

World Energy Outlook 2010

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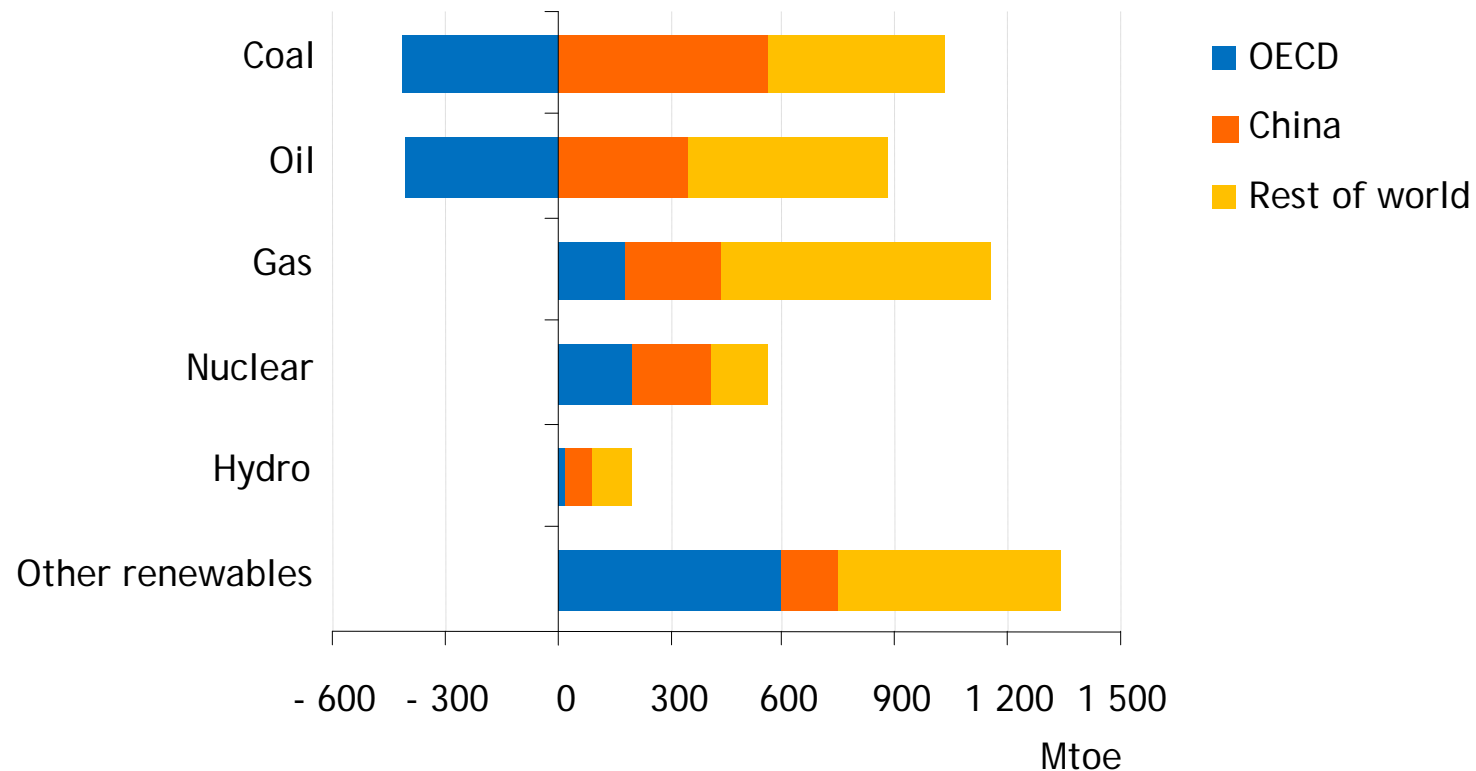
Cancun, 5 December 2010, IGU COP 16

The context: *A time of unprecedented uncertainty*

- The worst of the global economic crisis appears to be over – *but is the recovery sustainable?*
- Oil demand & supply are becoming less sensitive to *price* – *what does this mean for future price movements ?*
- Natural gas markets are in the midst of a revolution – *will it herald a golden era for gas?*
- Copenhagen Accord & G-20 subsidy reforms are key advances – *but do they go far enough & will they be fully implemented ?*
- Emerging economies will shape the global energy future – *where will their policy decisions lead us ?*

