

Coal policies, Carbon Prices And their impact on regional Gas Demand

Sylvie Cornot-Gandolphe



Flame

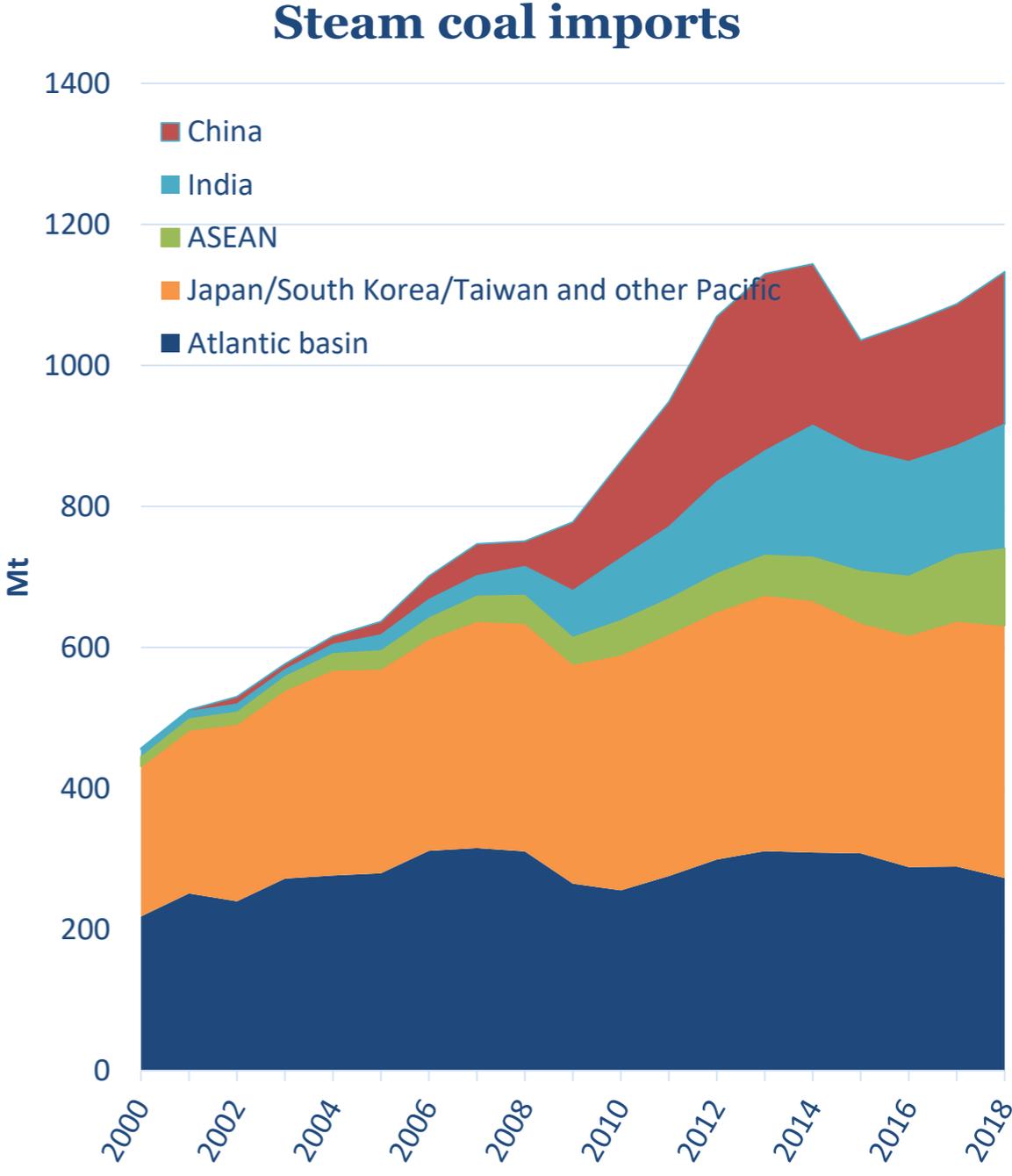
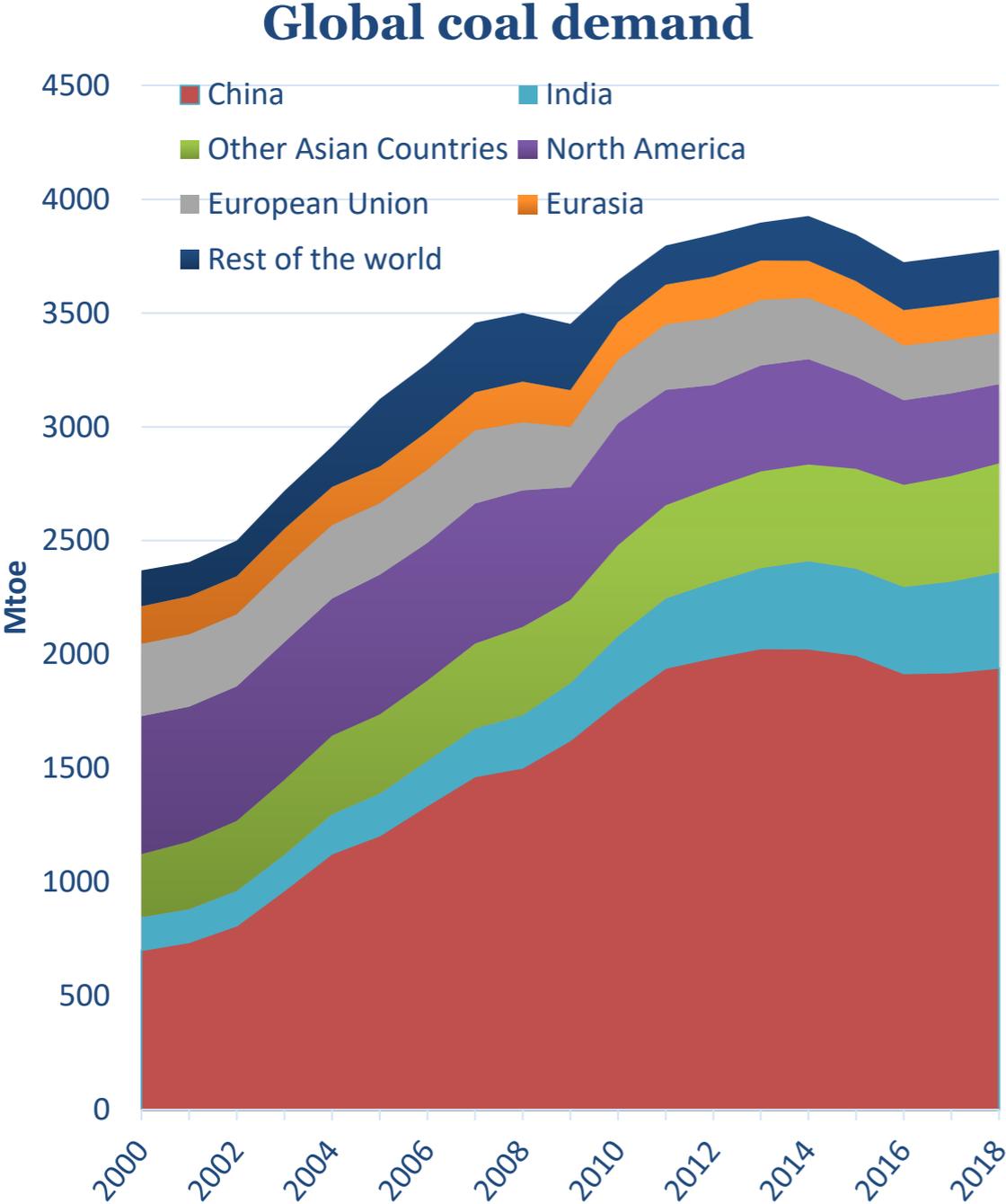
13 - 15 May 2019
Amsterdam



