



# Energy Transition in Asia

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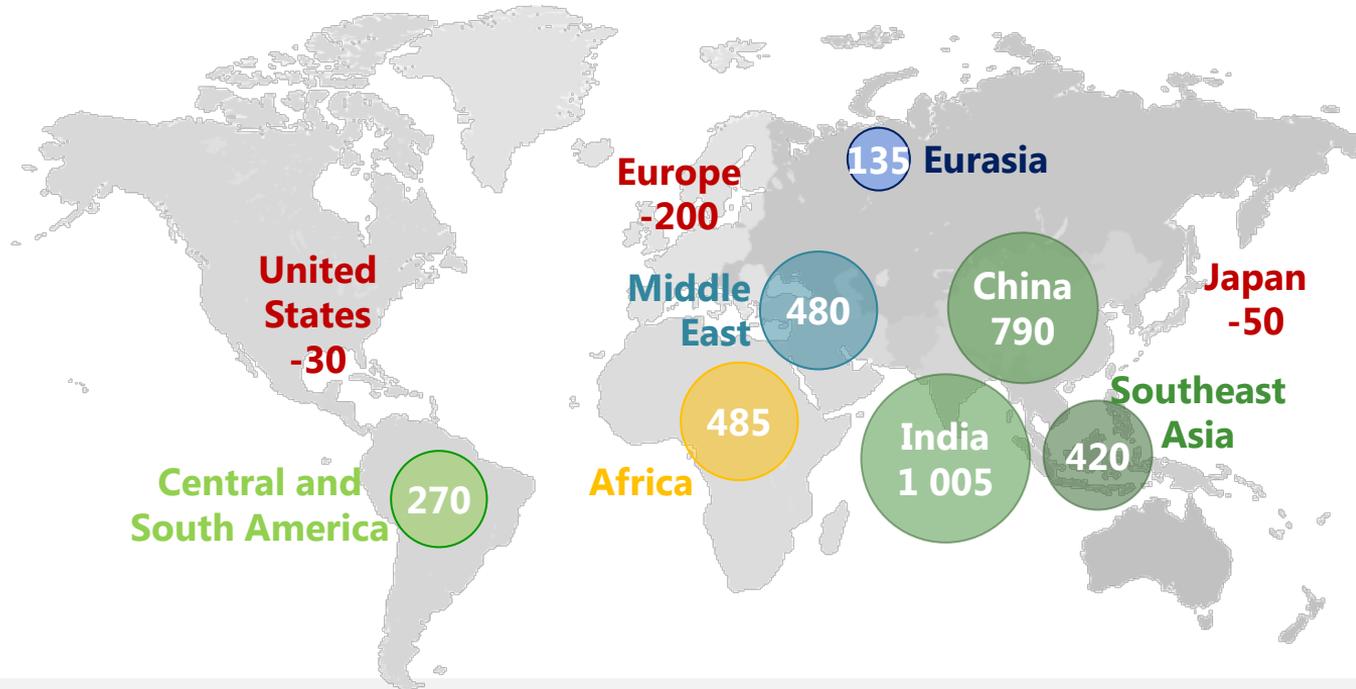
Géopolitique de l'énergie et environnement, 14<sup>th</sup> May, 2018

Keisuke SADAMORI, Director, Energy Markets and Security, IEA

- **China, India and Southeast Asia are major global energy players**
  - *Strong economic growth, urbanisation & industrialisation*
  - *Demand more than doubled since 2000, accounting for one-third of global primary energy demand*
- **A region with multiple energy challenges**
  - *A rising dependency on imported oil and dominant role of coal in the power mix*
  - *Around 300 million lacking access to electricity (India & Southeast Asia) and over 1 billion reliant on solid fuels for cooking*
  - *Poor air quality and rising CO<sub>2</sub> emissions*
- **Efforts underway towards a cleaner energy future**
  - *Increasing attention to renewables & efficiency*
  - *Fossil fuel subsidy reforms making progress*

# India takes the lead, as China energy growth slows

Change in energy demand, 2016-40 (Mtoe)

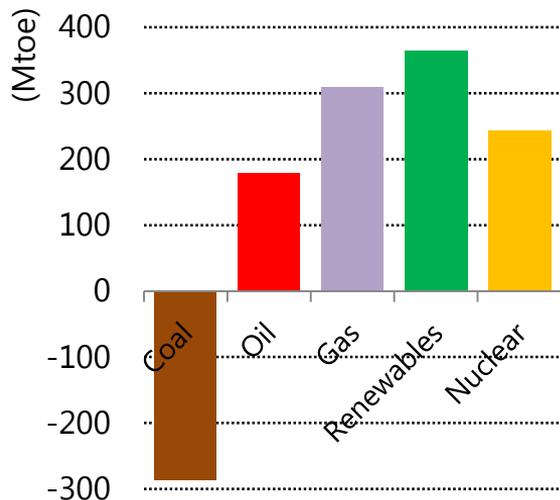


Old ways of understanding the world of energy are losing value as countries change roles: the Middle East is fast becoming a major energy consumer & the United States a major exporter