Emerging economies dominate the growth in demand for all fuels

Incremental primary energy demand in the New Policies Scenario, 2008-2035

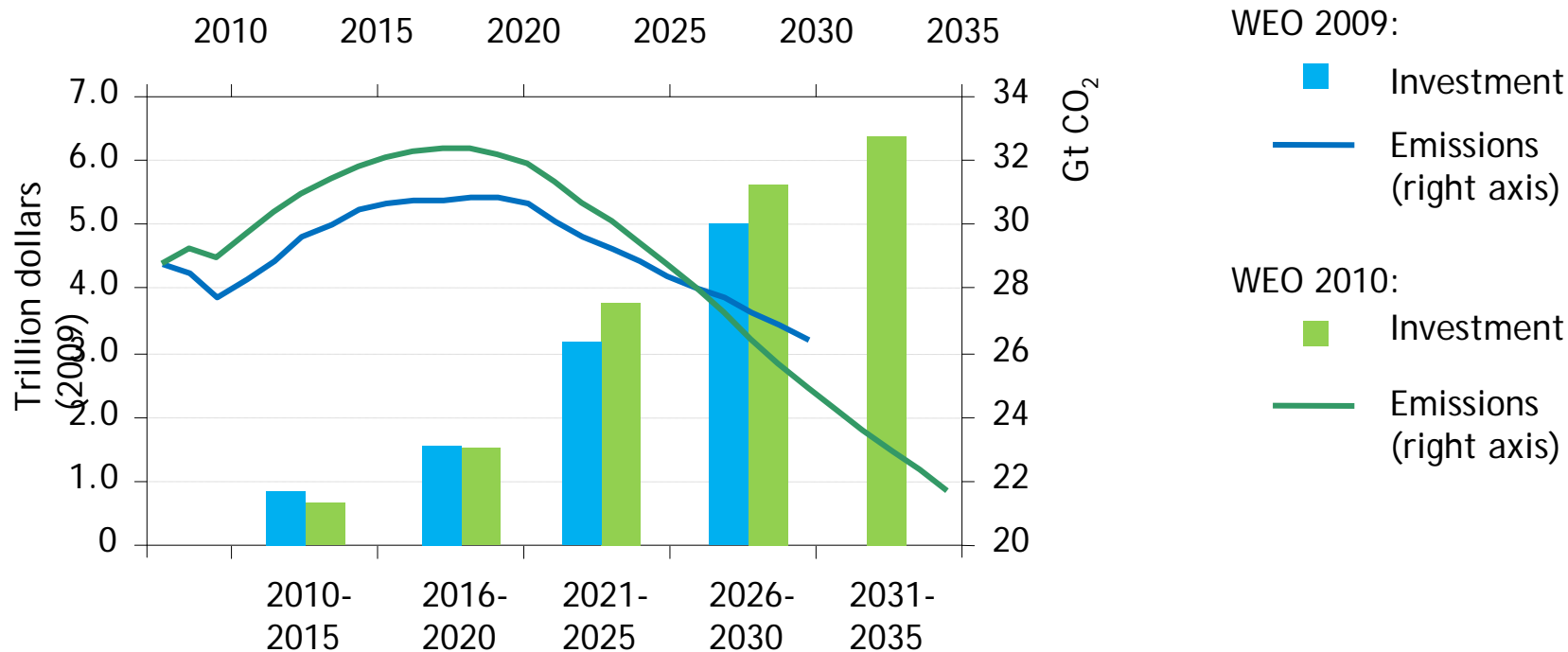


Demand for all types of energy increases in non-OECD countries, while demand for coal & oil declines in the OECD

A golden age for gas?

