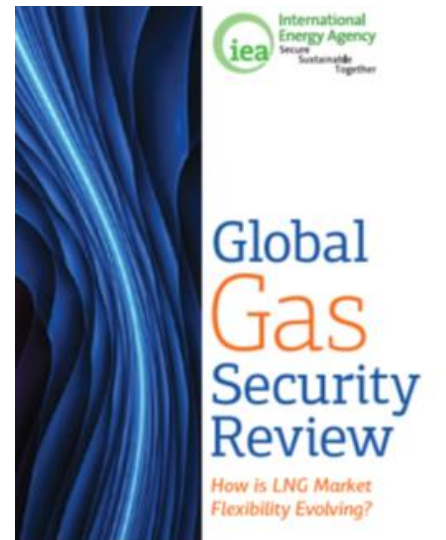




Global Gas Security Review 2017



Peter Fraser, Head of the Gas, Coal and Power Division
Singapore International Energy Week, 26 October 2017



❑ **The contribution of gas**

- Versatile fuel within the energy system, helping to address environmental concerns
- In 2016 gas became the leading power generation source in the US

❑ **An abundant fuel, but strong competitive pressures, especially in Asia**

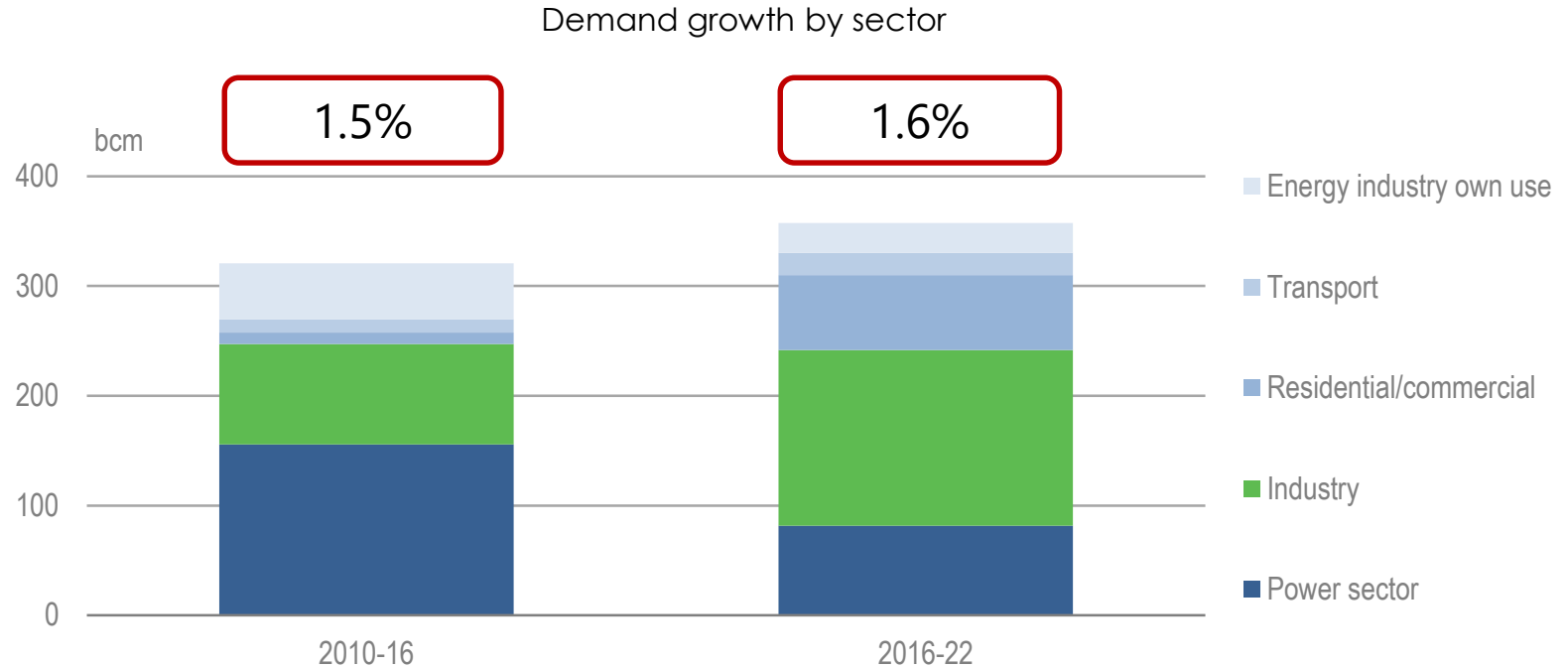
- Space for gas squeezed between renewables and coal in some markets

