



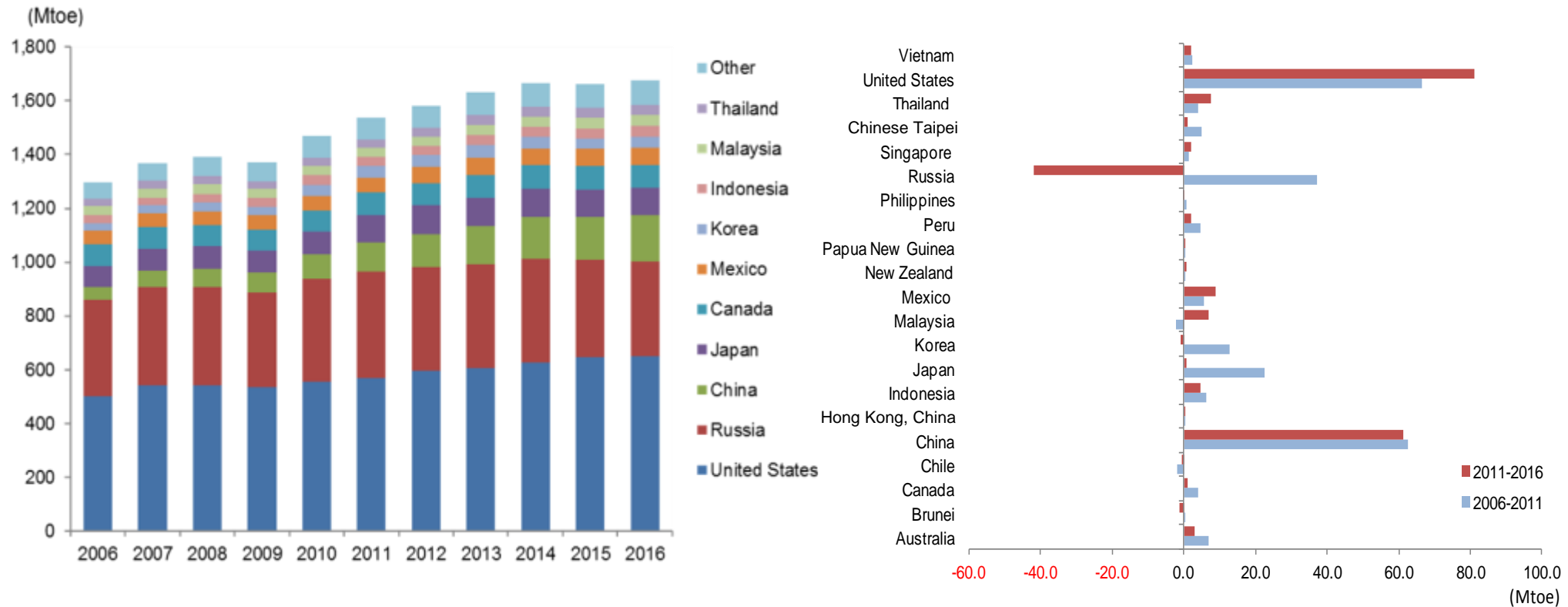
The 55th Meeting of APEC Energy Working Group (EWG)
Hong Kong, China, 16-17 May, 2018

12.c. APERC Gas Report 2018

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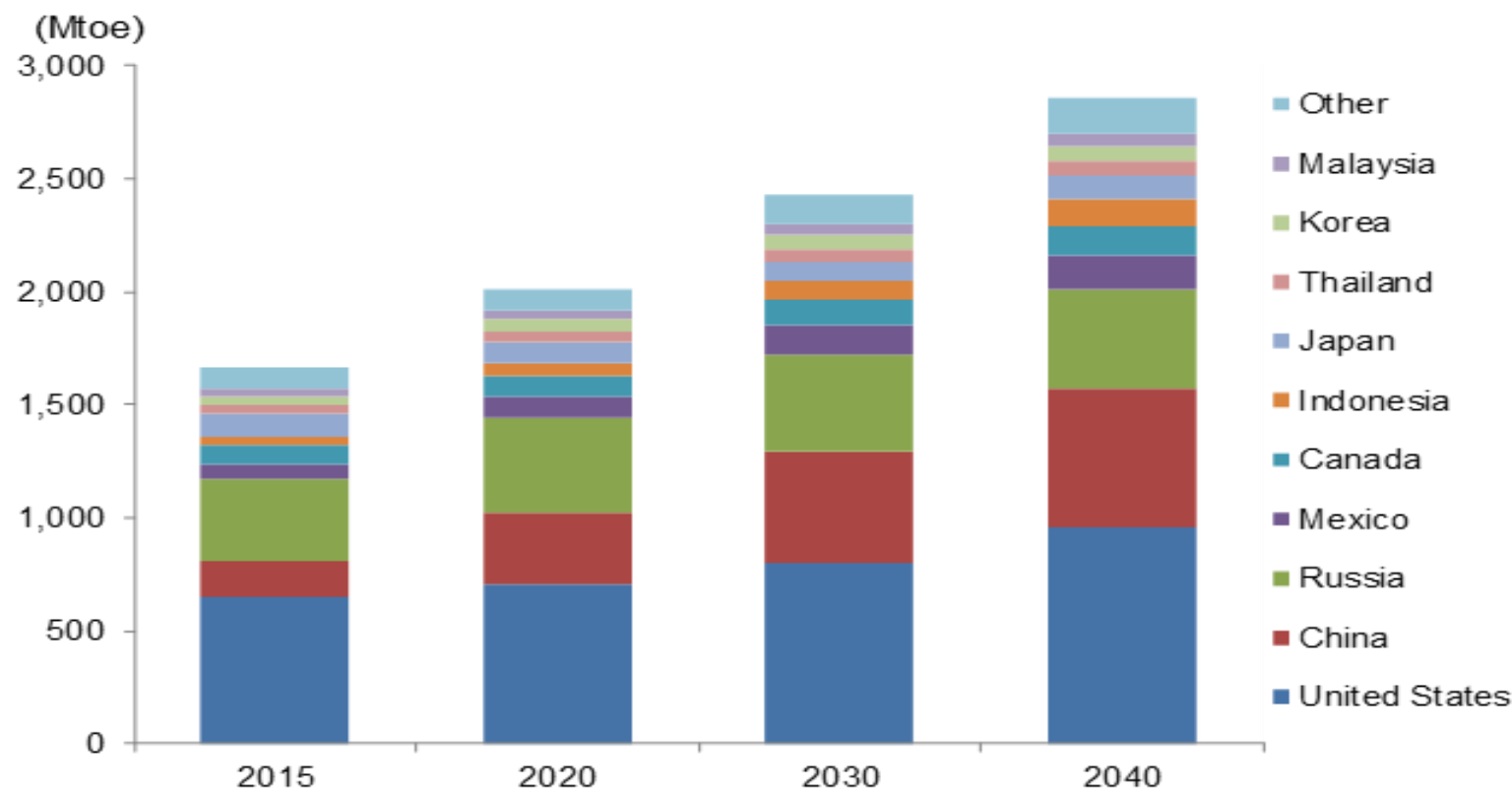
Total gas consumption in the APEC region, 2006-2016



- Demand growth driven by the US and China.
- US remains the largest gas consumer in the world, growing by 29%.
- Russia remained stable in consumption.
- China surpassed Canada, Japan and Mexico; growing by 164% in the last decade.
- Analysis of the largest four consumers plus Korea.

