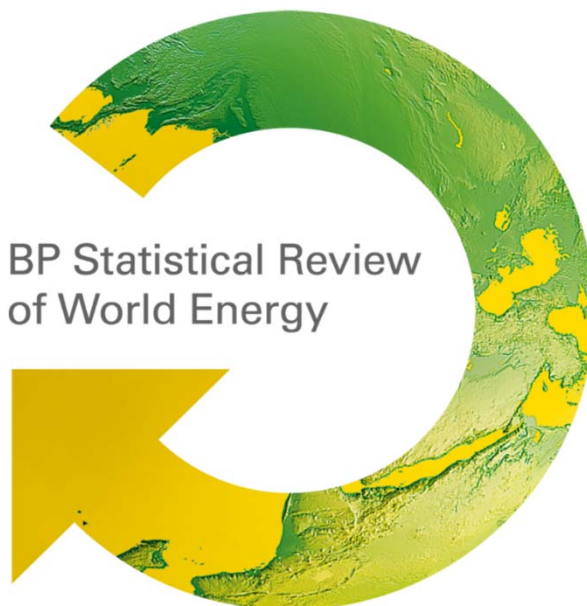




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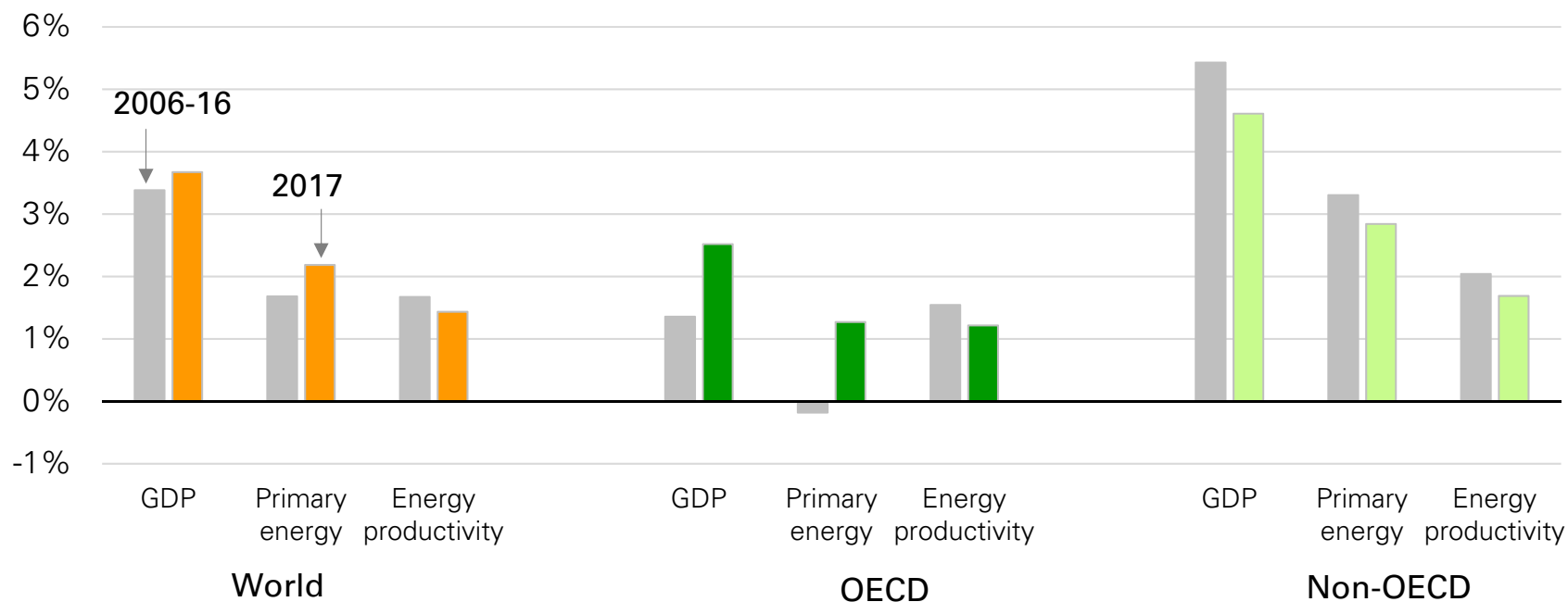
Energy in 2017: two steps forward, one step back

Spencer Dale, group chief economist

Growth in GDP and energy



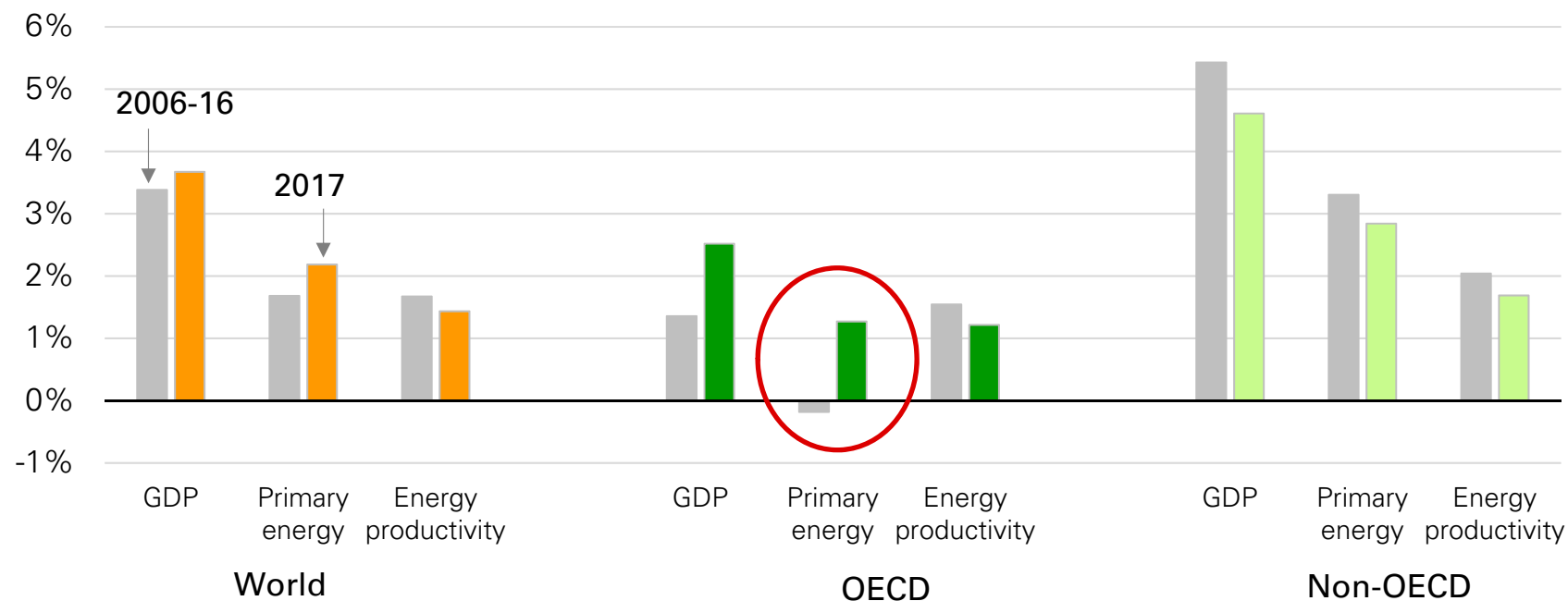
Annual change, %



Growth in GDP and energy



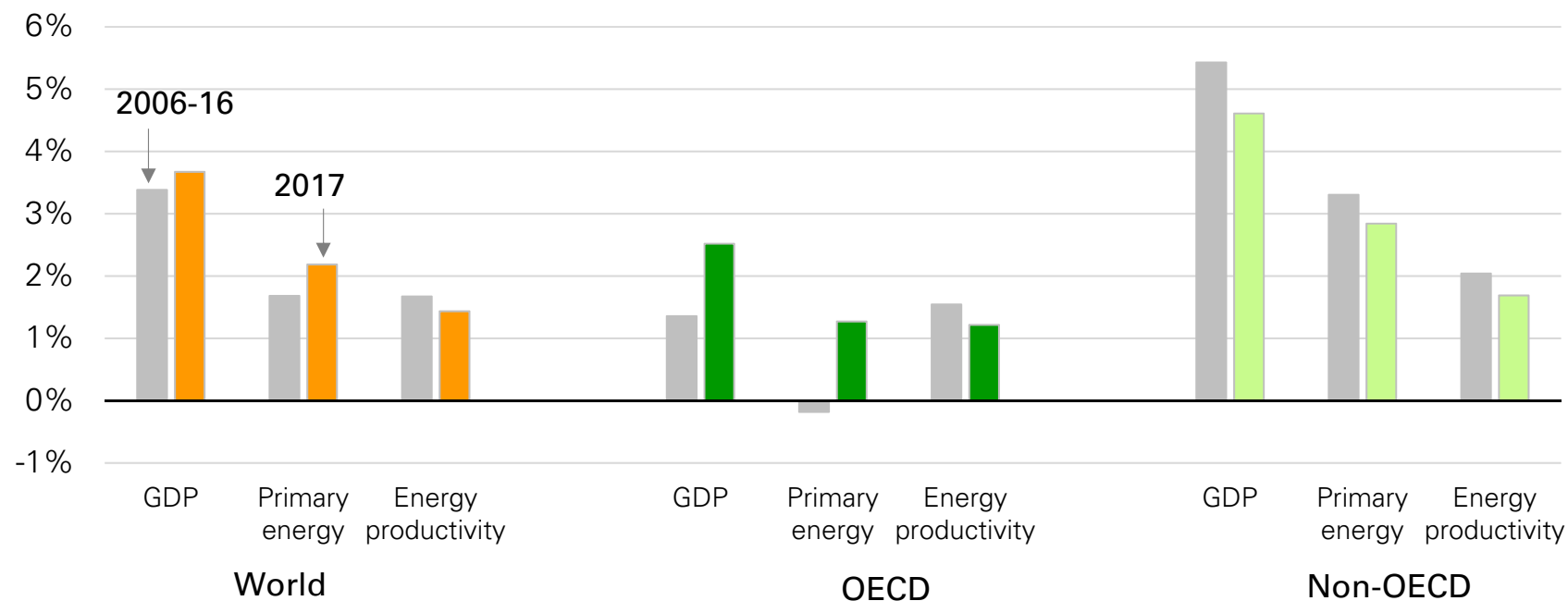
Annual change, %



Growth in GDP and energy



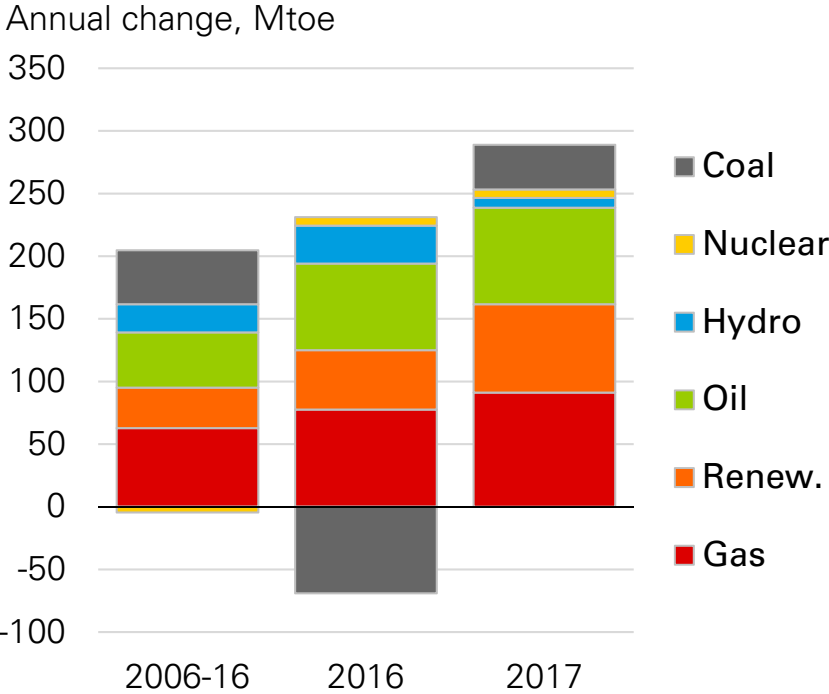
Annual change, %



Primary energy fuel mix

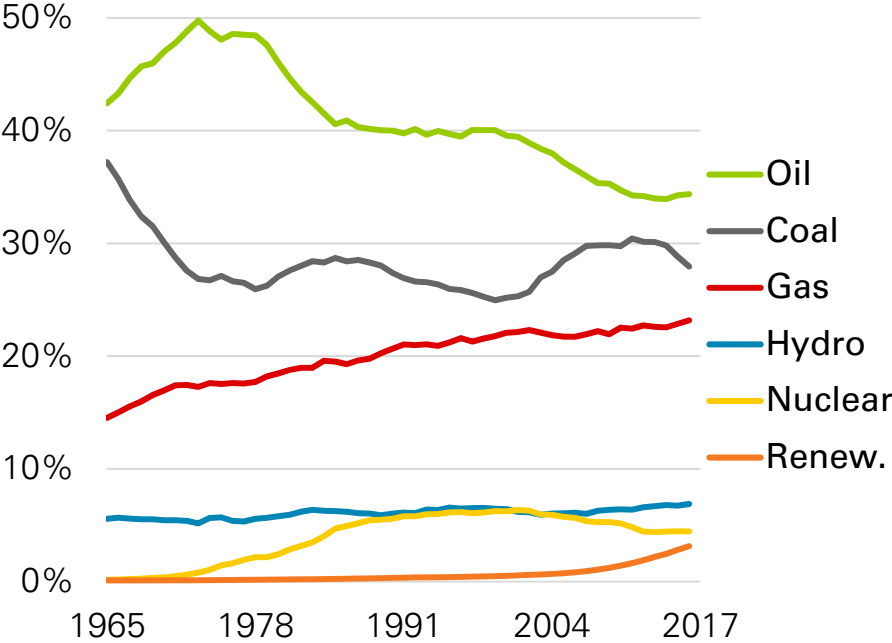


Consumption growth by fuel



Note: Oil includes biofuels

Shares of primary energy consumption

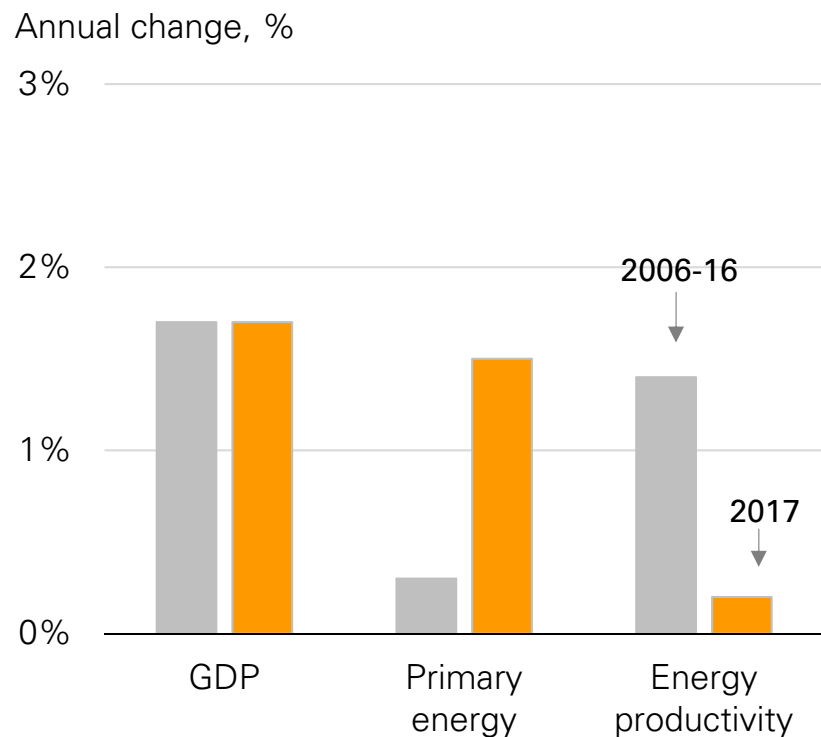


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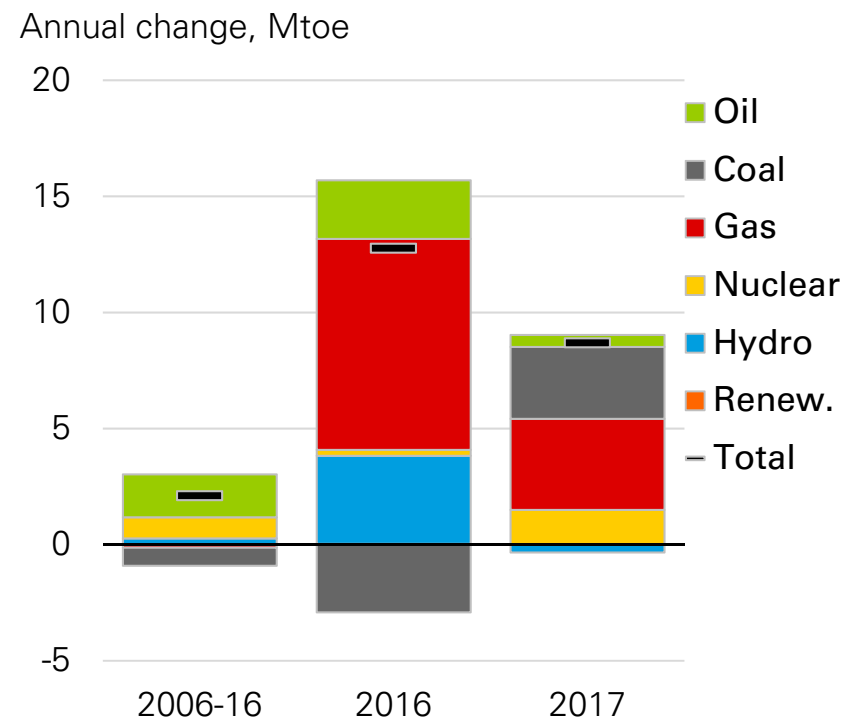
Growth of GDP and primary energy in Russia



