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One Belt, One Road, and One Pipeline: China's New Approach to Energy Security

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Important Disclaimer

All conclusions are derived from data and forecasts published before February 2020.
We may expect significant changes in all estimates.

This presentation does **not** cover:

Belt and Road countries are among the key world's fossil fuels producers. They ensure 50% of oil and about 48% of natural gas global production (Duan et al., 2018)

China's search for energy security has led to the deepening political and economic relationships with energy producers and countries along the Belt and Road which have transit potential (Zhao, 2008)

BRI is an important component in implementing China's energy security strategy and serves as a mean for diversification of energy supplies and related transportation routes (Johnson, 2016)

In April 2019 China announced the establishment of the Belt and Road Energy Partnership (BREP) with 30 participating countries. The BREP aims to strengthen infrastructure connectivity, facilitate energy trade and enhance energy investment by lowering investment barriers (obor.nea.gov.cn)

This presentation

Why, despite the global LNG market, is China willing to tie itself to long-term contracts and puts great economic and political efforts into developing inland pipeline infrastructure?

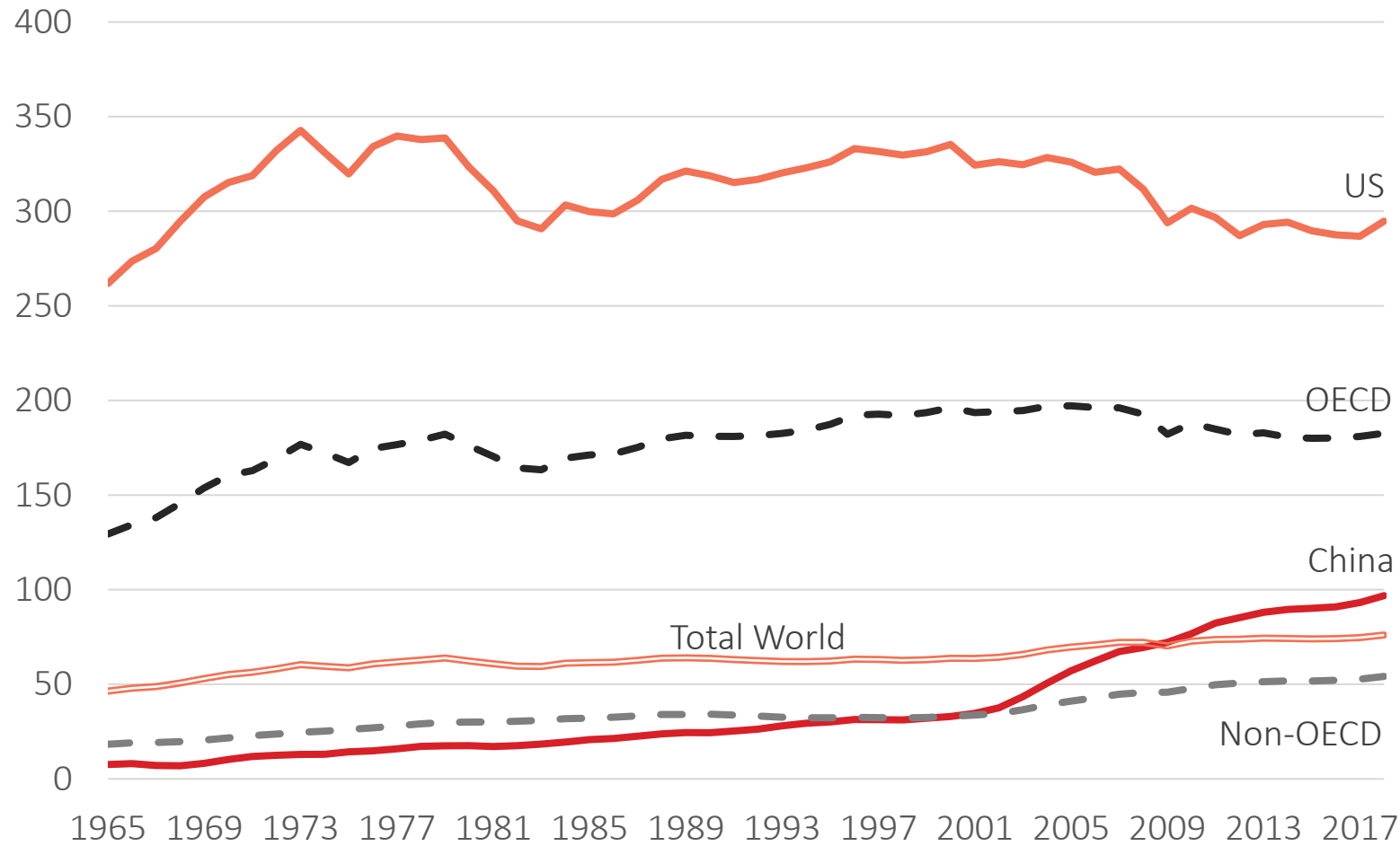
1. The patterns of China's energy consumption and the characteristics of China's energy mix transformation

2. LNG versus pipeline gas: how do different sources and means of transportation influence China's energy security?

3. Case of Sino-Russian energy cooperation

#1 Given China's patterns of energy consumption and existing environmental challenges, what are the characteristics of China's energy mix transformation?

