ASIA PACIFIC ENERGY RESEARCH CENTRE
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Global and China Gas Market Update

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Disclaimer

This presentation contains forward-looking statements, particularly those regarding changes to the fuel mix, global economic growth, population and productivity growth, energy consumption, energy efficiency, mobility developments, policy support for renewable energies, sources of energy supply and growth of carbon emissions. Forward-looking statements involve risks and uncertainties because they relate to events, and depend on circumstances, that will or may occur in the future. Actual outcomes may differ depending on a variety of factors, including product supply, demand and pricing; political stability; general economic conditions; demographic changes; legal and regulatory developments; availability of new technologies; natural disasters and adverse weather conditions; wars and acts of terrorism or sabotage; and other factors discussed elsewhere in this presentation. BP disclaims any obligation to update this presentation. Neither BP p.l.c. nor any of its subsidiaries (nor their respective officers, employees and agents) accept liability for any inaccuracies or omissions or for any direct, indirect, special, consequential or other losses or damages of whatsoever kind in connection to this presentation or any information contained in it.

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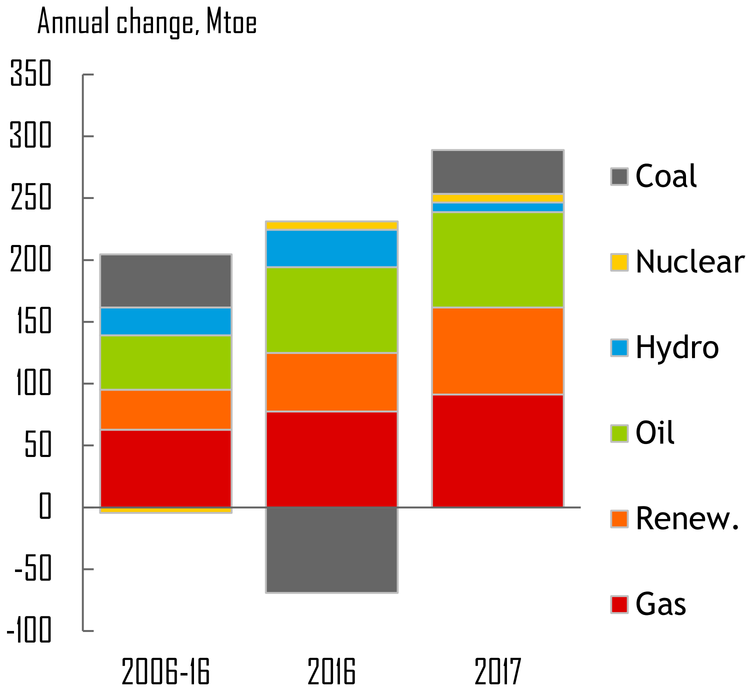
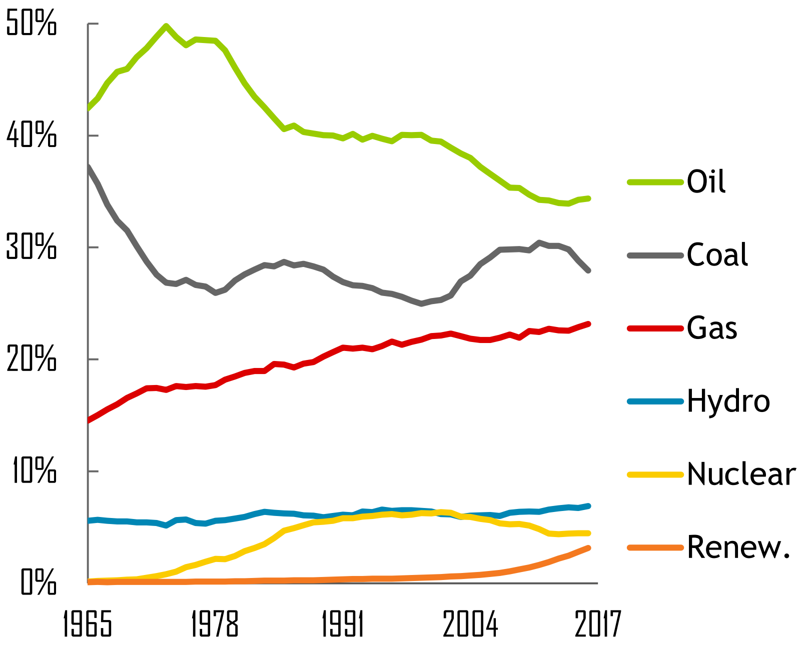
1.1 Global energy demand growth was supported by gas and renewables

