



Gas 2019

Keisuke Sadamori, Director, Energy Markets and Security

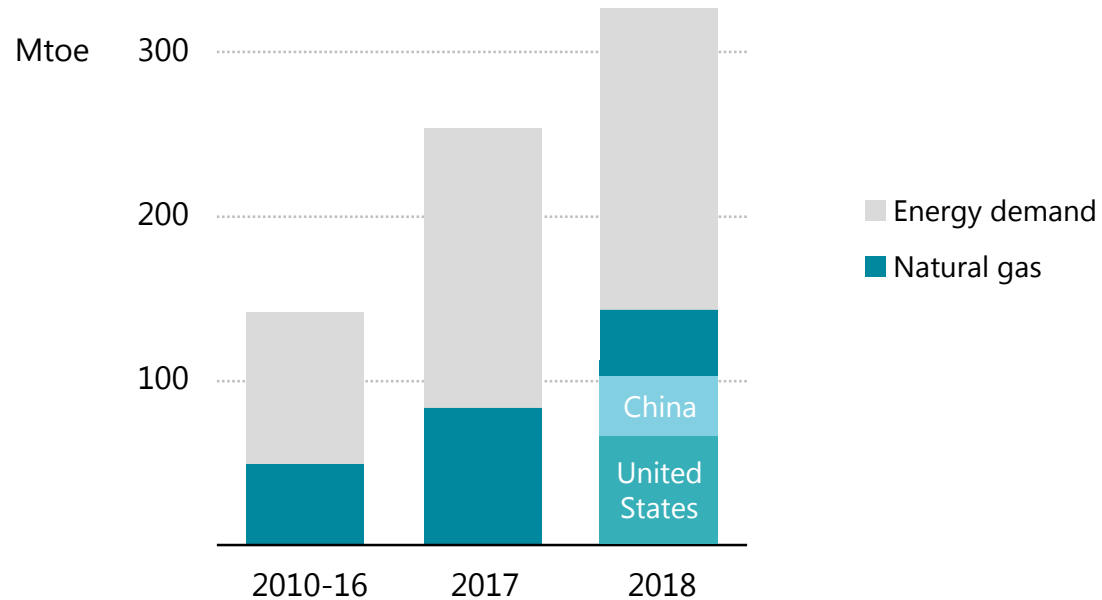
Tokyo, 13 June 2019



2018 was another golden year for gas



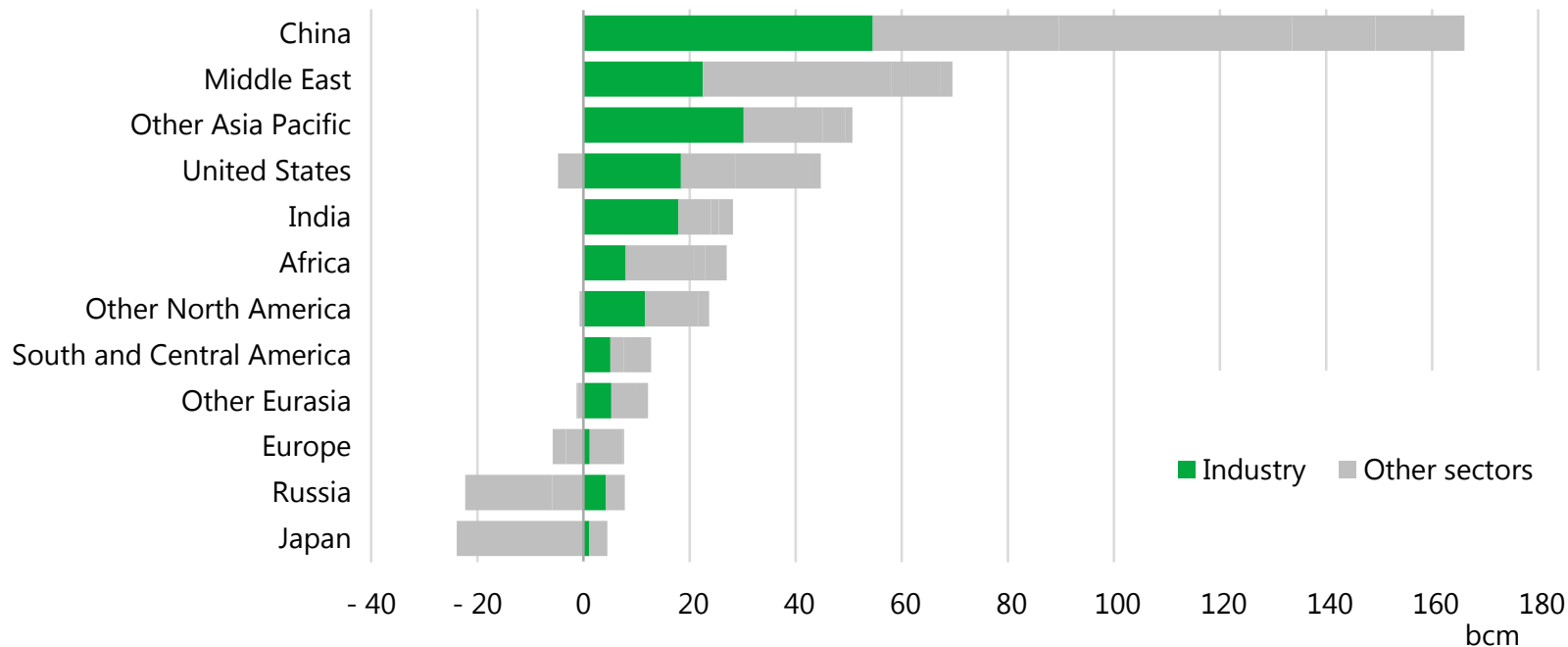
Average annual change in global primary energy demand, 2010-18



Gas demand jumped by 4.6% in 2018, accounting for nearly 45% of overall demand growth. The United States led the growth due to relatively low prices and weather, China followed, driven by the push for 'blue skies'.

