

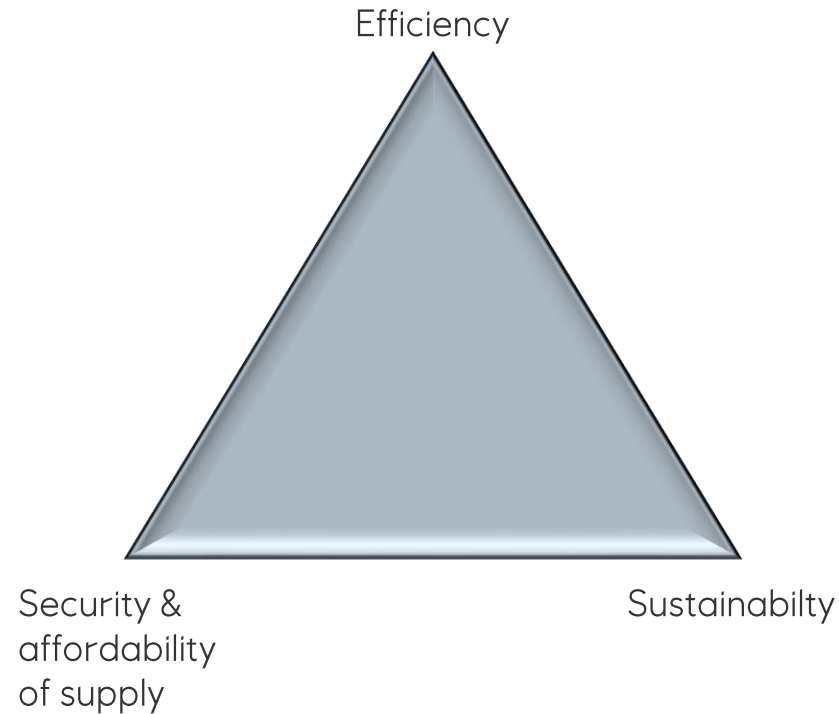


Consequences of the energy transition for oil and gas demand

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Ottar Skagen
Senior Adviser, Equinor

Equinor's scenarios



Reform

- Market and technology led
- Geopolitics: Muddling through
- Climate policy: Current momentum
- Focus on market efficiency

Renewal

- **Climate change comes to dominate the global agenda**
- **Climate policy: Forceful**
- **Geopolitics: Supportive – key countries united by common threat**
- **Focus on sustainability**
- **Status by 2050 consistent with the “well below 2°” target**

