

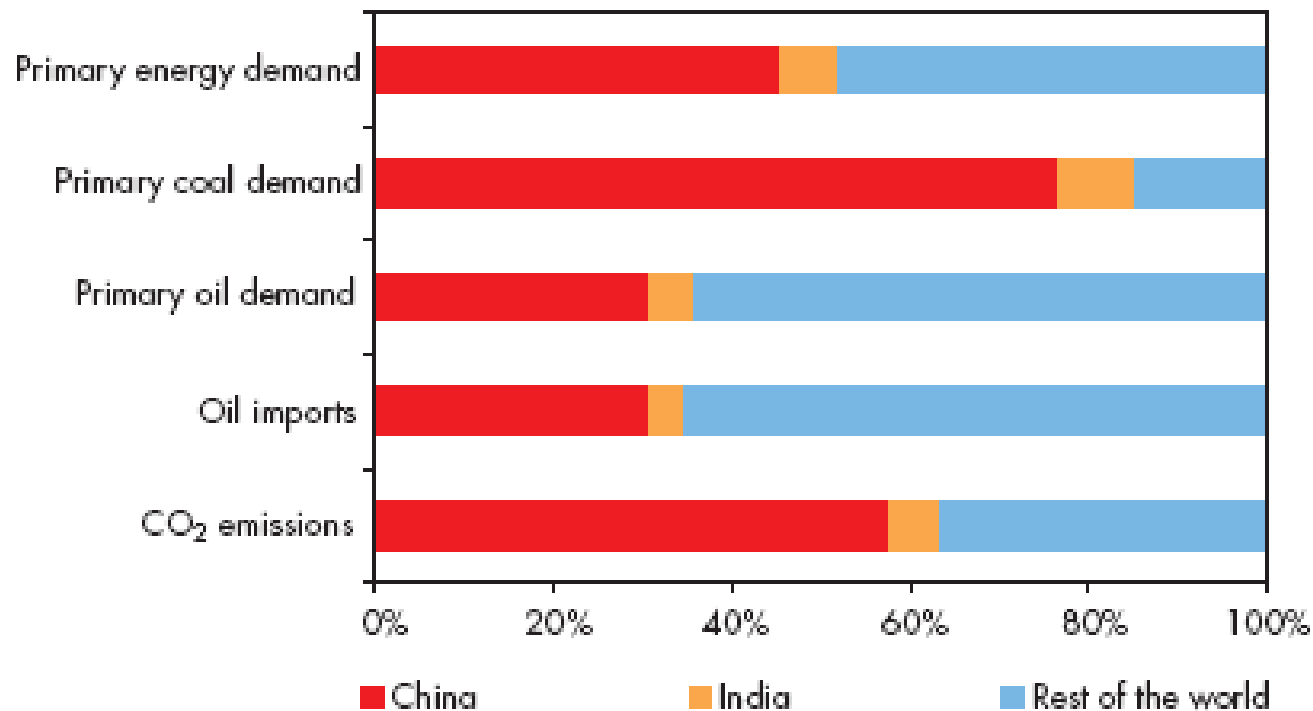
Responding to Energy Challenges in China

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International Energy Agency**

**Washington, DC
November 2007**

World energy trends owe much to developments in China

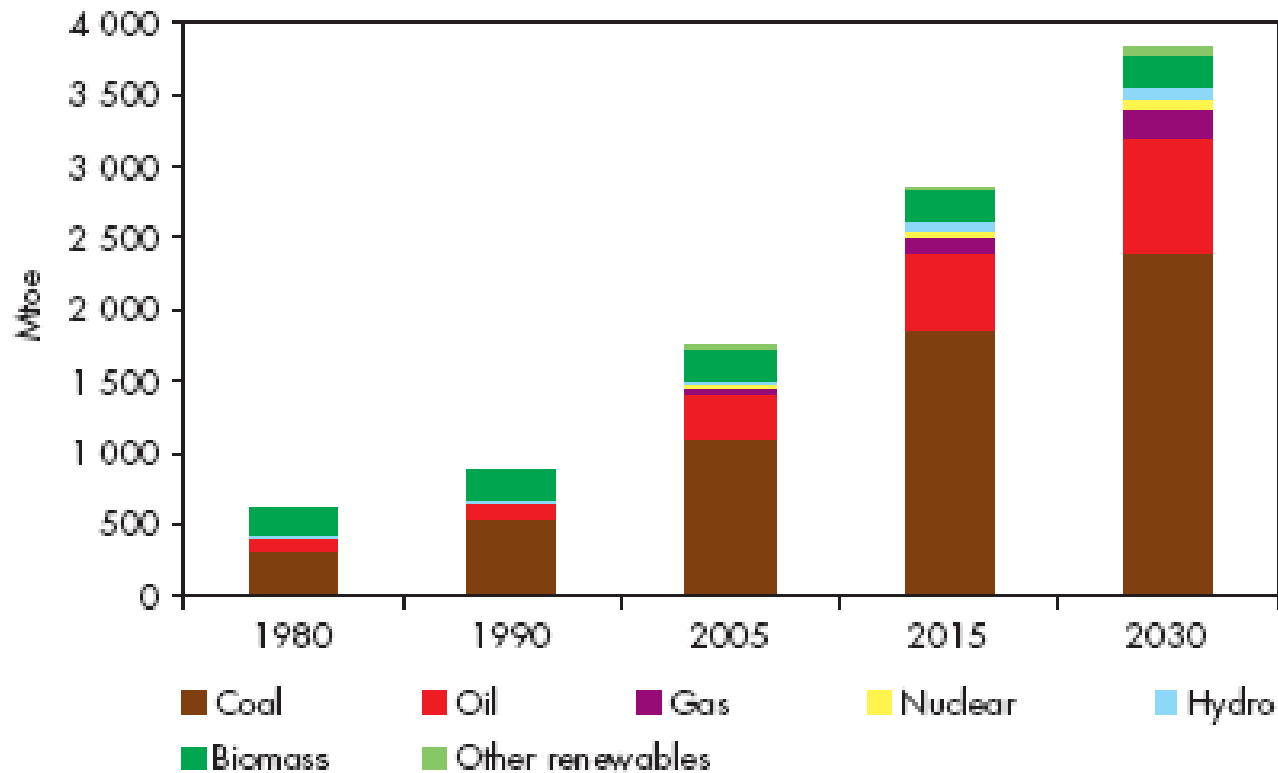
Figure 1: Share of China and India in Incremental Energy Demand, Imports and Energy-Related CO₂ Emissions, 2000-2006*



* Based on preliminary estimates for 2006.