Growth in GDP and energy



Consumption growth by fuel



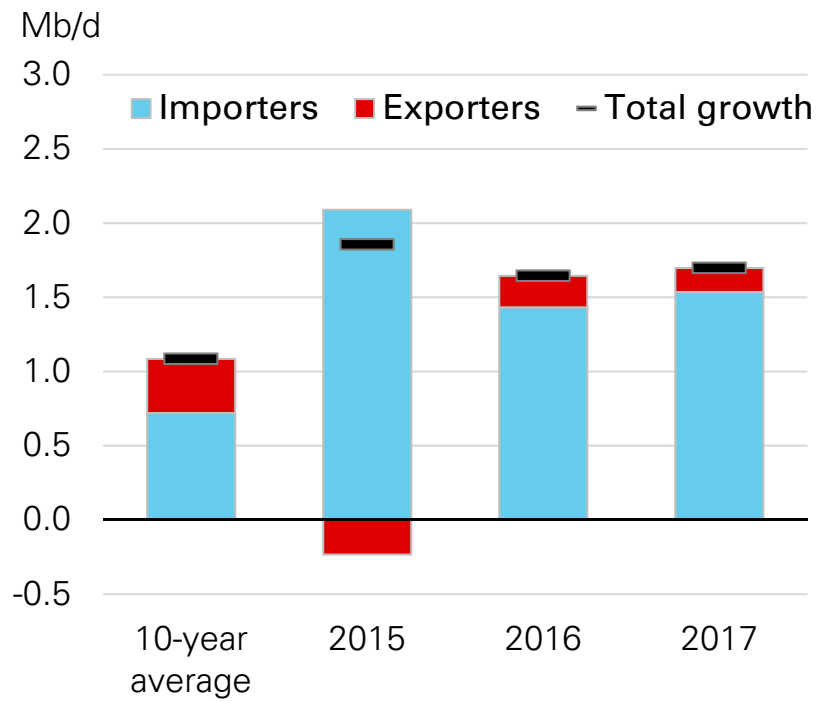


Oil

Oil demand growth



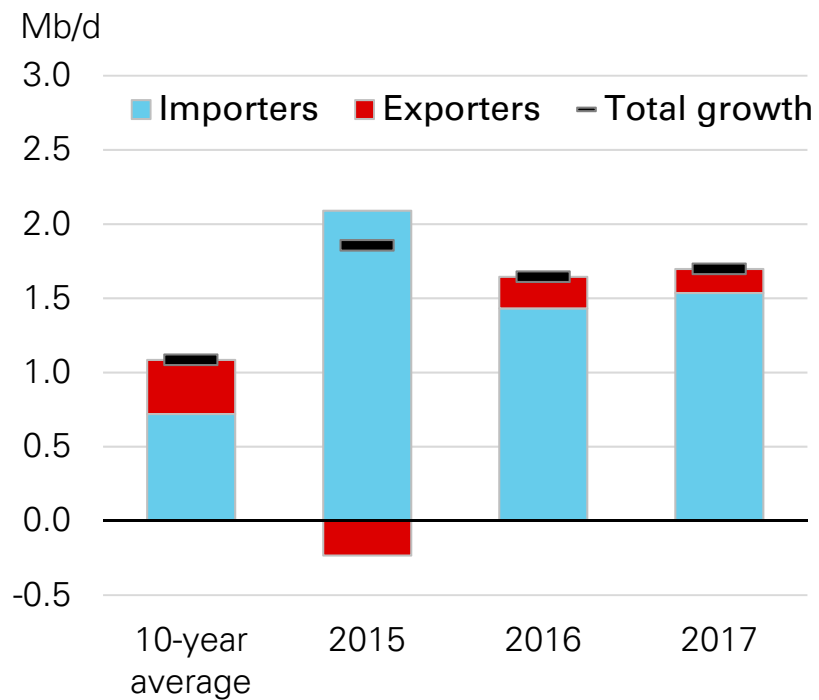
Growth by importers and exporters



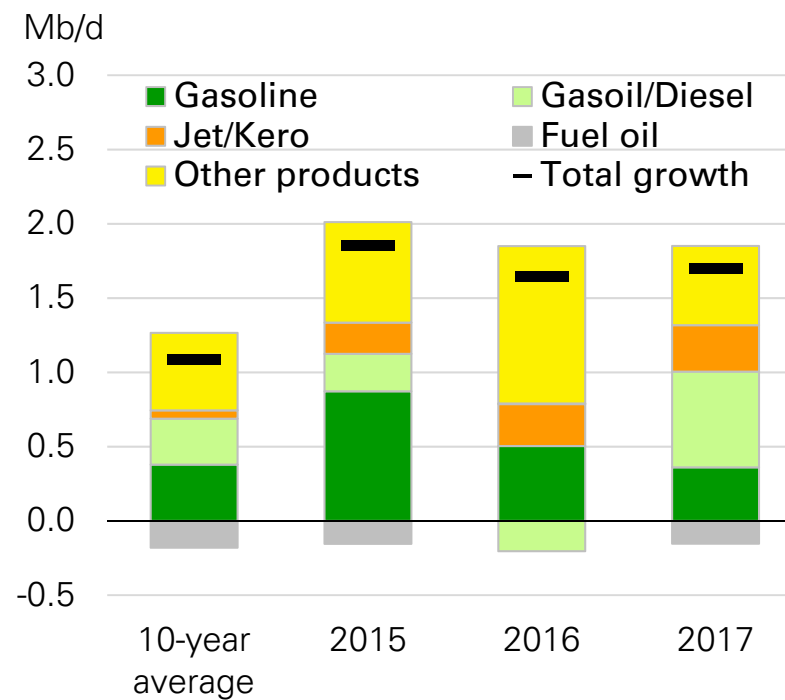
Oil demand growth



Growth by importers and exporters



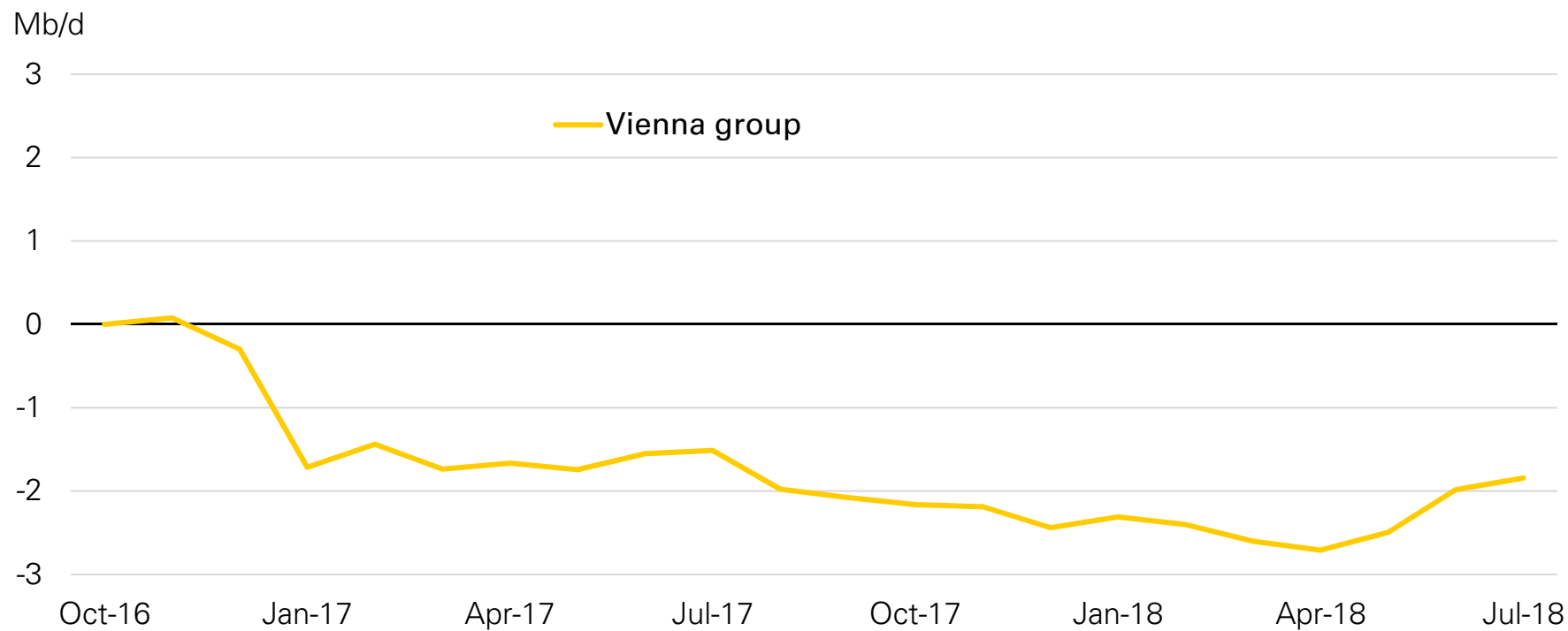
Growth by product



Production cuts versus tight oil increases



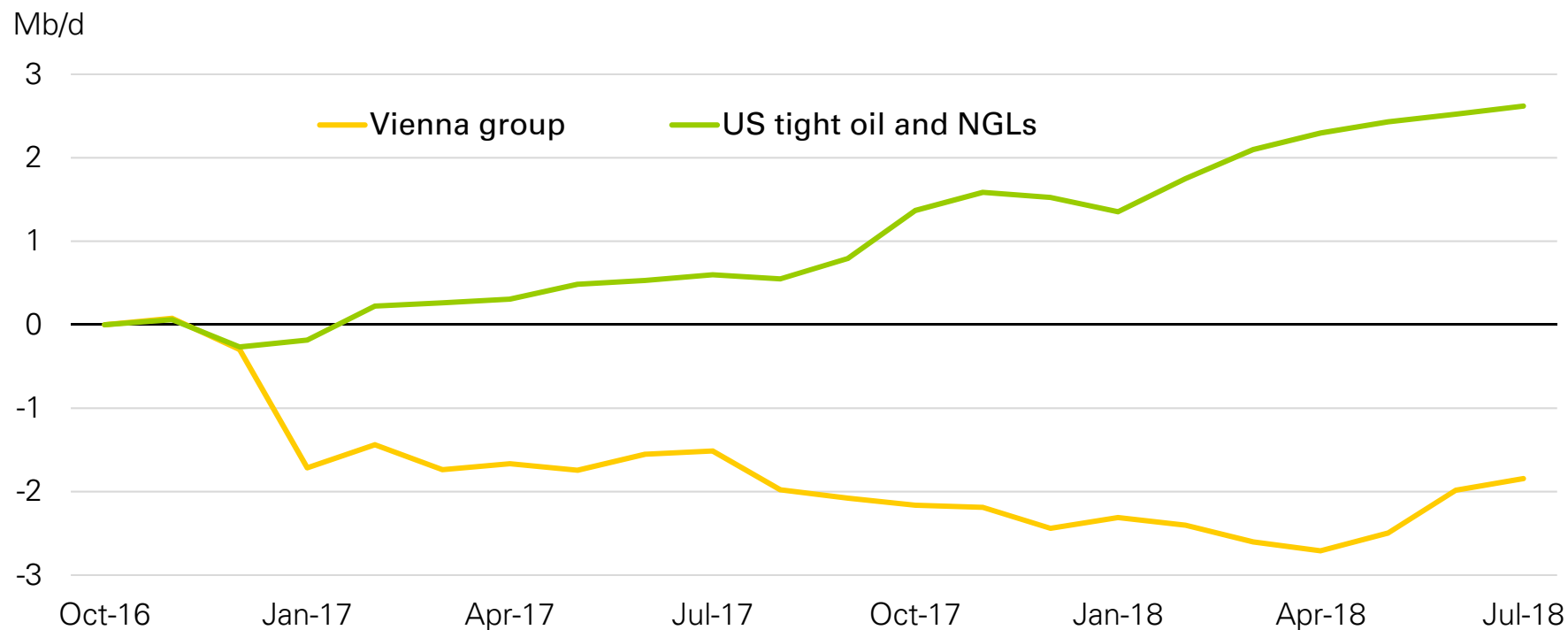
Change in supply relative to October 2016





Production cuts versus tight oil increases

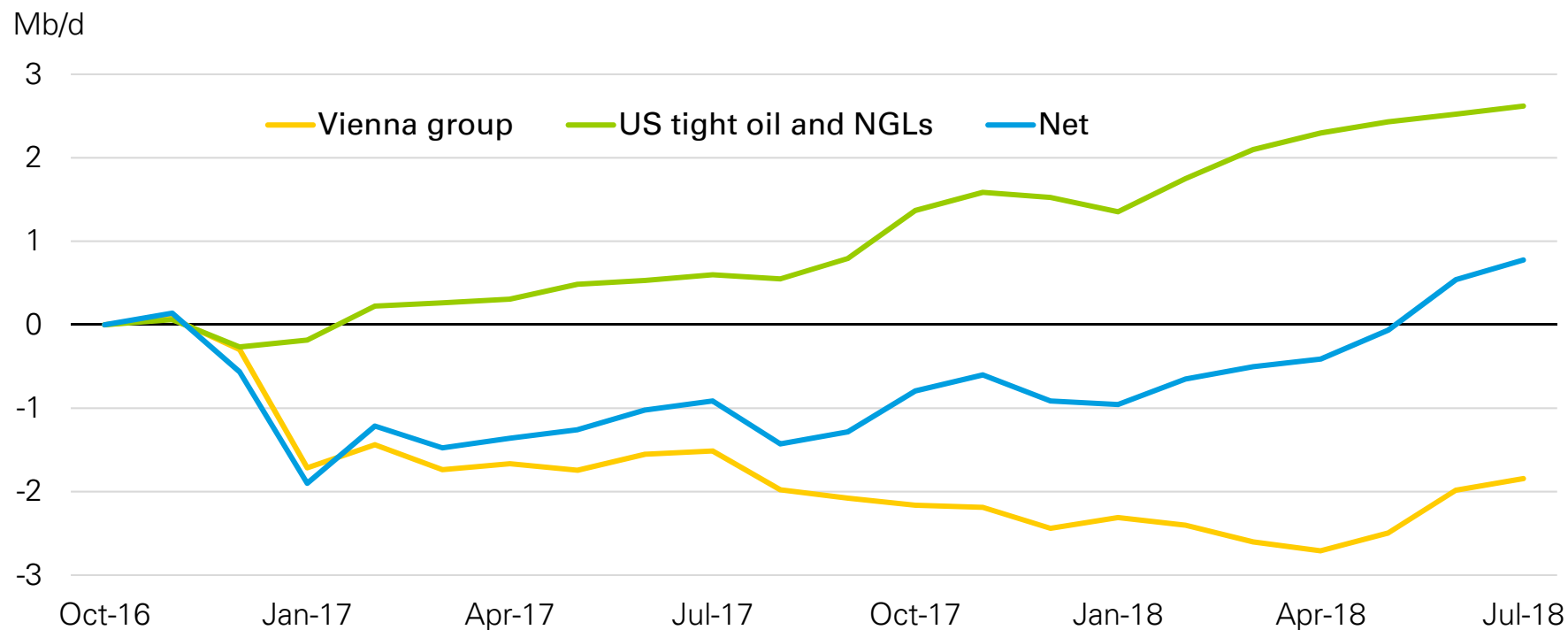
Change in supply relative to October 2016



