas demand both drop 10% in 2030 relative to the RS, but coal use – especially in power sector – is affected most

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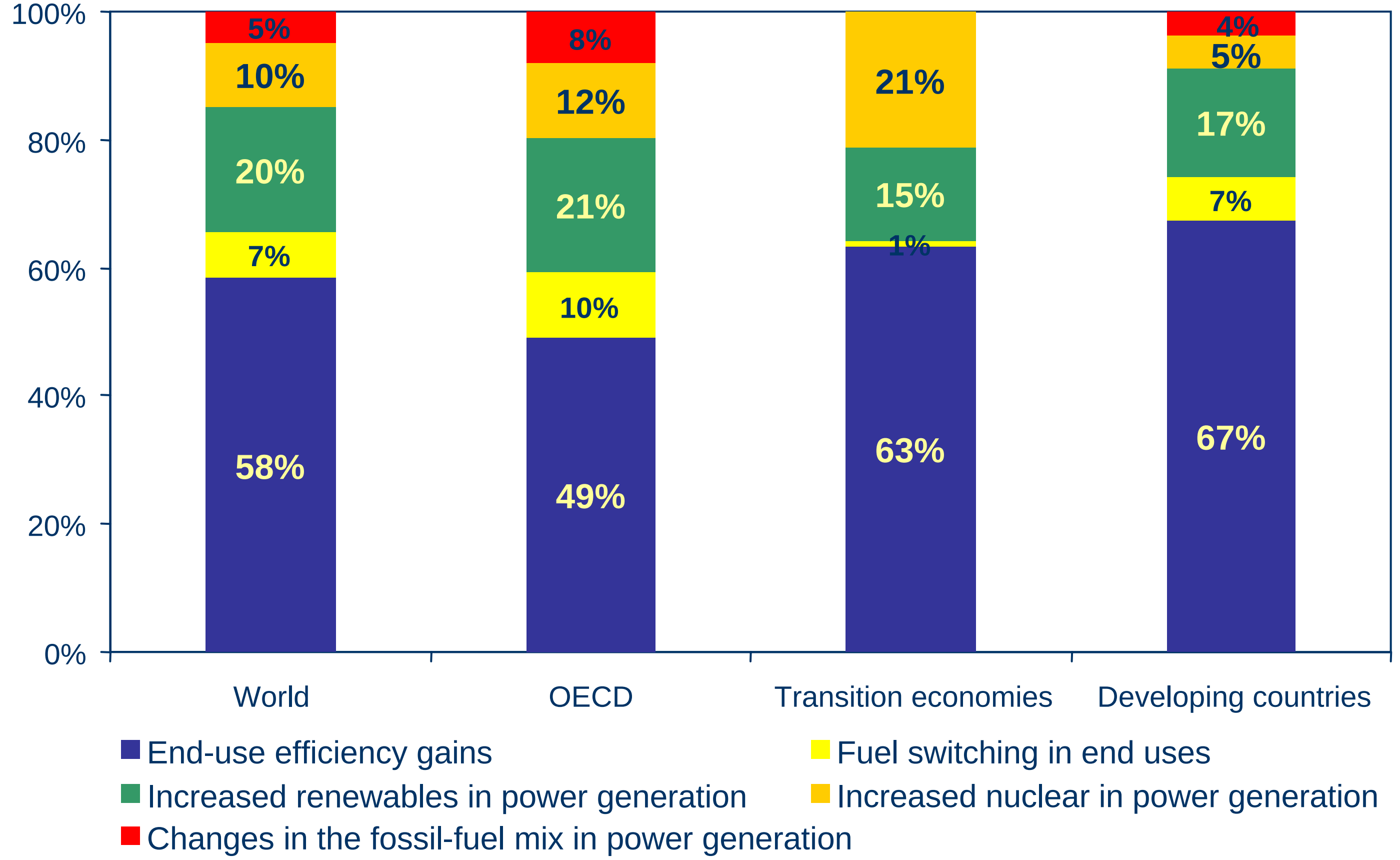
Contributory Factors in CO_2 Reduction, 2004-2030



Improvements in end-use efficiency contribute for more than half of decrease in emissions, and renewables use for 20%