China's energy future is in coal

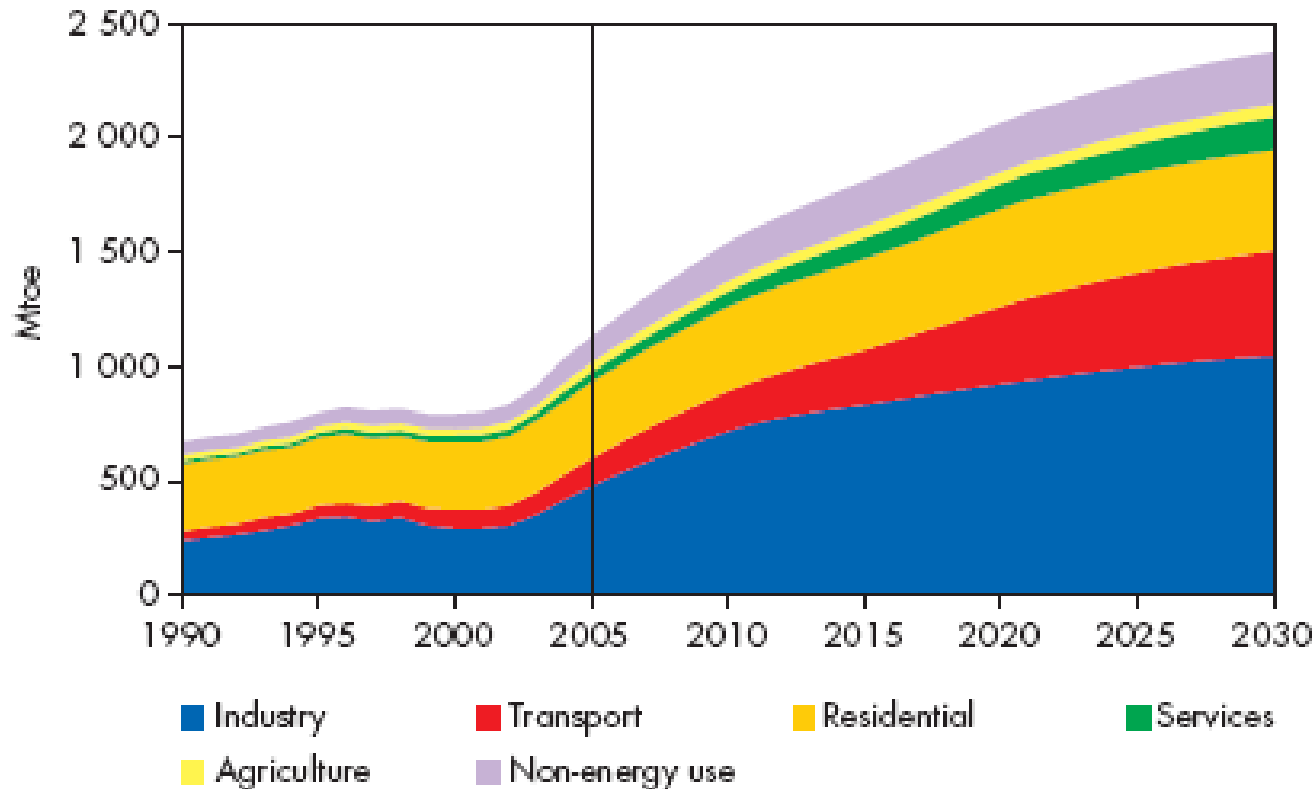
Figure 9.1: China's Primary Energy Demand in the Reference Scenario



Source: IEA, *World Energy Outlook 2007*.

Industry remains the top consumer

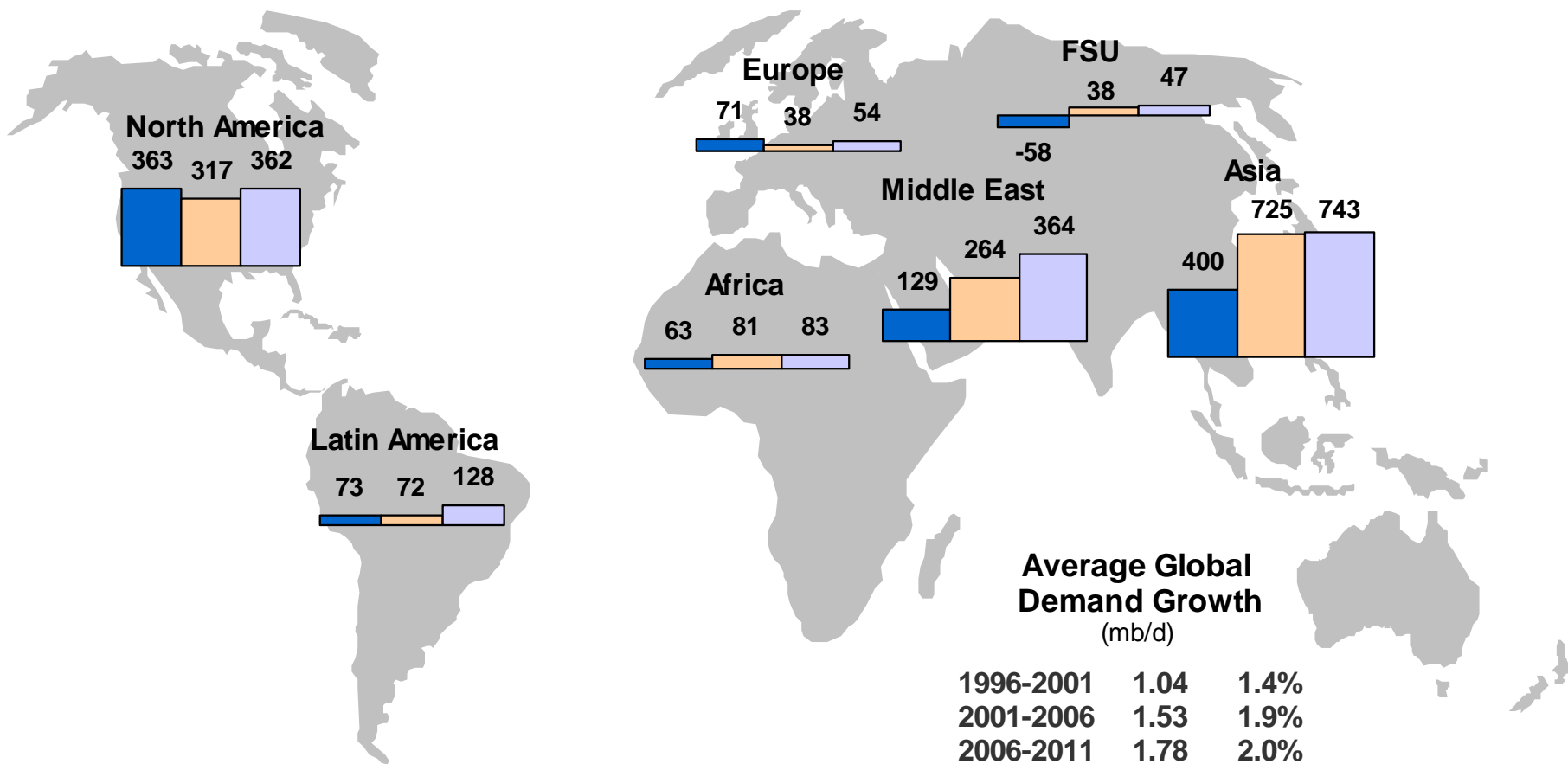
Figure 9.2: Total Final Consumption by Sector (Mtoe)



Source: IEA, *World Energy Outlook 2007*.

China will be a main driver of non-OECD oil demand growth in the medium term...