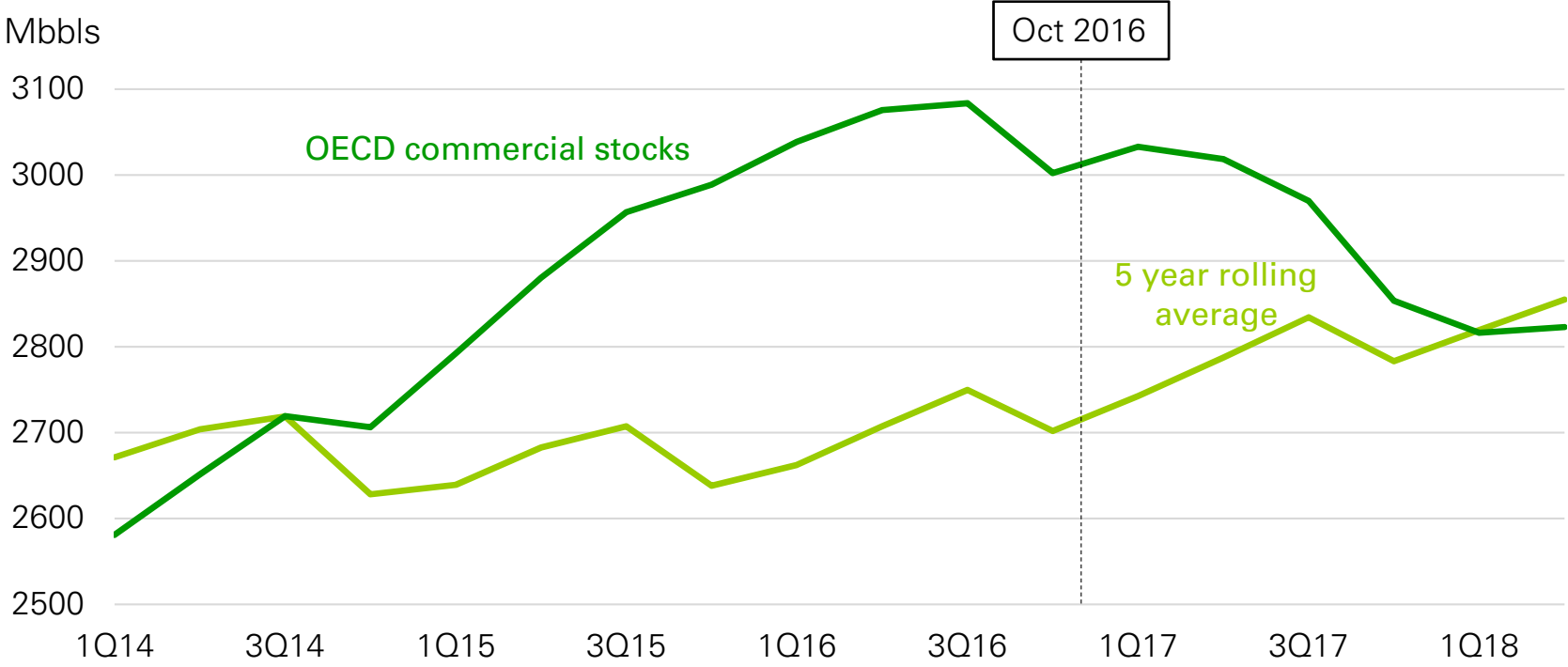


Production cuts versus tight oil increases

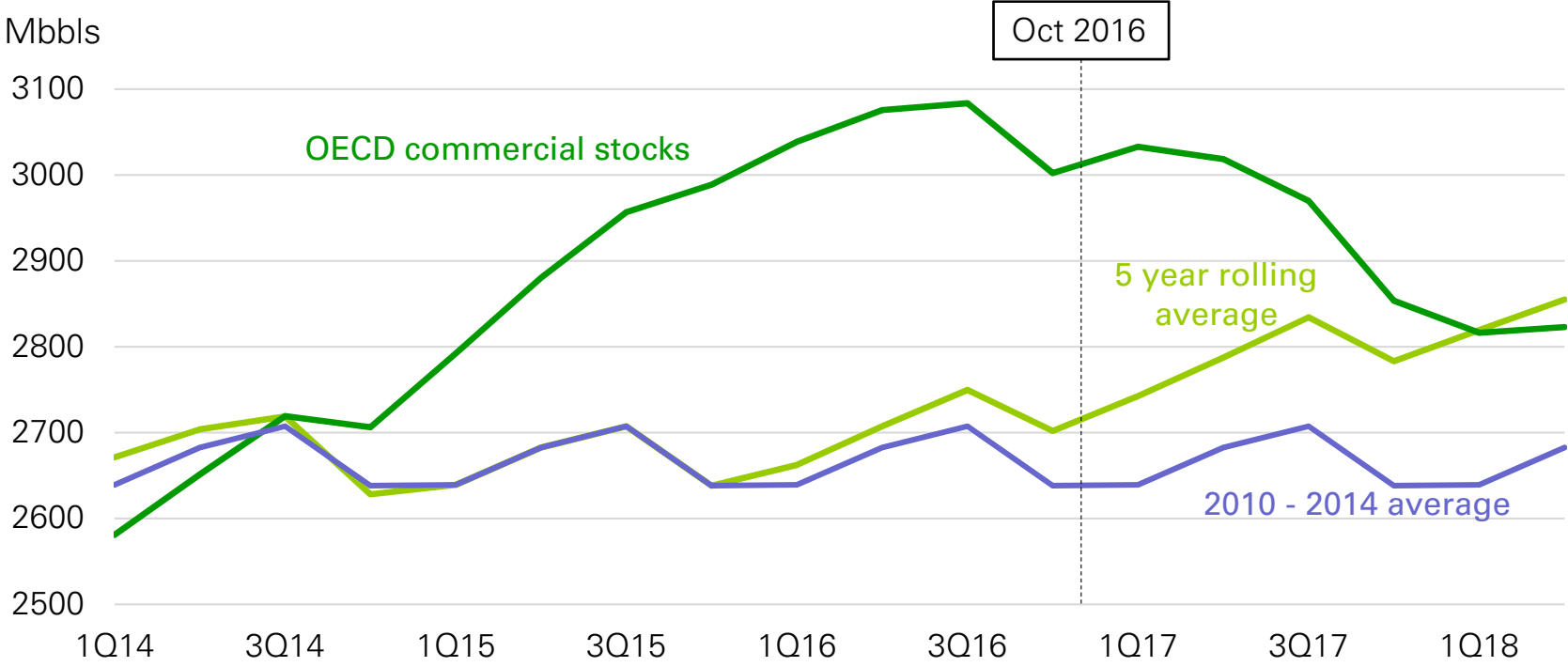
Change in supply relative to October 2016



