

Global energy markets outlook versus post-Paris Agreement Impact on South East Europe

Sylvia Elisabeth Beyer

International Energy Agency

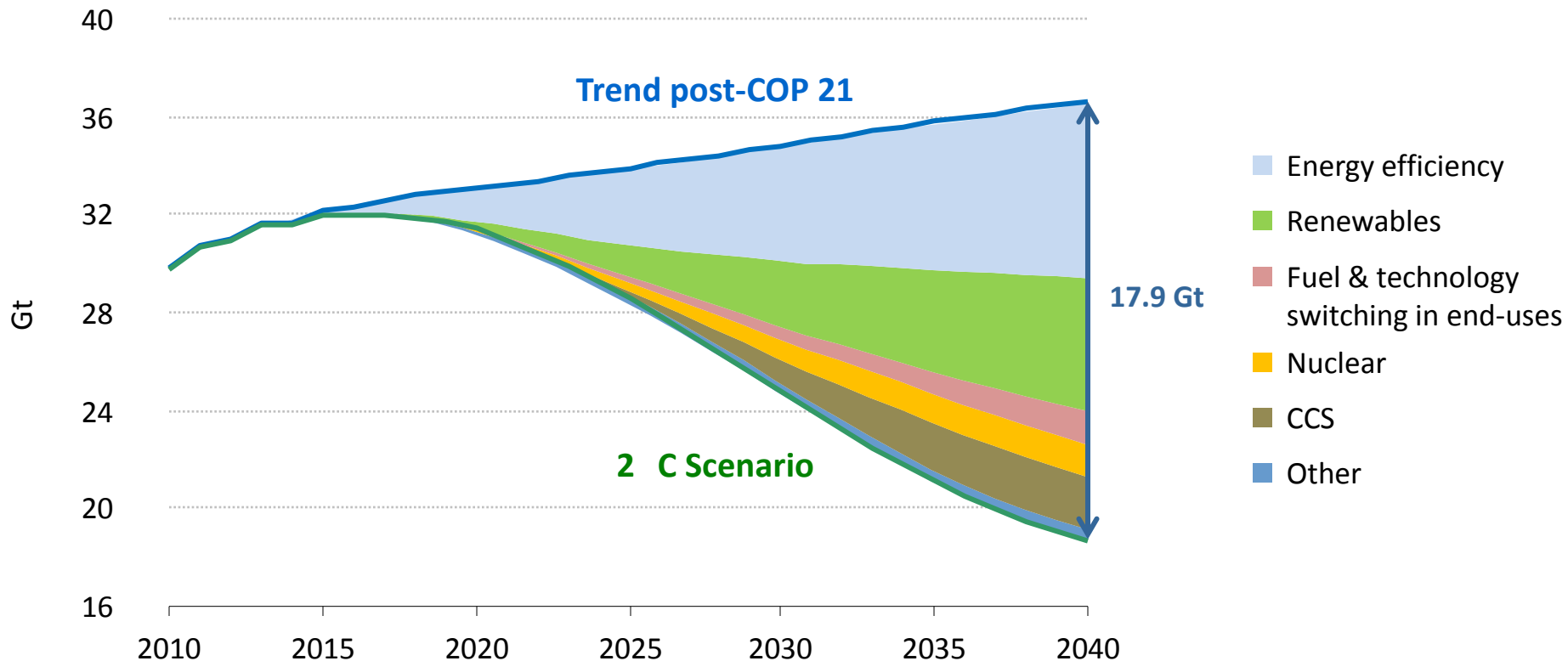
Thessaloniki, 29 June 2016

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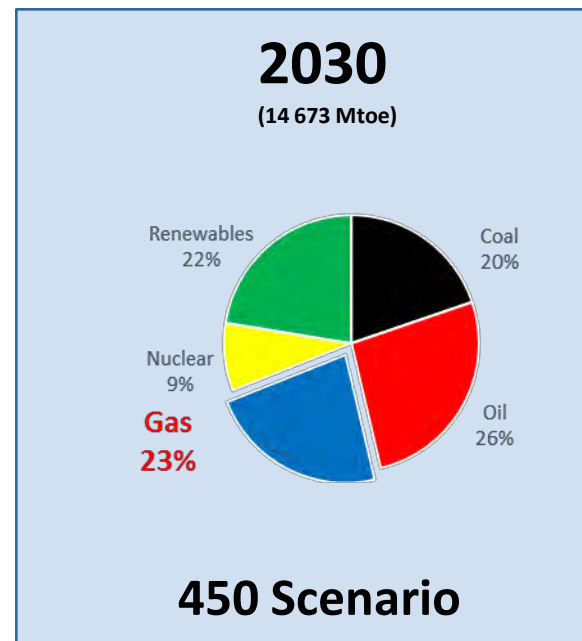
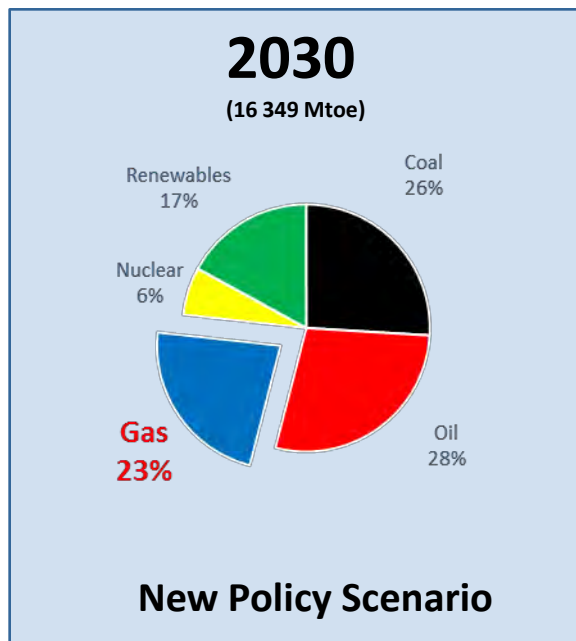
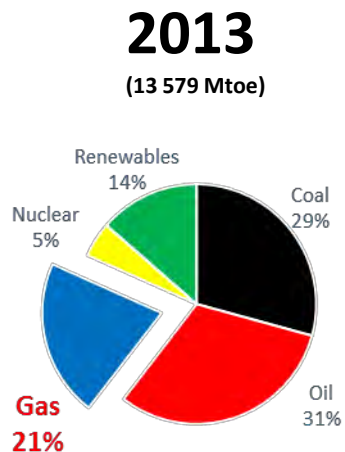
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A 2 °C pathway requires more technological innovation, investment & policy ambition



Massive additional investments in efficiency, renewables, nuclear power and other low carbon technologies are required to reach a 2 °C pathway

