

World Energy Outlook 2014

Bundesnetzagentur:
Workshop
Netzentwicklungsplan Gas
2015

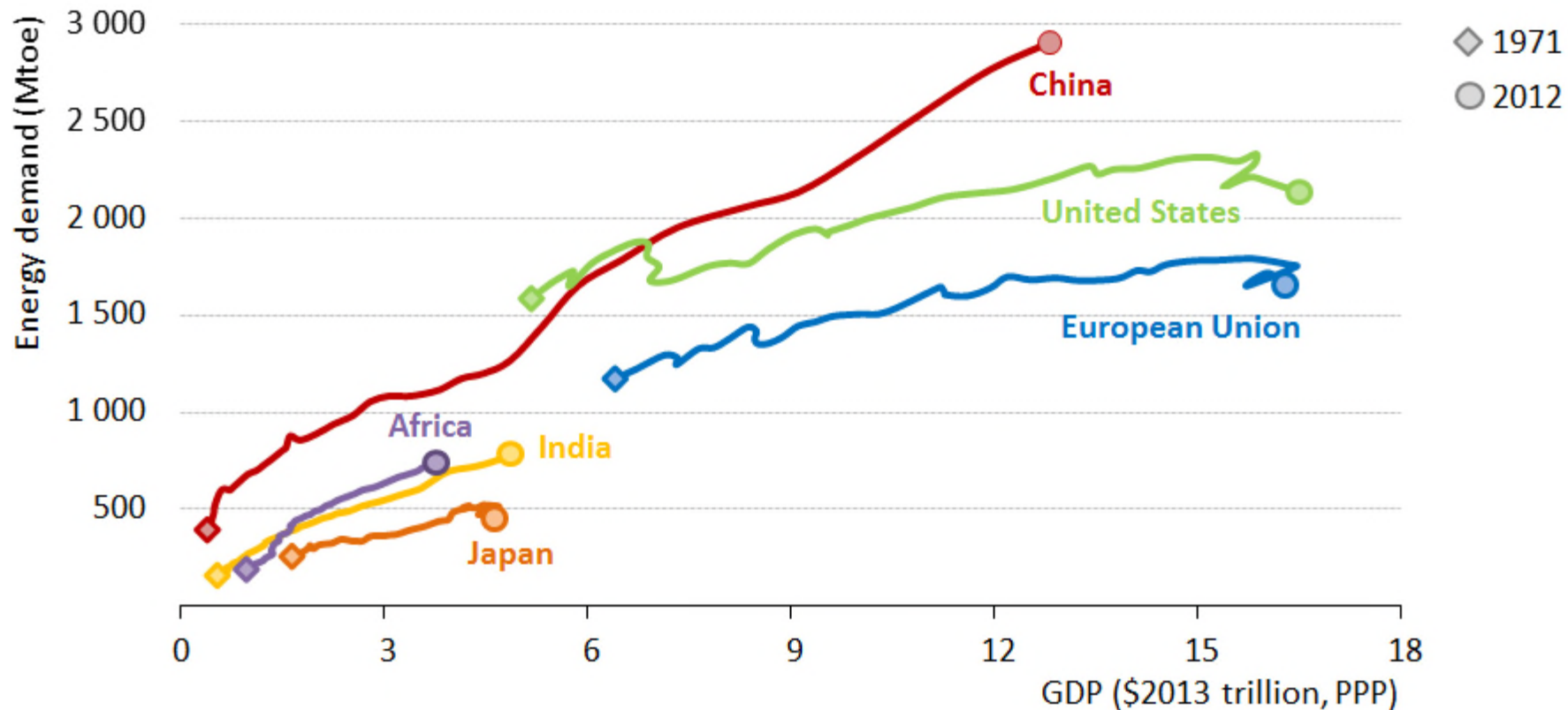
World Energy Outlook on
Gas

Bonn, 19 May 2015

GDP growth and energy demand

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Total primary energy demand and GDP in selected countries 1971-2012