Fast growing Asian markets drive future gas demand

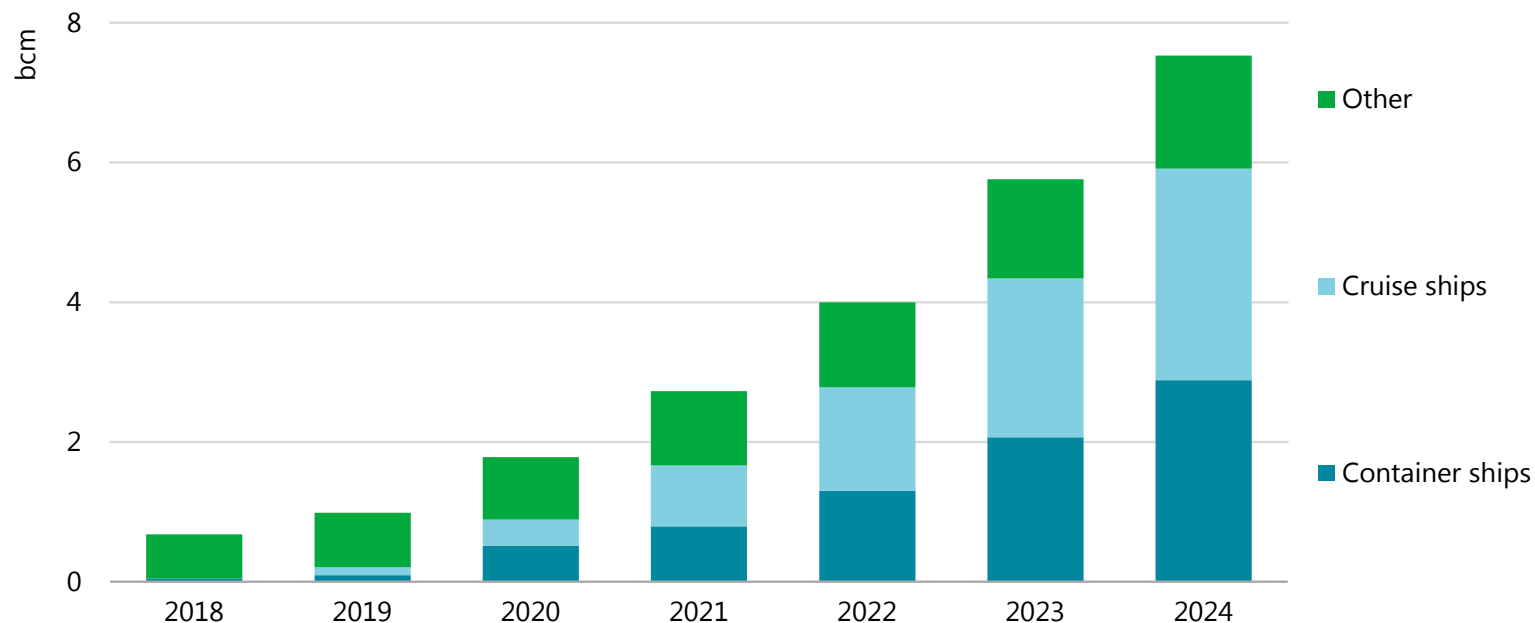
World natural gas consumption growth for selected countries and regions, 2018-24



China accounts for over 40% of global gas consumption growth
All sectors contribute to growth, with industry taking the lead in most markets