Consumption growth by fuel

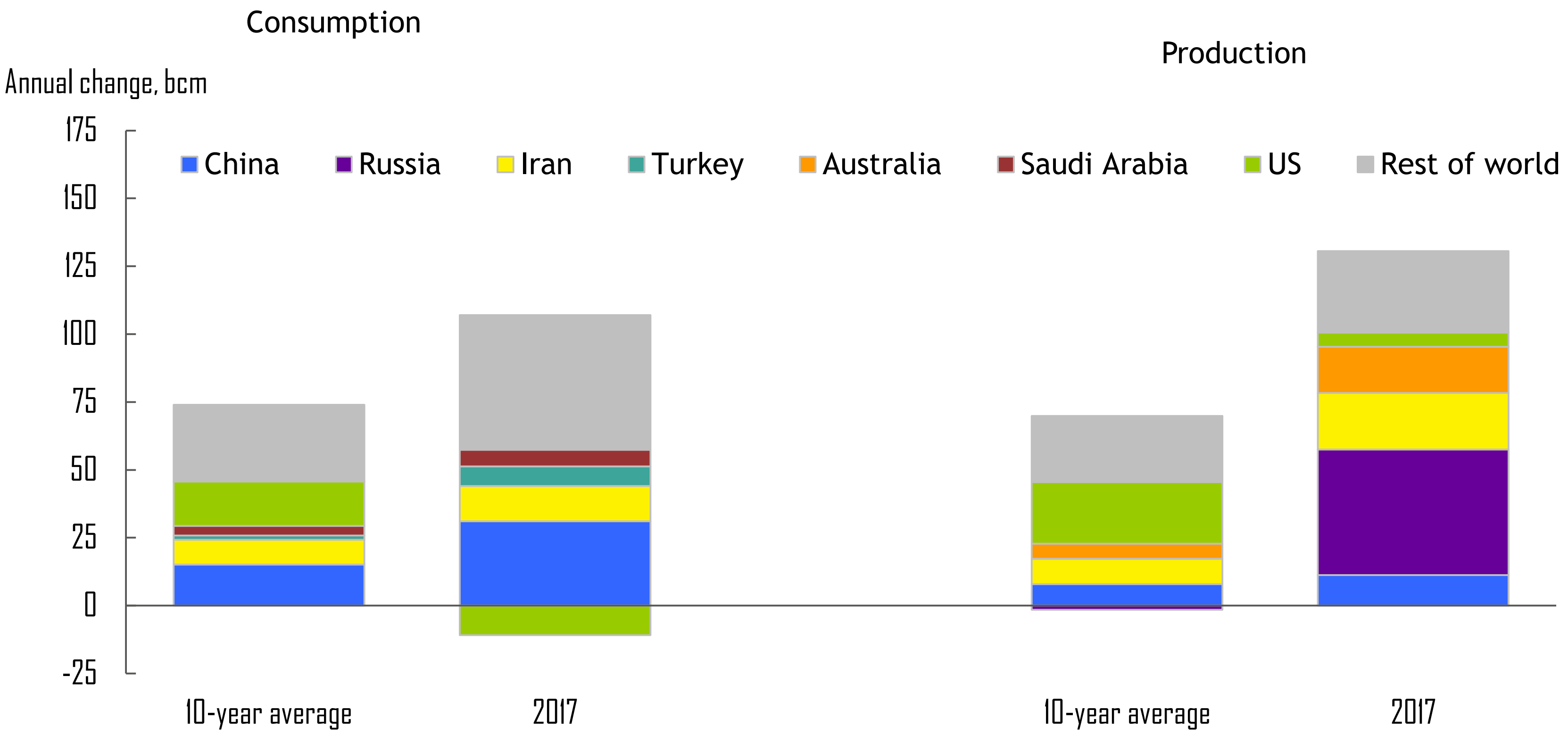


Shares of primary energy consumption



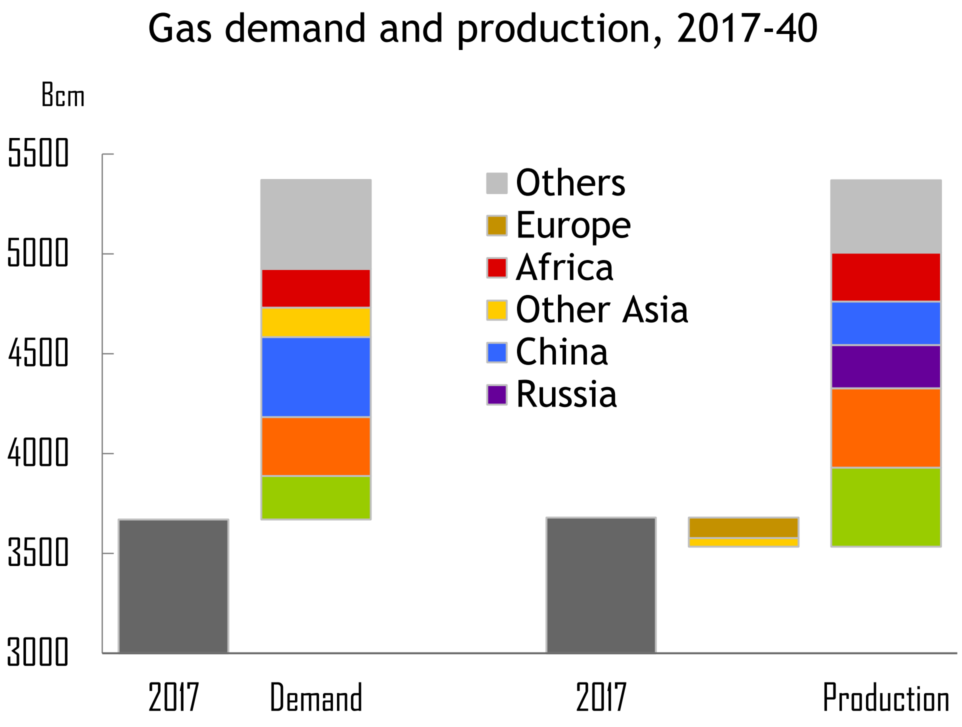
Source: BP Statistical Review, 2018; Note: Oil includes biofuels

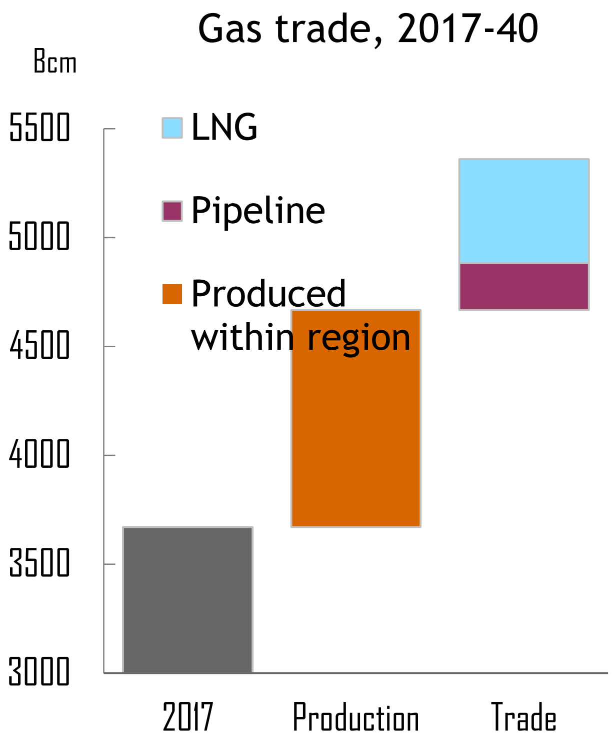
1.2 Looking back 2017, global gas demand grew by 96 bcm



