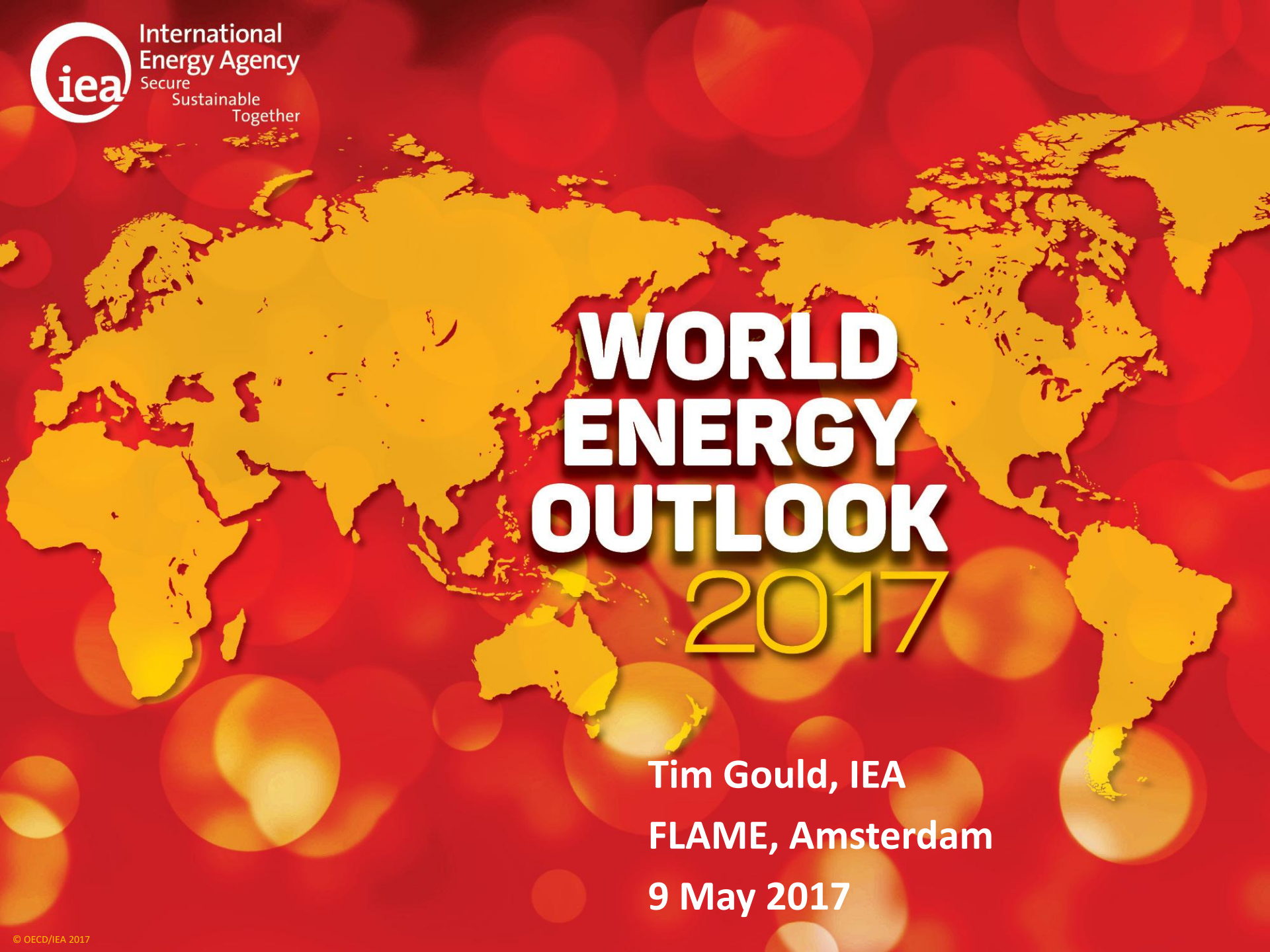




International
Energy Agency
Secure
Sustainable
Together

A stylized world map in yellow and orange, centered on the Atlantic Ocean, set against a red background with a bokeh effect of light circles.