LNG emerges as an alternative marine fuel

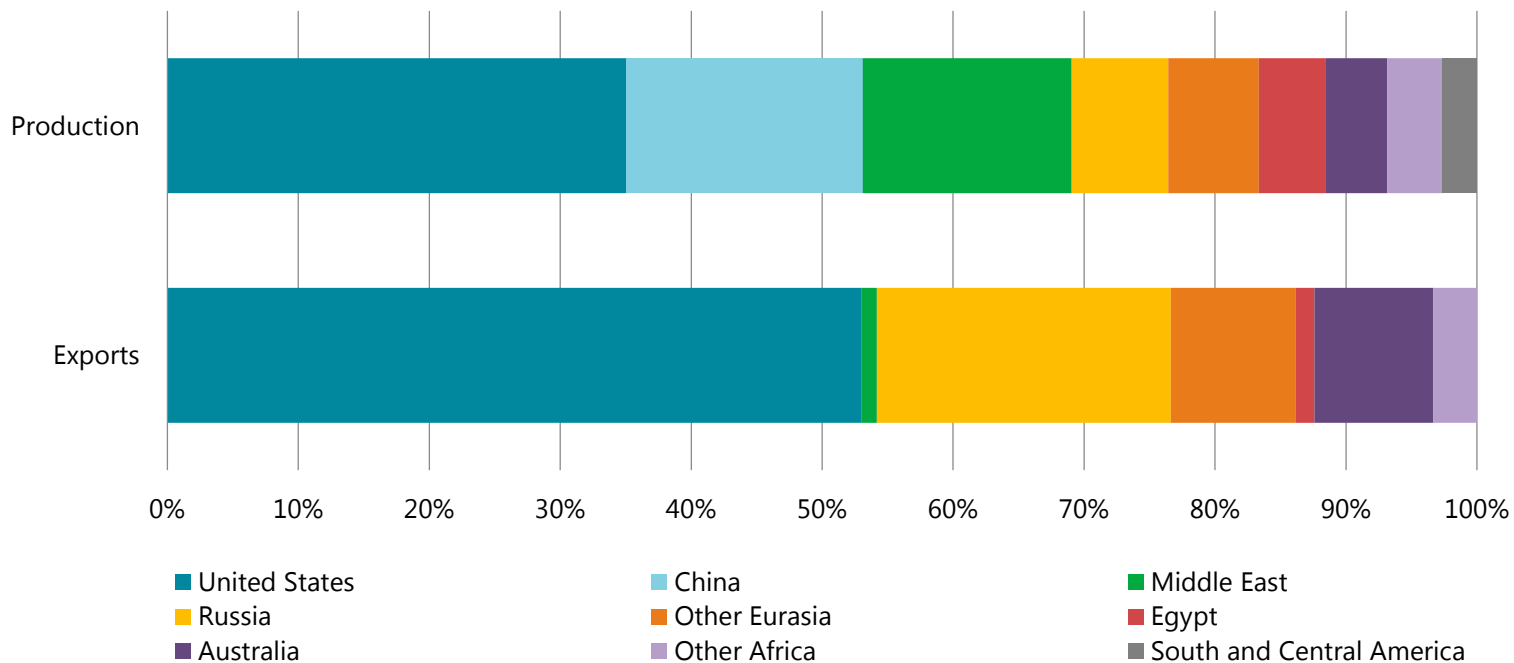
LNG consumption for maritime shipping by main segment, 2018-24



The growth in LNG as a marine fuel is supported by two main segments – cruise ships and container ships – which account for 80% of expected consumption by 2024

The United States leads production and exports growth

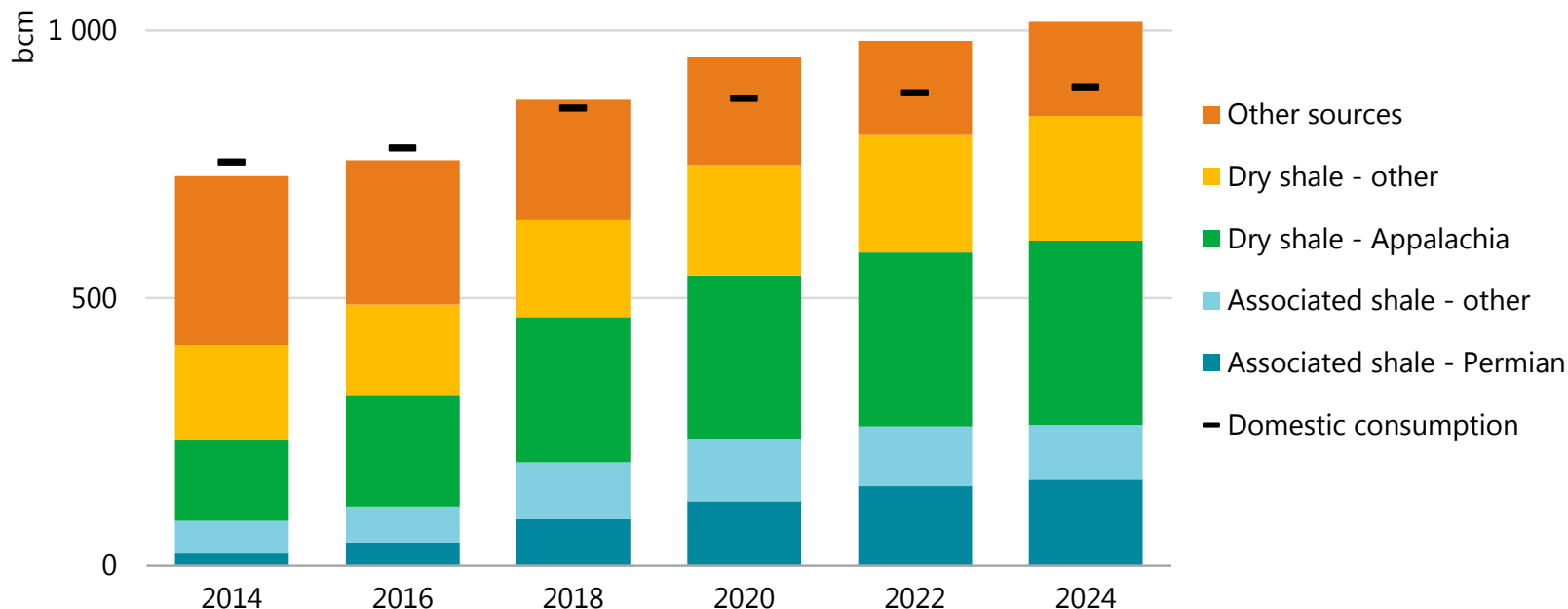
Contributors to natural gas production and export growth, 2018-24