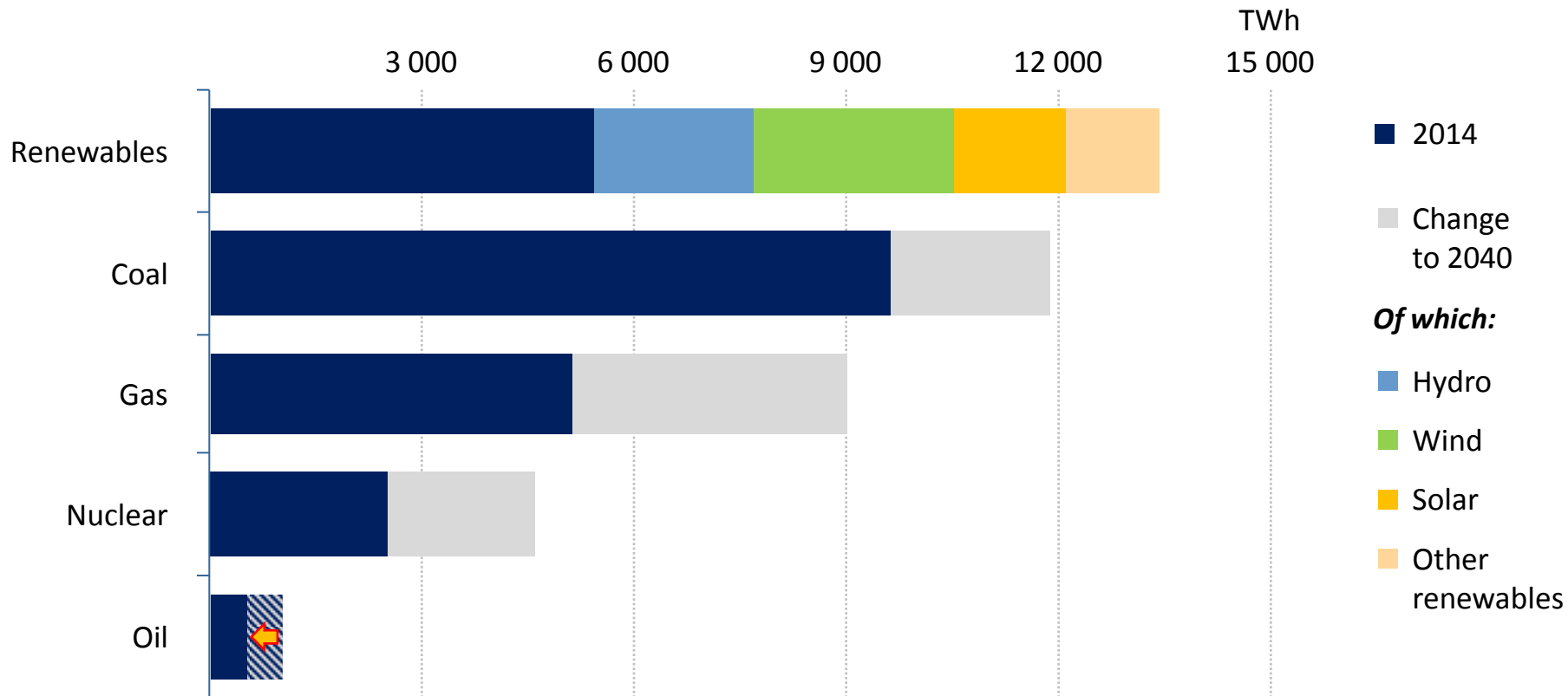
Scenarios 2030



Source: WEO 2015

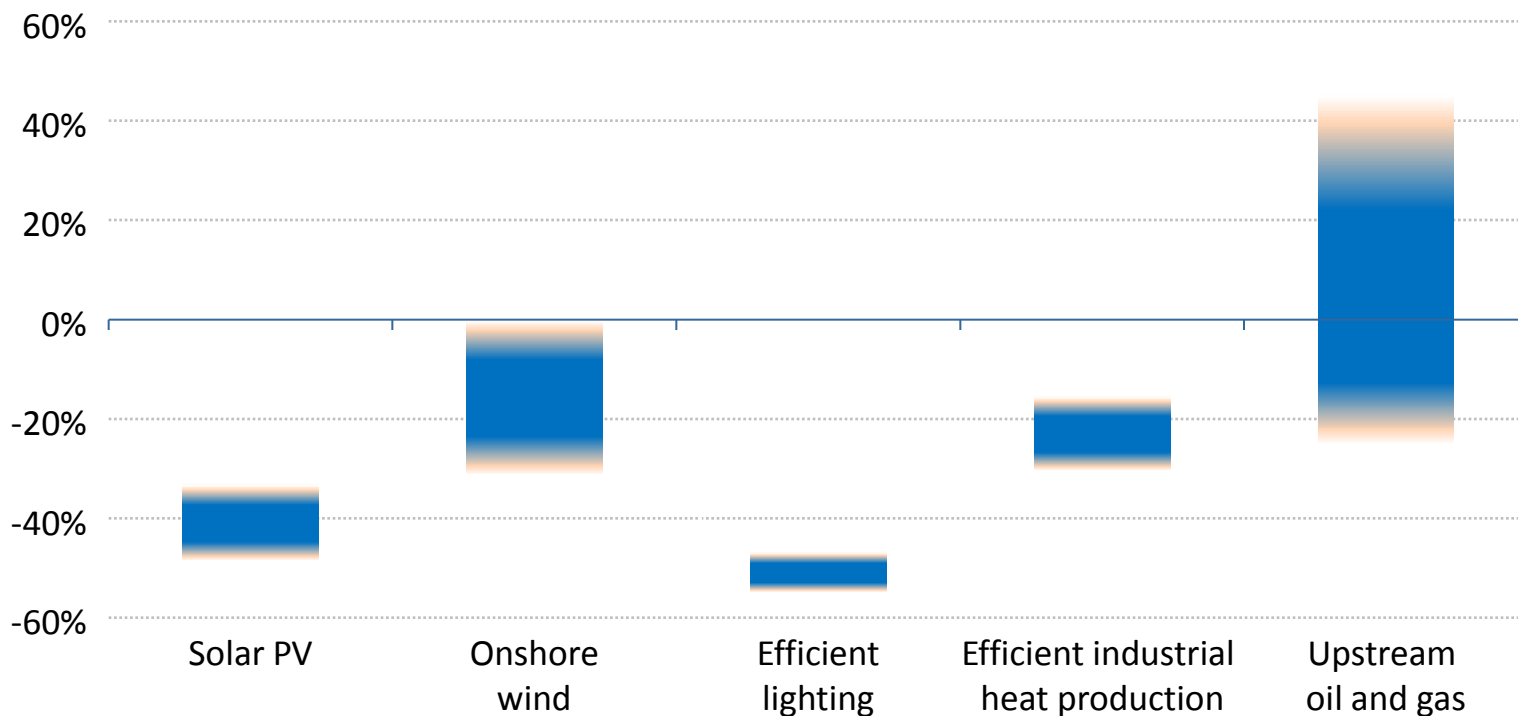
Despite gas share in the primary energy (23%) is the same in NPS and 450ppm, in 450ppm gas is increasingly used to balance renewable in the power system, which leads to a more rigid demand.

