

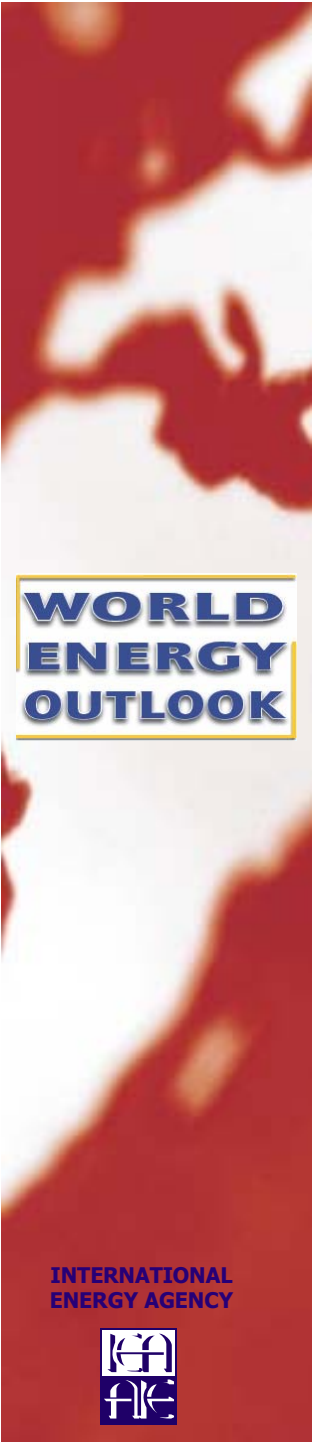


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World Energy Outlook

Renewable energy for heating

Richard Schimpf
International Energy Agency

The image shows the cover of the 'World Energy Outlook' report. The background is a dark red color with a faint, stylized world map in a lighter red tone. The title 'WORLD ENERGY OUTLOOK' is prominently displayed in the upper left quadrant. At the bottom left, the text 'INTERNATIONAL ENERGY AGENCY' is written above the IEA logo, which consists of the letters 'IEA' stacked above 'AIE' in a square grid.

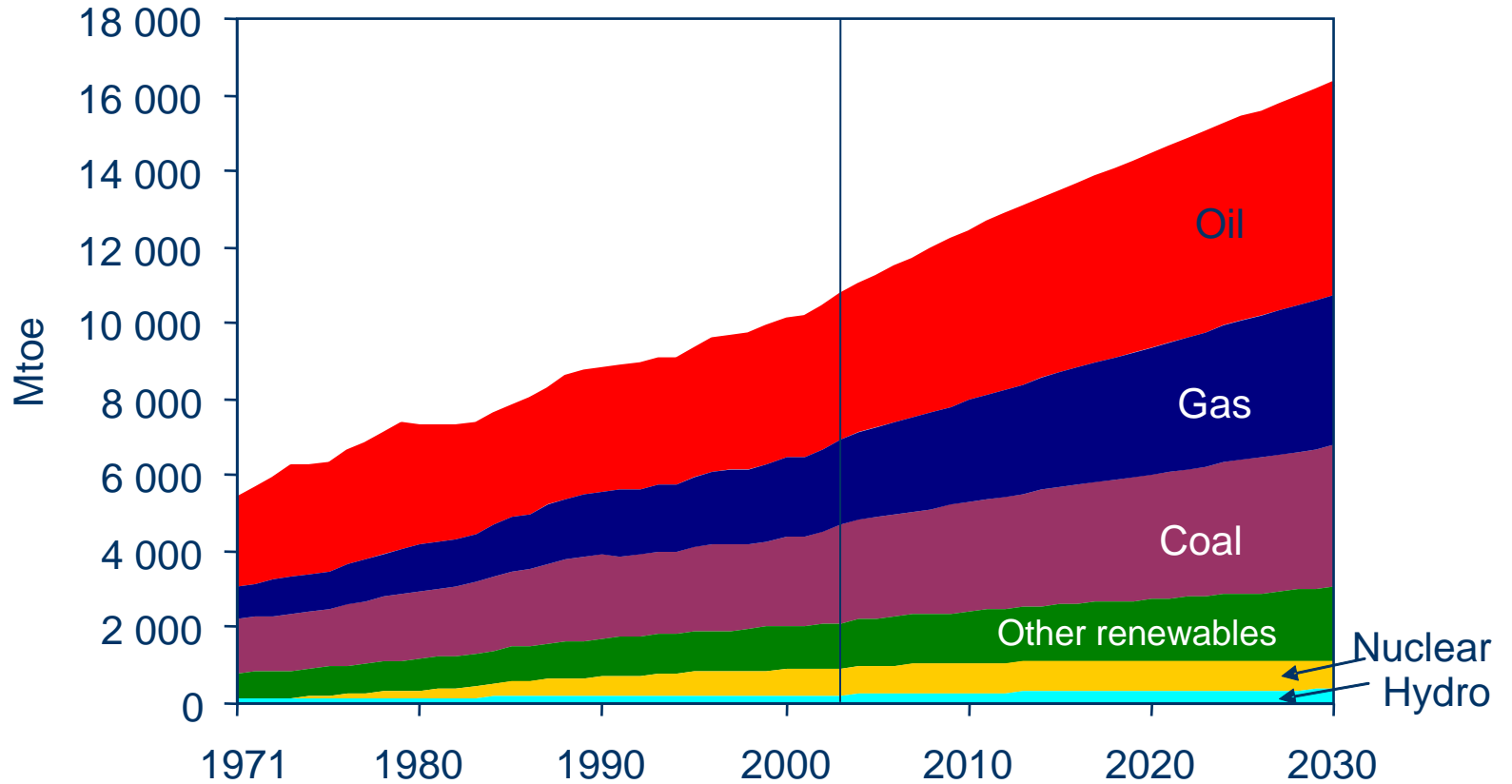
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Energy Trends & Strategic Challenges

World Primary Energy Demand



Oil, gas and coal together account for 83% of the growth in energy demand between now and 2030 in the Reference Scenario