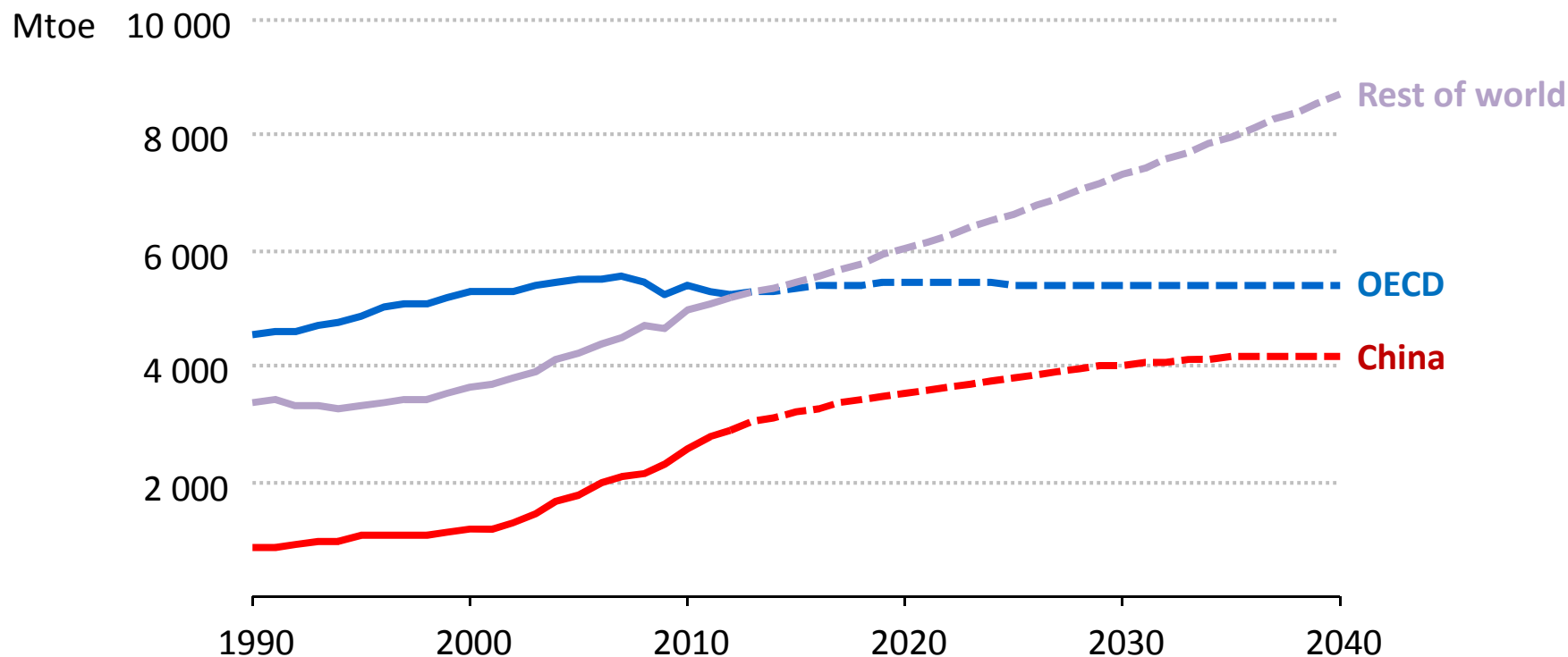


Growth in energy demand slows in countries with mature economies

Changing dynamics of global demand

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Energy demand by region

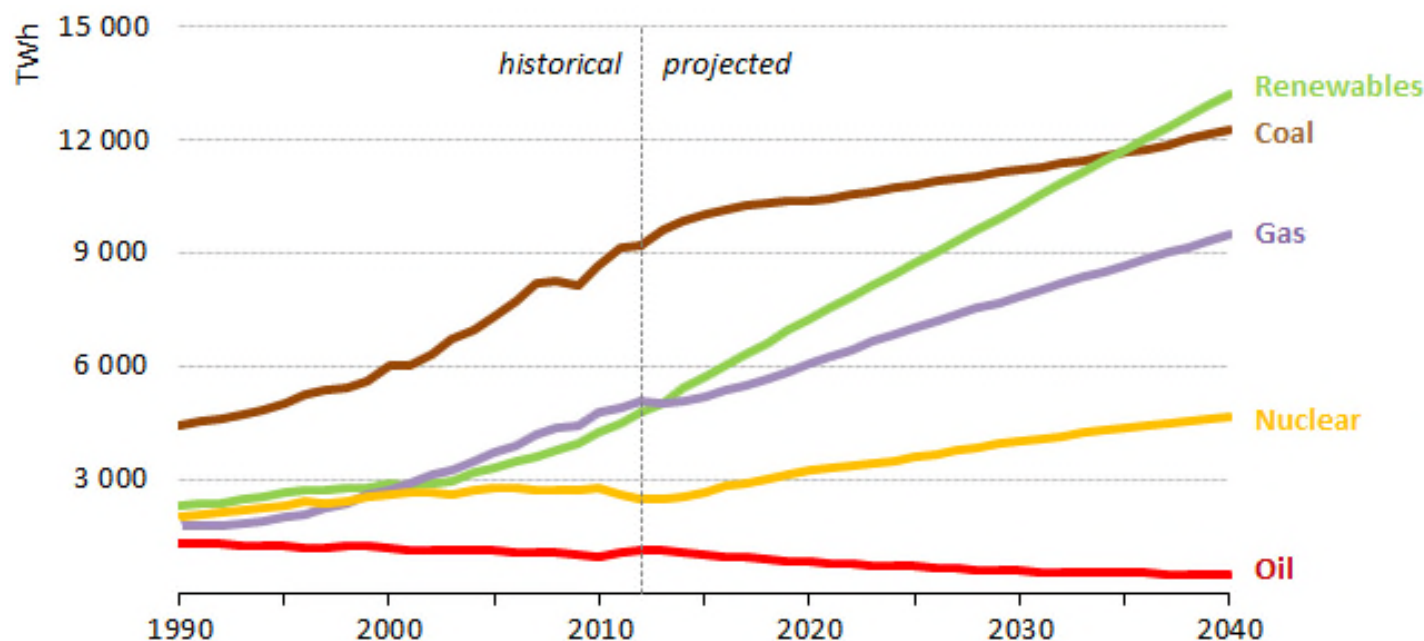


As China slows, then India, Southeast Asia, the Middle East and parts of Africa & Latin America take over as the engines of global energy demand growth.

