

World Energy Outlook 2017

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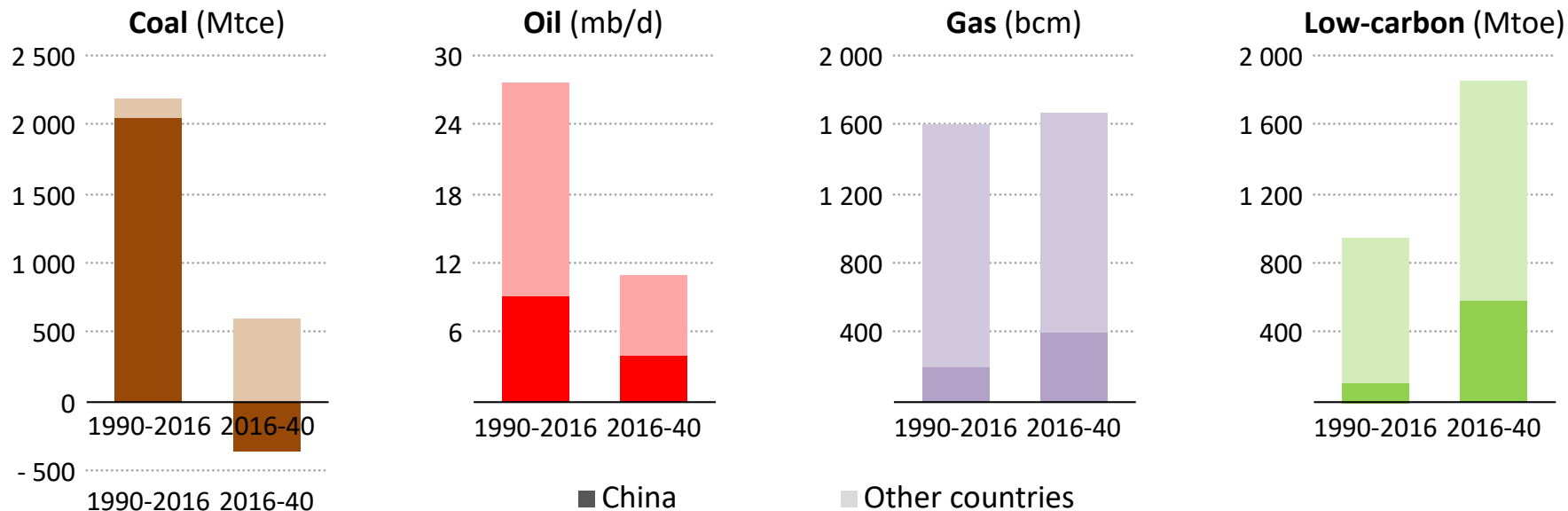
26 February 2018

Tipping the energy world off its axis

- Four large-scale upheavals in global energy set the scene for the new *Outlook*:
 - The **United States** is turning into the undisputed global leader for oil & gas
 - **Solar PV** is on track to be the cheapest source of new electricity in many countries
 - **China's** new drive to “make the skies blue again” is recasting its role in energy
 - The future is **electrifying**, spurred by cooling, electric vehicles & digitalisation
- There are many possible pathways ahead & many potential pitfalls if governments or industry misread the signs of change