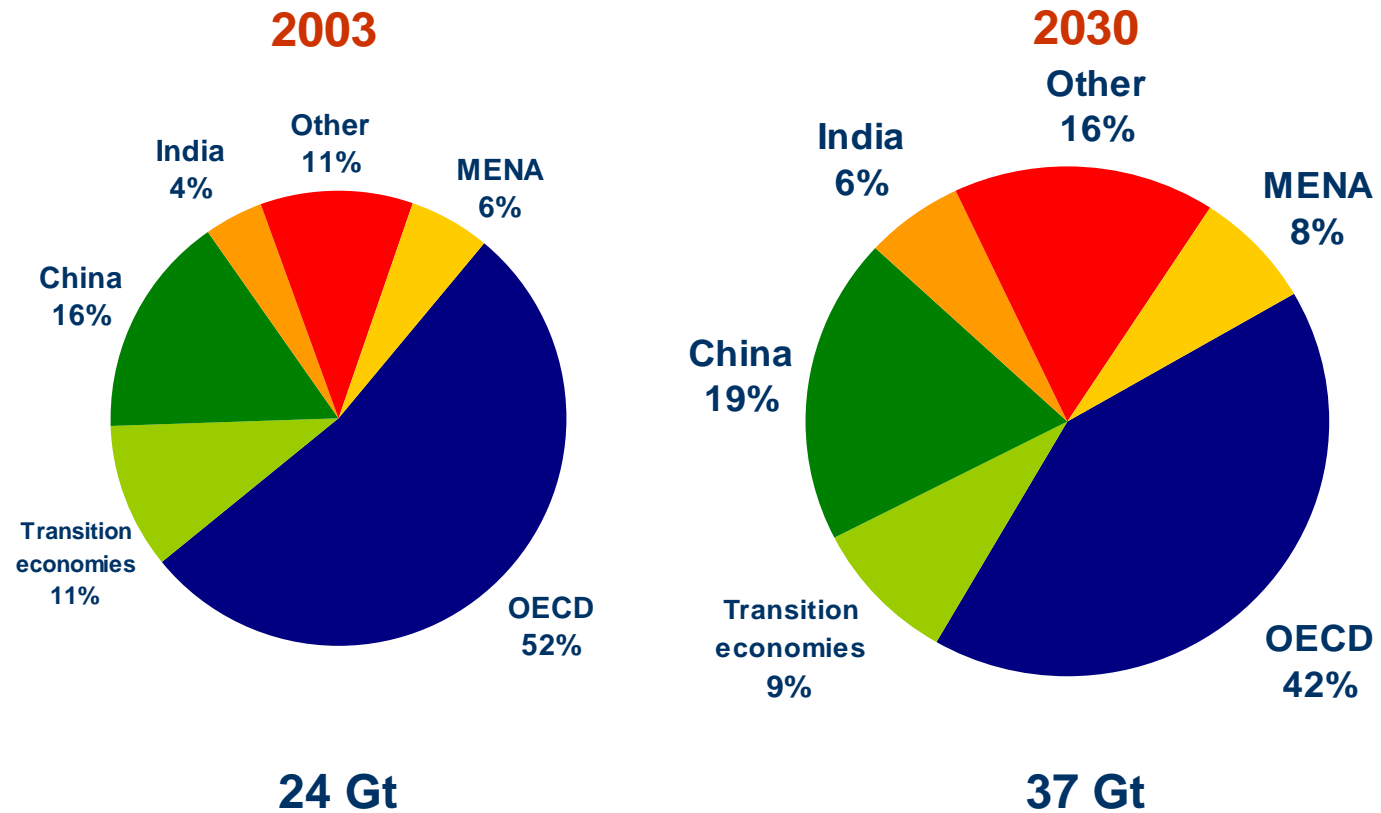
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Energy-Related CO₂ Emissions by Region

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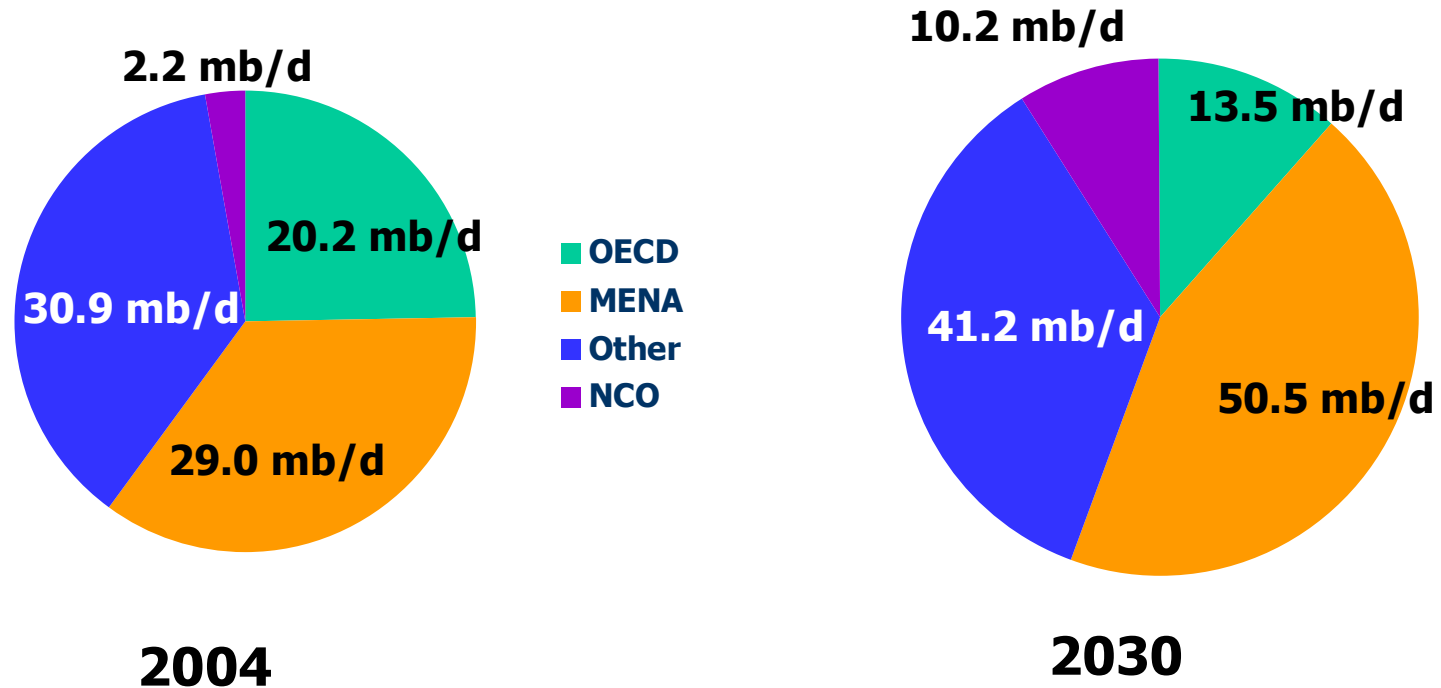


Global emissions grow by just over half between now and 2030, with the bulk of the increase coming from developing countries

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World Oil Production Shifts Away from OECD



