



Oil and Gas Industry in Energy Transitions

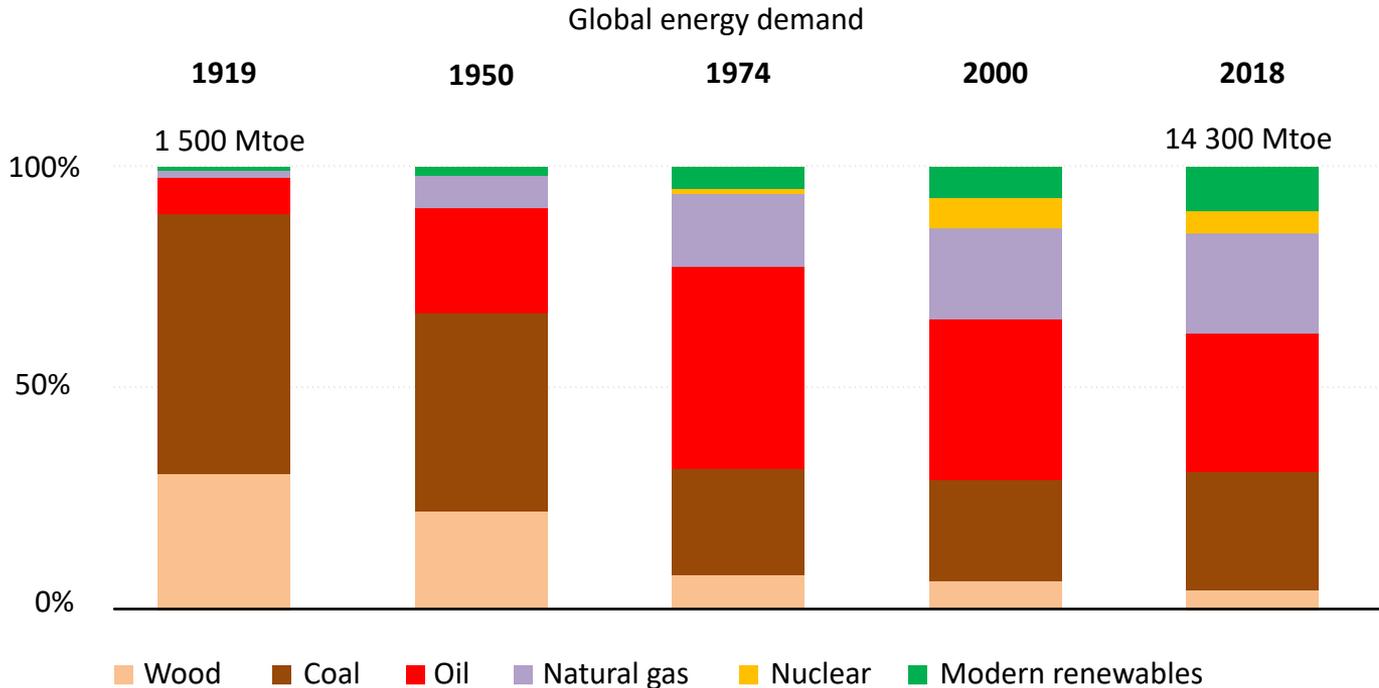
Dr. Fatih Birol, Executive Director, IEA

Baker Hughes Annual Meeting 2020

Context

- The energy world is marked by a series of deep disparities, between:
 - The calm in well-supplied oil markets versus deep geopolitical tensions and uncertainties
 - The need for rapid cuts in emissions, while these emissions reach historic highs
 - The promise of energy for all, while 850 million people remain without access to electricity
- Cost reductions & digitalisation are boosting new technologies, but they still need a helping hand from policy
- More than ever, energy decision makers need to take a hard, evidence-based look at the choices ahead