Outline

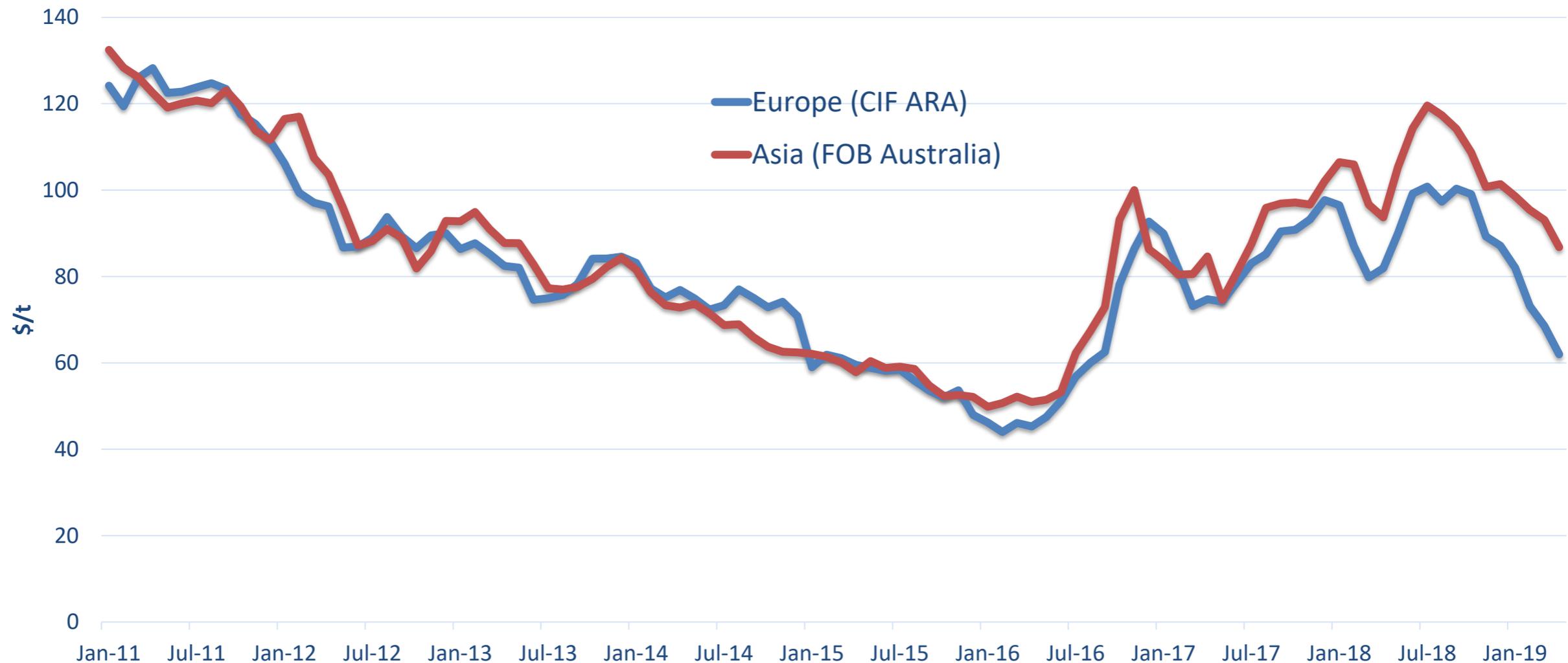
- Key trends in global coal market in 2018
- Coal and the Paris Agreement
- Coal, carbon prices and regional gas demand in three key markets: China, EU, US

For the second consecutive year, global coal demand and trade increased in 2018



Asia accounts for three quarters of global demand and steam coal imports

Again, international steam coal prices rose in 2018, but they have fallen sharply since January 2019



China plays a leading role in dictating international coal prices

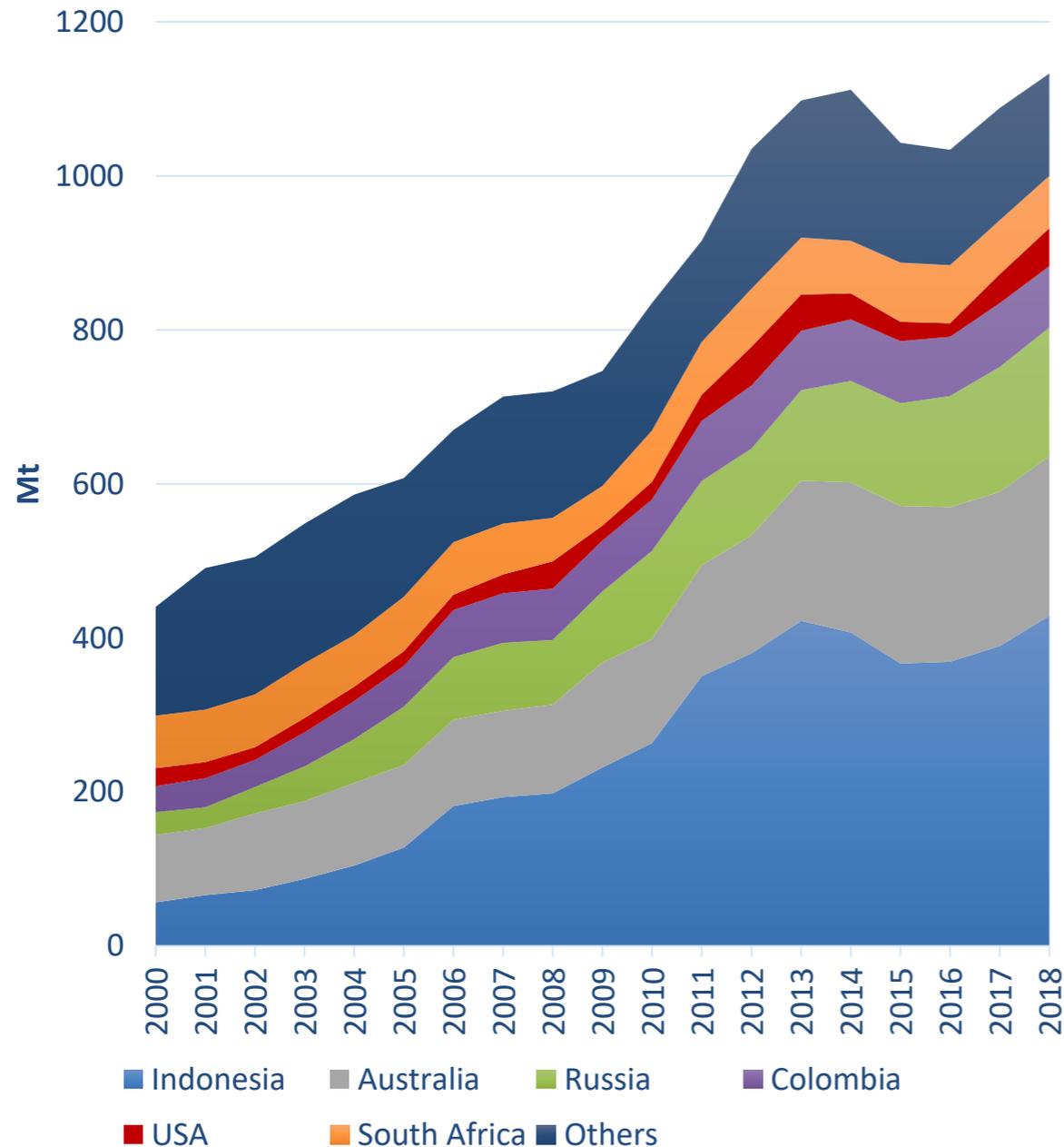
- *Beijing's import restrictions on Australian cargoes since the end of January 2019.*
- *Cap on 2019 coal imports (First 4 months:-2%)*