Global electricity generation by source



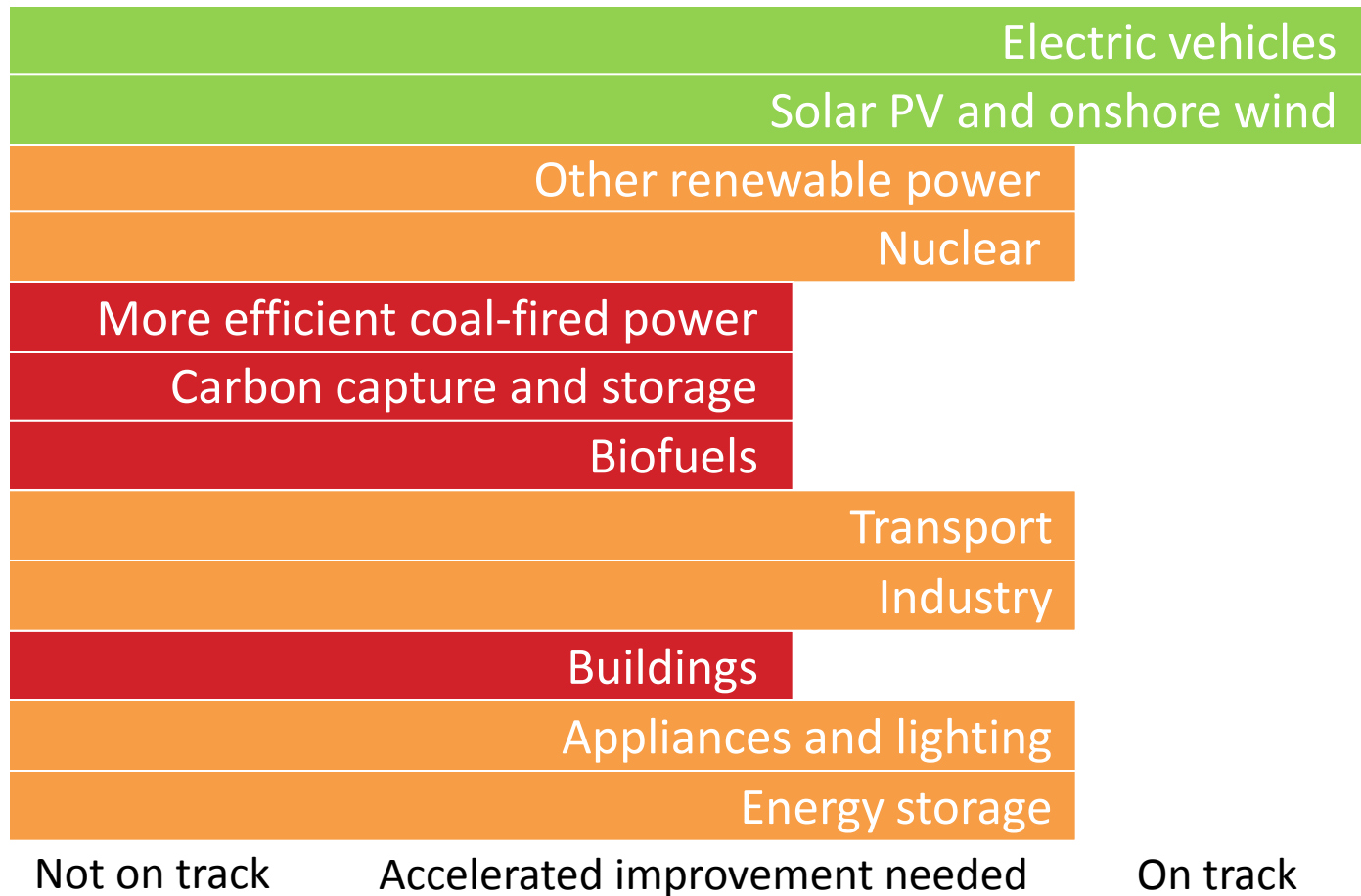
Driven by continued policy support, renewables account for half of additional global generation, overtaking coal around 2030 to become the largest power source

Costs in 2040 for different energy sources/technologies, relative to 2014



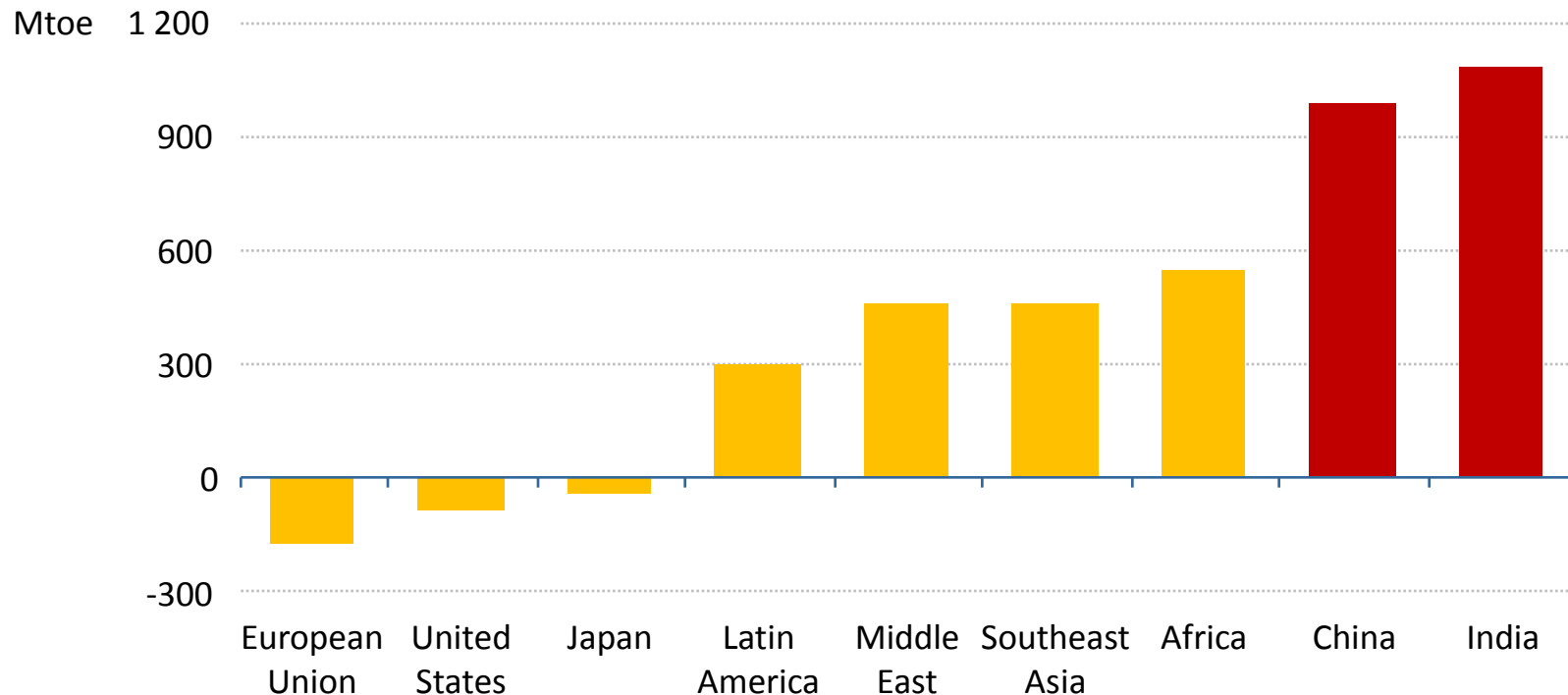
Innovation reduces the costs of low-carbon technologies & energy efficiency, but – for oil & gas – the gains are offset by the move to more complex fields