❑ **A second natural gas revolution is underway, this time caused by LNG**

- A new surge in LNG export capacity is helping unconventional gas go global
- Low prices continue, bringing new LNG-importing countries into the market

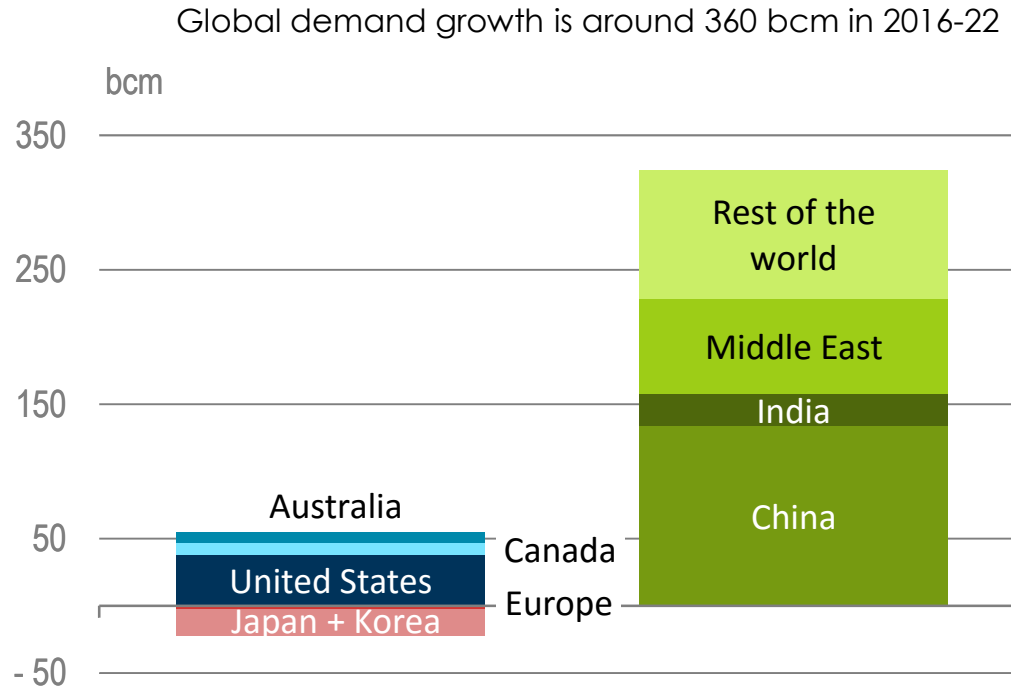
❑ **Strategic & environmental role of gas deserves attention from policy makers**

Demand growth moves from power generation to industrial sector



China, US and India account for half of the growth in industry sector, driven by chemicals and fertilisers

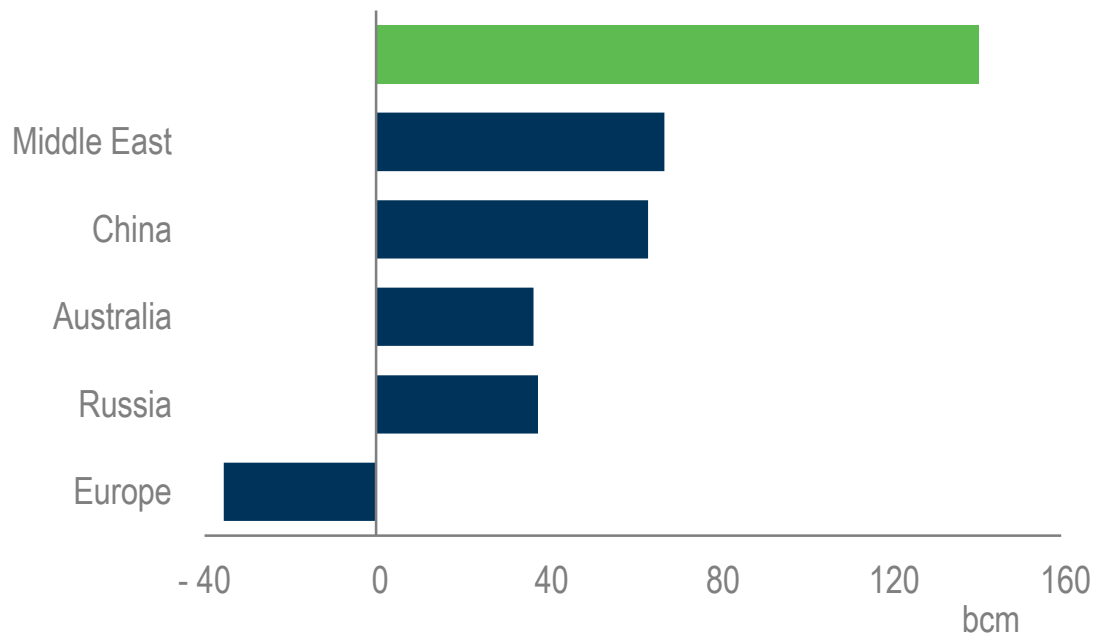
Demand growth focuses in developing countries