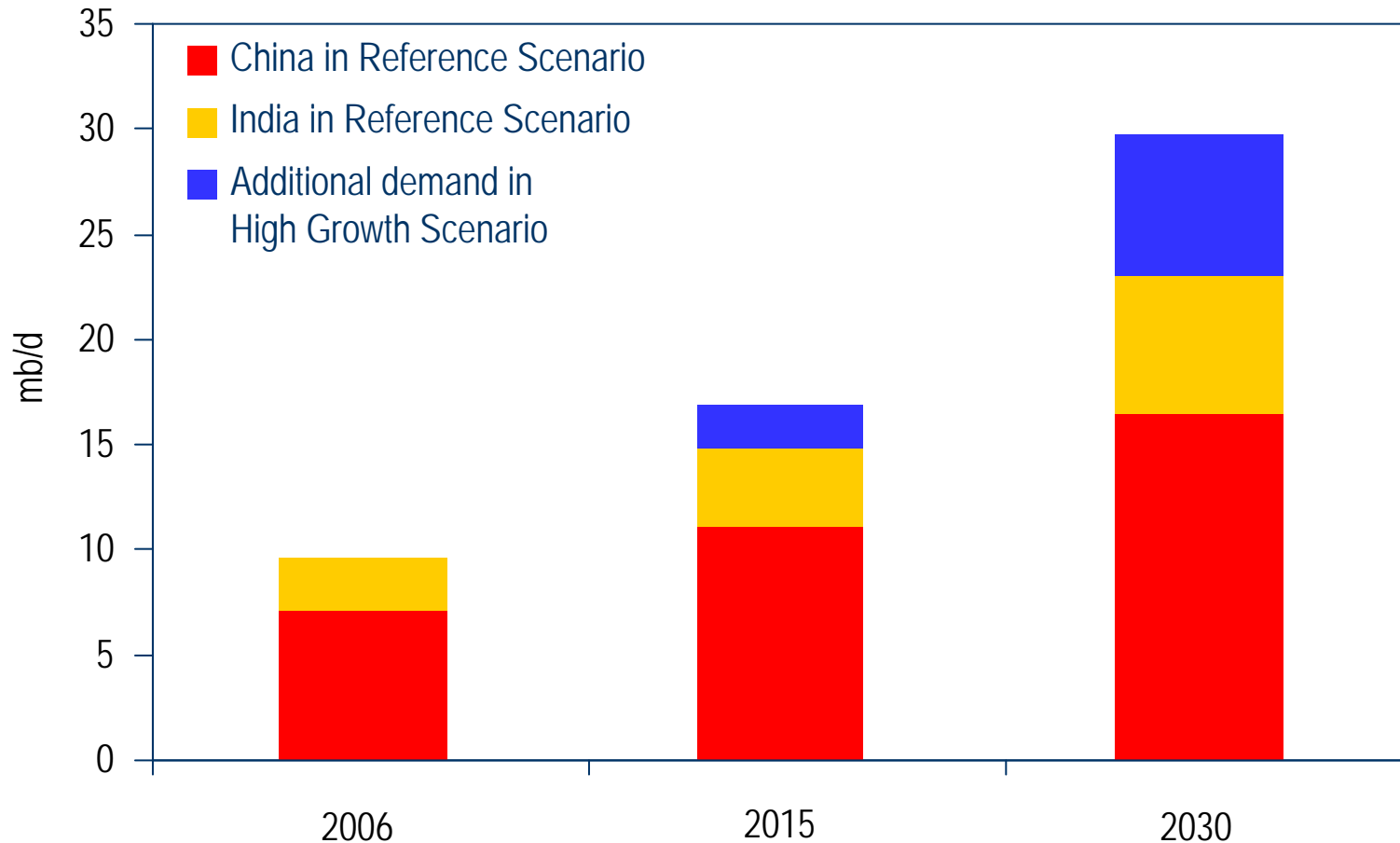
Average Global Demand Growth 1996-2001/2001-2006/2006-2011
thousand barrels per day



Source: IEA, *Medium-Term Oil Market Report*.

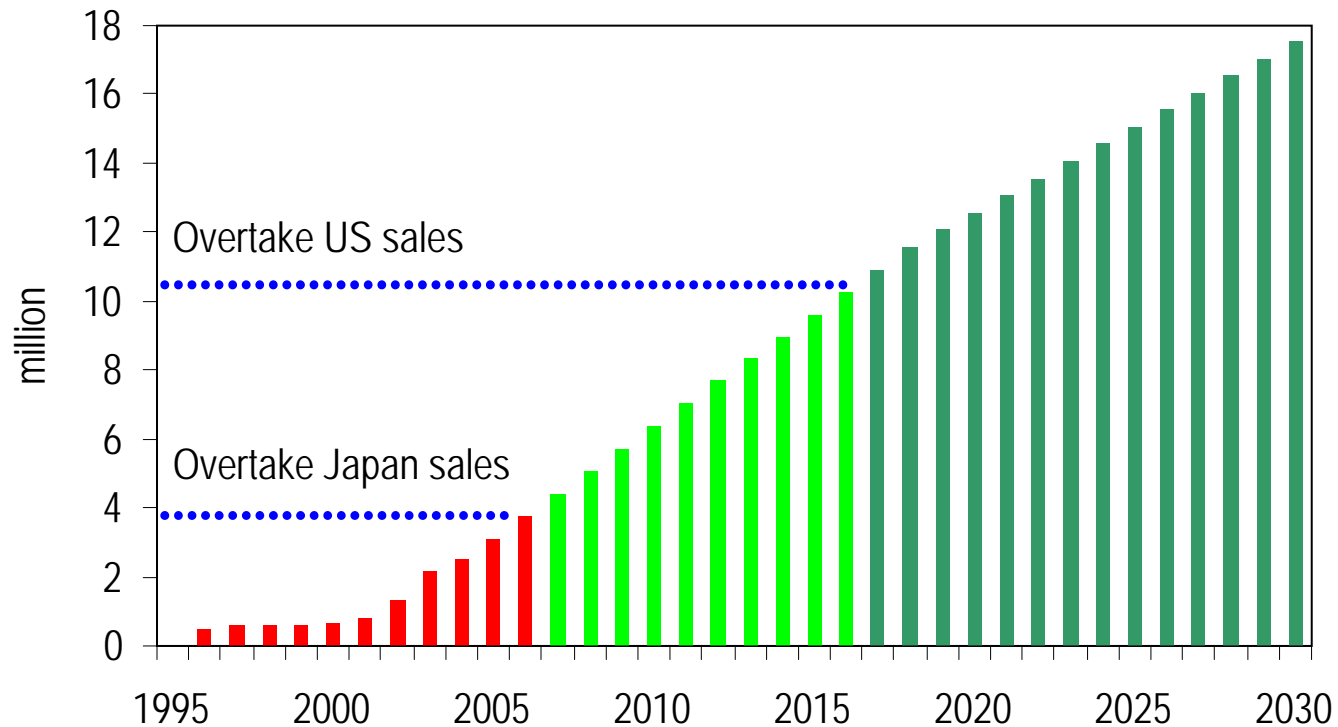
...and in the longer term

REFERENCE & HIGH-GROWTH SCENARIOS



Source: IEA, *World Energy Outlook 2007*.

