

OIES 12th Annual Gas Day

Oxford, 12 October 2017

Can Gas displace Coal in Europe and Asia, and if so how?

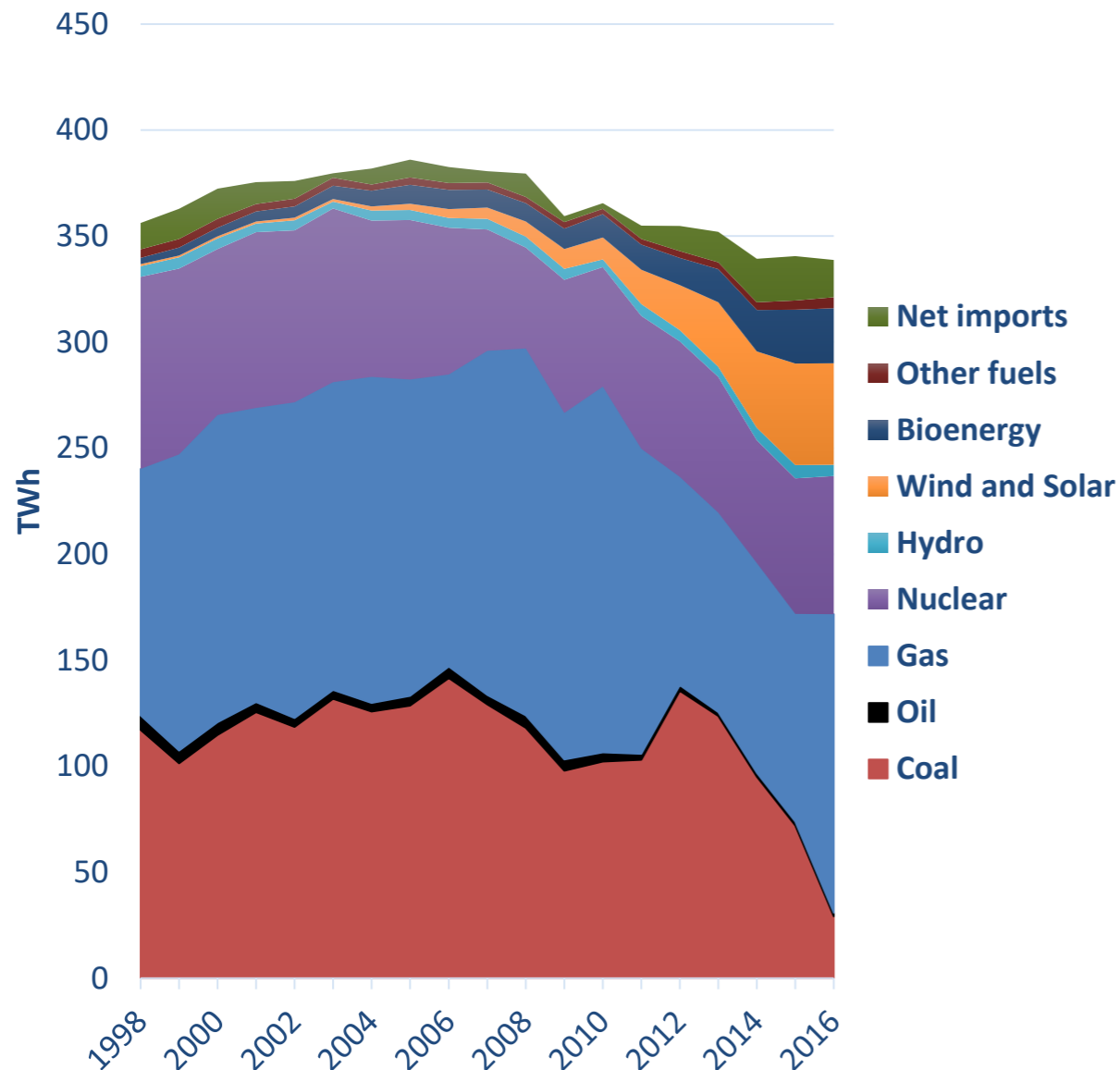
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Yes, it can!