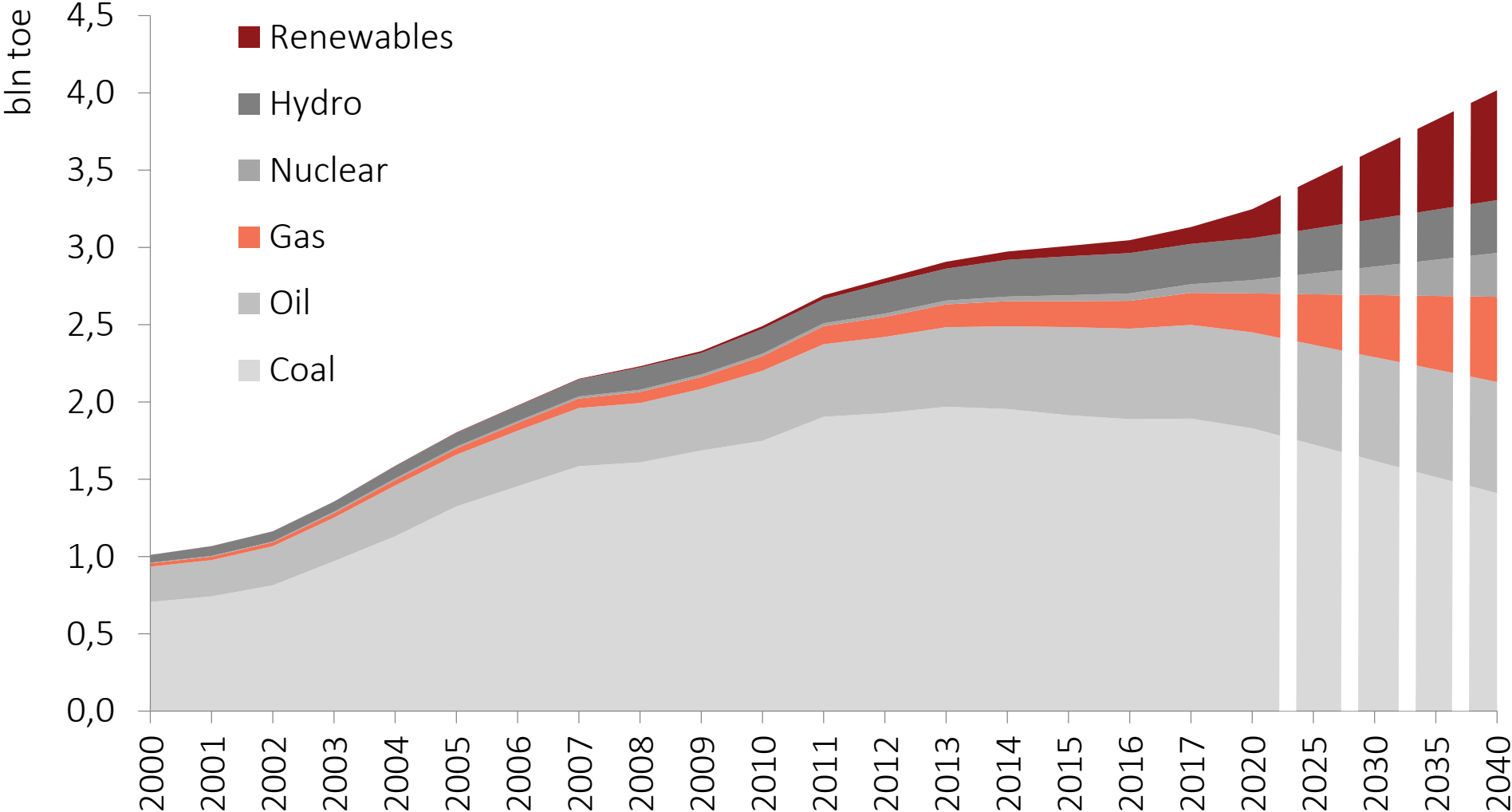
Per capita energy use in China and the world, GJ



Energy consumption on per capita level is still low in China.

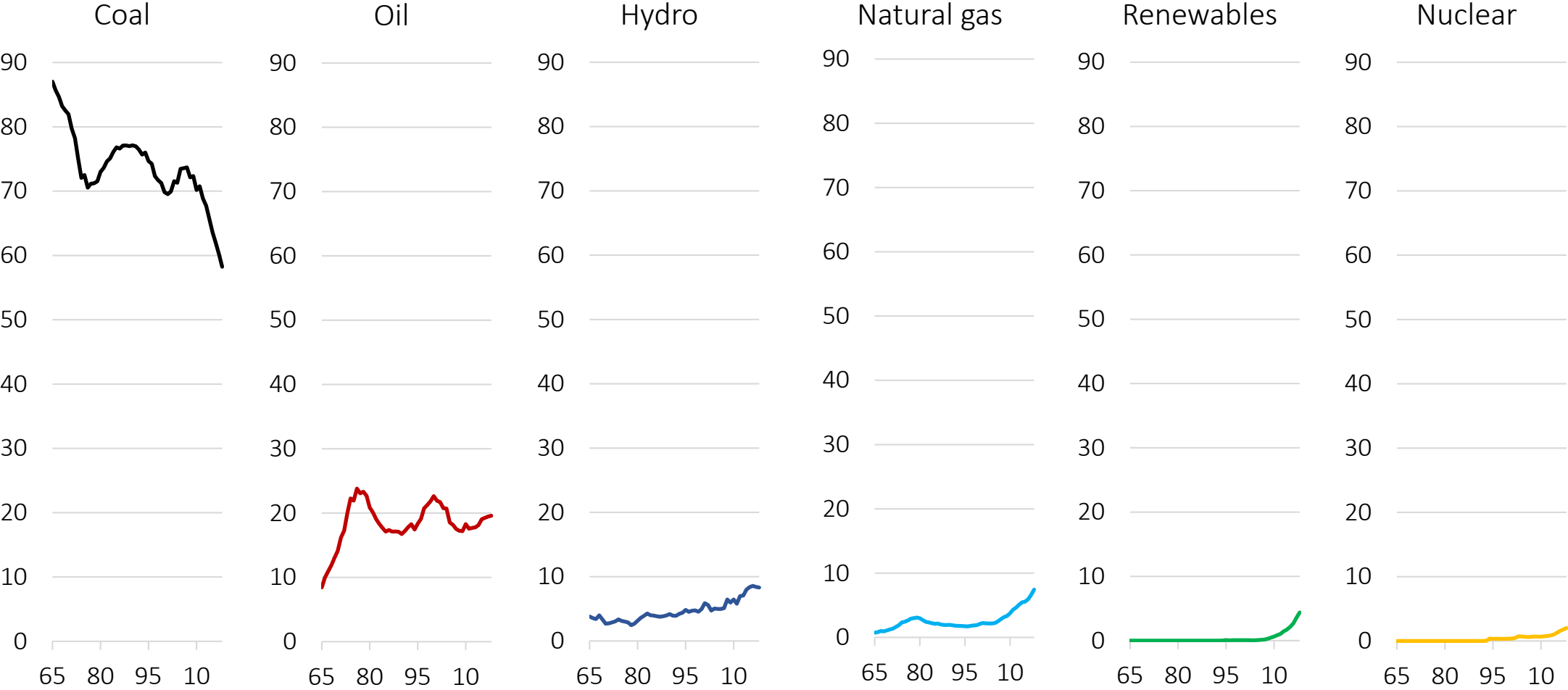
The demand is expected to grow up to 2040

