

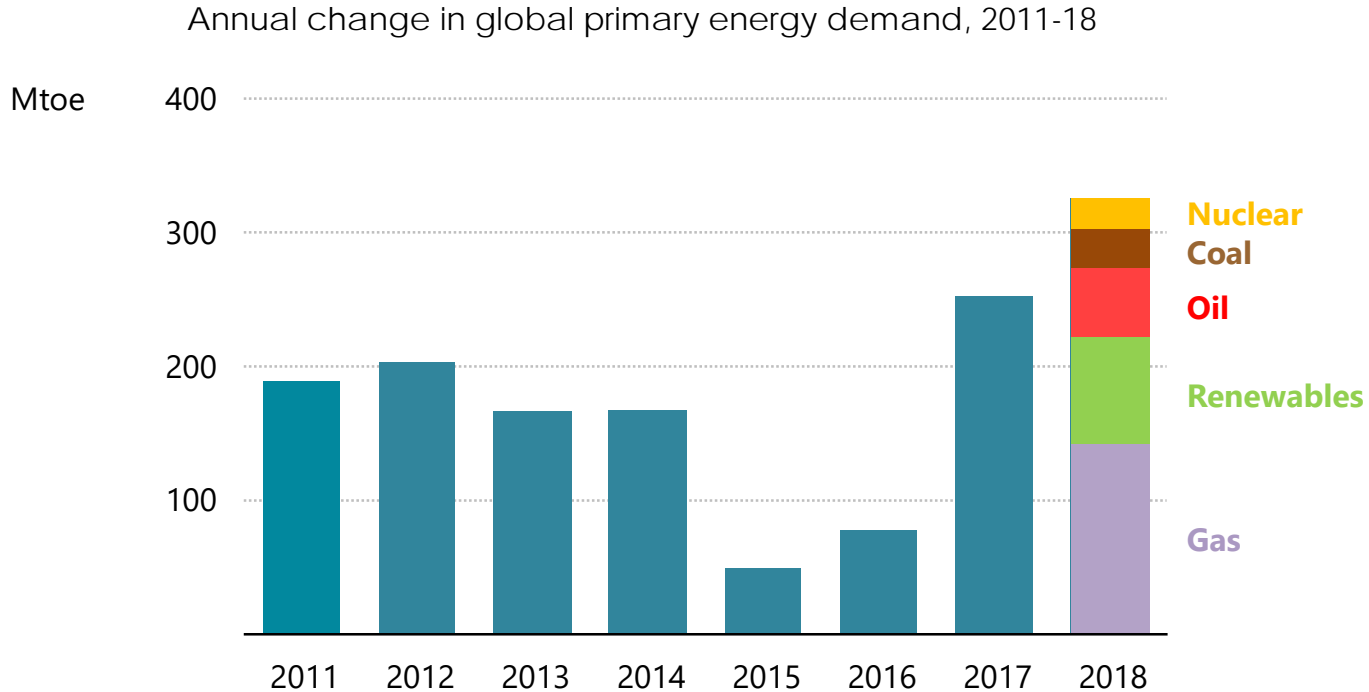


Energy Security in a Time of Transitions

Tim Gould, Head of Division, Supply and Investment Outlooks

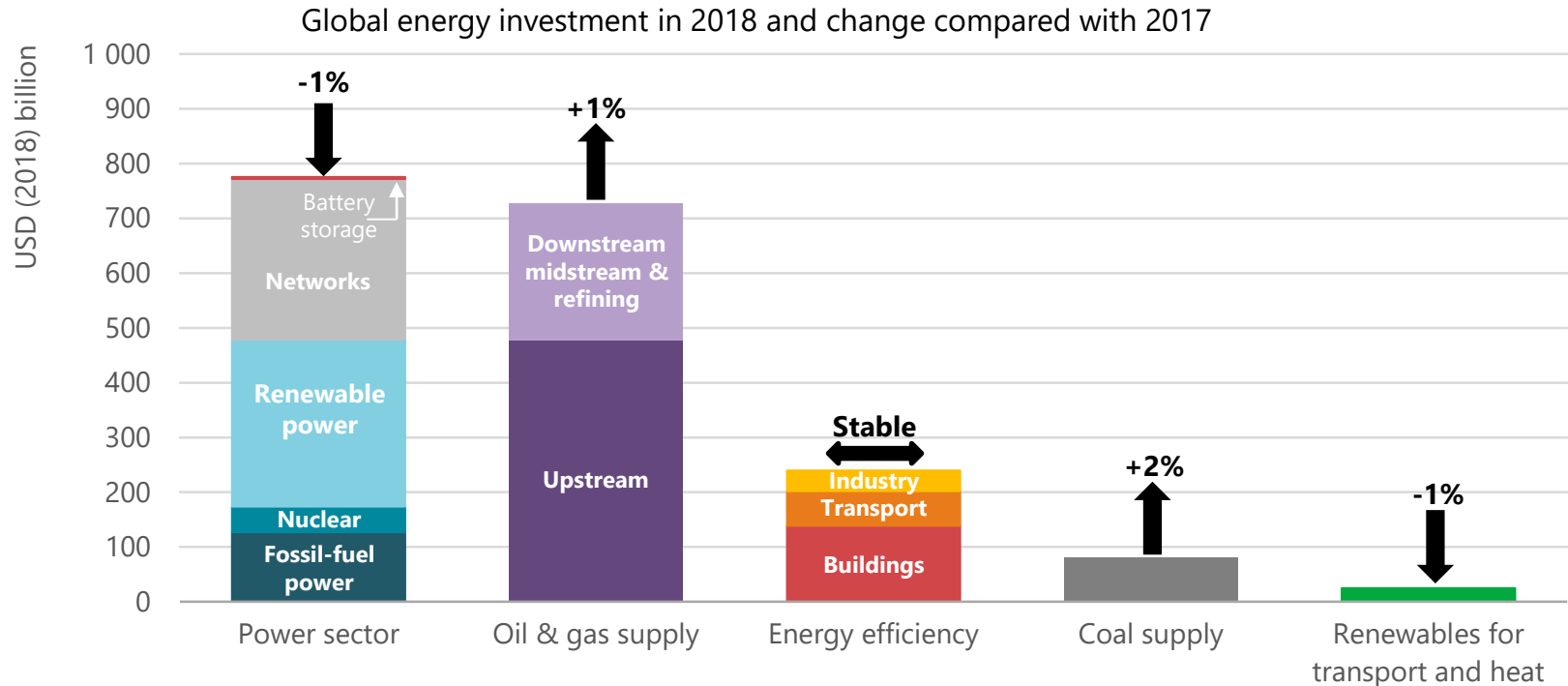
Policy Conference on Energy Transition Governance, Paris, 17 October 2019

2018 – a remarkable year in energy