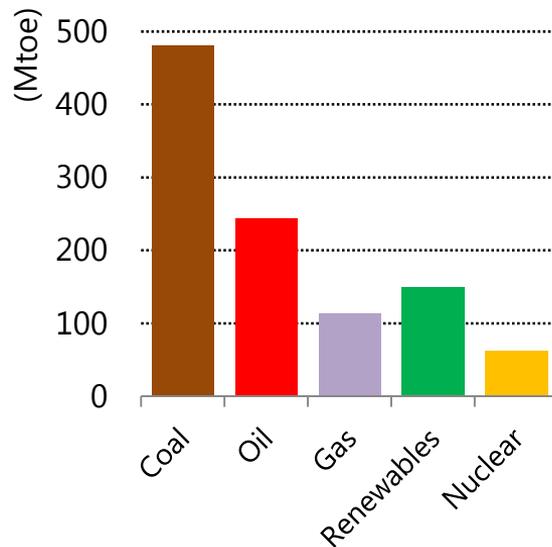
# Renewables play increasingly important role to meet rising demand in Asia

Change in total primary energy demand to 2040  
by source in the New Policies Scenario

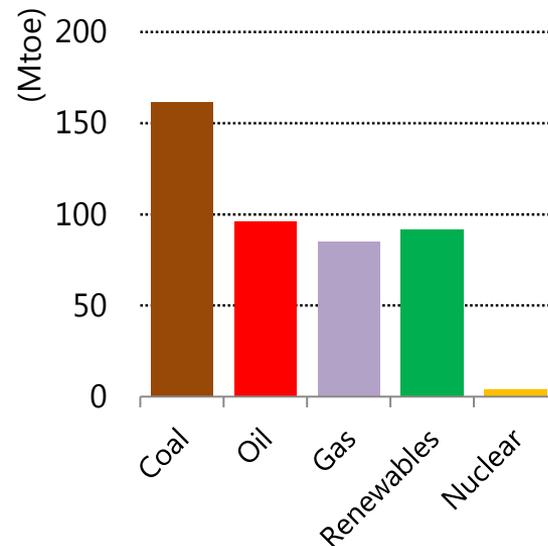
### China



### India

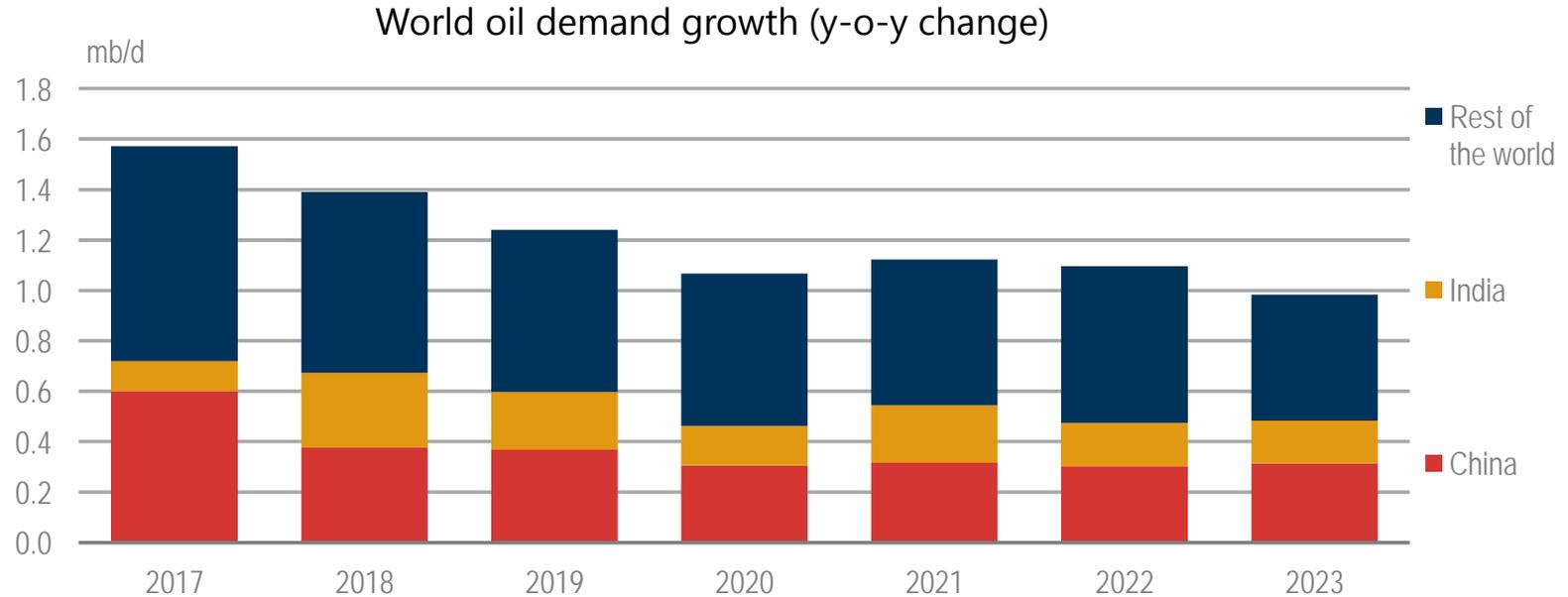


### Southeast Asia



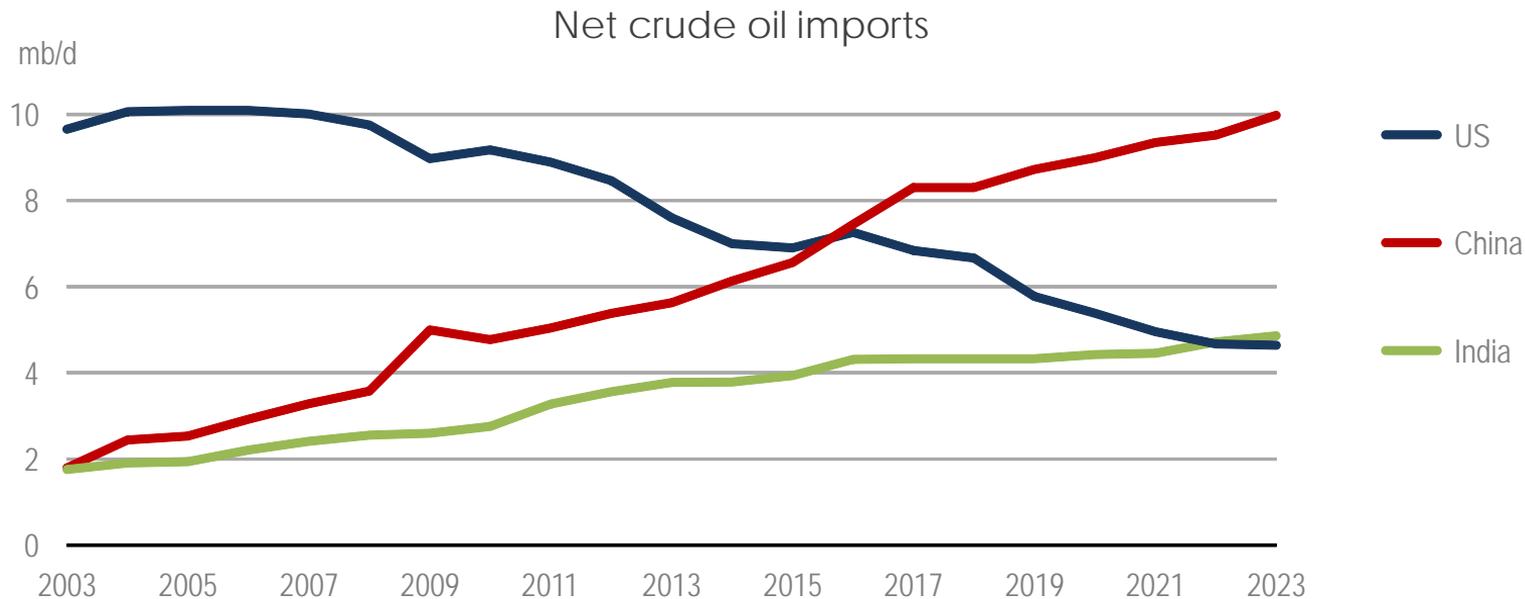
**Renewables supply around 30% of primary energy demand growth in China, India and Southeast Asia to 2040**