A second climate moment: global energy markets, again

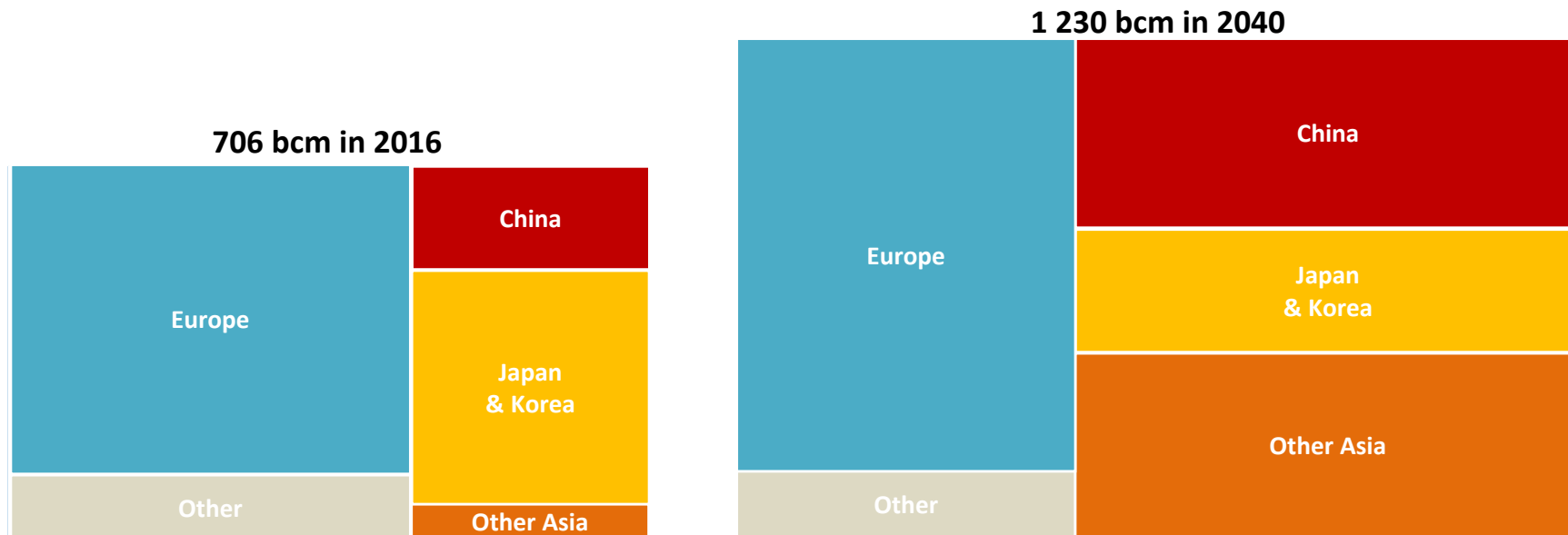
Change in world energy demand by fuel



*Low-carbon sources & natural gas meet 85% of the increase in global demand:
China's switch to a new economic model & a cleaner energy mix drives global trends*