China's Primary Energy Consumption by Fuel by 2040



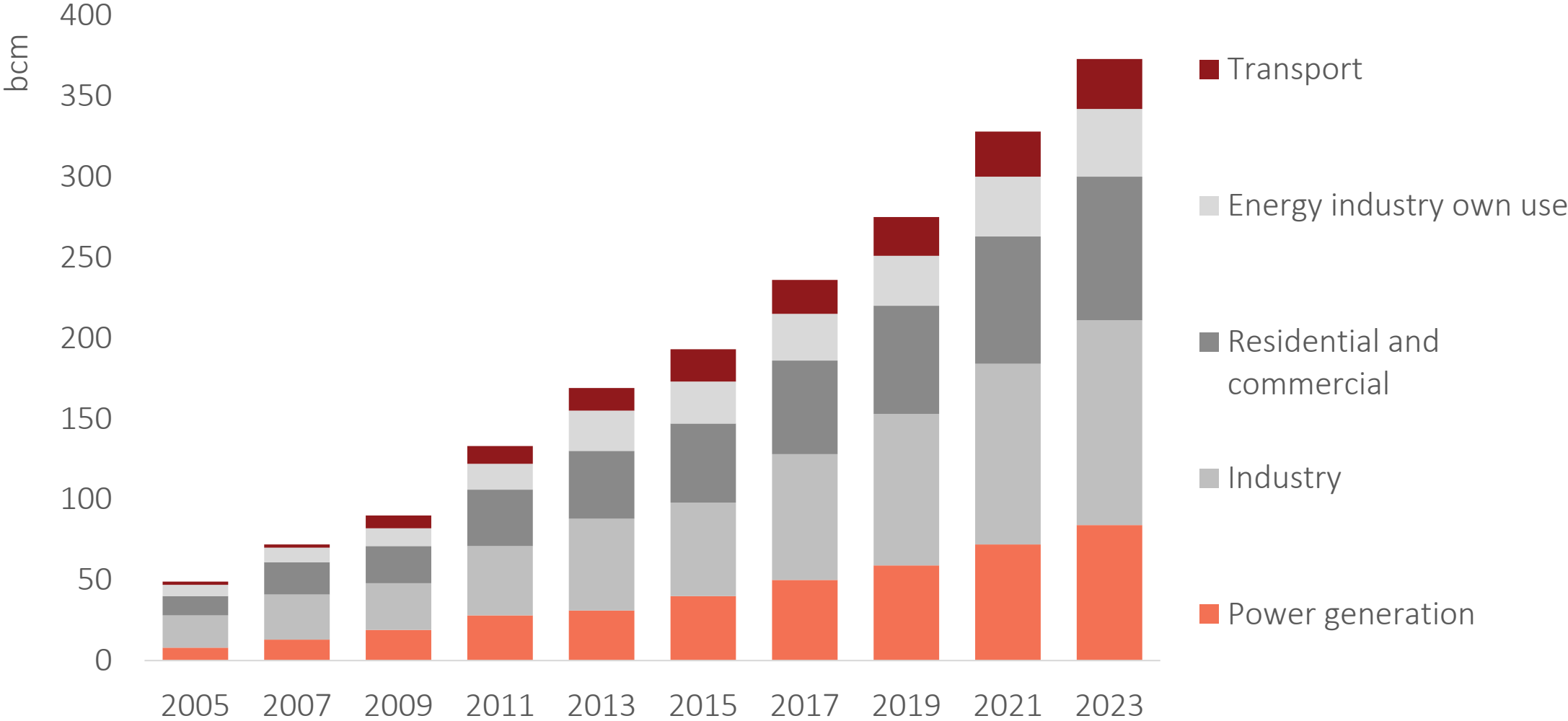
Source: BP Energy Outlook, 2019

Share of different sources in China's energy consumption 1965-2018



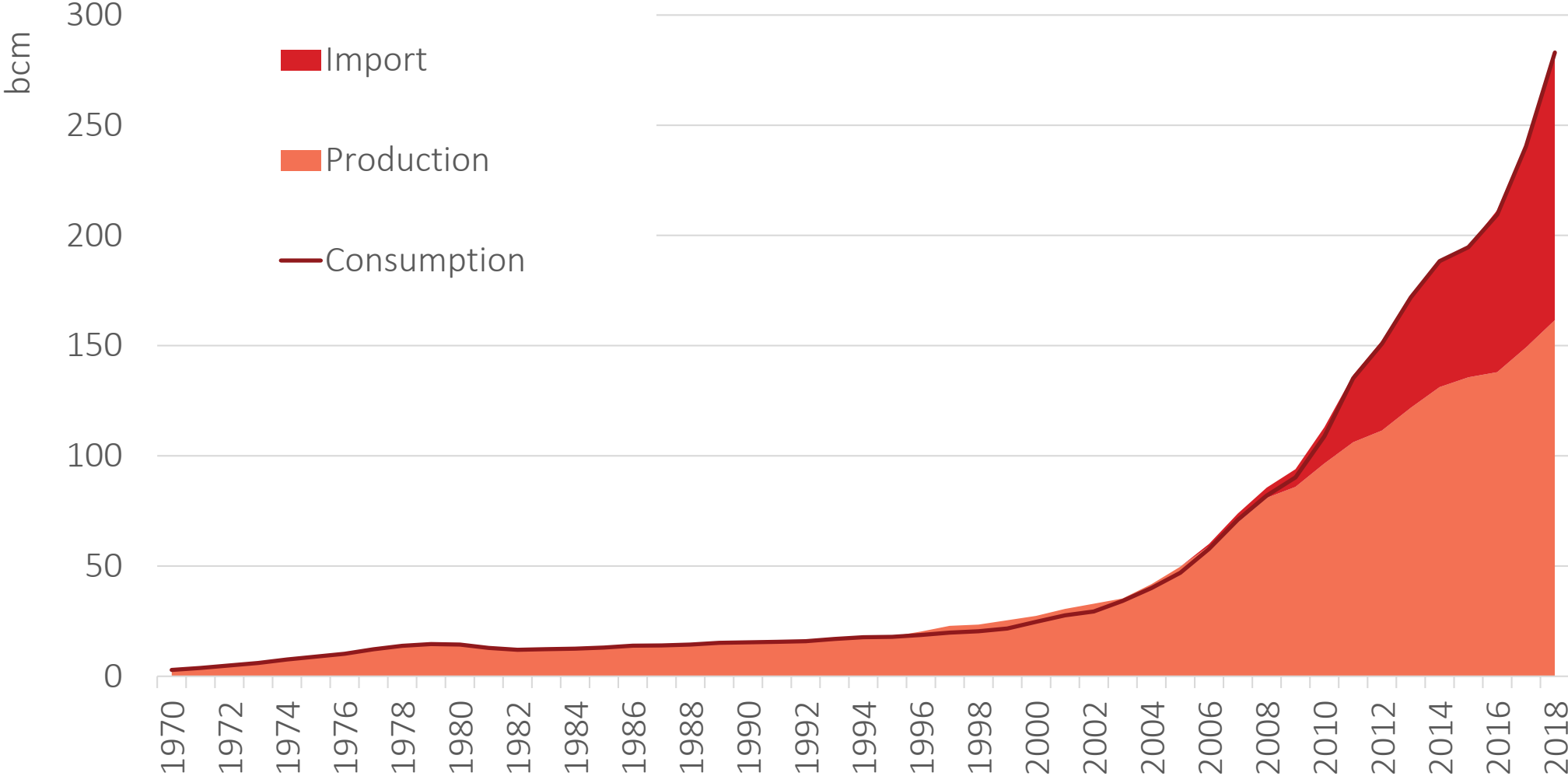
Source: BP Statistical Review of World Energy, 2019