**The United States and China account for over half of total production increment to 2024
US and Eurasian exports dominate LNG and pipeline trade growth**

US natural gas production reaches 1 tcm mark by 2024

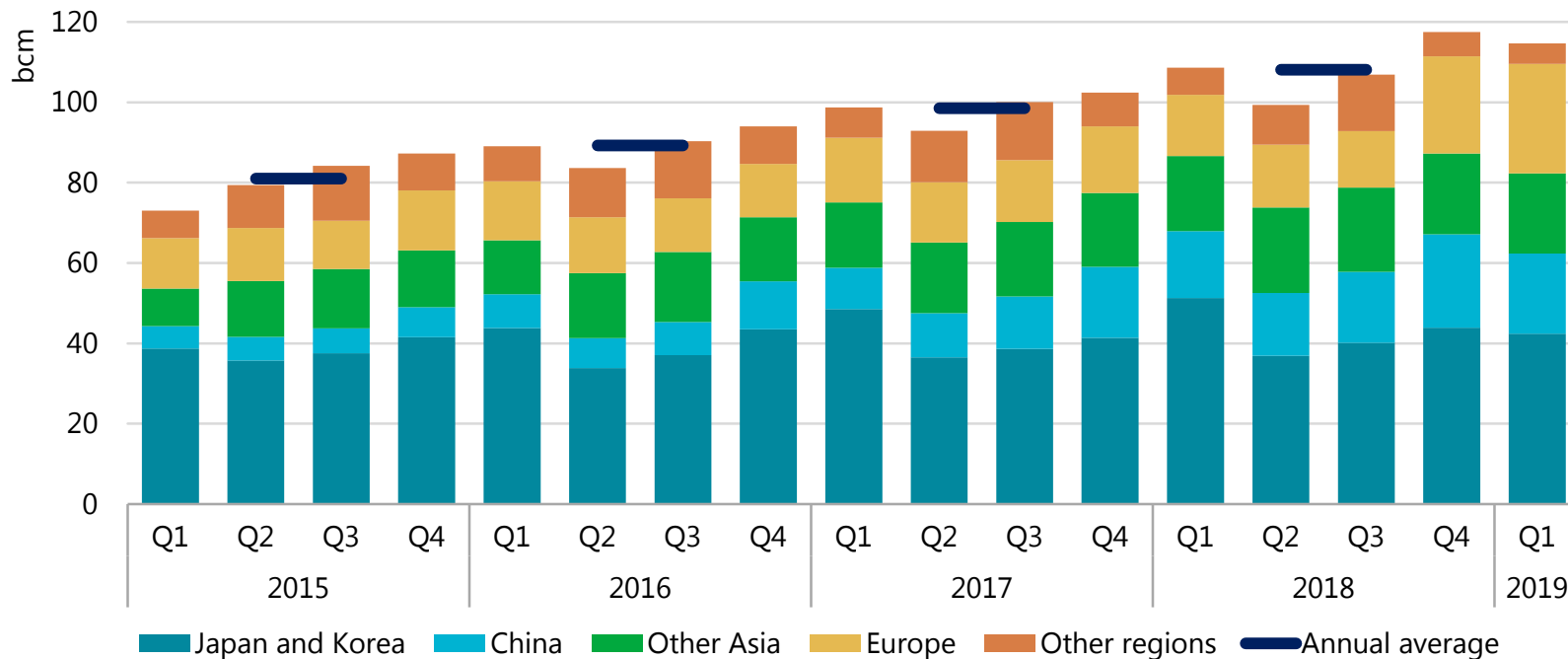
Natural gas production, United States, 2014-24



Associated shale strongly contributes to short-term production growth up to takeaway infrastructure limits and then slows with lesser LTO growth