Will Growth in Renewables and Coal eclipse Gas as primary Energy Carrier?

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Electricity generation by source and region in the New Policies Scenario

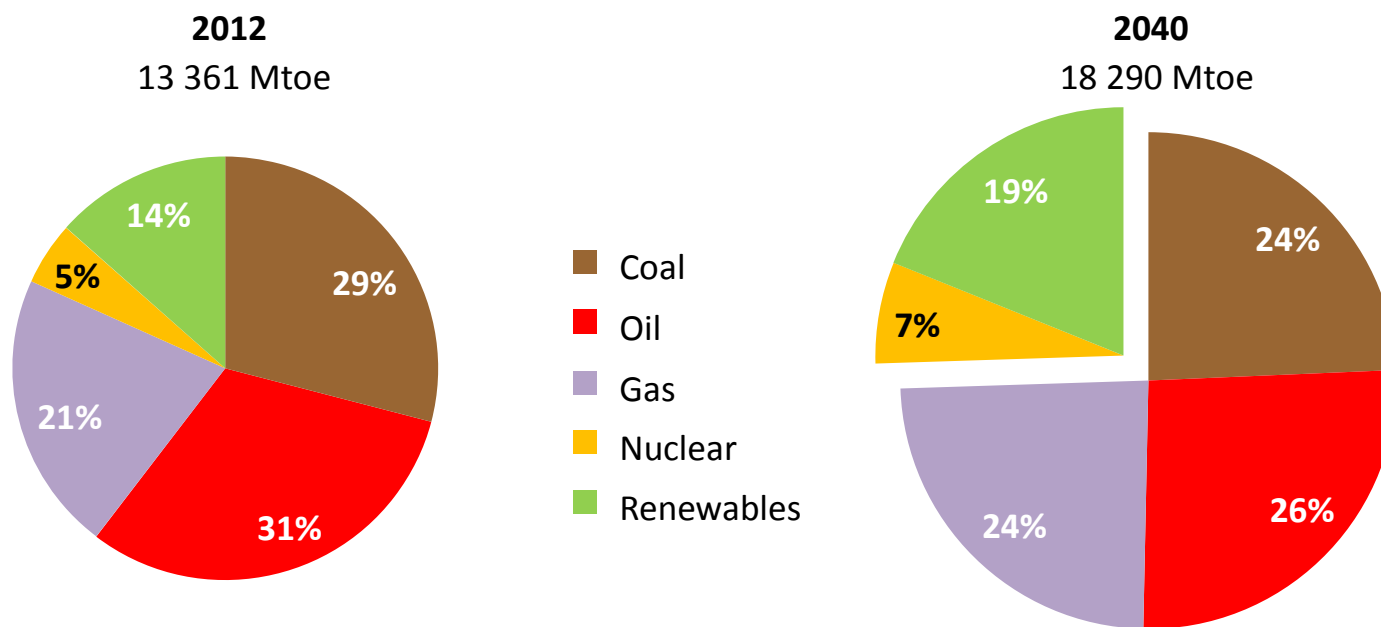


Coal supply will reduce while gas, nuclear and renewables grow.

A mix moving towards natural gas & low-carbon energy

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Fuel shares in world primary energy demand