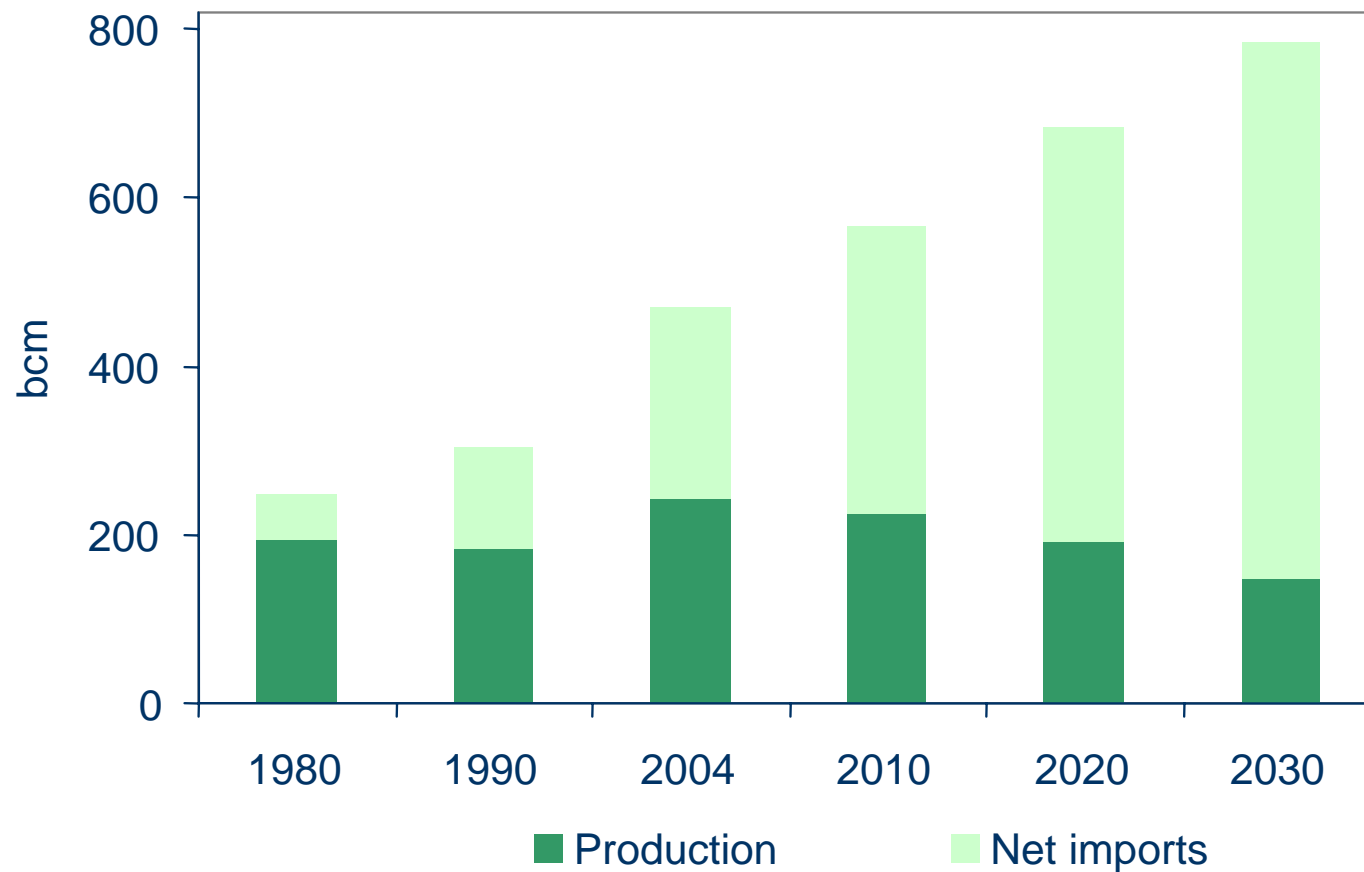
Global oil production climbs from 82 mb/d in 2004 to 115 mb/d in 2030; OECD share falls from 25% to 12%

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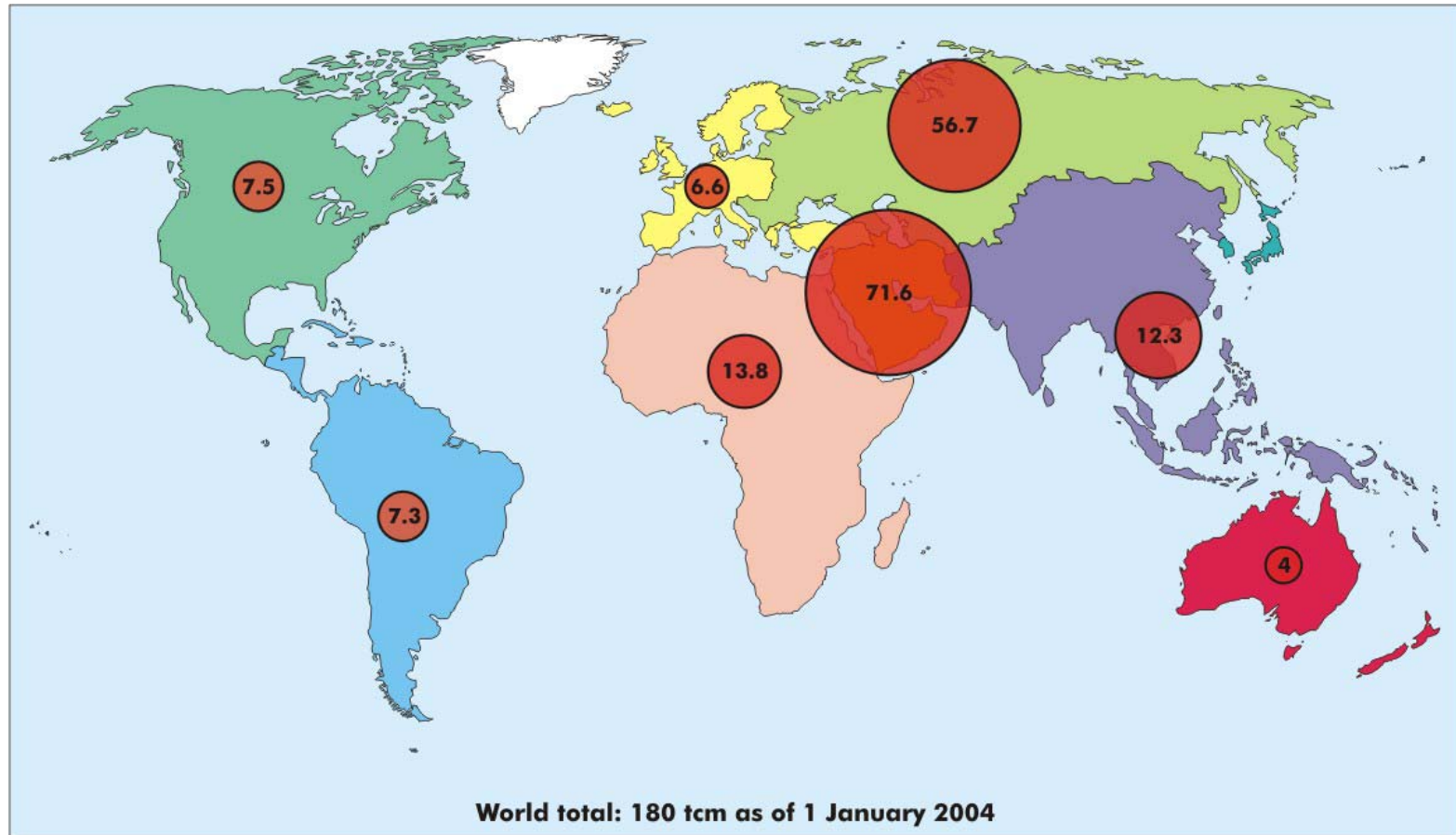