Technology Status today against 2DS targets



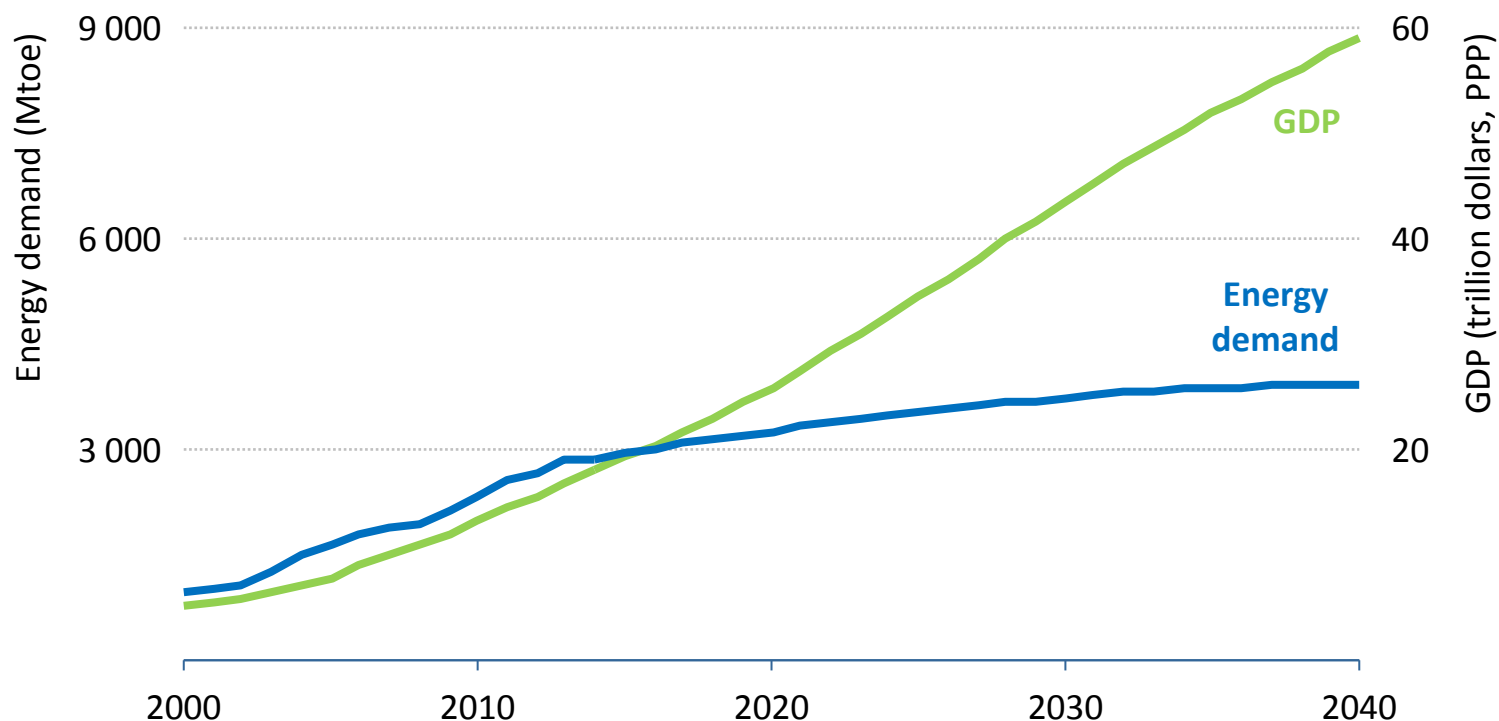
Global clean energy deployment is still overall behind what is required to meet the 2 C goal, but recent progress on electric vehicles, solar PV and wind is promising

Change in energy demand in selected regions, 2014-2040



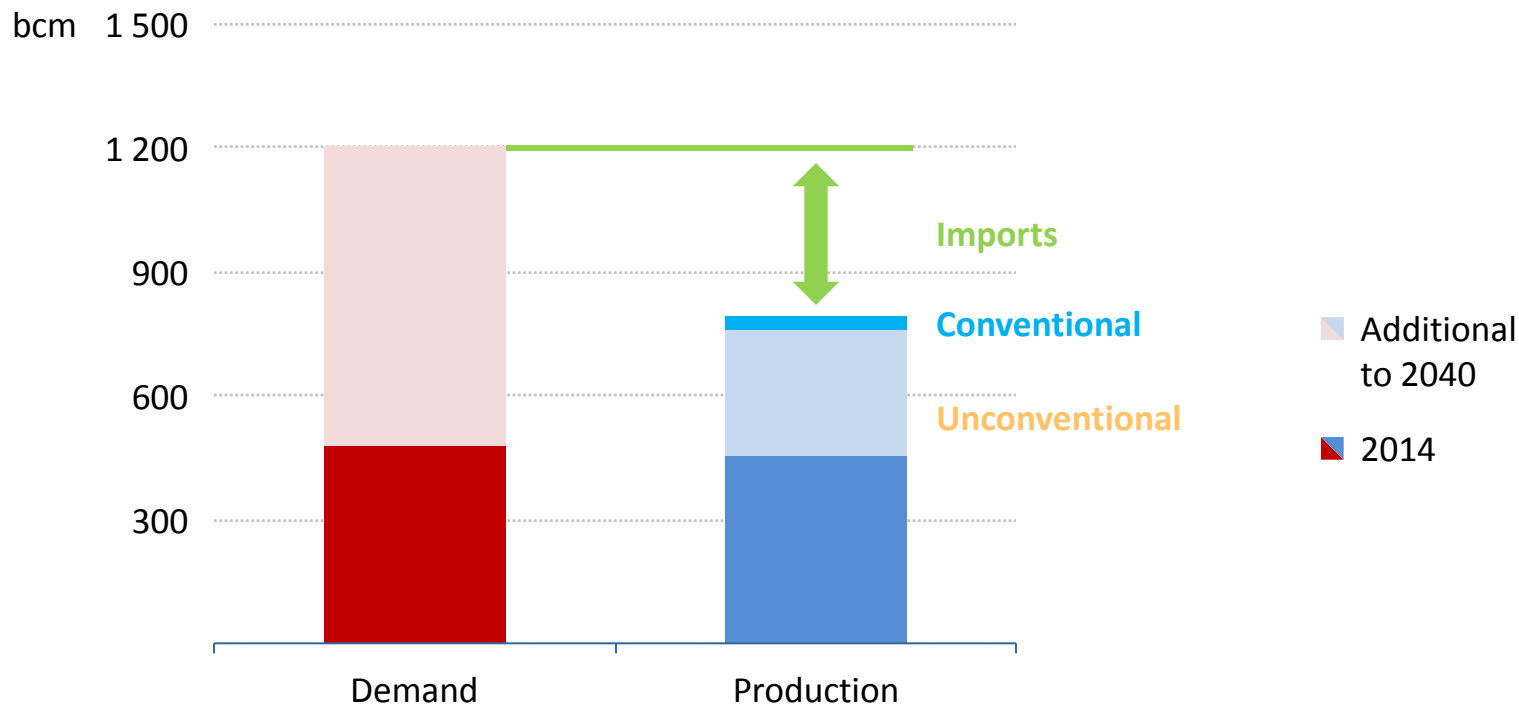
By 2040, India's energy demand closes in on that of the United States, even though demand per capita remains 40% below the world average