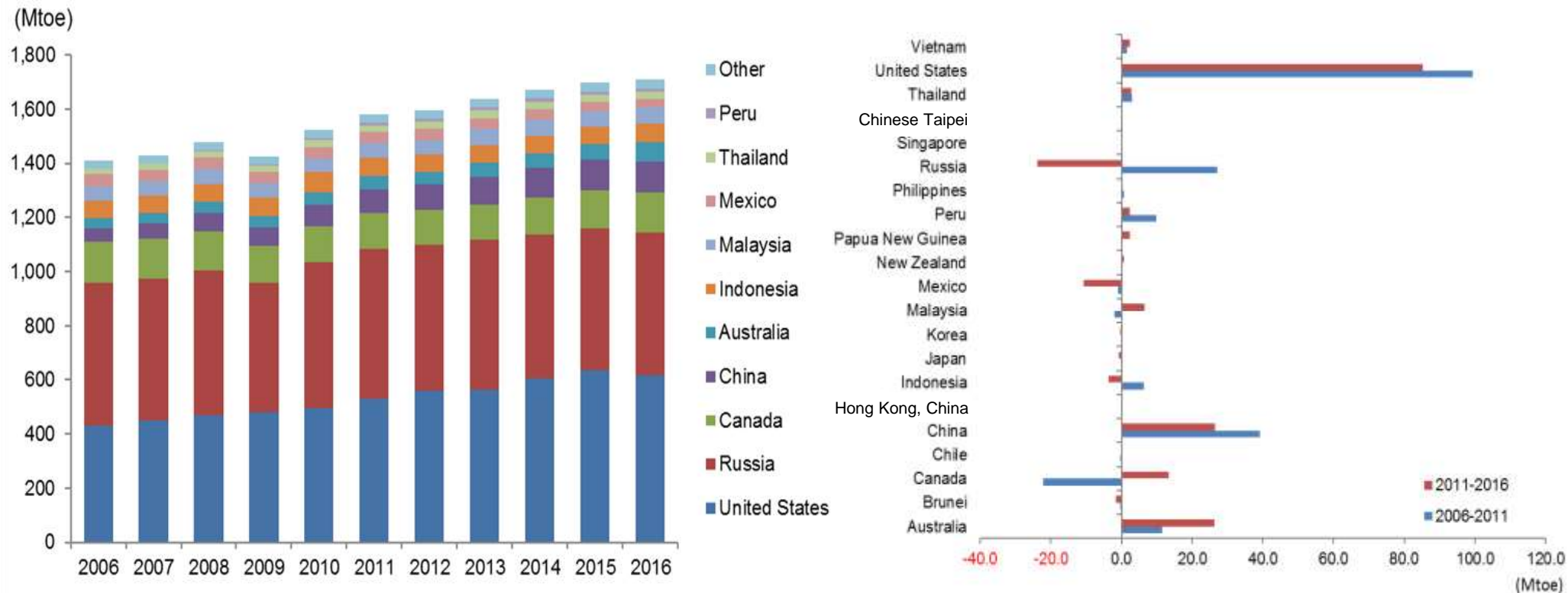
Sources: IEA, World Energy Balances 2017

Outlook for natural gas consumption in APEC, 2015-2040



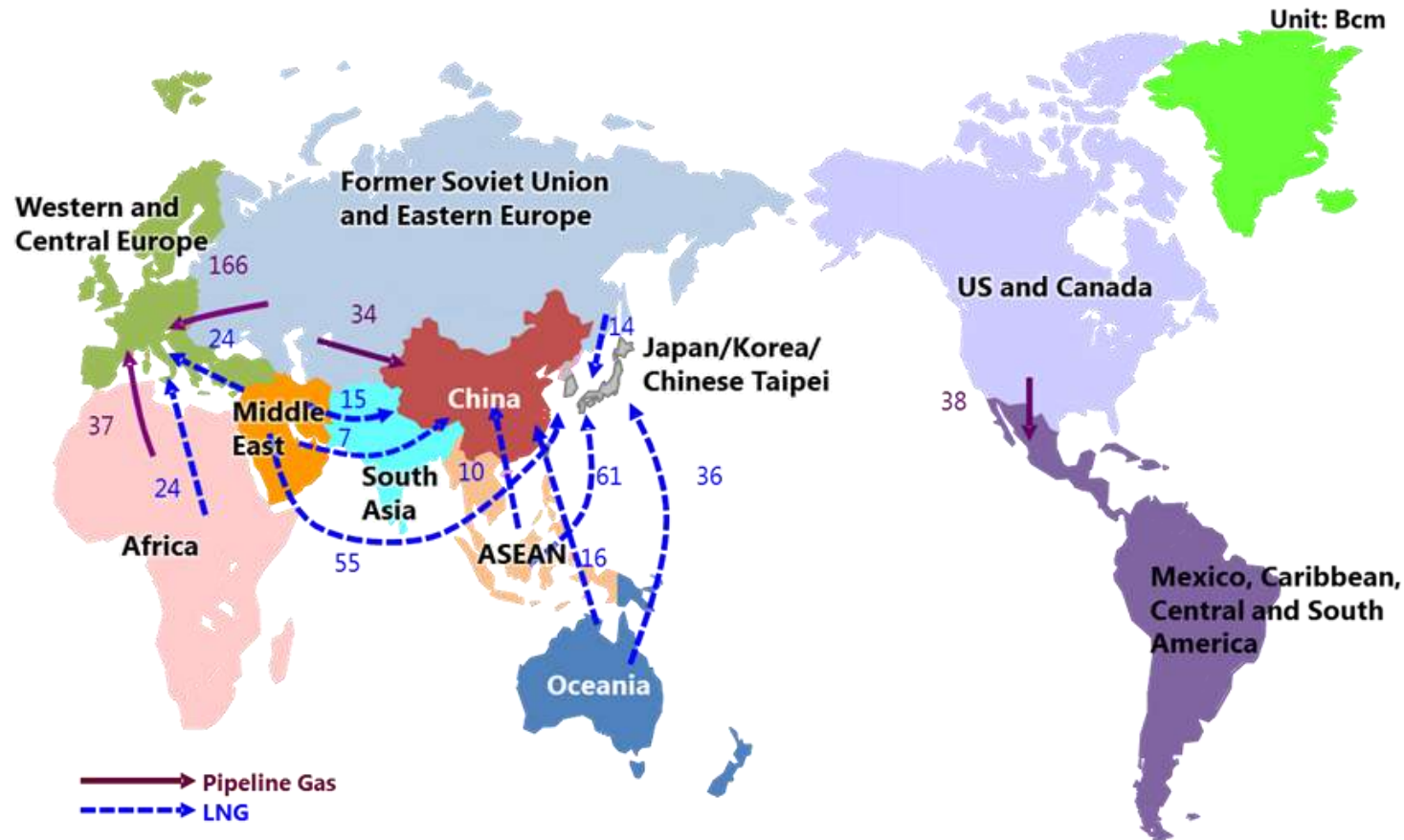
- *Worldwide natural gas consumption is projected to increase by an average 1.8% per year, growing from 2 944 Mtoe in 2015 to 4 550 Mtoe in 2040.*
- *APEC gas demand will increase by an average 2.2% per year from 1 663 to 2 854 Mtoe during the same period.*
- *US and China will be the main drivers of consumption growth in the region.*