China's Natural Gas Consumption by Sector



Source: Gas 2018, Analysis and forecasts to 2023, IEA

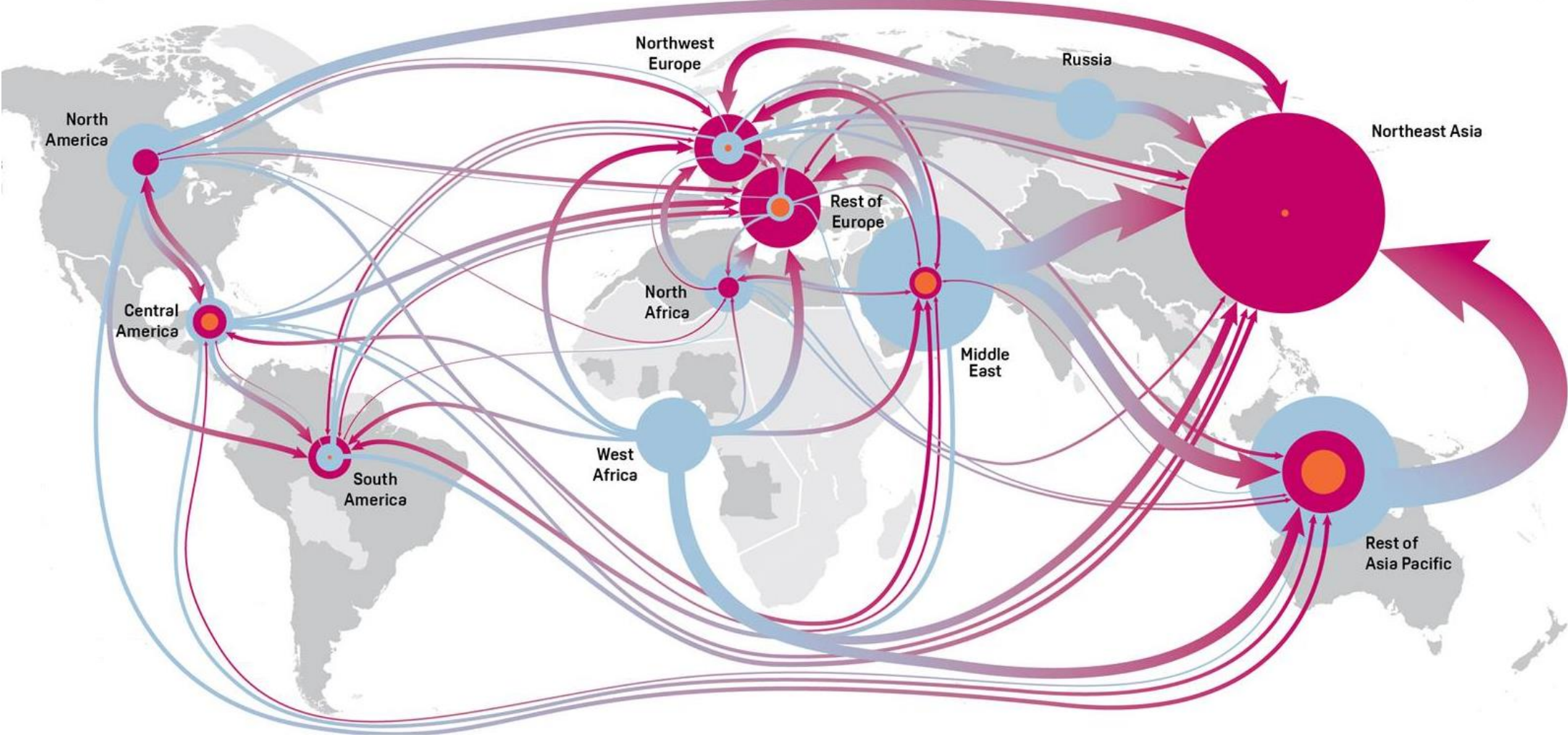
China's Natural Gas Production, Import and Consumption



Source: BP Statistical Review of World Energy, 2019

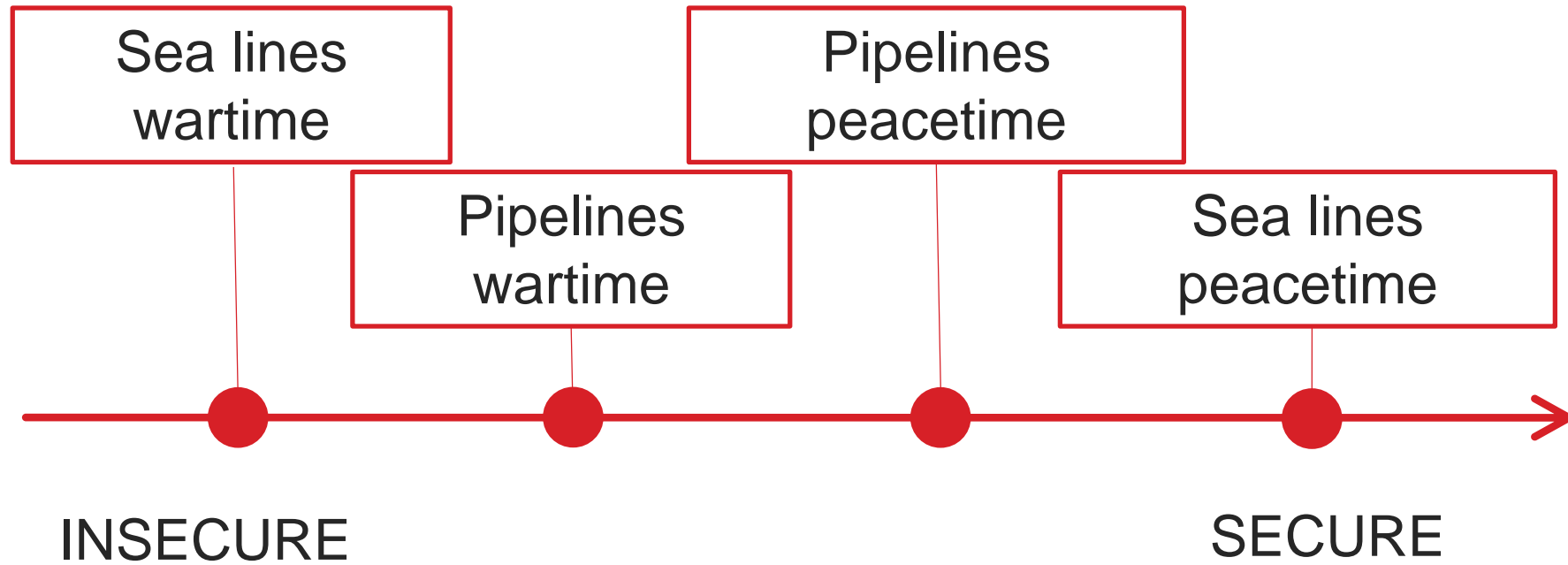
#2 LNG versus pipeline gas:
how do different sources and means
of transportation influence
China's energy security?

