

Outlook of Energy Mix Diversification

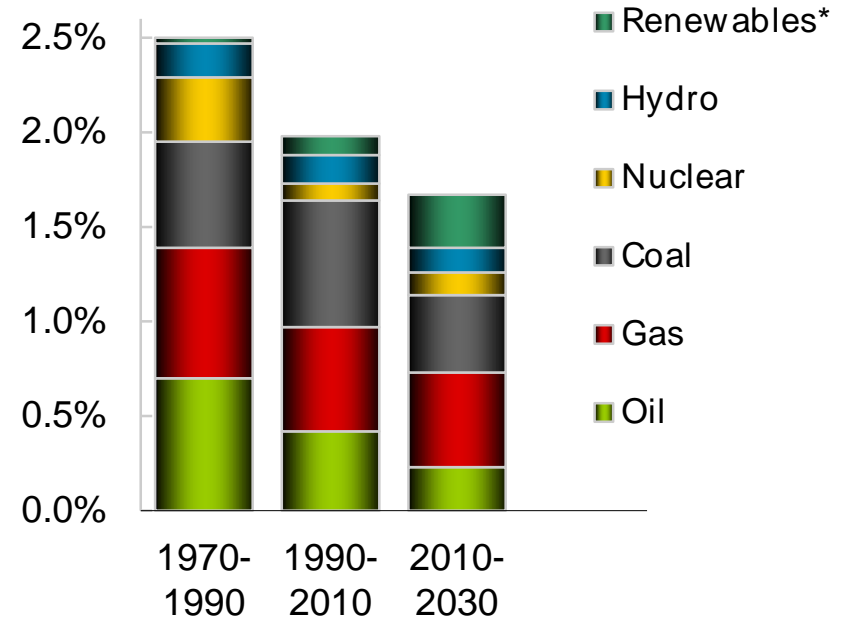
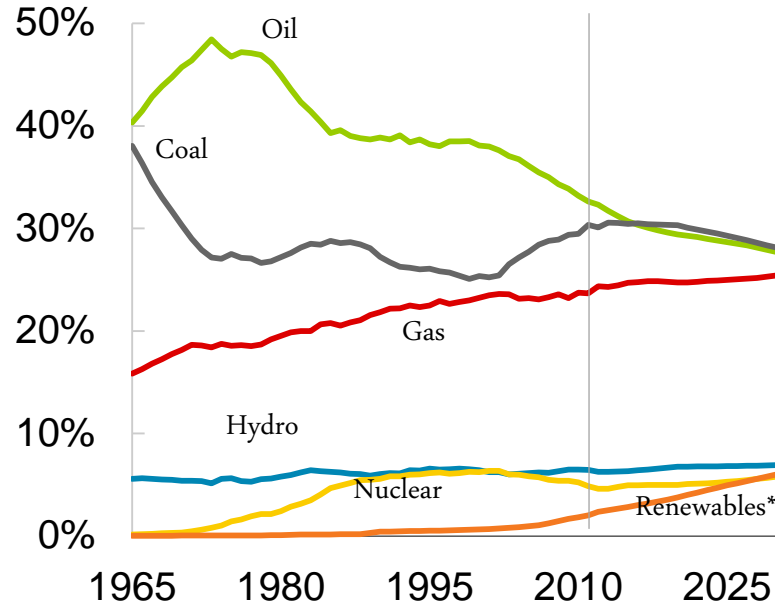
*International Oil & Gas Executive Forum, Beijing, Dec 18,
2013*