Developing countries account for around 90% of the incremental demand
The United States accounts for most of the growth in the developed economies

The United States accounts for 40% of global production growth

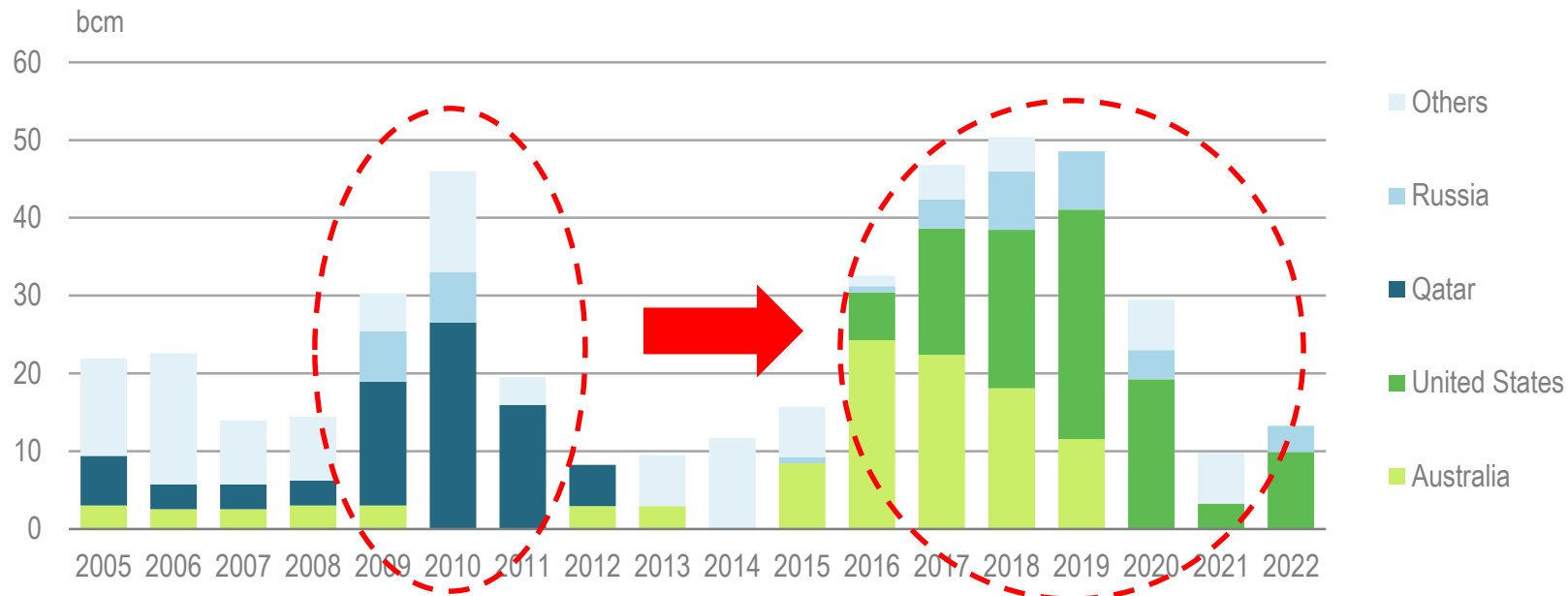
Global production growth, 2016-22



The Middle East will continue its production growth
China will become the 4th largest gas producer