Gas supply in the APEC region, 2006-2016



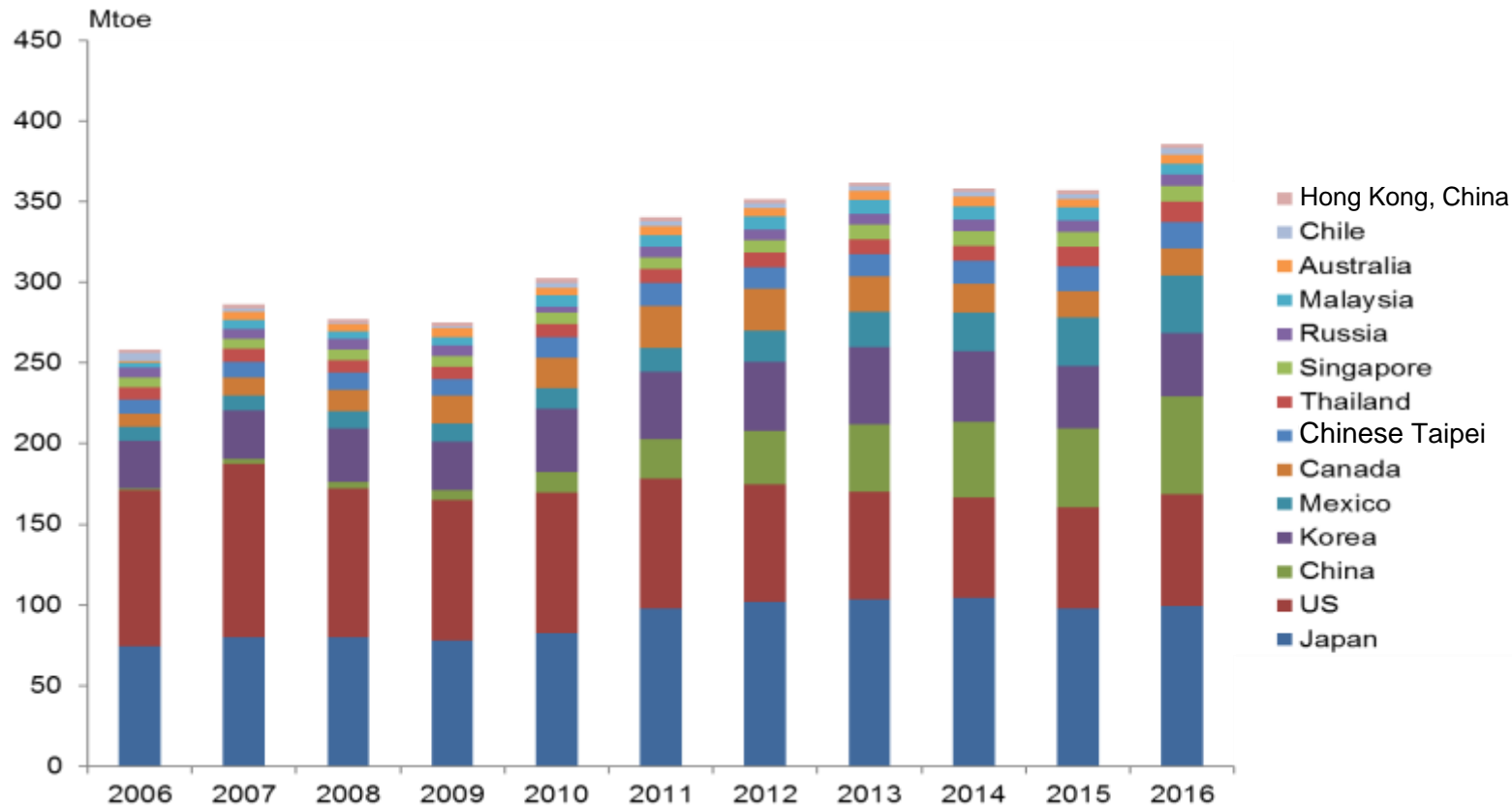
- *APEC gas production share remained stable at around 57% of world's total.*
- *US surpassed Russia in 2012 as the world's largest producer (shale revolution).*
- *The US grew by 43% and China by 135%; being the largest contributors to the APEC region production growth.*
- *Conversely, Mexico's production shrank the most, by 28%.*