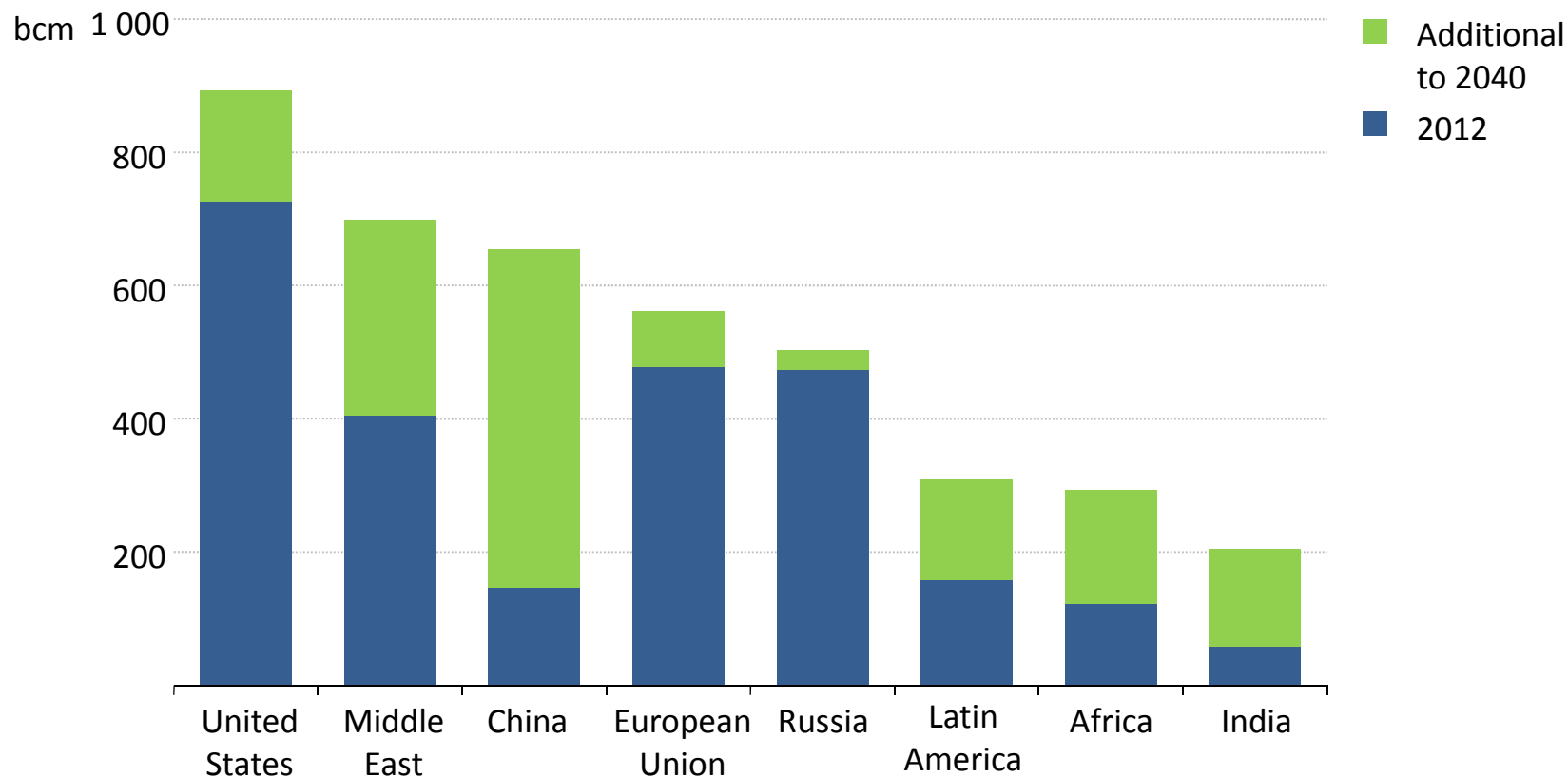
Declining shares of oil & coal in the mix bring the overall share of fossil fuels down to just under three-quarters by 2040, with gas on the way to becoming first fuel

Gas as main energy carrier on its own will not guarantee a 2deg C world

China and the Middle East: key sources of demand growth

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Natural gas demand by region