Dr. Chi Zhang, Head of Asia Economics, BP

Global energy mix has been diversifying, and it's a long-term trend

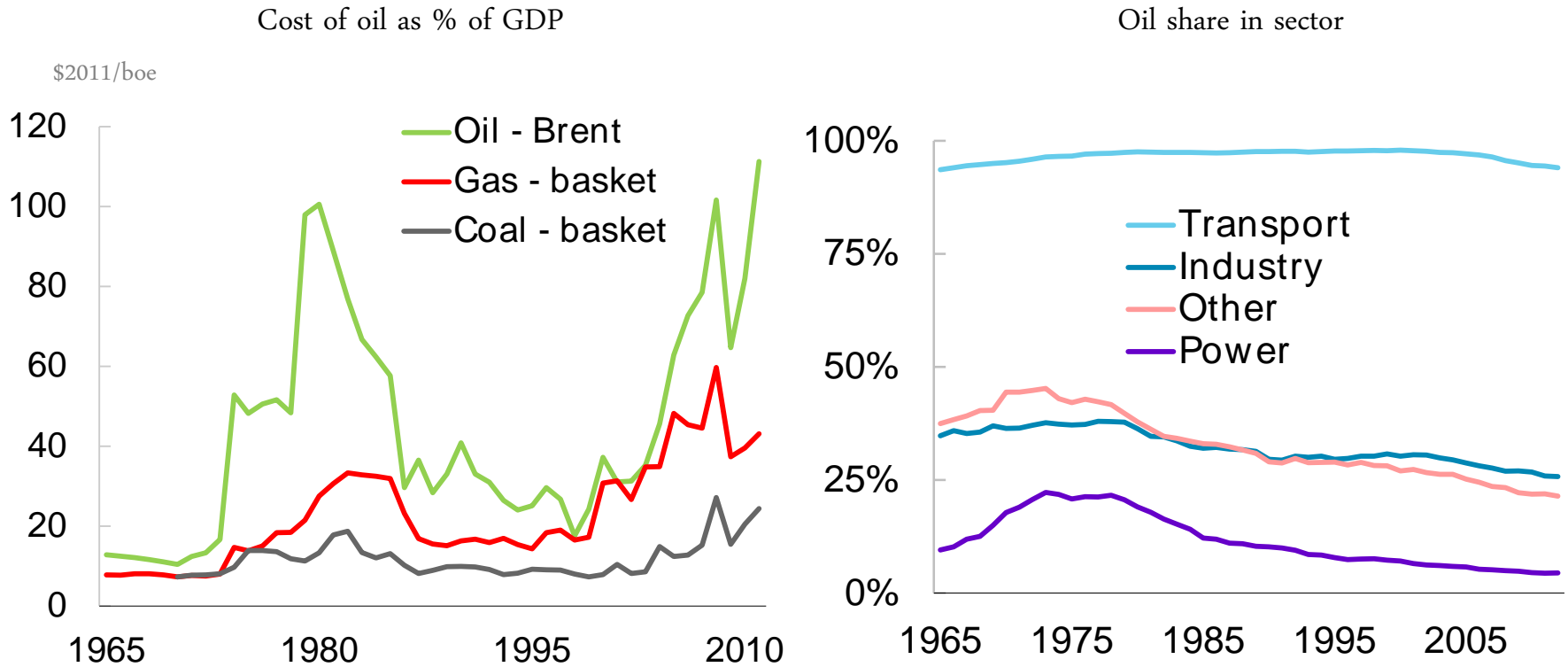
Shares of world primary energy

Contributions to growth



*Includes biofuels

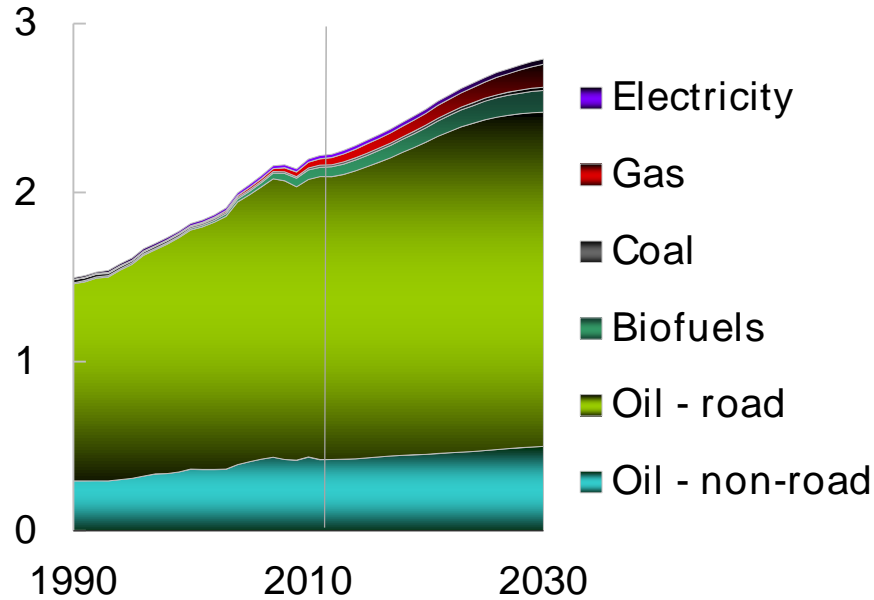
Oil loses share in sectors where it faces competition because it's expensive