Major natural gas trade flows, 2016



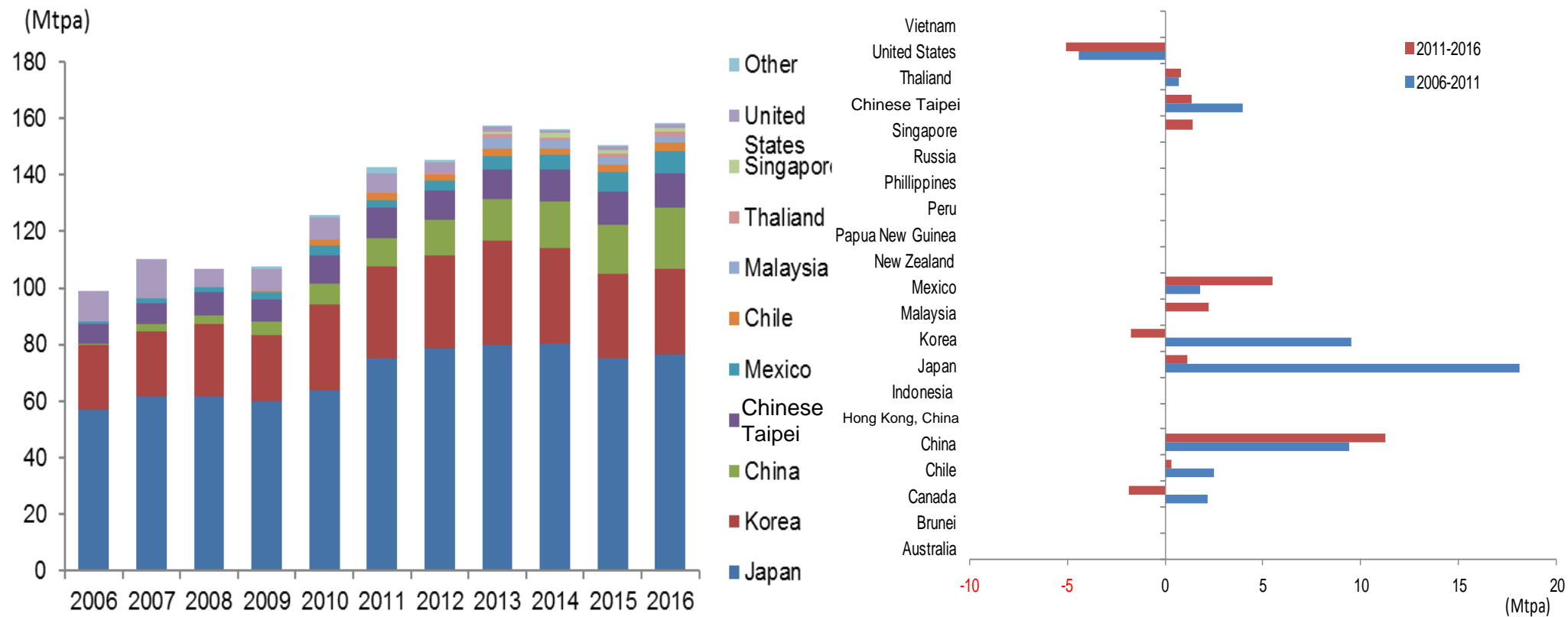
- World gas imports grew by 2.1% per year from 889 bcm in 2006 to 1 098 bcm in 2016.
- APEC members' share of global natural gas imports increased from 35% to 43% in the last decade.
- Only 3 out of 21 APEC members do not trade gas: NZ, VN and PH.

APEC member gas imports, 2006-2016



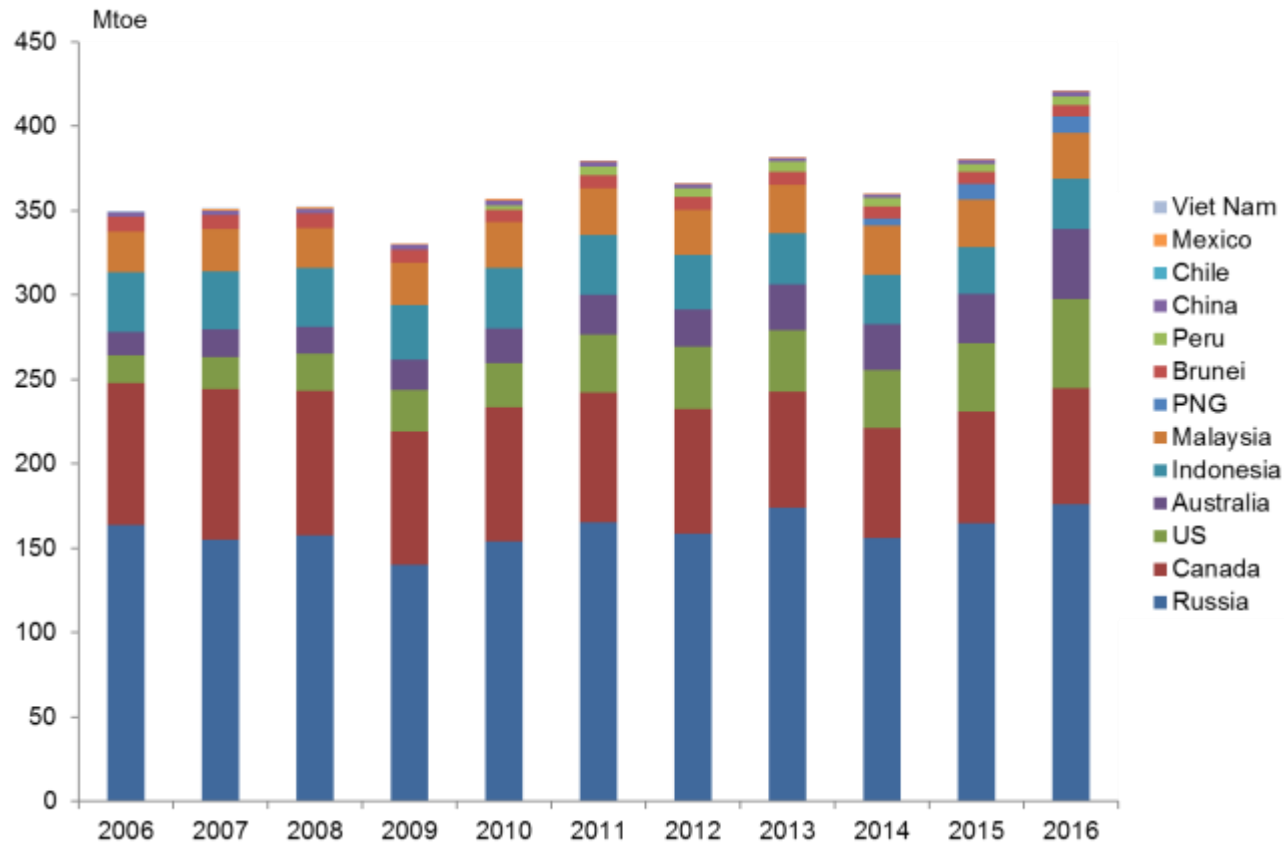
- *Japan remains the largest LNG and natural gas importer in the world.*
- *While US imports decreased, it's still the second biggest importer.*
- *China had the largest growth in imports in the APEC region.*
- *Mexico's imports growing fast and will probably surpass Korea in the coming years.*