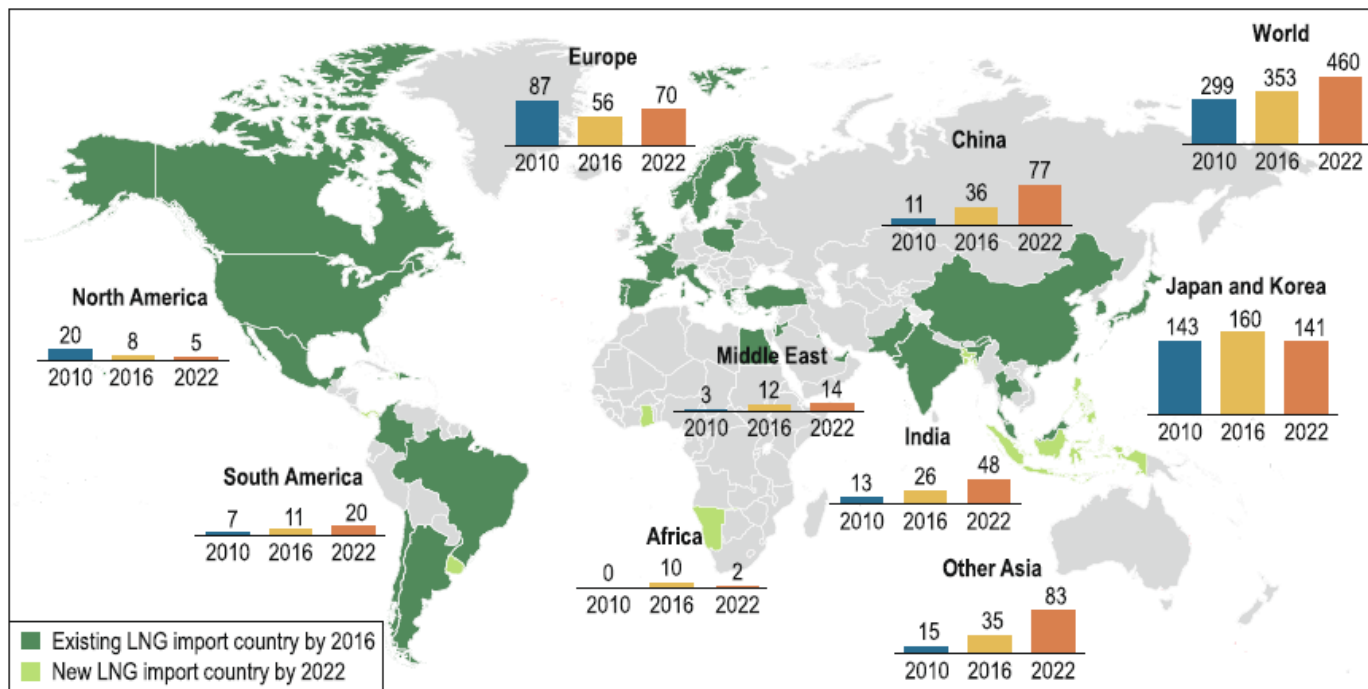
Second wave of additional LNG supply is already coming online

Incremental LNG capacity , 2005 - 2022 (bcm)



**15 new projects with total export capacity of around 140 bcm are now under construction
Australia and the United States account for 75% of them**