Total primary energy demand & GDP in China



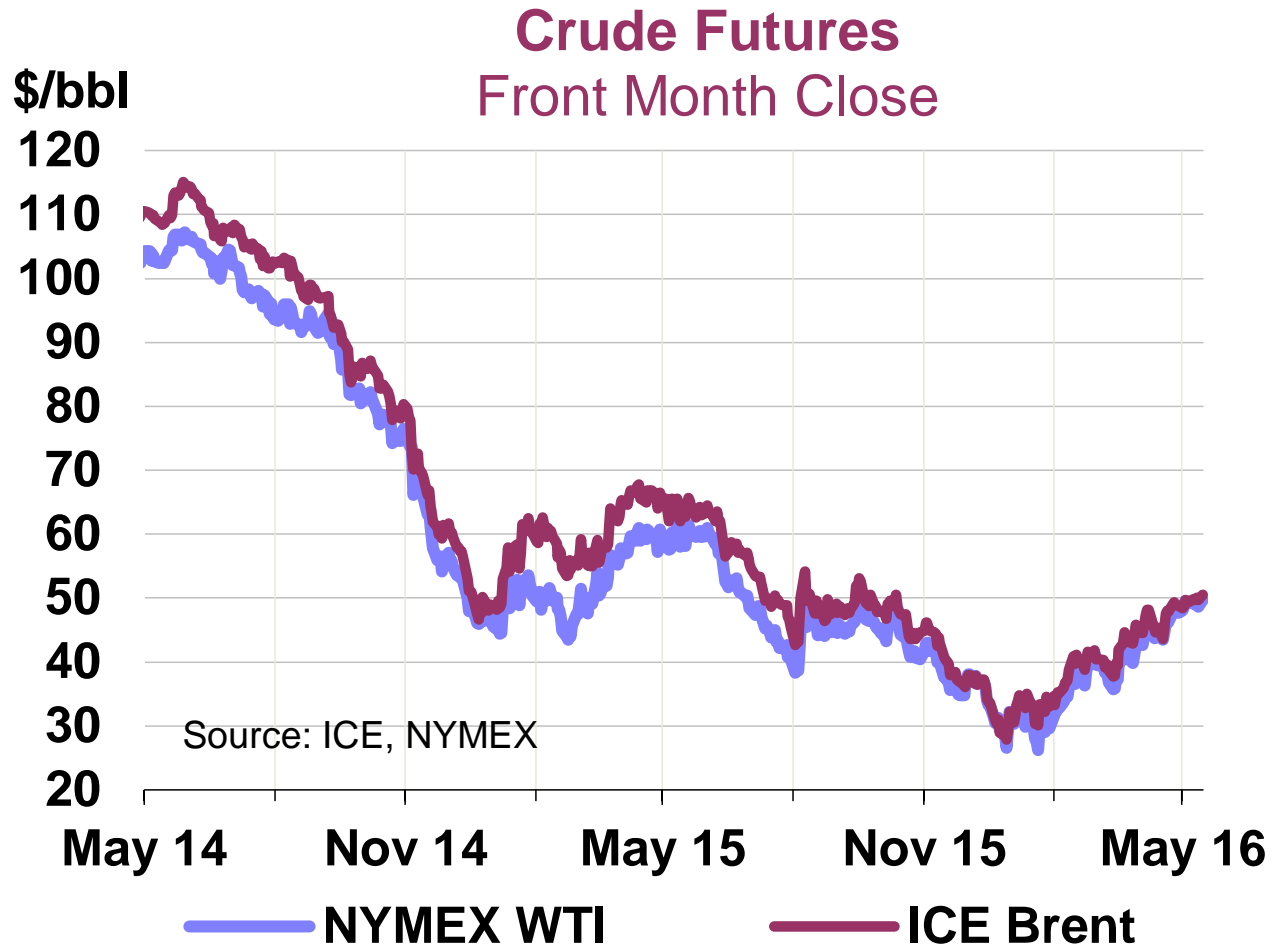
Along with energy efficiency, structural shifts in China's economy favouring expansion of services, mean less energy is required to generate economic growth

Natural gas demand and supply in developing Asia, 2014 vs 2040

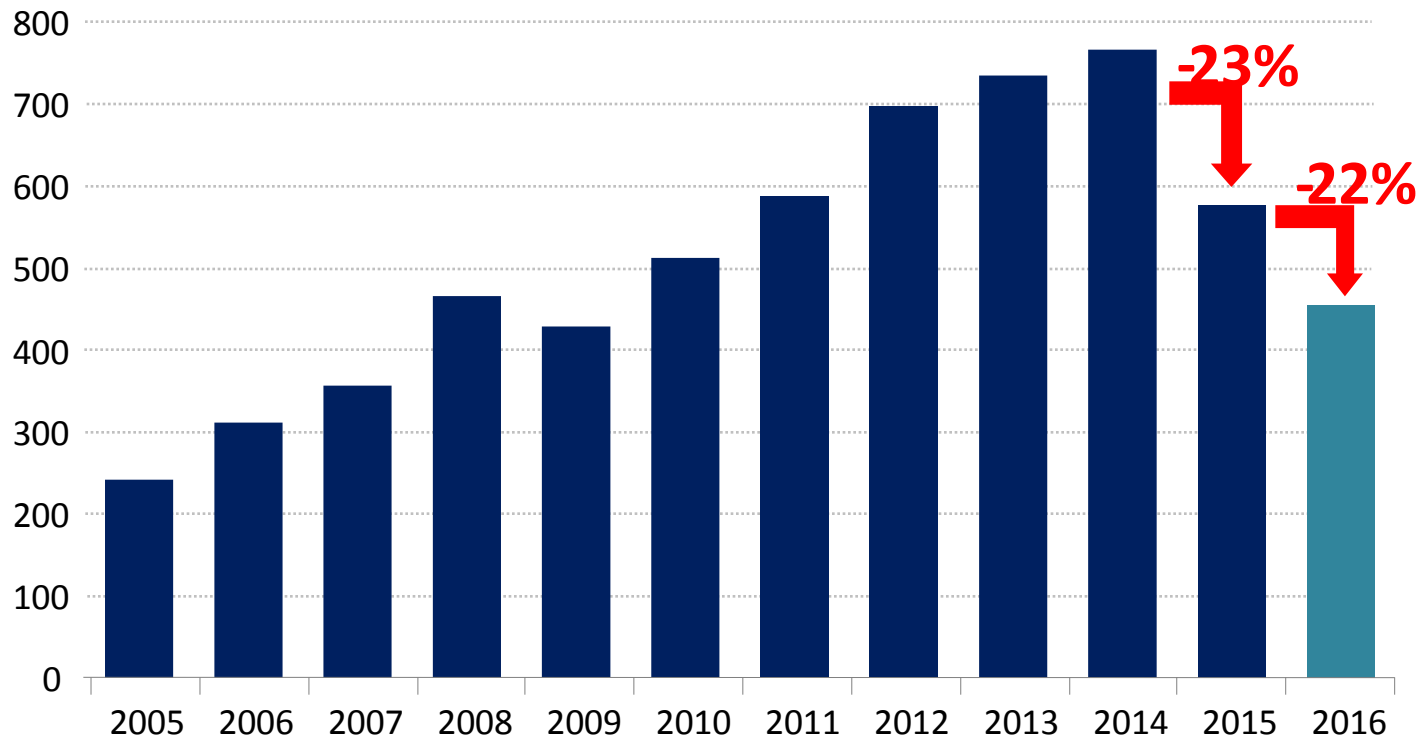


Developing Asia accounts for almost half of the rise in global gas demand & 75% of the increase in imports, but gas faces strong competition from renewables & coal