Demand is weak even in transport

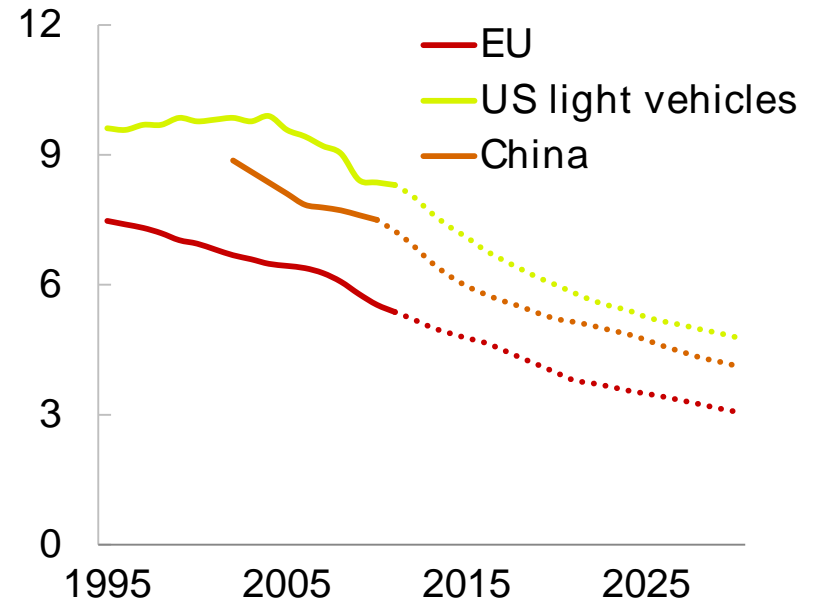
Transport demand by fuel

Billion toe



Fuel economy of new cars

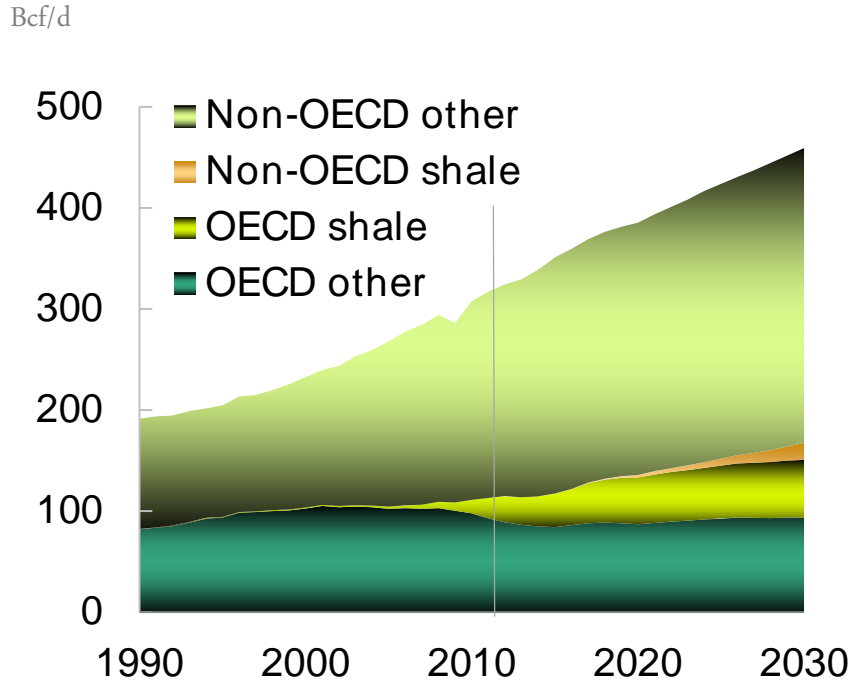
Litres per 100 km



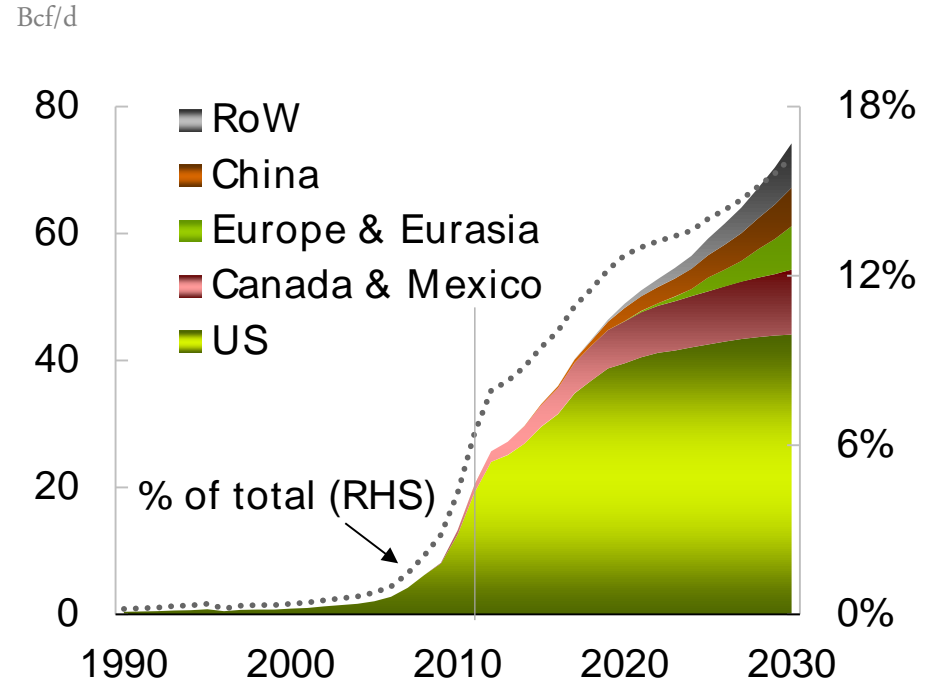