New light-duty vehicle sales in China are helping to propel oil demand

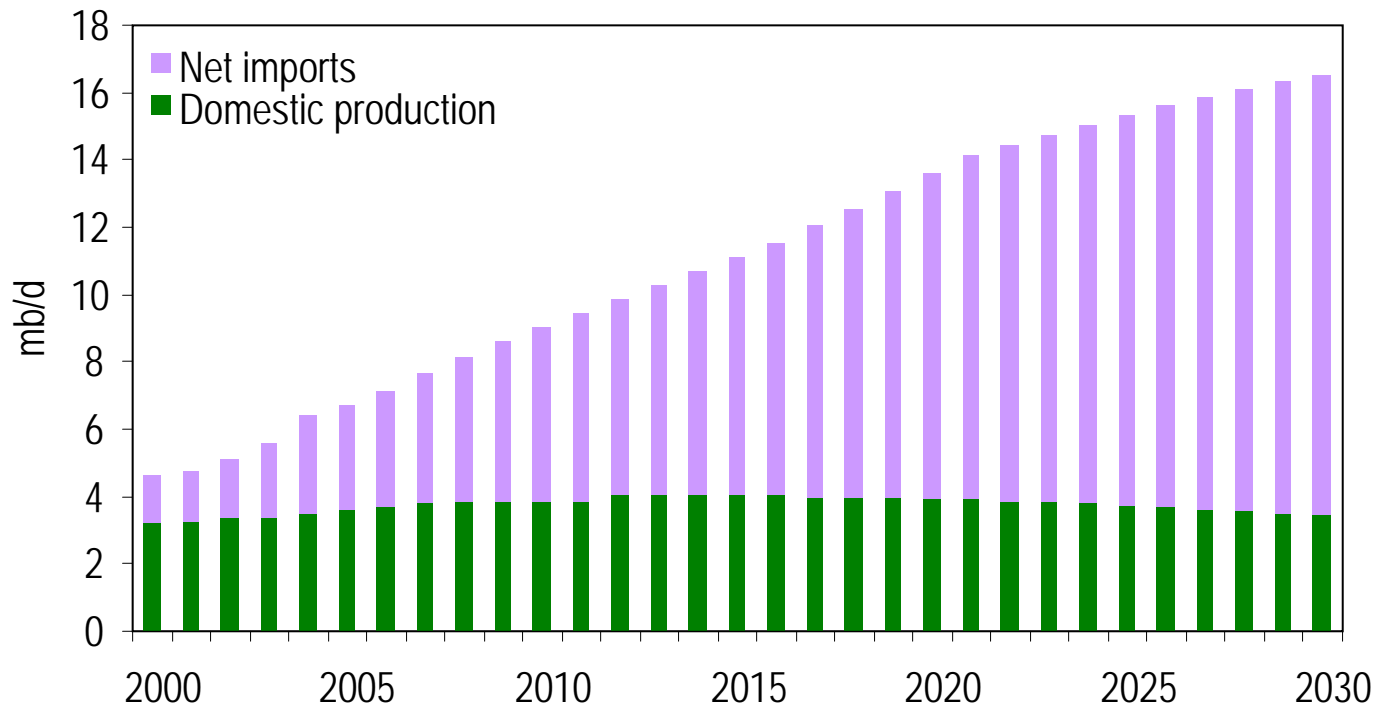


China's oil imports reach 13 mb/d in 2030 as car ownership jumps to 140 per 1 000 people from 20 today

Source: IEA, *World Energy Outlook 2007*.

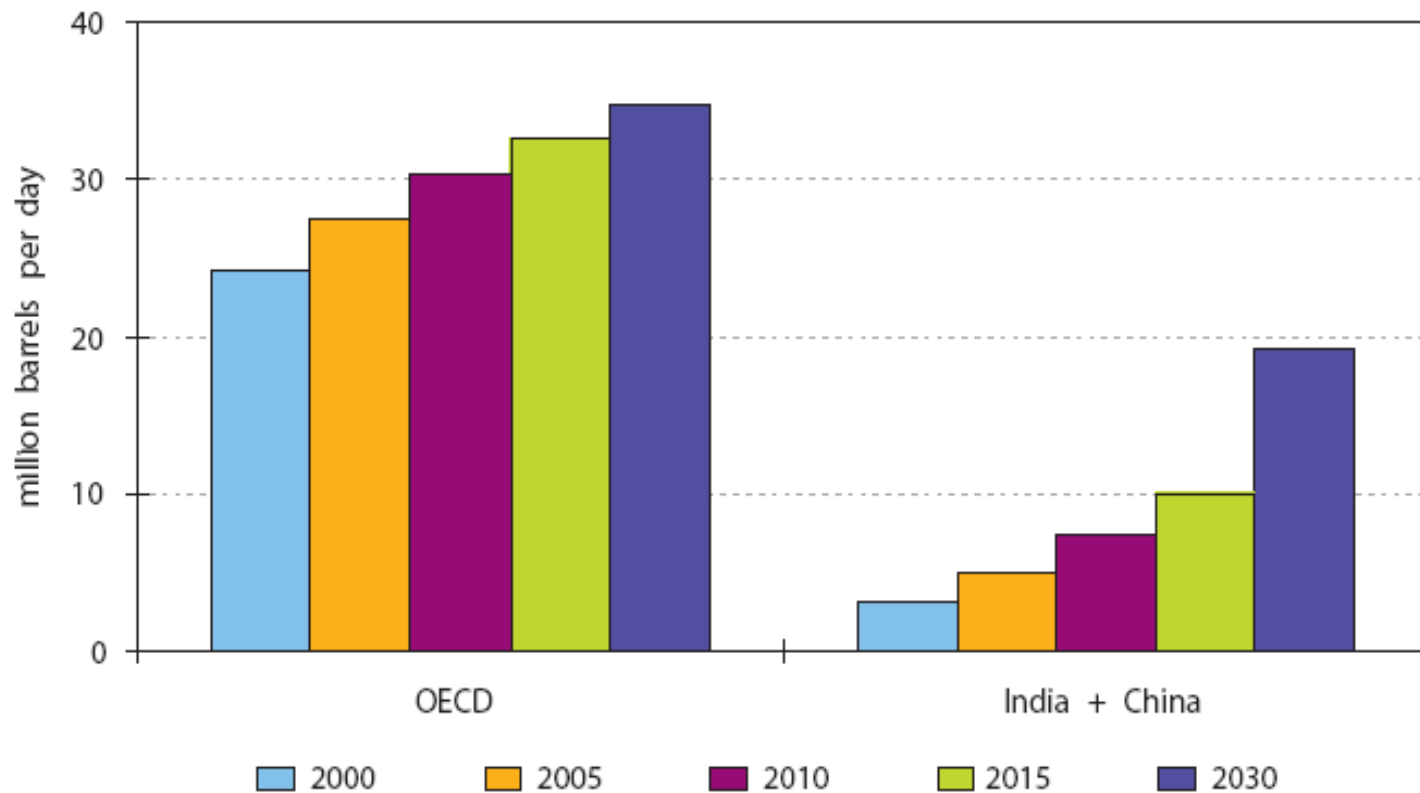
With domestic production flat, incremental consumption must depend on imports