WORLD ENERGY OUTLOOK 2017

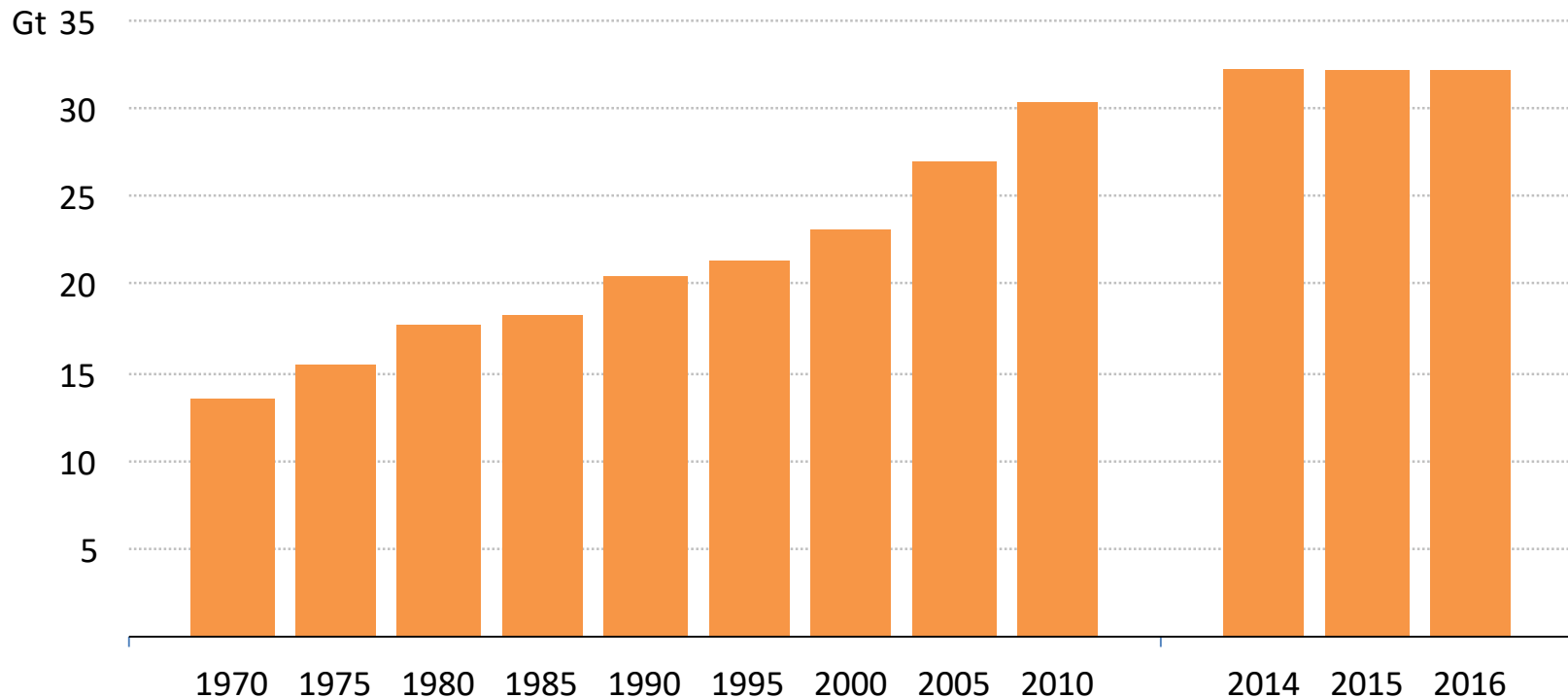
Tim Gould, IEA

FLAME, Amsterdam

9 May 2017

Global CO₂ emissions flat for 3 years

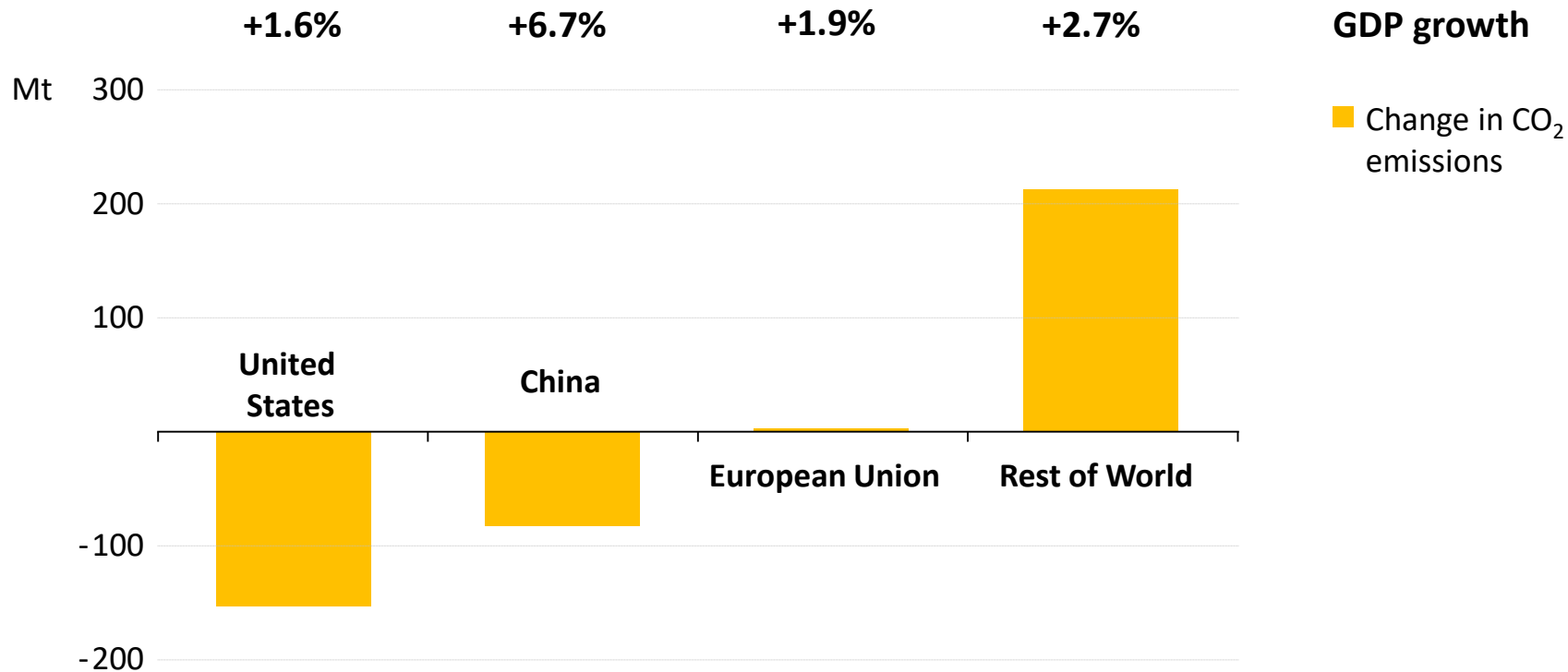
Global energy-related CO₂ emissions



IEA analysis for 2016 shows that global CO₂ emissions did not increase for the third consecutive year in a row, even though the global economy grew