Unconventional gas booms thanks to technology

Gas production by type and region



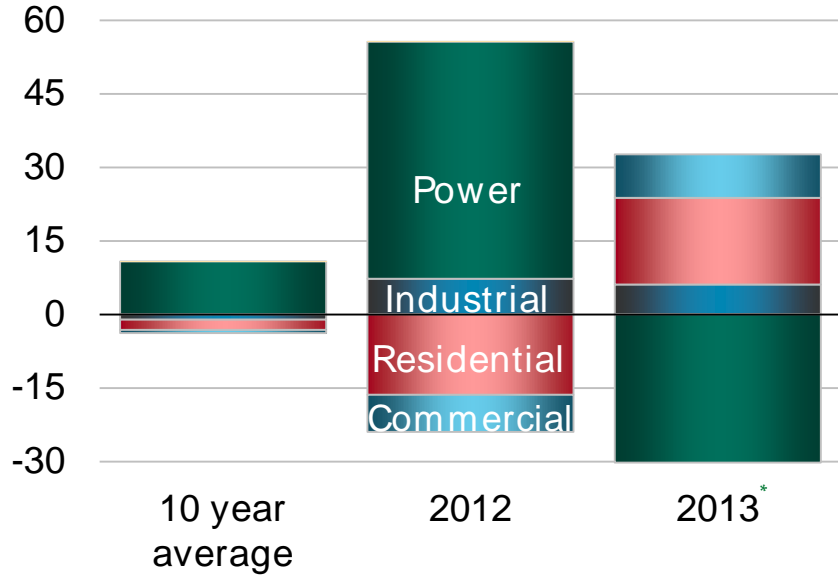
Shale gas production



Gas competes against coal in the US

Natural gas consumption growth

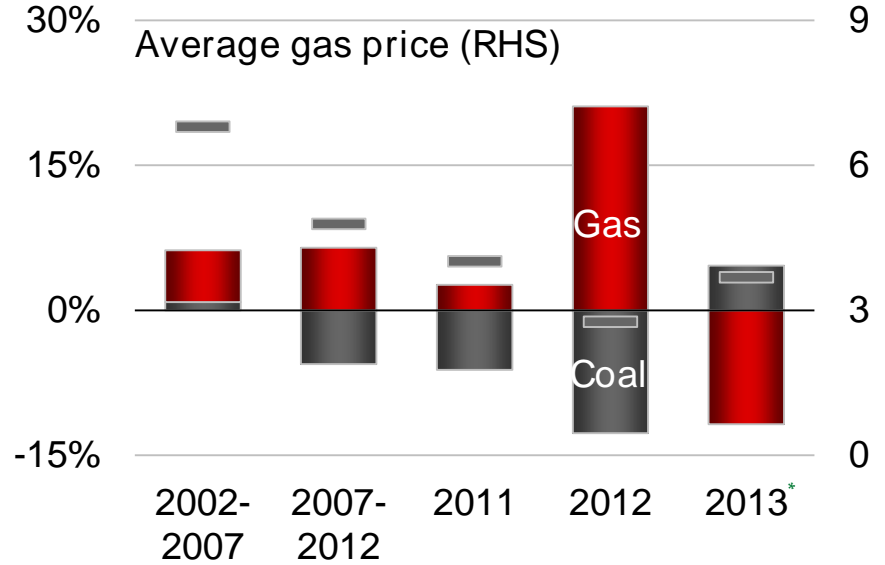