Oil rallies to 2016 high above \$51/bbl



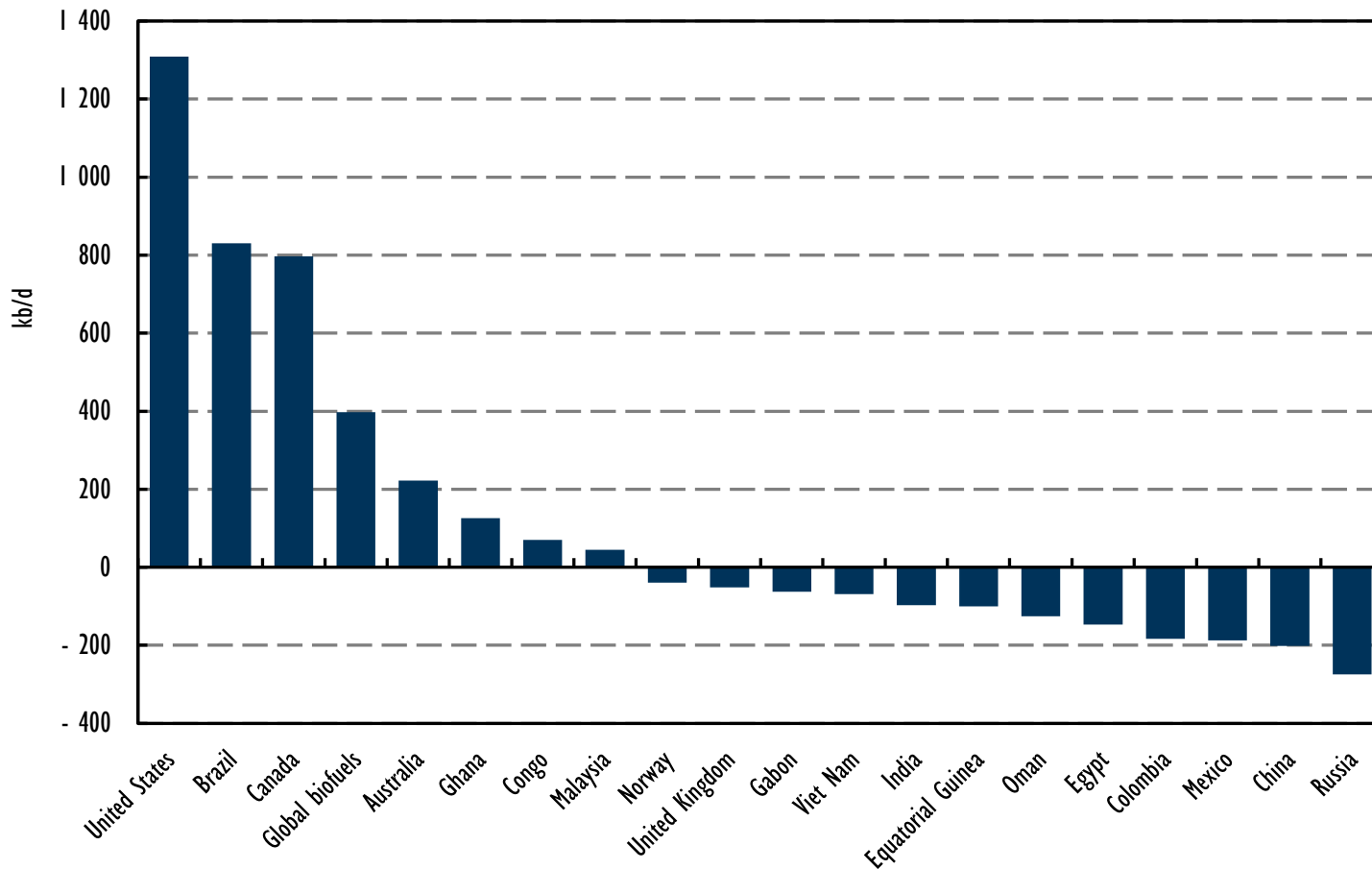
Upstream oil and gas investment



Upstream oil and gas investment continues to fall, particularly in high-cost regions; this raises the prospect of price volatility in the future