LNG ushers in a new global gas order

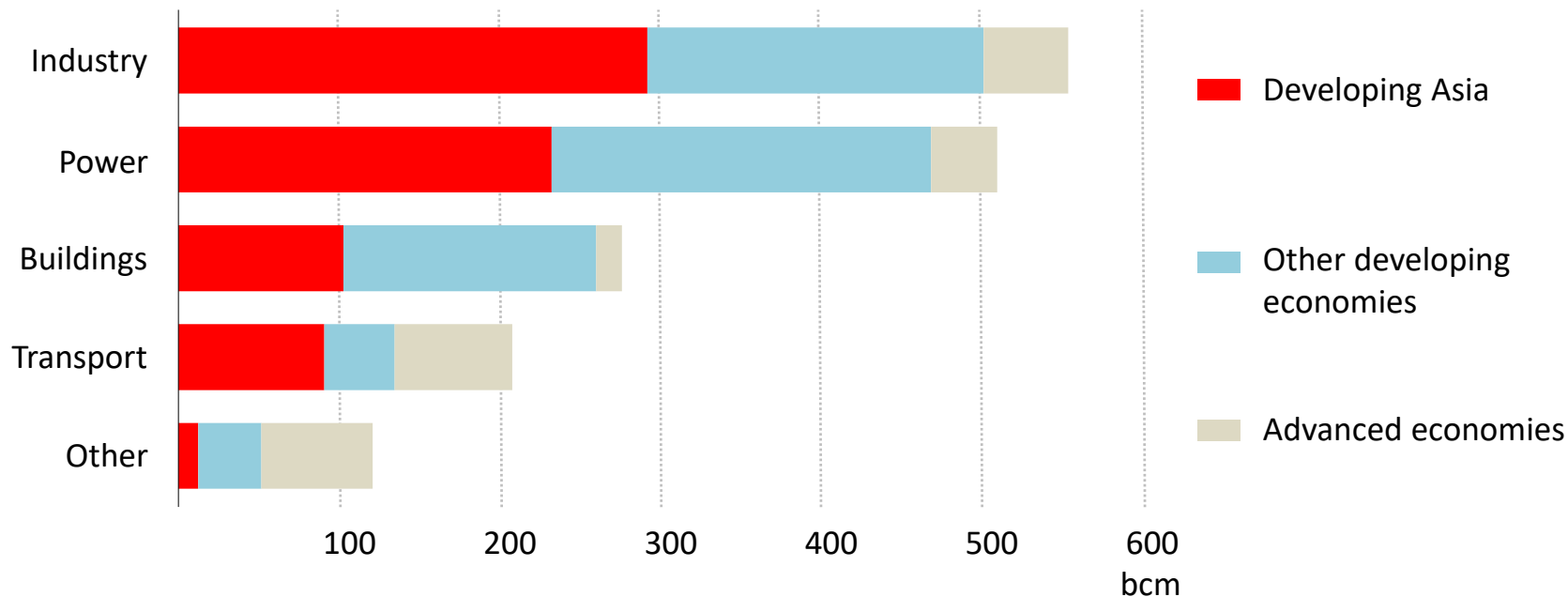
Gas importers



Asia's growing gas import requirements are largely met by LNG, with exports from the US accelerating a shift towards a more flexible, liquid global market

Industry leads the growth in gas demand

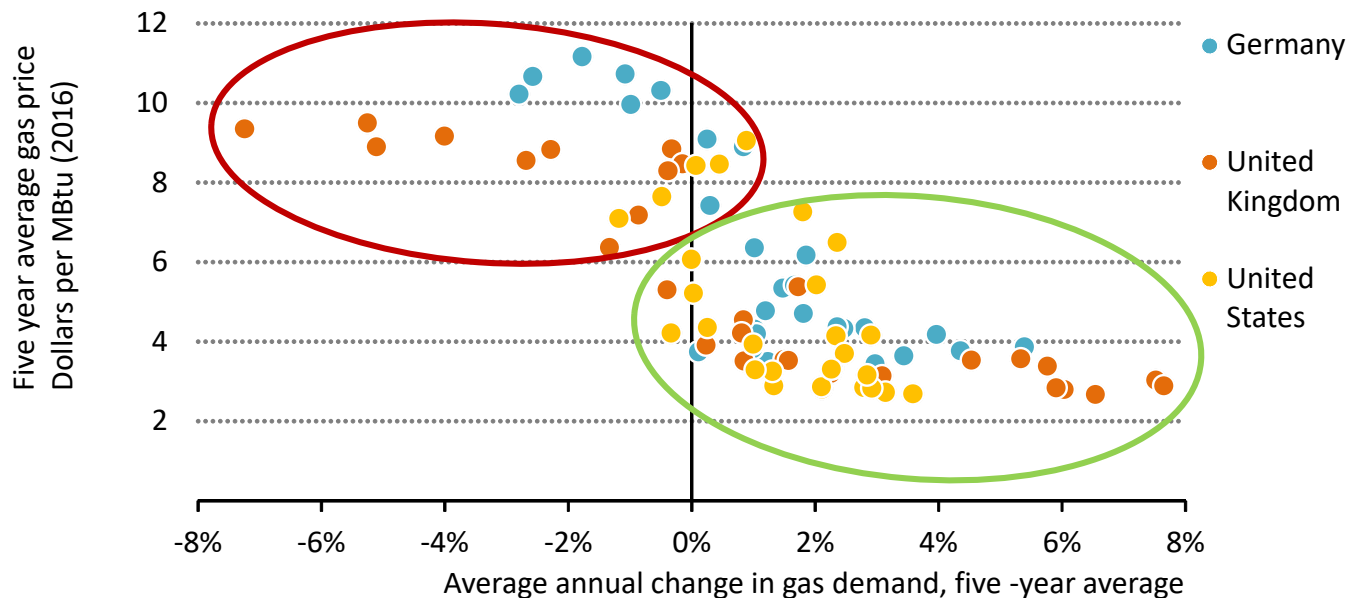
Growth in natural gas demand by sector 2016-2040



Gas demand growth in industry – especially in the geographically dispersed light industries – requires costly infrastructure roll-out