APEC member economies LNG imports, 2006-2013



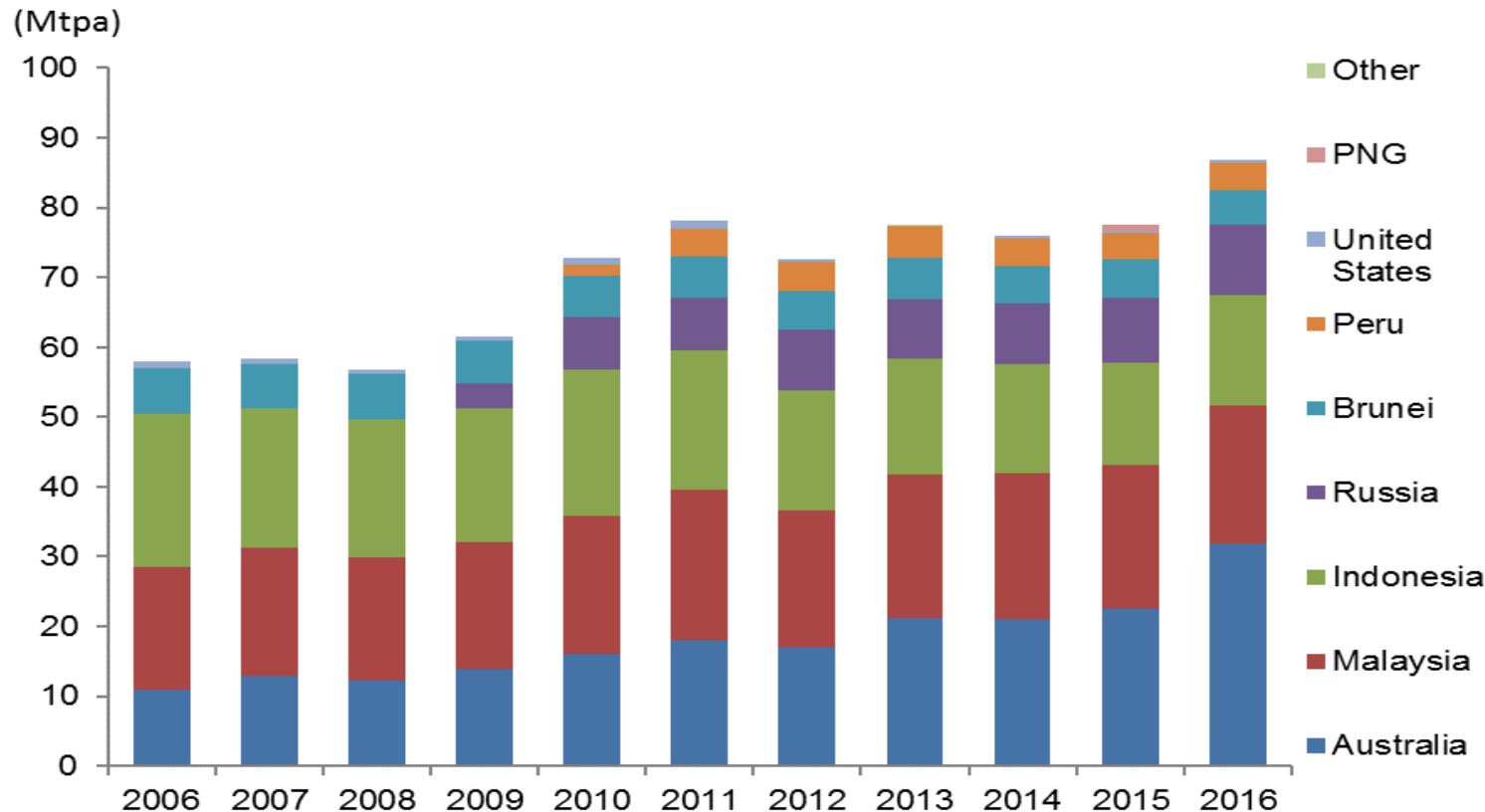
- World LNG demand has grown by 5.4% on average in the past 10 years.
- APEC LNG imports grew by an average annual 2.6%; 71% of world imports in 2016.
- China's LNG demand grew by 2000%, roughly 20 Mtpa, leading LNG demand growth.
- Japan remained the largest LNG importer, and further grew by 19 Mtpa
- US imports shrank massively by 20 Mtpa.

APEC member gas exports, 2006-2016



- APEC's share of global natural gas exports declined from 48% in 2006, to 46% in 2016.
- Russia remains the world's largest gas exporter. Yamal LNG in 2017 and new China pipeline under construction.
- Canada still exports massive volumes to the US, but they decreased by 18% during the last decade.
- The US more than tripled natural gas exports including pipeline deliveries and LNG exports.
- Australia nearly tripled its LNG exports during the same period.