European weak demand and abundance of cheap natural gas

→ High spread between Asian and European prices

Exporters response to higher prices is mixed

Steam coal exports

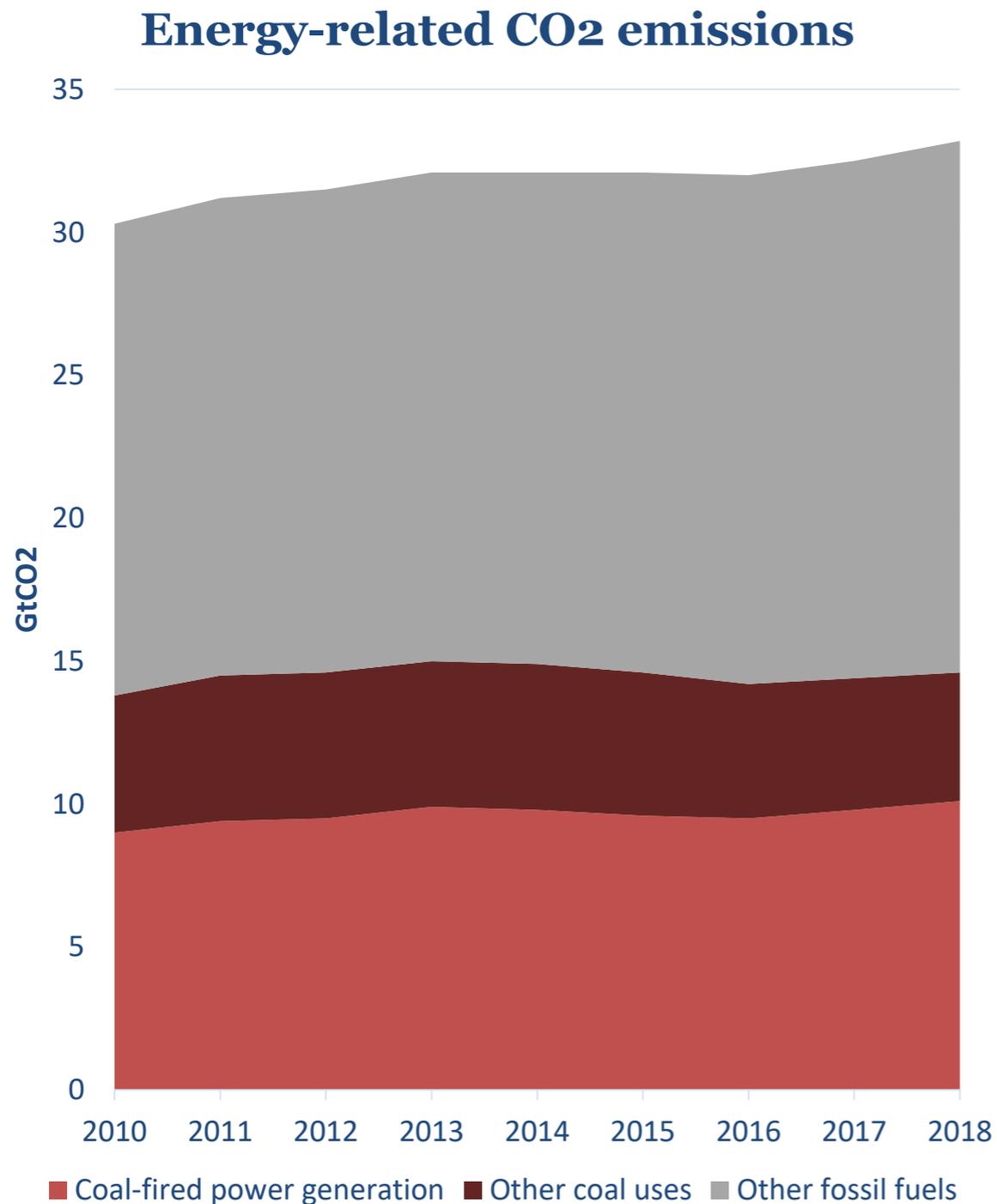


Investment in new steam coal mines is not coming

- No major coal expansion in steam coal exporting countries
- Optimization/extension of existing mines
- Adani's Carmichael coal development threatened by rare bird and other regulatory issues



Pressures to quit coal are mounting



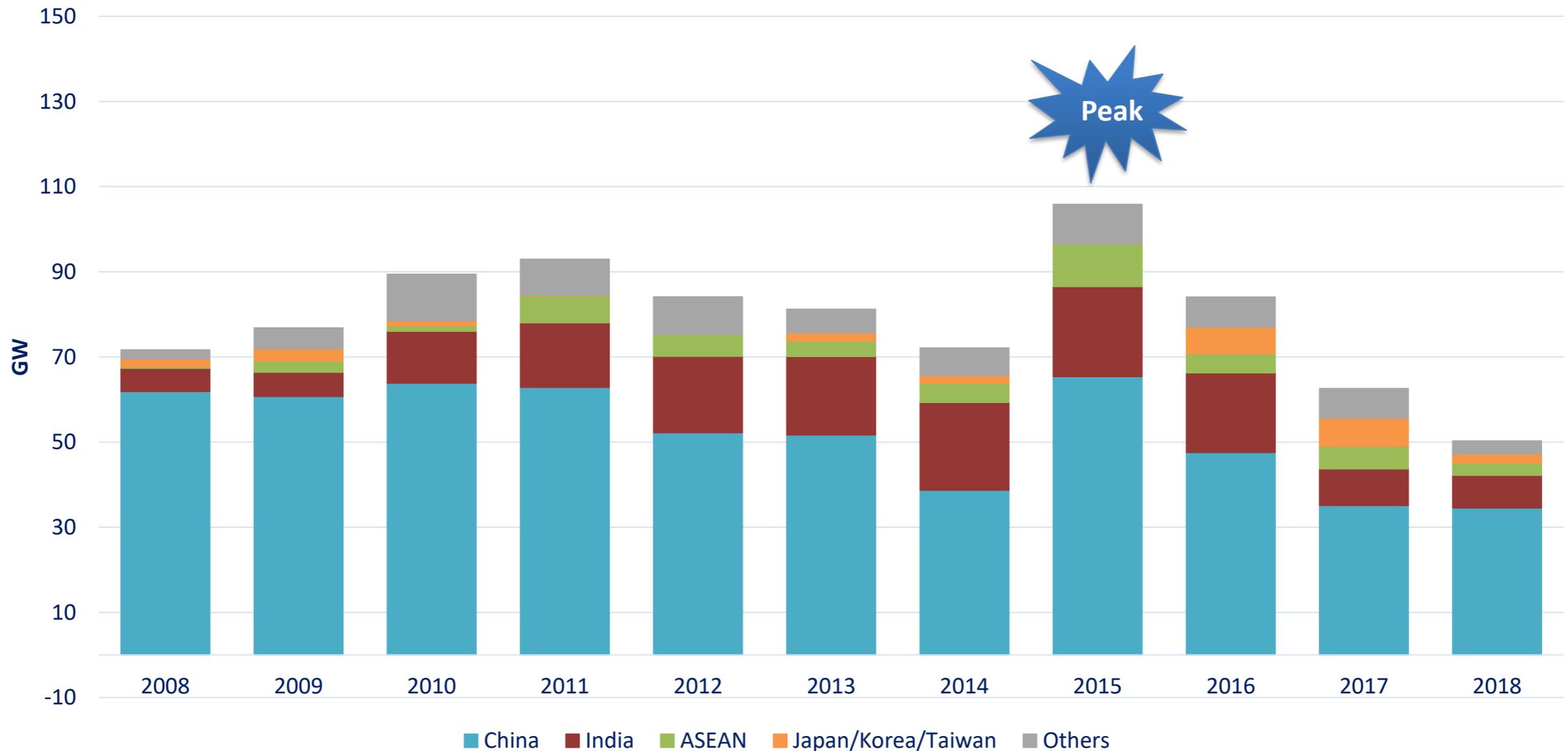
- 1. Climate change / IPCC SR1.5**
 - Paris Agreement as landmark and turning point
- 2. Campaigns against coal** (e.g. Powering Past Coal Alliance)
 - Focus on coal in the power sector
 - Phase-out policies and divestment campaigns (pressure on financial entities and private companies to exit coal)
- 3. Air pollution** (China, India)
- 4. Economic factors**
 - Loss of competitiveness of coal: ample gas supplies and low gas prices, rising coal and CO₂ prices, falling costs of renewables
 - Over-capacity and low utilization rates of coal plants (China, India)
- 5. Political factors**
 - Commitments to reduce CO₂ emissions and improve citizens health
- 6. Corporate responsibility:** License to operate in cleaner energy sectors
- 7. Local opposition** to new coal power plants/coal mines
- 8. The coal fleet is aging** (EU, USA)