Dependent on Market fundamentals, Regulation on emissions and National policies → Mostly country specific

UK electricity supplies



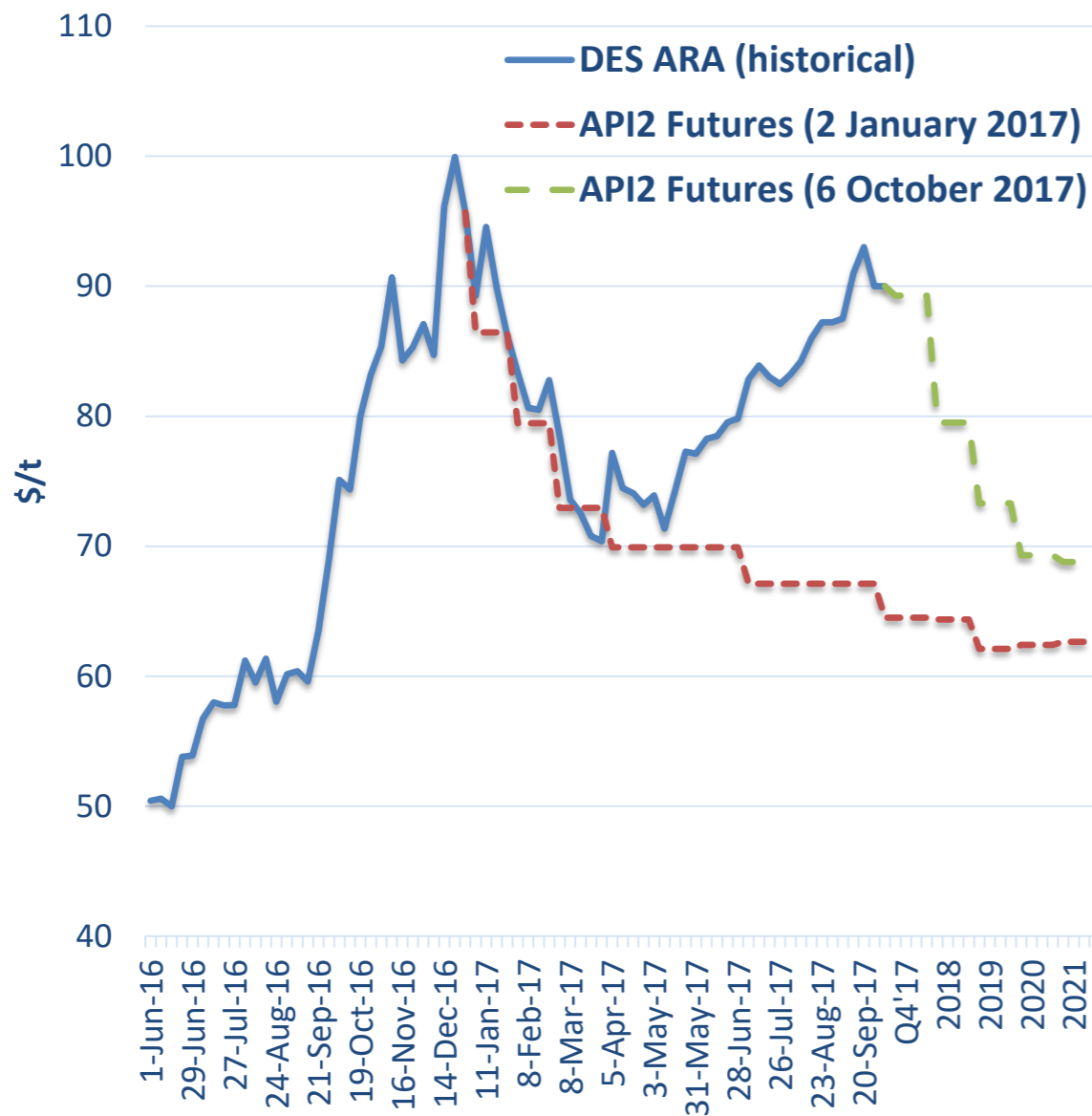
Factors driving coal-to-gas switching

- Carbon Price Floor on top of EU Allowances
- Coal vs. gas prices
- Rapid closure of coal capacity
- Flat renewable and nuclear generation
- Available spare gas capacity
- Power imports constrained by French power nuclear issues
- ***UK CO₂ emissions dropped by 7% in 2016, due to coal-to-gas switching in the power sector***

Phasing out of coal in electricity generation delivers large, rapid, and cost-effective reductions in CO₂ emissions

Fundamentals: coal prices at unexpected high levels

Coal prices



Switching prices



At current gas and coal prices, no incentives to burn coal at a CO₂ price above €18/t

Modern gas units ahead of old coal: pressure on the oldest coal-fired power plants to close.