APEC member economies LNG exports, 2006-2013

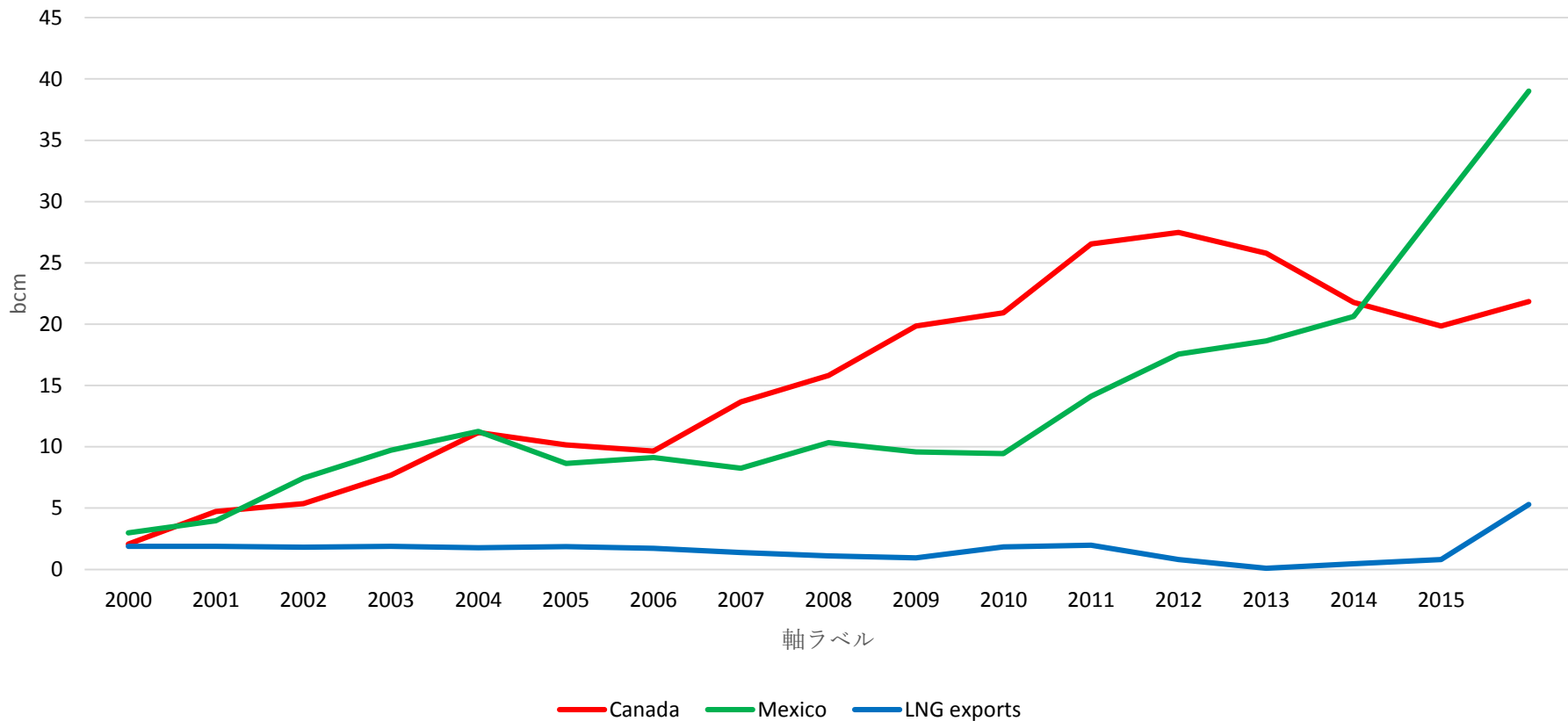


- *World LNG supply has grown by 5.6%, oversupplying the market.*
- *Despite increasing production, APEC LNG exports decreased from 45% of the world's exports to 39%.*
- *Australia and Russia contributed 31 Mtpa of exports, almost all the APEC growth.*
- *High expectation for US LNG exports growth.*

Price outlook

- Possible upward trend in **Asian LNG** prices long-term contracts, following crude **oil** prices.
- However, uncertainty as importing companies will want to **renew contracts** at lower prices, and may opt for short-term lower prices or **spot** contracts.
- Despite LNG demand growth, pushed mainly by China, LNG markets will continue to be **oversupplied** with new capacity additions. **Asian LNG spot** price likely to stay at or **below \$6/MMBtu**, increasing the gap with long-term contract prices.
- Gas prices in **Europe** have a mixed future. In the short run, **downward tendency** due to slow demand growth and intensified **competition** among exporters. In the mid-term, however, the North Sea's production decline and demand for power generation may push prices at around **\$7/MMBtu** by 2020.
- Gas prices in the **United States** are expected to be lower in the near future. In the medium term, prices may face some upward pressure but are expected to remain below **\$4/MMBtu**.

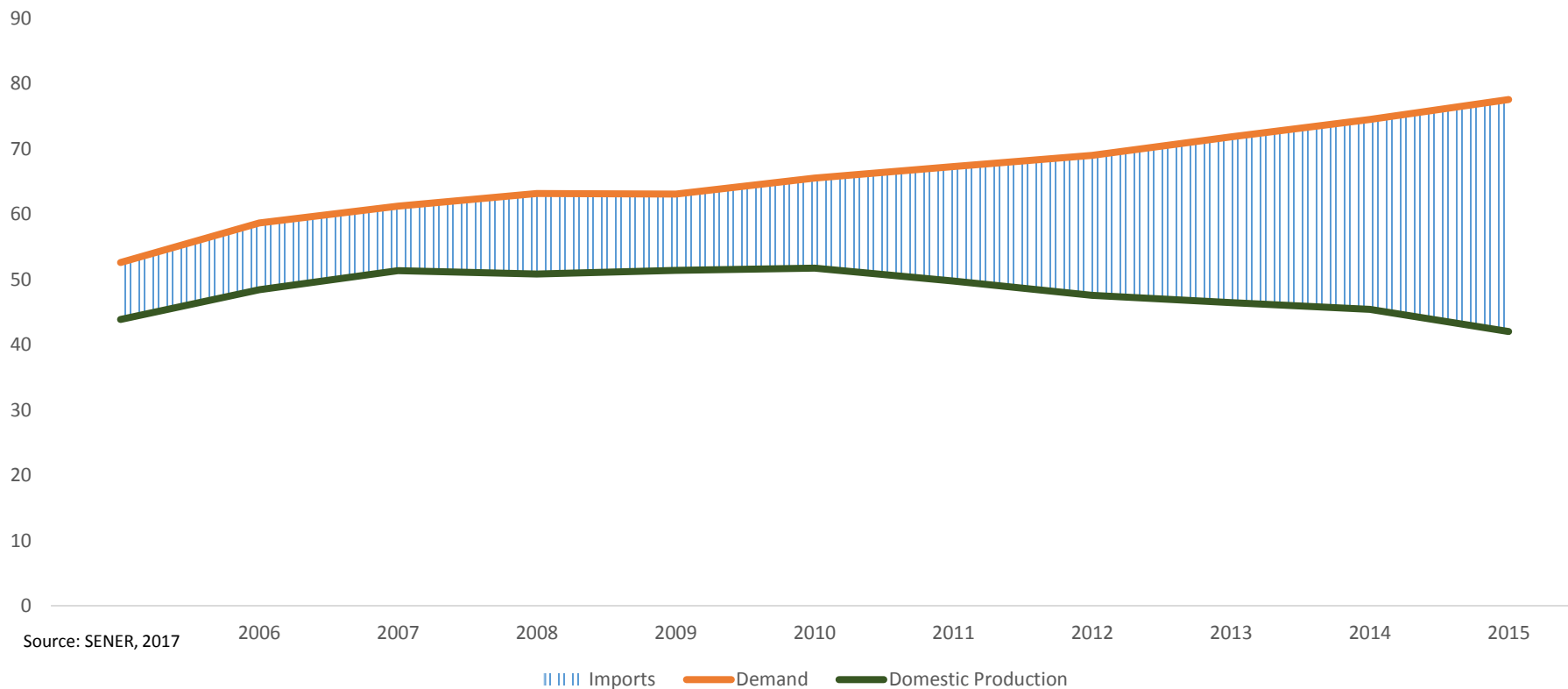
Case study: US gas exports to Mexico and MX gas market reform



- *US gas exports have been rising since 2006.*
- *Mexican US imports more than doubled in the last three years.*
- *In 2016, US piped imports to Mexico reached 38 bcm, the same volume of total China piped imports.*

