



***World Energy Outlook 2007:
China and India Insights***



**World Coal Institute
COP 13 Side-event**

Debra Justus, IEA

Bali, 12 December 2007



Coal Outlook



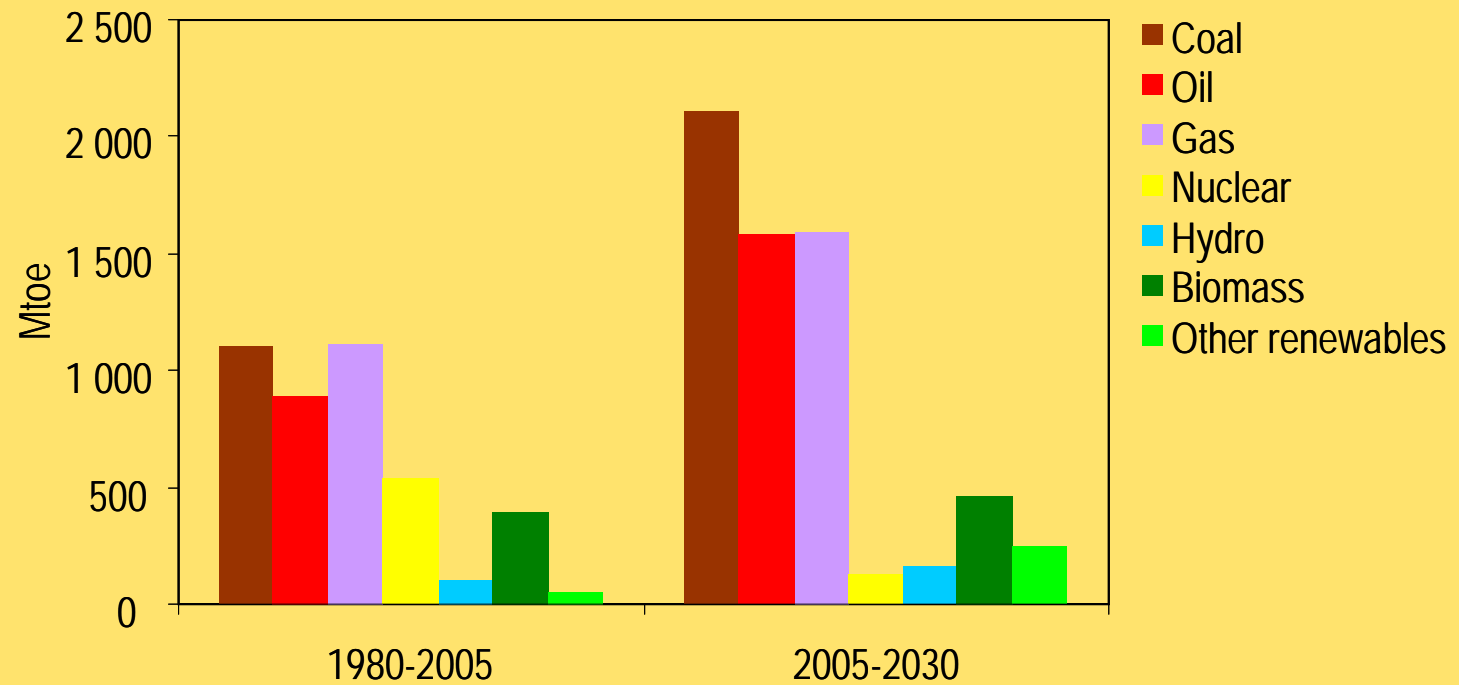
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Reference Scenario: Increase in World Primary Energy Demand



***Coal sees the biggest increase in demand between now & 2030,
though oil remains the largest fuel***



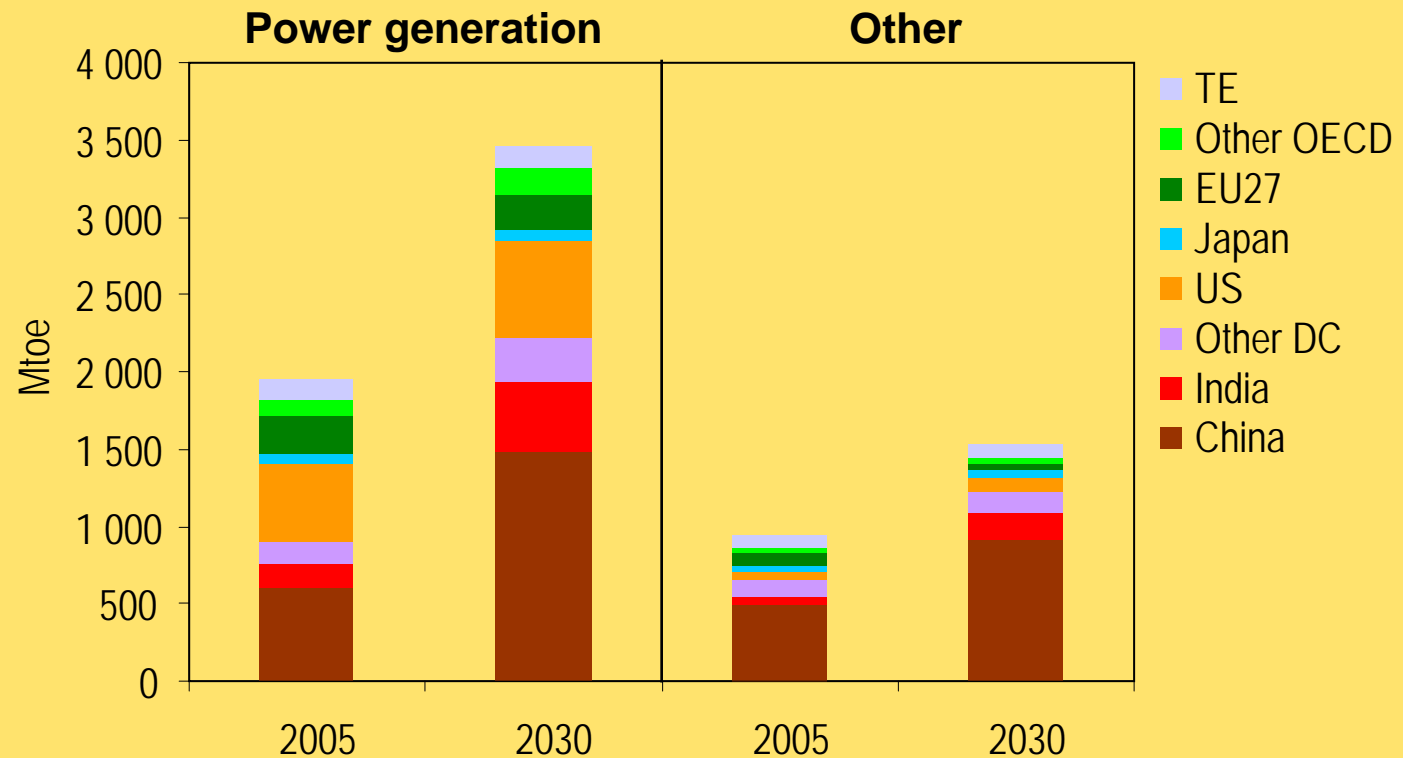
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Reference Scenario: Primary Coal Demand by Region