Coal power generation accounts for 30% of global CO₂ emissions

Global coal power investment is falling

Annual coal capacity additions



In addition, coal capacity retirements are increasing (30 GW in 2018)

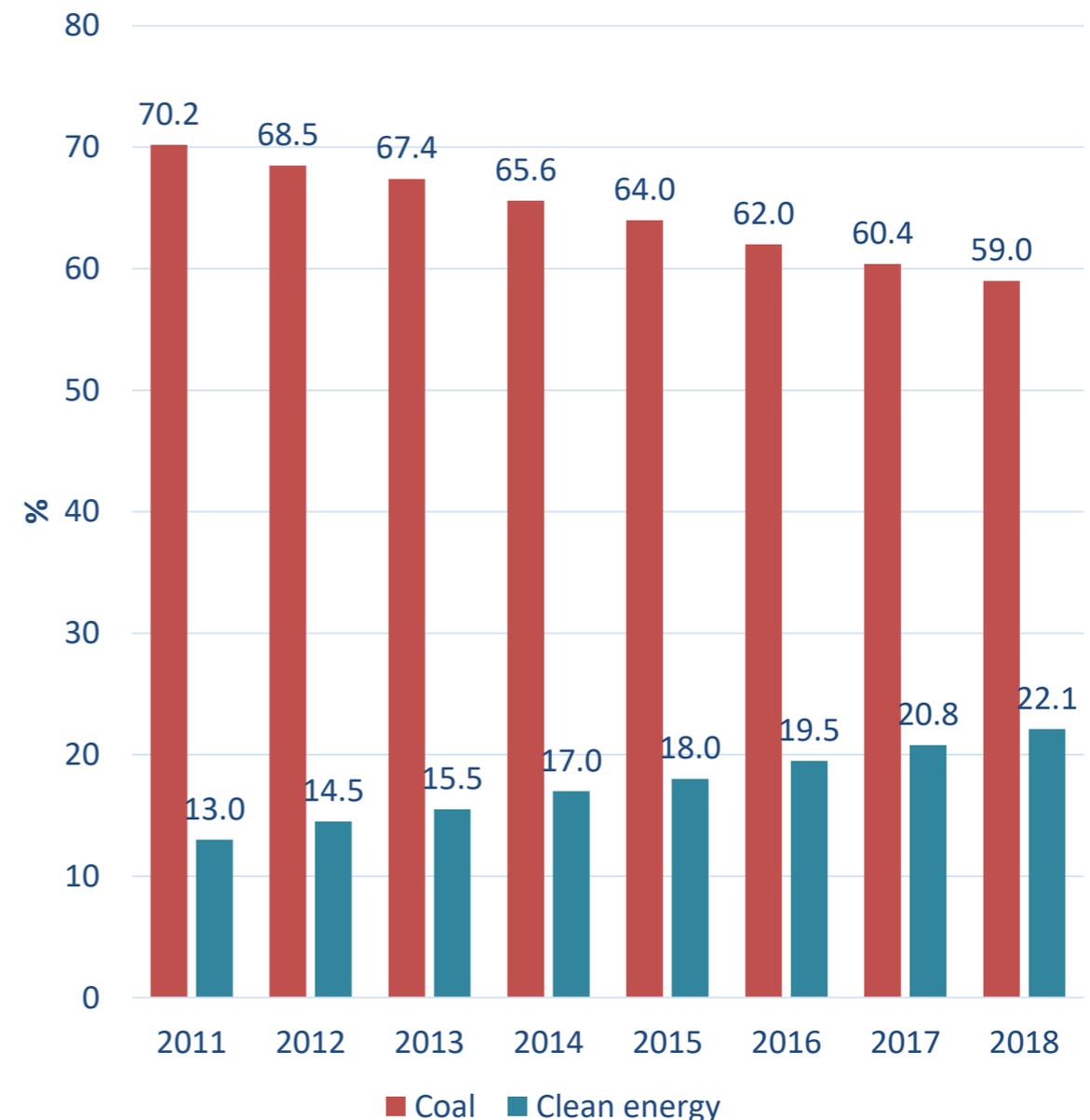
→ Net coal capacity addition: 19 GW in 2018

But the coal fleet is young (half of global capacity built in the past 13 years)