Annual change, Bcm



Power generation

Annual change, %

\$/mmBtu

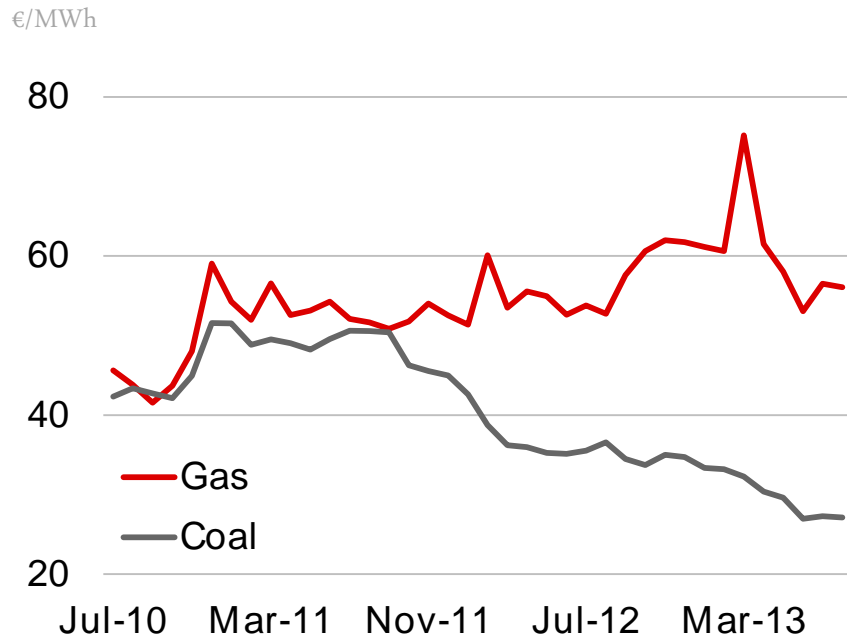


* Projection

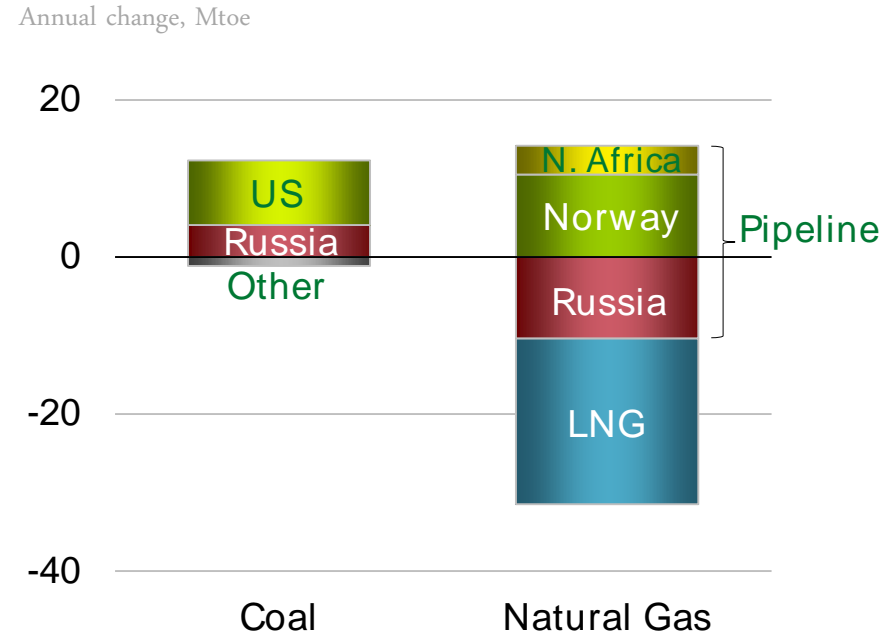
Source: includes data from the *BP Statistical Review of World Energy* and Energy Information Administration and Platts