Global energy demand grew by 2.3% in 2018, the fastest this decade. Increases in efficiency, renewables, coal-to-gas switching and nuclear avoided 640 Mt of CO₂ emissions, but overall emissions still hit a record high

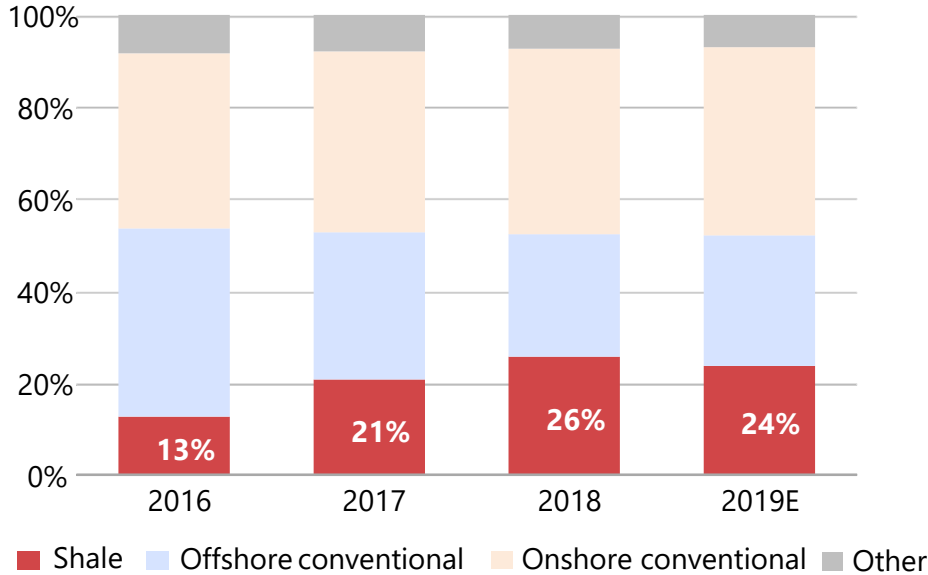
Global energy investment stabilised in 2018 after 3 years of decline