EU Gas Supply Balance



Rising demand – mainly for power generation – and declining output will cause net imports to surge

Proven Natural Gas Reserves

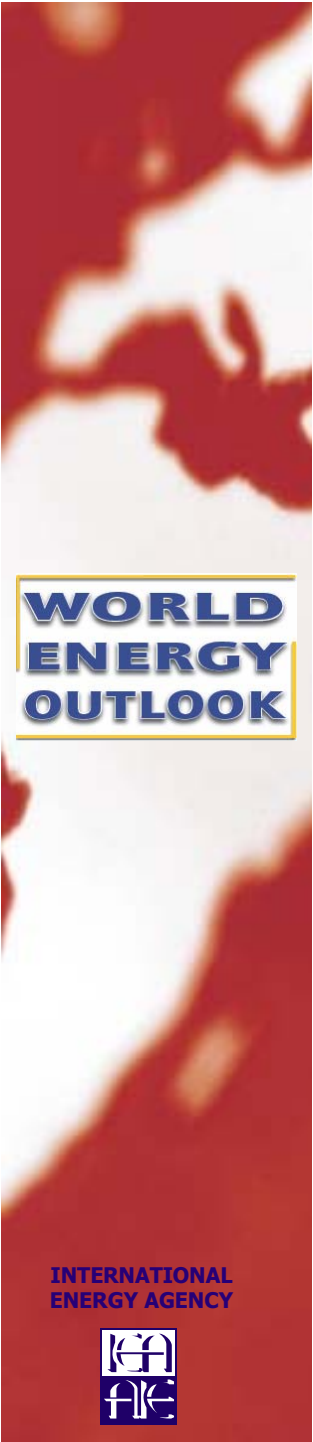


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Gas reserves, concentrated in the Middle East & the transition economies, are equal to 66 years of current production

The image shows the cover of the 'World Energy Outlook' report. It features a vertical red bar on the left side with a white world map silhouette. The title 'WORLD ENERGY OUTLOOK' is printed in blue, bold, sans-serif capital letters within a white rectangular box with a thin blue border. At the bottom of the red bar, the text 'INTERNATIONAL ENERGY AGENCY' is written in small blue capital letters, followed by the IEA logo, which consists of the letters 'IEA' stacked above 'AIE' in a stylized font.

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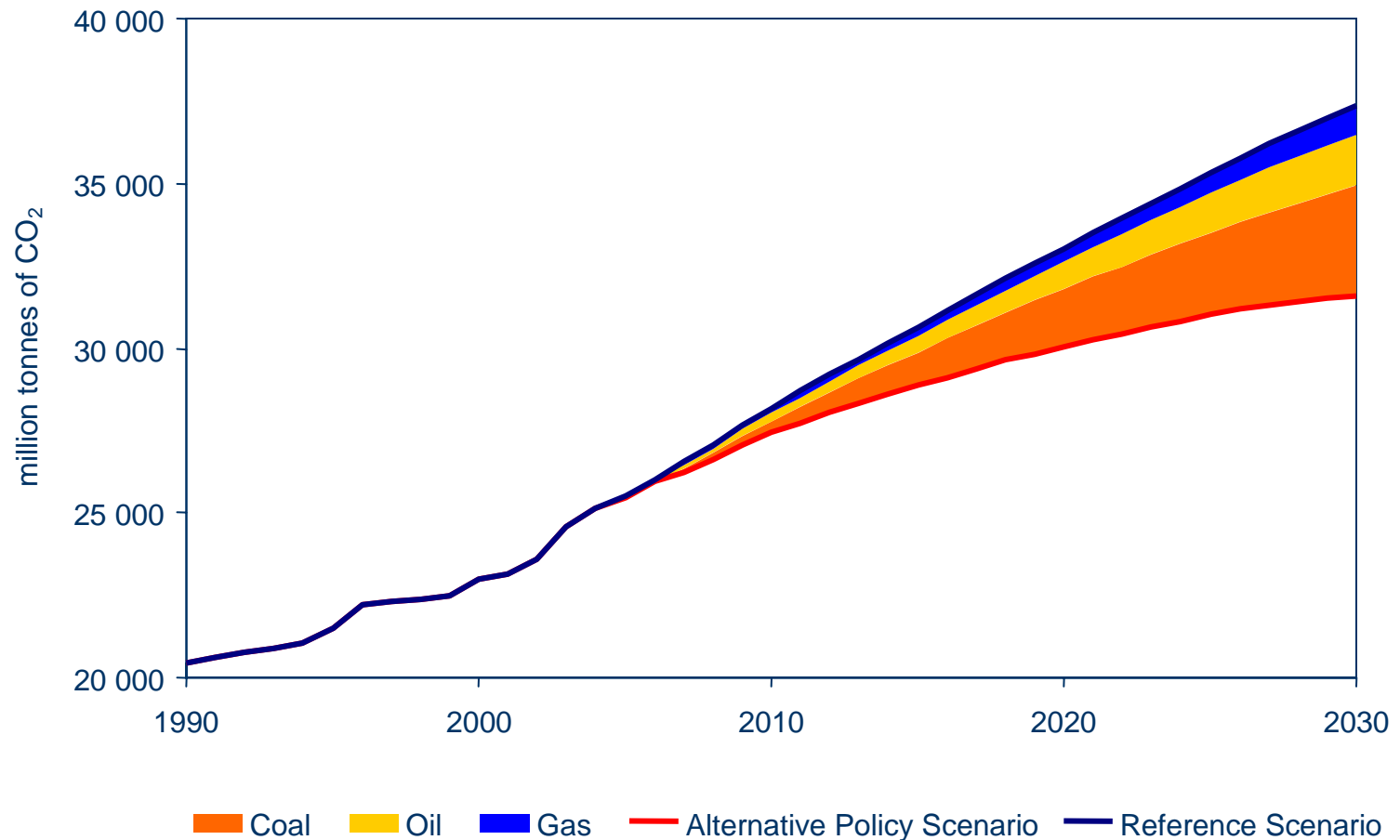
World Alternative Policy Scenario