LNG drives global gas trade development

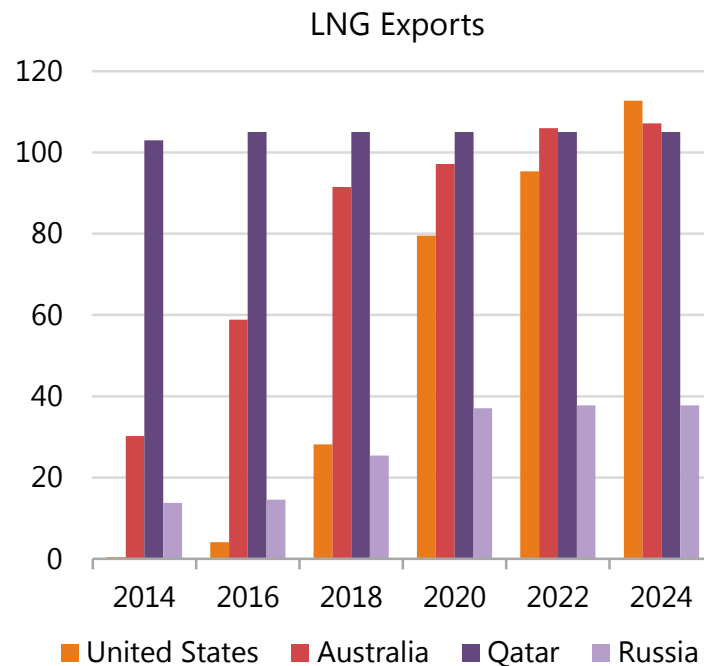
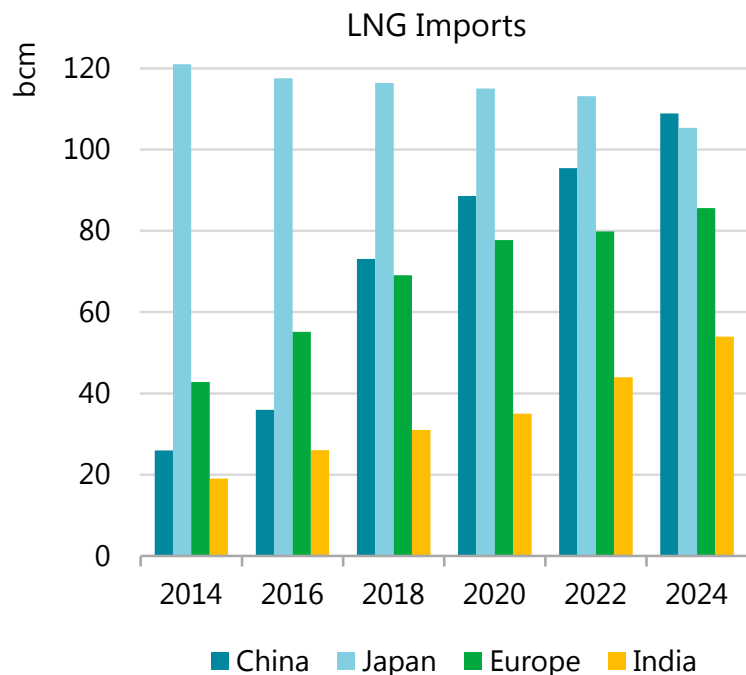
Evolution of LNG imports, quarterly volumes and annual averages, 2015-19



Global LNG trade grew at an average 10% per annum in between 2016 and 2018, with strong import increases from emerging Asian markets, as well as Korea and Europe (in late 2018).

The United States and China become #1 LNG seller and buyer in 2024

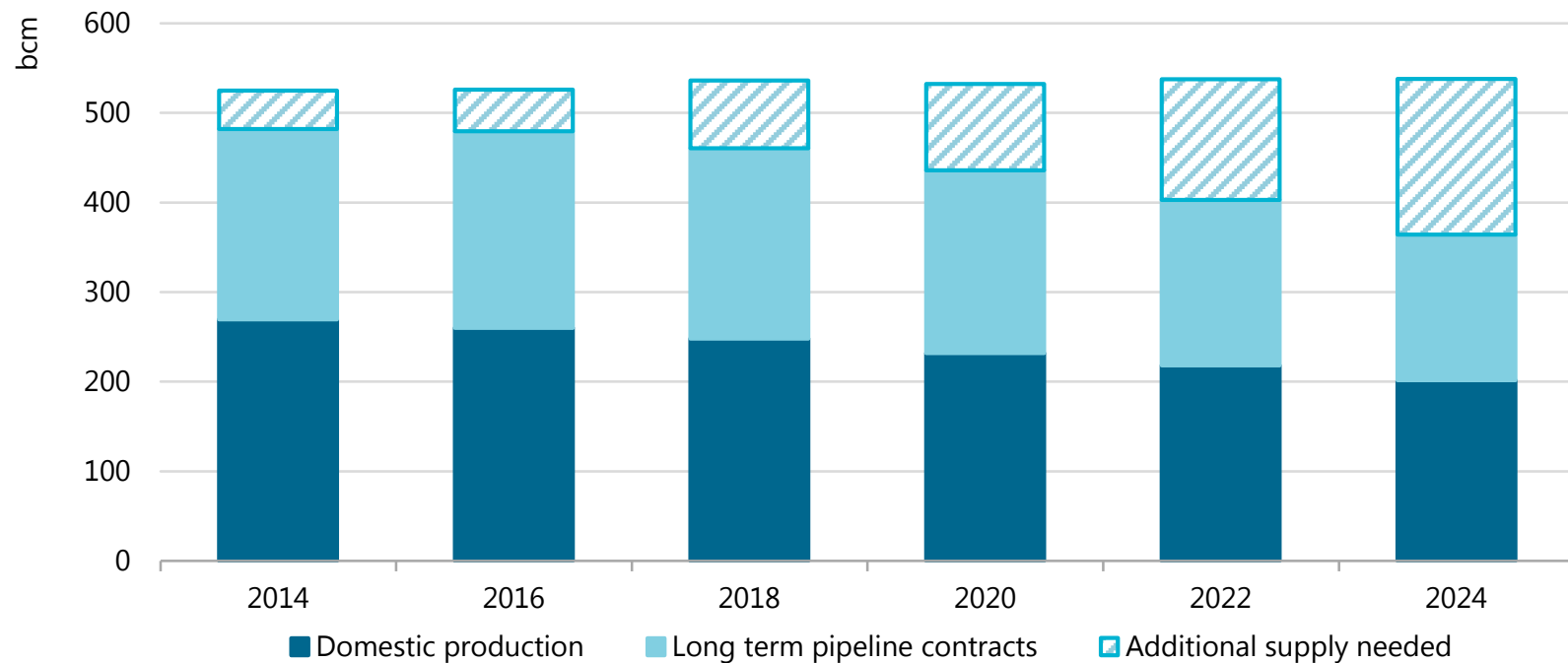
World LNG trade for a selection of importers and exporters, 2014-24