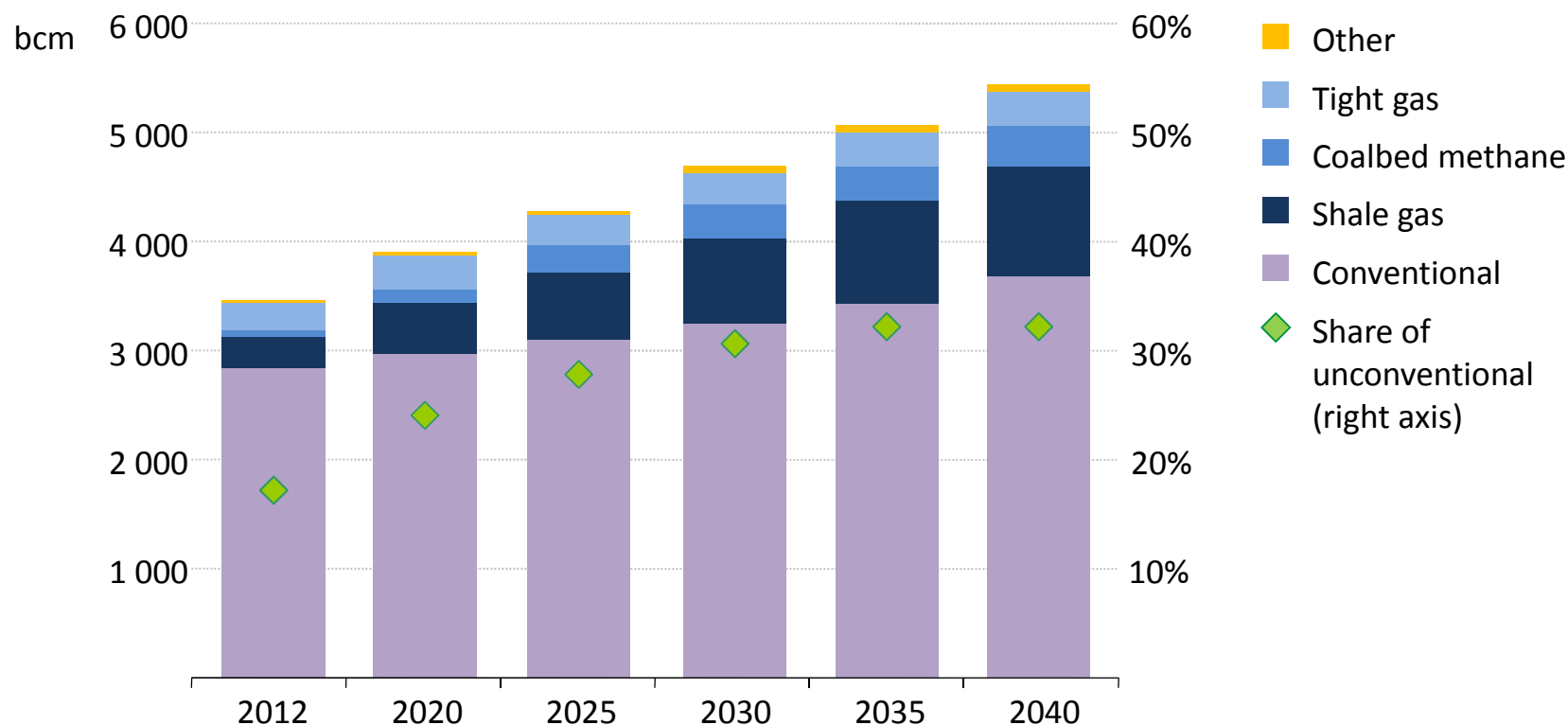


Gas demand growth in China & the Middle East alone, driven largely by the priority to diversify the fuel mix for power, is more than double the rise in total OECD gas use

Unconventional gas production a rising share of the mix

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World natural gas production by type

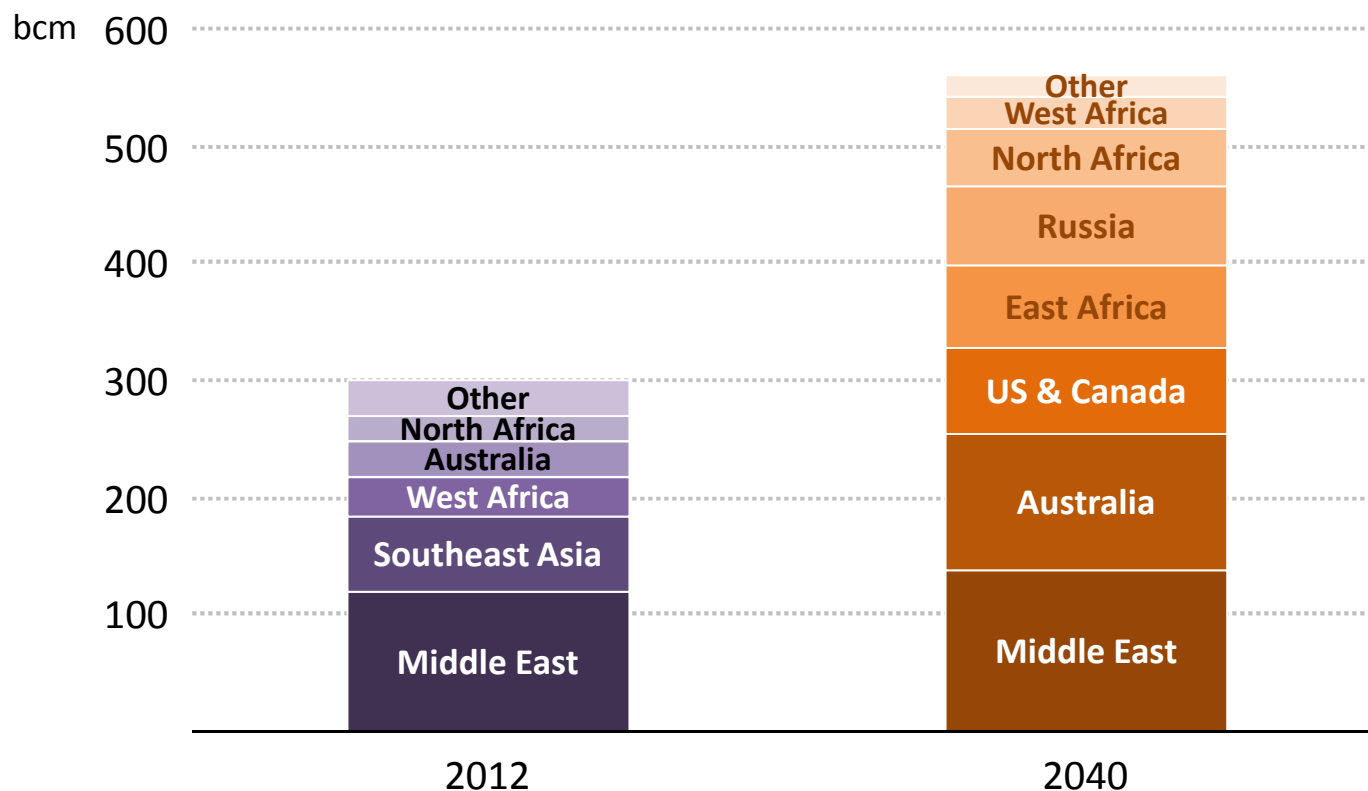


Most of the growth in gas supply comes from unconventional sources; by 2040, more than half of total unconventional output is produced outside the US and Canada

Share of LNG grows in global gas trade

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Main sources of regional LNG supply