China: Pressure on coal is driven by air quality and de-capacity policies

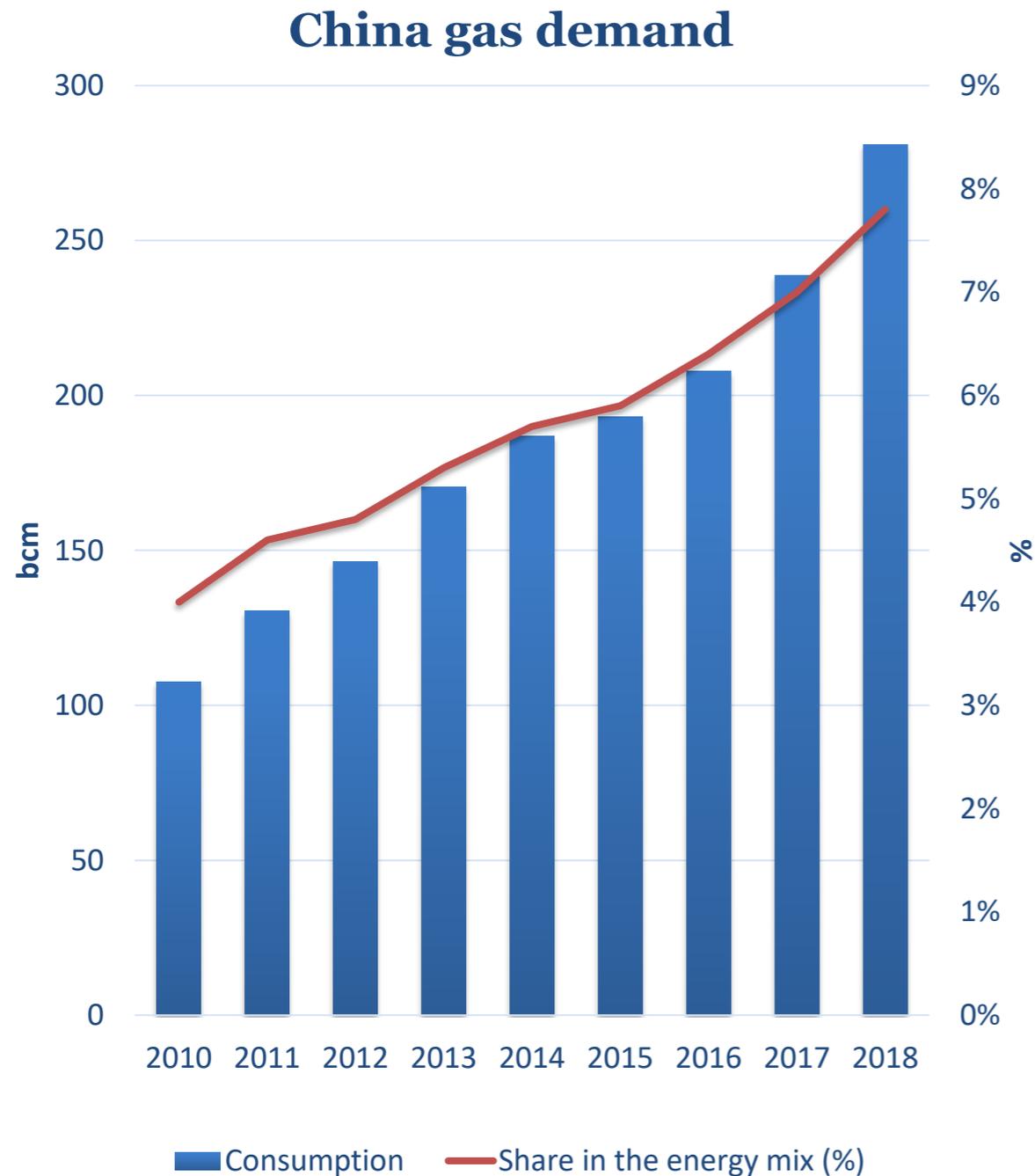
- Since 2013, fight against **air pollution** (Three-year Action Plan for Winning the Blue Sky Defence War (2018-2020))
- **Switching from coal to gas:** a strategy to improve air quality
- **400 Mt of loose coal to be replaced** (equivalent to more 200 bcm of gas)
- **De-capacity policies**
 - 800 Mtpa of coal mining capacity eliminated
 - Limit coal power capacity to 1,100 GW by end 2020
- **Climate change:** China ETS launched in December 2017

Share of coal and clean energy in China's energy consumption



Despite the increase in China's coal demand in 2017 and 2018, the share of coal in the energy mix is falling continuously

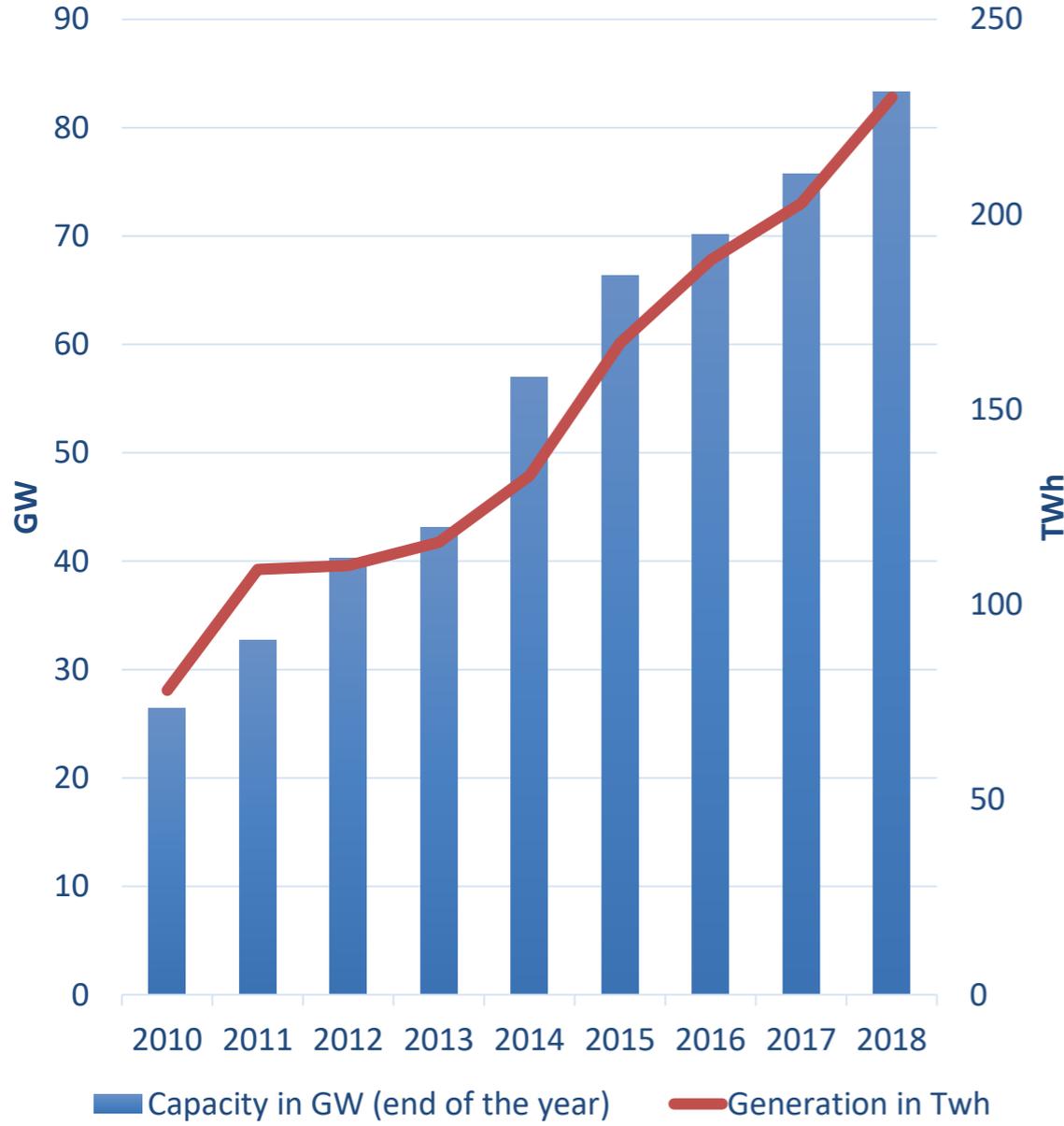
China's coal-to-gas policy: High impact on gas demand