.. with regional variations

Change in annual energy-related CO₂ emissions, 2016

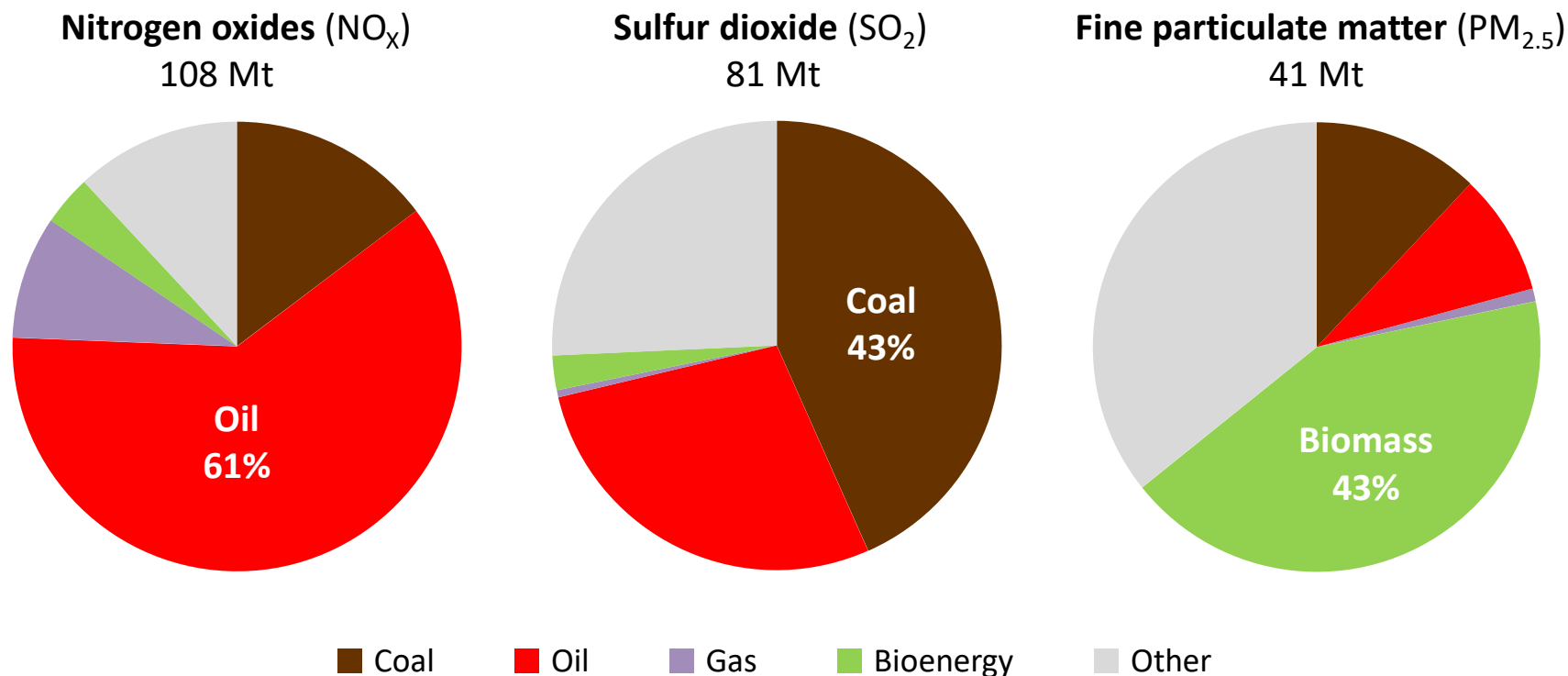


Coal-to-gas switching, alongside strong growth in low-carbon fuels & technologies, has been instrumental to the fall in emissions in the United States & China

Air pollution is an energy problem & a chance for natural gas

WORLD
ENERGY
OUTLOOK
2017

Pollutant emissions, 2015

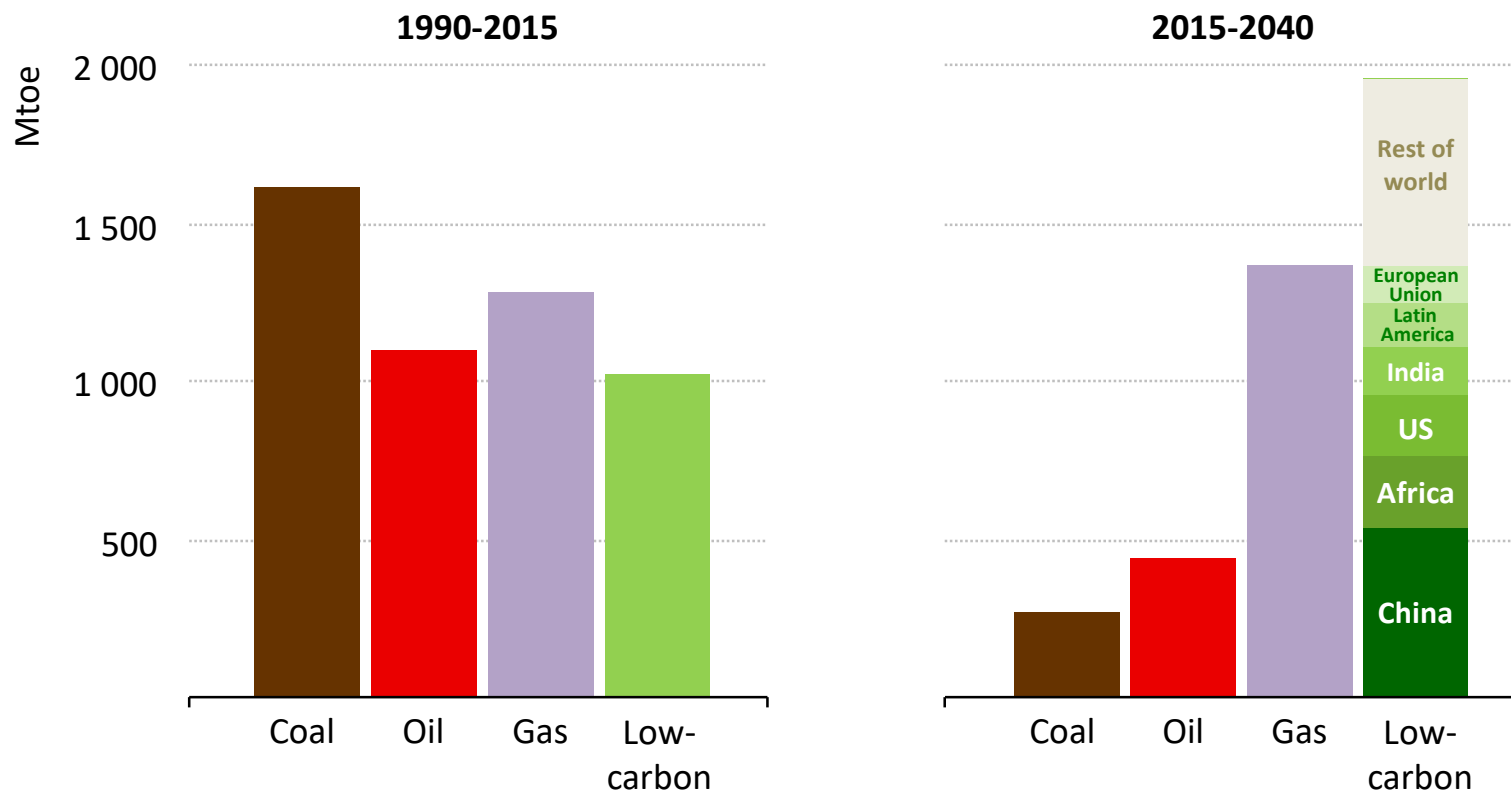


Source: WEO Special Report: Energy and Air Pollution

Energy is the single most important cause of emissions of all the main pollutants, boosting the case for gas in fast-growing urban & industrial centres