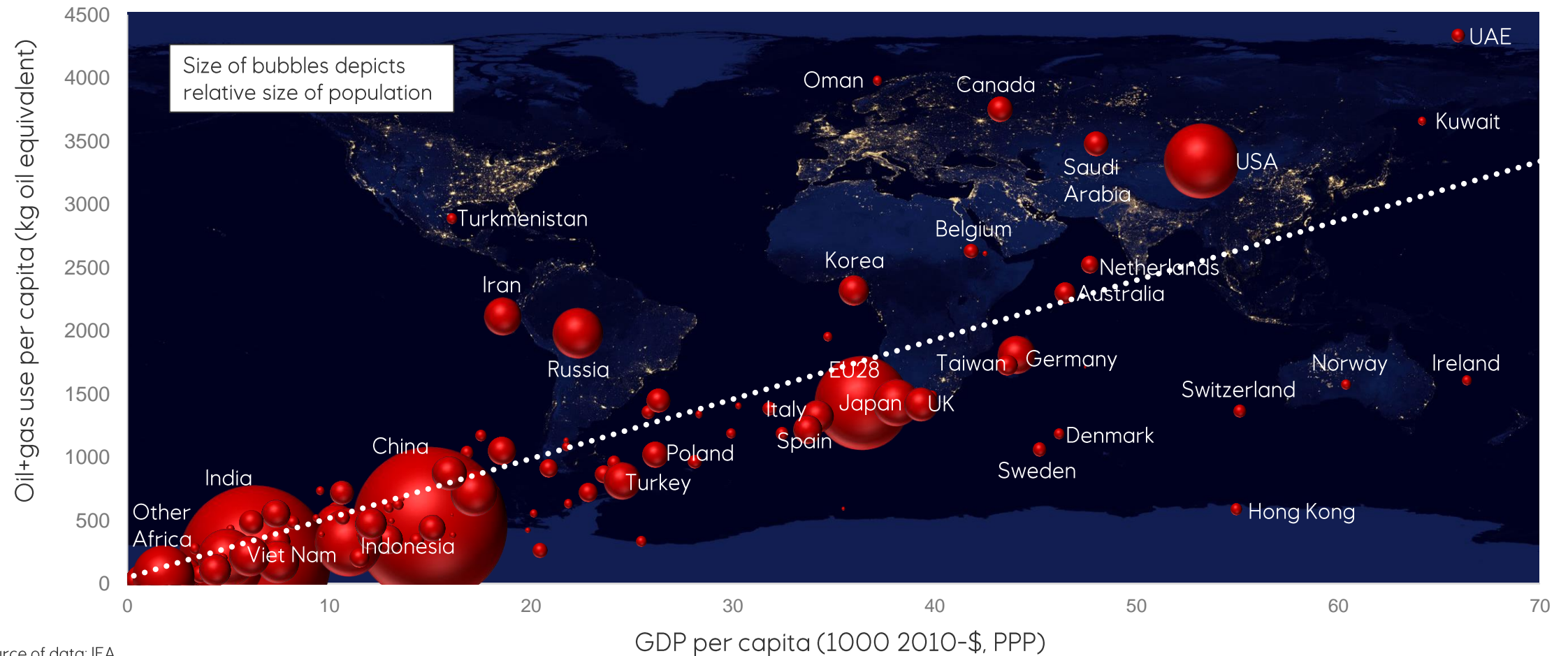
Rivalry

- Populism, nationalism, xenophobia
- Protectionism, trade wars
- Geopolitics: Tensions, occasional flare-ups
- Volatility, uncertainty discourage long-term planning and investment
- Climate policy: Patchy, inconsistent
- Focus on energy security