Major LNG trade flows in 2018



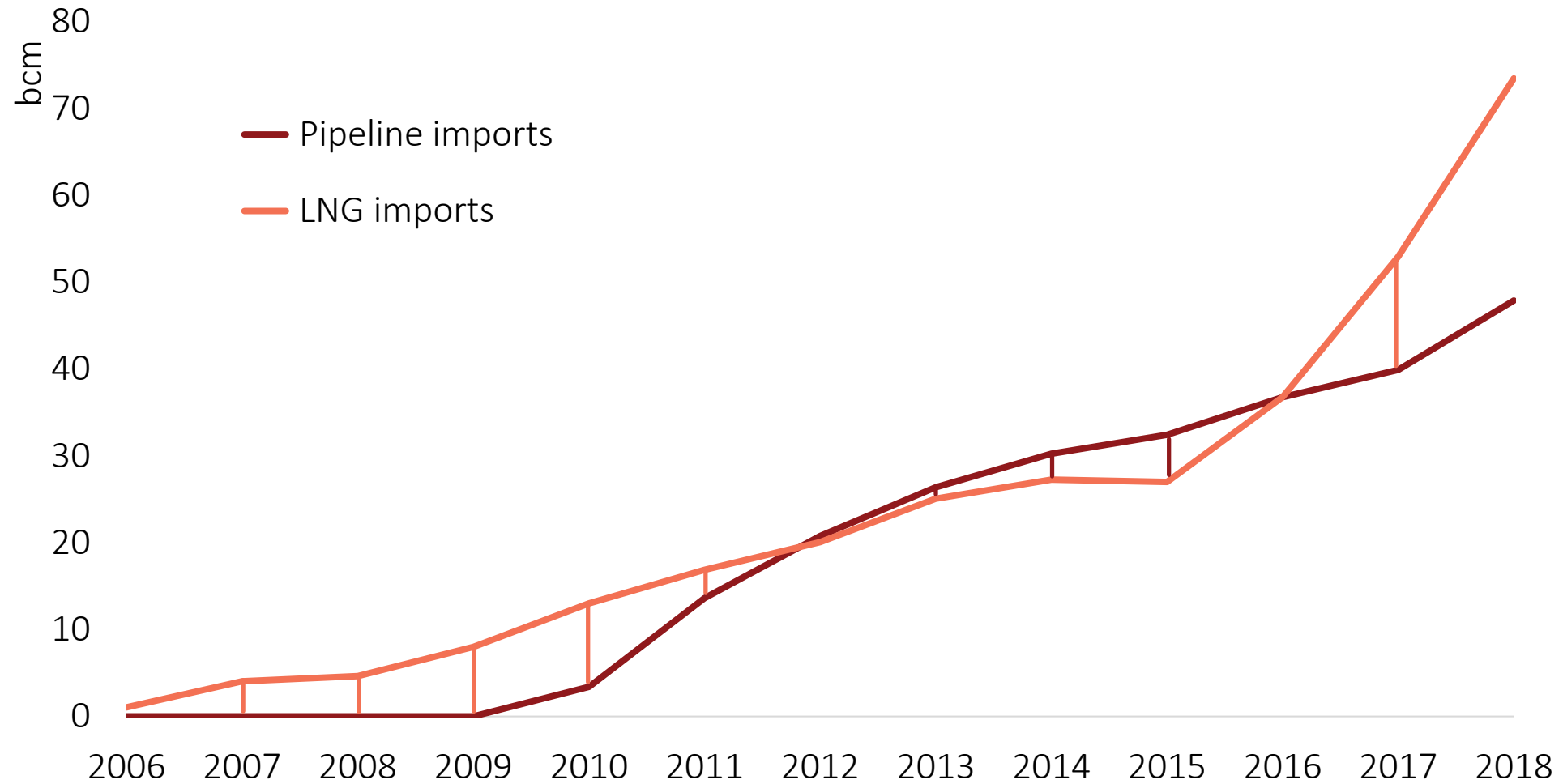
Picture: S&P Global Platts

Energy Transportation Security Scale



Source: Øystein Tunsjø *Security and Profit in China's Energy Policy: Hedging Against Risk*, 2013