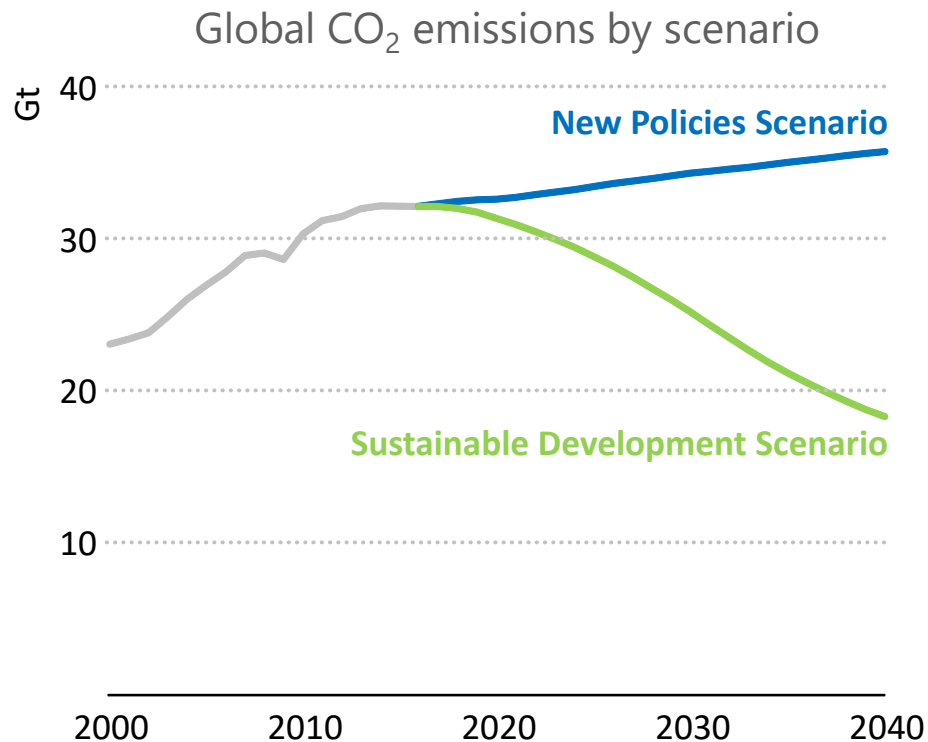
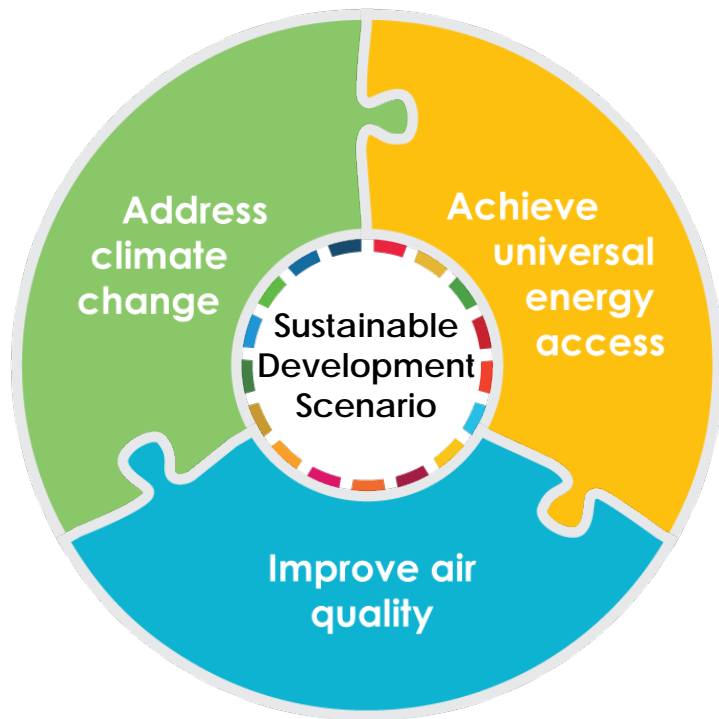
Economics 101: gas demand is price sensitive

Change in gas use versus price in Germany, the United Kingdom and the United States, 1983-2016



Analysis of historical demand trends in the US, the UK and Germany shows that gas use increased at prices below \$6/MBtu, but declined at prices above \$8/MBtu