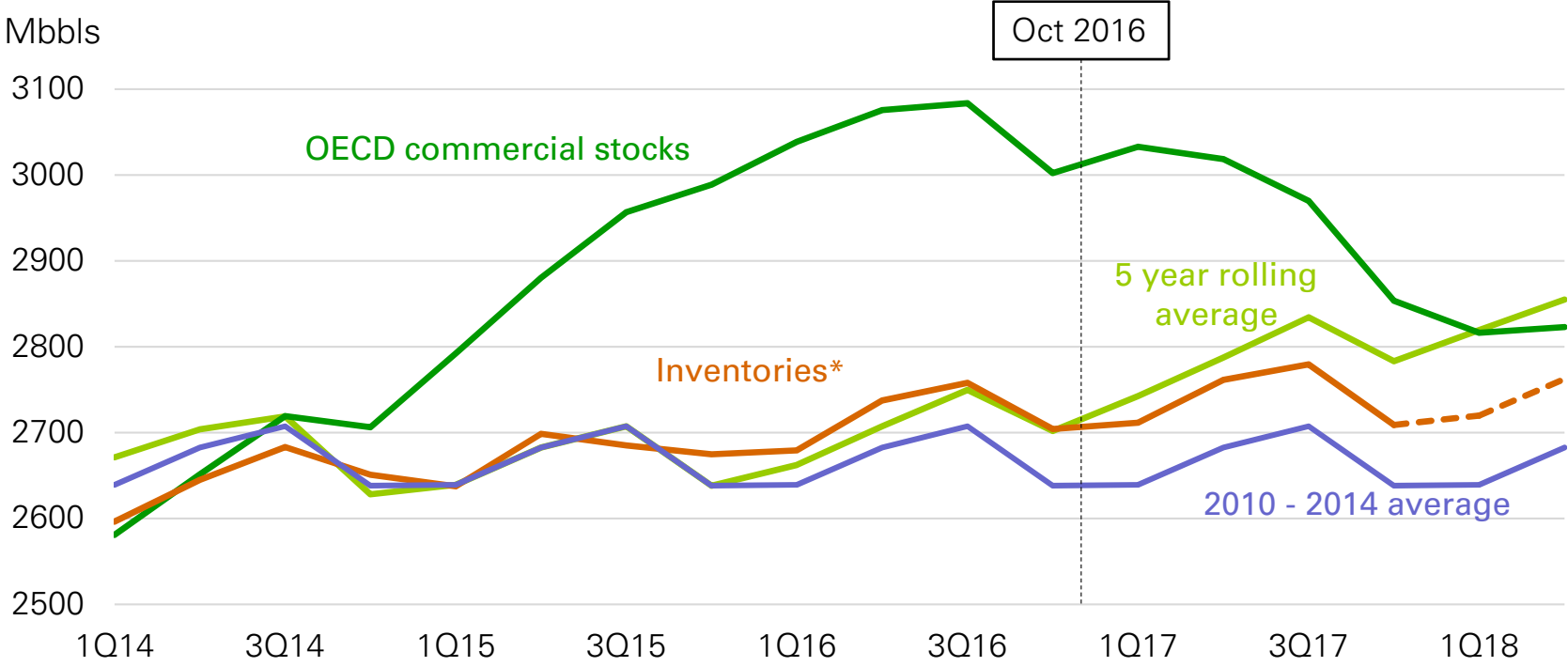
OECD oil inventories



OECD oil inventories



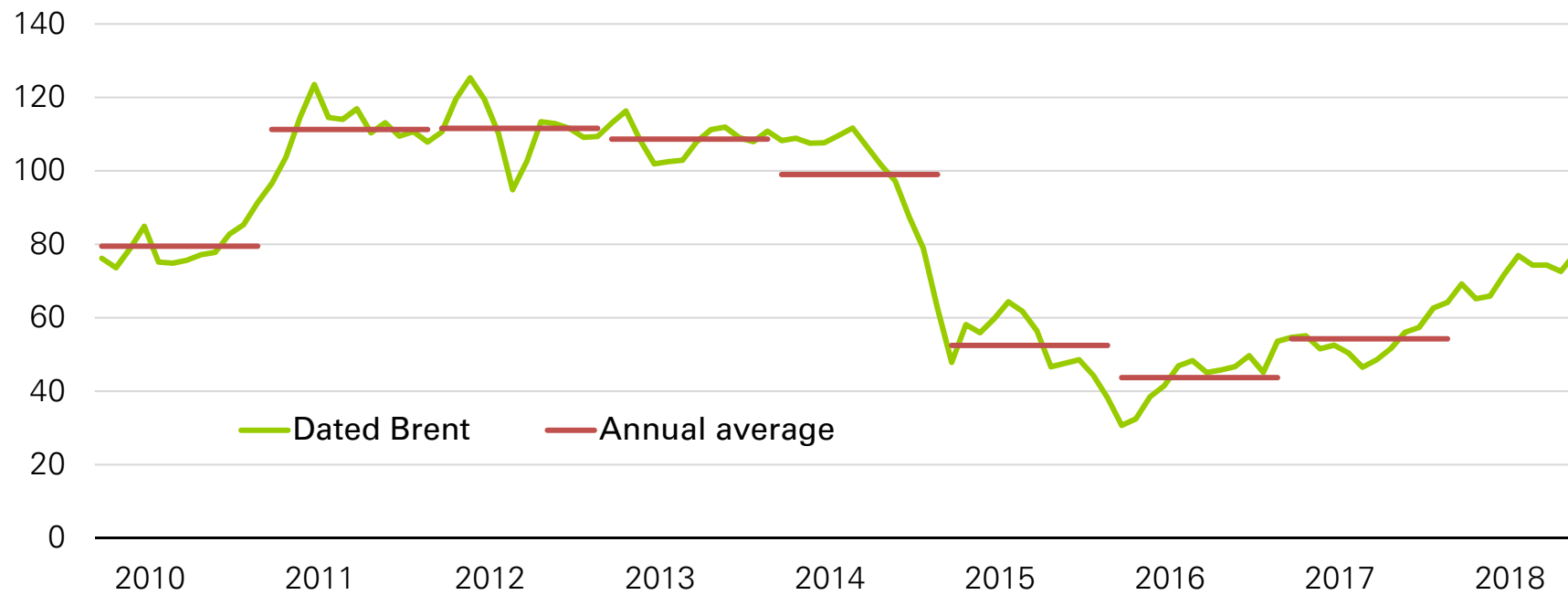
OECD oil inventories



Oil price



Dated Brent, \$/bbl





Natural Gas

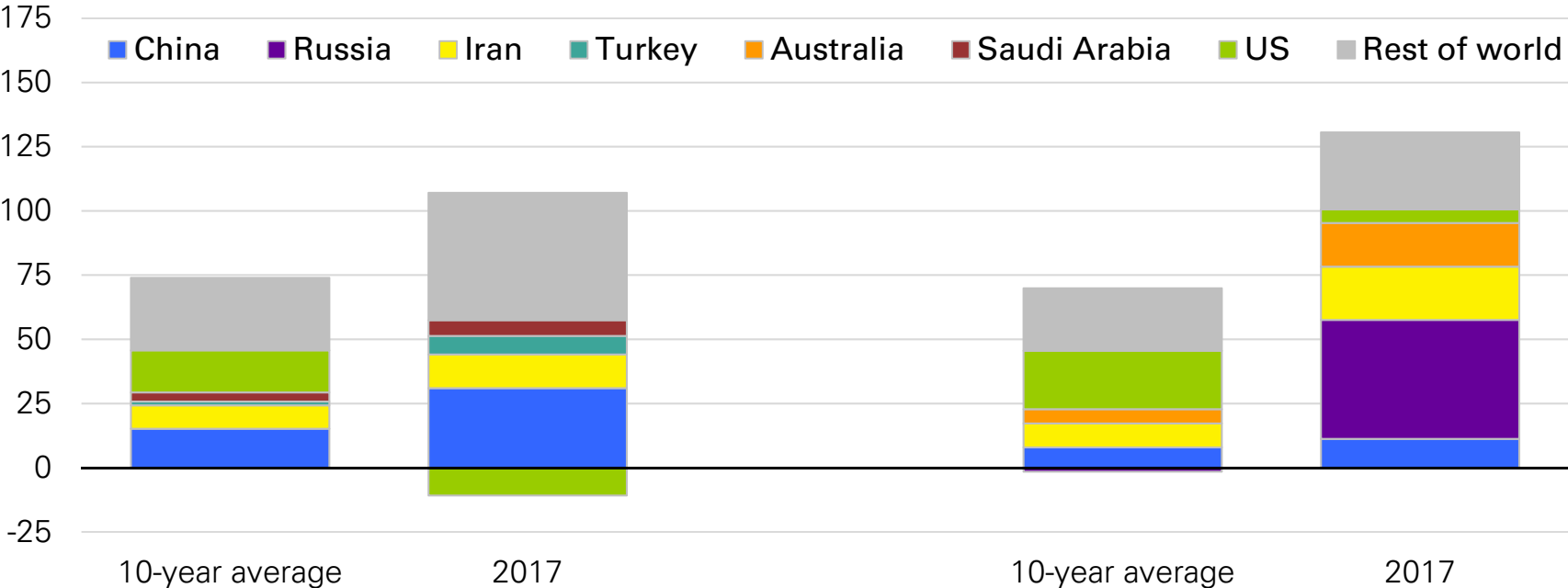
Natural gas consumption and production



Consumption

Production

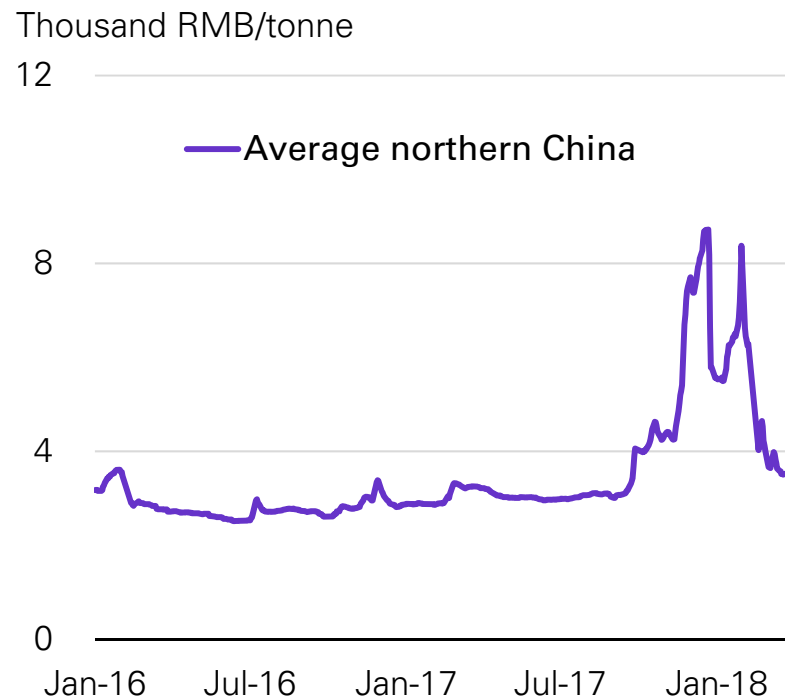
Annual change, bcm



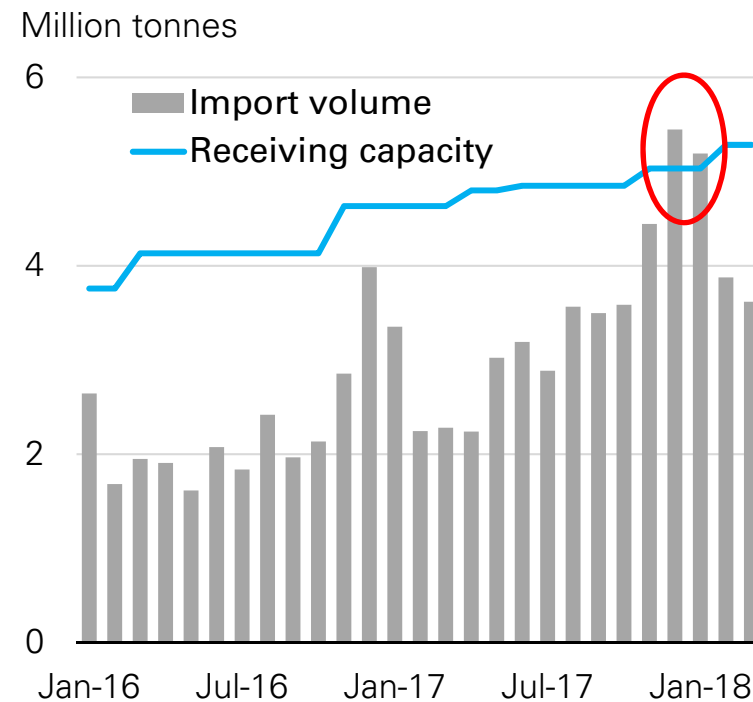
Impact of Chinese gas surge



China wholesale LNG prices



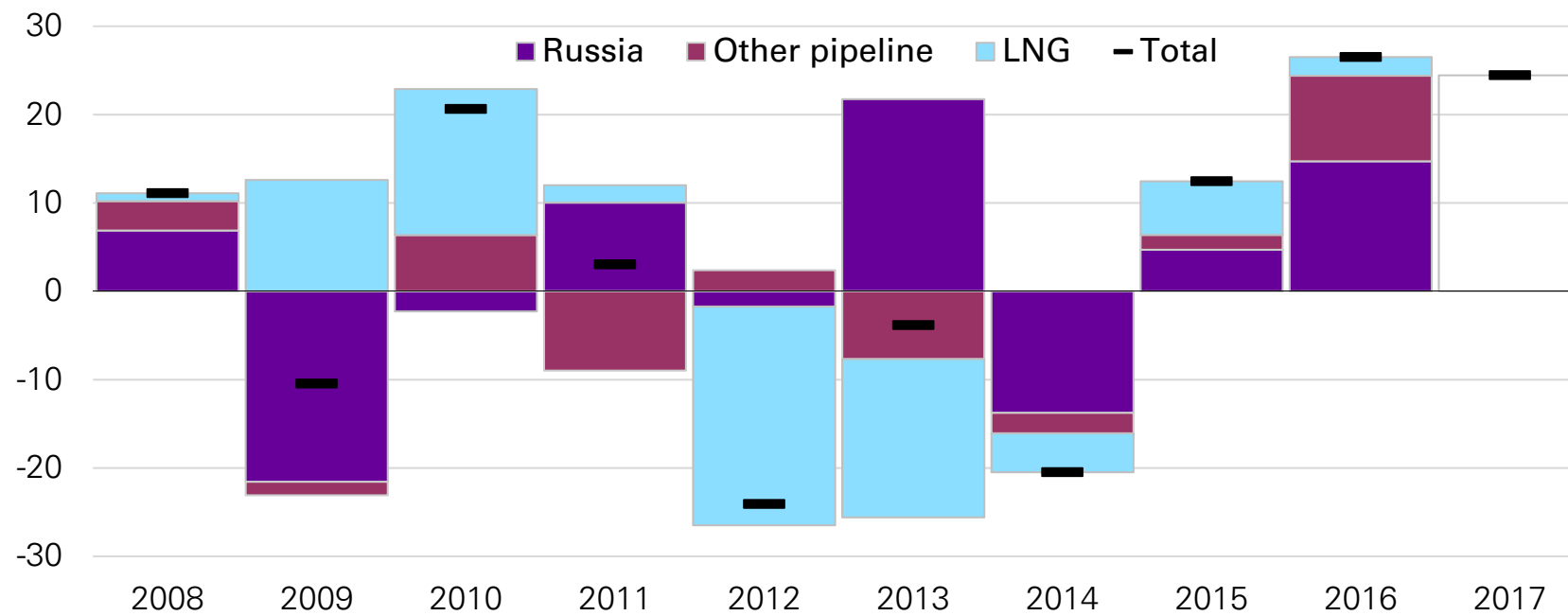
China LNG imports and receiving capacity



Europe's gas imports by source



Annual change*, bcm

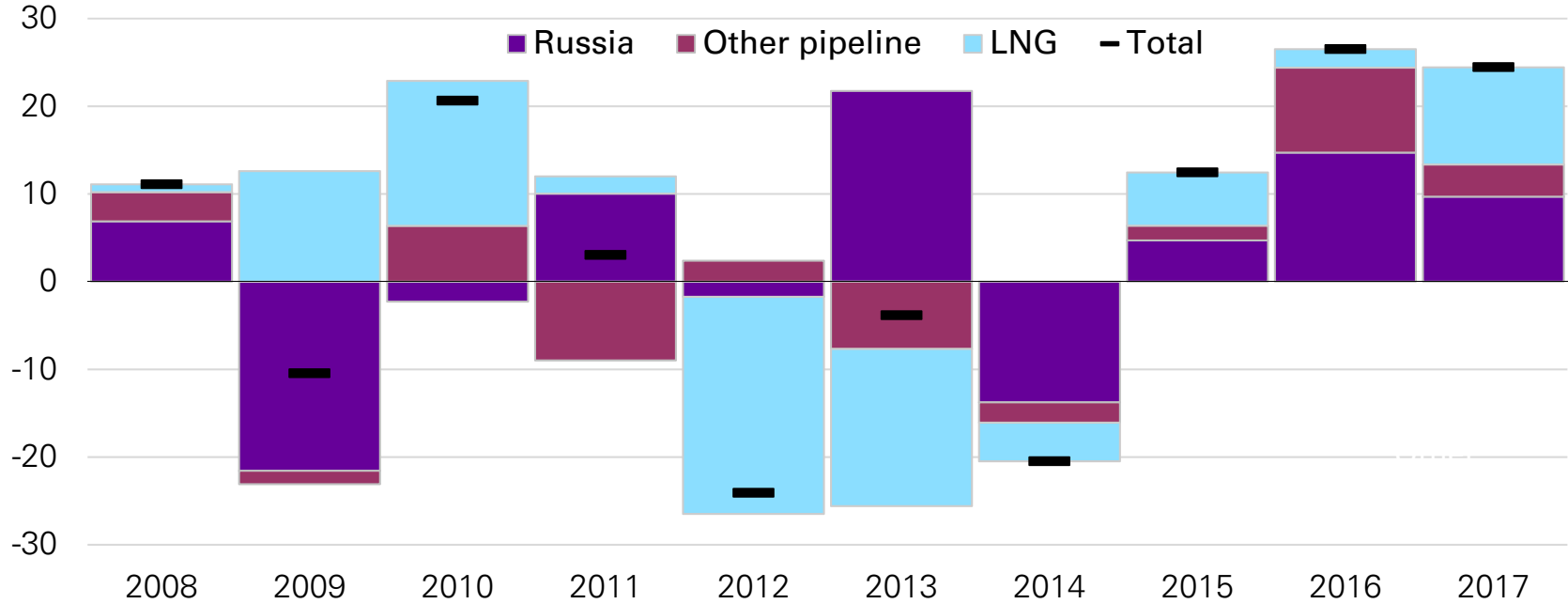


* Positive number indicates an increase in imports

Europe's gas imports by source



Annual change*, bcm



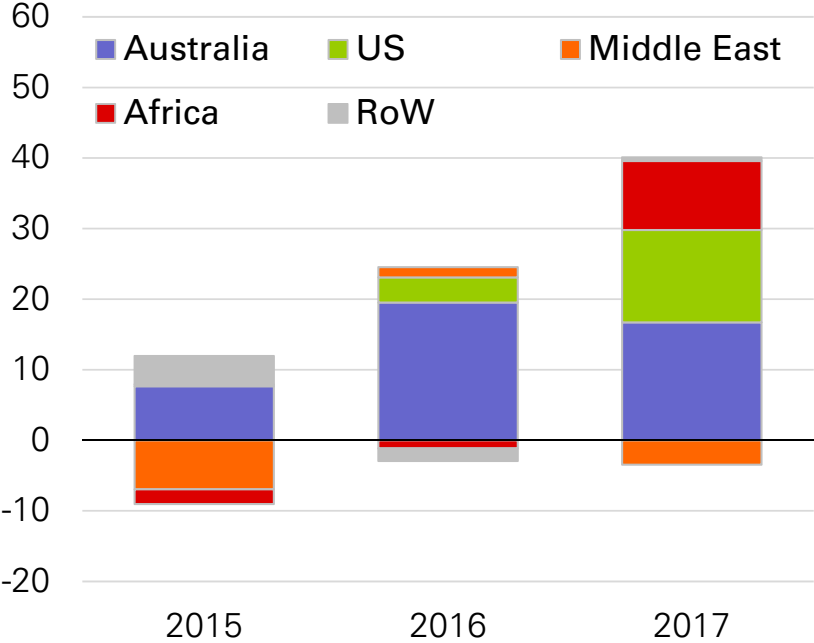
* Positive number indicates an increase in imports

LNG exports and imports



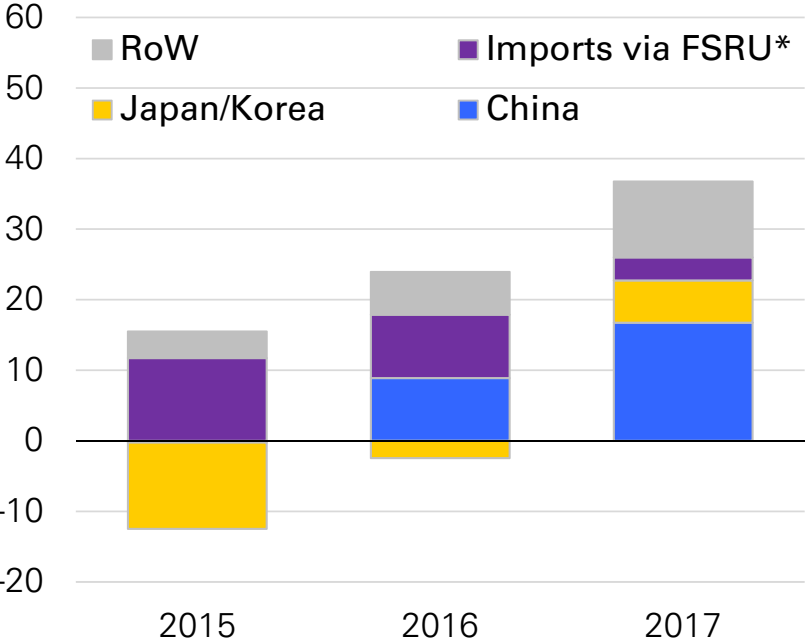
LNG exports

Annual change, bcm



LNG imports

Annual change, bcm

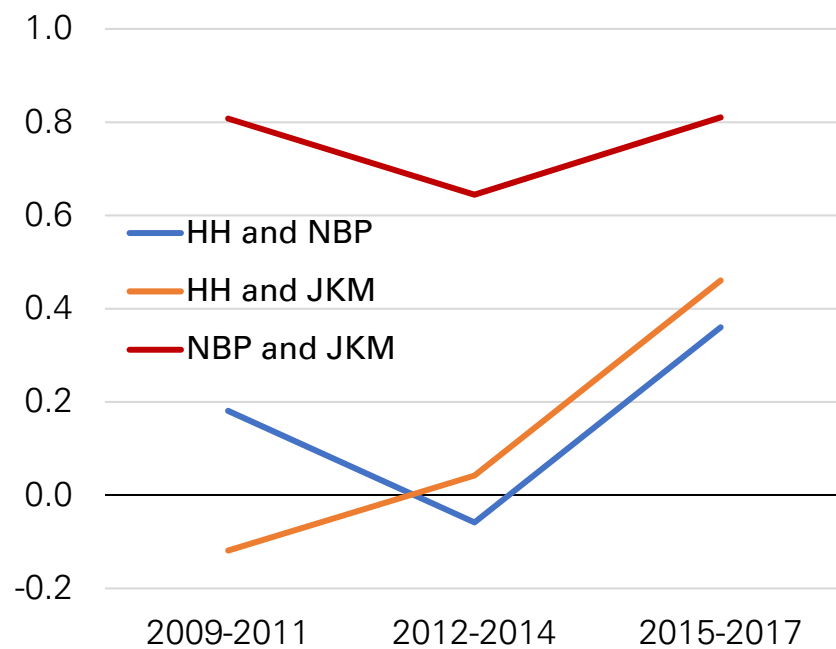


*Floating storage and regasification units
RoW: Rest of world



Gas price correlation and volatility

Gas price correlation

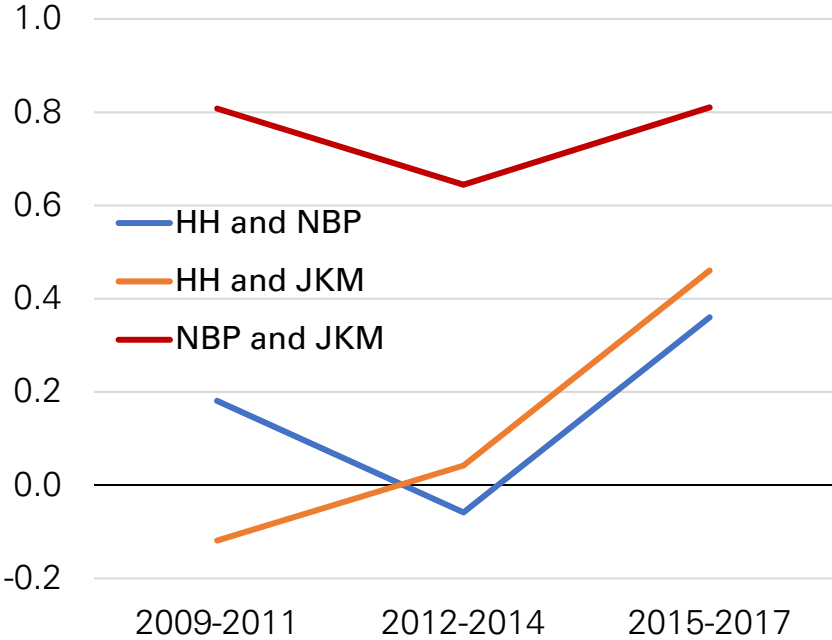


HH – Henry Hub, US; NBP – National Balancing Point, UK; JKM – Japan Korea Marker

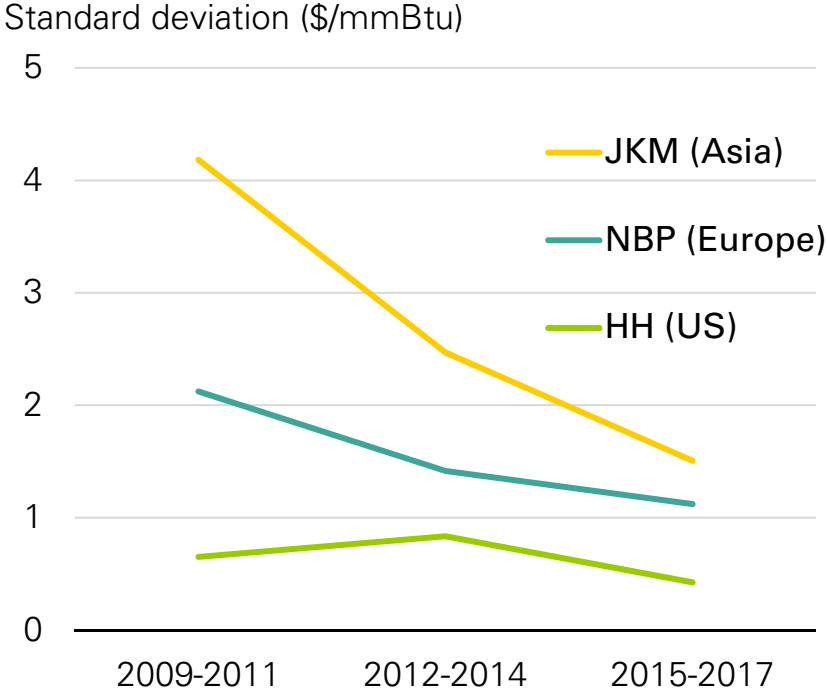
Gas price correlation and volatility



Gas price correlation



Gas price volatility



HH – Henry Hub, US; NBP – National Balancing Point, UK; JKM – Japan Korea Marker
24