Source: BP Statistical Review 2018

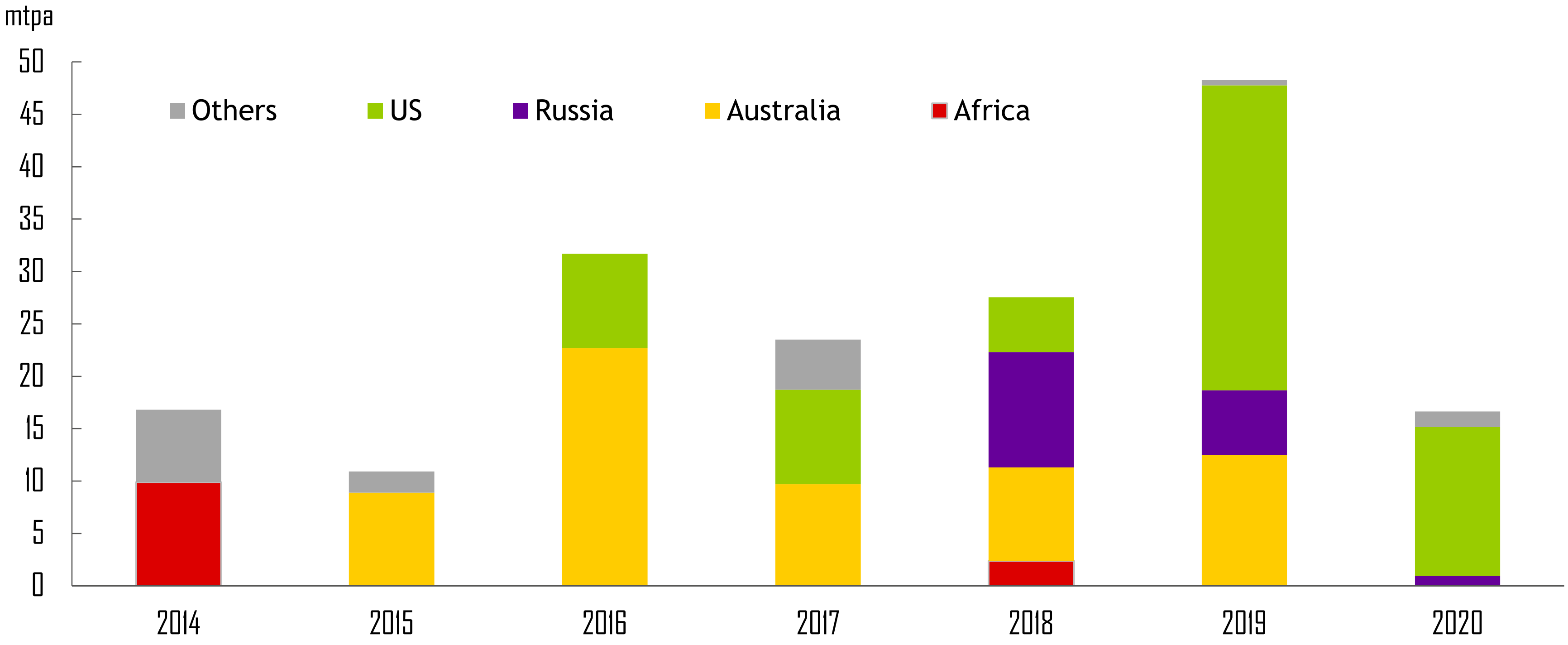
1.3 Gas grows strongly, with broad-based demand, low cost supplies and increasing global availability