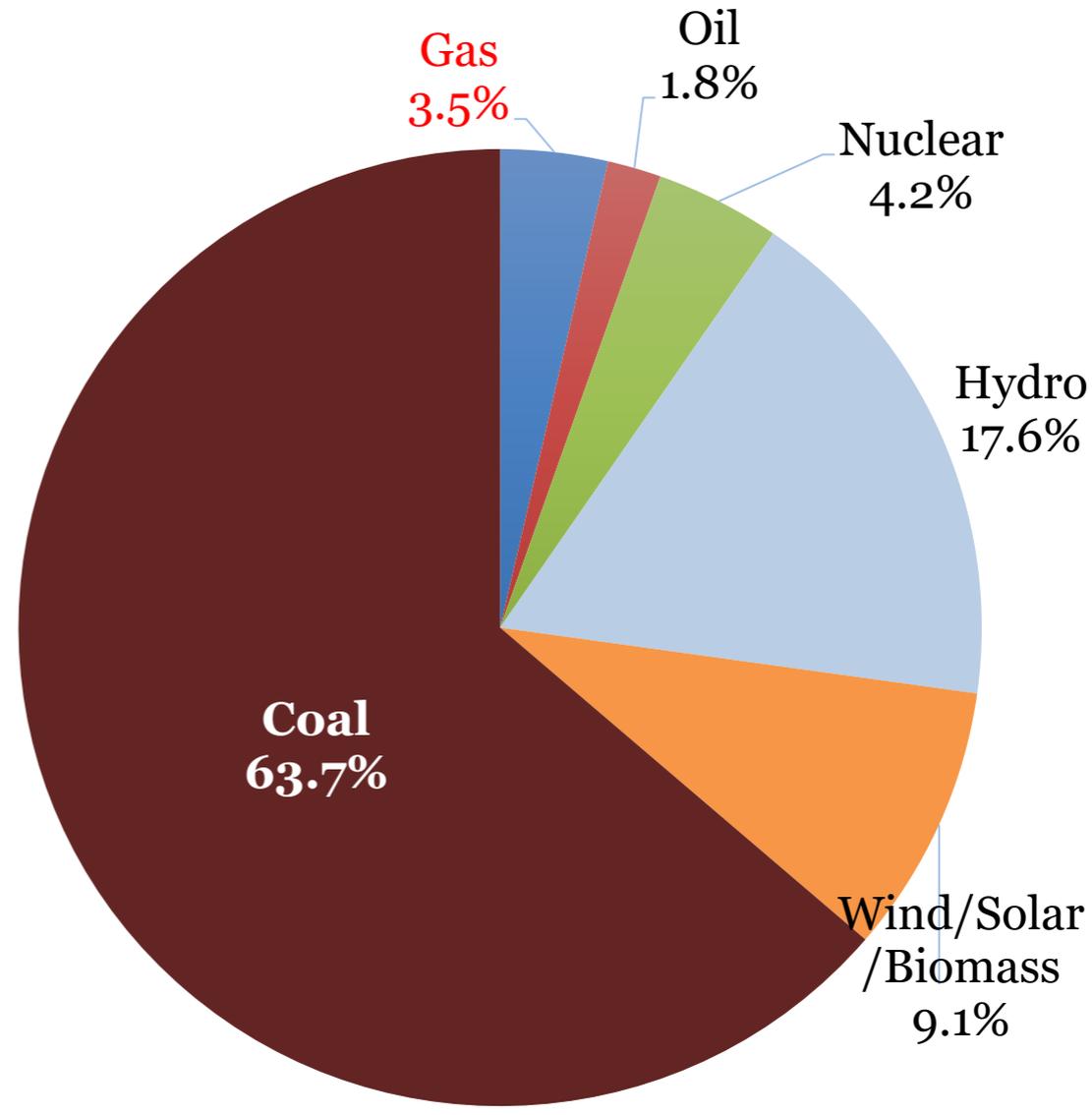
The current priority is clean heating and clean industrial fuels

Coal-to-gas switching: so far little impact in the power sector

China's gas-fired generation and capacity



China electricity generation in 2018: 6994 TWh



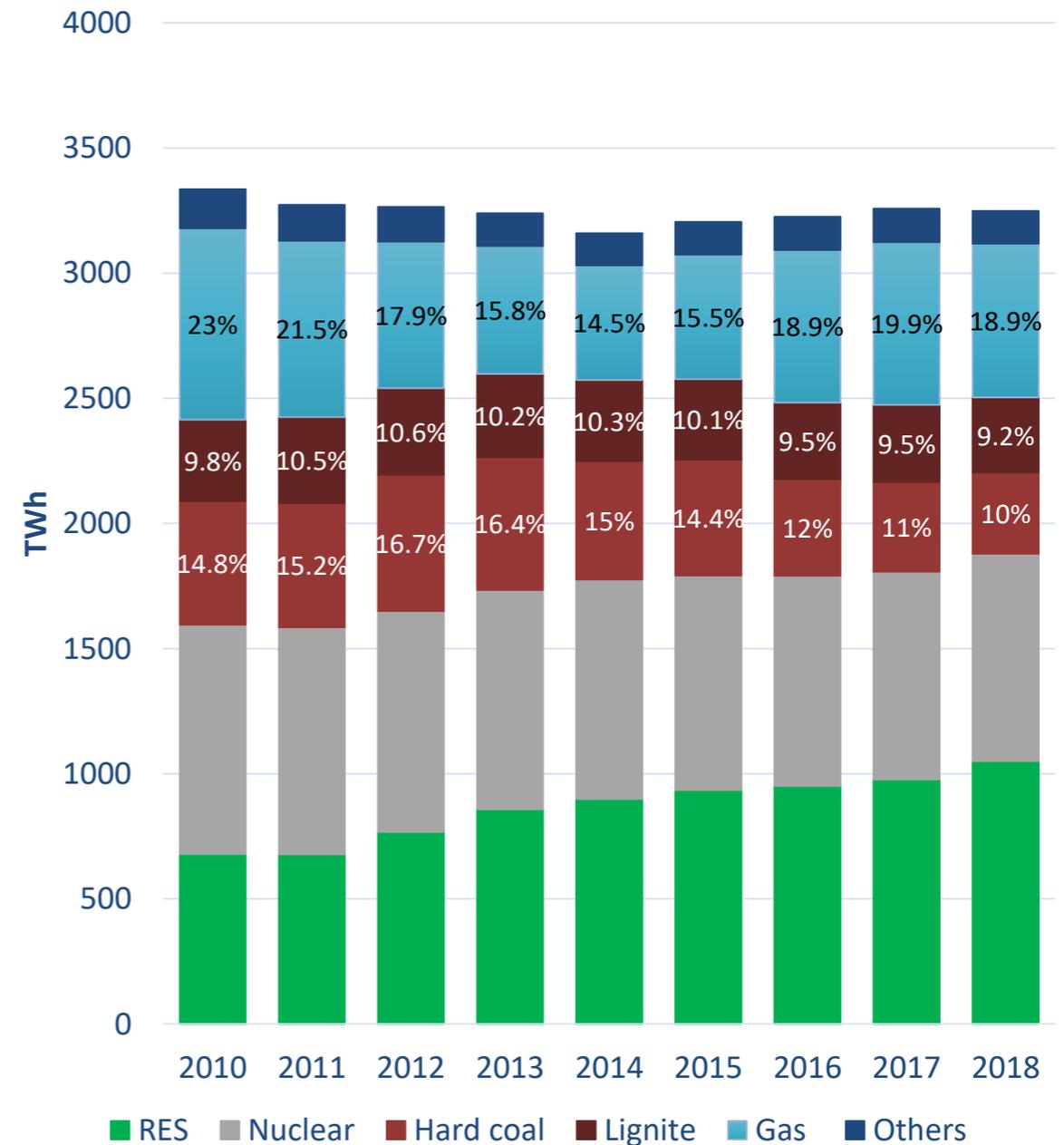
*Gas-fired electricity generation is increasing, but currently gas cannot compete with coal
 But renewable push, power market reforms and China ETS will enhance the role of flexible gas generation*

A significant change in Europe: Carbon prices reached record levels in 2018

Carbon prices (EUETS)