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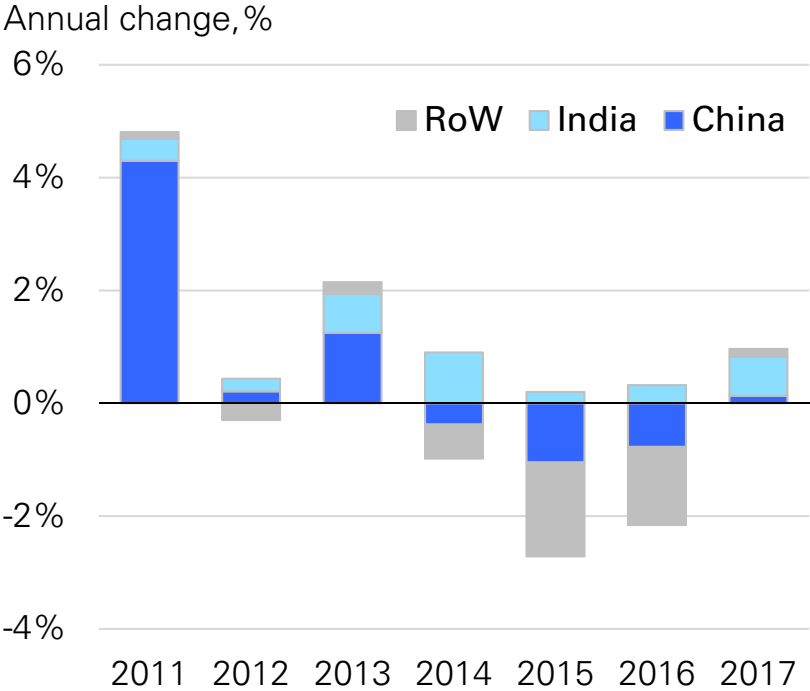


Coal

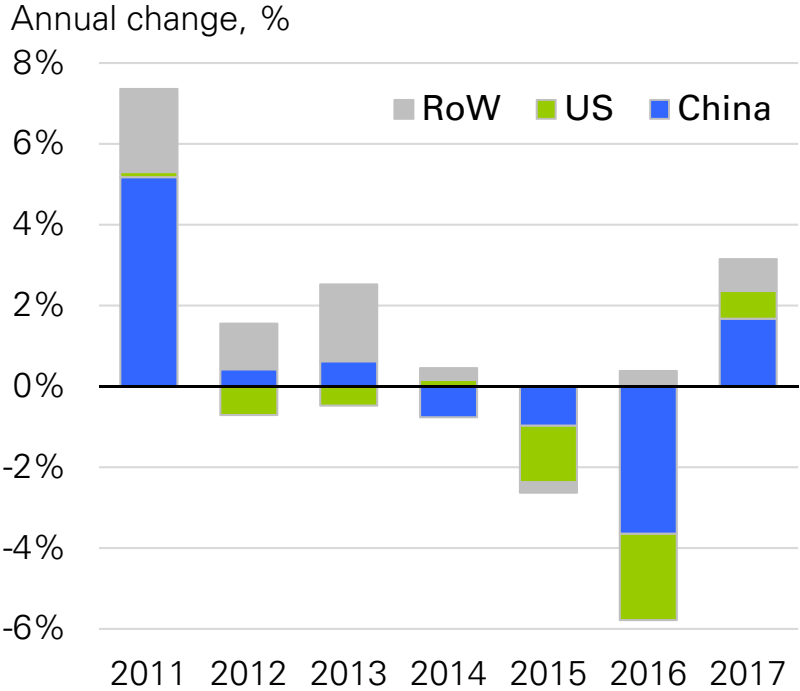
Global coal consumption and production



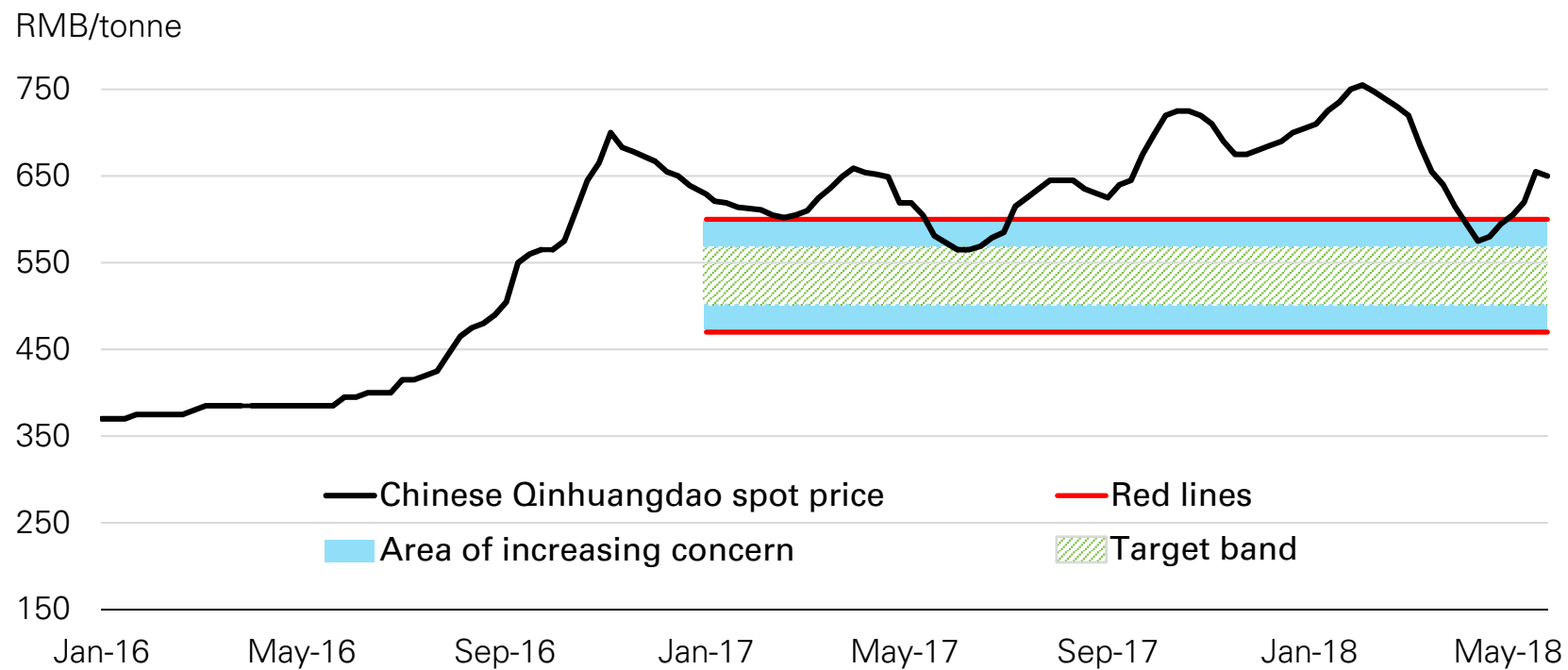
Consumption growth and regional contributions