# Robust global oil demand growth to 2023



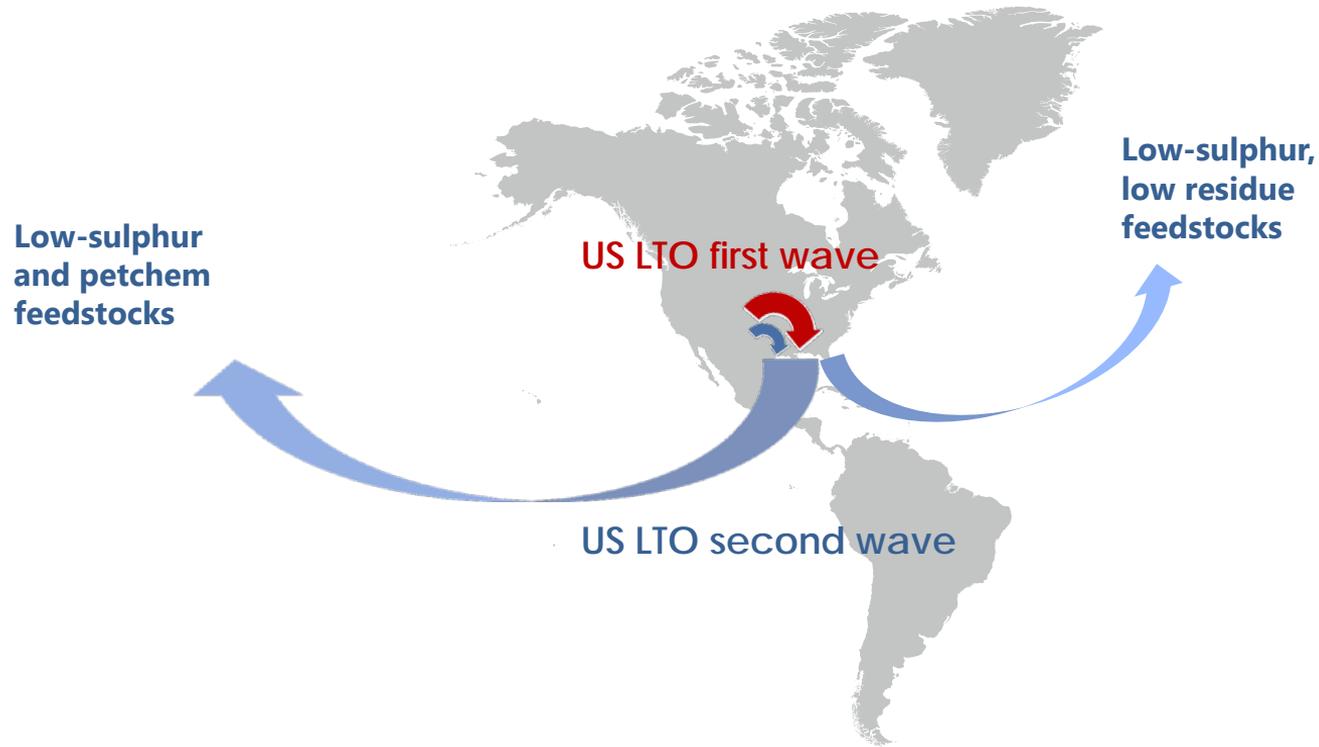
**China and India account for almost half of world oil demand growth**