Perspectives from energy history



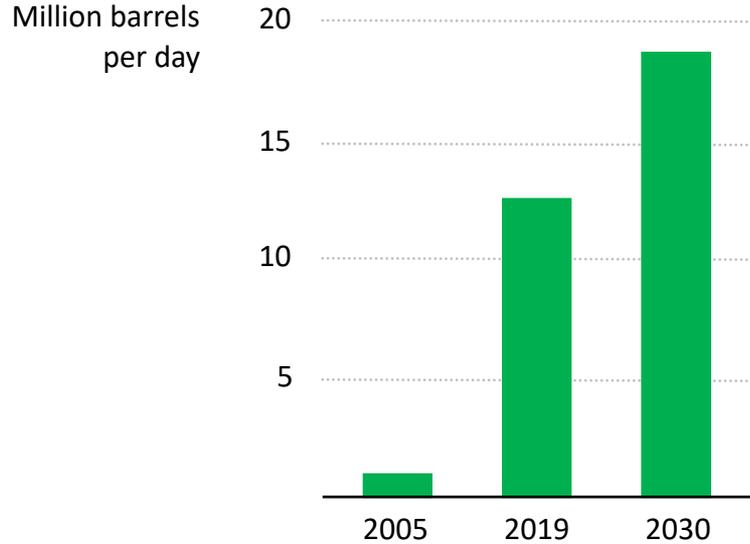
The last century has witnessed multiple transitions to and from different fuels and technologies

The challenge today is one of scale: global energy use is ten times higher than in 1919

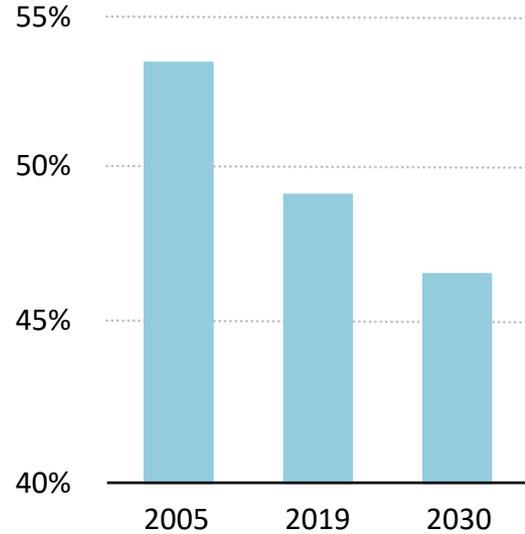
.... and growing

Shale can stay higher for longer

US shale oil production



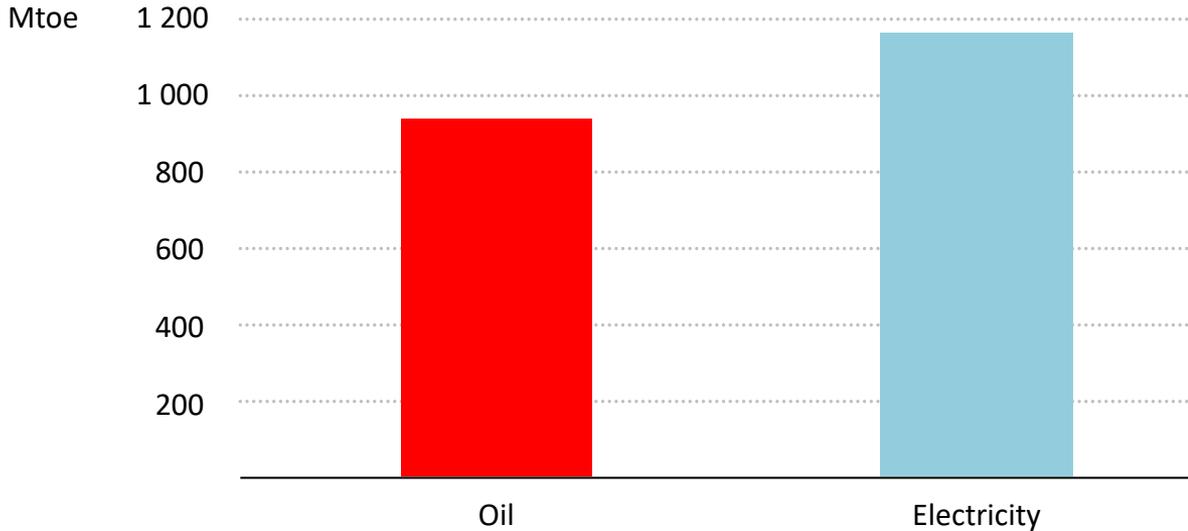
Share of "OPEC plus Russia" in global oil production