REFERENCE SCENARIO

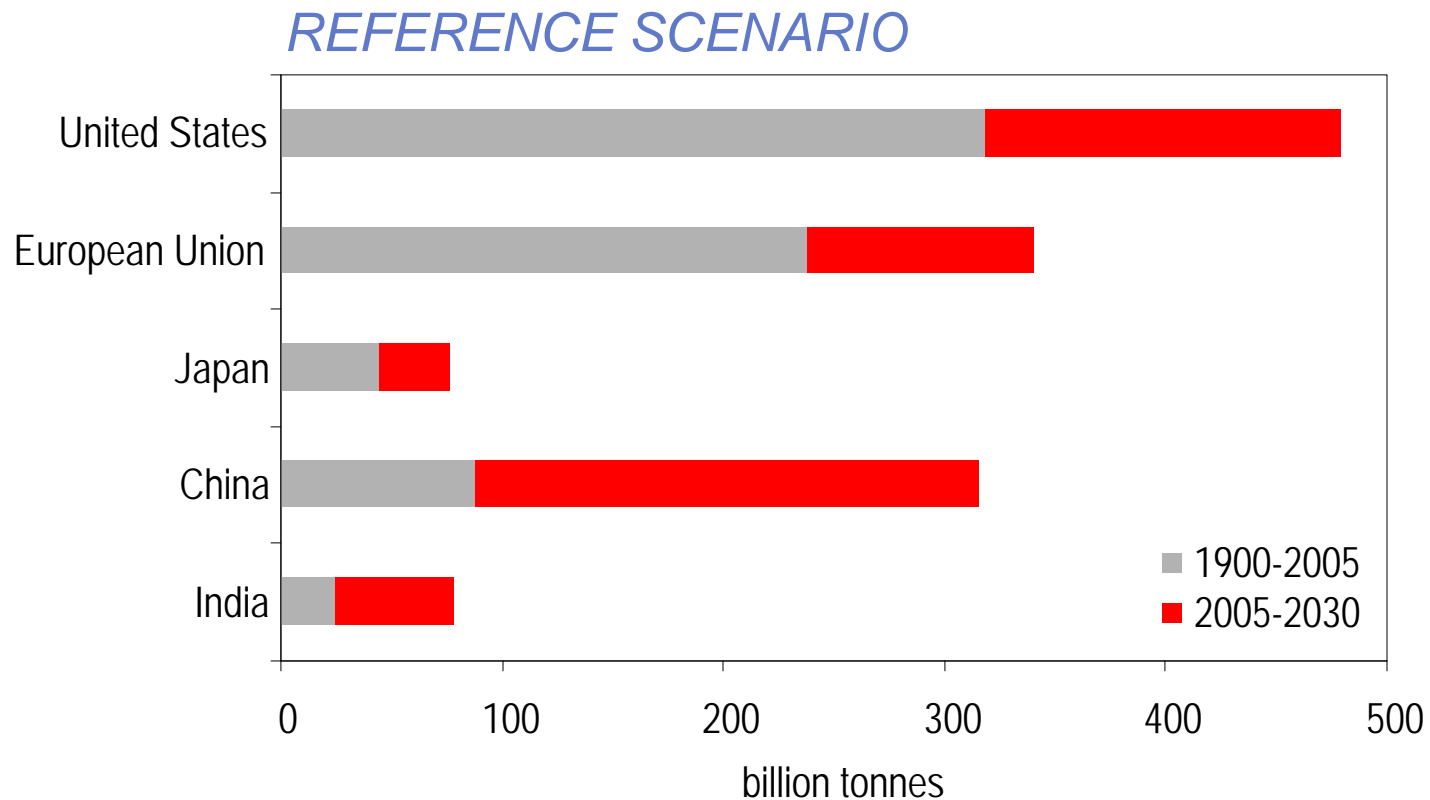


China's net oil imports quadruple to 13.1 mb/d in 2030, their share of demand jumping to 80%

Emergency stockpiles in IEA countries alone will no longer suffice



China & India in Global CO₂ Emissions



Around 60% of the global increase in emissions in 2005-2030 comes from China & India

World's Top Five CO₂ Emitters

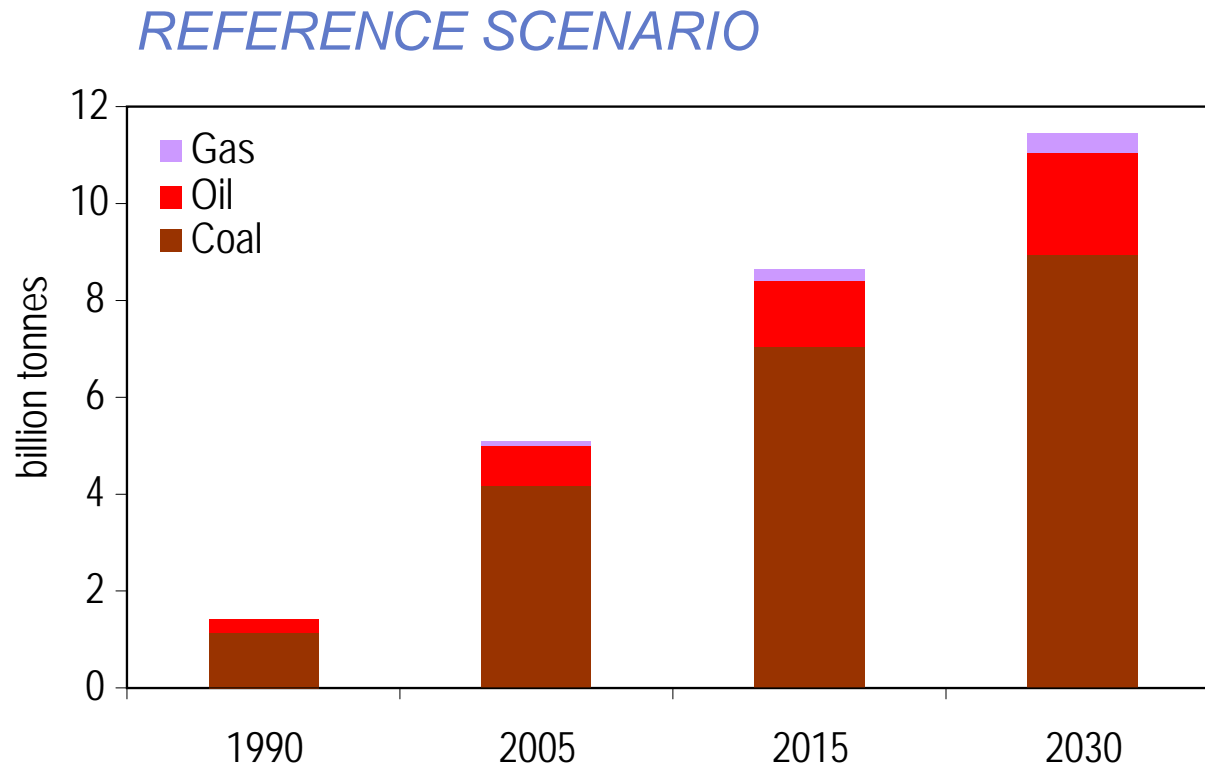
REFERENCE SCENARIO

	2005		2015		2030	
	Gt	rank	Gt	rank	Gt	rank
US	5.8	1	6.4	2	6.9	2
China	5.1	2	8.6	1	11.4	1
Russia	1.5	3	1.8	4	2.0	4
Japan	1.2	4	1.3	5	1.2	5
India	1.1	5	1.8	3	3.3	3

Source: IEA, *World Energy Outlook 2007*.