Traditionally, oil and gas demand linked to level of economic development

Although local circumstances play important role

Total final oil + gas demand per capita vs GDP per capita, 2017

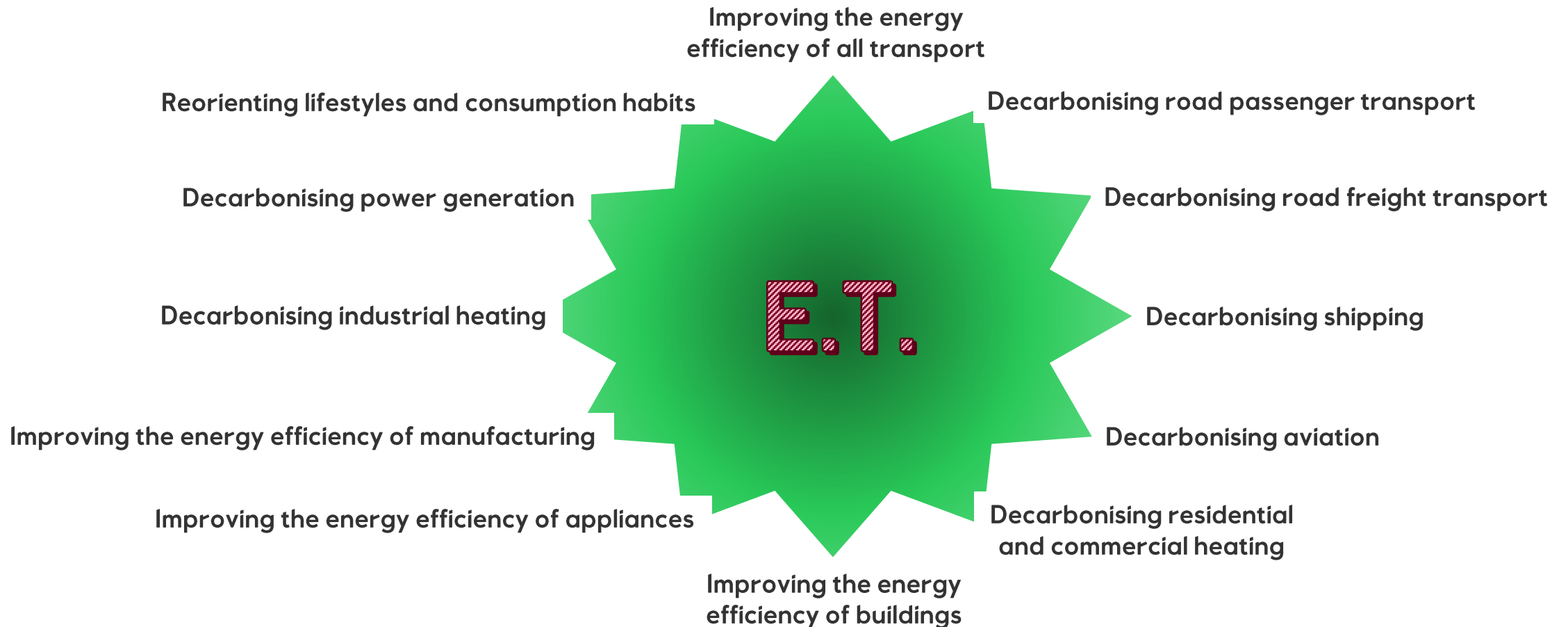


Source of data: IEA

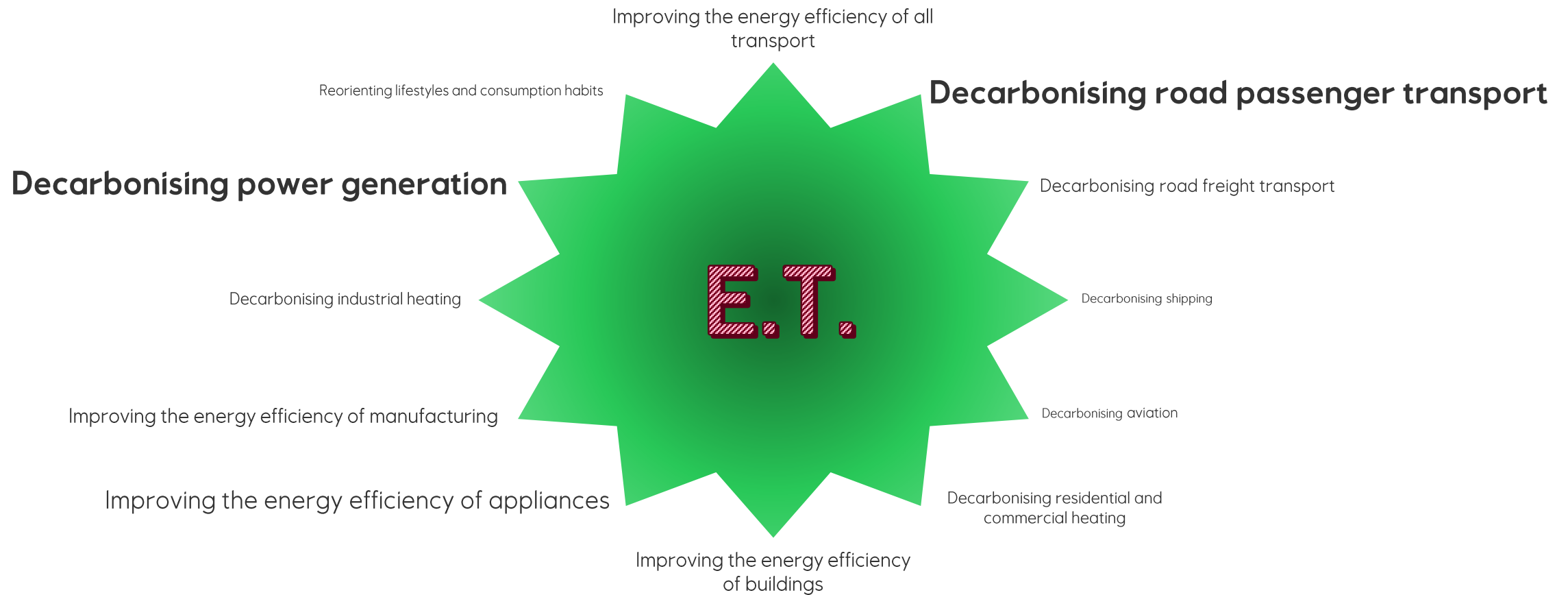
Open

The energy transition promises to break this link. Is it well underway?

A multi-dimensional undertaking



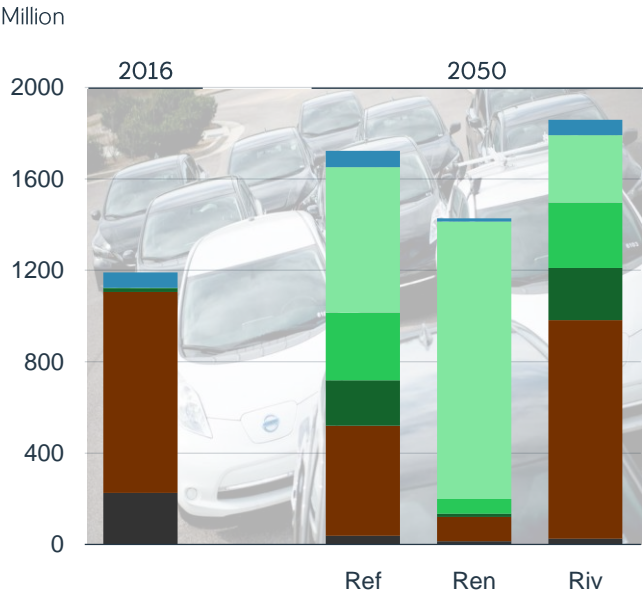
In a couple of sectors



In Renewal transport goes greener...