and in Europe

EU power generation cost



2012 changes in EU imports

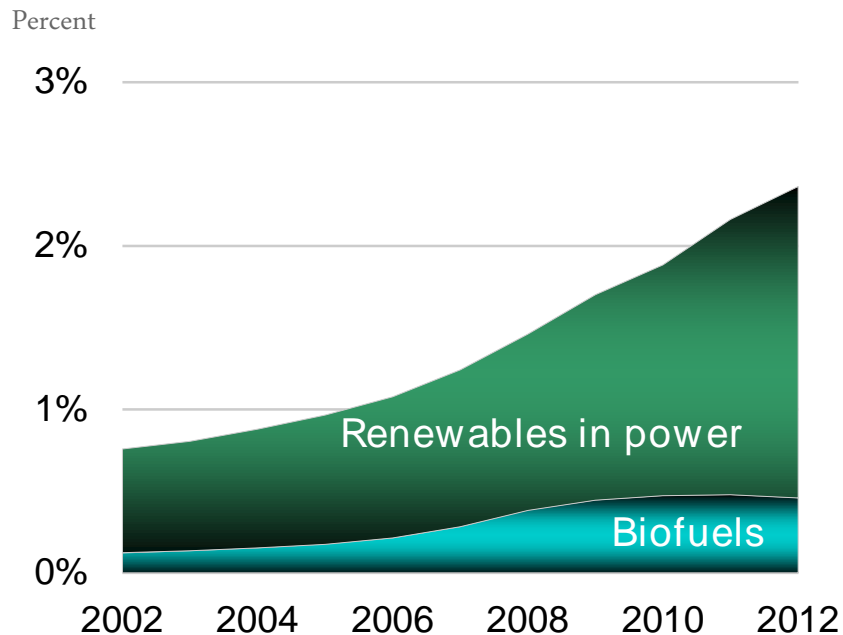


Source: includes data from the *BP Statistical Review of World Energy*, Platts, IHS McCloskey and Intercontinental Exchange