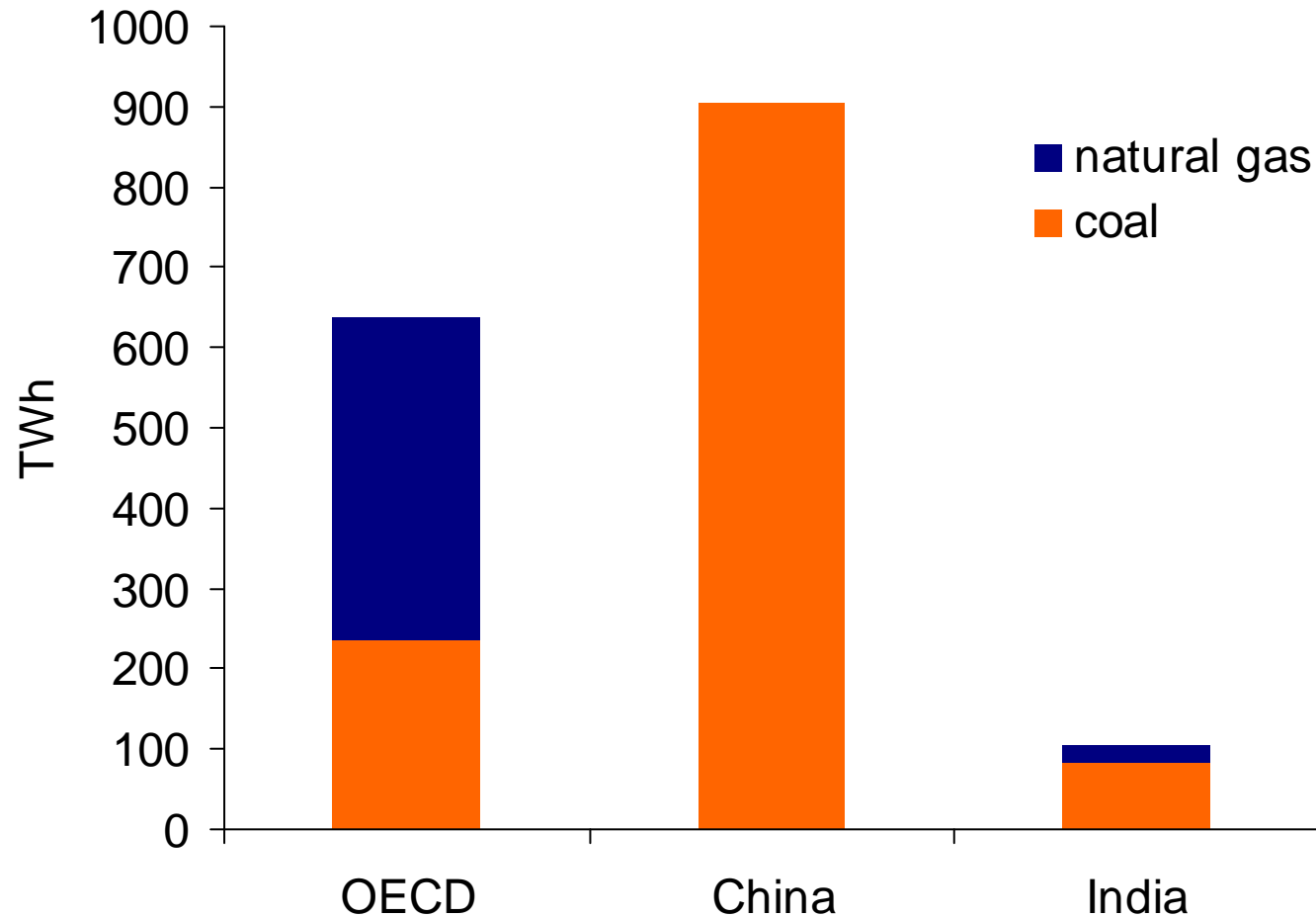


China's energy-related CO₂ emissions come primarily from coal



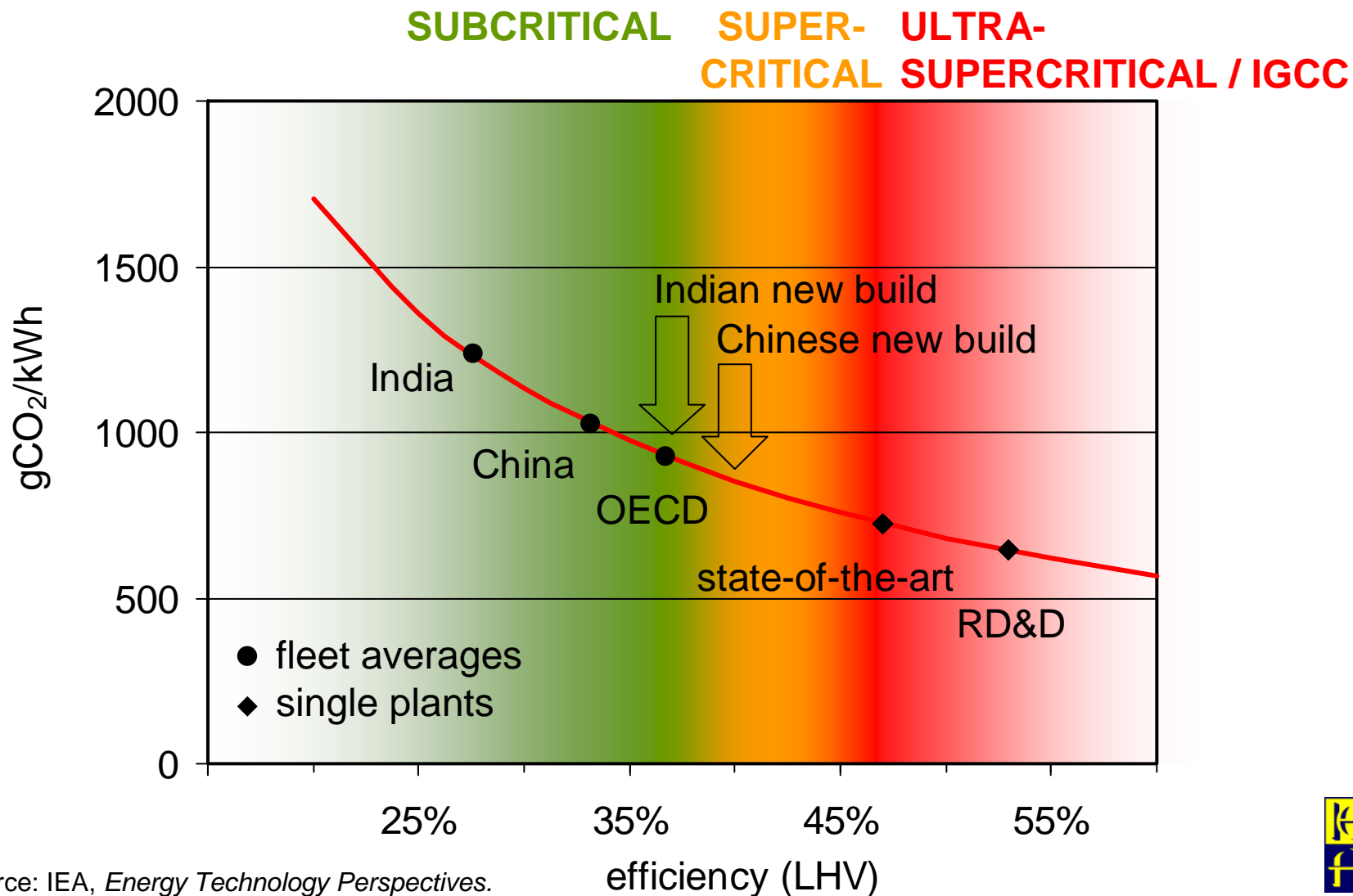
Emissions soar from 5 Gt in 2005 to 11 Gt in 2030, though they remain below current OECD levels in per-capita terms