Asia, Europe and South America will drive LNG import growth

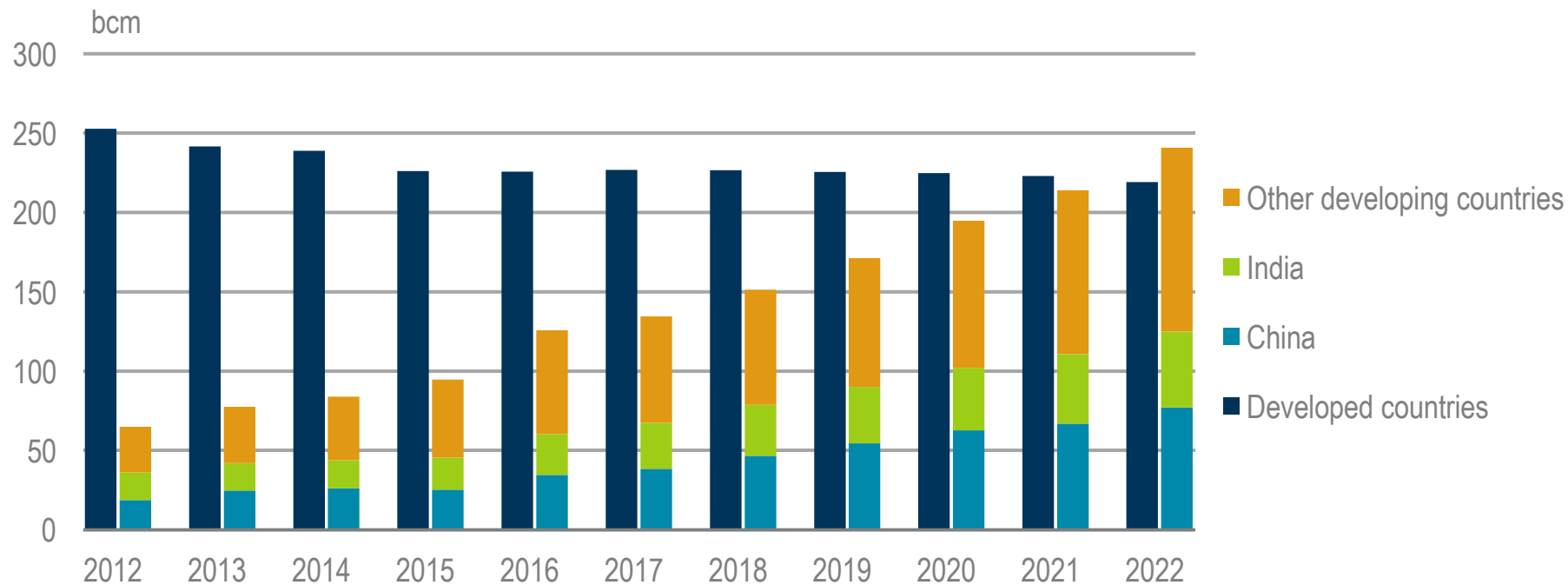


This map is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries, and to the name of any territory, city or area.

China and India together will double their LNG imports
Smaller and new LNG import markets will add more than 40 bcm to global LNG imports

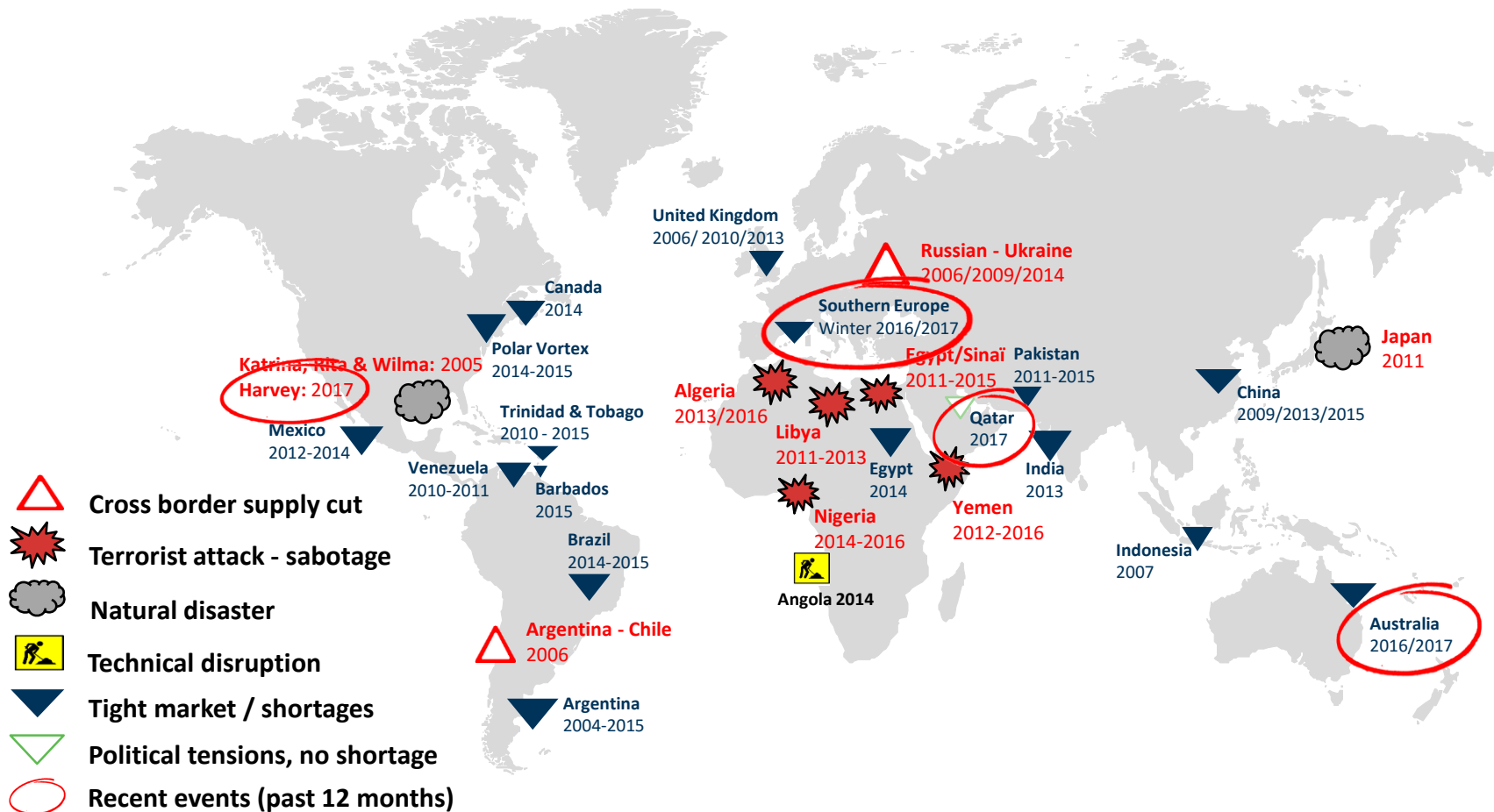
Demand in developing countries reshaping the LNG market