A new 'fuel' in pole position

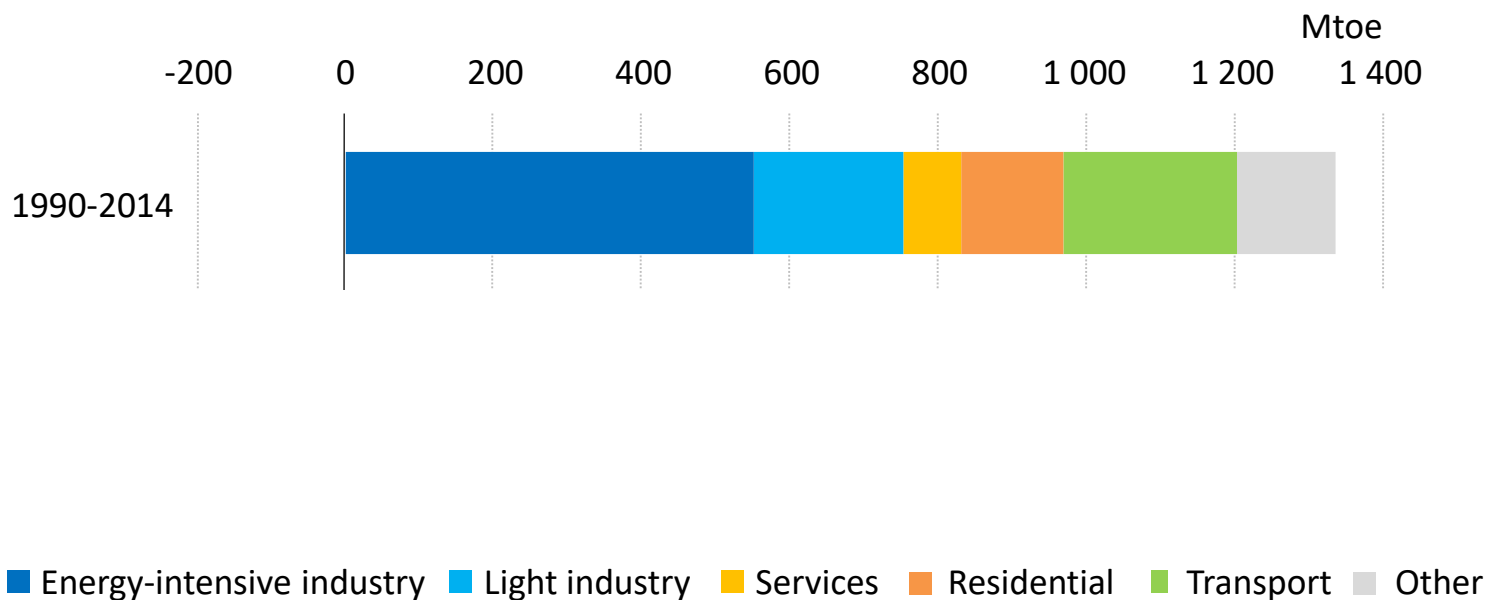
Change in total primary energy demand



Low-carbon fuels & technologies, mostly renewables, supply nearly half of the increase in energy demand to 2040

China's economic transition re-shapes global trends

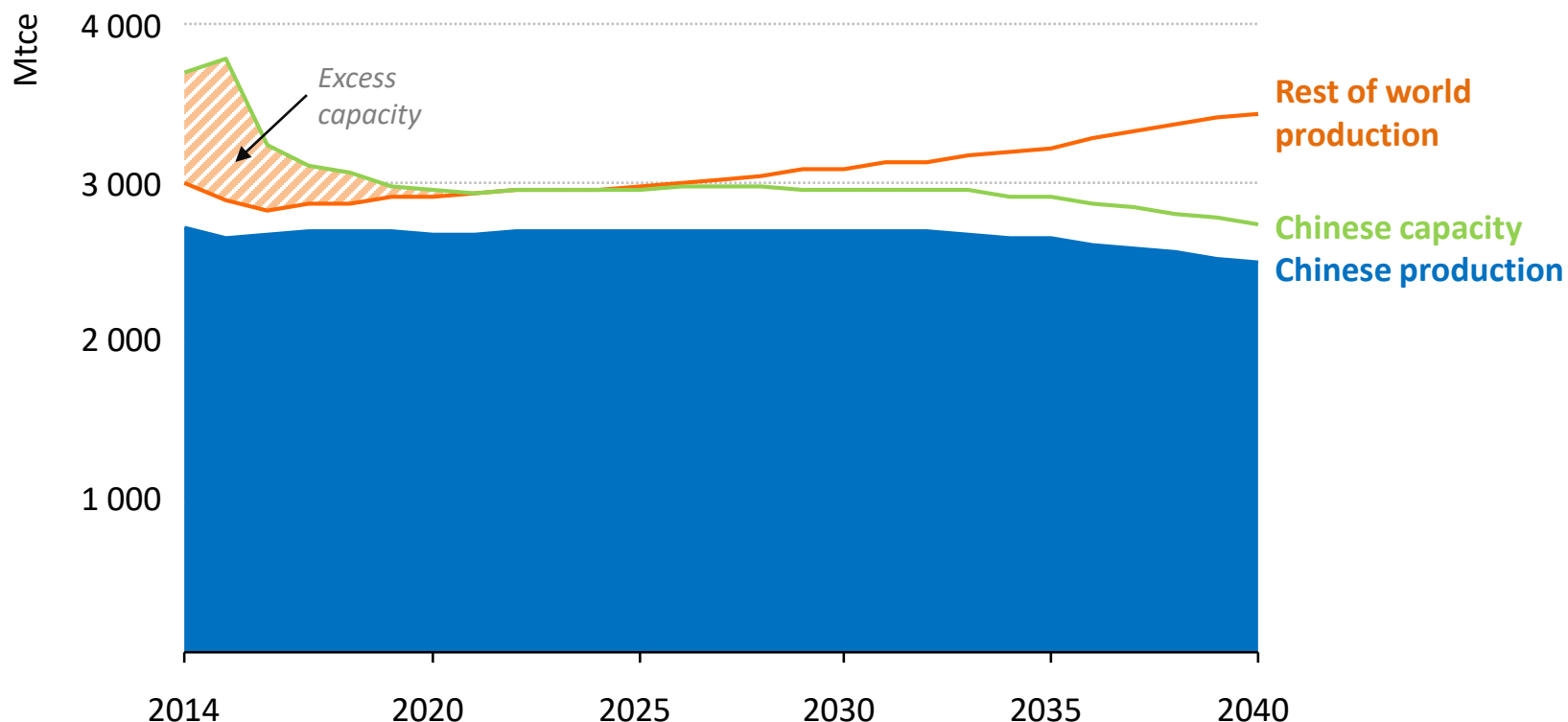
Change in total final energy consumption in China



China's energy-intensive industries are no longer the spur for future growth; the resulting fall in coal demand makes way for a strong rise in electricity & gas use