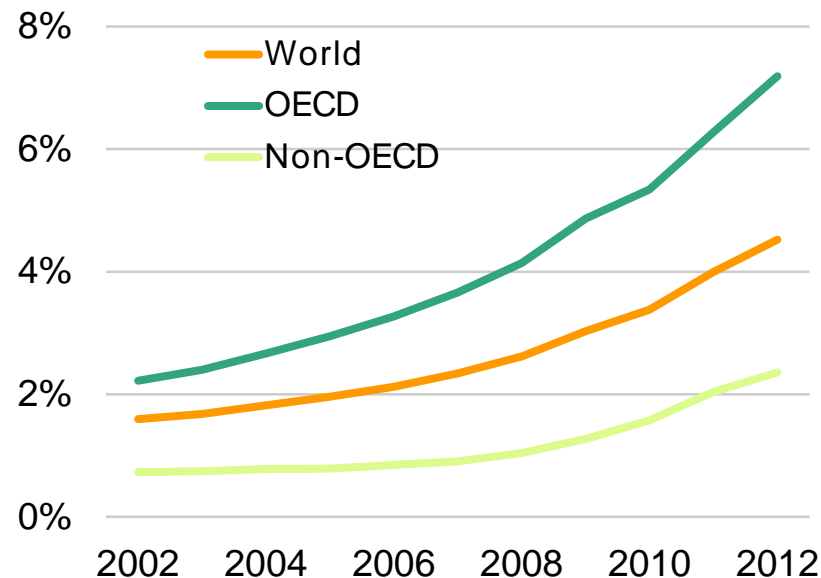
Renewables rise, supported by policy



Share of primary energy



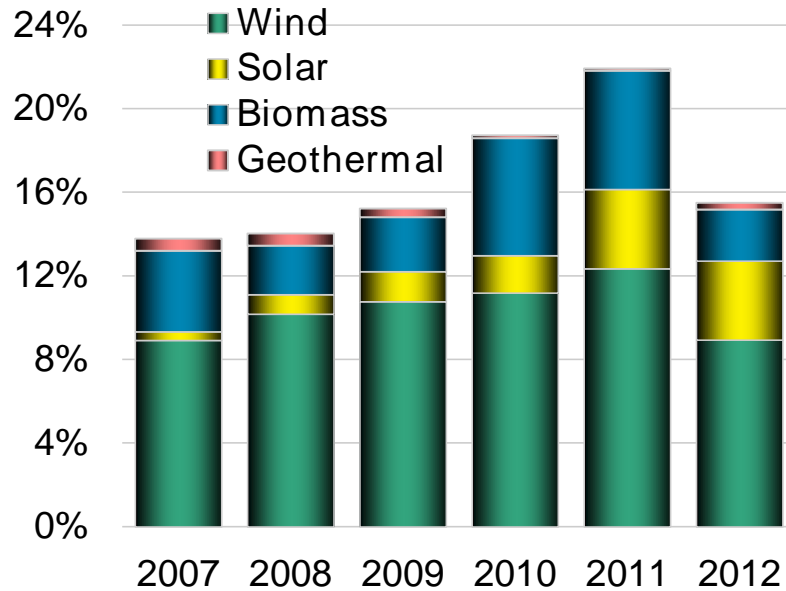
Share of power generation



Renewables in power generation

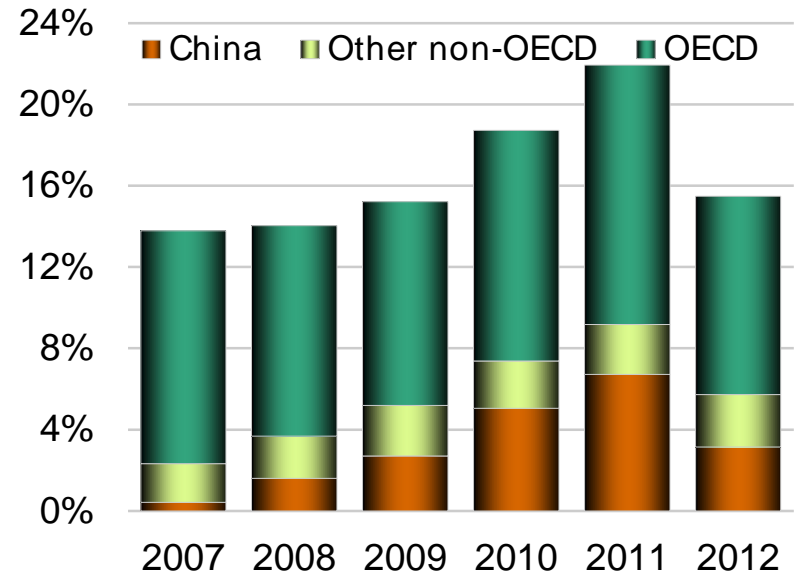
Contributions to growth by type

Annual change, %



Contribution to growth by region

Annual change, %



Summary

- Economics, technology, climate change and local environmental protection policies drive long-term energy diversification
- The rise of renewables is rapid, but it just takes time for them to grow shares in the mix
- As a “bridge fuel”, natural gas will grow the fastest among fossil fuels to help lower emissions of carbon and local pollutants