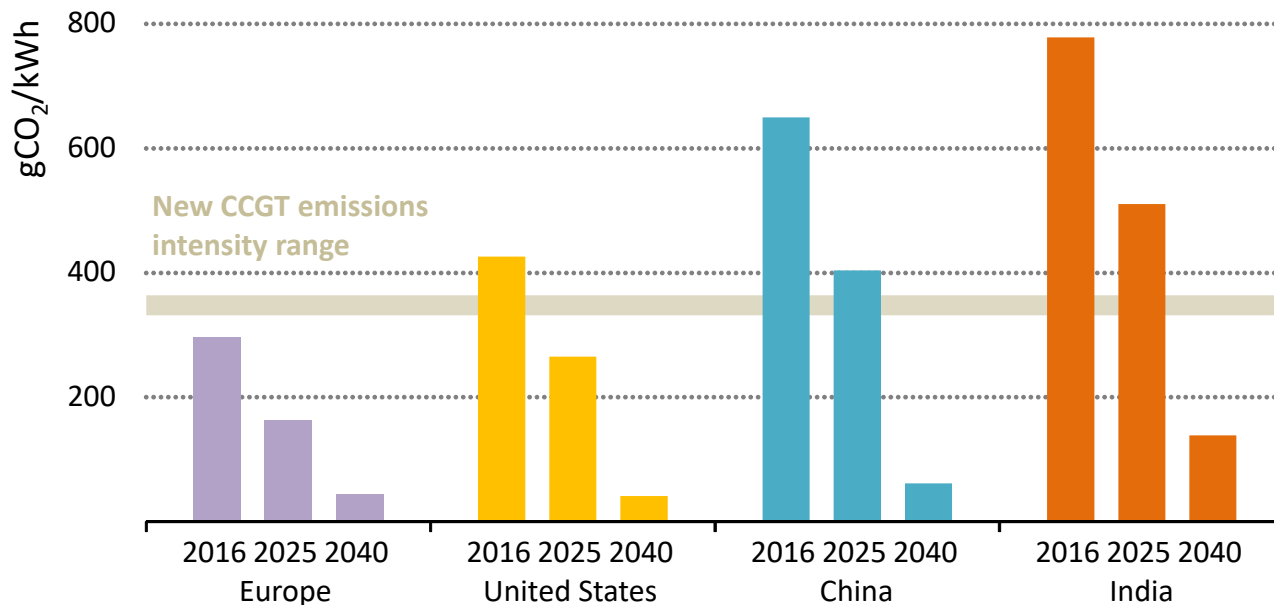
A new strategy for energy & sustainable development



The Sustainable Development Scenario reduces CO₂ emissions in line with the objectives of the Paris Agreement, while also tackling air pollution and achieving universal energy access

How long is the bridge?

Average CO₂ emissions intensity of power generation in the Sustainable Development Scenario



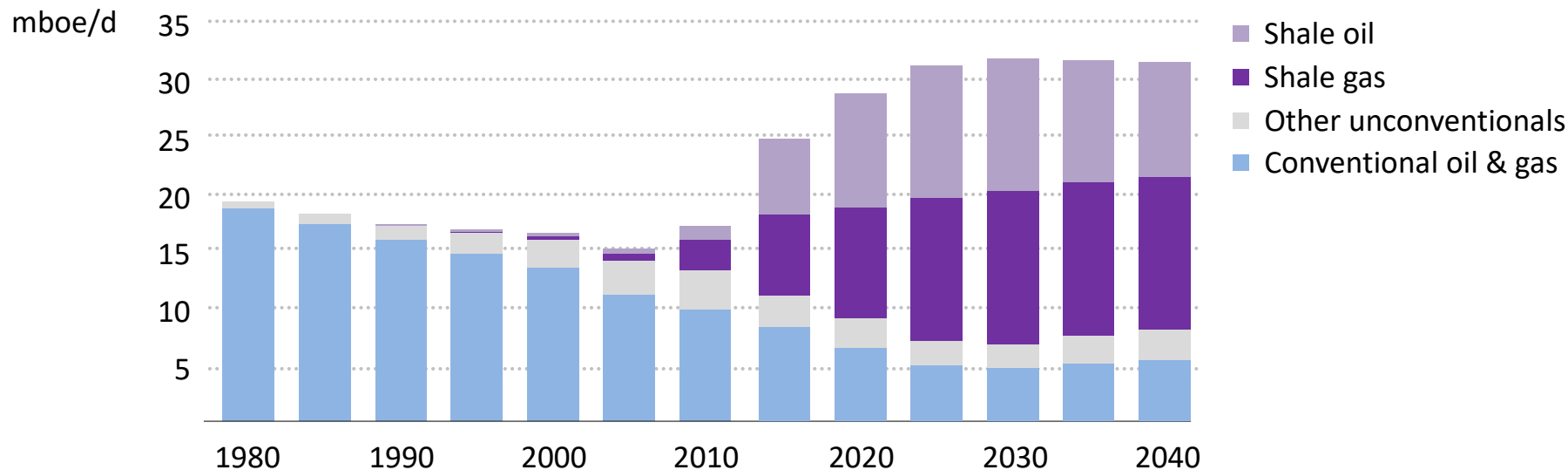
The situation varies by region, but the role of gas-fired generation evolves quickly as the power sector decarbonises