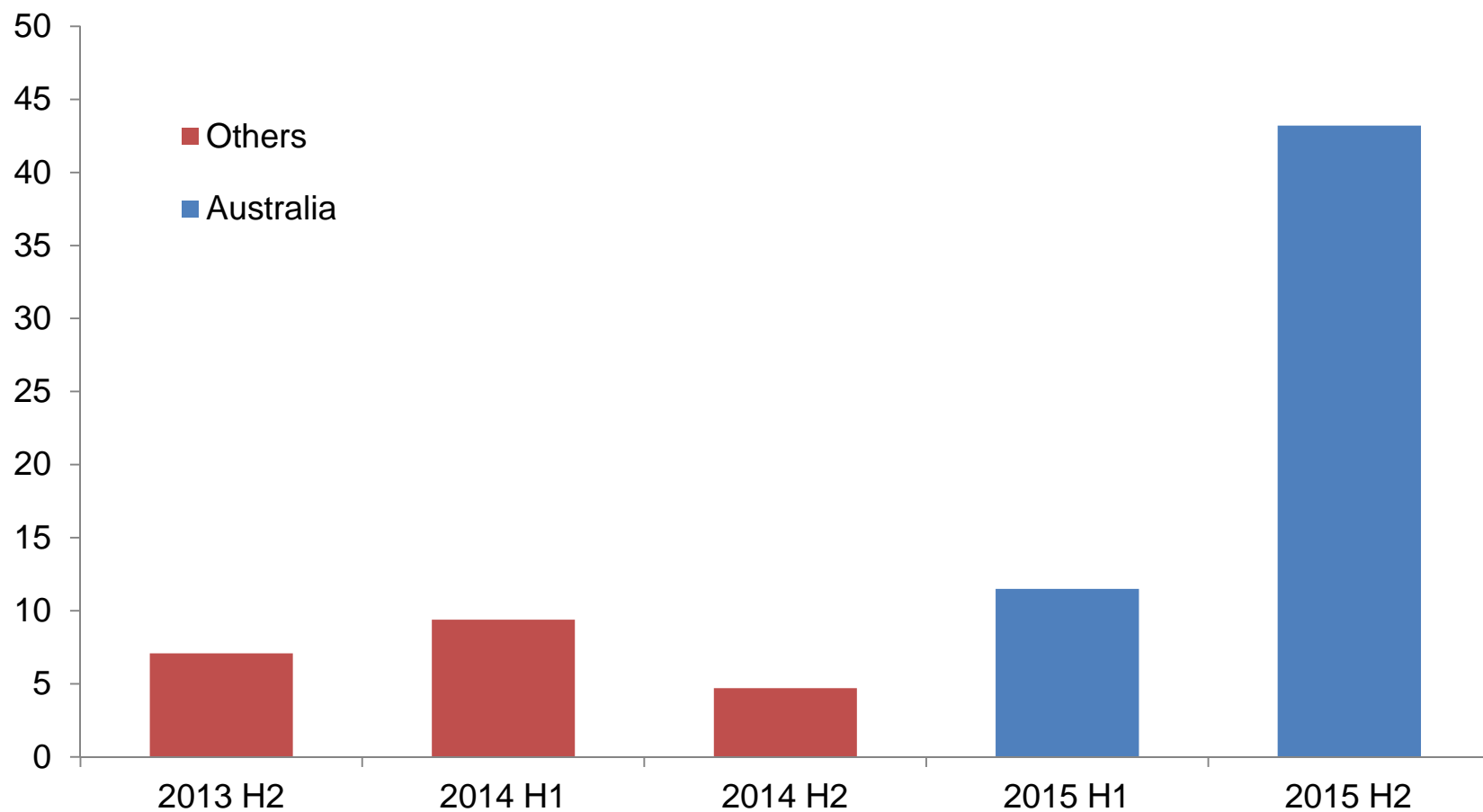


A near-tripling in liquefaction sites boosts the role of LNG, bringing more integrated & secure gas markets, but only limited relief on prices