LNG import volumes , 2012 - 2022 (bcm)

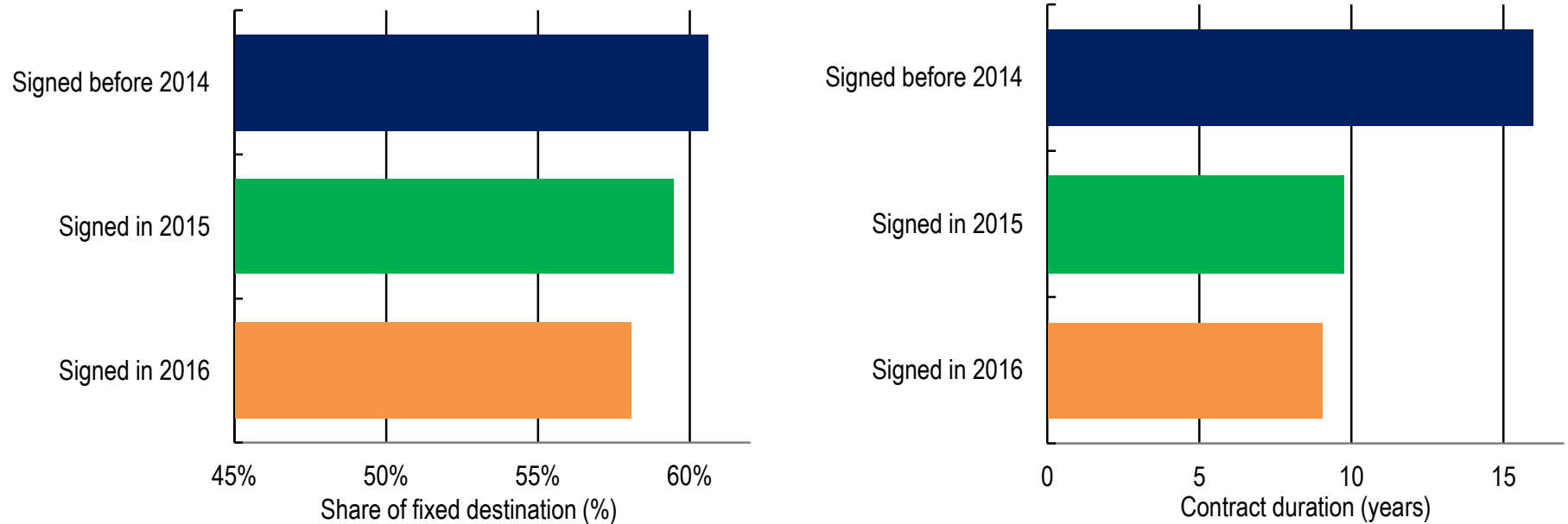


China, India and other developing countries will import more than 50% of all LNG by 2022