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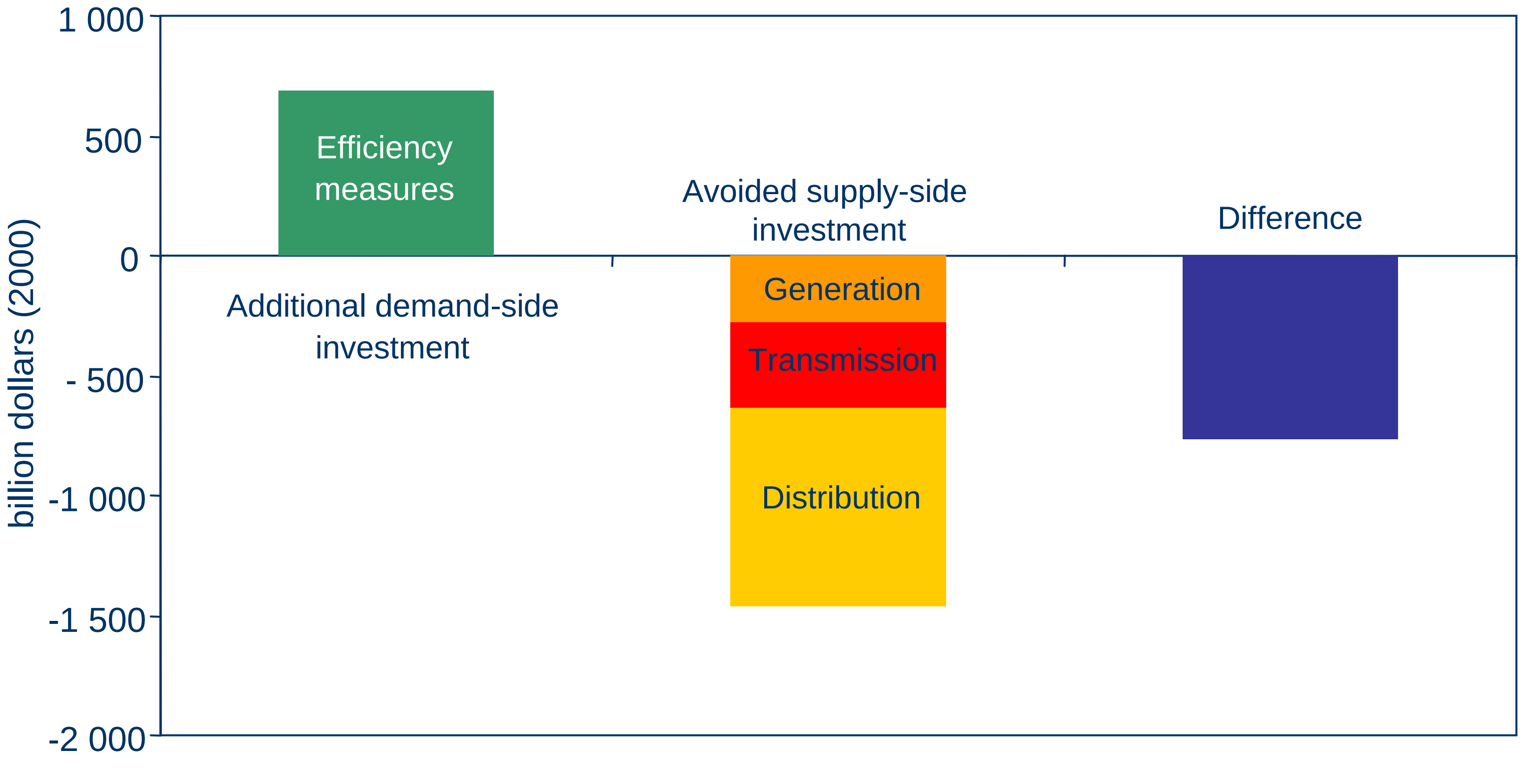
Difference in Electricity Investment in the Alternative vs. Reference Scenario, 2004-2030



Additional investments on the demand side are more than offset by lower investment on the supply side

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Summary & Conclusions

- On current policies, world energy needs will increase substantially
- Fossil fuels will continue to dominate the energy mix
- Projected market trends raise serious concerns
  - Increased vulnerability to supply disruptions
  - Rising CO_2 emissions
  - Huge energy-investment needs
- Urgent and decisive government action needed
  - More vigorous policies would curb rate of increase in energy demand and emission significantly
- Key alternative policies include **energy efficiency**, increased share of **nuclear**, **clean coal**, **renewables**, and promotion of **advanced energy technologies**

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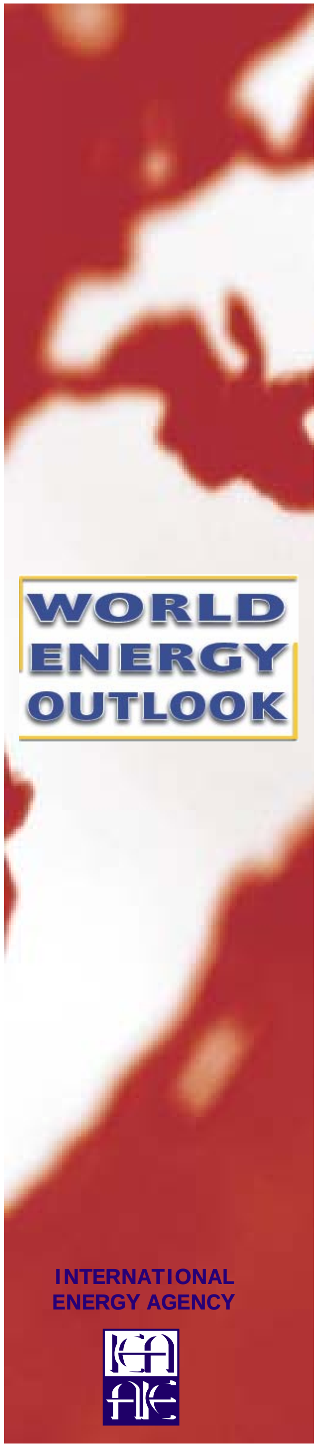

World Energy Outlook 2006

- Alternative Policy Scenario
  - Beyond APS
- Tracking Energy Investment
- Impact of High Energy Prices on the Global Economy and Demand
- What role for Nuclear Power?
- Biofuels outlook – an economic assessment
- Country in focus – Brazil
- Unsustainable Biomass use in Developing Countries
- Released on 7th November