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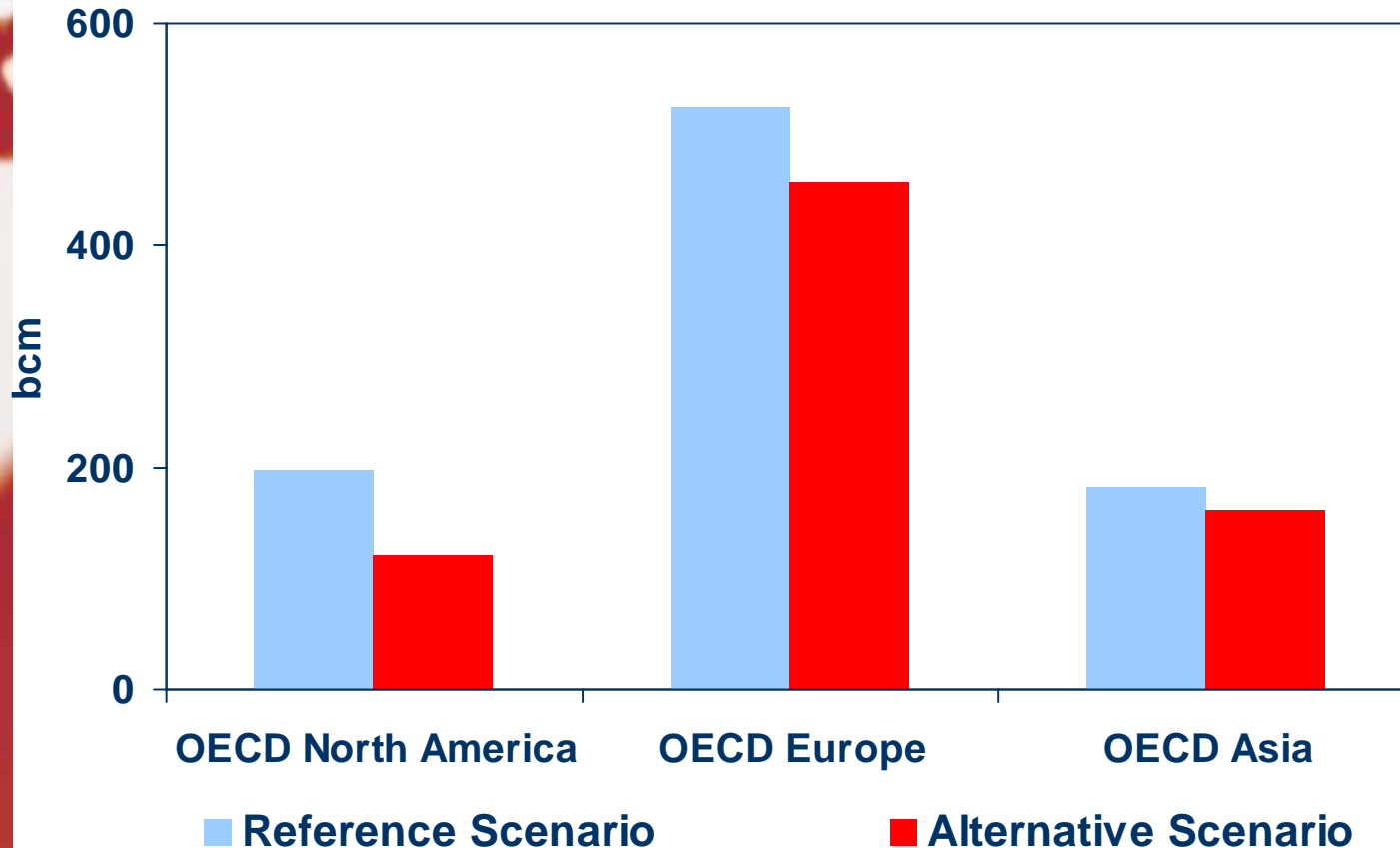


Global Energy-Related CO₂ Emissions in the Reference and Alternative Policy Scenarios



In 2030, CO₂ emissions are 16% lower than in the Reference Scenario, but are still more than 50% higher than 1990

Net Gas Imports in the Alternative & Reference Scenarios, 2030



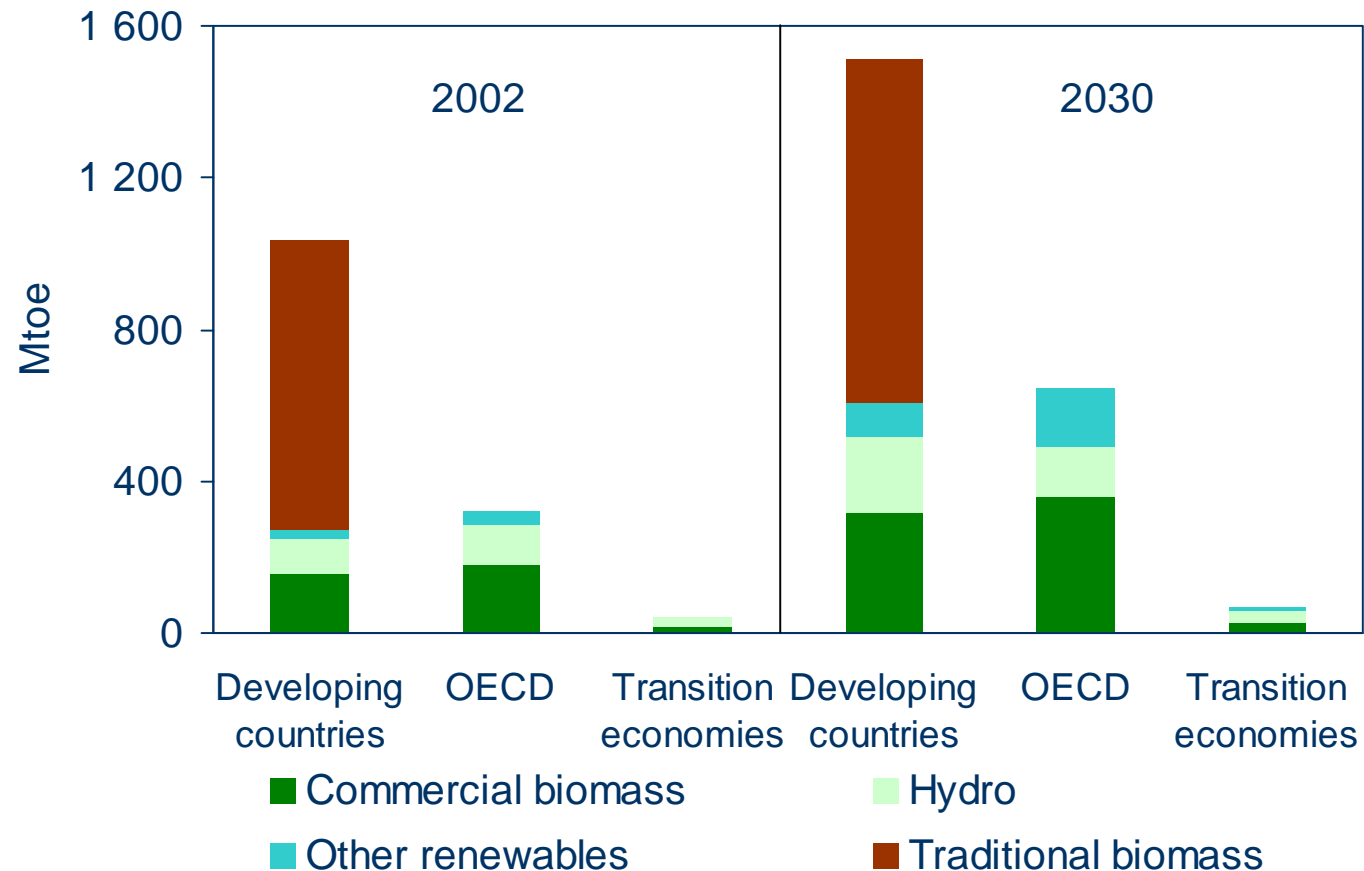
Net gas imports are lower in all major importing regions