- Gas is set to play a key role in meeting the world's energy needs
 - > *Demand growth is led by non-OECD region, in particular China & Middle East*
- Unconventional gas accounts for 35% of the increase in global supply to 2035, with new non-US producers emerging
- Interregional capacity glut will peak soon, but may dissipate only very slowly
- Prices reflecting market principles are essential in particular for the power sector
- Lower prices could lead to stronger demand for gas, backing out renewables, nuclear & especially coal in power generation

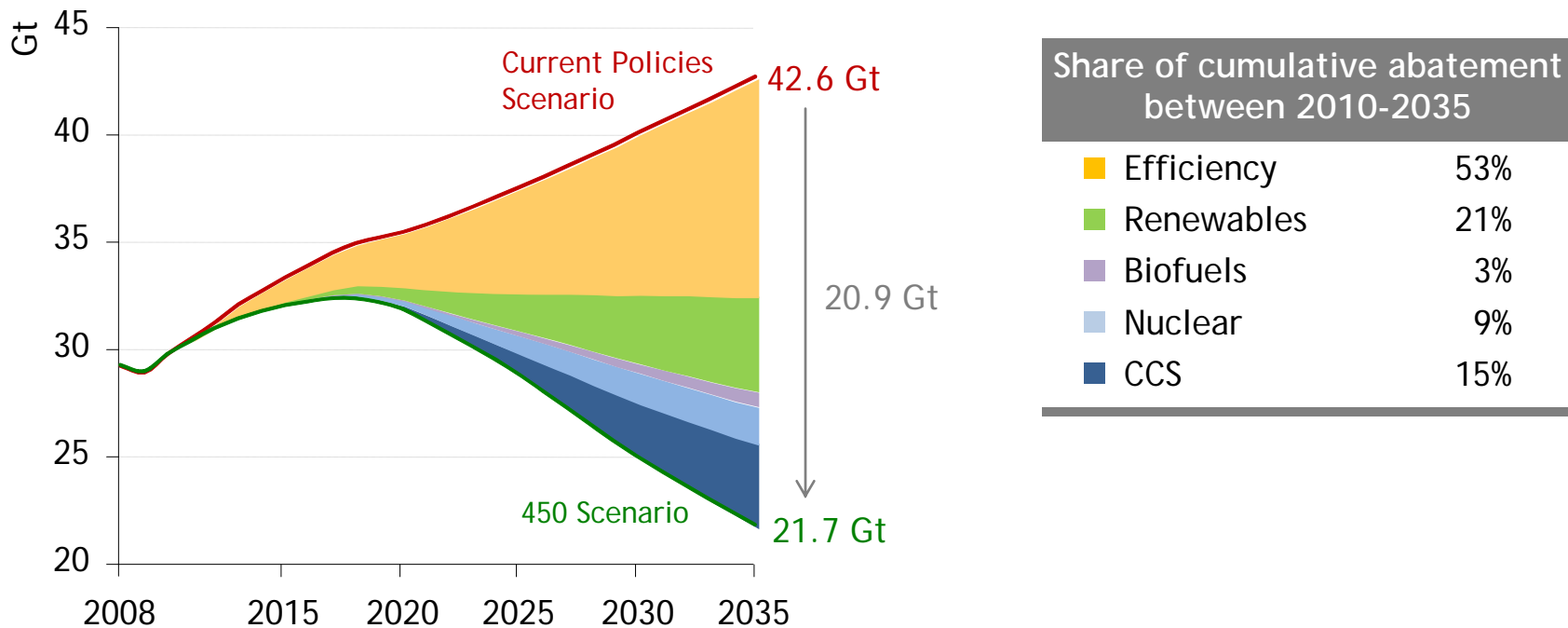
Low ambition to 2020 makes faster and deeper cuts necessary afterwards



Overall, this year's 450 Scenario will cost \$1 trillion more than last year's by 2030, and requires a total of \$18 trillion in investment by 2035