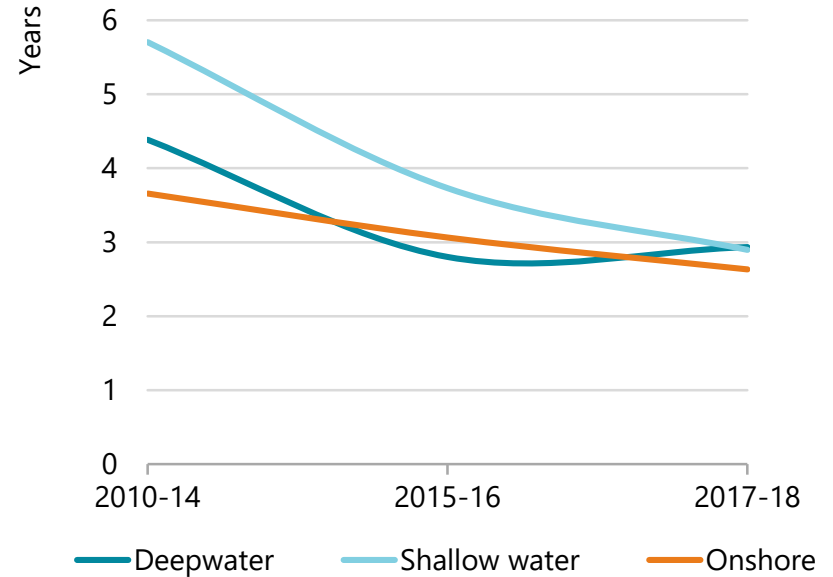
Overall energy investment remained at \$ 1.85 trillion in 2018, largely due to a slight uptick in oil and gas spending. Electricity was the largest sector for the third year in a row.

A preference for projects that deliver quickly

Share of global upstream oil and gas investment by asset type



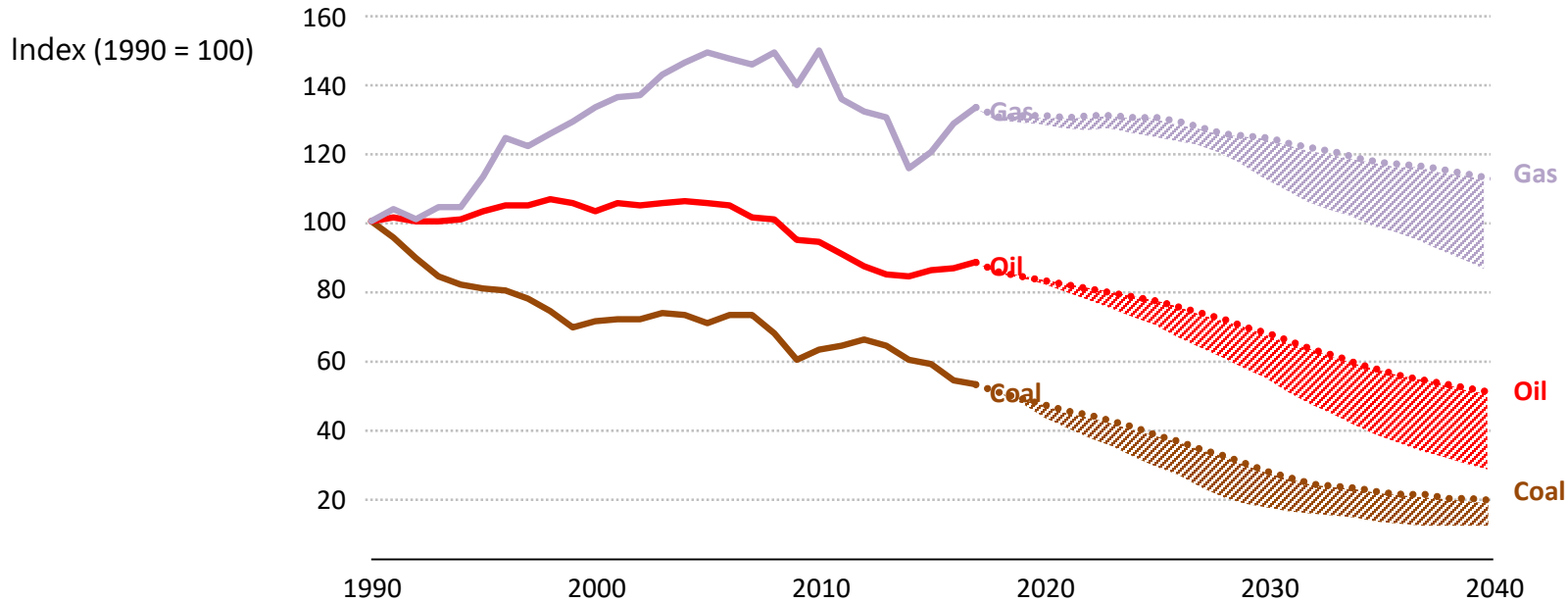
Average time to market for conventional oil and gas projects