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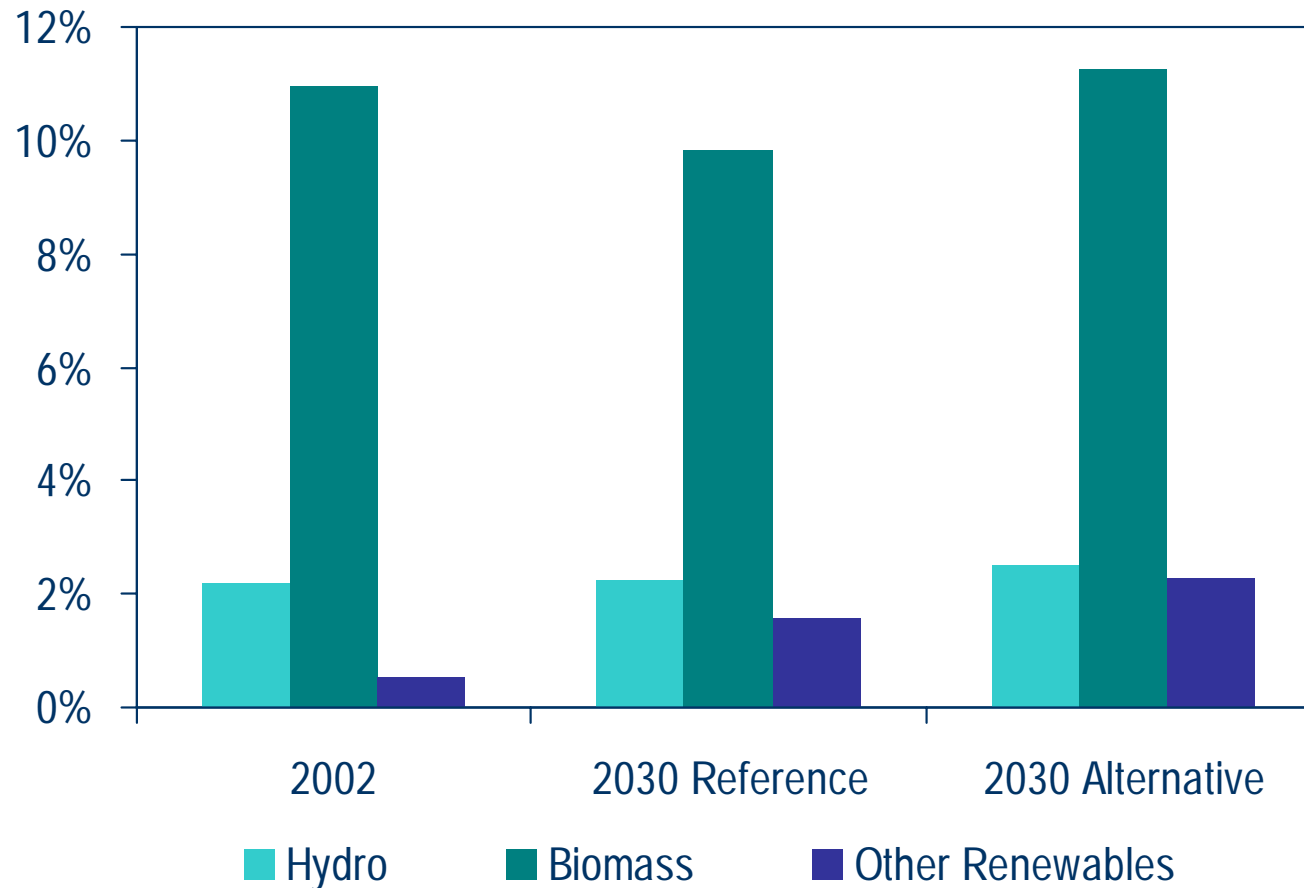


World Renewable Energy Consumption by Region (TPES)



Three-quarters of world renewable energy – mainly traditional biomass - is now consumed in developing countries

Share of Renewables in World Primary Demand in Reference & Alternative Scenarios (TPES)