# China net crude oil imports double the US in 2023



**Indian imports, too, surpass the US in 2023 as shale growth reduces US import dependence.**

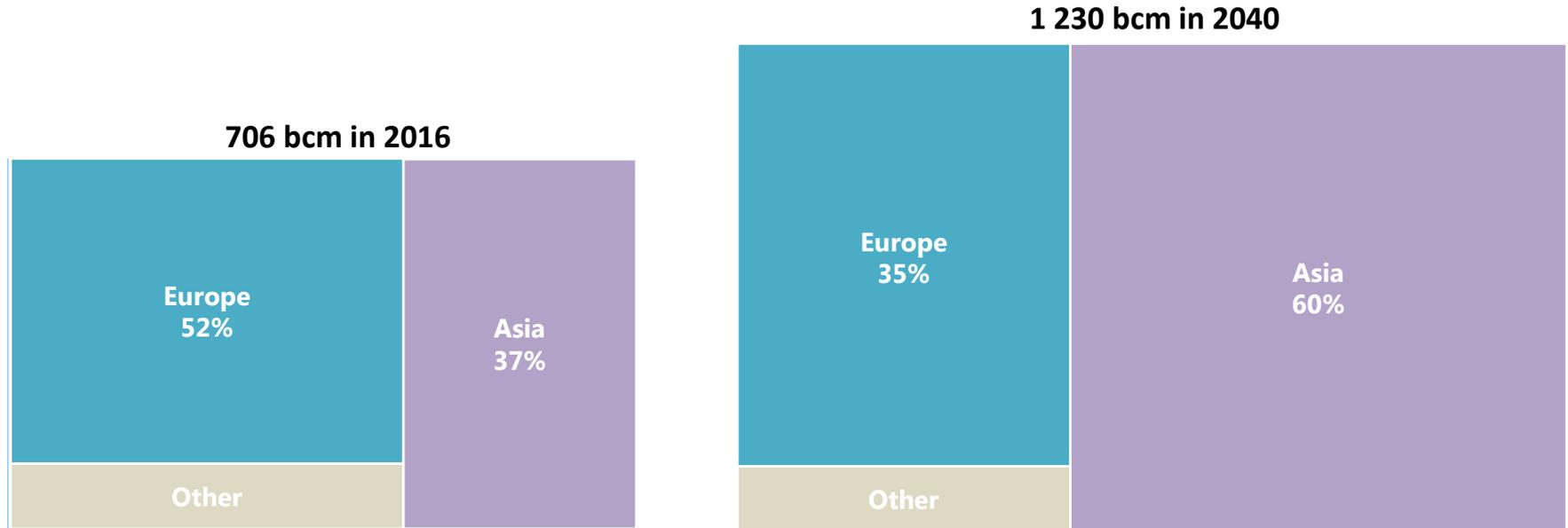
# US oil finds new markets



**Refiners in Asia and Europe look for suitable crude oil to produce petrochemical feedstocks and low-sulphur fuels**

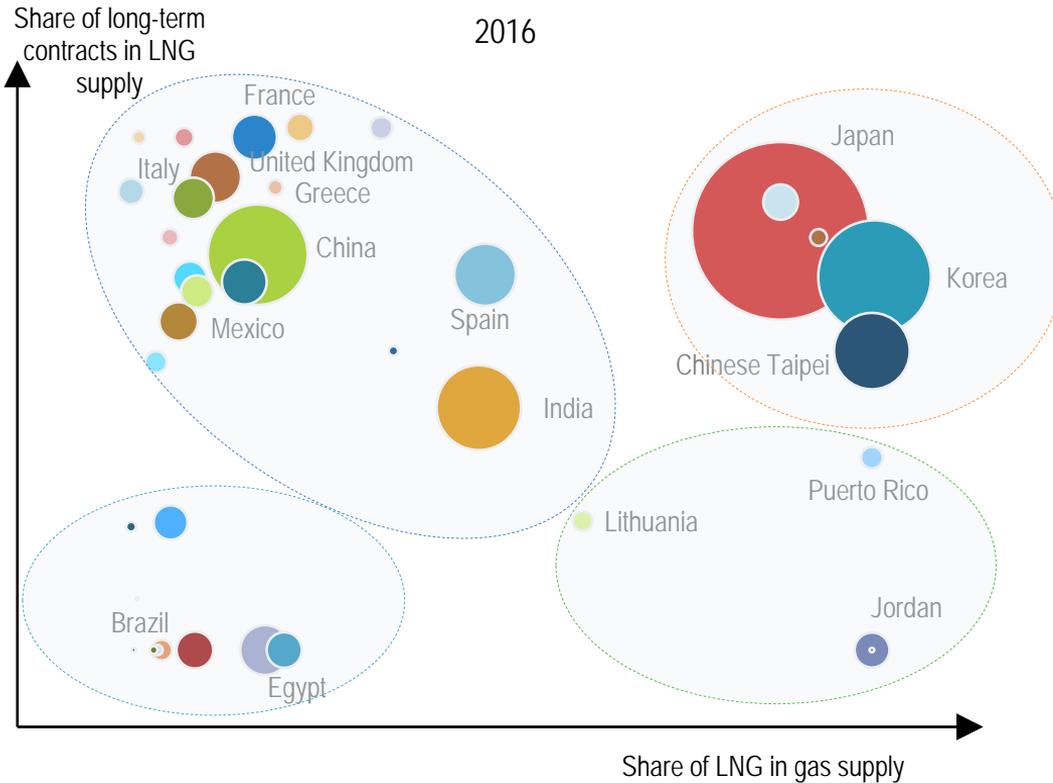