China & India account for 78% of the growth of coal use in power generation and 91% of the growth in other sectors



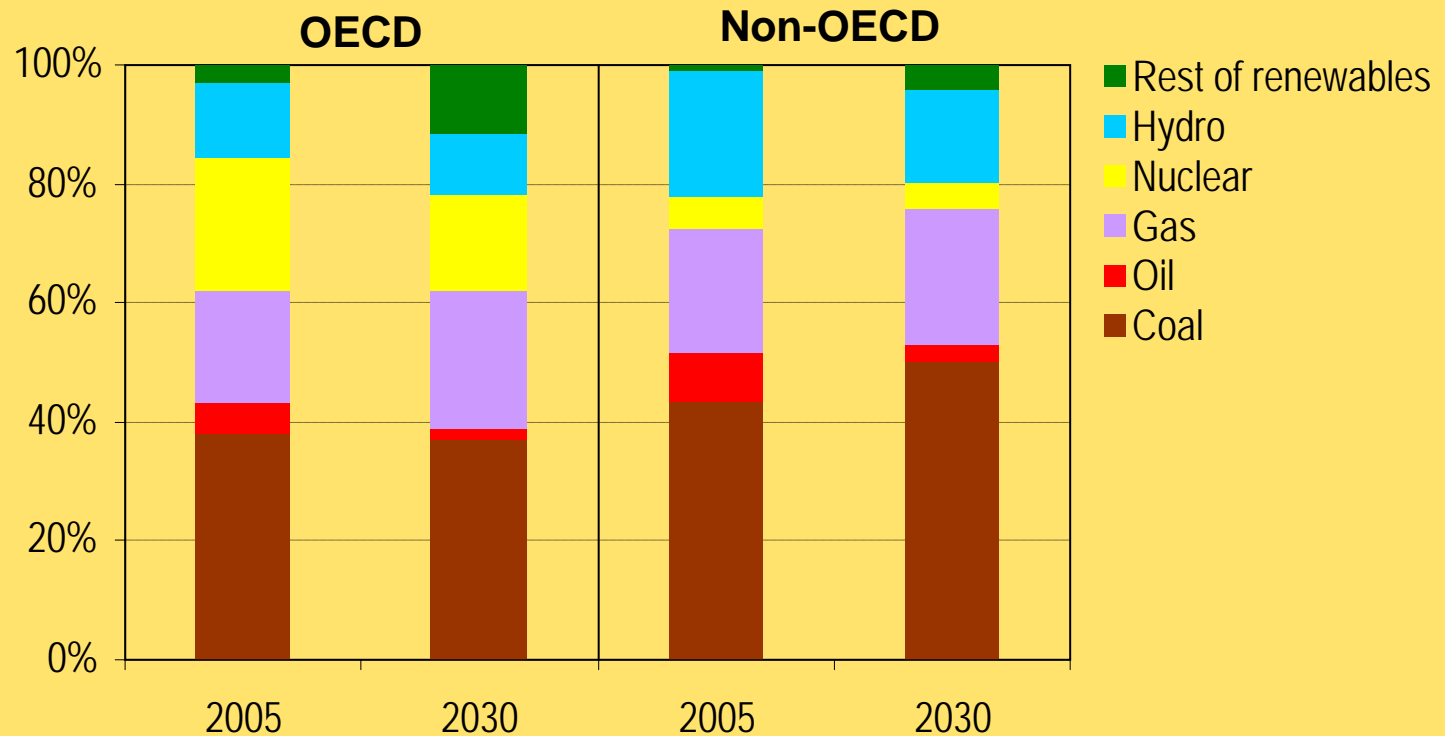
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Reference Scenario: Fuel Mix in Power Generation