China holds the levers to the coal market

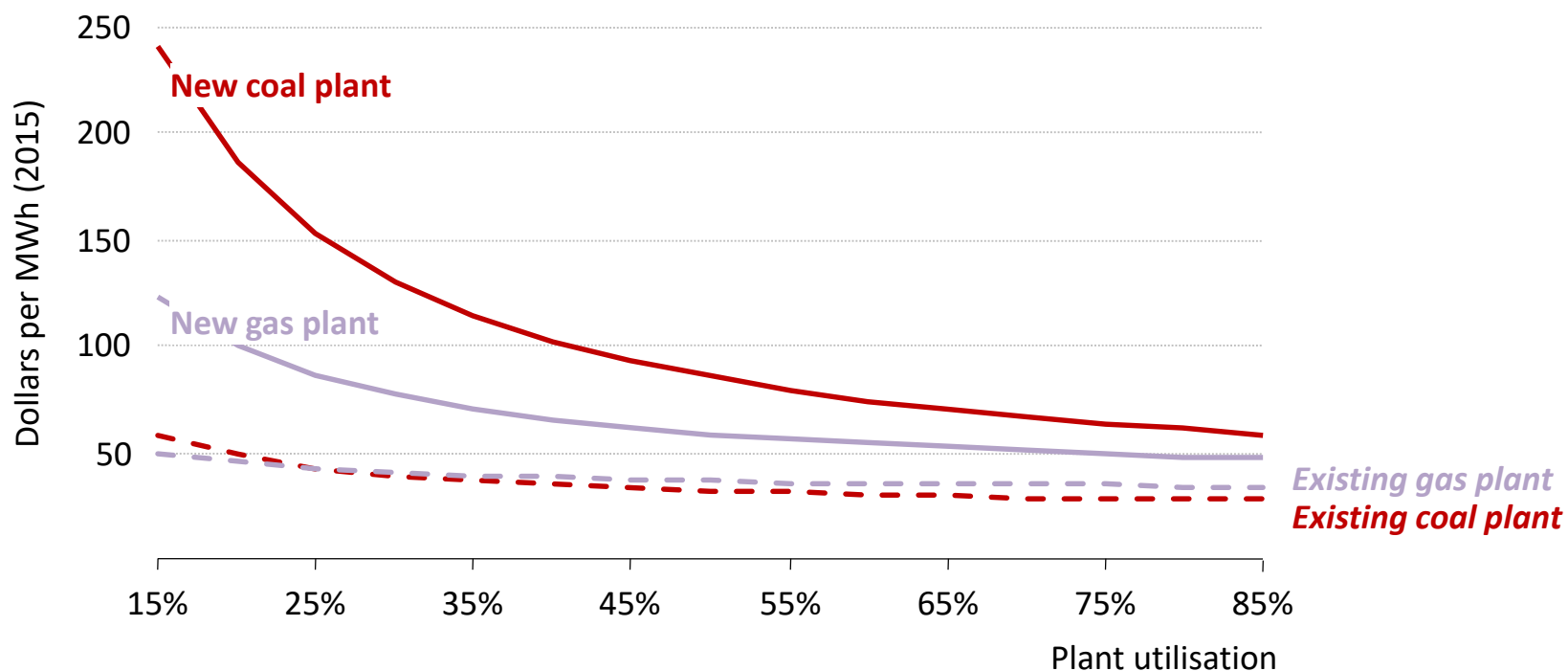
Coal production and coal mining capacity in China



China's coal market restructuring will have repercussions on global coal prices and thus on the commercial viability of gas vis-à-vis coal

Gas is well placed in the US power sector

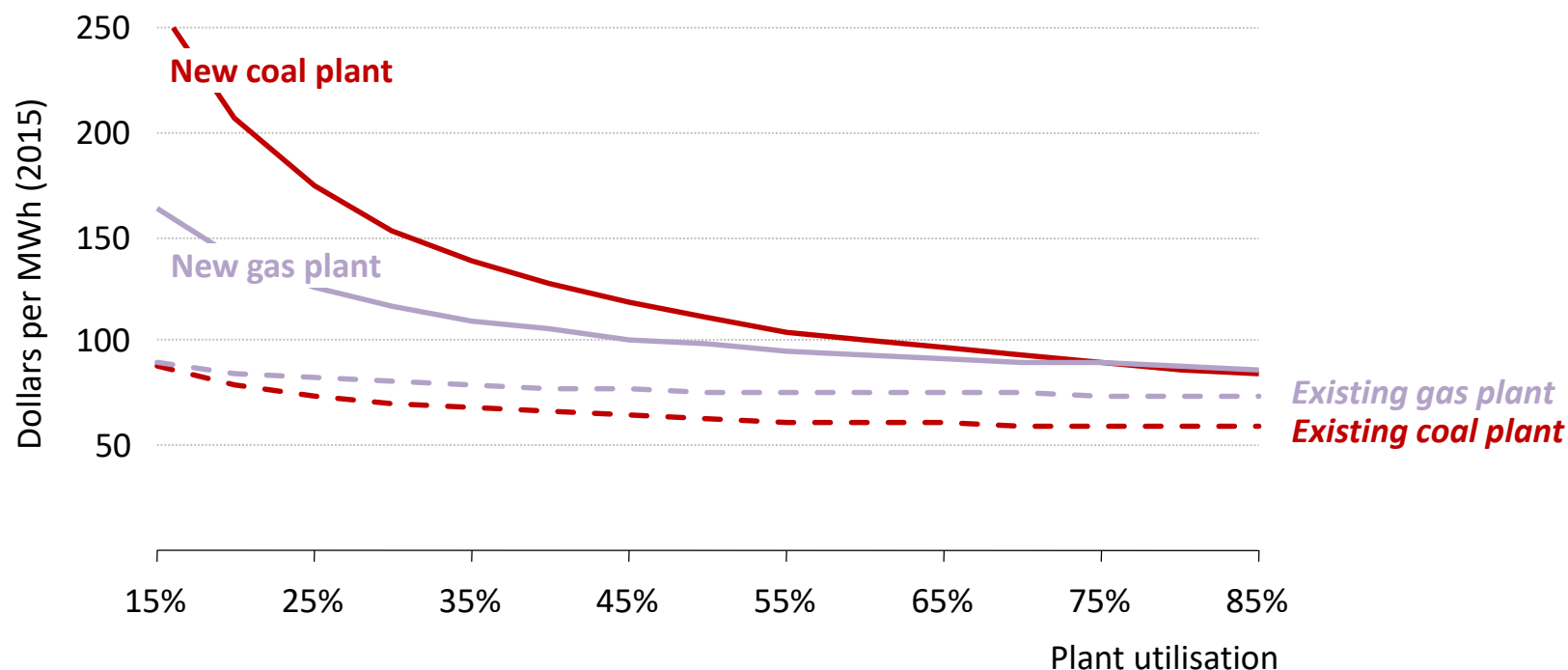
Levelised cost of electricity generation for existing and new coal and gas plant in the United States, 2025