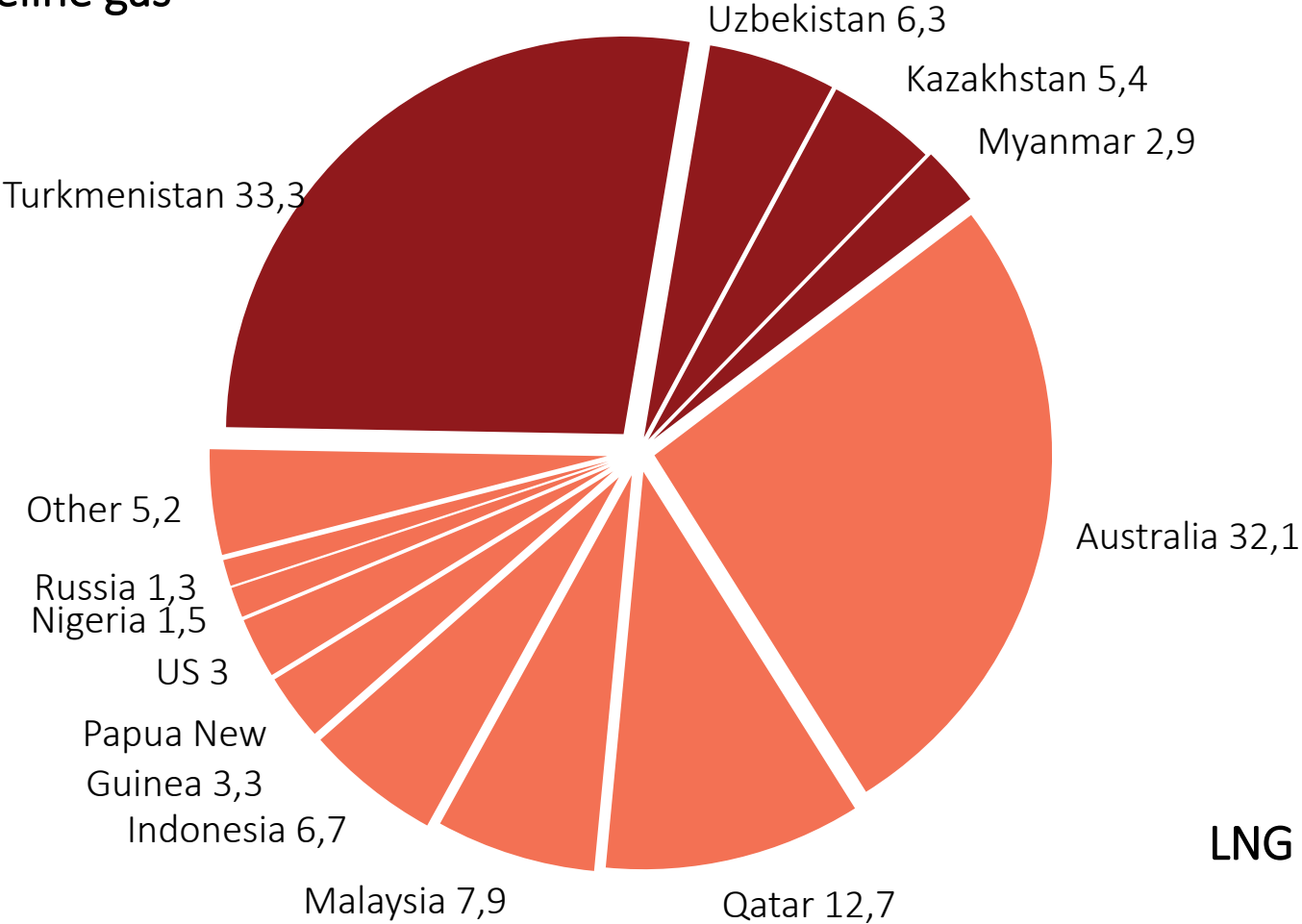
'Double Helix' of China's Gas Imports



Source: BP Statistical Review of World Energy, 2019

China's Natural Gas Imports Sources in 2018

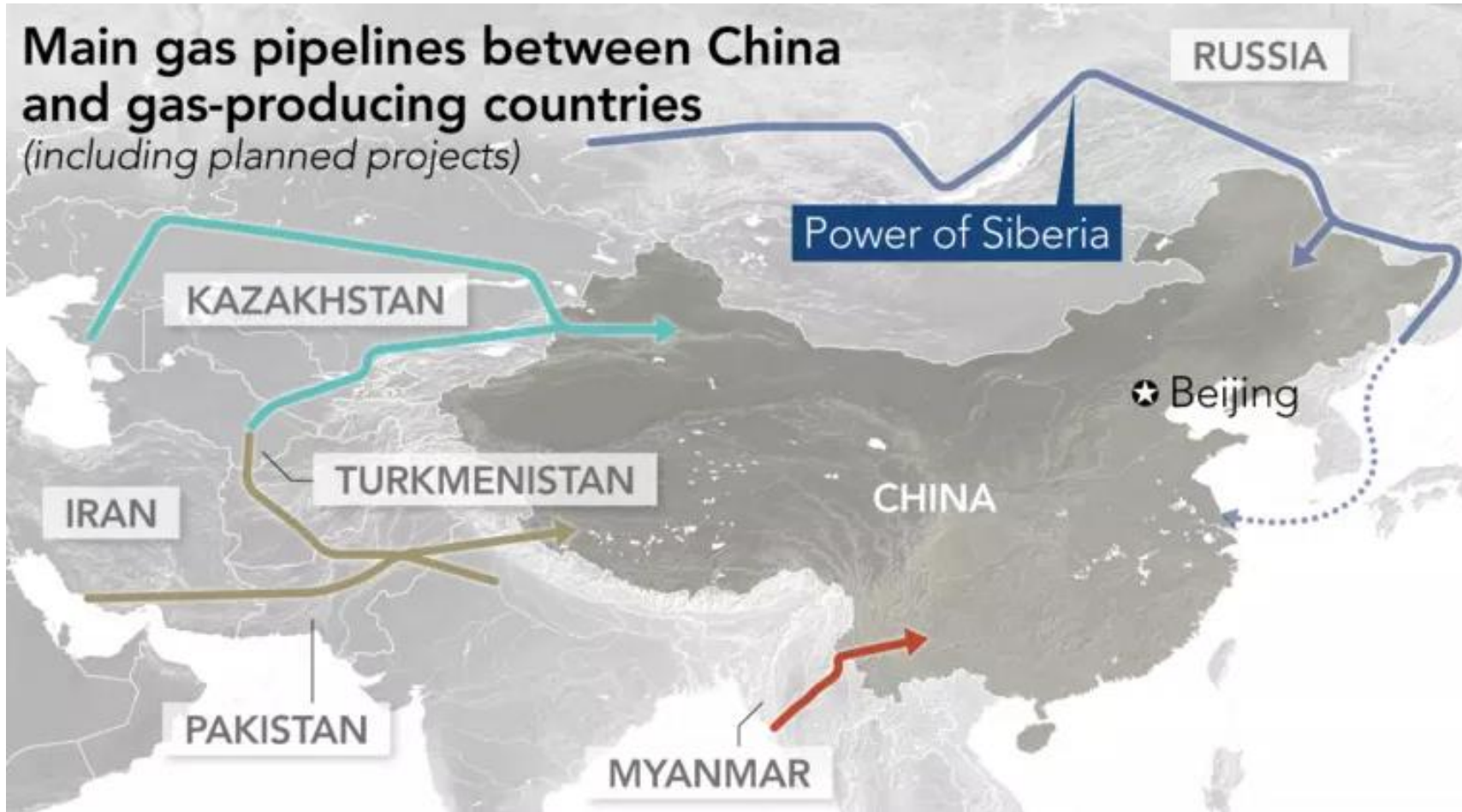
Pipeline gas



LNG

Source: BP Statistical Review of World Energy, 2019

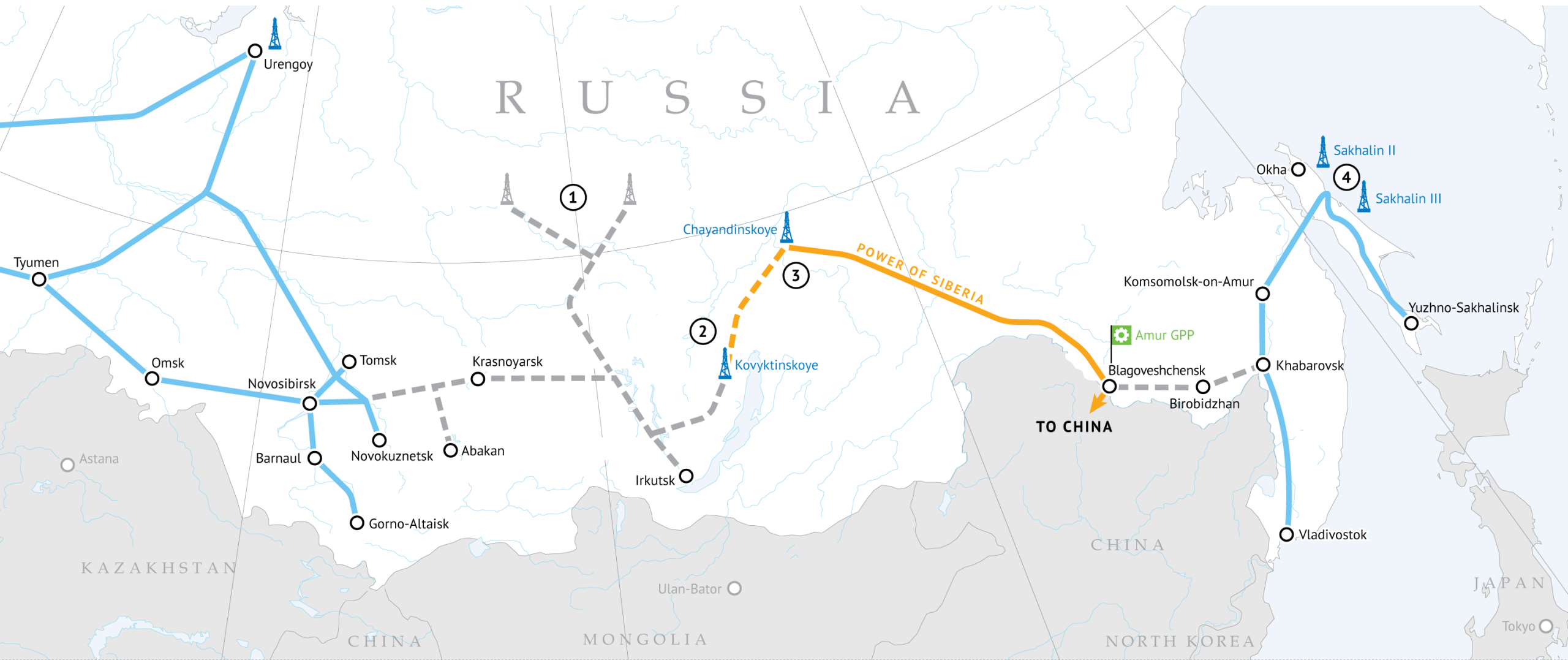