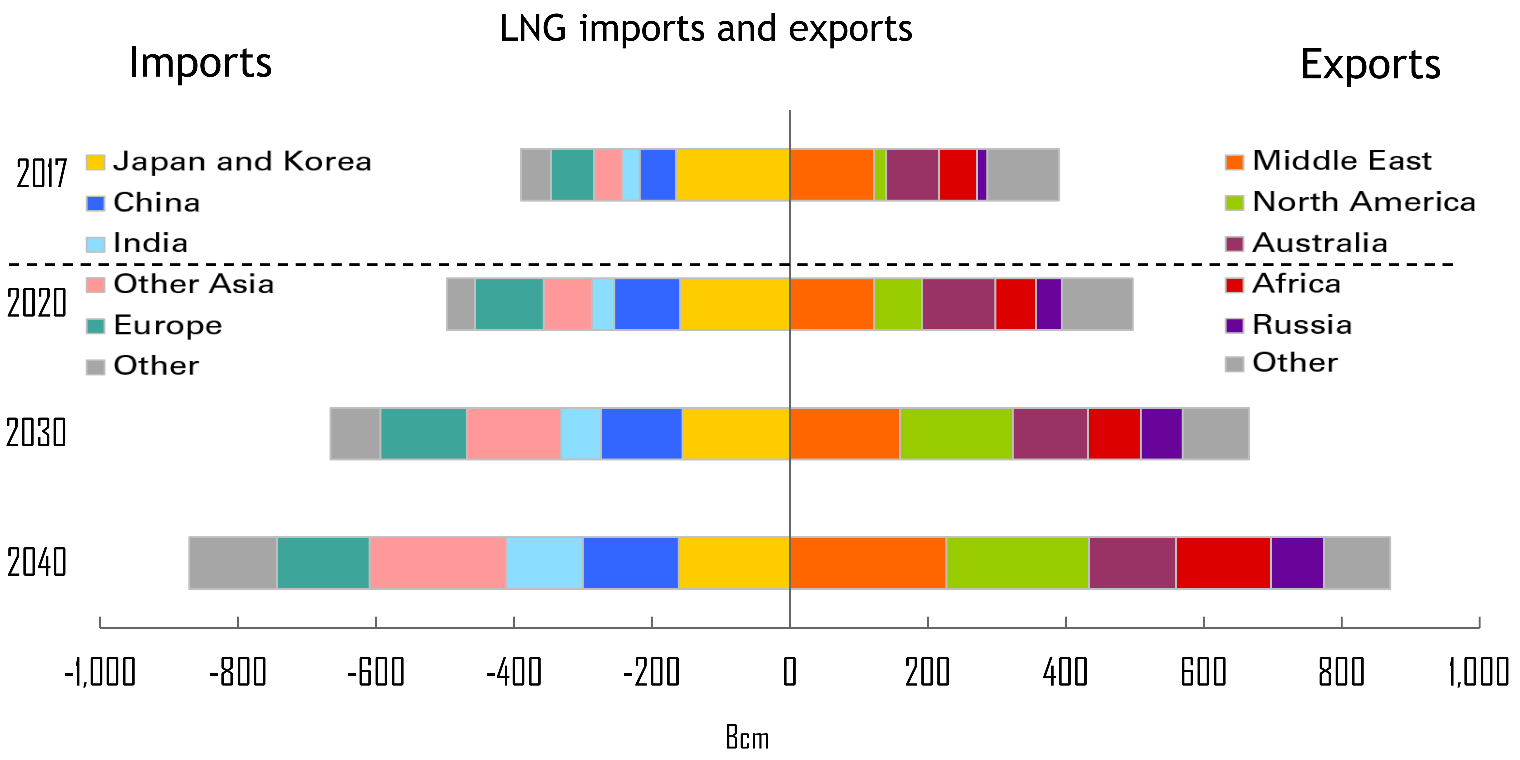
Source: BP Energy Outlook 2019

1.4 A lot of new LNG export capacity starting



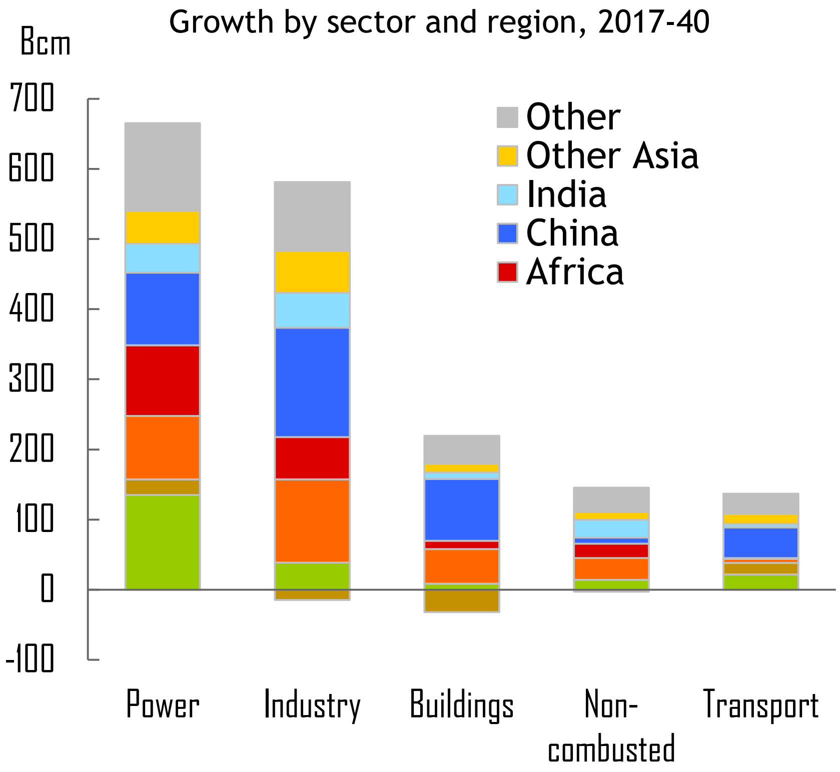
Source: IHS, GIIGNL

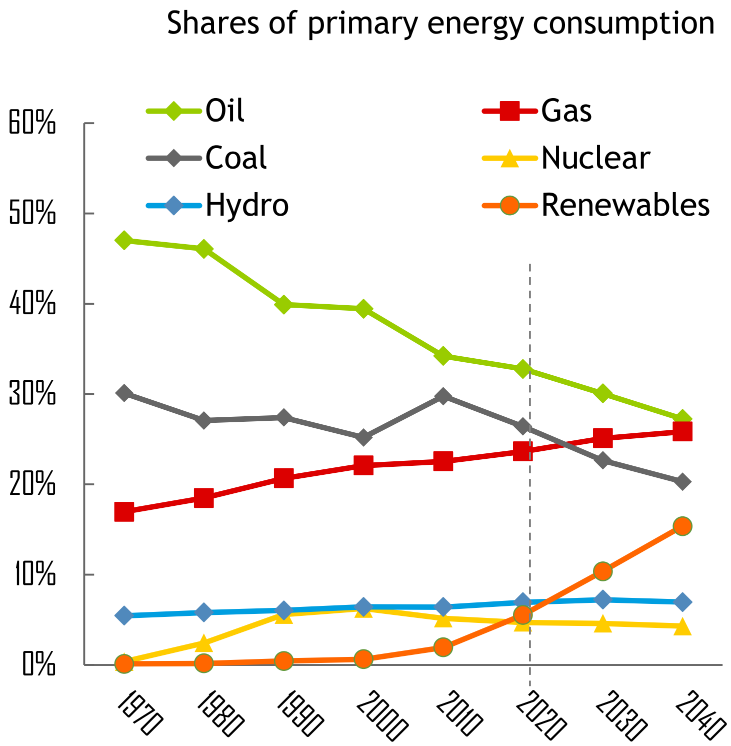
1.5 LNG exports increase significantly led by US and Qatar, fostering a more competitive and globally integrated market



Source: BP Energy Outlook 2019

2.1 Growth in gas demand is driven by use in power and industry, with the use of gas varying across countries and regions