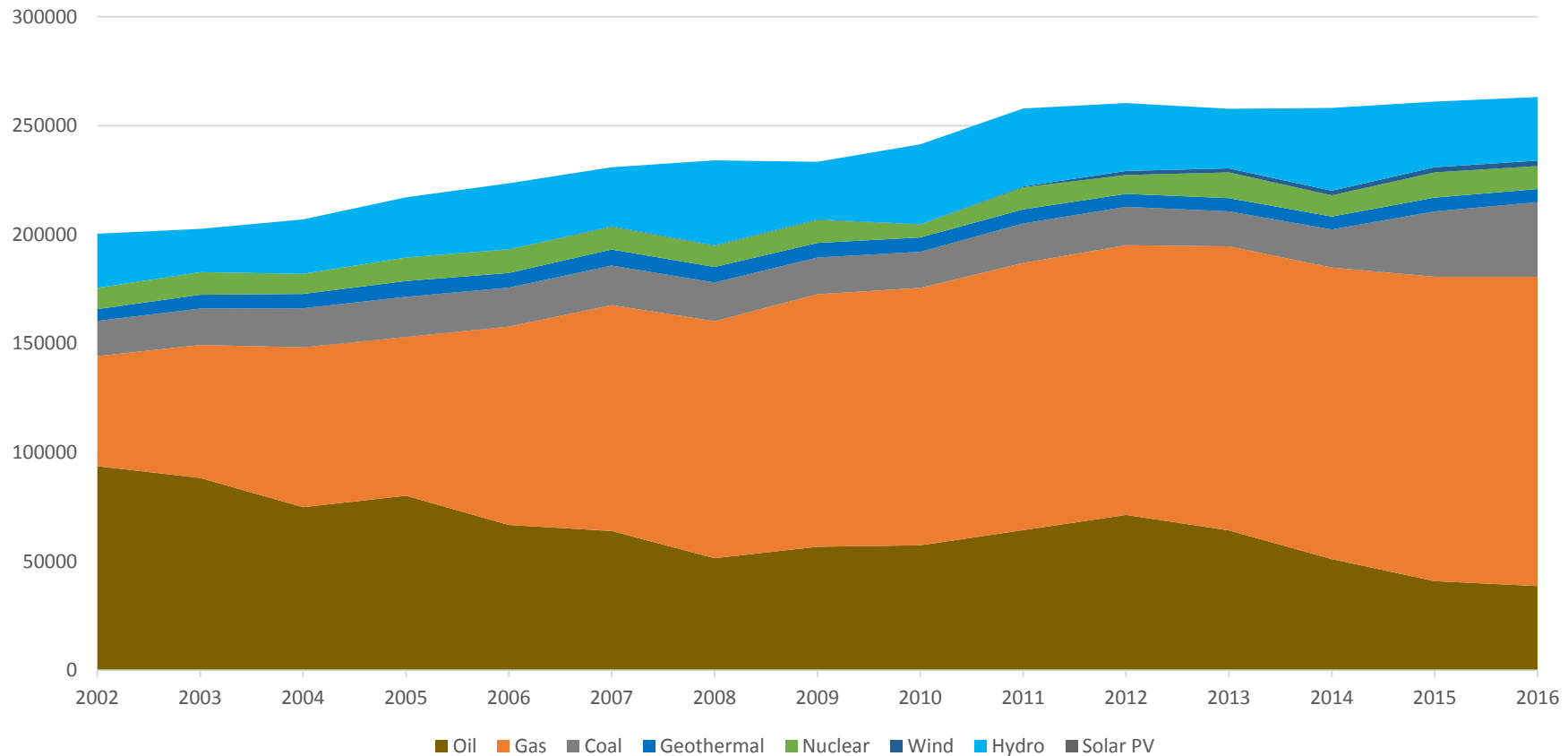
Sources: US EIA, 2017

Mexico's Gas Demand and Supply (2005-2015, bcm)



- 1999, Mexico's net gas imports were close to zero. Natural gas demand has grown since 2000 by an annual average rate of 5%, reaching almost 80 bcm in 2016.
- Since 2010, production has been decreasing each year, plummeting from 52 to 36 bcm in 2016.
- Why? 1) most production, associated; 2) monopoly; 3) Pemex preferred investing in oil.

Power generation in Mexico by fuel type (2002-2016, MWh)



- *In 2002, Mexico's power generation used predominantly oil (47%) and gas (25%).*
- *CFE, then state-owned monopoly, has almost doubled its gas-fired power generation capacity and effective generation switched to gas accounting for 45% and oil for 28%. Price differential: WTI vs Henry Hub.*

Great potential but challenges coming ahead...

- US gas exports to Mexico in 2016 totalled **40 bcm**,
 - Larger than all piped gas imported by China
 - Equivalent to **Indonesia's** total gas demand
 - **Nigeria's** whole gas production.
- The IEA expects the US to export around 80 BCM in the LNG markets by 2022 vs 40-56 BCM to Mexico.
- Mexico's nascent gas market has a promising future for US gas producers and exporters, Mexican power companies and industry, and consumers.
- Transition from a state-owned monopolistic scheme to the creation of a competitive gas market.
- Challenges like delays in the construction of new pipelines to transport imported gas to consumption centres in Mexico. At least six projects have delayed commercial operation for more than a year,.
- Effective regulation.
- Price indexation controversies.
- Lack of storage capacity.
- Increased dependency from US gas market
- Competition from low-priced renewable power generation.
- The Trump effect creates... uncertainty.
- However, the extremely competitive US shale gas production and Mexico's gas market reform are promising signs for strengthening and increasing this bilateral market, one of the biggest in the world.





Thank you for your attention!

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About the Report and its Structure

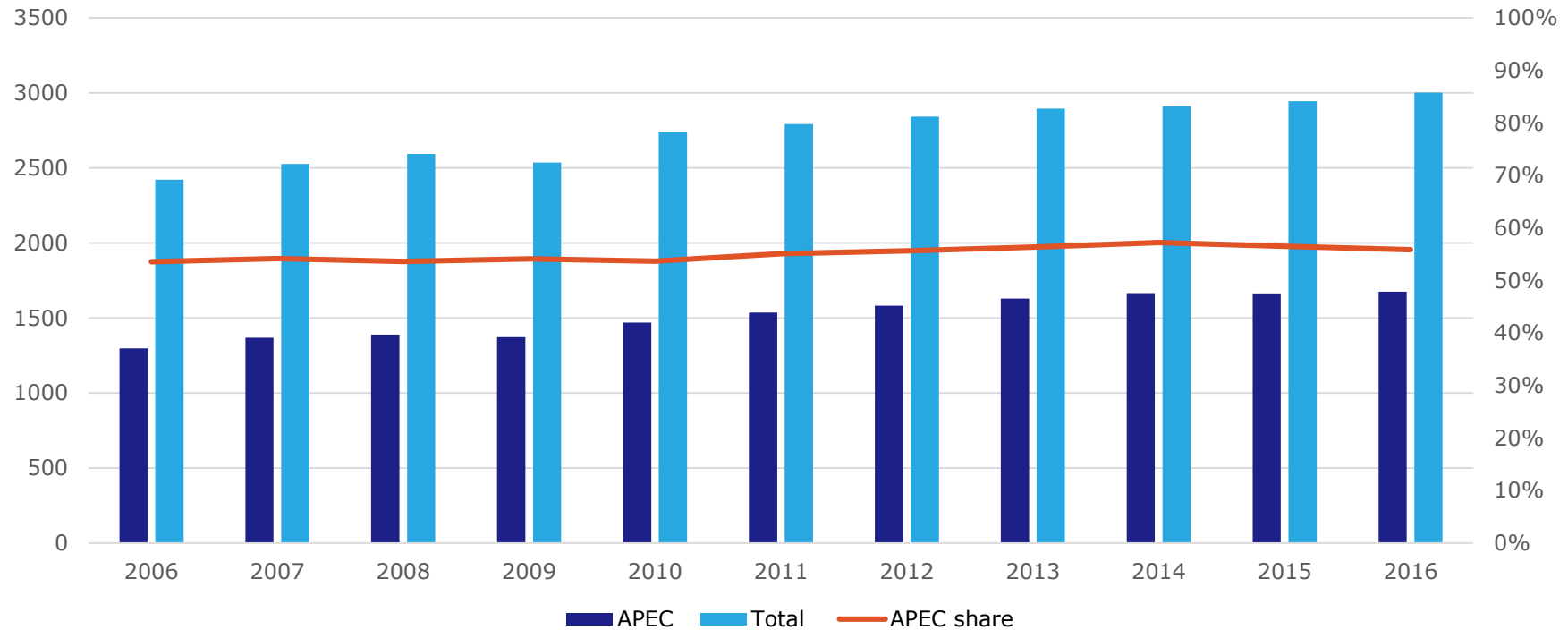
- First edition of these reports, along with coal and oil.
- Structure:
 - Executive summary
 - Section 1: Gas Demand
 - Section 2: Gas Supply
 - Section 3: Gas Trade
 - Section 4: Gas Prices
 - Section 5: Case study on US gas exports to Mexico and Mexico's gas market reform.