Dependence on coal for power rises strongly in emerging economies, while it stagnates in the OECD



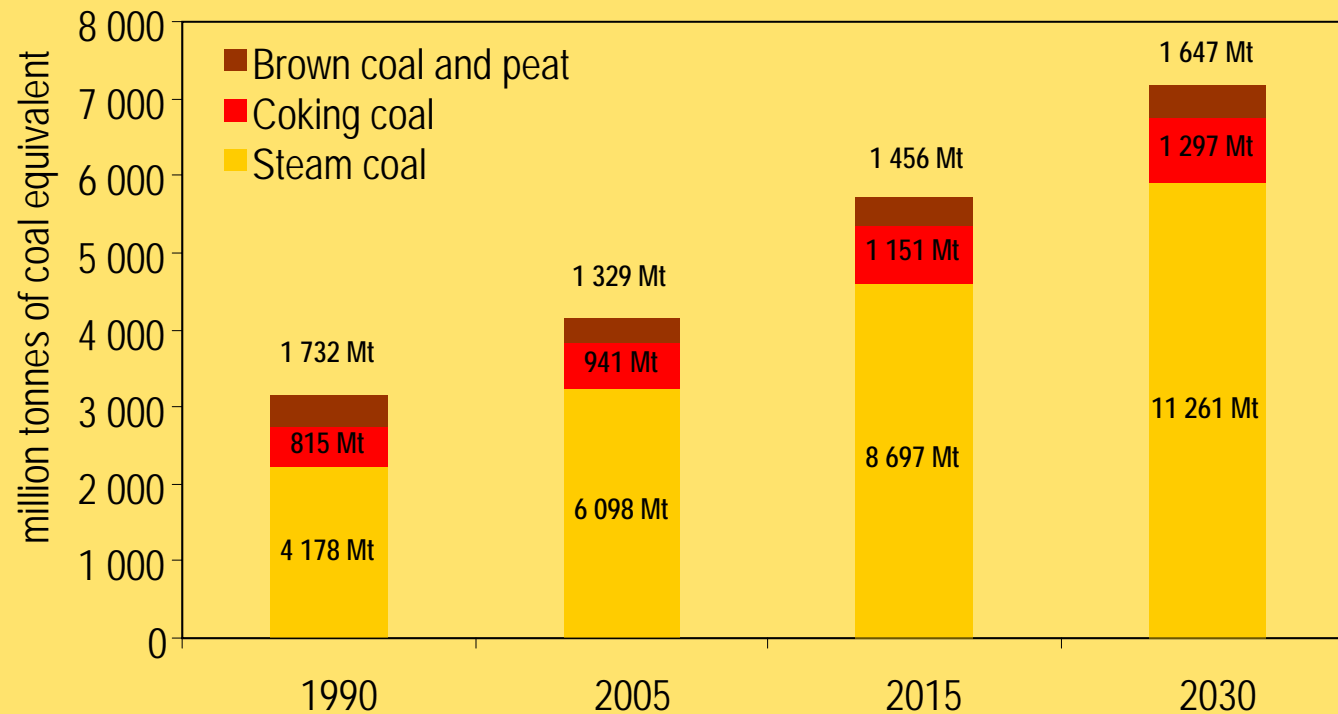
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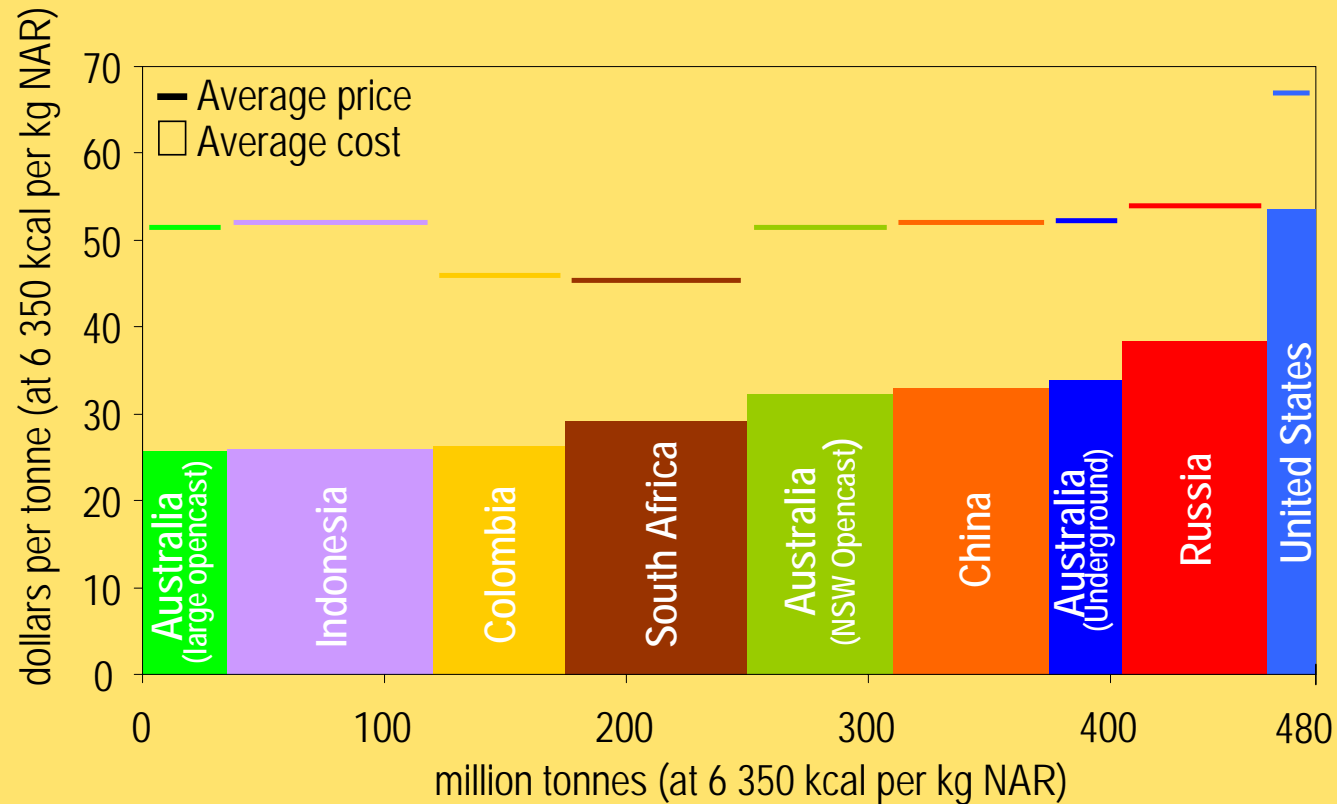
Reference Scenario: World Coal Production