**Fast growing Asian economies and Europe account for over 95% of the increase in LNG imports
US exports surge while Australia reaches a plateau and Qatar prepares for expansion***

Europe's supply gap increases

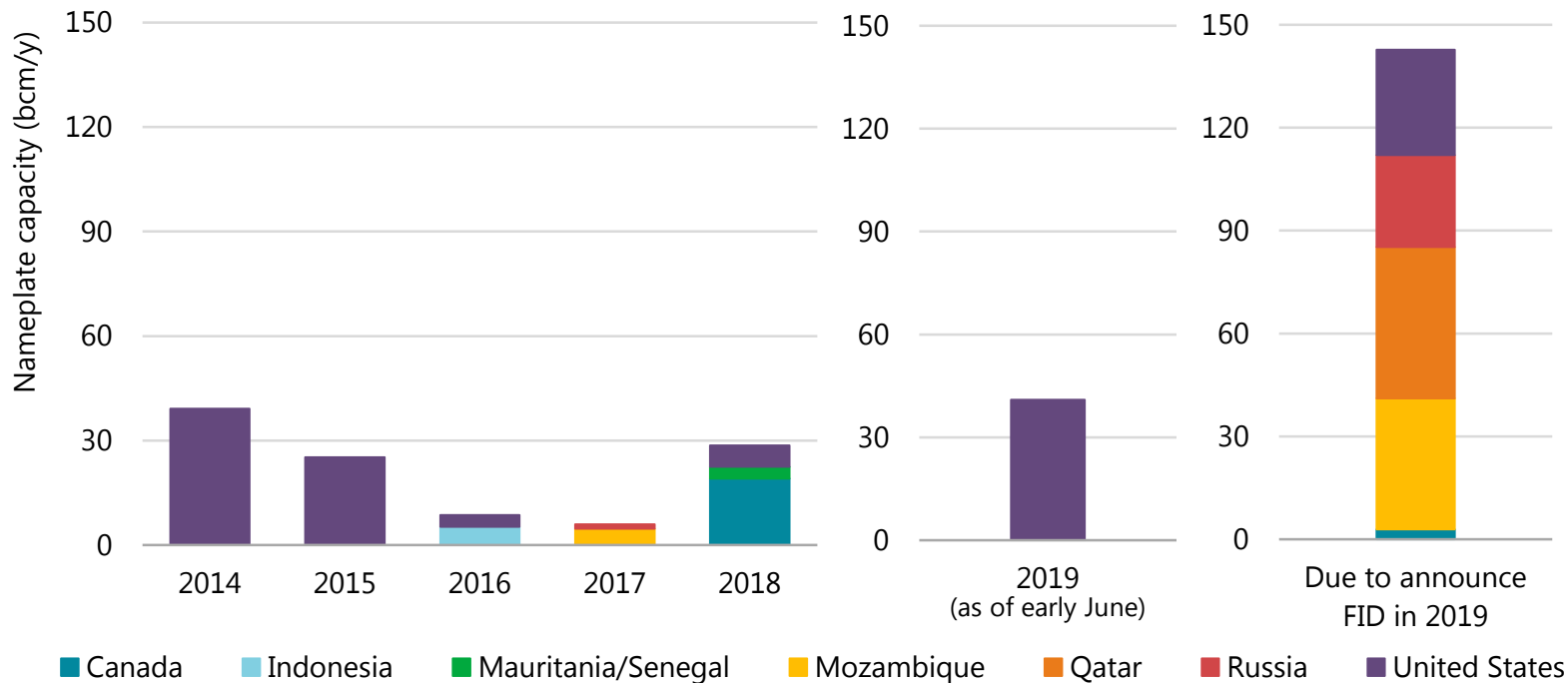
Domestic production and contracted pipeline vs import needs, Europe, 2014-24



Europe needs to source imports to cover one-third of its demand by 2024, due to sharp declines in its own production & the expiry of pipeline long-term gas import contracts

Will 2019 mark the beginning of a new LNG investment cycle?