Gas security of supply remains a live issue

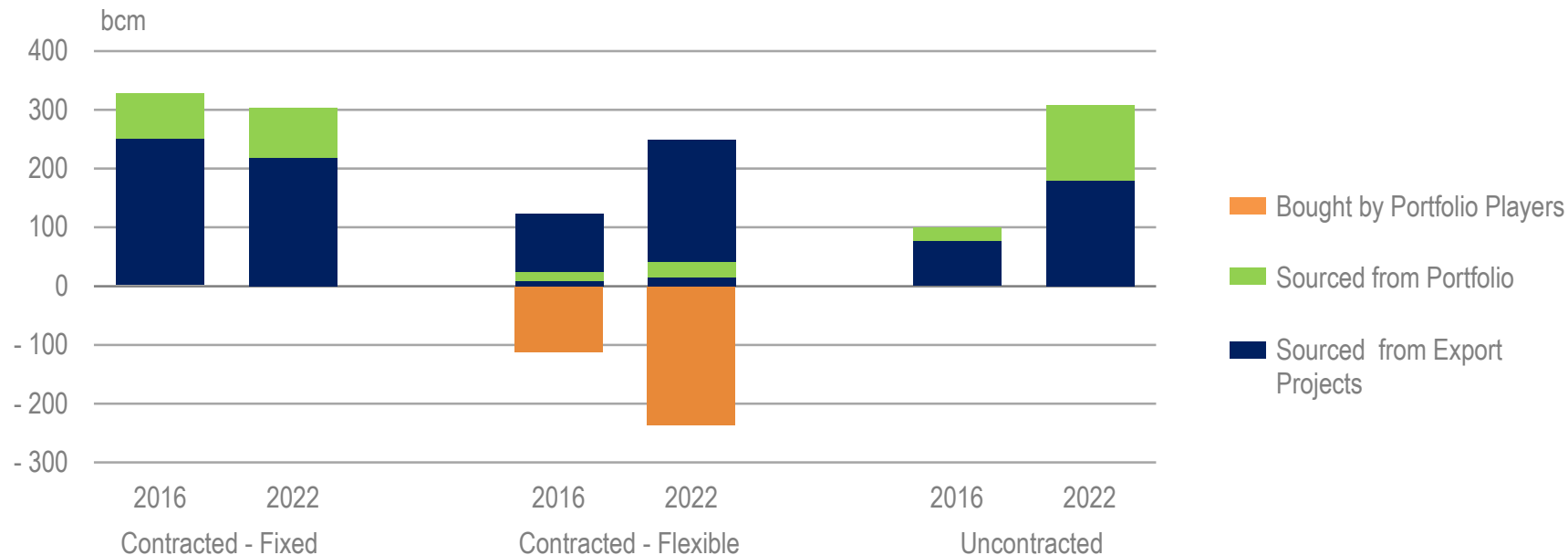


Recent evolution in LNG contracts



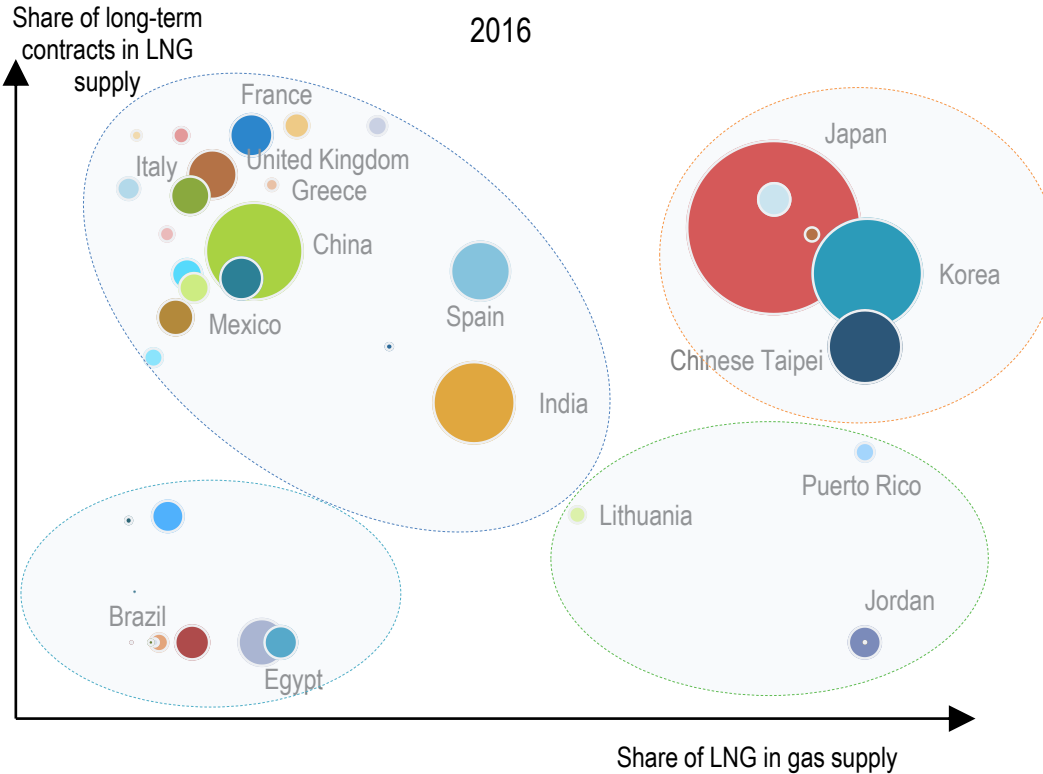
Trends from new signed contracts – more destination flexible and shorter – show proof of increasing LNG trade flexibility

LNG supply evolution per type of contract



Flexibility will increase with growing (mainly US) contracted volumes without destination clauses and (temporarily) uncontracted volumes from both projects and portfolios