New CCGTs beat new coal plants on a commercial basis in the United States even in baseload generation

.. but the picture changes in markets where gas is imported

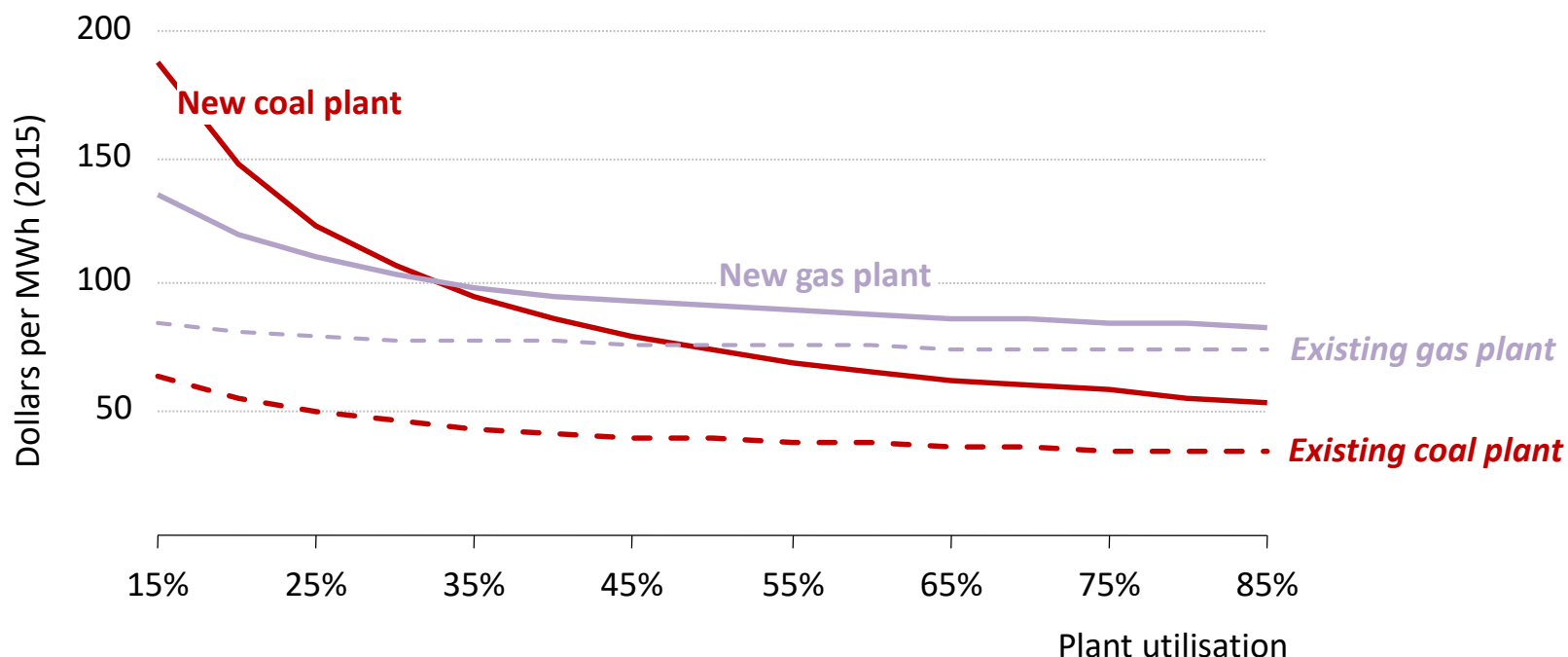
Levelised cost of electricity generation for existing and new coal and gas plant in the European Union, 2025



The commercial case for coal-to-gas switching in power generation is not self-evident in the European Union

.. and coal is a very tough competitor across much of Asia

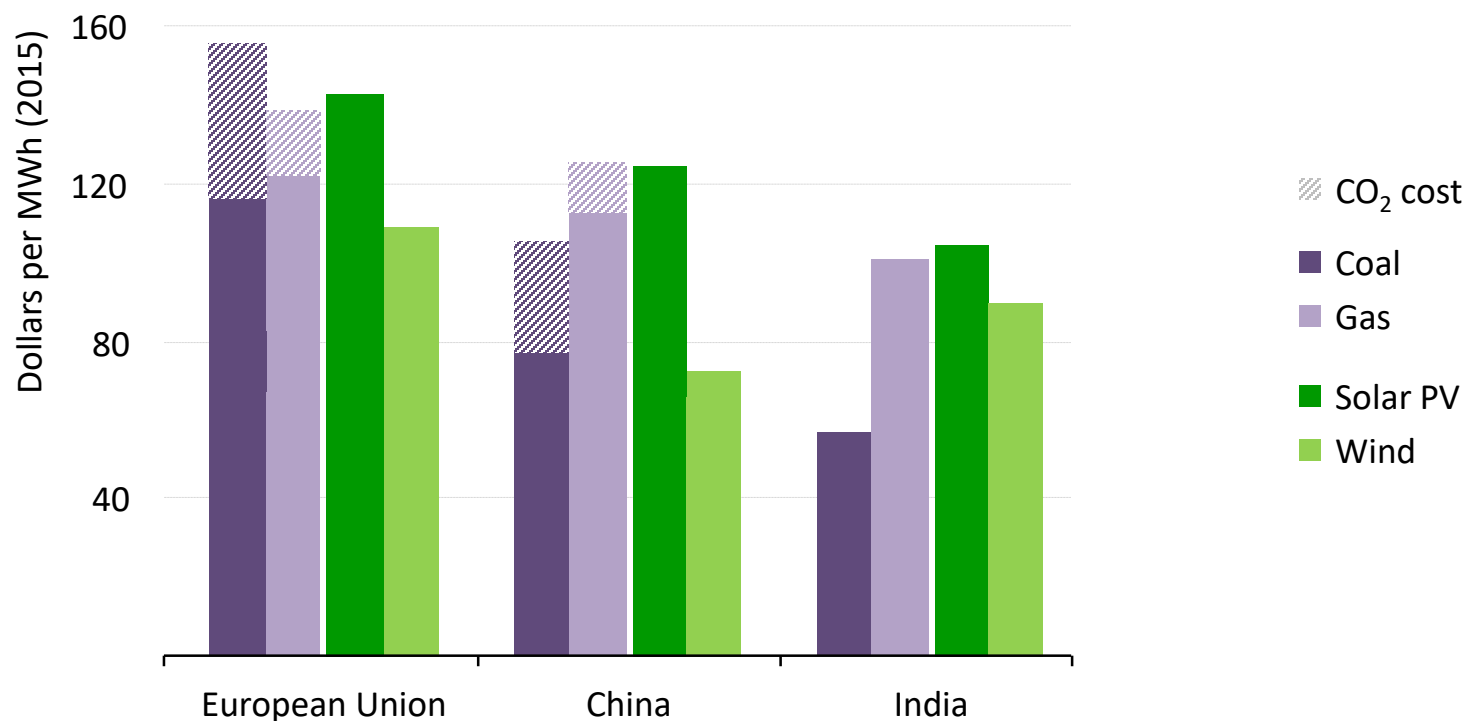
Levelised cost of electricity generation for existing and new coal and gas plant in Asia, 2025