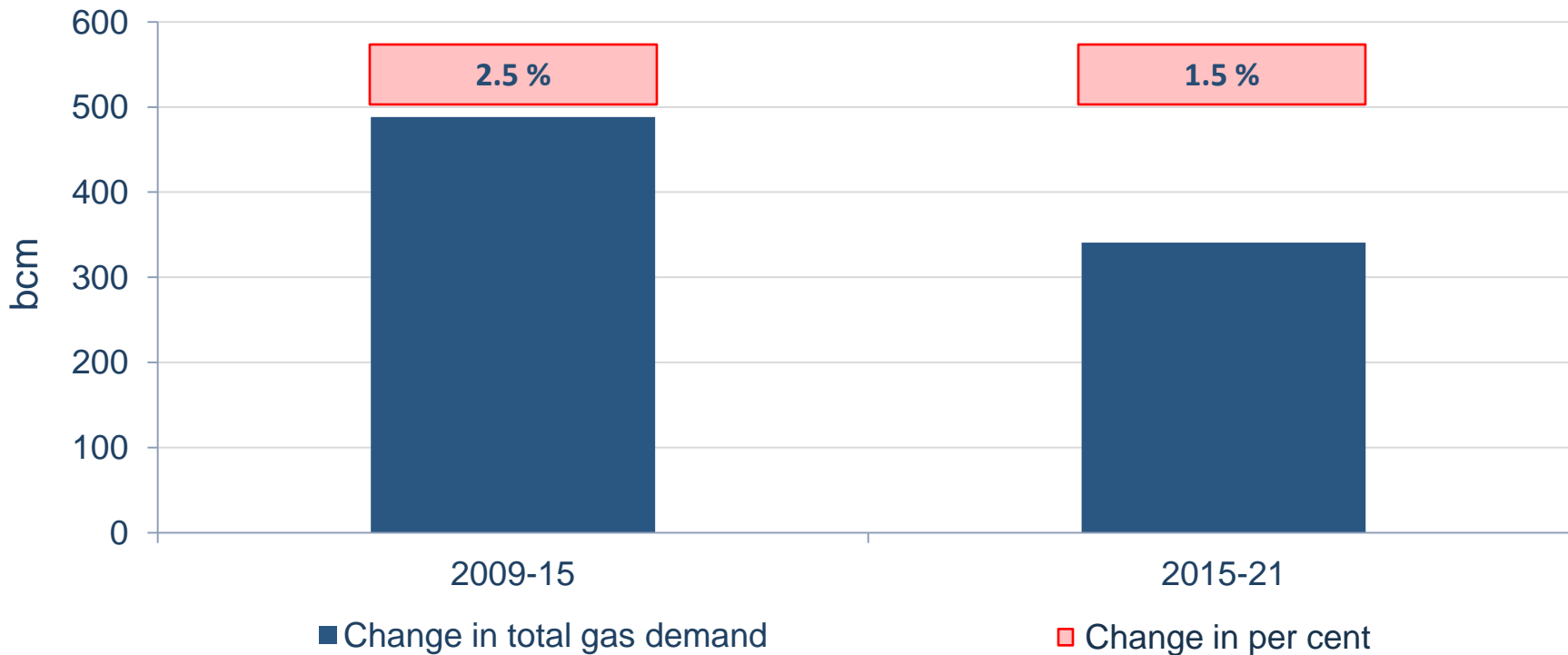
US still the world's growth engine

Selected sources of non-OPEC supply change 2015-21



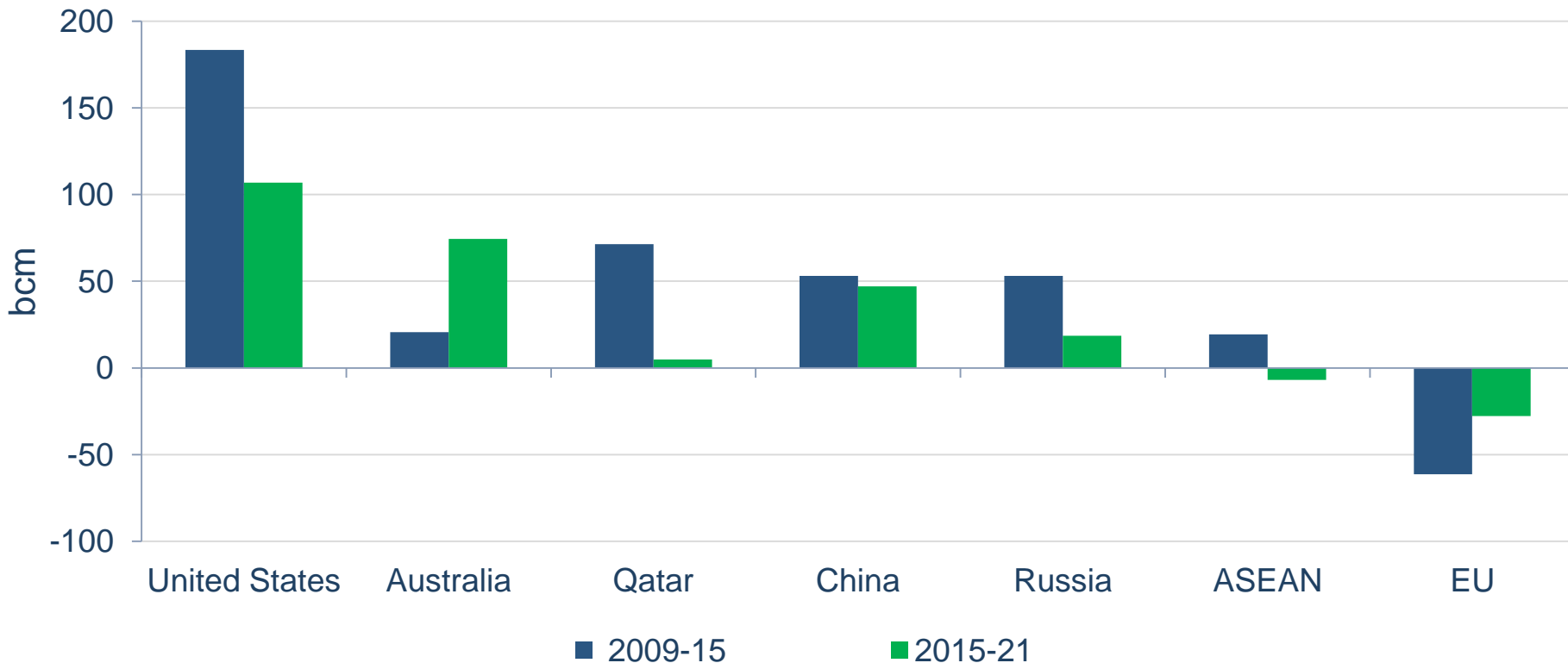
In 2015-21, oil supply growth slows to 4.1 mb/d vs 11 mb/d in 2009-15; US, Iran, Brazil & Canada see the biggest increases, drop in Russia and China

Change in world natural gas demand



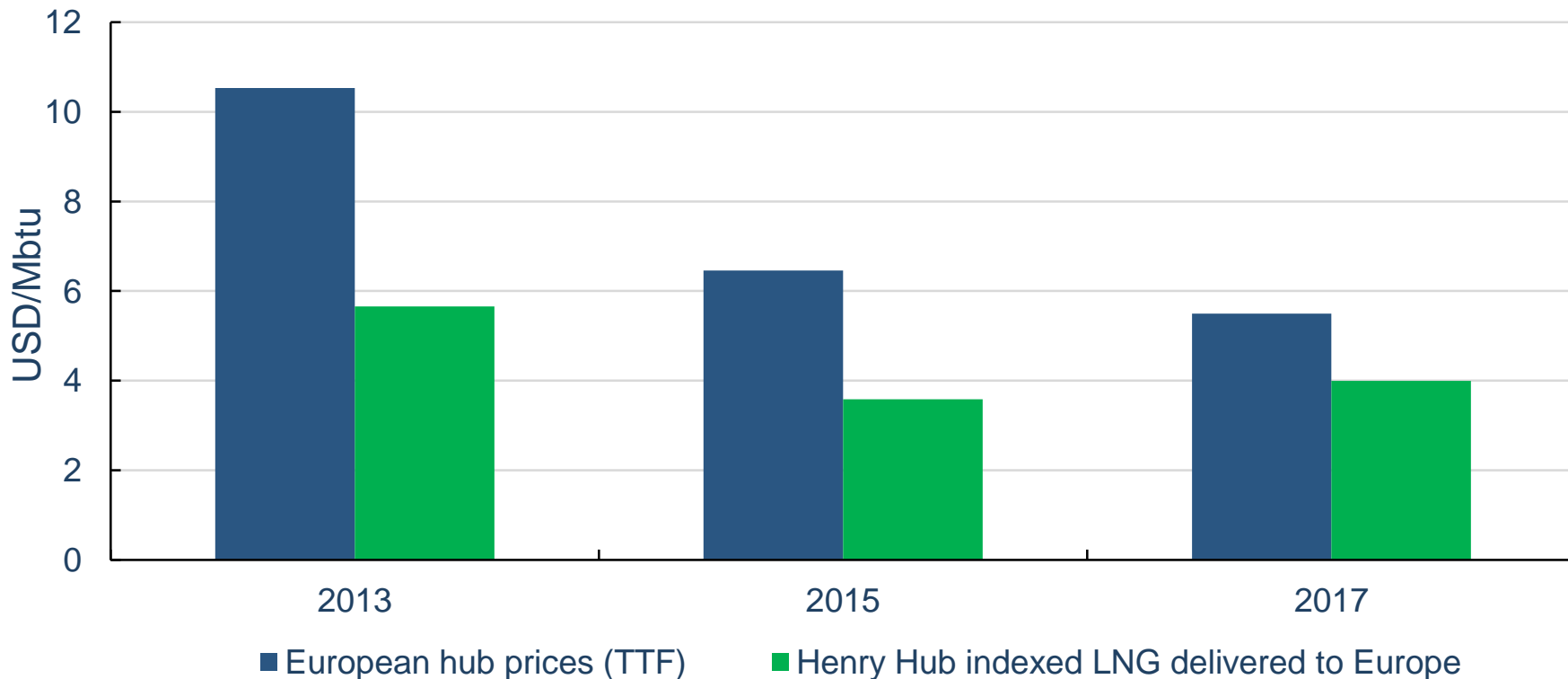
Growth in gas demand slows as it faces greater competition in the power sector; yet it is the only fossil fuel that does not suffer a decline in its share of the energy mix

Change in natural gas production by region (bcm)