Production growth and regional contributions



Chinese coal prices



Source: includes data from IHS Markit

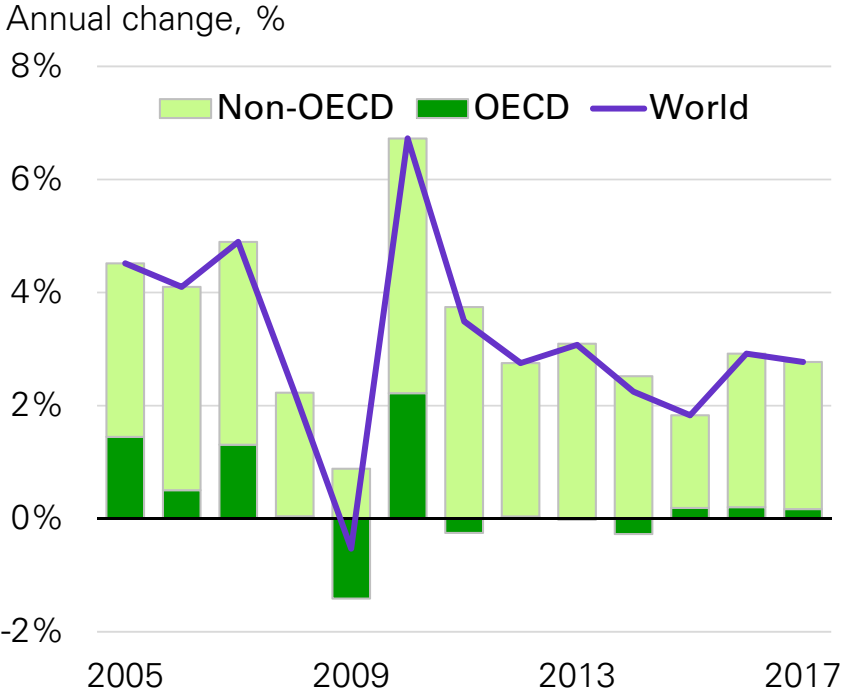


Power

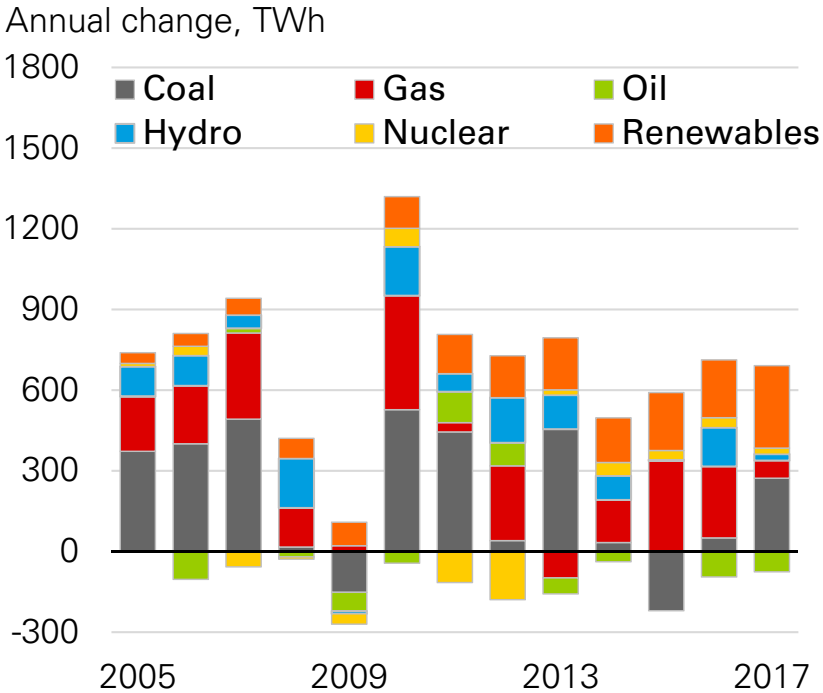
Growth in power generation



By region



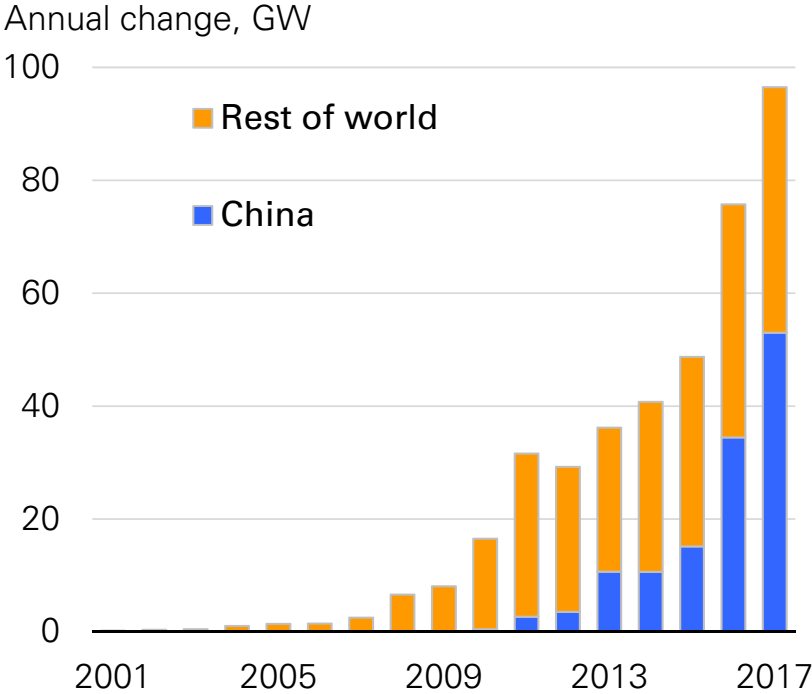
By fuel



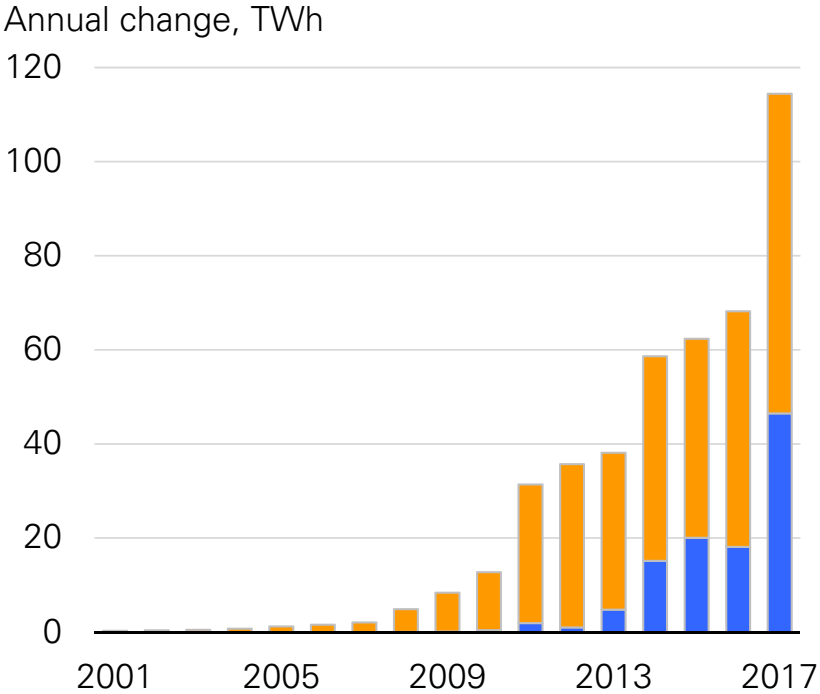
Growth in solar capacity and generation



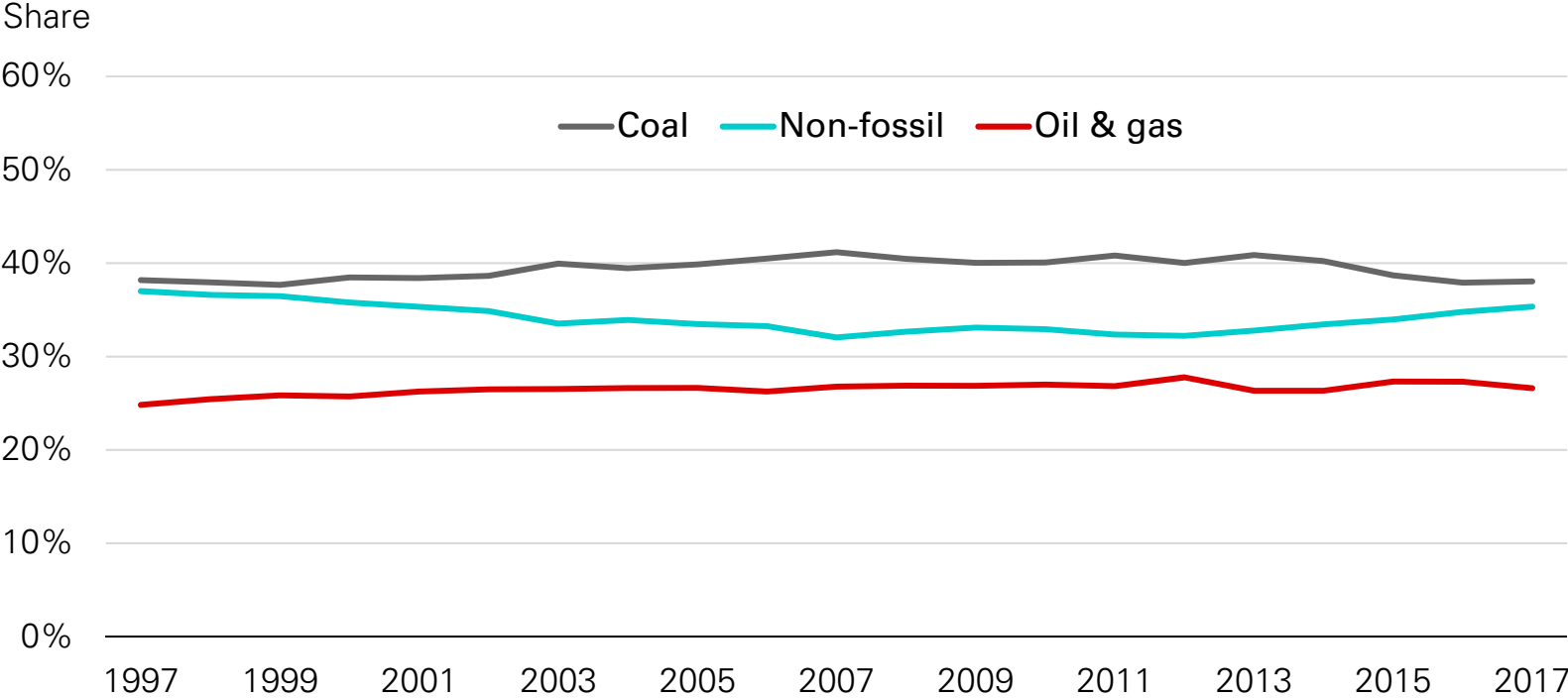
Capacity



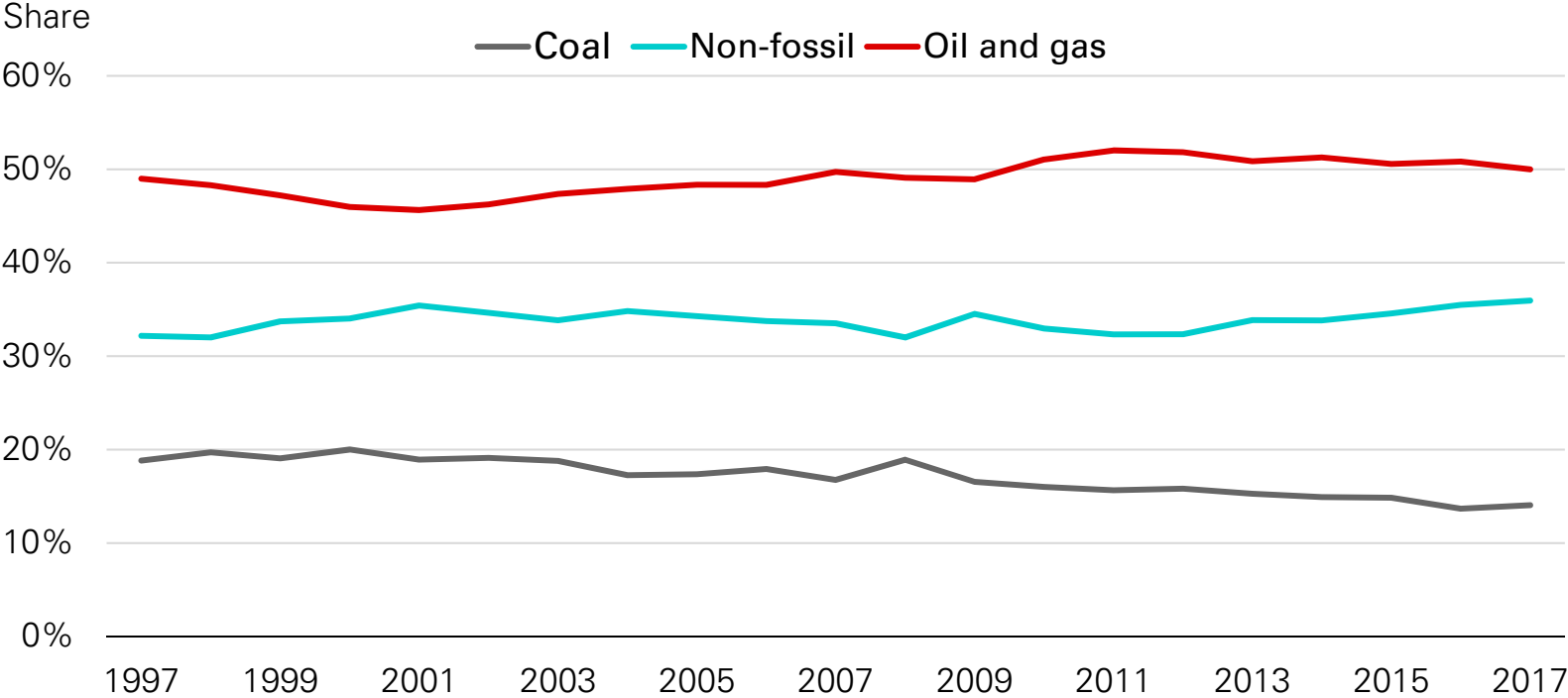
Generation



Fuel shares in power generation



Russia fuel shares in power generation



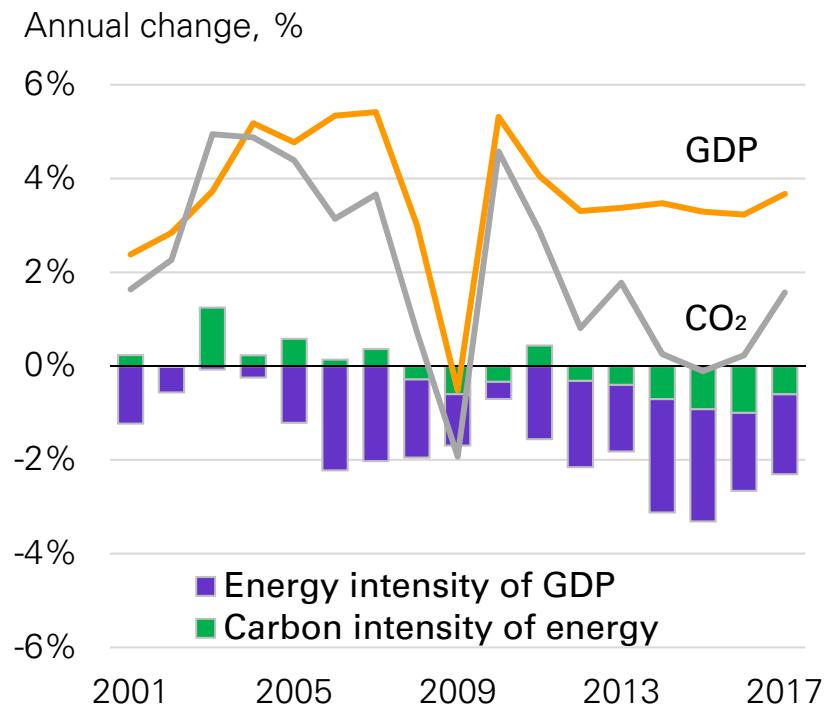


Carbon emissions



Growth in carbon emissions

GDP and carbon emissions

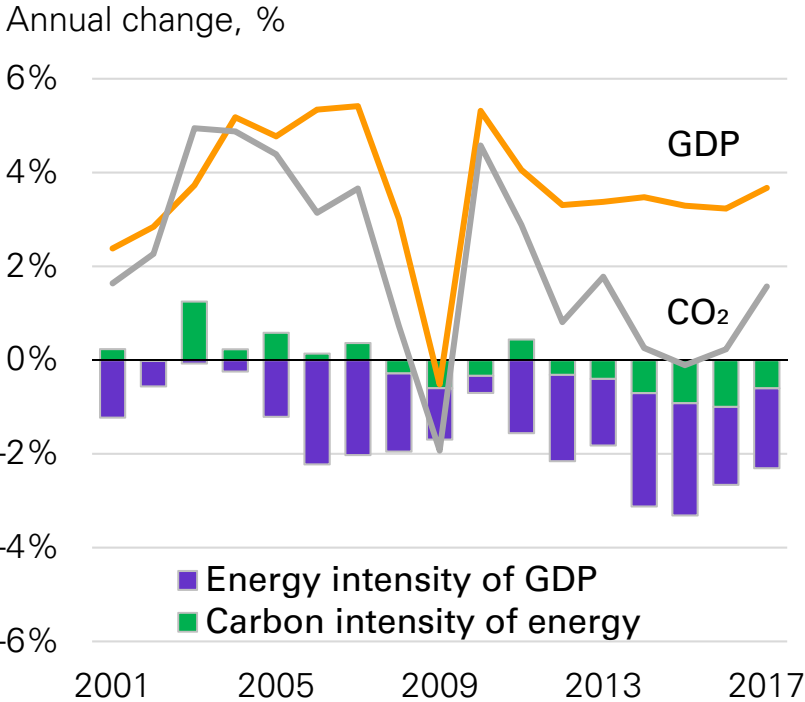


Note: change in the carbon intensity of GDP is the sum of "energy intensity of GDP" and "carbon intensity of energy"

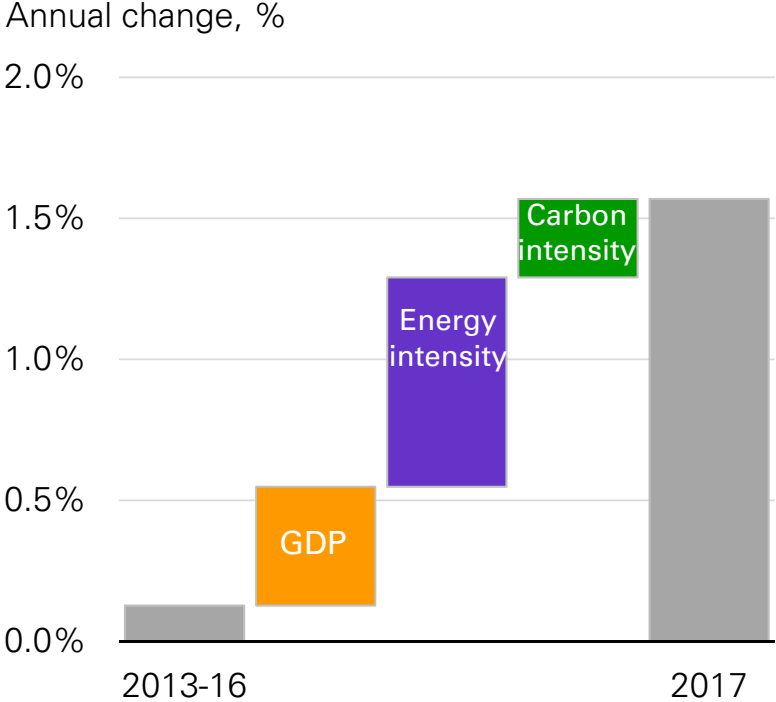
Growth in carbon emissions



GDP and carbon emissions



2017 vs 2013-16

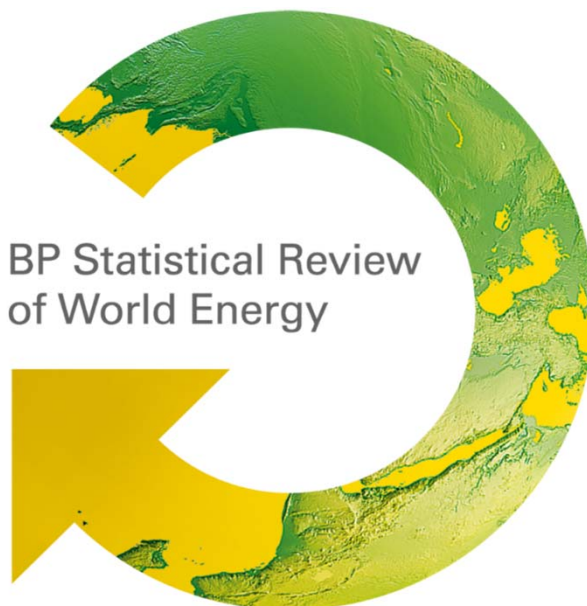


Note: change in the carbon intensity of GDP is the sum of "energy intensity of GDP" and "carbon intensity of energy"

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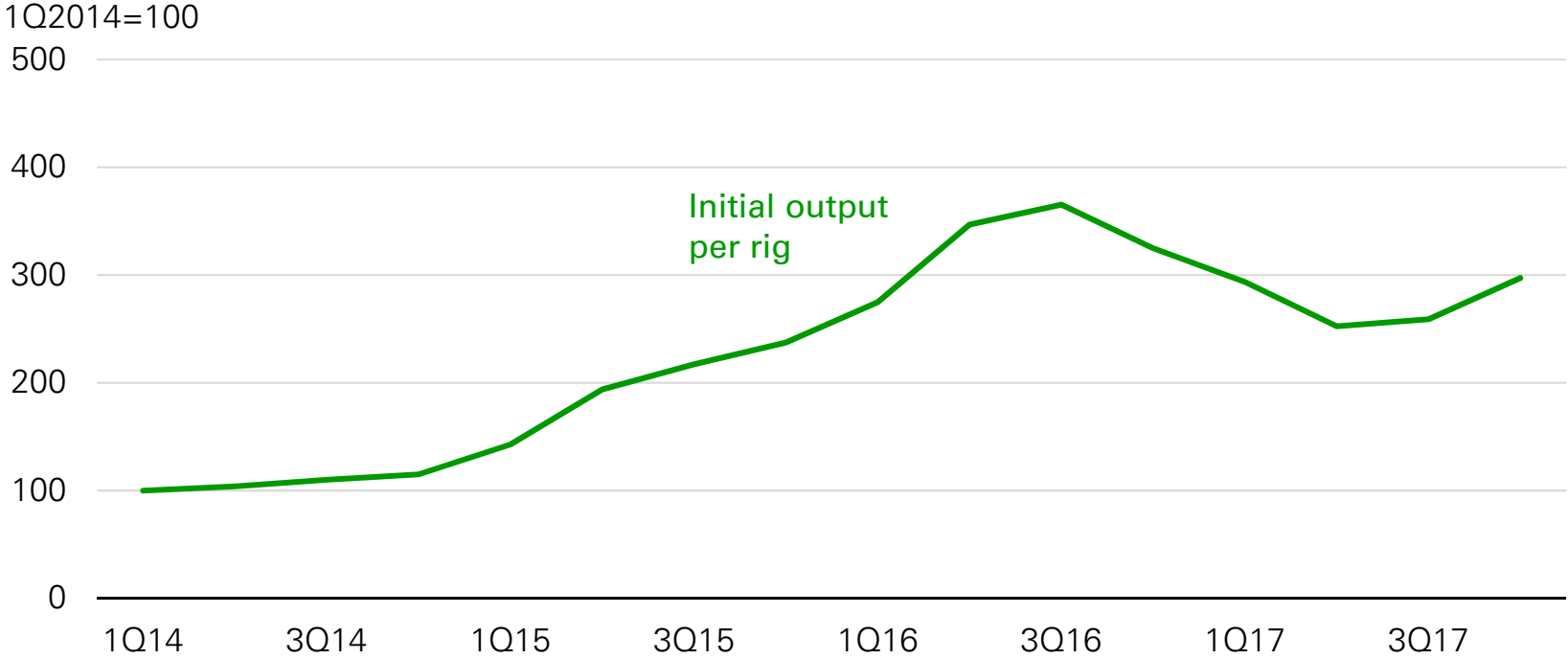