The 450 Scenario: Abatement by technology

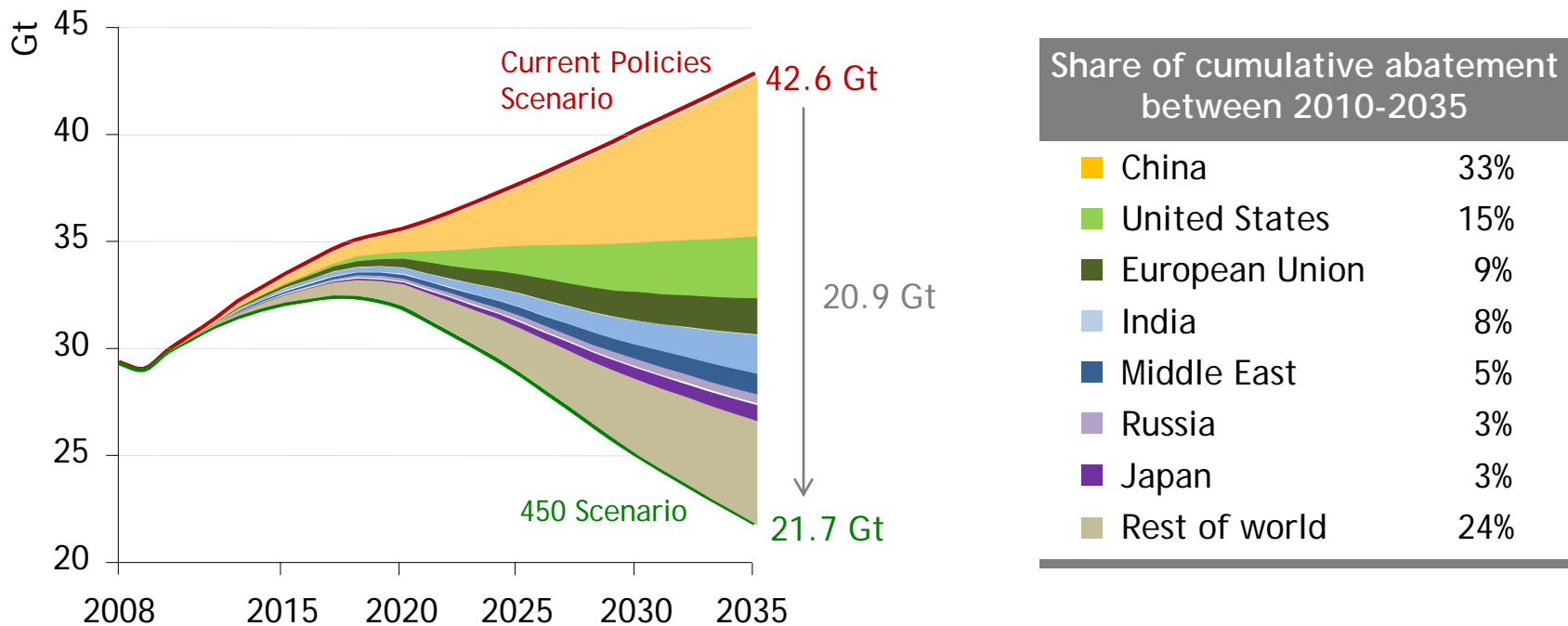
World energy-related CO₂ emission savings by technology in the 450 Scenario relative to the Current Policies Scenario



In the 450 Scenario, compared with the Current Policies Scenario, efficiency measures provide 53% of the necessary abatement, but renewables, CCS & nuclear are also crucial

The 450 Scenario: Abatement by country

World energy-related CO₂ emission savings by country in the 450 Scenario relative to the Current Policies Scenario



In the 450 Scenario, compared with the Current Policies Scenario, China & the US account for 48% of the cumulative emission abatement that is needed in 2010-2035

Drivers of abatement in the 450 Scenario

■ OECD countries

- > *Increased deployment of renewables and nuclear*
- > *Development of CCS technology*

■ Middle East

- > *Phase-out of fossil fuel subsidies*
- > *Efficiency measures*

■ China

- > *Efficiency measures*
- > *Development of CCS for coal*
- > *Wide deployment of electric vehicles*