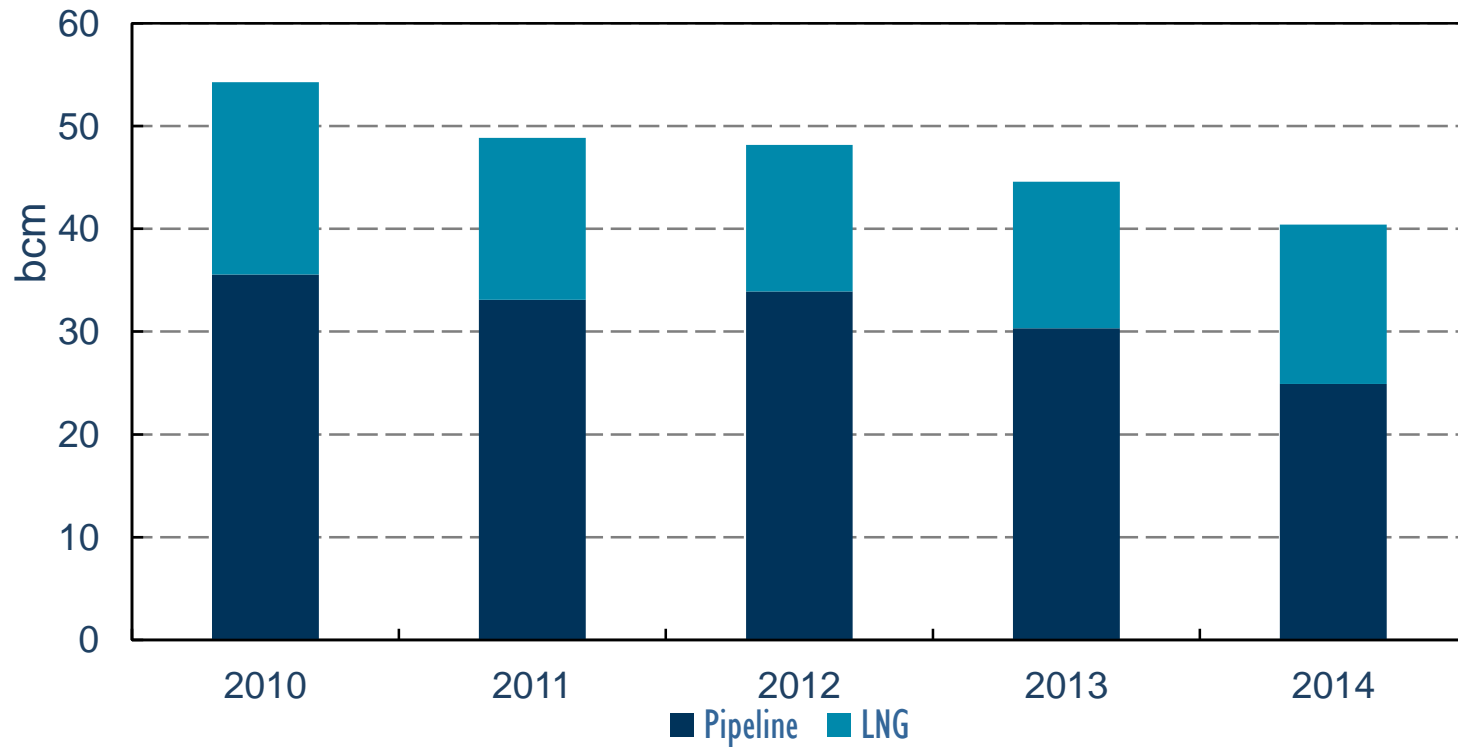
The United States & Australia rather than the more established exporters – Russia, Qatar & ASEAN – are the main source of production growth

US LNG is competitive in Europe

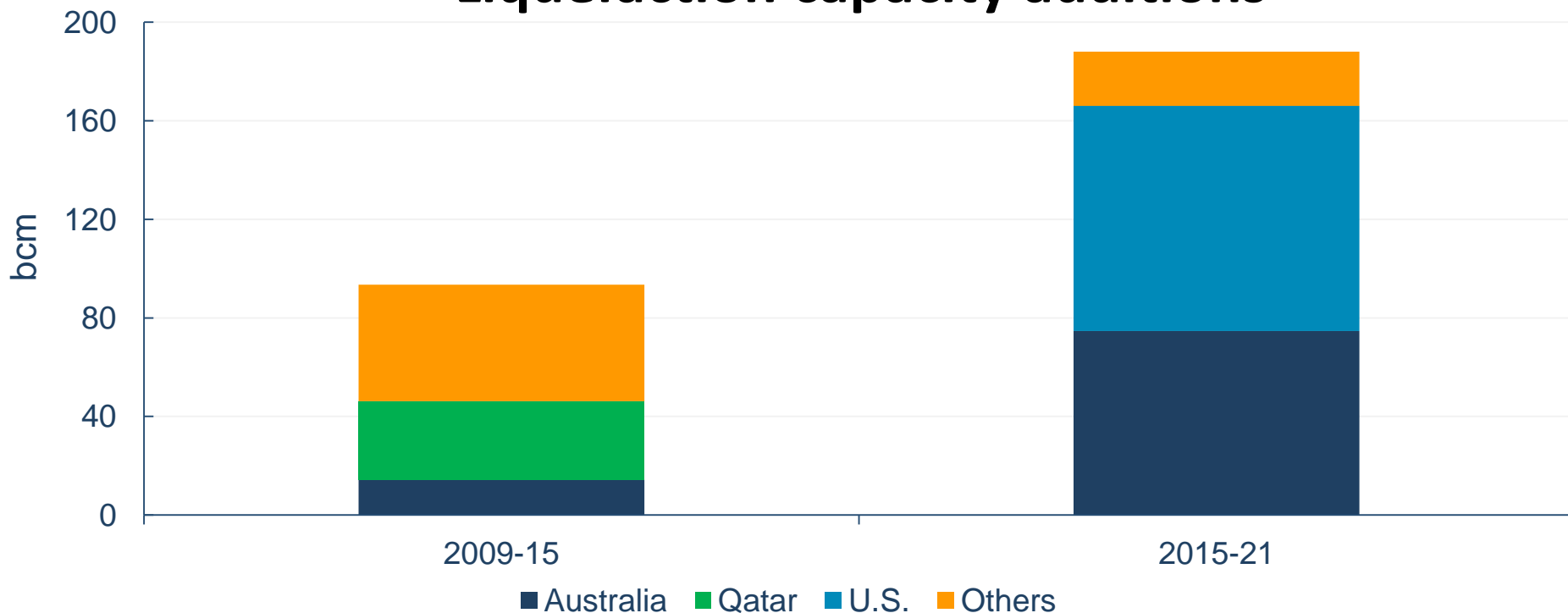


Oversupply in global LNG markets will intensify competition; flexible US LNG volumes are well-placed to compete in Europe

Algerian gas exports to OECD Europe



Liquefaction capacity additions



LNG capacity additions will be led by the US & Australia over the next five years; projects in Canada & East Africa could also move ahead if demand & prices recover

- **Developing Asia changes global demand: China's transition to a more diversified & much less energy-intensive model for growth re-shapes energy markets**
- **Natural gas landscape is changing: Ample low cost LNG supplies available for SEE markets – opportunity for competition and diversification**
- **Low oil prices bring gains to consumers, but can also sow the seeds of future risks to energy security and energy transition**
- **Paris Agreement: the energy transition is underway, but not on track and governments need to ring-fence policies against market swings**