Coal production increases by almost three-quarters through to 2030, most of it steam coal



Cash Cost of Steam Coal Production & Prices (FOB) of major exporters, 2005



FOB prices are currently well above the cash cost of production, providing strong incentives for new investment in mining

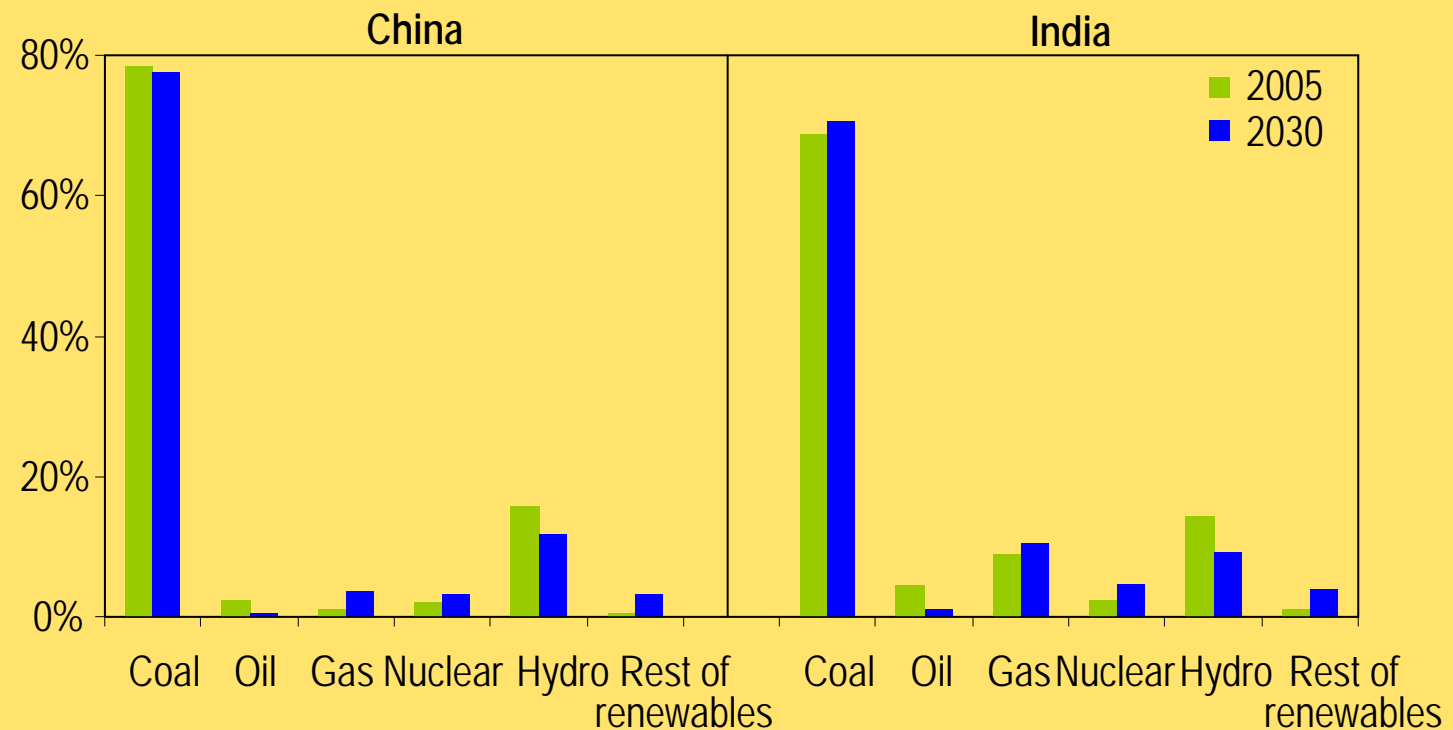


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Reference Scenario: Fuel Mix in Power Generation in China & India