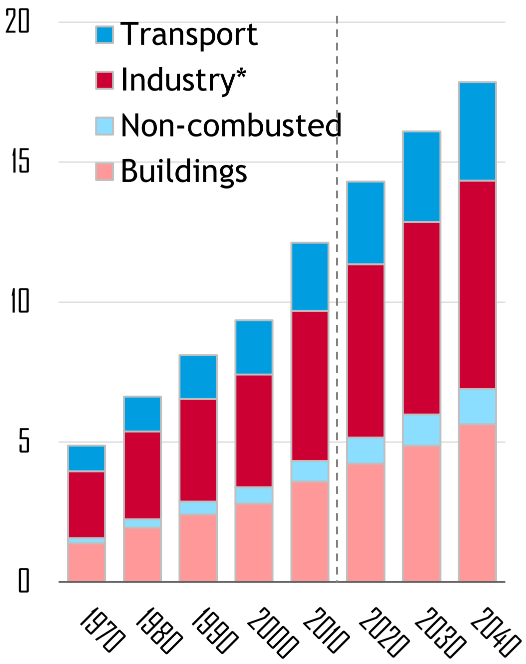
Source: BP Energy Outlook 2019

2.2 Three windows on the energy transition

Primary energy demand

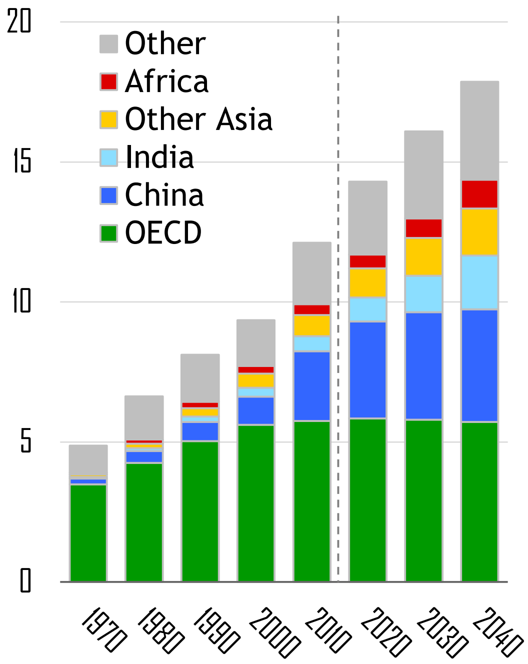
End-use sector

Billion toe



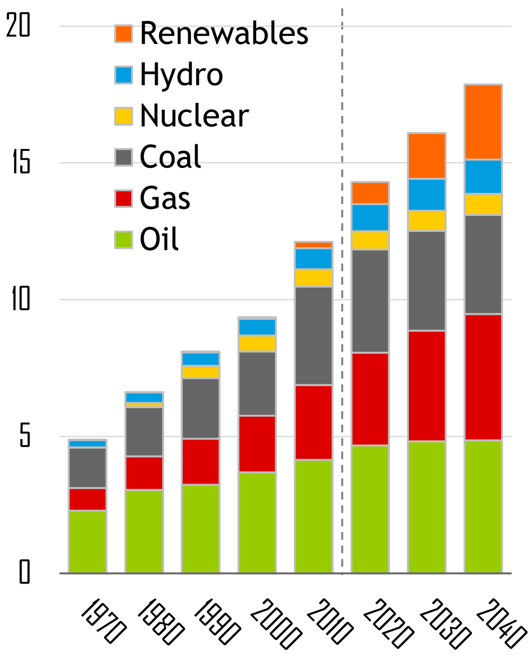
Primary energy demand

Region



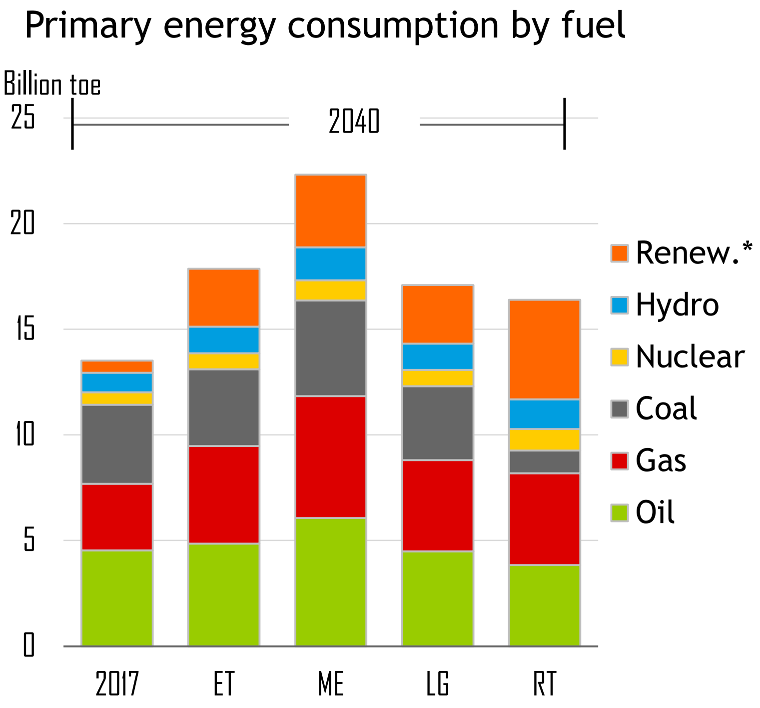
Primary energy demand

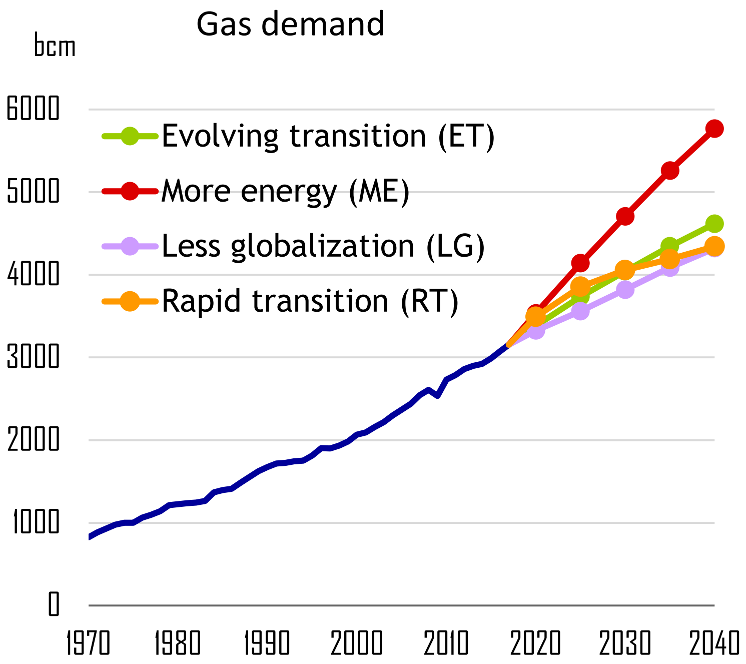
Fuel



Source: BP Energy Outlook 2019

3.1 Opportunity: The global energy system faces a dual challenge, the need for 'more energy and less carbon'

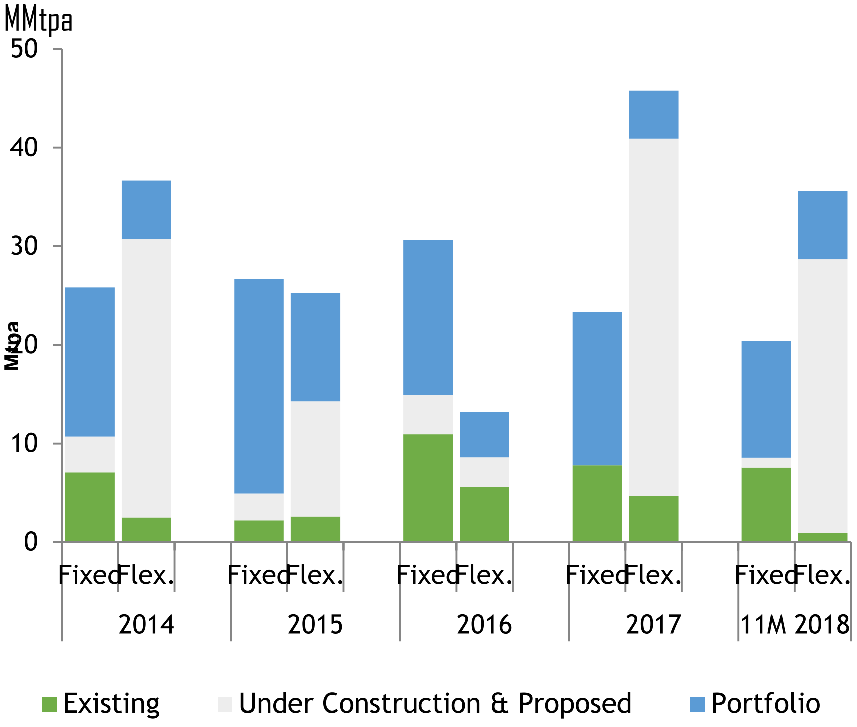




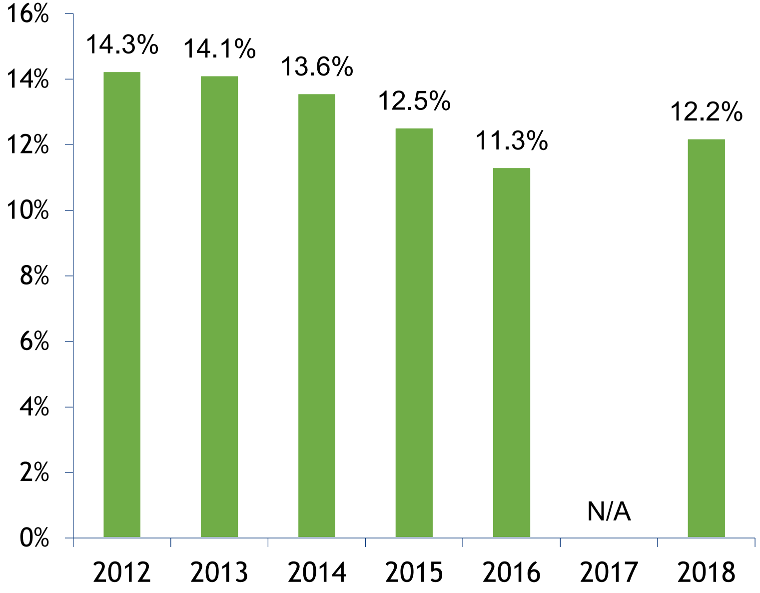
Source: BP Energy Outlook 2019

3.2 Opportunity: Trend of more flexible LNG contractual structure

Destination flexibility of new signed contract