# Strong outlook as LNG ushers in a new global gas order

## Gas importers



**Growing gas import requirements in developing Asia, Japan and Korea are largely met by LNG, with exports from the US and Australia accelerating a shift to a flexible, liquid global market**

# 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

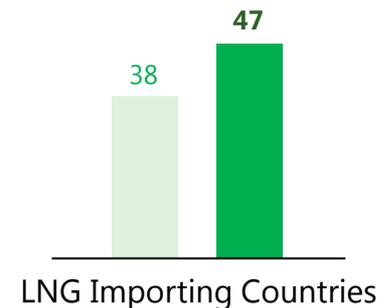
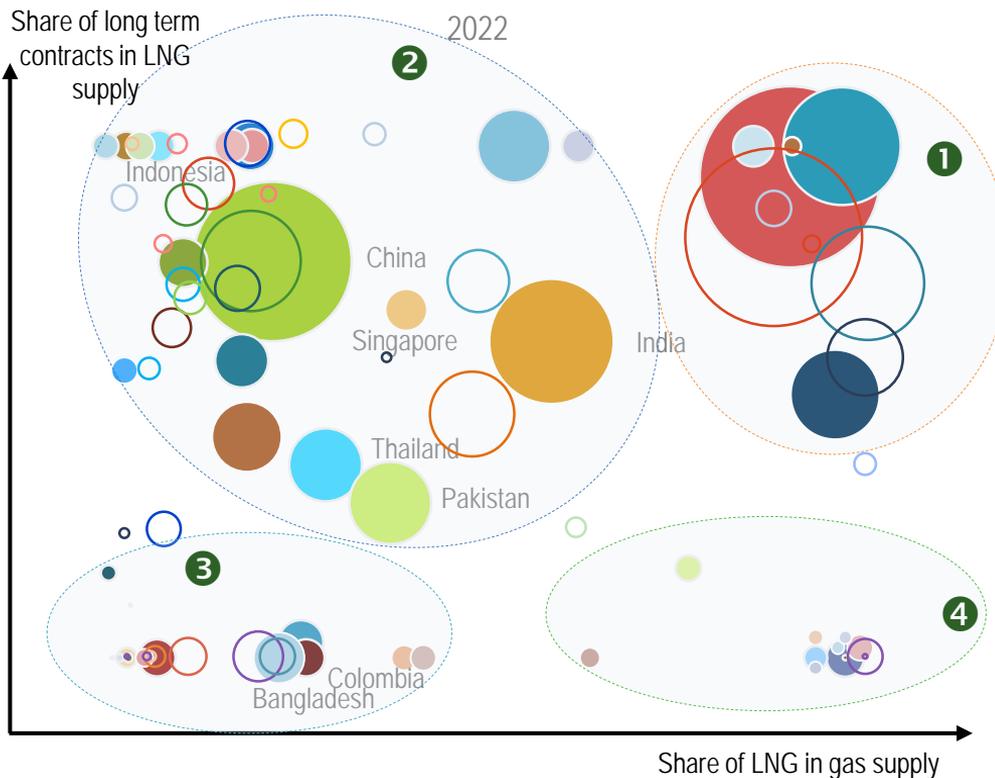
19 countries  
243 Bcm (+114 Bcm)