Short term LNG growth

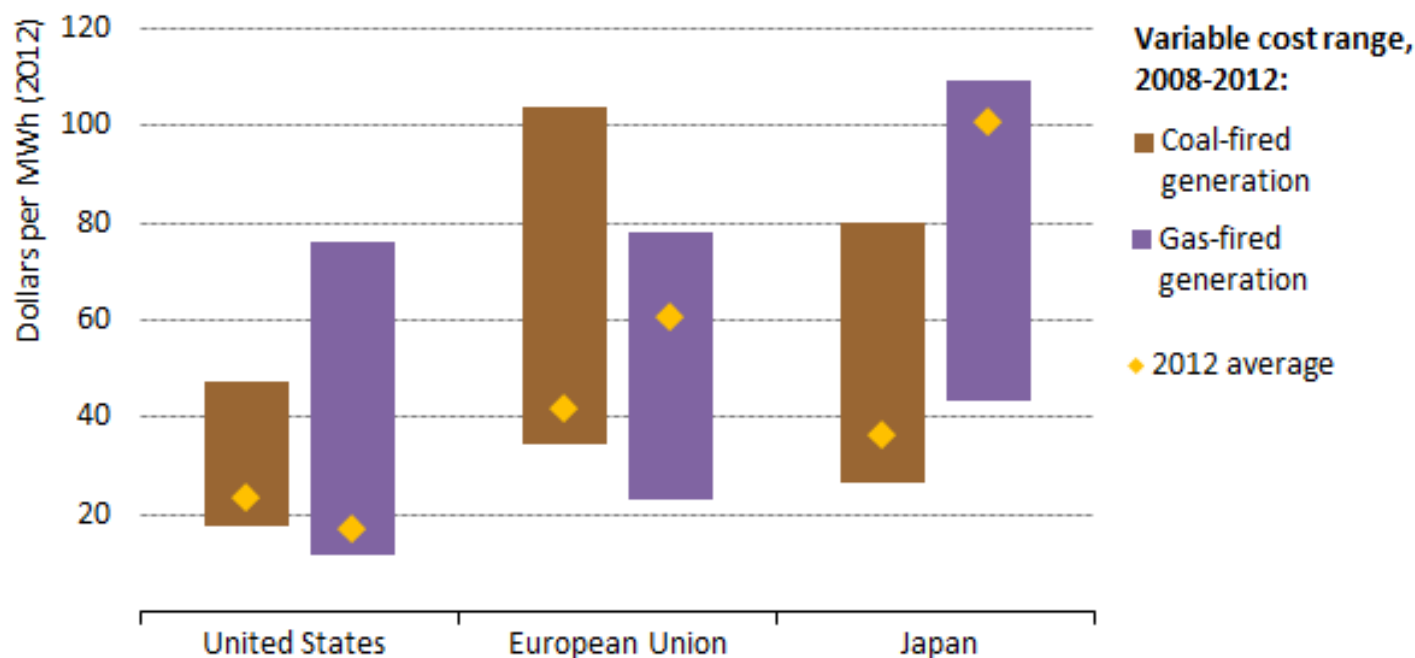
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Additional LNG capacity (growth relative to the previous period, bcm)



Coal vs. Gas competitiveness?

Electricity generating costs for coal and gas by selected region and for 2008-2012 fuel prices (WEO 2013)

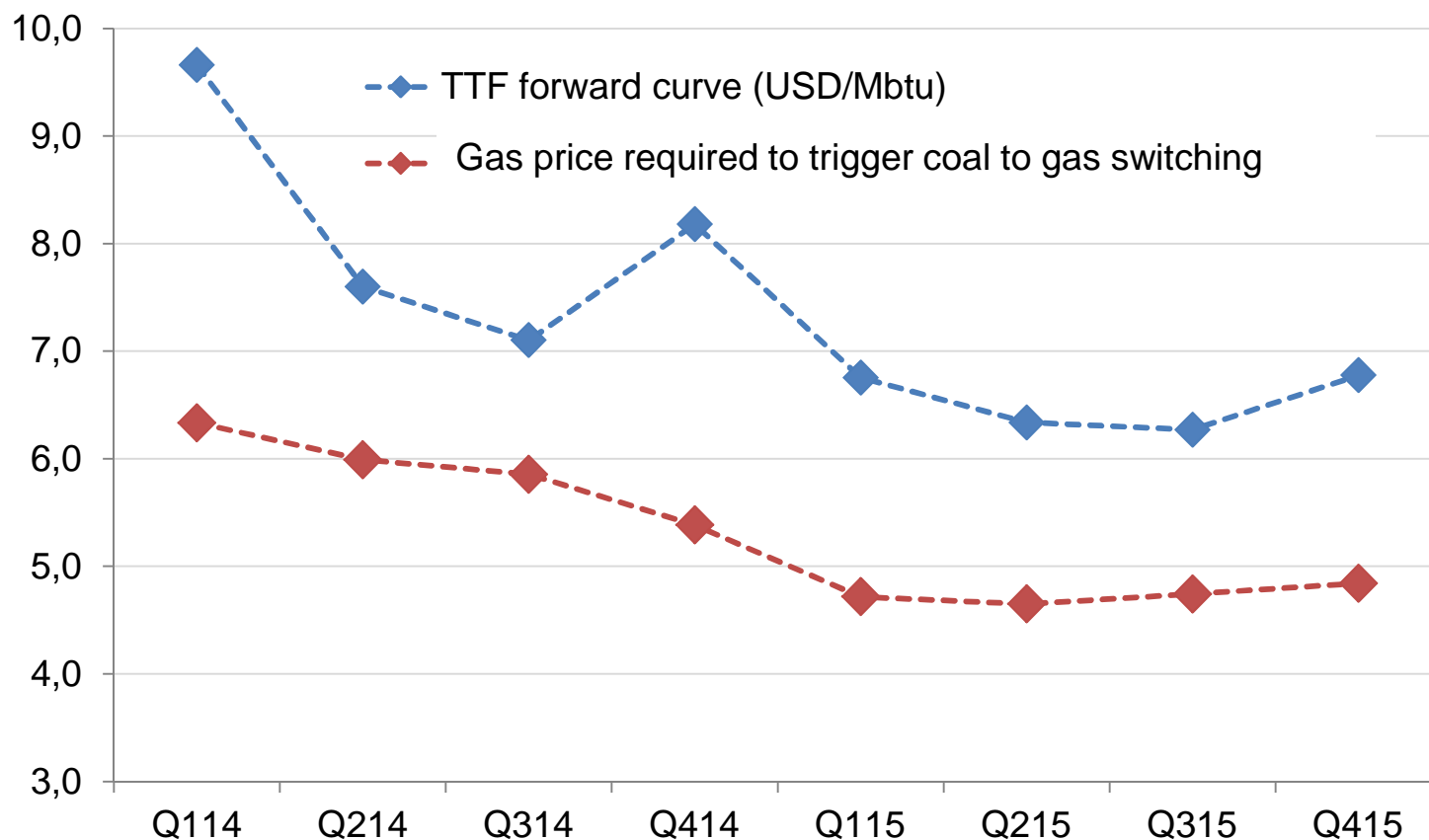


Competitiveness of coal vs. gas depends on fuel cost, assumption on carbon price and environmental regulation.