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US becomes undisputed leader of oil & gas production

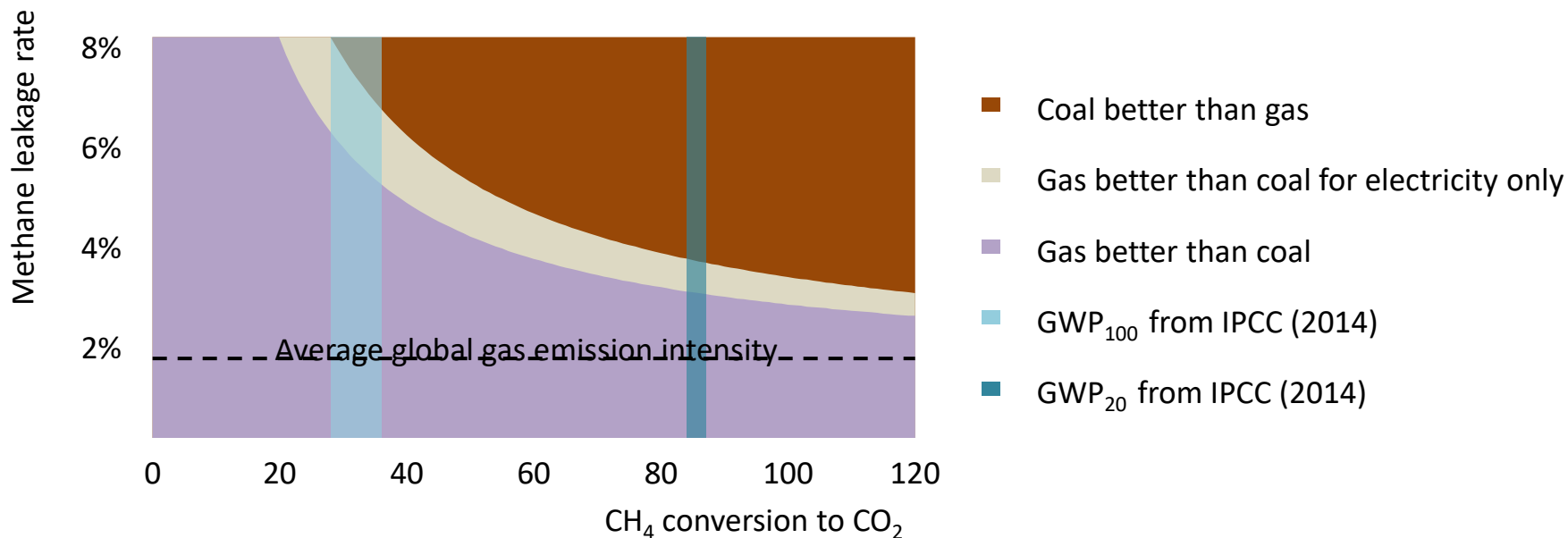
Oil and gas production in the United States



The US is already switching to become a net exporter of gas & becomes a net exporter of oil in the 2020s, helped also by the demand-side impact of fuel efficiency & fuel switching

The lifecycle emissions of gas are lower than coal

Greenhouse-gas emission intensity of natural gas compared with coal



The global average emission intensity of gas is low enough for gas to result in fewer GHG emissions than coal regardless of the timeframe considered