In a changing energy system, upstream oil & gas and power generation, industry is bringing capacity to market 20% faster than in 2010., industry seeks to better manage capital at risk.

Range of (downward) possibilities for EU fossil fuel needs

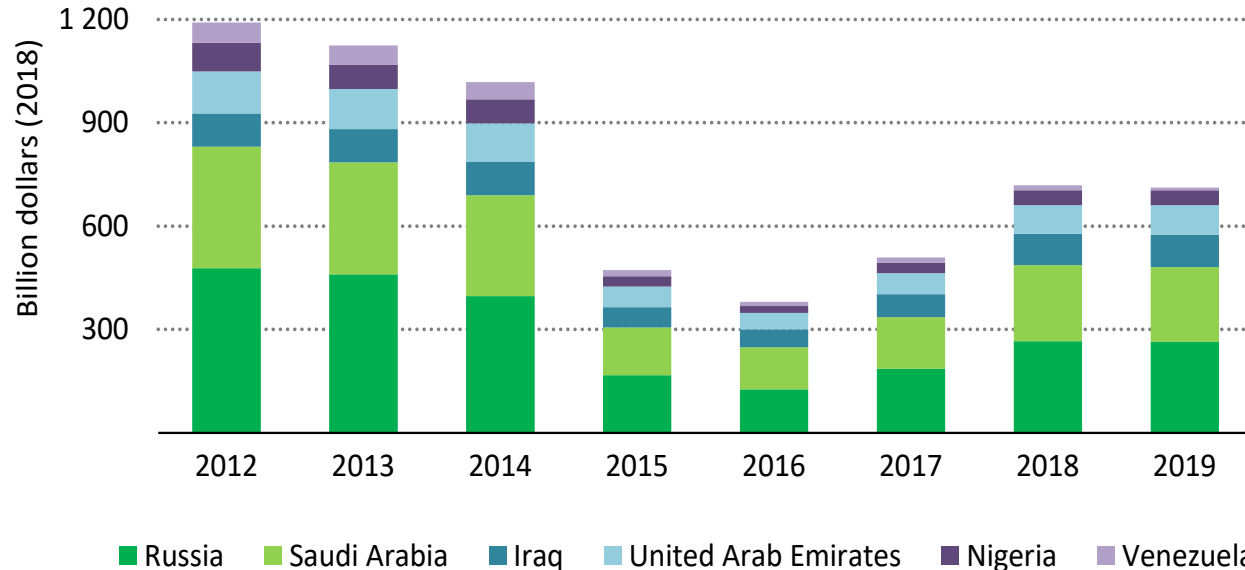
Demand for gas, oil and coal in the European Union in the **New Policies Scenario**



Europe's reliance on traditional fuels is set to fall significantly over the coming decades, but its exposure to concerns about oil and gas security does not disappear in energy transitions