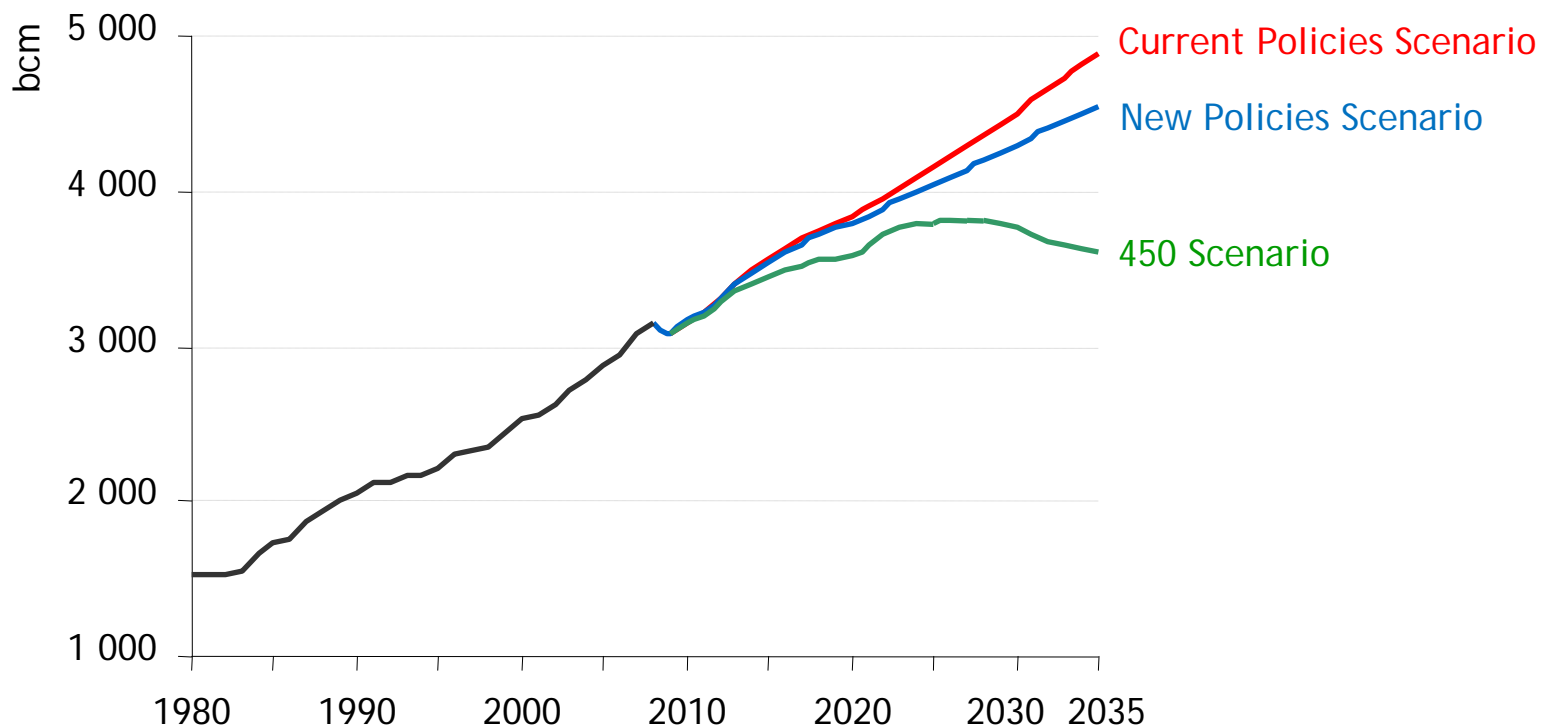
■ Other Countries

- > *Efficiency measures*
- > *Promote renewables*

■ CCS will require CDM

A golden age for gas?

World primary natural gas demand by scenario



Global gas demand is set to resume its long-term upward trajectory from 2010, but policies will determine how fast it grows & whether it peaks before 2035

- The perspective of a zero carbon economy is under pressure as the high costs of renewable feed-in tariffs are weighing on national budgets and public opinion and high capital cost of nuclear
- The IEA will publish in the first half of next year an early excerpt of WEO 2011 dedicated to gas
 - > *It will focus on the strong growth potential of gas demand and supply*
- We will investigate the effect of a substantial switching from coal to gas as an option to abate CO₂ emissions of the power sector
- Welcome IGU participation