LNG buyer types and characteristics



2. Diversity

19 countries
131 Bcm

1. Dependence

5 countries
184 Bcm

3. Reserve

10 countries
25 Bcm

4. Price

4 countries
7 Bcm

LNG buyers segment into four different types according to security of supply needs

Increasing LNG buyer diversification and LNG dependency by 2022

1. Dependence

5 countries
172 Bcm (-12 Bcm)

2. Diversity

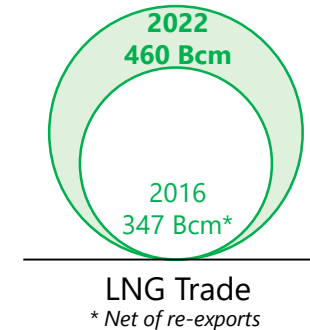
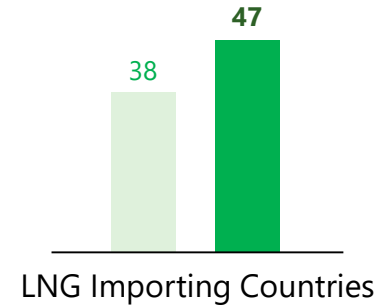
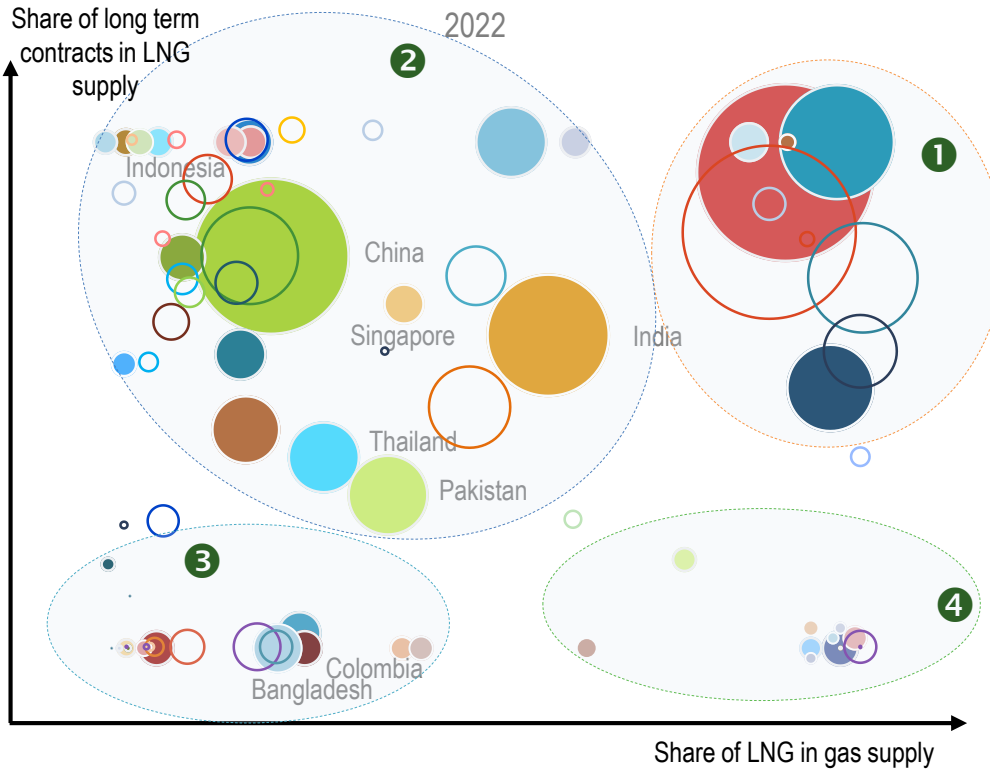
19 countries
243 Bcm (+114 Bcm)

3. Reserve

13 countries
30 Bcm (+5 Bcm)

4. Price

10 countries
13 Bcm (+6 Bcm)



LNG trade grows from additional importing and exporting countries
Share of LNG dependency increases in countries' supply mix

- ❑ **Lower prices help gas to strengthen its foothold in Asia**
 - Developing countries account for 90% of demand growth, China alone for 40%
 - Industrial consumers take over from power generation as the main source of growth
 - LNG growth rate nearly triple that of overall gas demand
- ❑ **Low LNG prices creating new diversity to global supply & trade**
 - Developing countries key to growth, led by China and India
 - Australia and US join Qatar as major gas exporters
 - Glut putting pressure on markets
- ❑ **Even though markets remain well supplied, recent events remind us that gas security cannot be taken for granted**
 - Weather, technical and political concerns remain
 - Gas security coupled to electricity security
 - LNG market flexibility is evolving, placing different emphasis on long-term security of supply