APERC Gas Report 2018



World and APEC Demand for natural gas

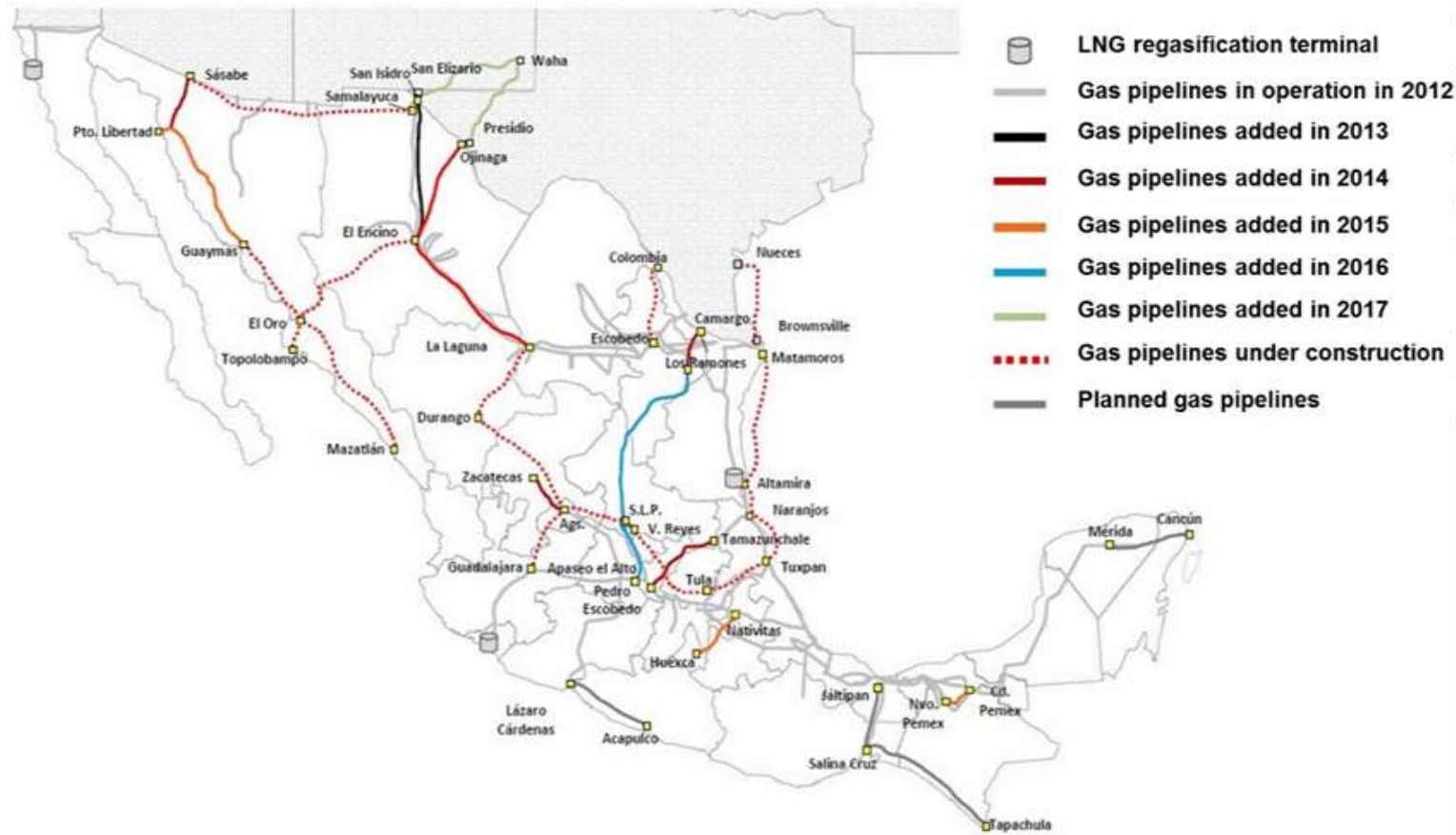
World and APEC Demand for natural gas, 2006-2016 (Mtoe, %)



- *World gas demand has grown by 2.2% on average in the past 10 years.*
- *APEC gas consumption has grown faster, by 2.6% per year on average.*
- *Around 60% of global gas consumption takes place in APEC member economies. In 2006 it was 53%.*

Sources: International Energy Agency (IEA), World Energy Balances 2017; Asia Pacific Energy Research Centre, Energy Balance Table

Mexico's gas transport network and its additions since 2012



- The 2013 Energy Reform triggered a massive transformation from Pemex and CFE's monopolies to open markets.
- Gas demand expected to grow by 2.6% up to 92 BCM by 2023 and domestic production expected to peak around 40 BCM.
- Mexico's gas imports will continue growing, creating a promising market for US gas producers.

US gas exports to Mexico in a global perspective...

- US gas exports to Mexico in 2016 totalled **40 bcm**,
 - Larger than all piped gas imported by China
 - Equivalent to **Indonesia**'s total gas demand
 - **Nigeria**'s whole gas production.
- When compared with LNG market volumes, as big as all Korean LNG imports in 2016 or, all Algerian LNG exports.
- In comparison , the IEA expects the US to export around 80 BCM in the LNG markets by 2022 vs 40-56 BCM to Mexico.
- Mexico's nascent gas market has a promising future for US gas producers and exporters, Mexican power companies and industry, and consumers.
- With declining domestic production, US gas imports to Mexico have more than quadrupled in less than 10 years.