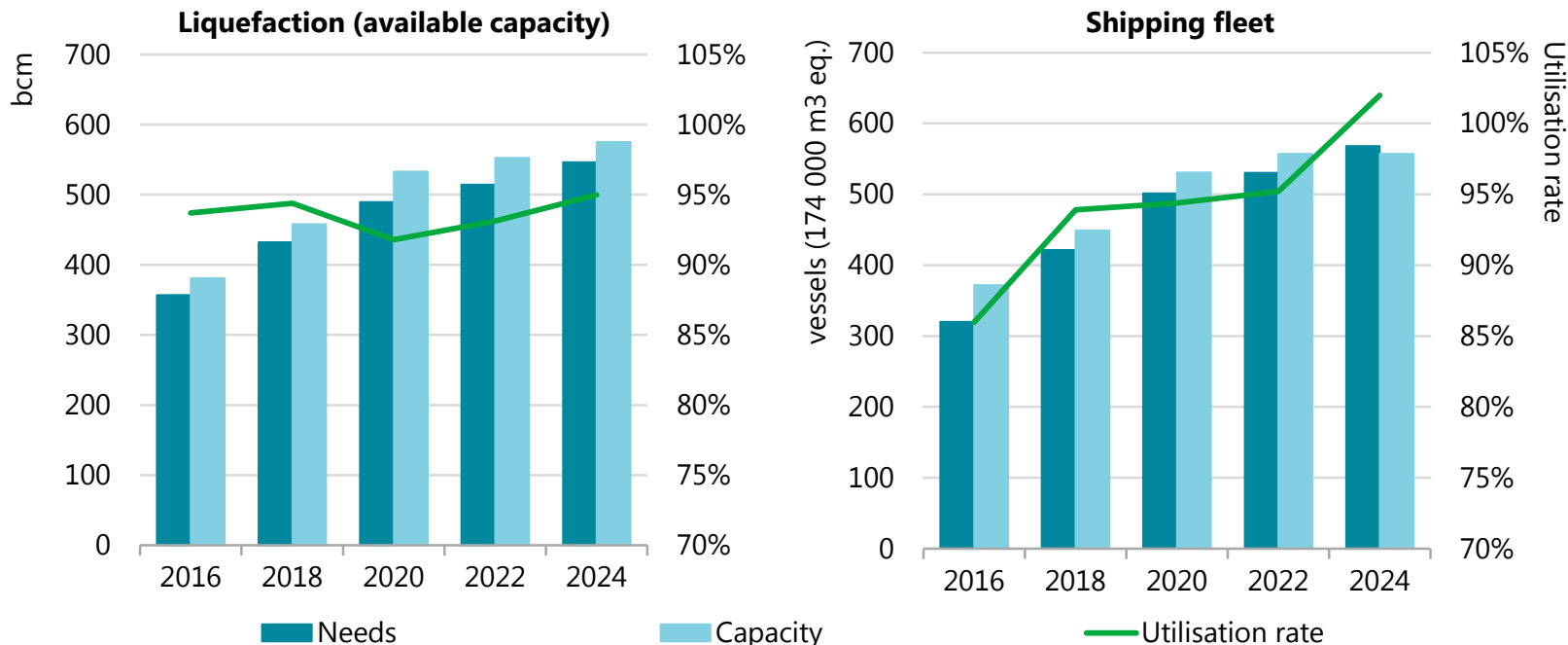
LNG export projects final investment decisions and announcements, 2016-19



2018 and early 2019 mark a return to LNG investment growth, with a strong list of additional projects announced to take FID in the course of the year

More investment will be needed in LNG capacity before 2024

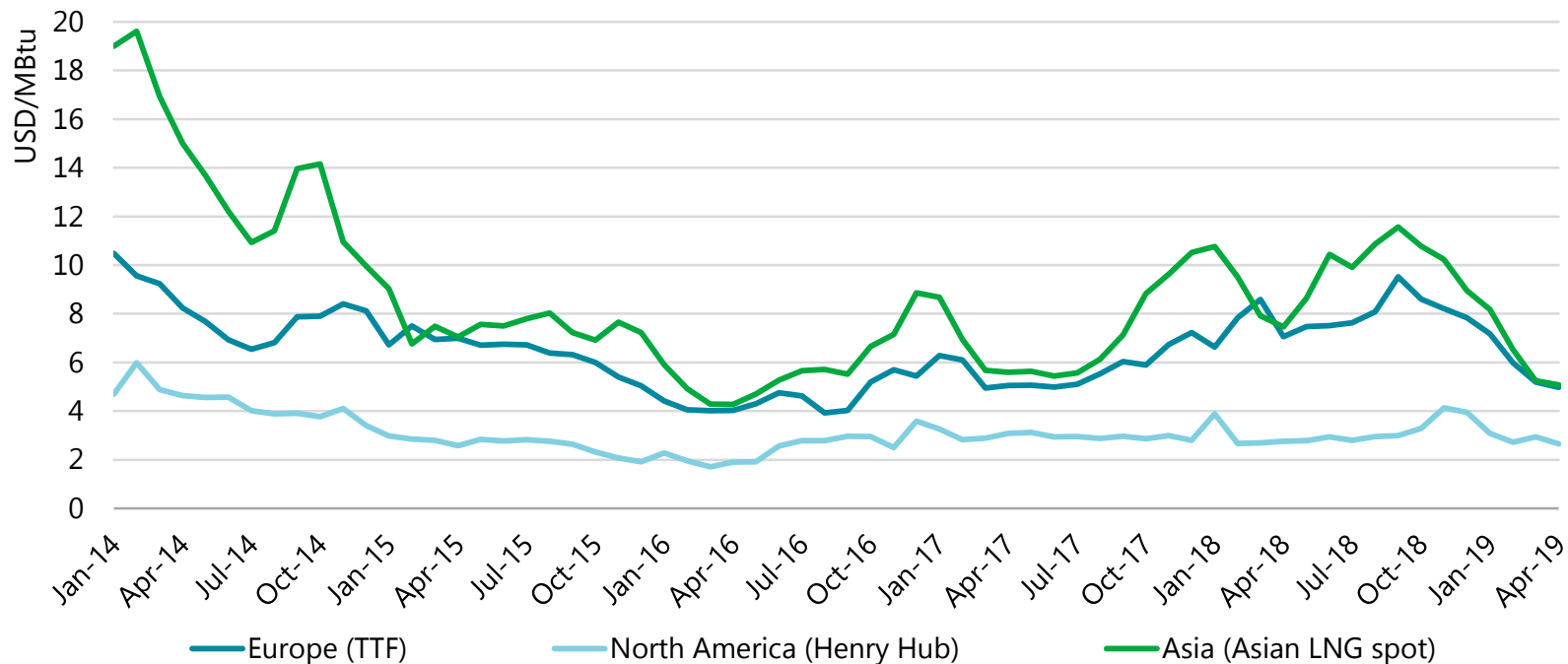
LNG liquefaction and shipping fleet utilisation rates, 2016-24