EU electricity generation



Coal under pressure

2018: Renewable deployment, higher coal and CO2 prices

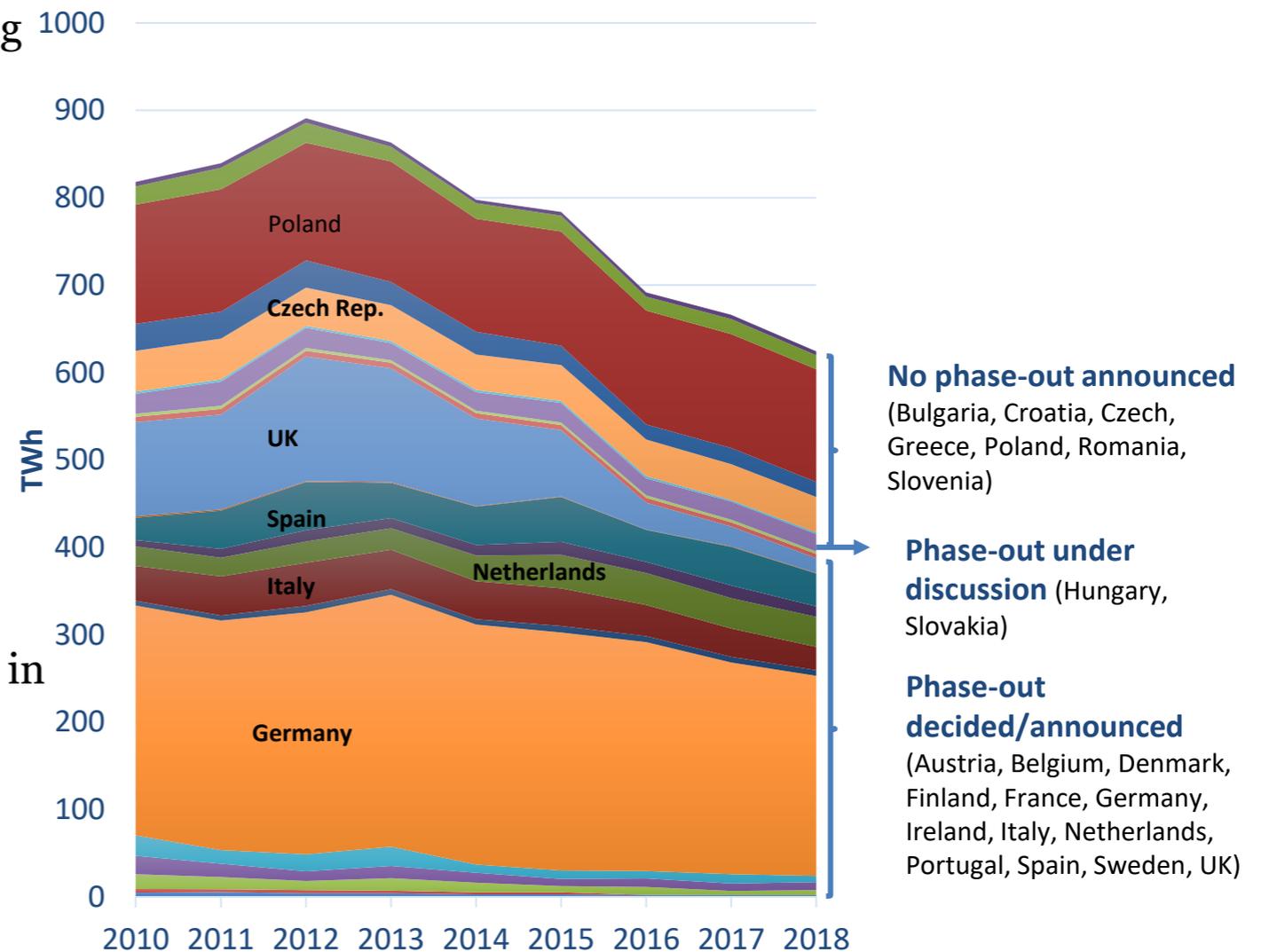
2019: Abundant and cheap gas supplies, high CO2 prices

EU coal phase-out policies

Pressure against coal

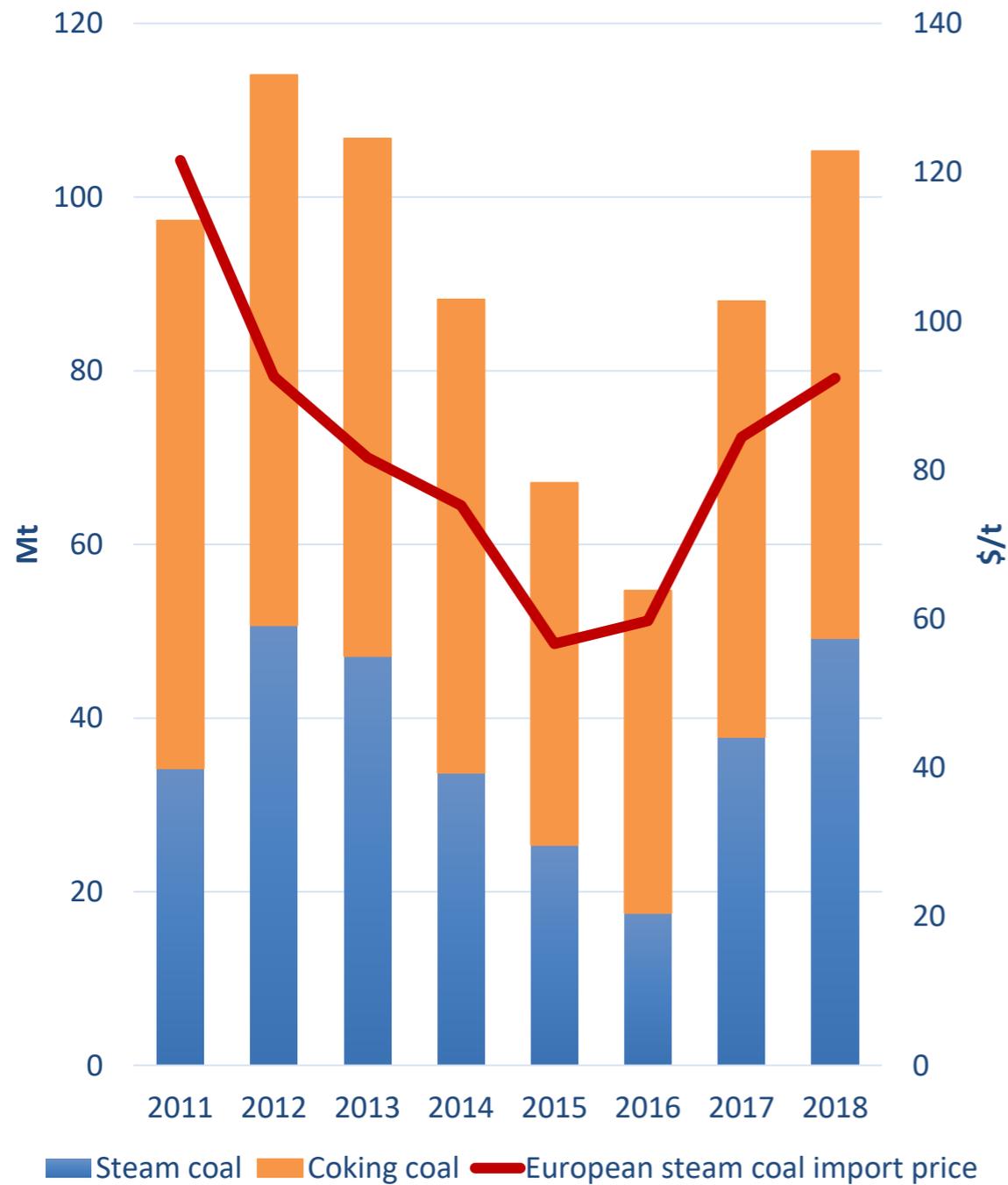
- **The EU is leading the global move to exit from coal in the power sector**
 - 15 EU countries have joined the "Powering Past Coal Alliance" and pledged to phase out coal power by 2030
 - German exit from coal by 2038
- **Air quality regulation**
 - Industrial Emission Directive (IED)
 - Best Available Technology Reference documents (BREF)
- **Emissions Performance Standards (EPS) and capacity markets**
 - UK EPS regulation sets a maximum level on the amount of carbon a plant can emit in a year (450gCO₂/kWh)
 - EU EPS: 550gCO₂/kWh, but rules apply from 2020
- **Reform of the EU Emission Trading Scheme/Carbon floor price**
- **And the coal fleet is ageing**

EU coal generation and phase-out policies



In the short-medium term, greater role of natural gas in some countries to replace coal generation (Italy, Germany, Netherlands, Spain)