The dramatic growth of recent years in US shale is set to slow, but the resources are there to maintain high output for many years to come. This provides a strong counterweight to efforts to "manage oil markets"

The 20-year switch

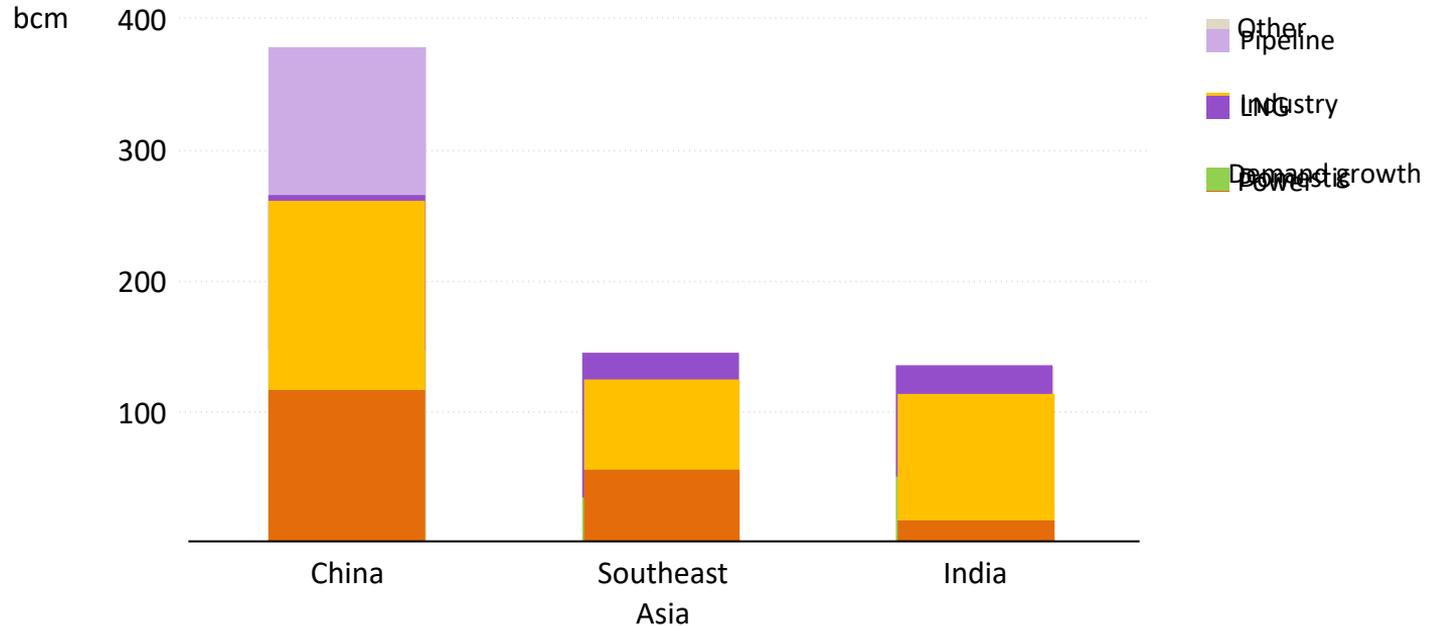
Change in global oil and electricity consumption, 2008 - 2040



When consumers needed more energy in the past, they traditionally turned to oil
In the future, they turn first to electricity