Both China & India continue to rely heavily on coal for power generation

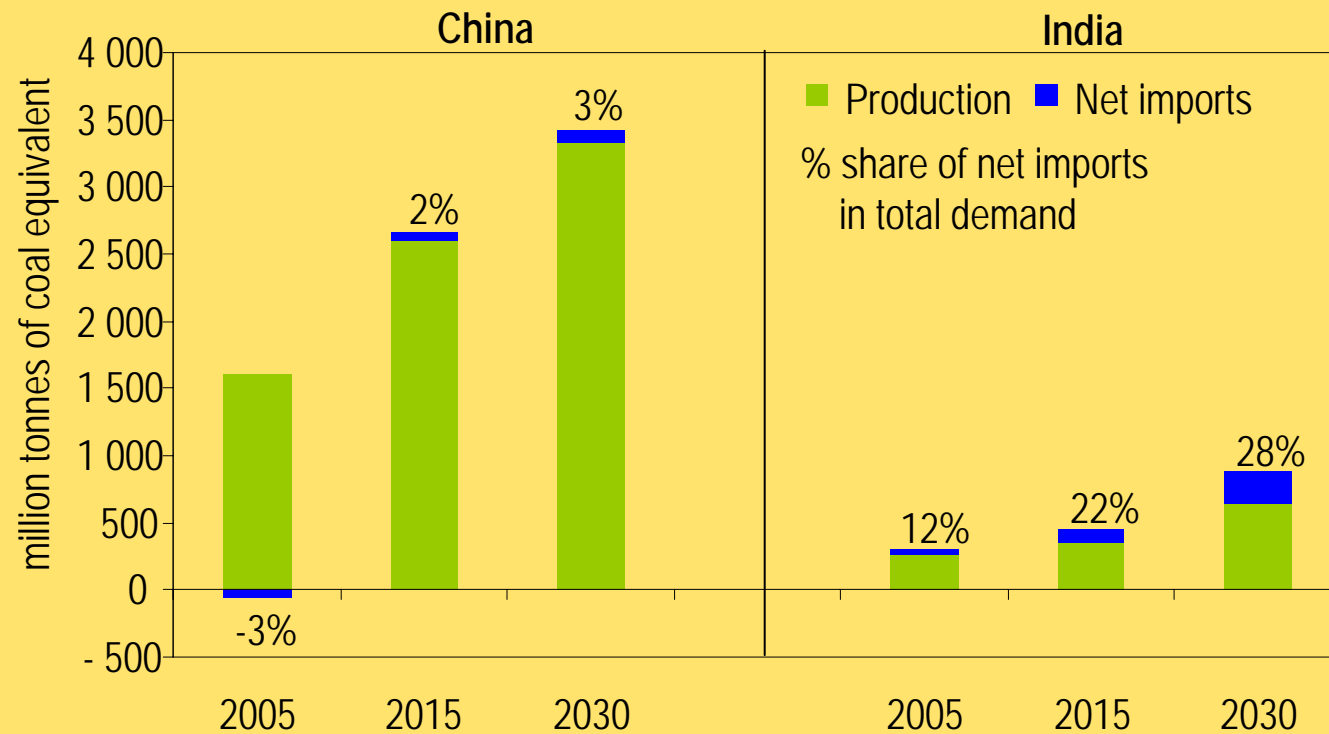


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Reference Scenario: Coal Balance in China & India



China becomes a net importer of coal as import outstrip production, while India's import dependency rises strongly