Further gains in carbon prices would increase that pressure

Policy support at EU and national level

Many existing and proposed regulations/policies constraining the use of coal

- **EU ETS reform**
- **IED (50 to 55 GW to close by 2020/23)**
- **Best Available Technologies (BAT)**
- **Proposed EPS in Capacity Markets**
- **National coal phase-out policies**
- **...and the coal fleet is aging**

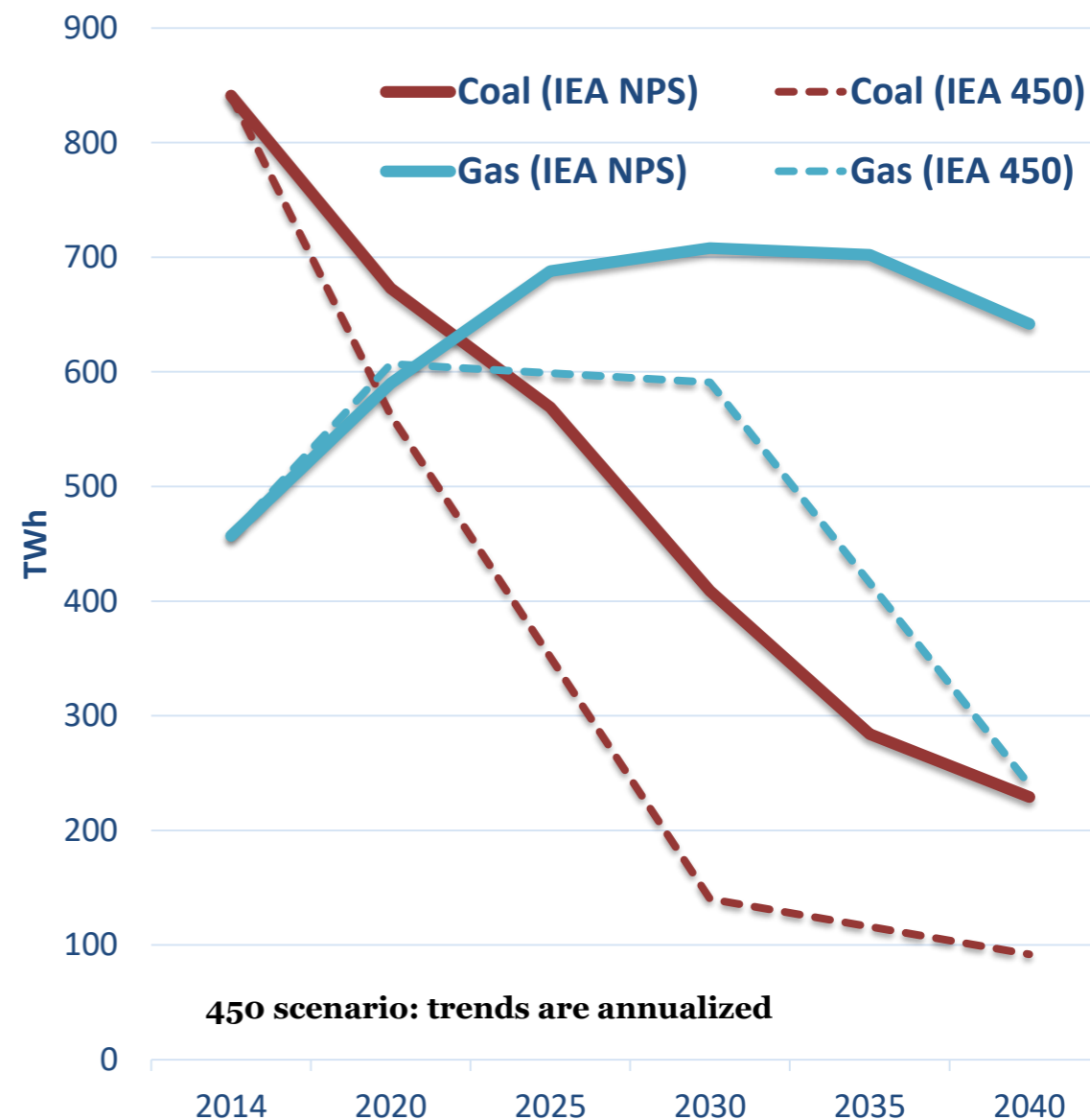
- **Germany and Poland account for half of EU coal power generation**

Poland is building 4 GW of new coal capacity

In Germany, the Greens have made setting deadlines for closing Germany's most polluting coal plants a pre-condition for a coalition

A compromise to be found. Gas' role is expected to rise

Contrasted scenario for EU power generation (WEO 2016)



Key question: Level of residual thermal generation in a deep decarbonisation scenario

'EU power utility boss: Coal is finished, the hard question now is gas', Euractiv.com, 4 October 2017