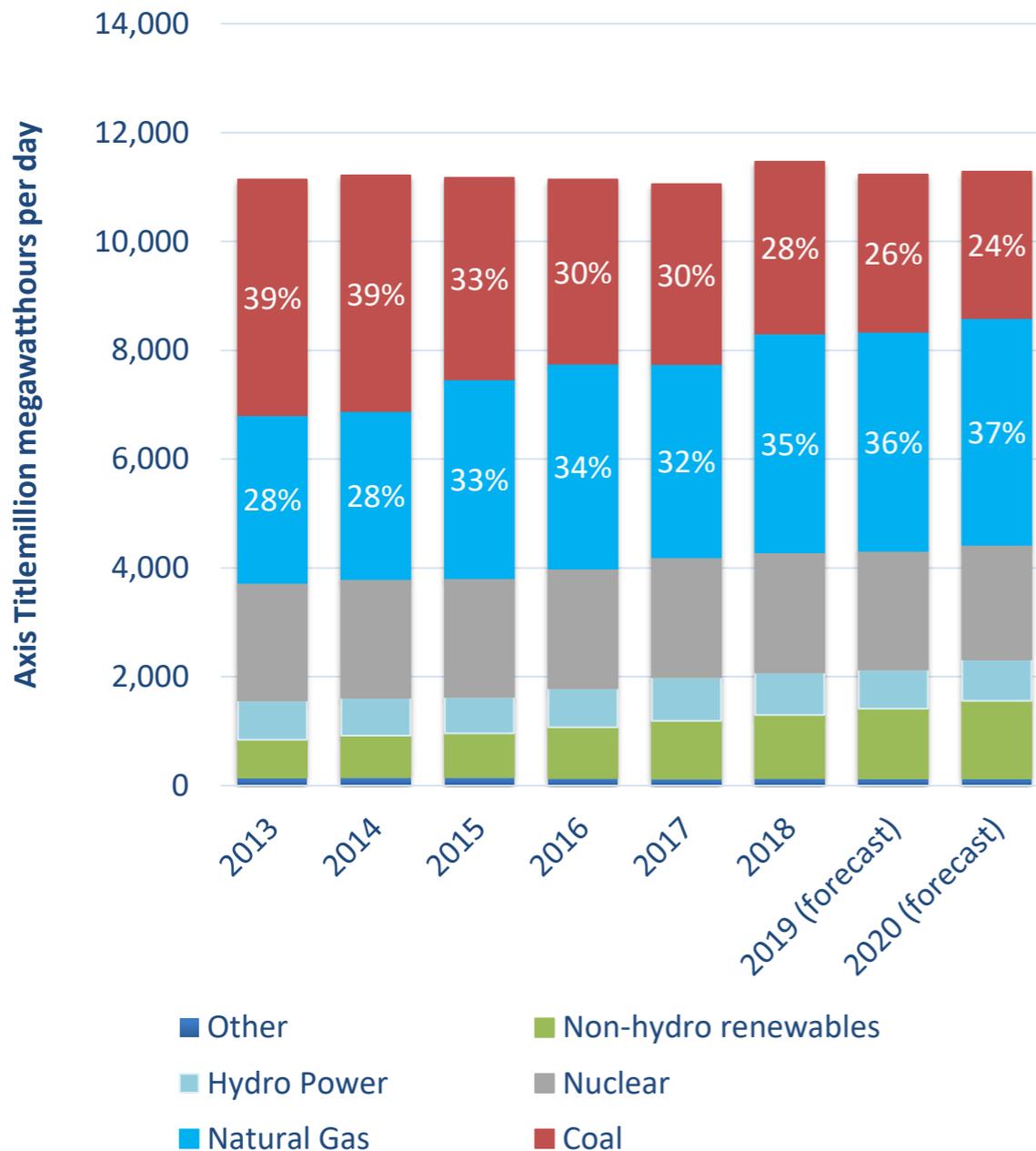
US total coal exports: up 20% in 2018



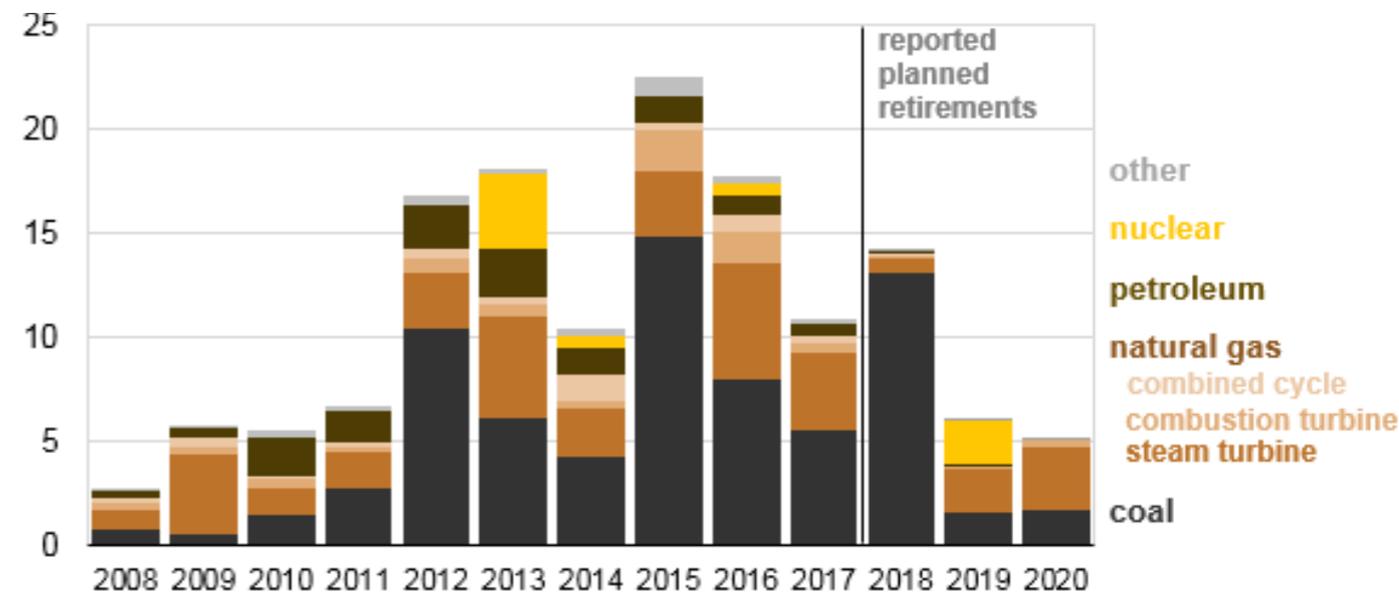
But not really sustainable...highly dependent on international coal prices

Despite President Trump's efforts, the US coal market is shrinking

US electricity generation



US electric generating capacity retirements (GW)



Coal is pushed out by cheaper natural gas supplies and growing renewables
13 GW of coal capacity retired in 2018, twice as much as 2017
60 GW retired since 2010

Since 2010, coal demand has decreased by 34% to 625 Mt in 2018, while gas demand has increased by 24% to 948 bcm

Conclusion



- Coal is not yet dead, but acceleration of its demise
- The world is still divided

Short-term

- Asian demand is still strong
- 64% of Chinese electricity needs, 76% in India, 50% in Asia
- Impact of Chinese policies to be watched carefully

Medium and long-term

- Gradual phase-out of coal power
- Security of electricity supply/cost of coal phase-out policies (economic and social)

Impact on gas demand in the power sector is not straightforward

- Speed and pace of decarbonization, renewable deployment, efficiency measures
- Needs for flexible generation vs. energy storage and other flexibility means