There is no consistent winner but low gas prices will shift the balance.

Coal to gas switching in Europe?

European gas prices might need to drop towards \$5/mmbtu if coal-to-gas switching is the way to rebalance the market



Note: Based on gas, coal, and carbon forward curves as of May 20 2015 – approximate switching price

Future of Gas in Europe?

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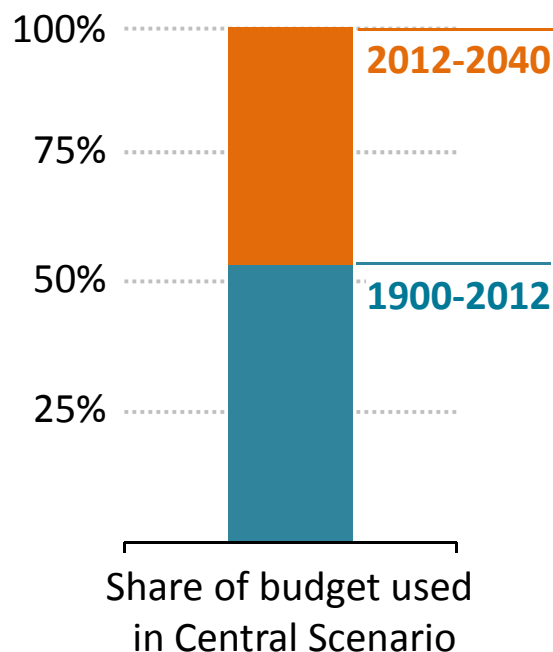
Does Shale Gas have a future in Europe?

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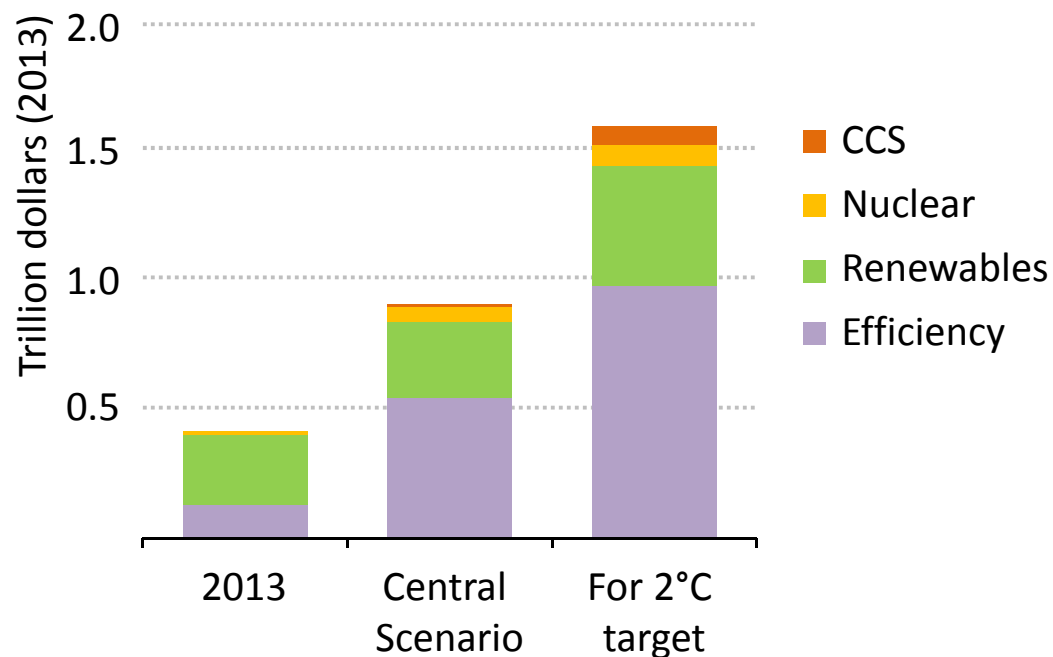


The 2 °C goal – last chance in Paris?

World CO₂ budget for 2 °C
~2300 Gt



Average annual low-carbon investment, 2014-2040



The entire global CO₂ budget to 2100 is used up by 2040 – Paris must send a strong signal for increasing low-carbon investment four times beyond current levels

- Factors on both the supply & demand side are pushing gas towards a higher share in the global energy mix
- But the investment case cannot be taken for granted: gas faces stiff competition, large policy & pricing uncertainties
- The unconventional revolution will take time to spread: developments in China are critical to the global outlook
- The rise in LNG – notably from the US – is set to have a tangible impact on international market efficiency & security
- Natural gas has a role to play in moving us towards a low-carbon energy economy, but it is no panacea

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