## 3. Reserve

13 countries  
30 Bcm (+5 Bcm)

## 4. Price

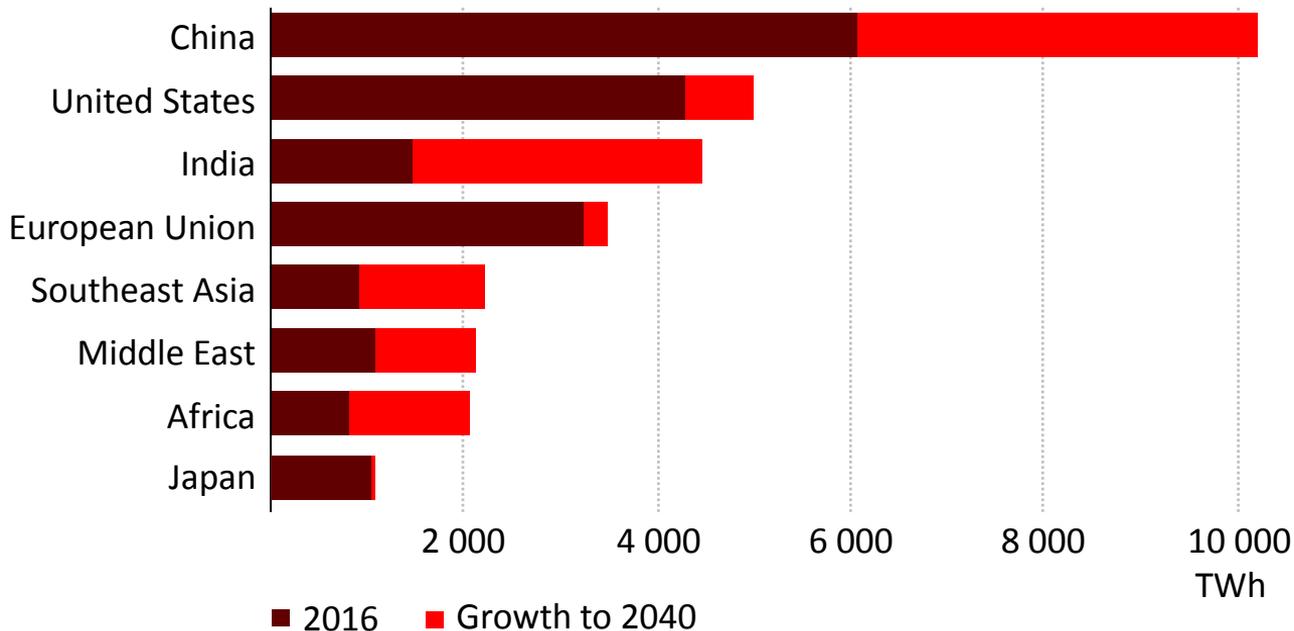
10 countries  
13 Bcm (+6 Bcm)



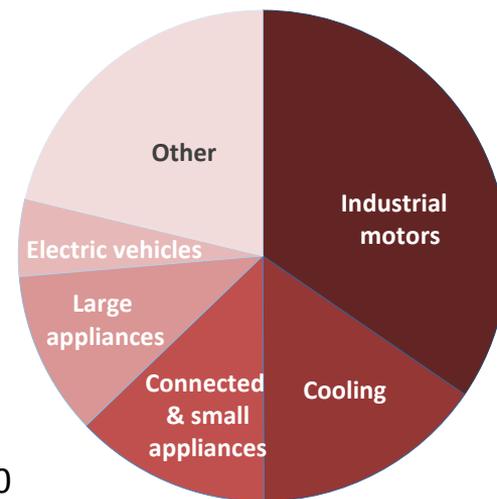
**LNG trade grows from additional importing and exporting countries**  
**Share of LNG dependency increases in countries' supply mix**