Where Can China Get Gas From?



- Central Asia-China gas pipeline and Galkynysh gas field in Turkmenistan;
- China-Myanmar gas pipeline and deep-water port of Kyaukphyu;
- Power of Siberia gas pipeline

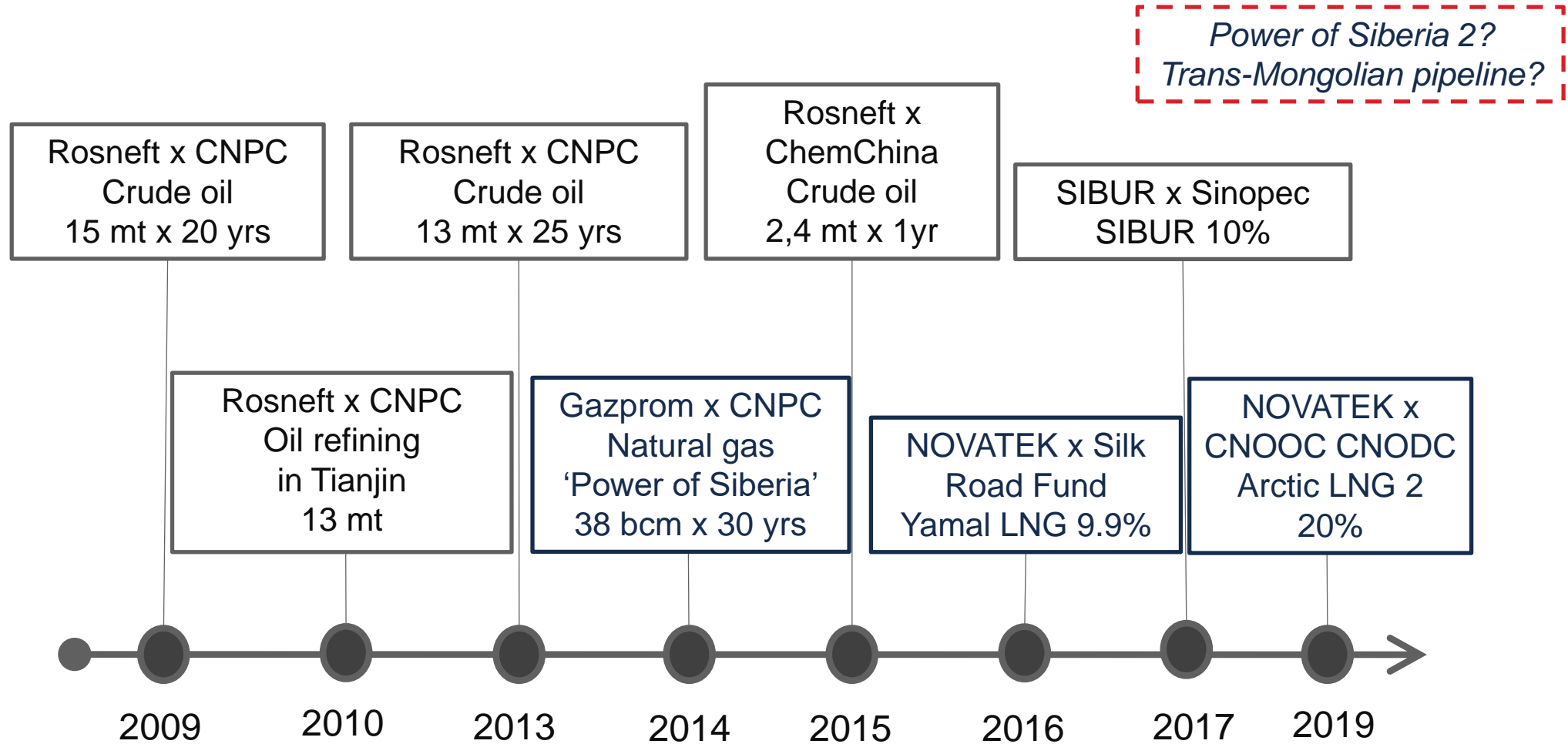
#3 'Sopryazheniye' and the long-term prospects of Sino-Russian energy cooperation