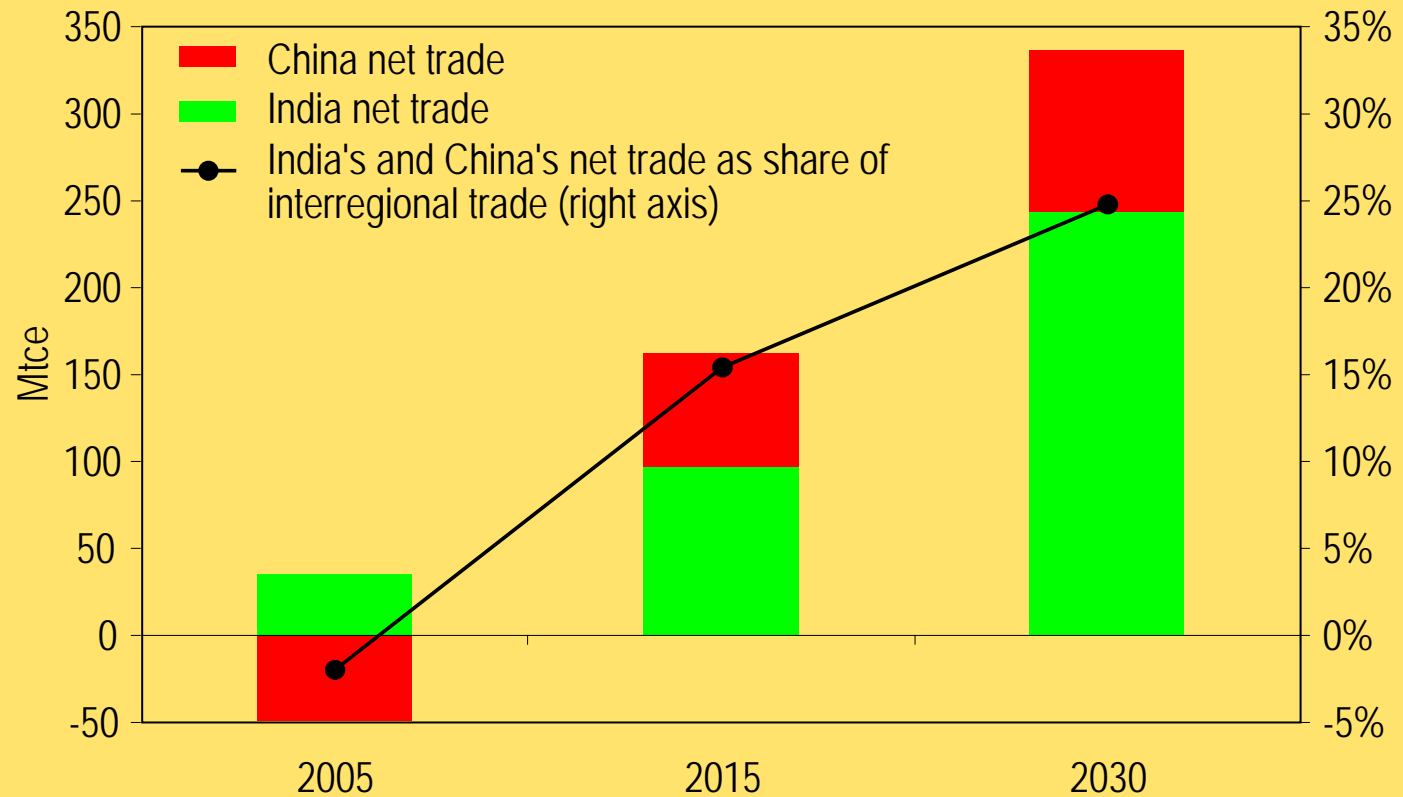


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Reference Scenario: China & India Coal Imports



China recently became a net coal importer like India, with both putting increasing pressure on international coal markets



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Reference Scenario: CO₂ Emissions from China's Coal-fired Power Plants



***Capacity additions in the next decade will lock-in technology
and largely determine emissions through 2050 & beyond***

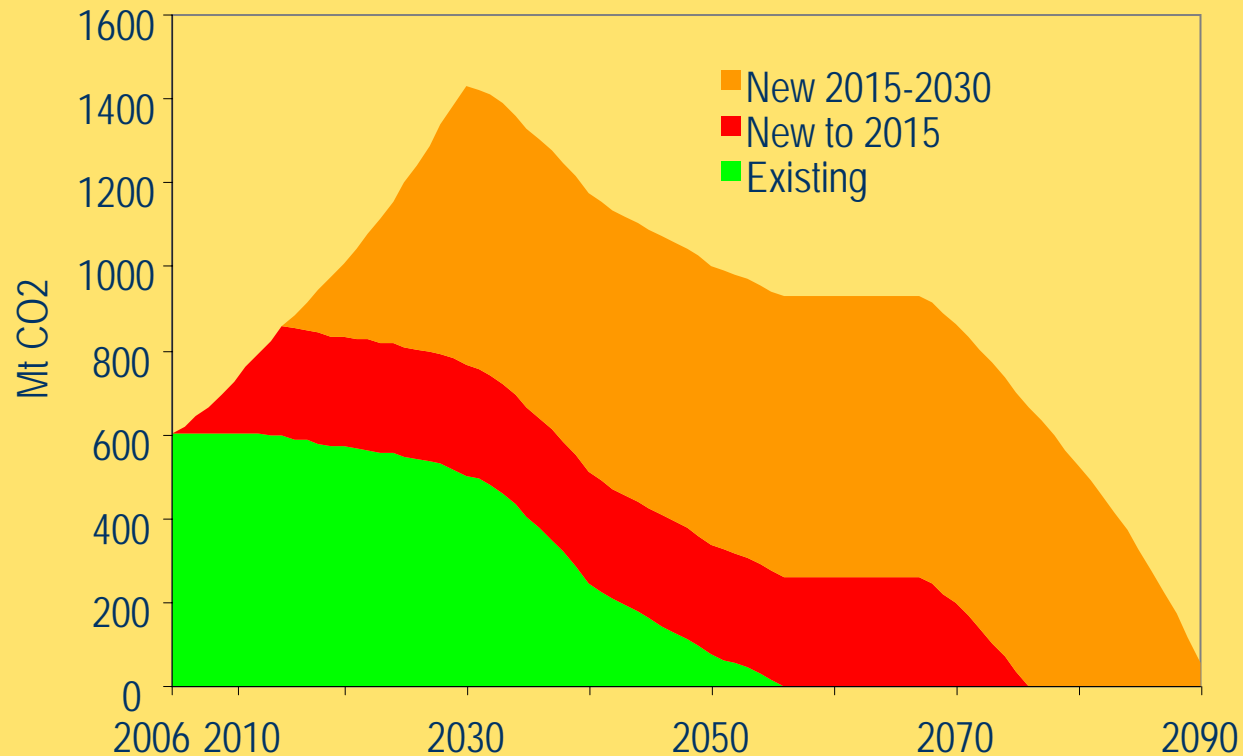


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Reference Scenario: CO₂ Emissions from India's Coal-Fired Power Plants



As in China, capacity additions in the next decade will lock-in technology & largely determine emissions for the next half-century