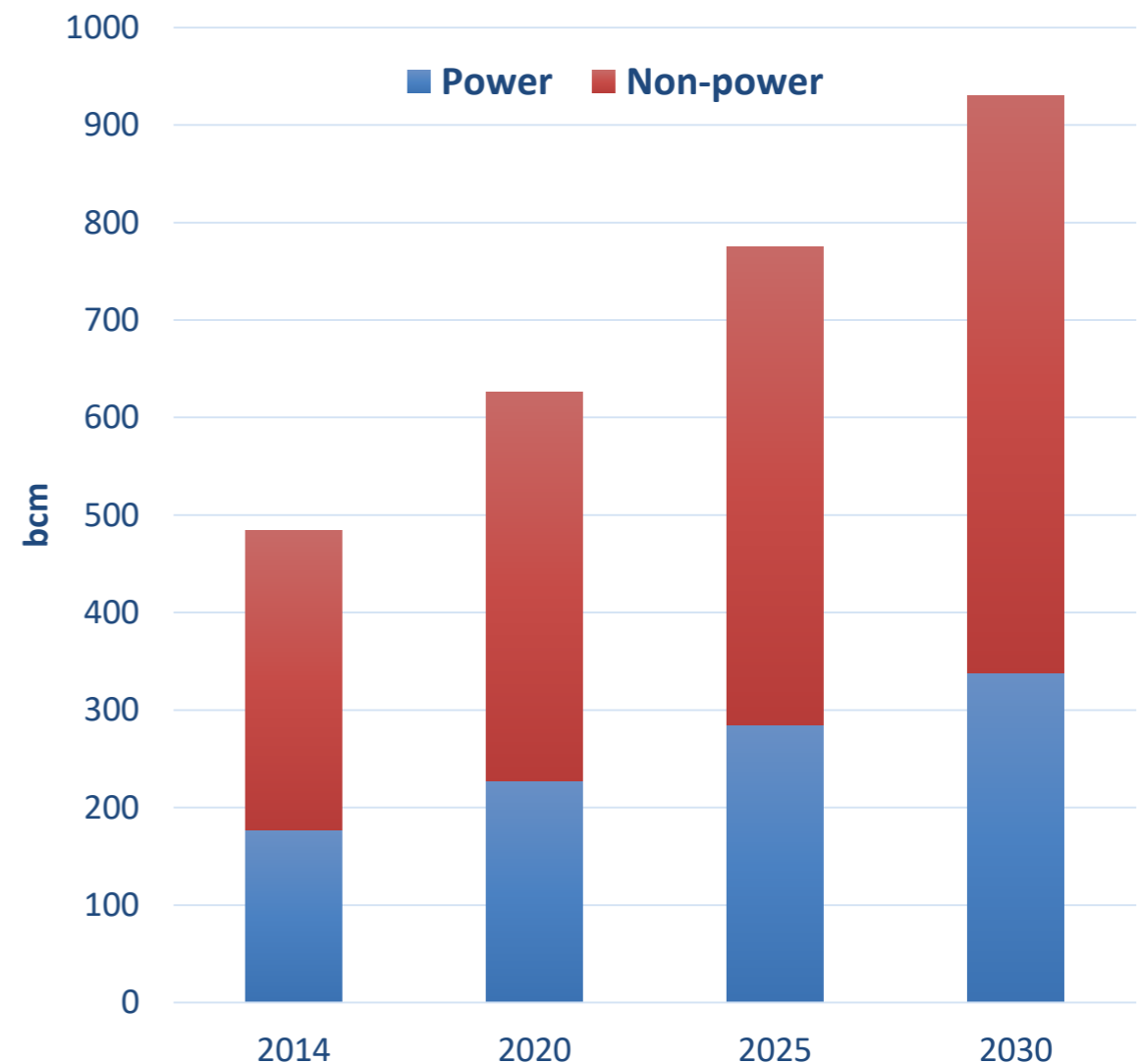
Asia: Same fundamentals, but in growing (power and energy) markets

Power: in most Asian (coal) countries, the least-cost strategy is (still) towards coal and renewables + some gas

- **Coal vs. Gas:** price competitiveness, abundance of coal resources, lack of gas infrastructure, regulated prices favouring coal, gas allocation policies
- **Air pollution:** a key driver to move away from coal, but not necessarily in the power sector, except in key urban centres (Beijing)
- Asian countries are adopting new emissions regulation which require depollution devices
- **But investment in new coal capacity is slowing rapidly:** overcapacity and low utilization rates (China, India), rapid development of renewables (and nuclear), greater efficiency efforts, national policies (U-turn in South Korea)

Non-power sectors driving gas demand growth

IEA outlook for gas demand in non-OECD Asia



The industrial sector emerges as the driving force of future gas demand (air quality issues in China, industrialization policies in other emerging Asian countries)