Natural gas turns to Asia

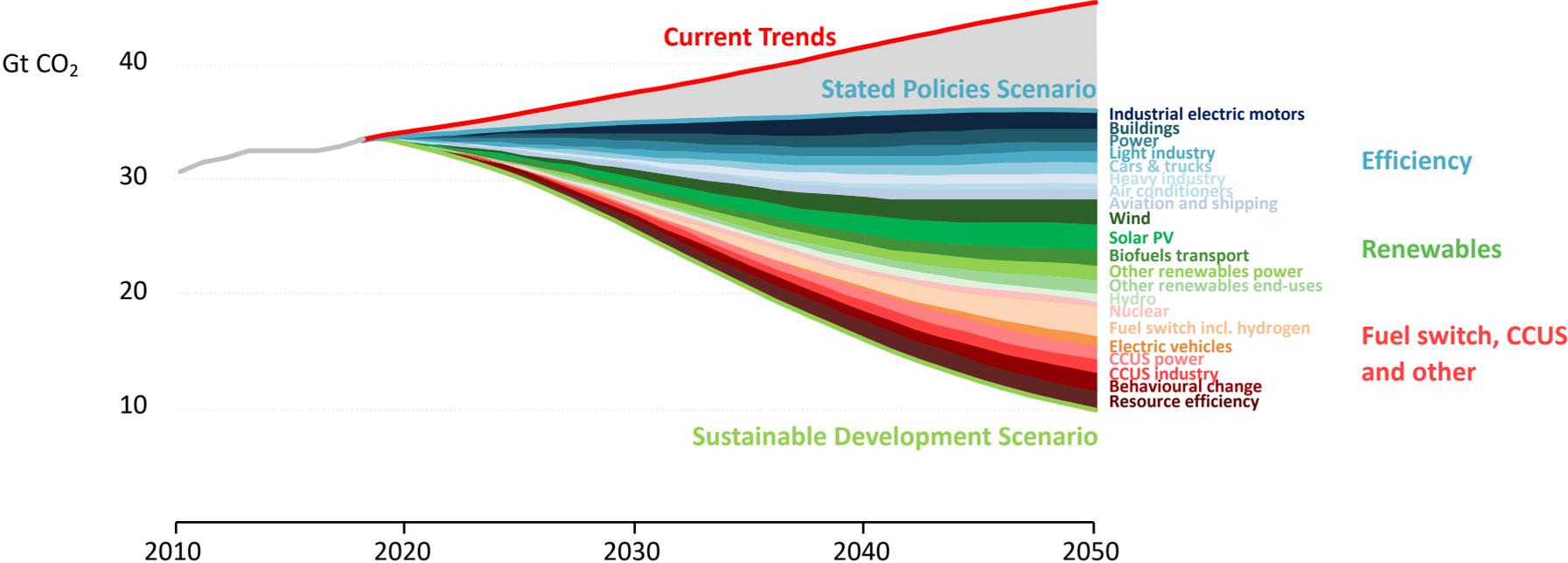
Growth in gas demand and supply in selected Asian markets, 2018-2040



Developing economies in Asia account for half of global growth in gas demand, with industrial consumers taking the largest share, and this provides the spur for almost all the growth in gas trade, led by LNG

No single or simple solutions to reach sustainable energy goals

Energy-related CO₂ emissions and reductions in the Sustainable Development Scenario by source



A host of policies and technologies will be needed across every sector to keep climate targets within reach, and further technology innovation will be essential to aid the pursuit of a 1.5°C stabilisation

The oil and gas industry and climate change

- The oil and gas industry faces the challenge of balancing short-term returns with its long-term licence to operate; for the moment, non-core investment by the industry is less than 1% of total spending
- Without the know-how and resources of the industry, some technologies such as CCUS and low-carbon hydrogen may not reach maturity, making energy transitions more difficult & expensive
- Investment in upstream projects is still needed, even in rapid energy transitions, but the type of resources that are developed, and how they are produced, changes substantially.
- Today, 15% of global energy-related GHG emissions come from the process of getting oil and gas out of the ground and to consumers; minimising these emissions should be a first-order priority for all companies
- No oil and gas company will be unaffected by clean energy transitions, so every part of the industry – including national oil companies – needs to consider how to respond

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