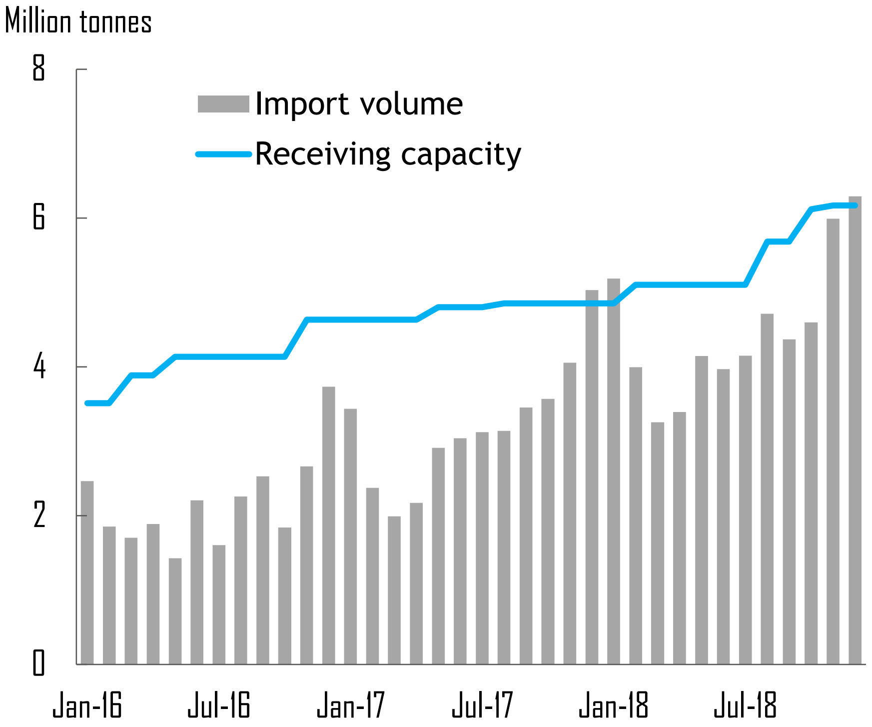
Oil-indexed Contract price slope by Chinese buyer



Source: IHS, Woodmac, BP research

3.3 Challenge: Infrastructure constraints

China LNG imports and receiving capacity



Gas infrastructure comparison

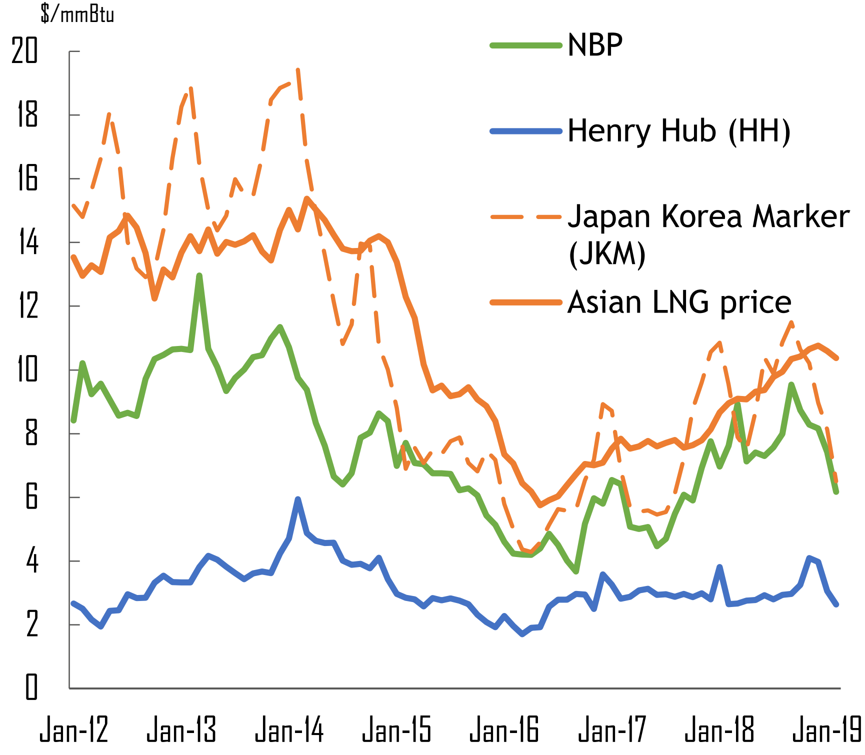
Country	Storage/Consumption 2016 (%)	Pipeline Length/Square 2017 (Metre)	Per Capita LNG Receiving Capacity 2018 (TPA)
China*	**3.04**	**7.09**	**0.04**
US	17.20	51.52	0.40
UK	1.83	106.97	0.53
France	27.48	67.08	0.39
Italy	26.65	109.63	0.19
Japan	0.99	100.53	1.59
South Korea	N/A	35.58	2.72

*China data has been updated to year 2018

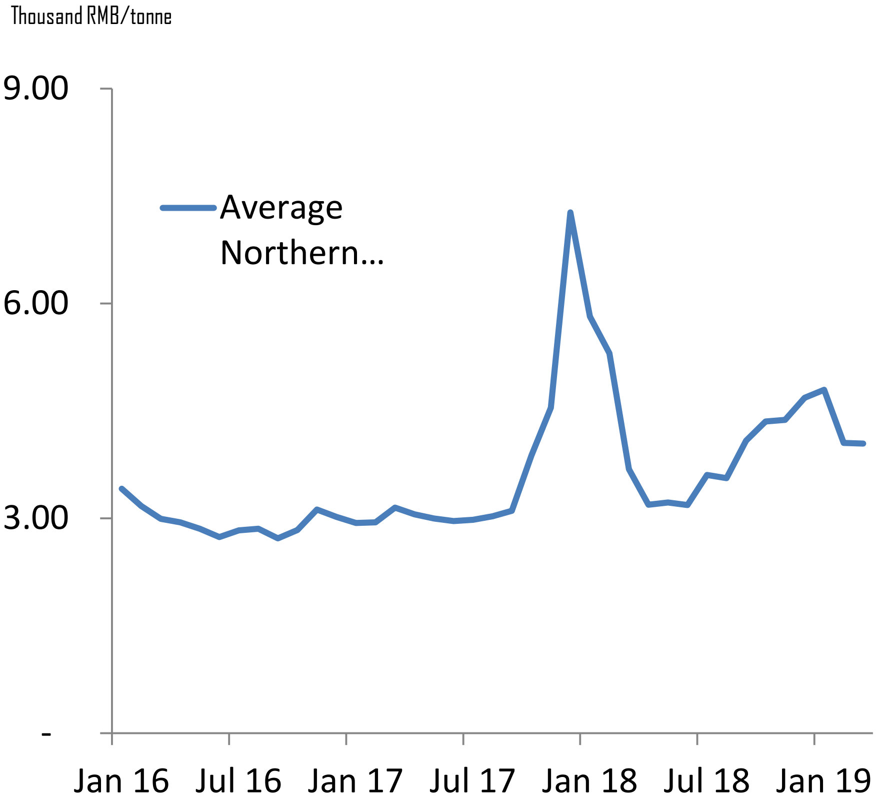
Source: BP Statistical Review 2018, includes data from IHS Markit