In most Asian gas-importing countries, the economic case for gas-for-power is limited to a role in meeting peaks in demand

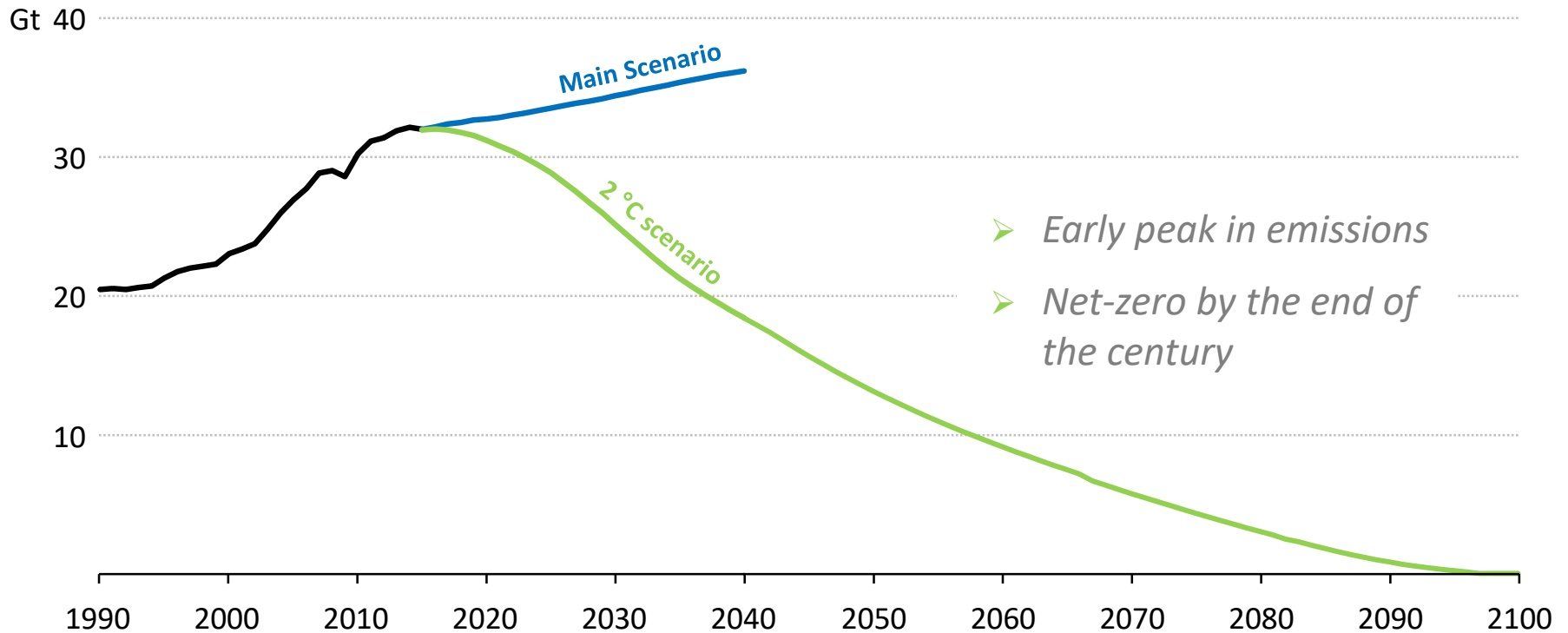
Renewables are increasingly competitive in all markets

Levelised cost of electricity by selected technologies, 2040



Falling costs and rising electricity prices lead more renewables to be competitive; by 2040, nearly half of wind and solar PV do not require any subsidies