The oil price and revenue rollercoaster

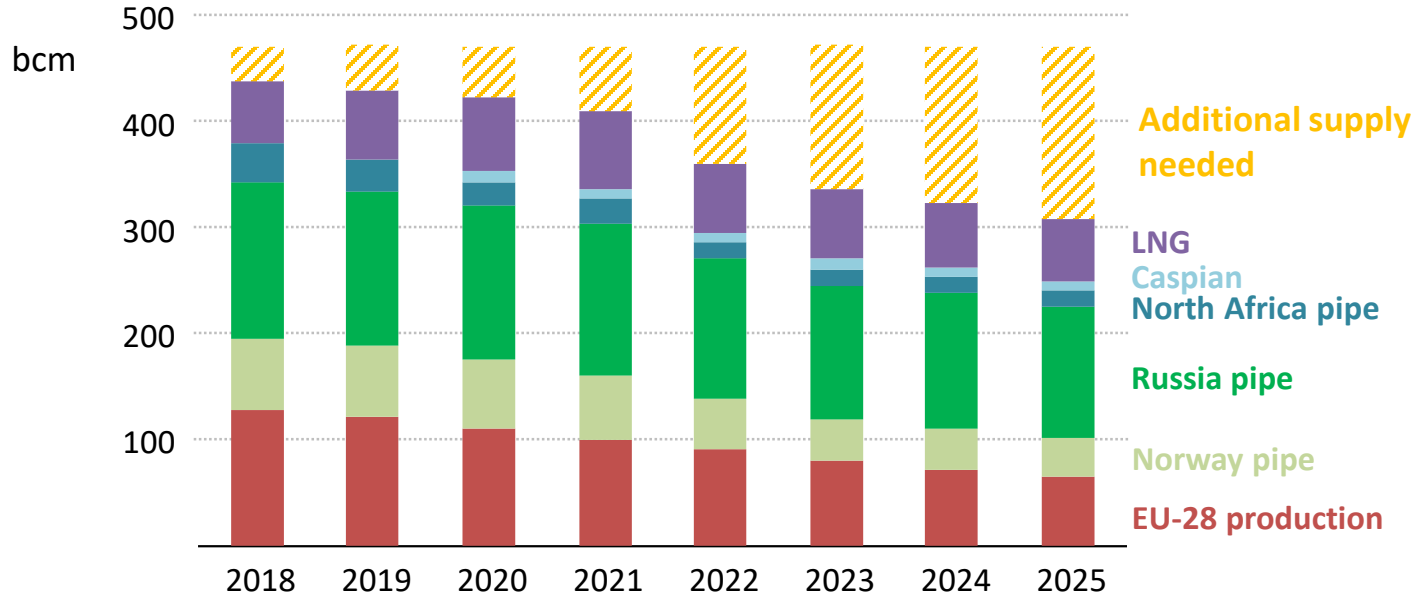
Net income from oil and gas in selected producer economies



Changing energy dynamics and uncertainty over future revenues raise profound questions for economies that are heavily dependent on income from oil

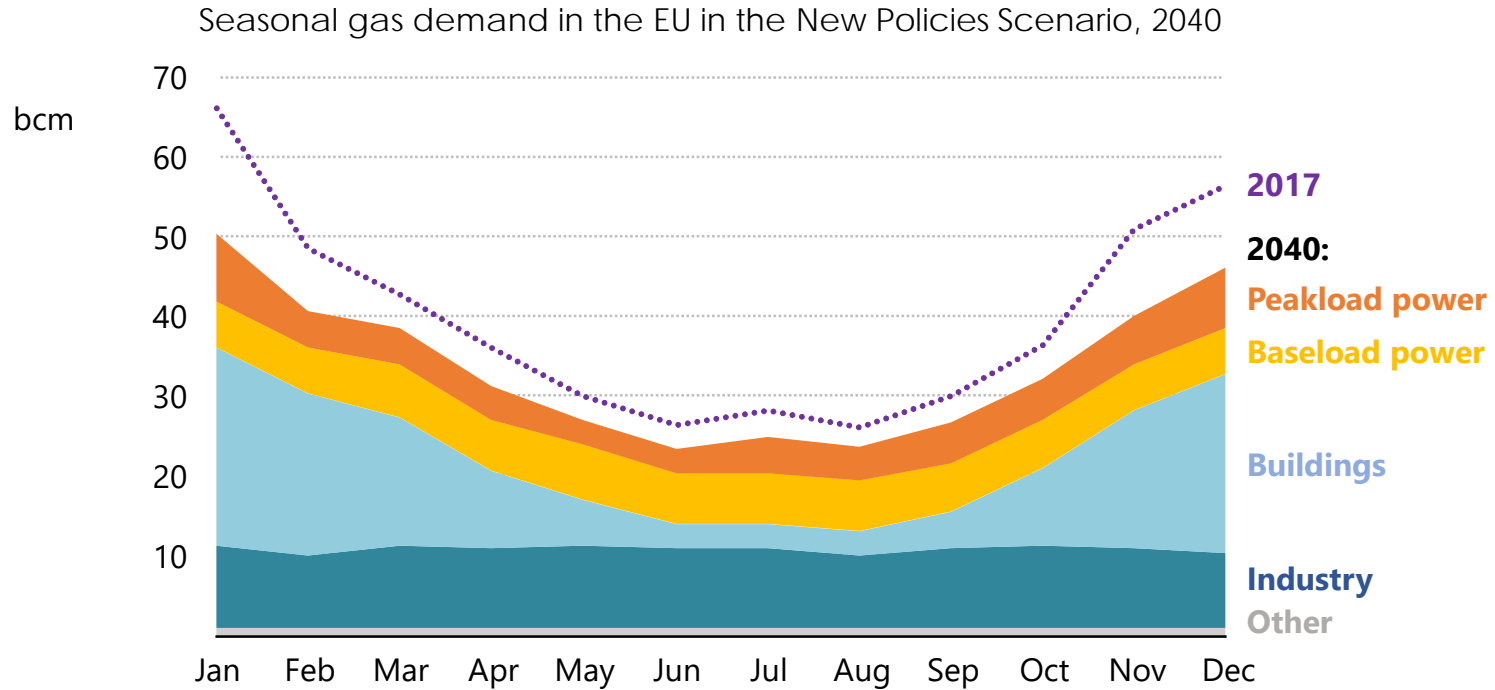
Europe will need to seek new gas imports