New investments in liquefaction and shipping will support LNG trade development but additional capacity will be required to ensure future growth

Towards a global convergence of natural gas prices?

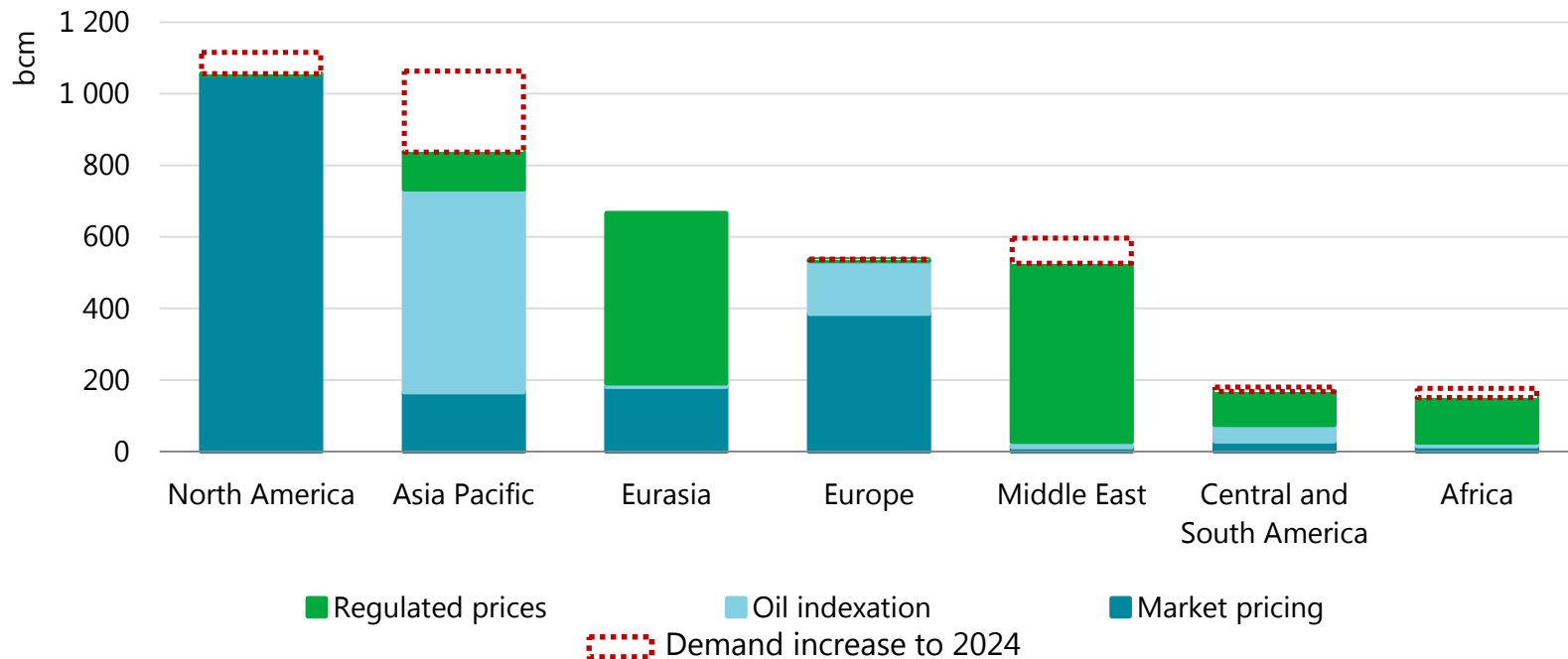
Evolution of natural gas spot market prices, 2014-19



Gas markets in major regions are closing the price gap thanks to the development of global LNG trade
The Asian spot market still faces a higher degree of price volatility

Pricing remains a challenge in developing markets

Natural gas consumption and price mechanisms per region, 2018



Based on IGU, *Wholesale Gas Price Survey* (2019)

Market pricing currently dominates in North America and Europe – but 85% of growth will take place in other regions
Reforms are underway in major developing markets to enable sustainable gas growth

- Natural gas demand will continue to grow in the medium-term, driven by emerging Asian economies – and led by China.
- Although production increases in many regions, most of additional exports will come from US LNG and Eurasian pipeline.
- LNG trade remains the main driver of gas market globalisation, and a major source of incremental supply for Asia and Europe.
- This growth is supported by a rebound in investment, but additional capacity development will be necessary before 2024.
- Market prices are converging as global LNG trade expands, and the share of market-driven pricing is increasing in all regions.
- Current gas reforms in major emerging economies are a prerequisite to ensure competitive pricing and sustainable growth in the longer term.



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Contact : report@ky.ieej.or.jp