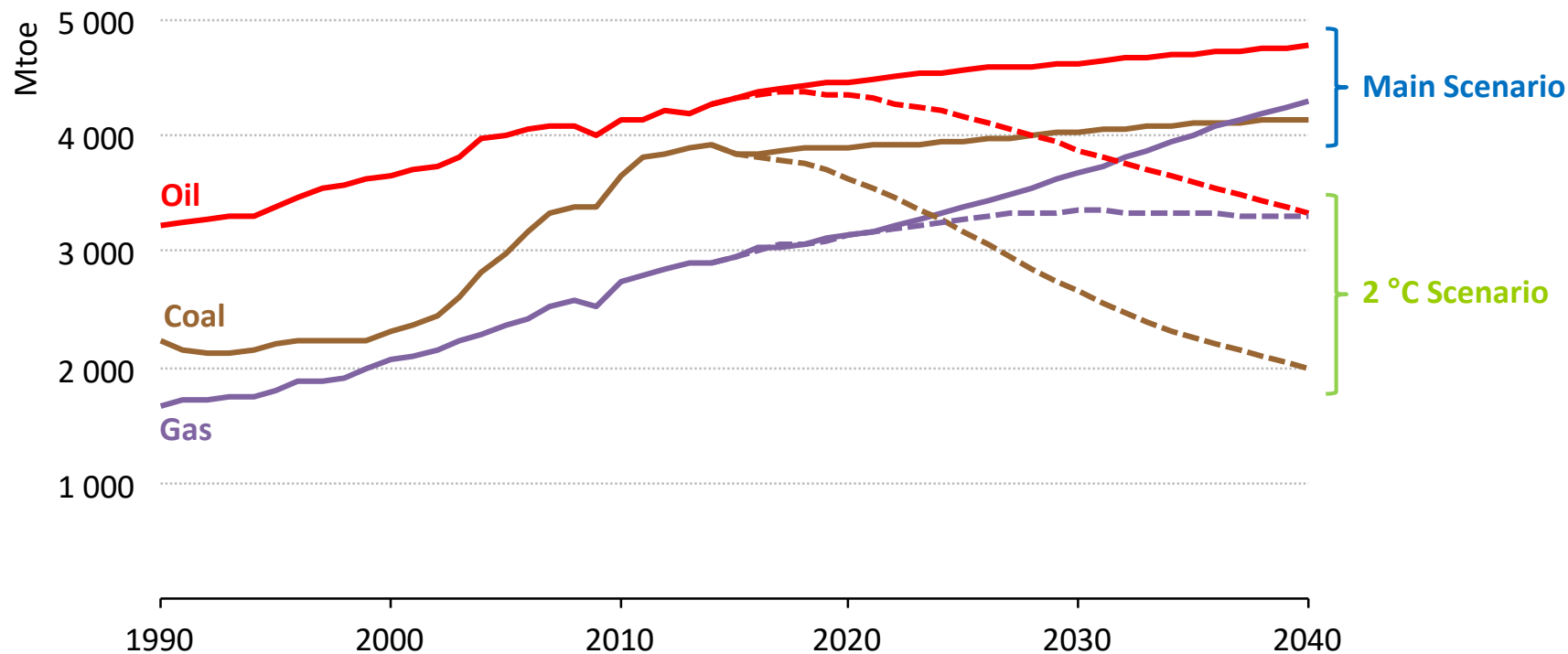
Energy-sector CO₂ emissions



Current pledges fall well short of limiting the temperature increase to below 2 °C

Challenges in a decarbonising system

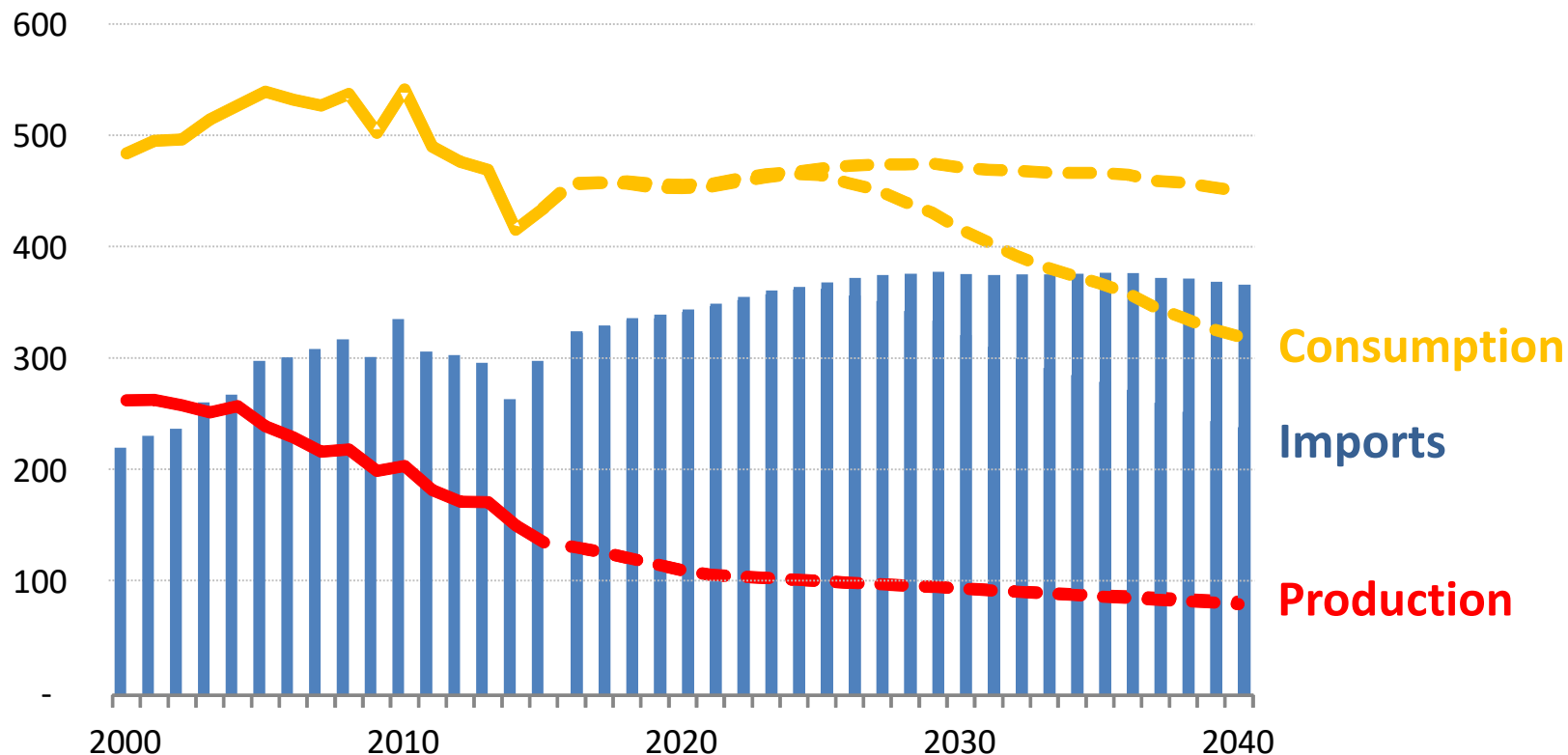
Energy demand by fuel & scenario



***Coal is hit hardest in a 2 degree scenario & oil demand peaks before 2020:
only consumption of natural gas ends up higher than today***

Gas in the EU's energy transition

EU gas balance in the 2 °C scenario



The European Union remains a major gas user in all our scenarios; but greater efficiency & lower load factors in a 2 degree scenario put most sectors into decline

■ Multiple strands of analysis in an in-depth WEO focus

- *Detailed projections for gas use to 2040, focusing on the opportunities & competition for gas (vs. renewables, coal, efficiency, storage) by sector & country*
- *Implications of an upswing in US production for the domestic mix, North American gas balances, global market dynamics & energy security*
- *Impact of the 'LNG revolution' on gas pricing & contracting structures; evolving risks to gas security & ways to mitigate them*
- *Requirement for new gas infrastructure; investment & the changing roles of gas in a decarbonising energy system*
- *Co-benefits & challenges of gas use: e.g. role of gas in improving air quality: risk of methane emissions along the value chain*
- *Supply technologies & costs; role of unconventional gas outside North America; floating storage & regasification; innovation (e.g. power-to-gas, hydrogen)*

■ Launch: 14 November 2017