3.4 Challenge: Asian premium still exists with winter peaks

US LNG exporters’ costs and Asian spot prices

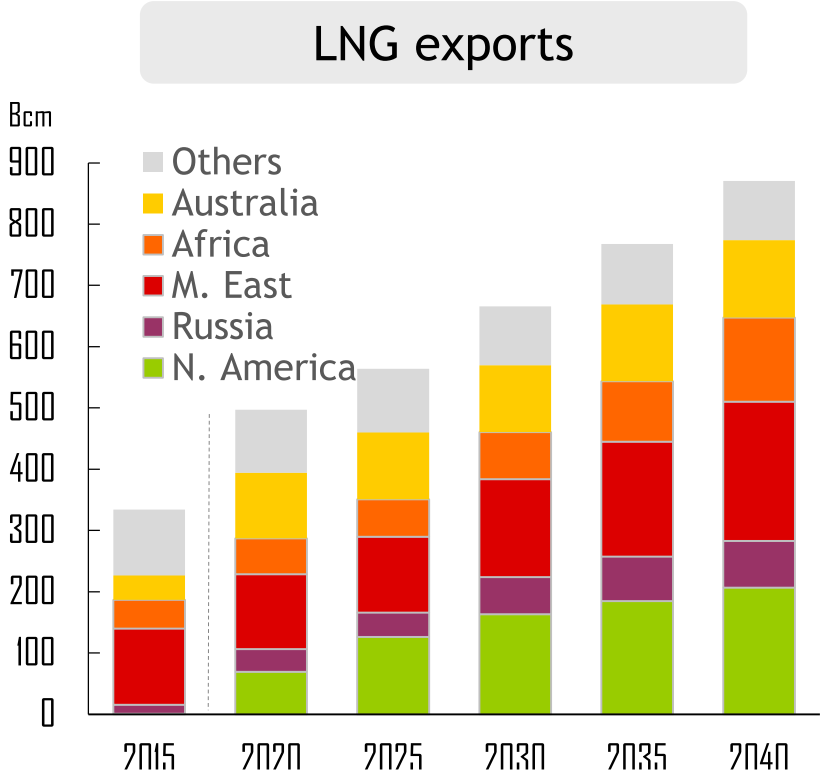


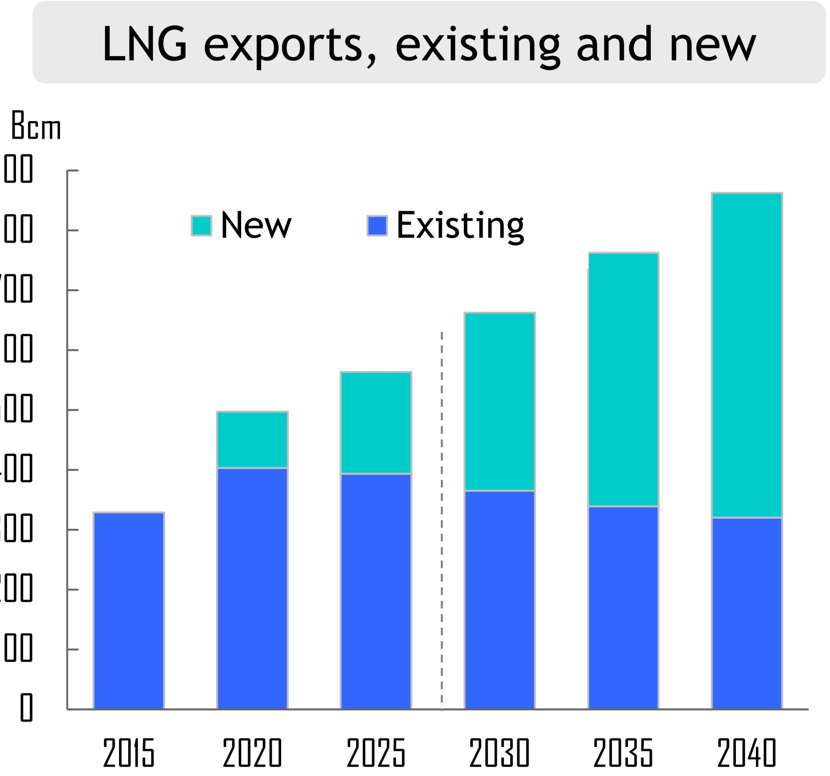
China wholesale LNG ex-plant prices



Source: BP Statistical Review 2018, includes data from IHS Markit

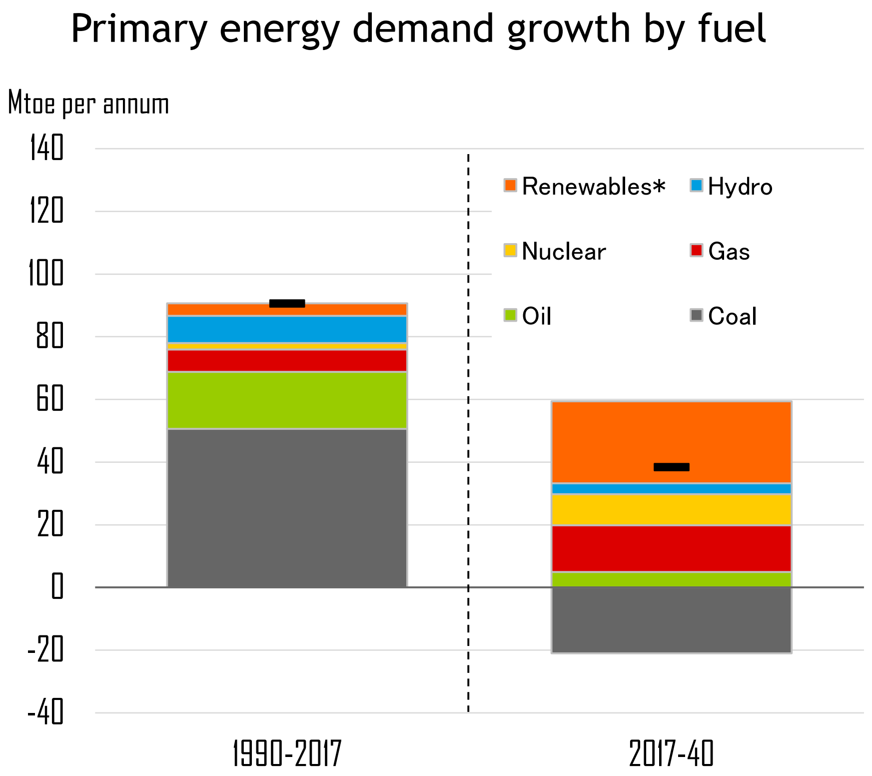
3.5 Challenge: New investment in LNG capacity will be needed