Power of Siberia

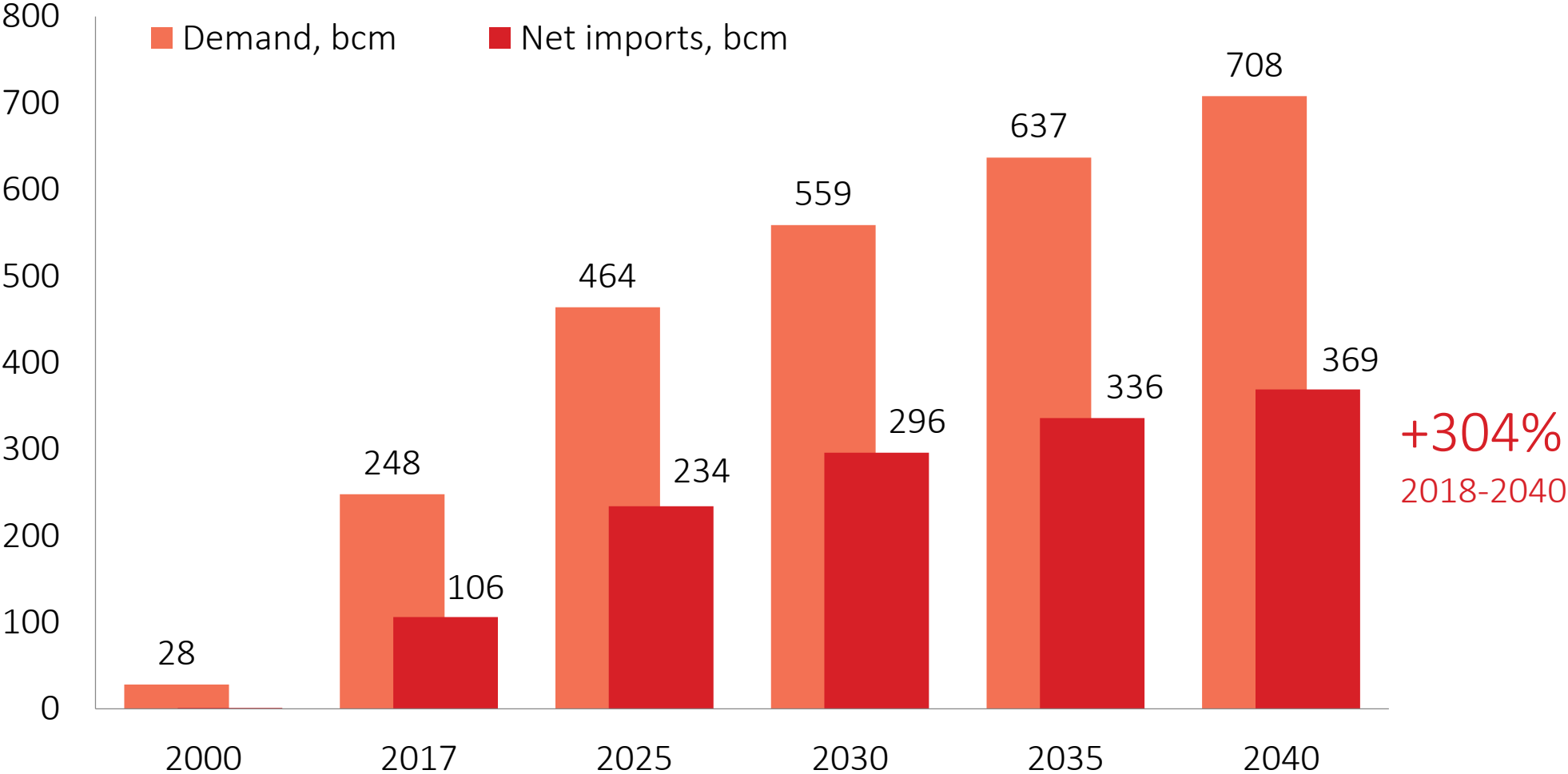


- Gas pipelines in operation
- - - Ongoing projects
- - - Prospective gas pipelines
- ⊙ Gas production centers
- ⊙ 1 Krasnoyarsk
- ⊙ 2 Irkutsk
- ⊙ 3 Yakutia
- ⊙ 4 Sakhalin
- ⊙ Fields

Russia – China Key Energy Deals Timeline



Natural Gas Demand in China: 2040 Forecast



Source: IEA World Energy Outlook 2018

Summary

Even if at a slower pace, energy consumption in China is expected to grow up to 2040;

China is planning to use gas as an alternative to more polluting options (coal, biomass, and oil), and increasingly relies on imports to meet its demand;

In 2018, China became the second largest LNG importer. Beijing has certain energy security concerns about shipping routes and the existing chokepoints;

‘Double Helix’: China is ready to rely on long-term contracts to ensure the uninterrupted energy supply. The country puts efforts into developing inland pipeline infrastructure, obtaining access to oil and gas fields and acquiring shares in companies around the world;

Russia’s contribution to the changing dynamics of China’s energy security is supposed to increase in the coming decades.