Growth in fossil-fired electricity generation 2000-2005 exceeded OECD + India



source: *Electricity Information 2006*, IEA

CO₂ emissions from coal-fired power plants

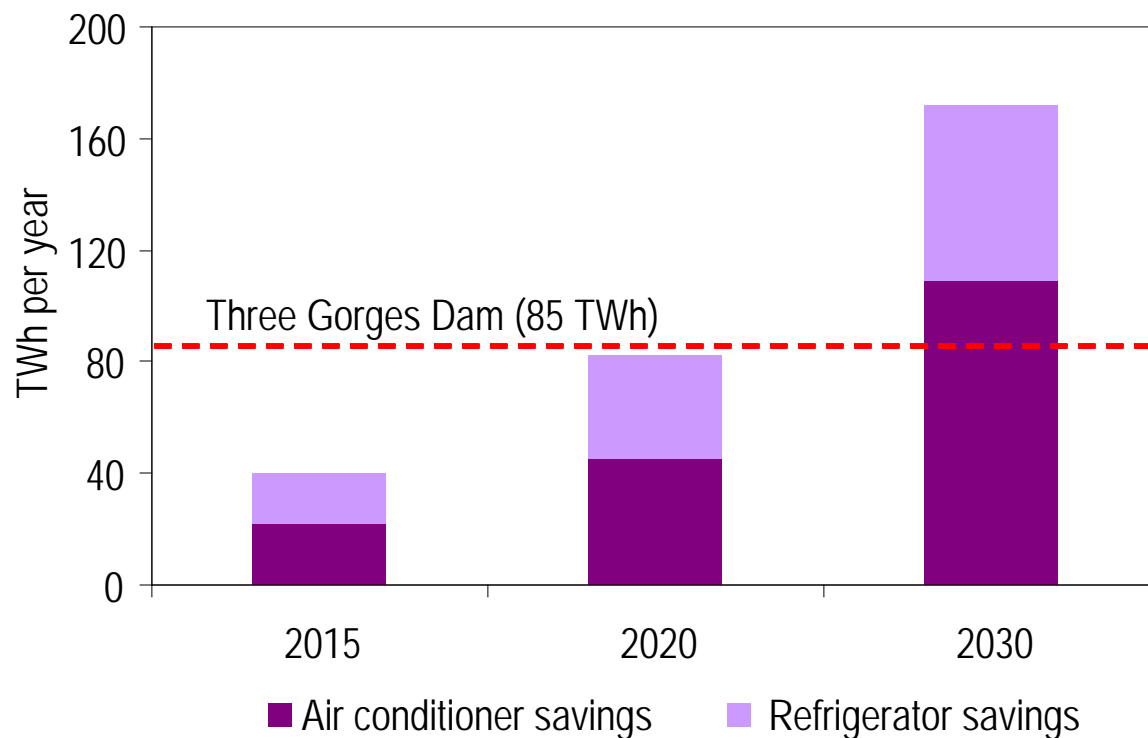


Source: IEA, *Energy Technology Perspectives*.

China's focus on efficiency is leading to application of more resources

1. Amendment of the *Energy Conservation Law*
2. *Medium & Long-term Plan for Energy Conservation*
3. Ten key energy-efficiency projects
4. Top-1000 Enterprises Energy Conservation Programme
5. Energy-intensity reporting system
6. Energy-efficiency labelling
7. Policy on small motor vehicle engines
8. Amendment of the *Programme on Energy-Saving Technology Policies*
9. Government procurement & energy management
10. Energy-efficiency standards

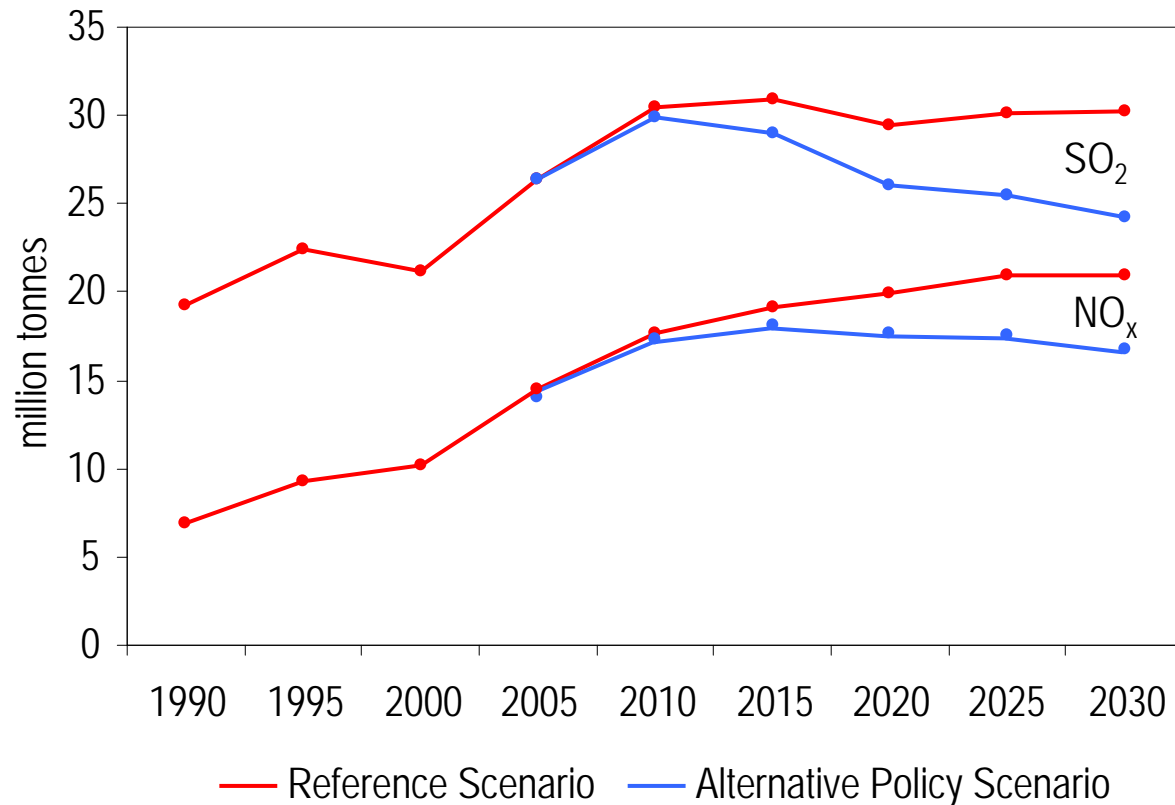
Effectiveness of Policies to Promote Energy Efficiency in China



Tougher efficiency standards for air conditioners & refrigerators alone would save the need to build a Three Gorges Dam by 2020