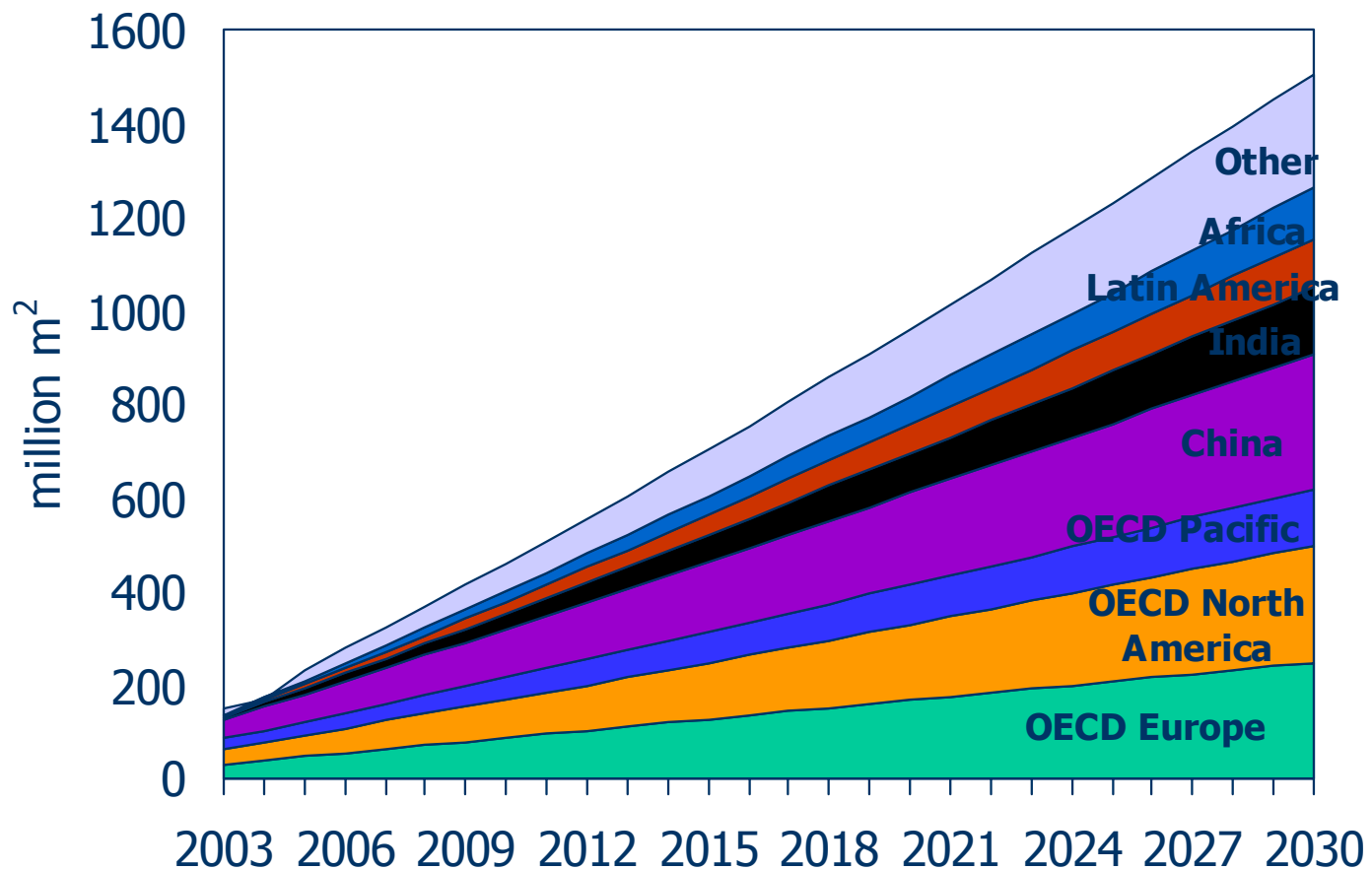
The share of non-hydro renewables is significantly higher in the Alternative Scenario – especially in OECD countries

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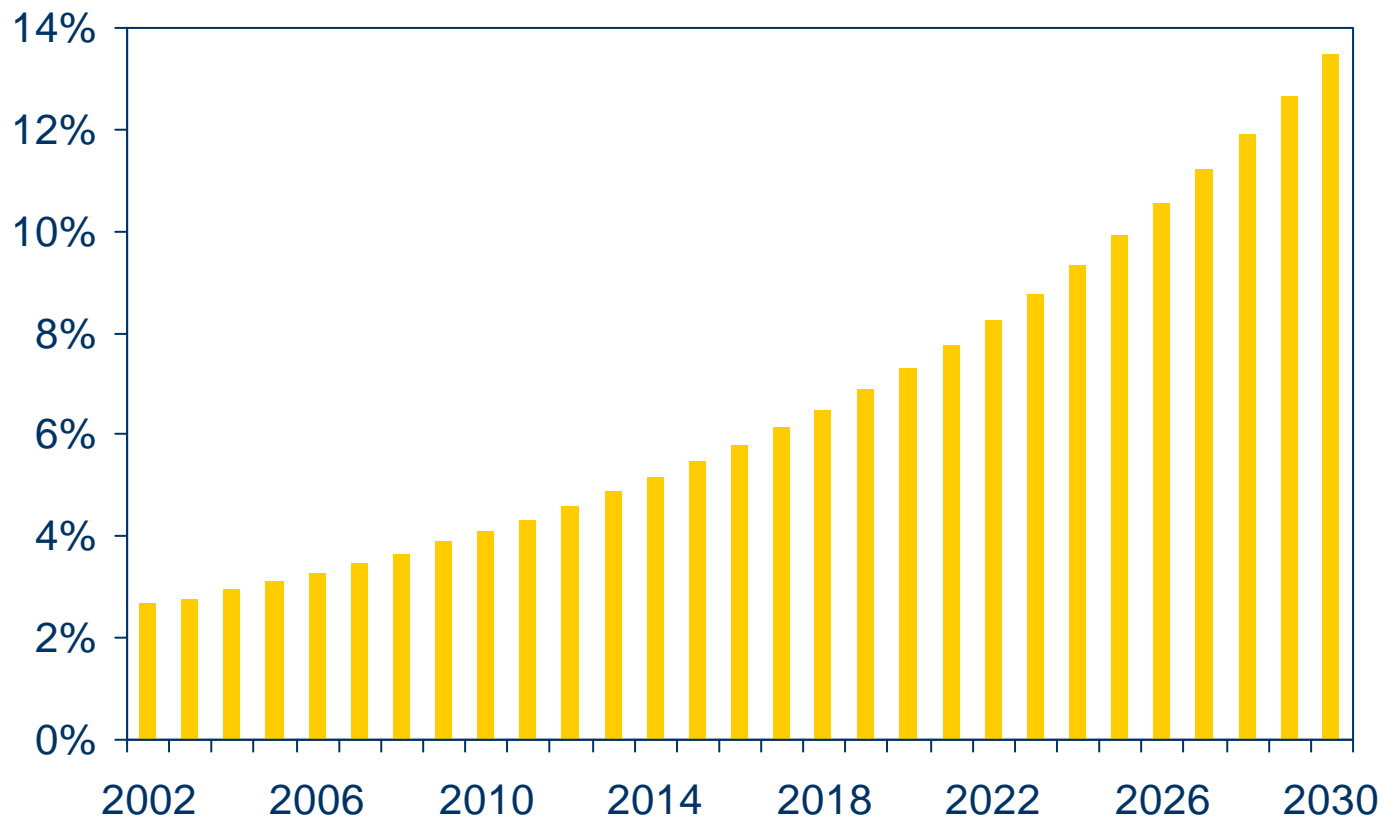
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Solar Thermal Collectors



Projected Share of Solar in OECD Energy Consumption for Hot Water



The share of solar in energy consumption for hot water grows strongly, particularly in OECD countries