# The future is electrifying

### Electricity generation by selected region



### Sources of global electricity demand growth

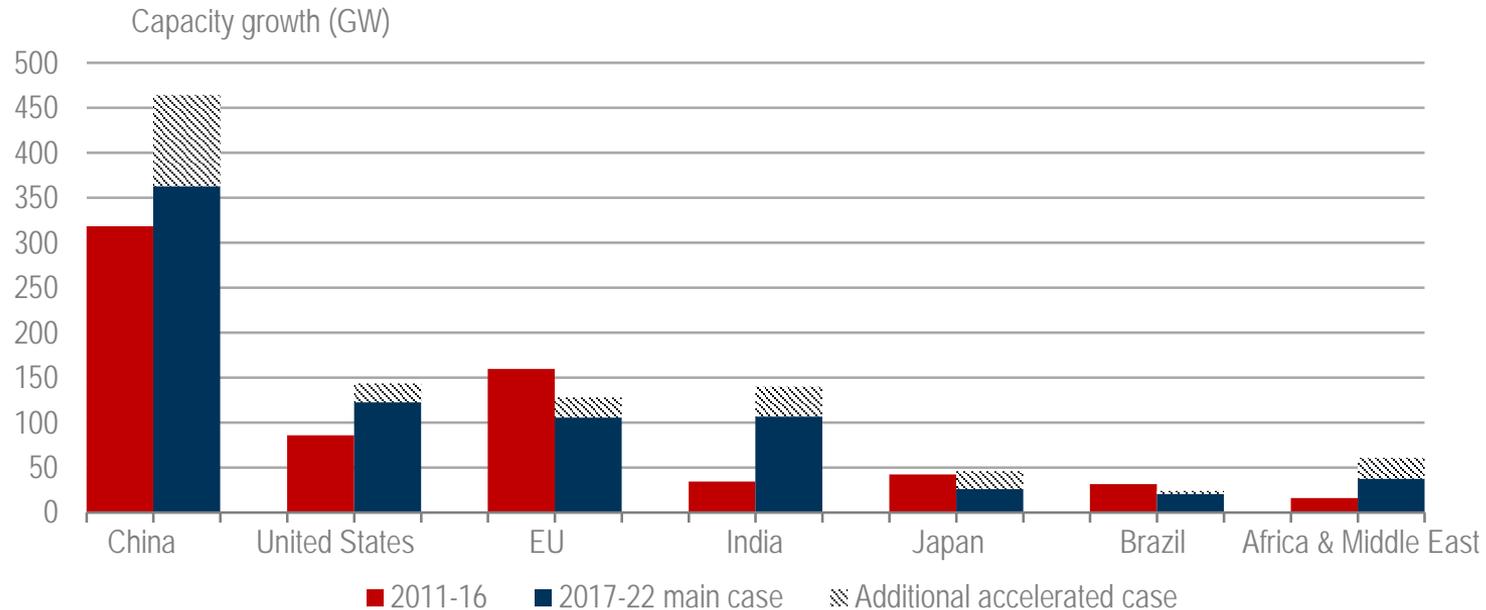


**India adds the equivalent of today's European Union to its electricity generation by 2040, while China adds the equivalent of today's United States.**

# China continues to lead growth while India overtakes the EU



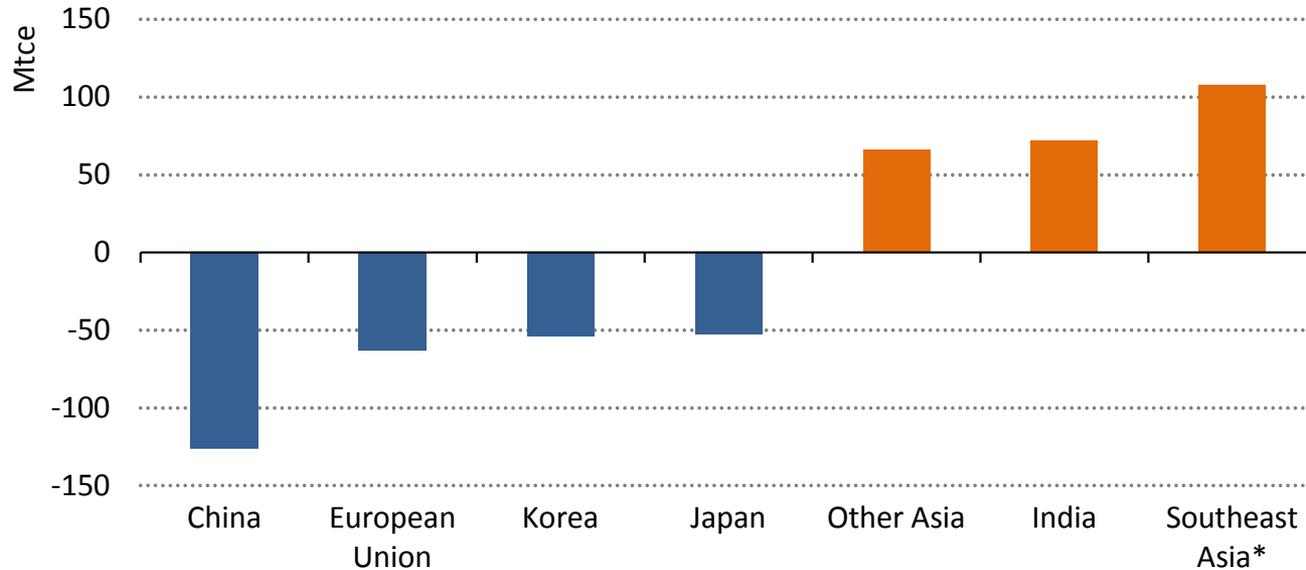
Renewable capacity growth by country/region