Produced / contracted gas & additional import requirements in the EU, 2018-2025



The European Union needs to find imports to cover one-third of its demand by 2025, due to sharp declines in the EU's own production & the expiry of nearly 100 bcm of long-term gas import contracts

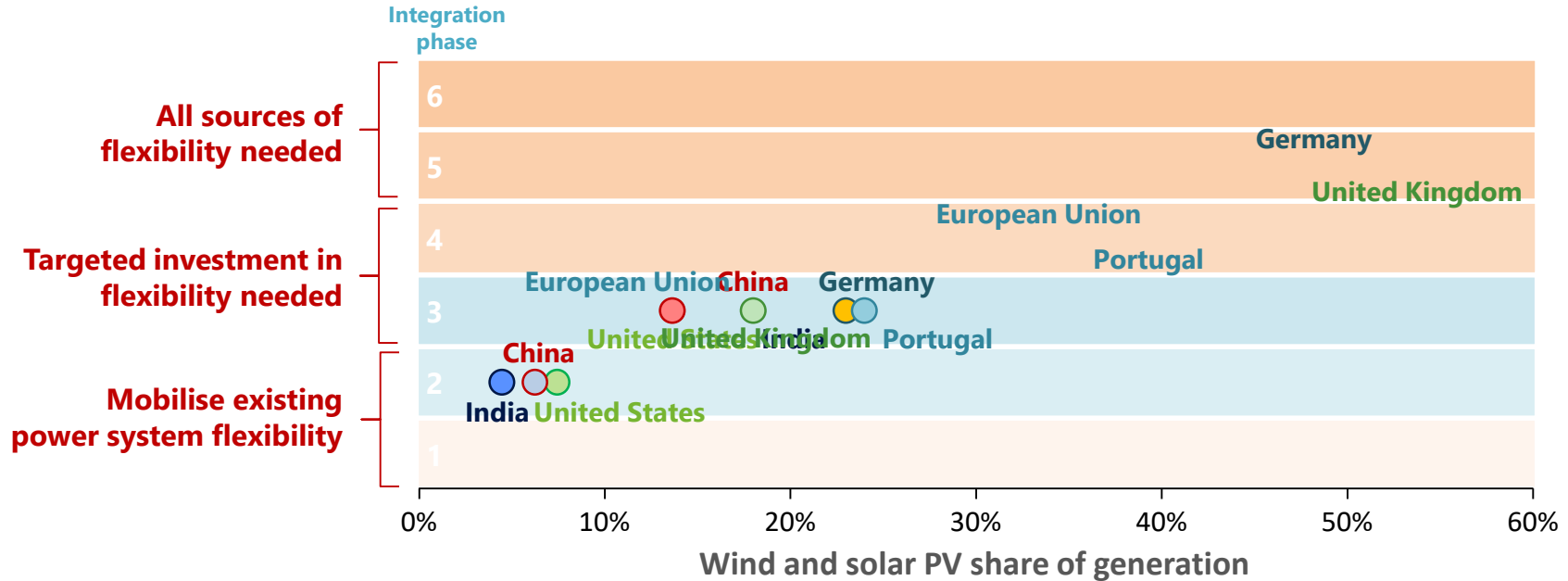
How high is the peak?



Peak demand in the EU is set to decline due to efficiency policies and the electrification of household heat demand; this raises questions for infrastructure operators

Flexibility: the cornerstone of tomorrow's power systems

Phases of integration with variable renewables share, 2030



Higher shares of variable renewables raise flexibility needs and call for reforms to deliver investment in power plants, grids & energy storage, and unlock demand-side response

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