China's Local Pollutant Emissions

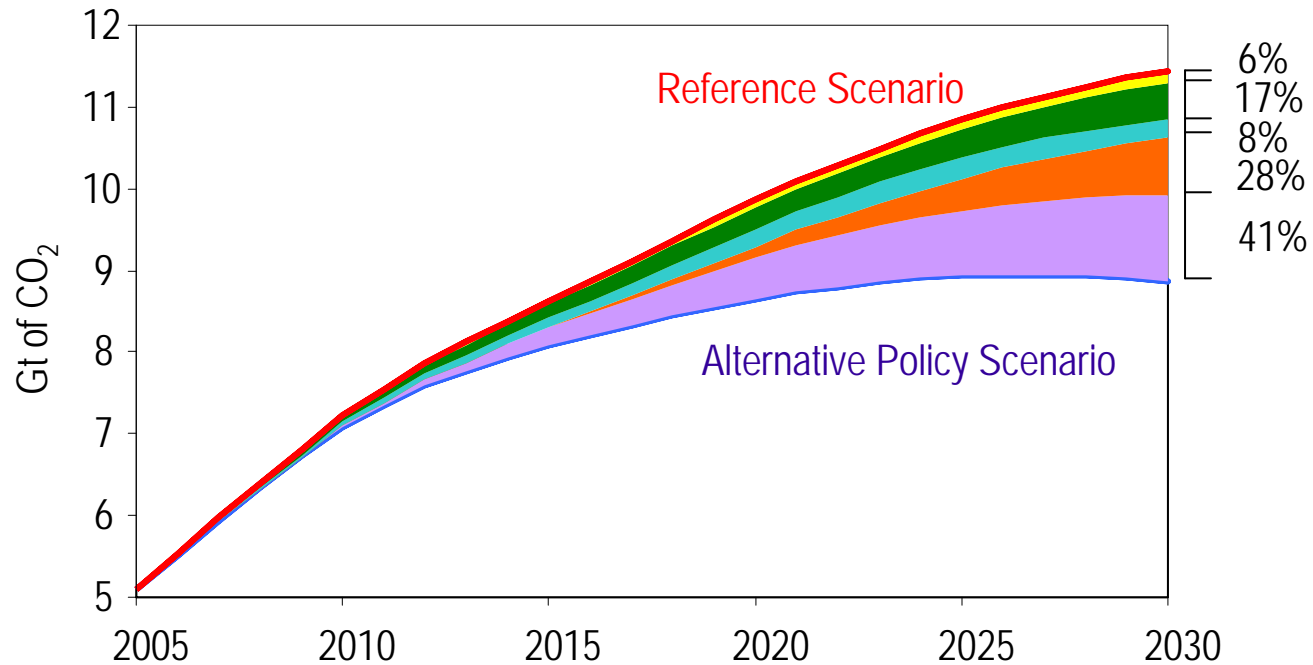
REFERENCE & ALTERNATIVE POLICY SCENARIOS



Policies aimed at enhancing energy security & reducing CO₂ emissions also reduce local pollution

Source: IEA, *World Energy Outlook 2007*.

China's energy-related CO₂ emissions can be brought down significantly



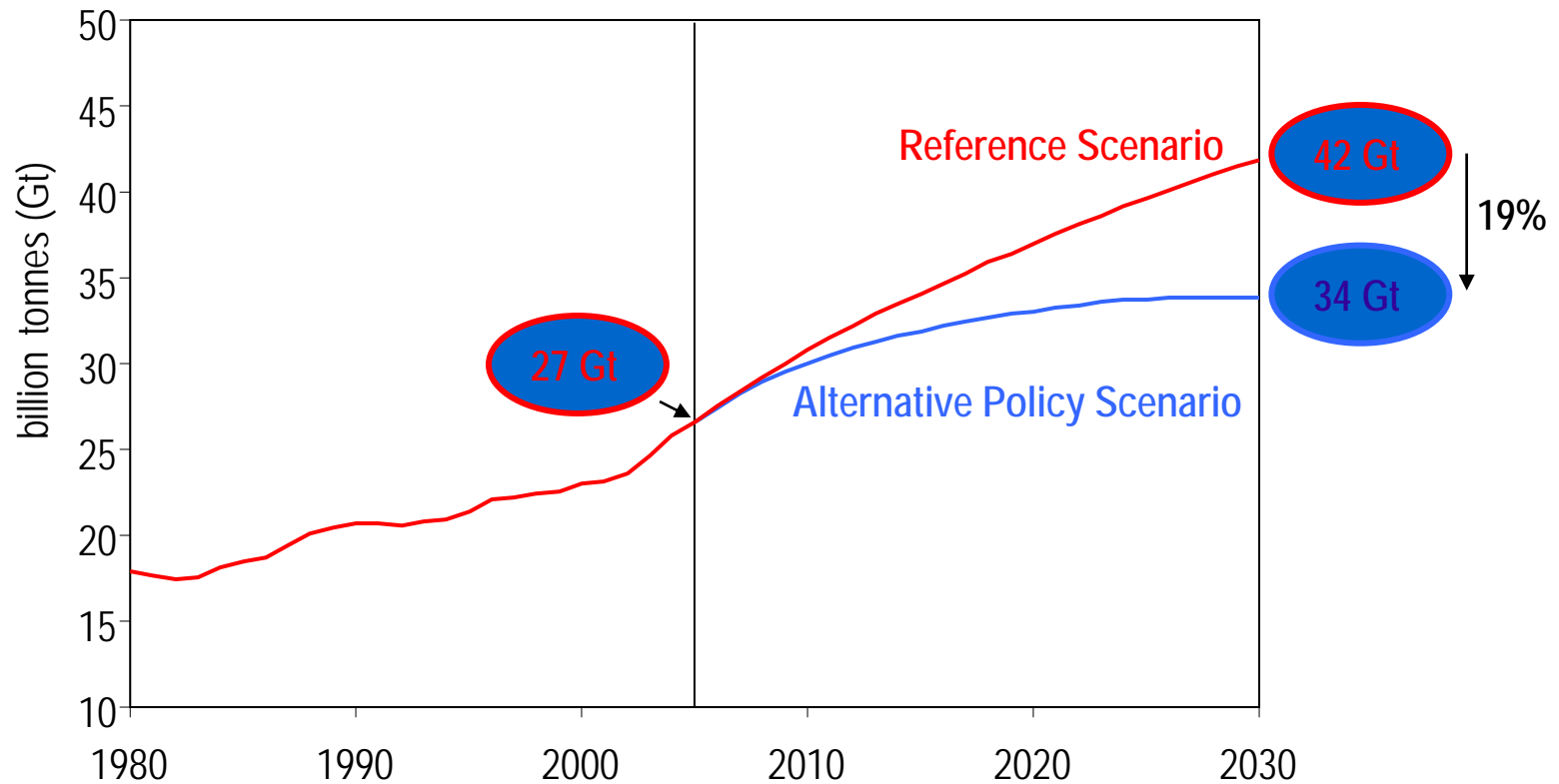
- Nuclear
- Renewables and biofuels
- Switching from coal to gas and improved efficiency on the supply side
- End-use electricity-efficiency measures
- End-use fuel-efficiency measures

Improved energy efficiency & structural economic change account for almost 70% of avoided emissions in 2030

Source: IEA, *World Energy Outlook 2007*.

Global Energy-Related CO₂ Emissions

REFERENCE & ALTERNATIVE POLICY SCENARIOS



Global emissions will increase by 57% in the Reference Scenario, but they level off in the Alternative Policy Scenario

Source: IEA, *World Energy Outlook 2007*.

IEA cooperation with China

- Energy (oil) security

Information sharing, simulation exercises

- Energy statistics

Information exchanges, training and capacity building

- Analysis (scenarios, indicators)

Technical cooperation on modeling and indicators

- Policy (supply, efficiency, env.)

Sectoral studies: gas, coal, electricity, efficiency

- Technology cooperation

Participation in IEA's technology networks

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