**The forecast is 12% more optimistic vs. last year mainly due to solar PV revisions in China and India; Growth could be 27% higher with enhanced policies addressing regulatory uncertainties and grid integration**

# Stark regional variations in global coal trade

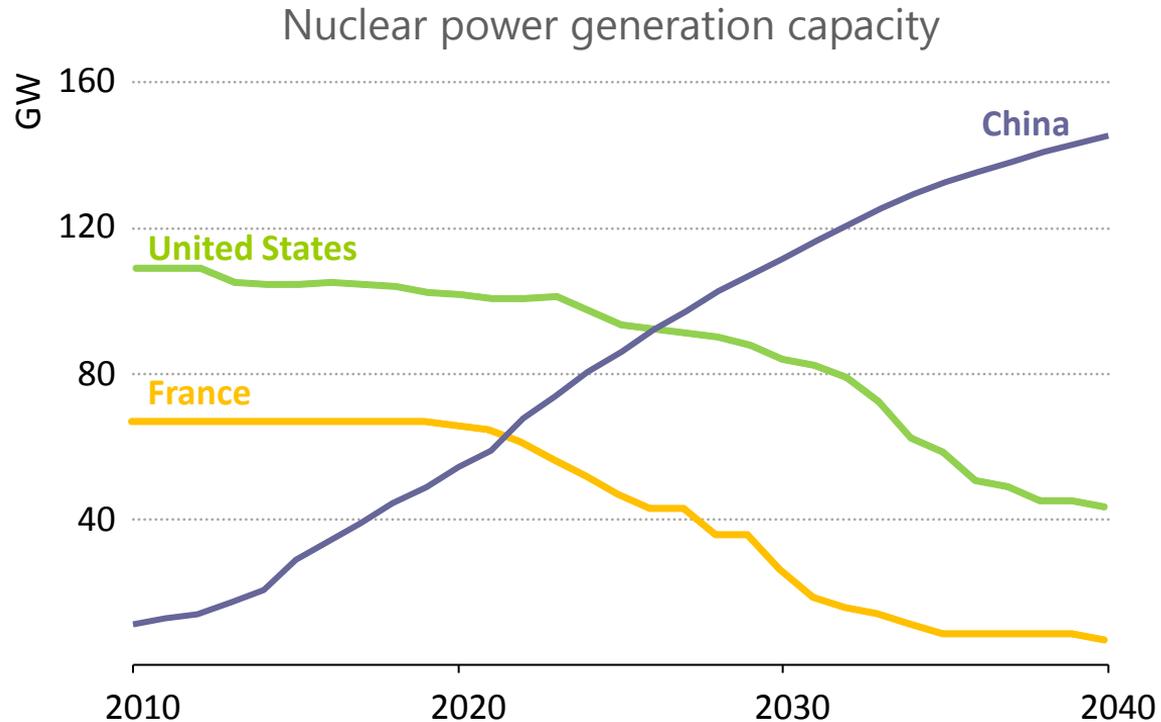
Change in net coal imports by key region in the New Policies Scenario, 2016-2040



\*Southeast Asia excludes Indonesia.

**Coal remains an important part of the energy mix, but its future hinges on CCUS.**

# A new leader emerging on nuclear



**Without additional lifetime extensions, the largest nuclear fleets face significant declines, while China is soon set to overtake the United States as the global leader**

- China and India will continue to lead global energy demand growth, with India moving to the center stage.
- Oil demand growth in Asia will be driven not only by transportation but also by petrochemical sector.
- China dominates in global gas demand growth. Vast majority of gas demand growth will come from developing Asia that includes price sensitive buyers
- Renewable will grow strong in Asia, but coal will remain competitive.
- Policy makers in Beijing and New Delhi will virtually determine the future course of global energy mix and CO<sub>2</sub> emission levels.