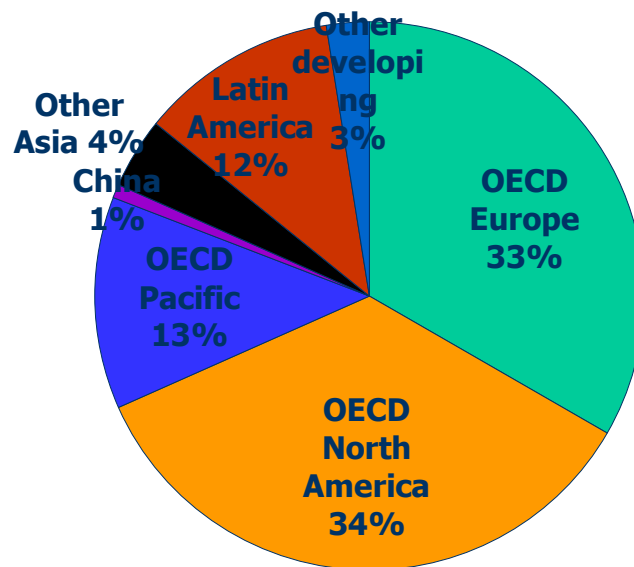
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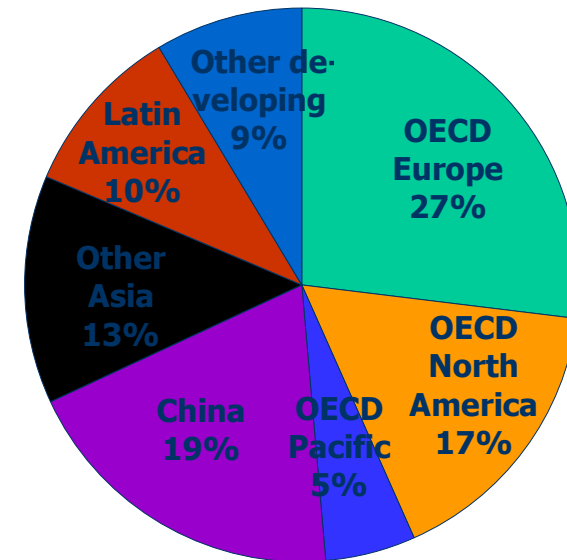


Electricity from Bioenergy CHP

2003: 121 TWh



2030: 539 TWh

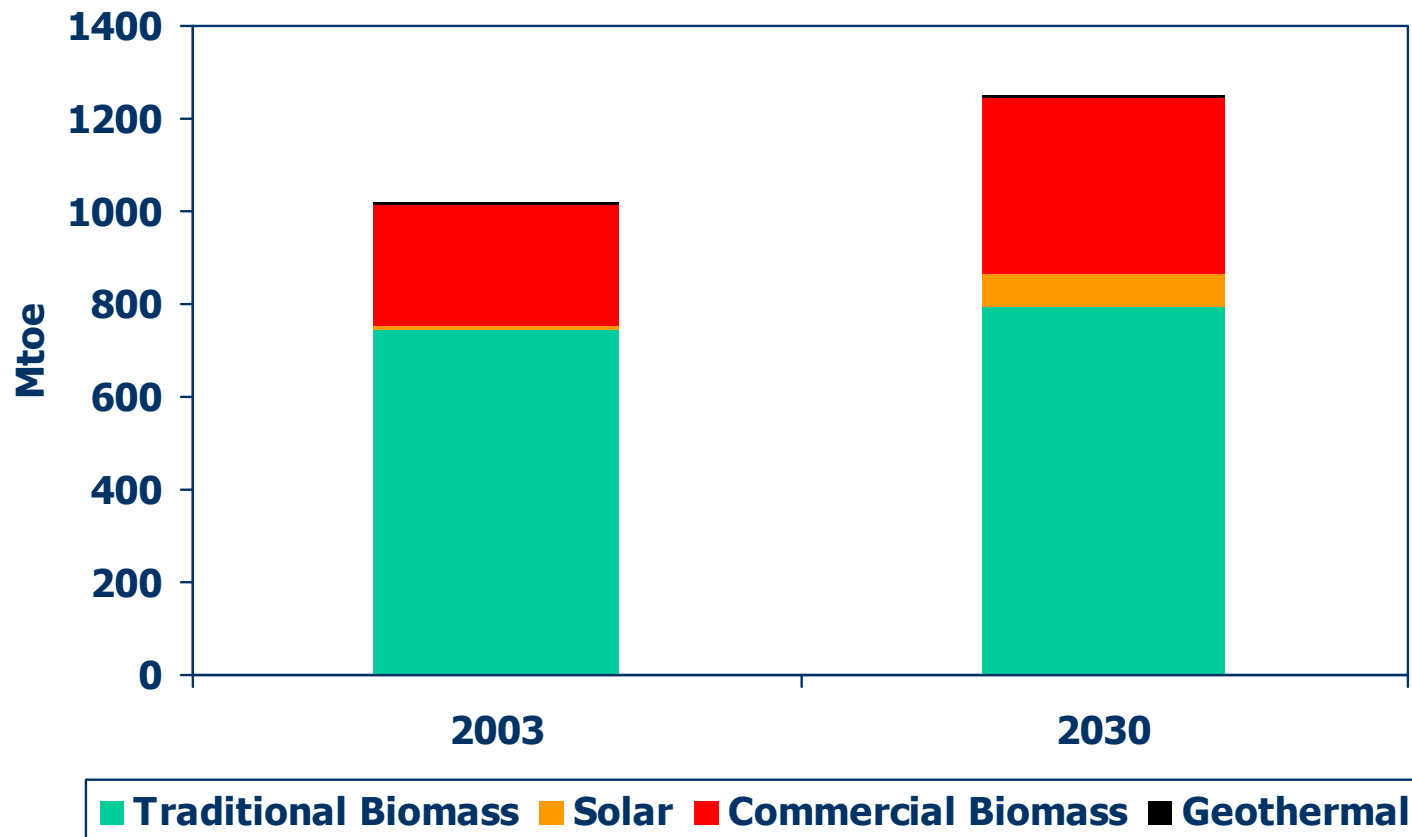


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Renewables in Industry and Buildings



Summary & Conclusions

- Traditional biomass: share in total energy consumption declines
- Other renewables for heat: contribution still small but growing
- Commercial biomass: most future growth in CHP
- Solar heat: substantial increase, from ~7 Mtoe to ~70 Mtoe
- Geothermal heat: more modest increase, from ~3 Mtoe to ~7 Mtoe
- Policies driven by concerns over rising CO₂ emissions and security of supply can greatly boost their share

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Renewables in WEO 2006

- World Alternative Policy Scenario
 - a “tool for change”
 - Deepening and broadening the analysis
- More detailed modelling of renewables for heat and biofuels
- Chapter on biofuels and Brazil
- Traditional biomass and sustainability/ poverty
- Integrated approach for biomass
- Inputs to heat and cooling potential welcome

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