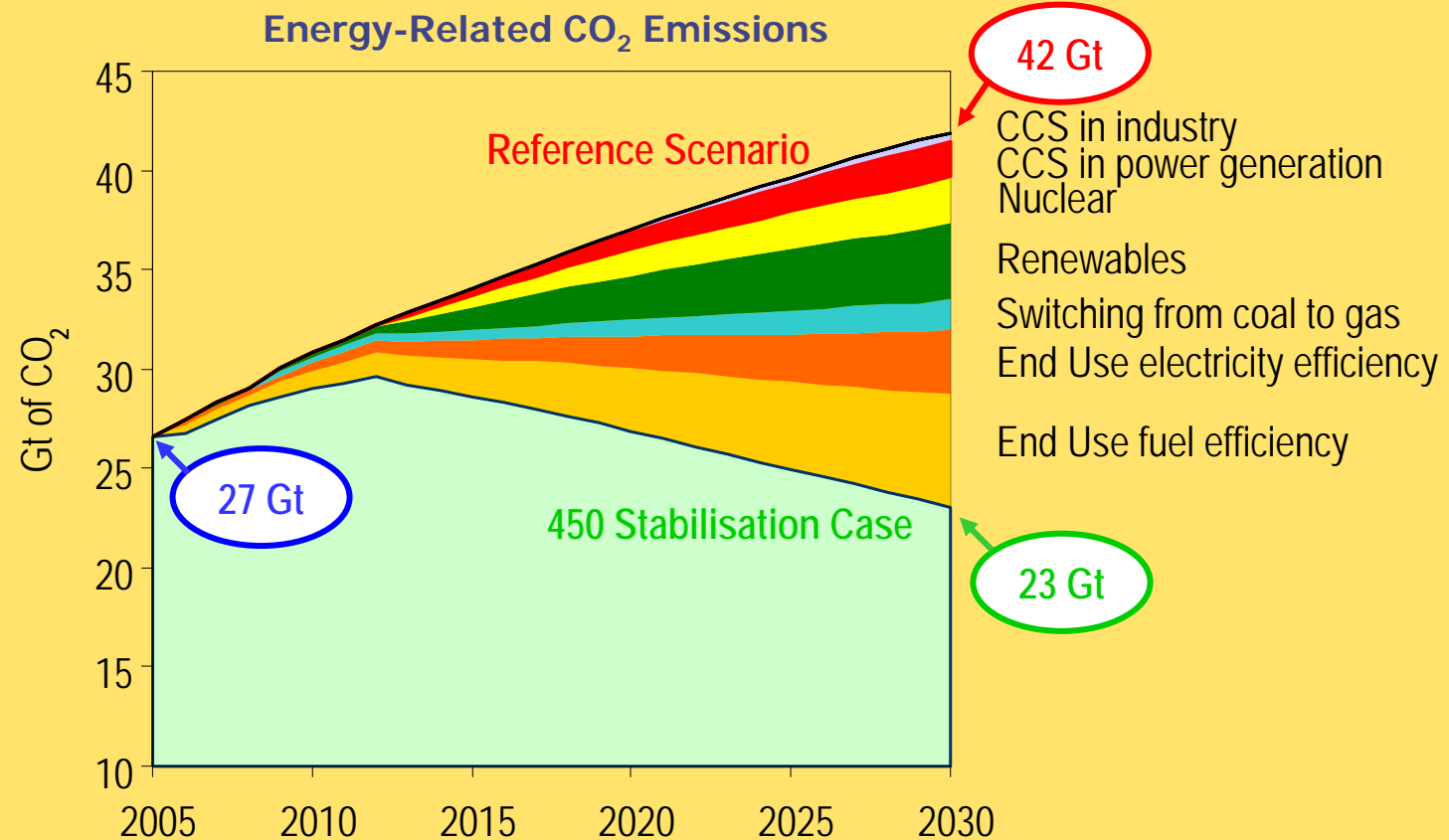


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450 Stabilisation Case: CO₂ Emissions and Mitigation