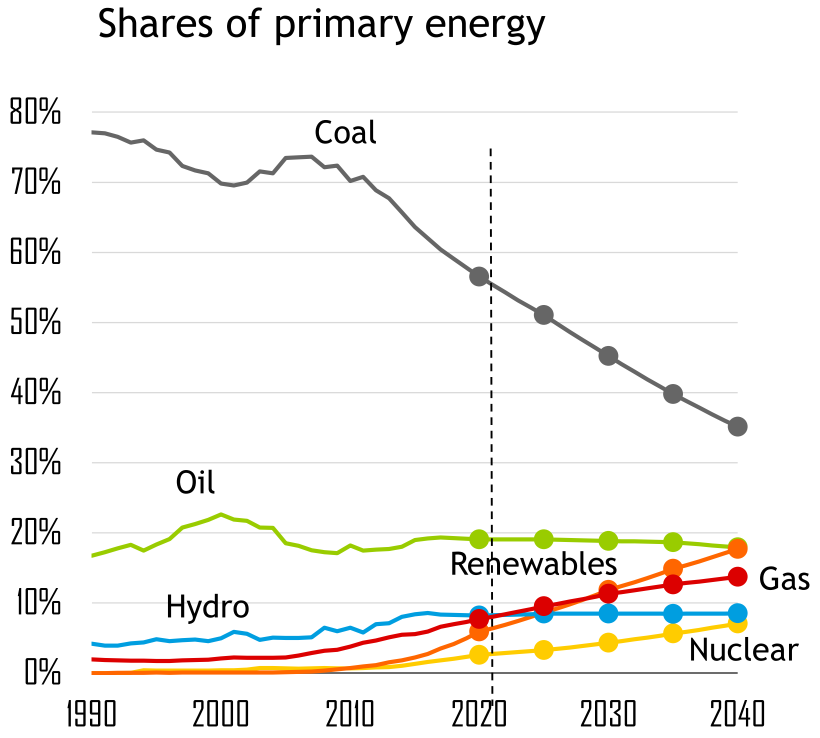




Source: BP Energy Outlook 2019

4.1 China: transition to non-fossil and lower carbon energy mix

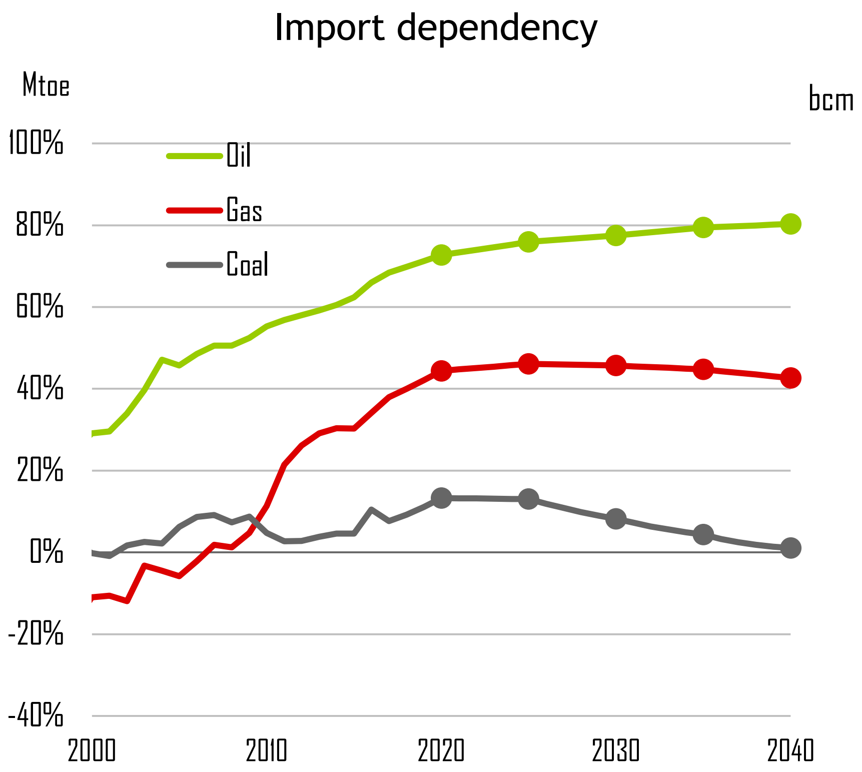


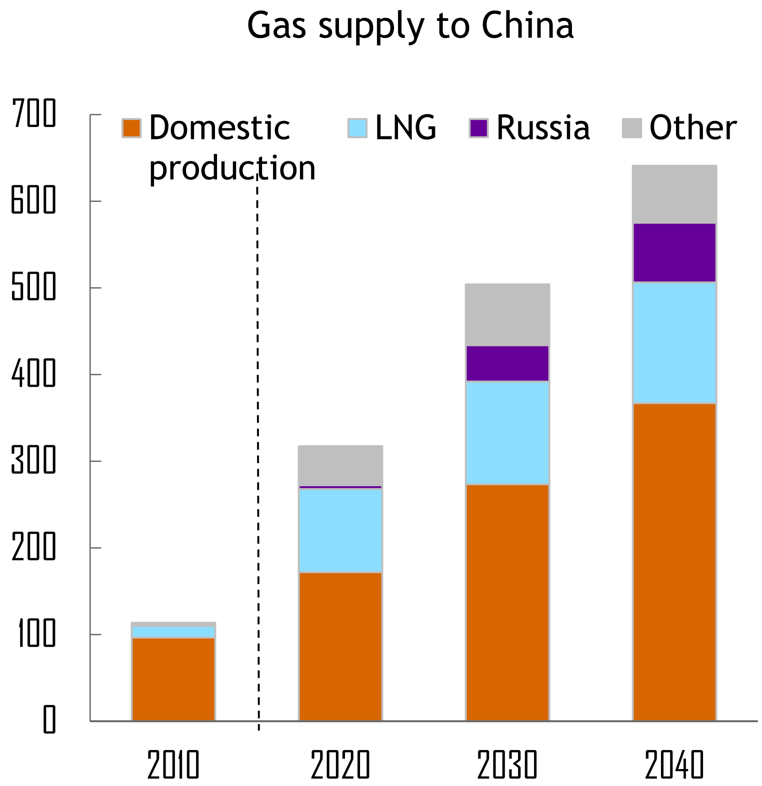


*Including biofuels

Source: BP Energy Outlook 2019

4.2 China: Import dependency potentially rise to over 40% by 2040





Source: BP Energy Outlook 2019

Thank you for your attention