Energy in 2017: two steps forward, one step back Spencer Dale, group chief economist

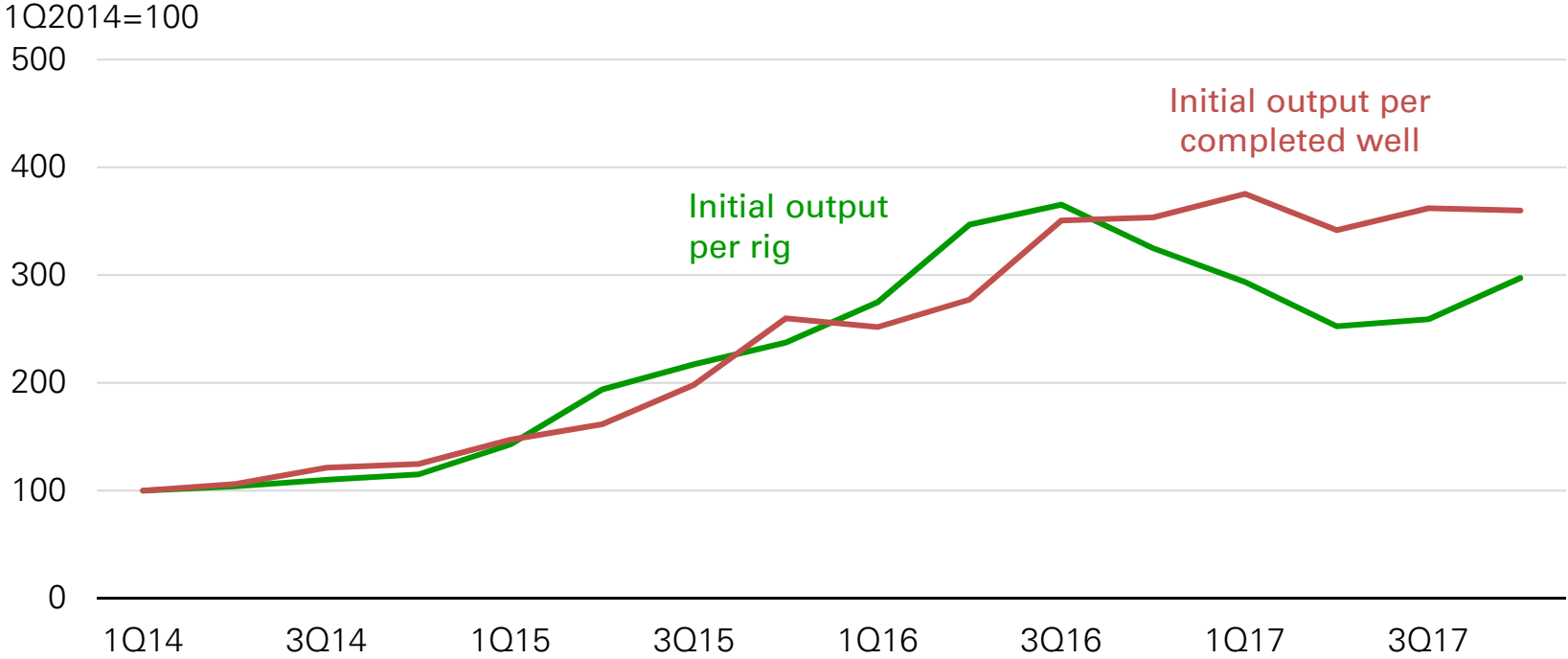


Additional slides

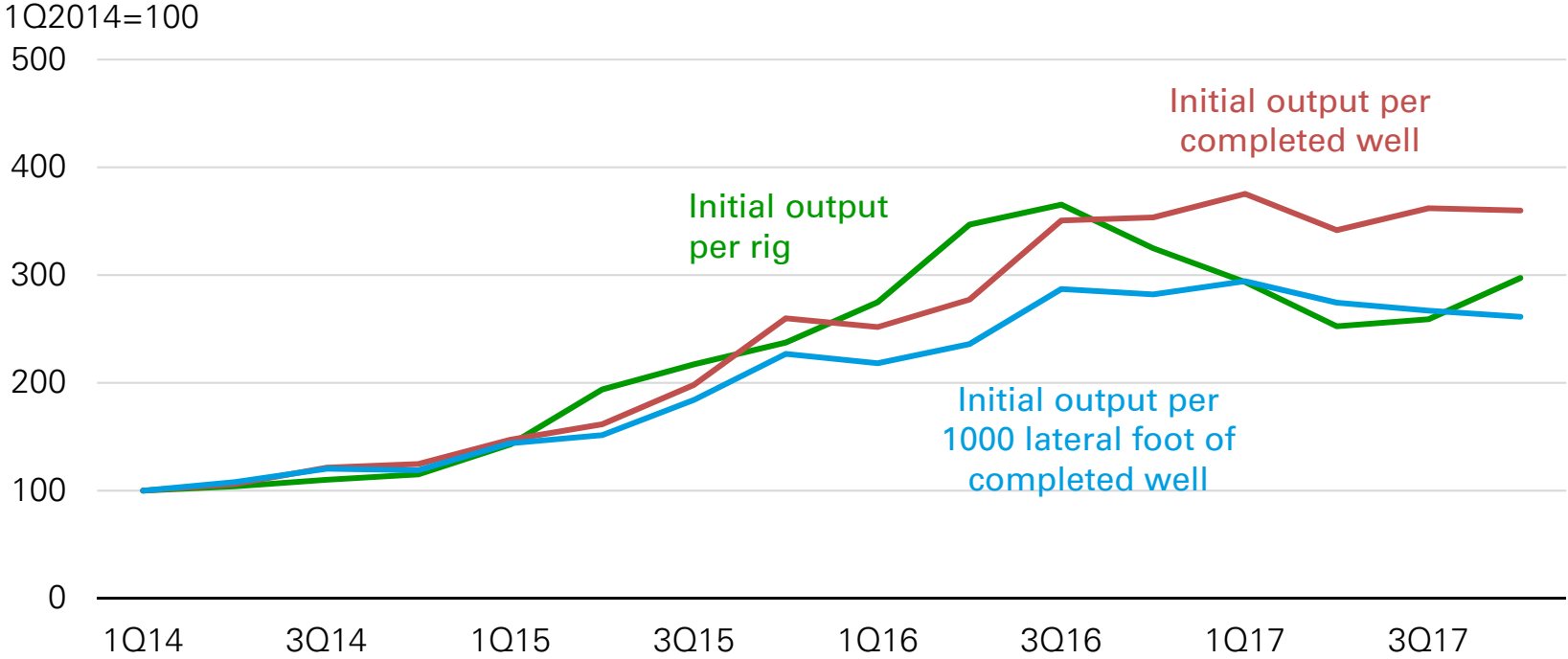
Permian productivity



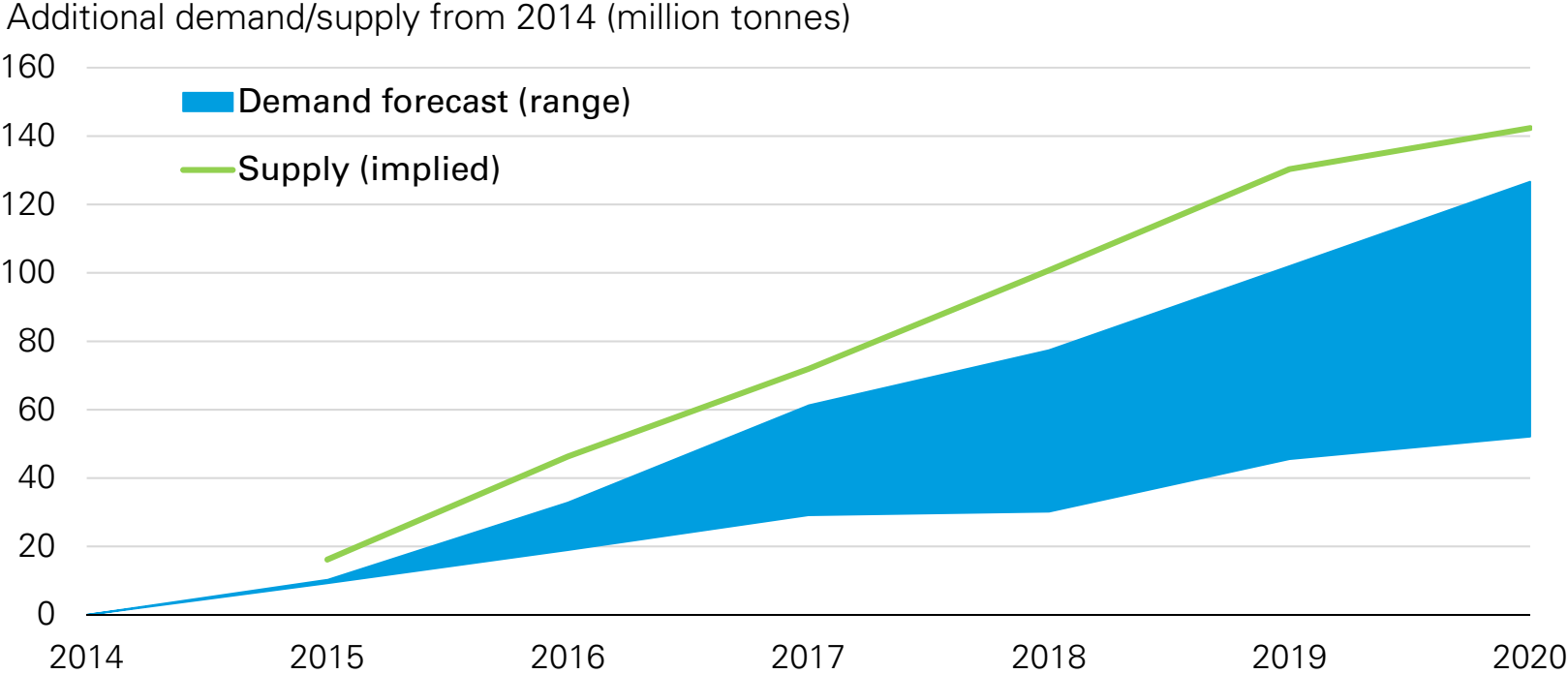
Permian productivity



Permian productivity

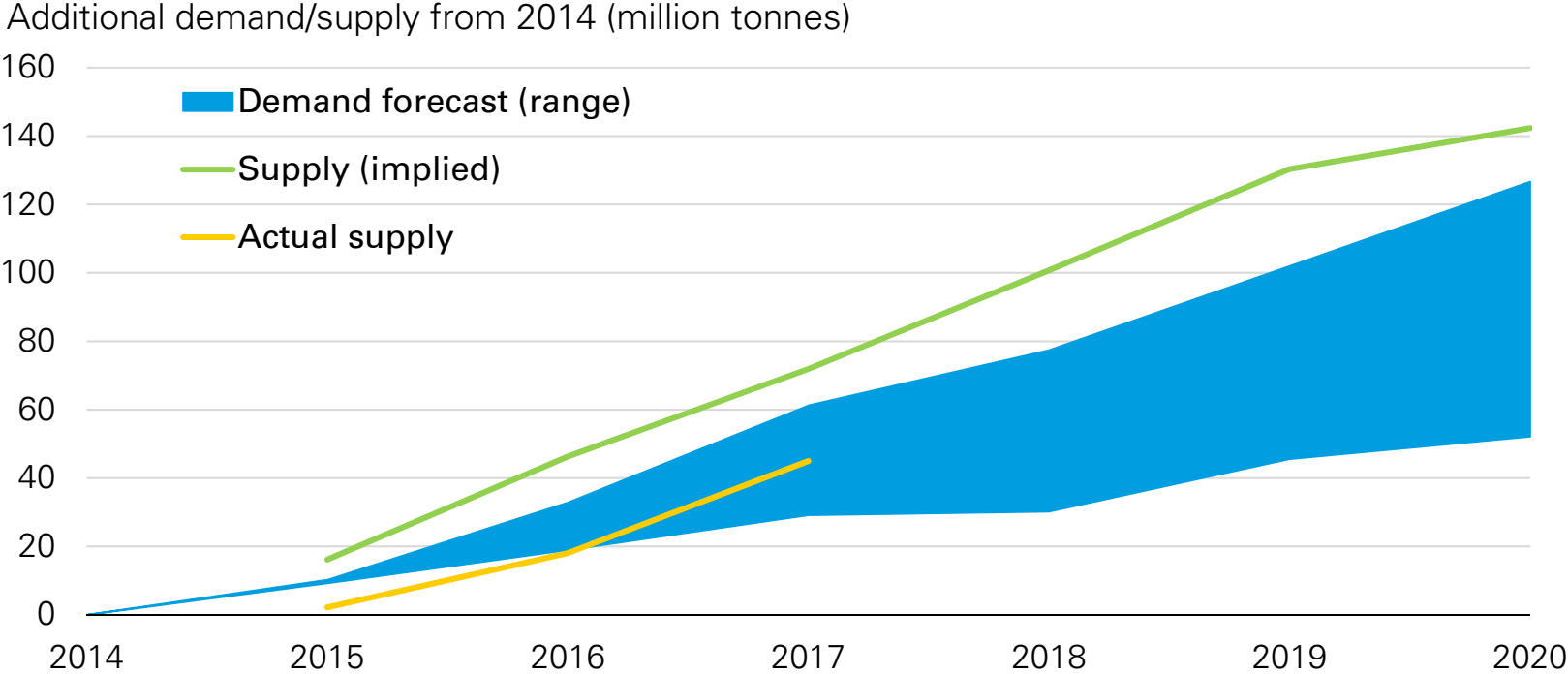


LNG glut?