**By 2030, emissions are reduced to some 23 Gt,
a reduction of 19 Gt compared with the Reference Scenario**

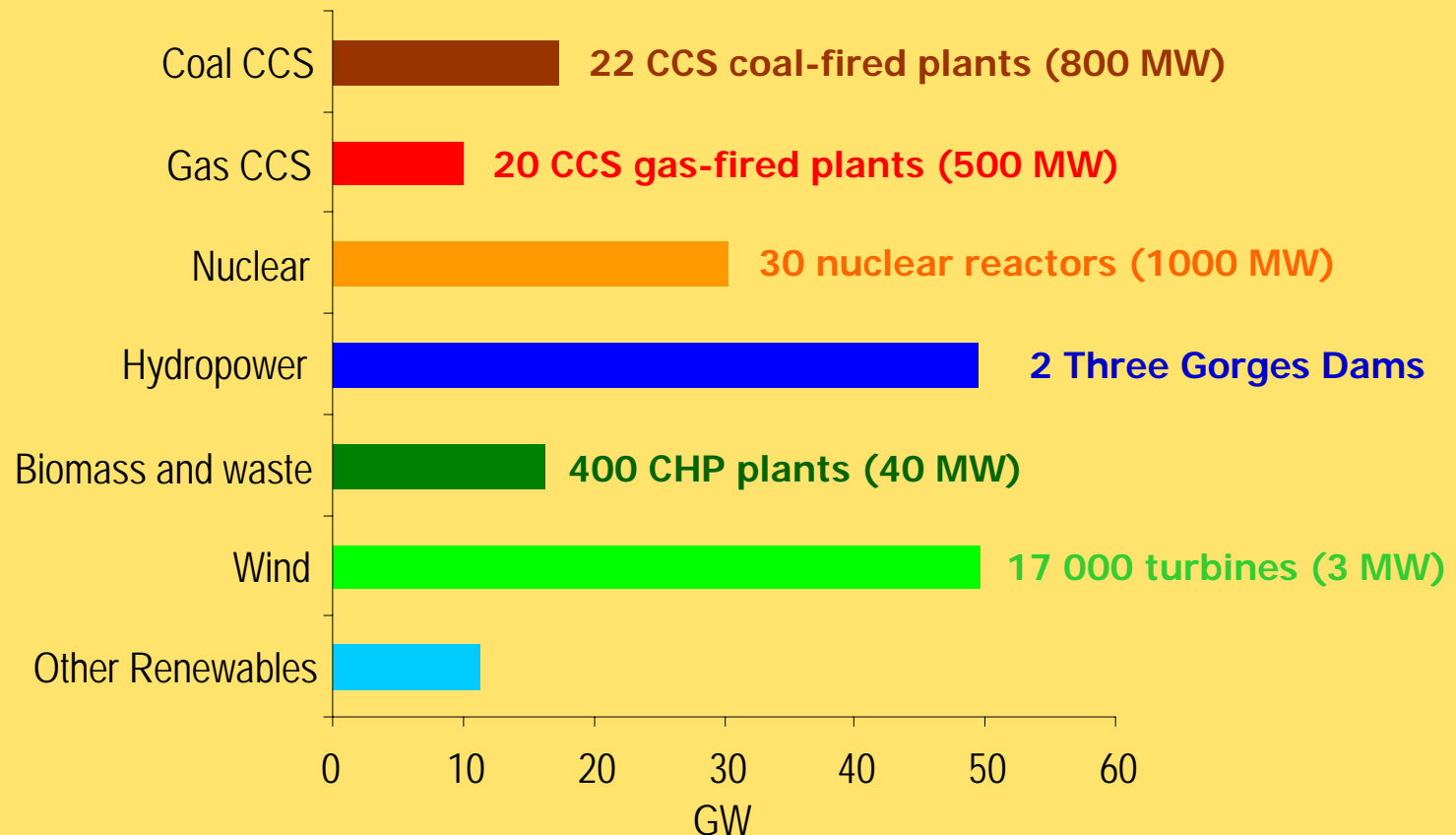


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450 Stabilisation Case: Average Annual Power Generation Capacity Additions, 2013-2030



***A large amount of capacity would need to be retired early,
entailing substantial costs***



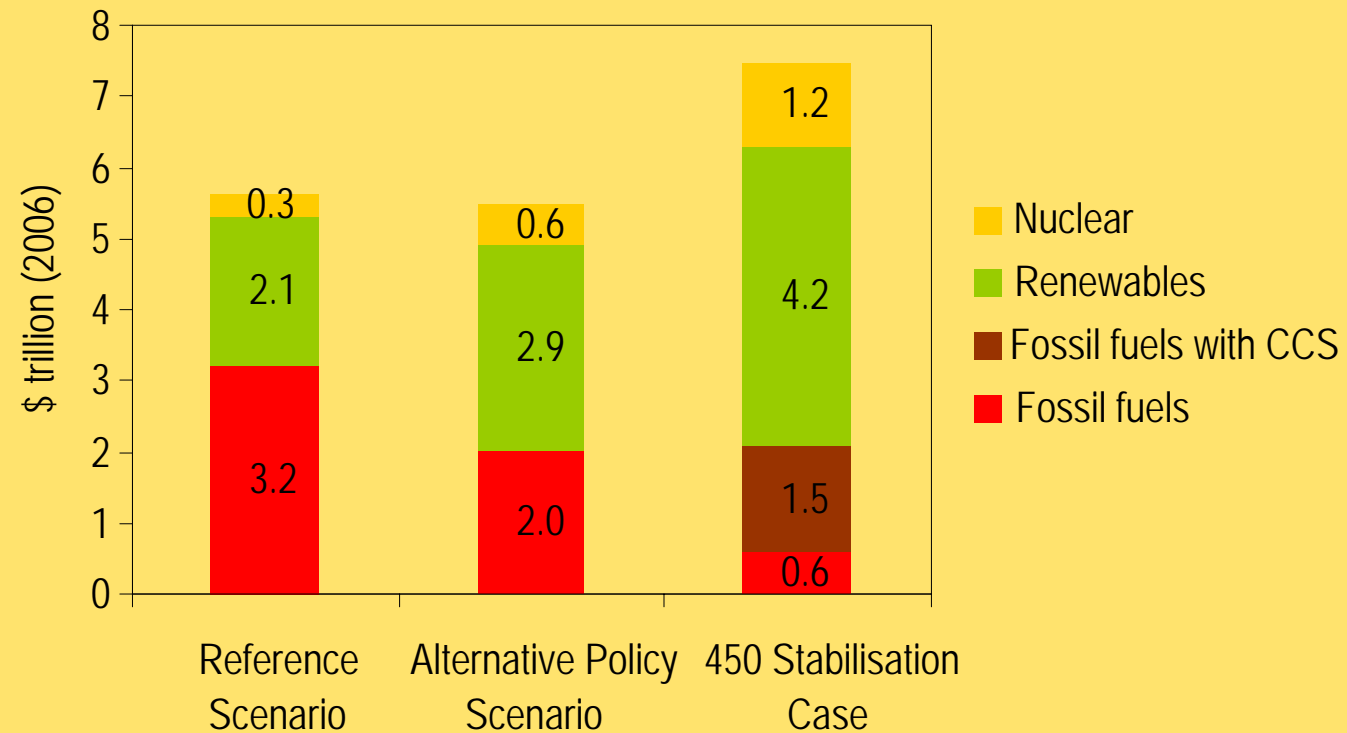
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450 Stabilisation Case: Cumulative Investment Needs in Power Generation – 2006 to 2030



Alternative Policies will shift investments towards RES in power generation. To stabilize emissions at around 450 ppm of CO₂-equivalent even more investment is needed.



Thank you!
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