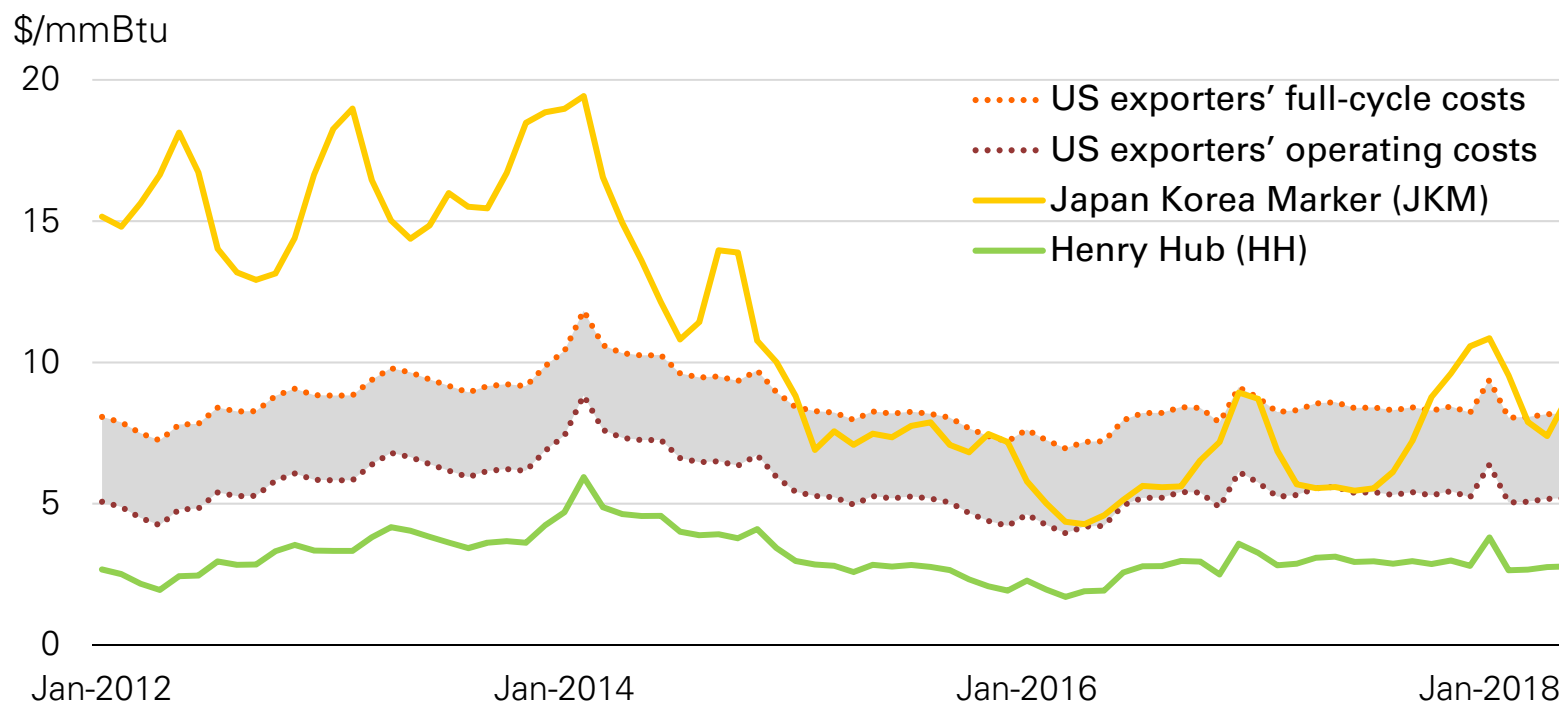
* Source: PIRA, IHS, WoodMackenzie, BP

LNG glut?



* Source: PIRA, IHS, WoodMackenzie, BP

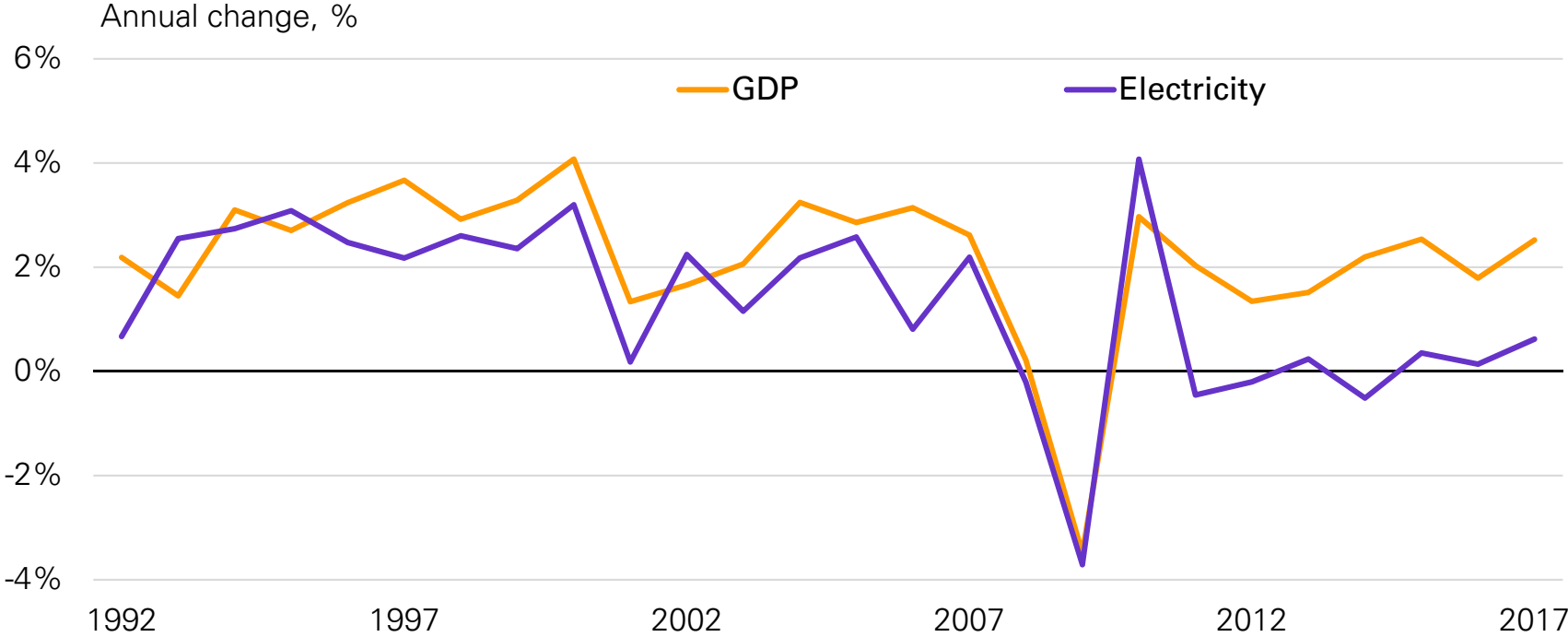
US LNG exporters' costs and Asian spot prices



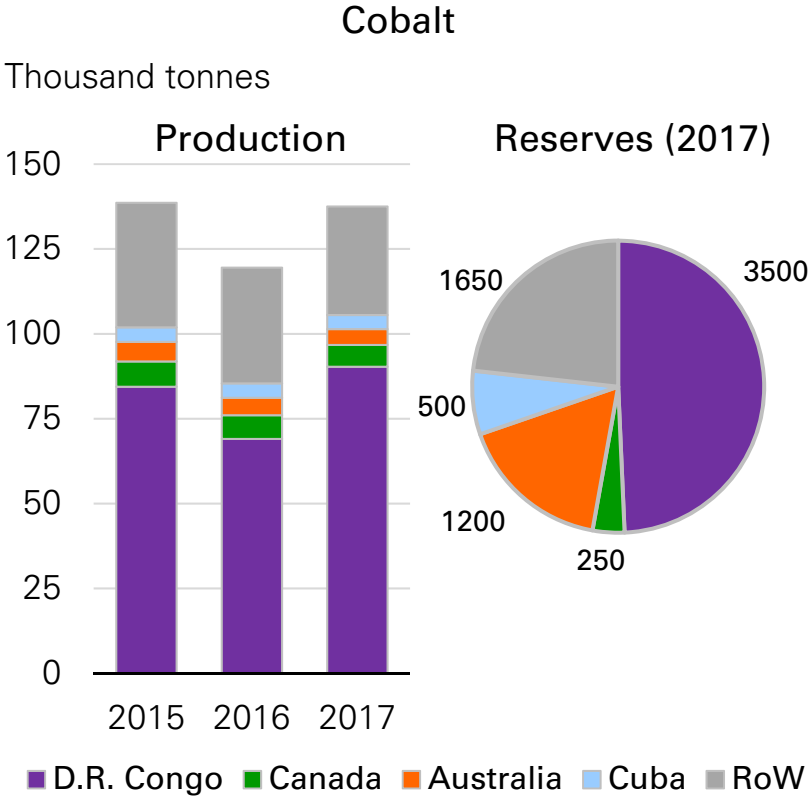
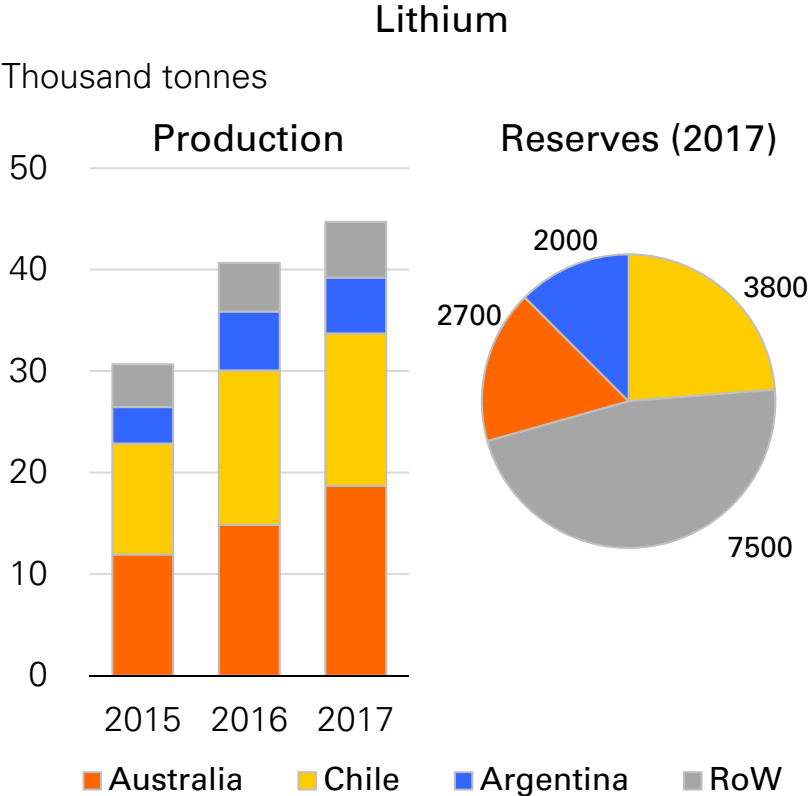
* Operating costs = 115* Henry Hub + \$2/mmBtu (transport) ; Full costs also include liquefaction fee (\$3/mmBtu)

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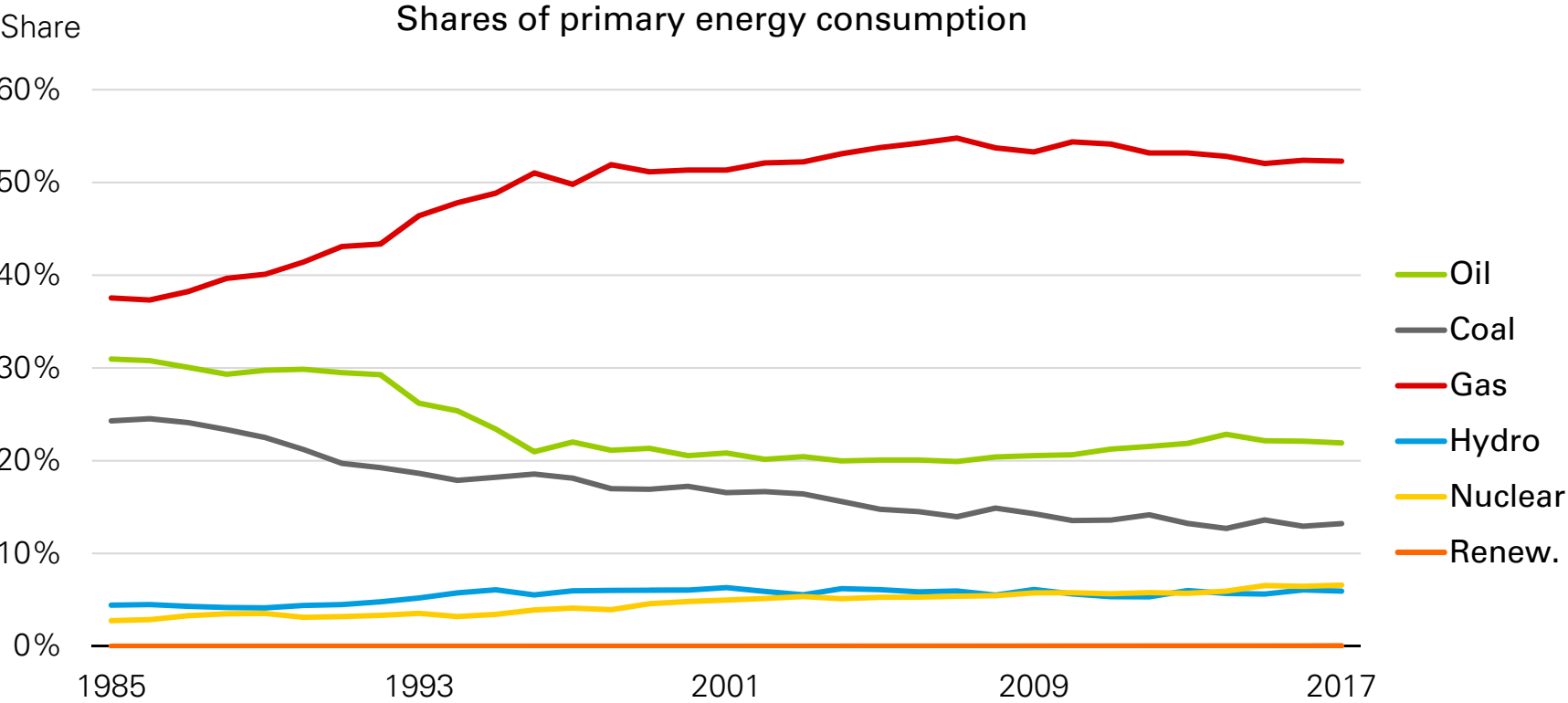
OECD GDP and electricity consumption



Lithium and cobalt: production and reserves

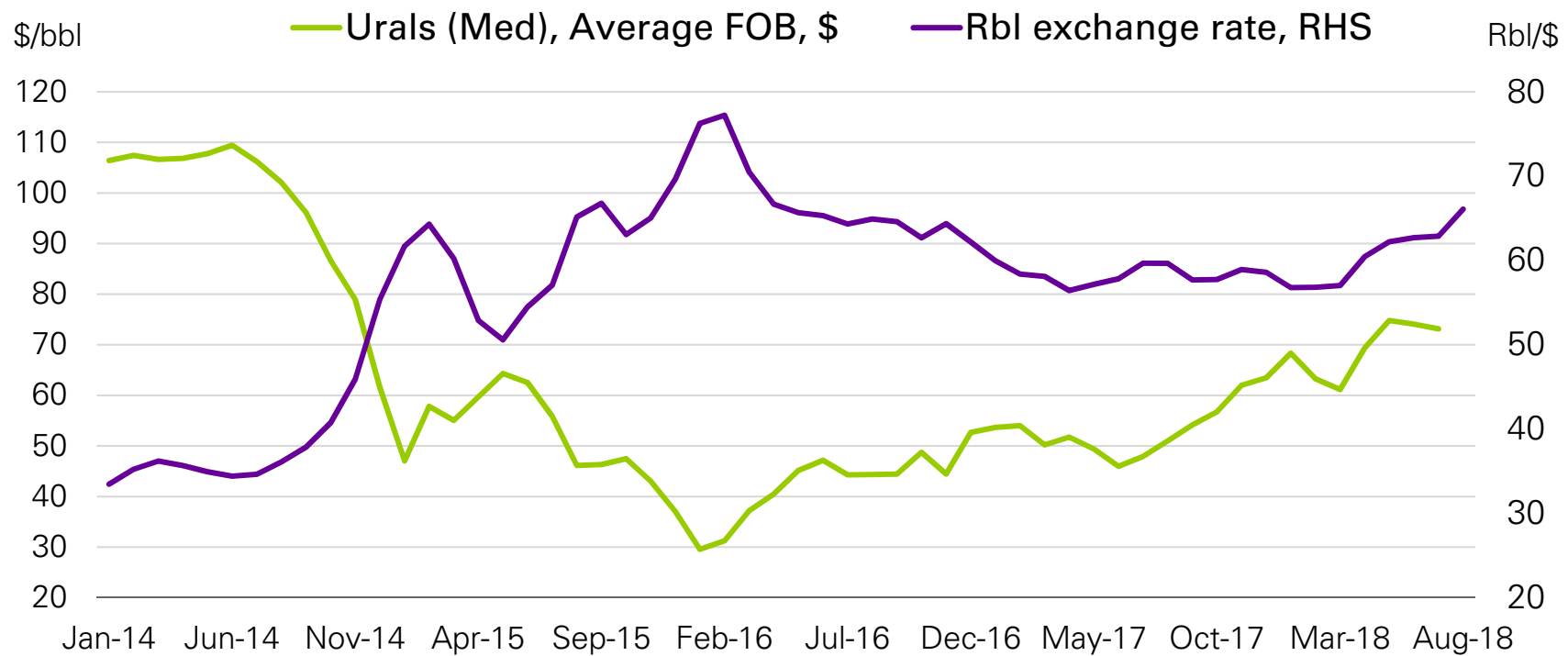


Primary energy fuel mix in Russia



Note: Oil includes biofuels

Urals Med Average FOB



Source: CDU of MoE, CBR

Production cuts versus tight oil increases



Change in supply relative to October 2016