Though with conventional fuels retaining significant shares of trucking, aviation and shipping

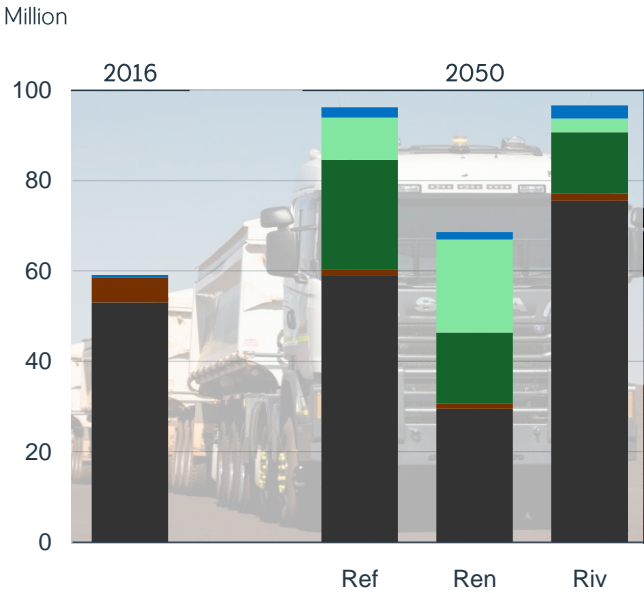
Fleet mix for LDVs



- Hybrid
- Gasoline
- Diesel
- Other
- EV
- PHEV

Source: IEA (history), Equinor (projections)

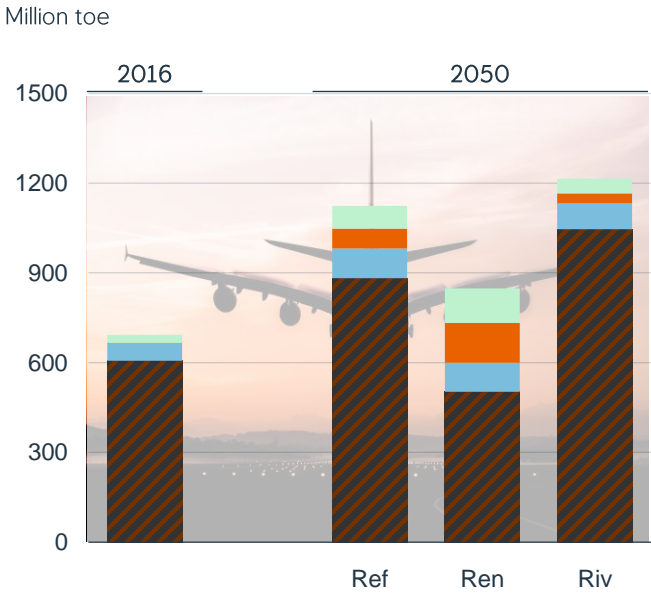
Fleet mix for trucks



- Hybrid
- Gasoline
- Diesel
- Other
- EV

Source: IEA (history), Equinor (projections)

Fuel mix for non-road

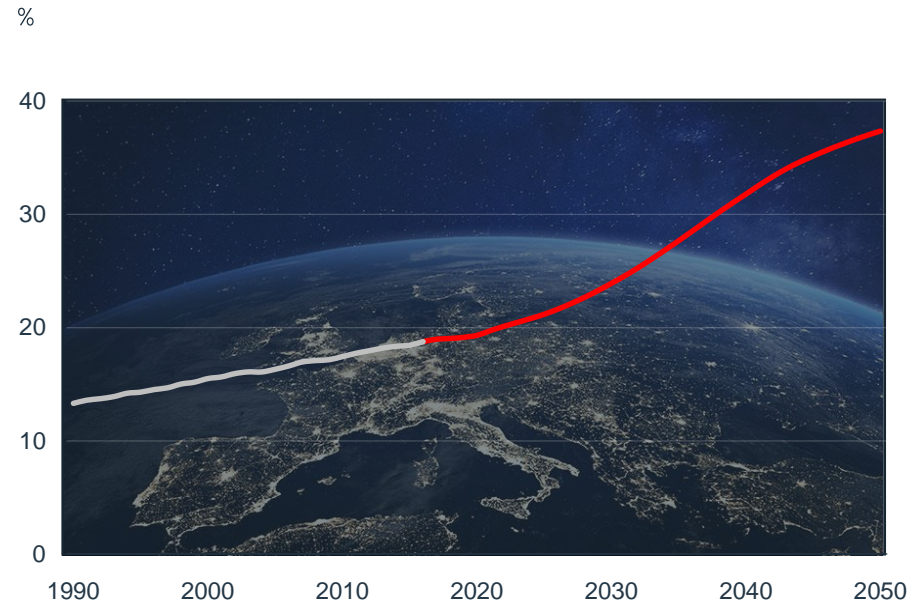


- Biomass
- Gas
- Oil
- Electricity

Source: IEA (history), Equinor (projections)

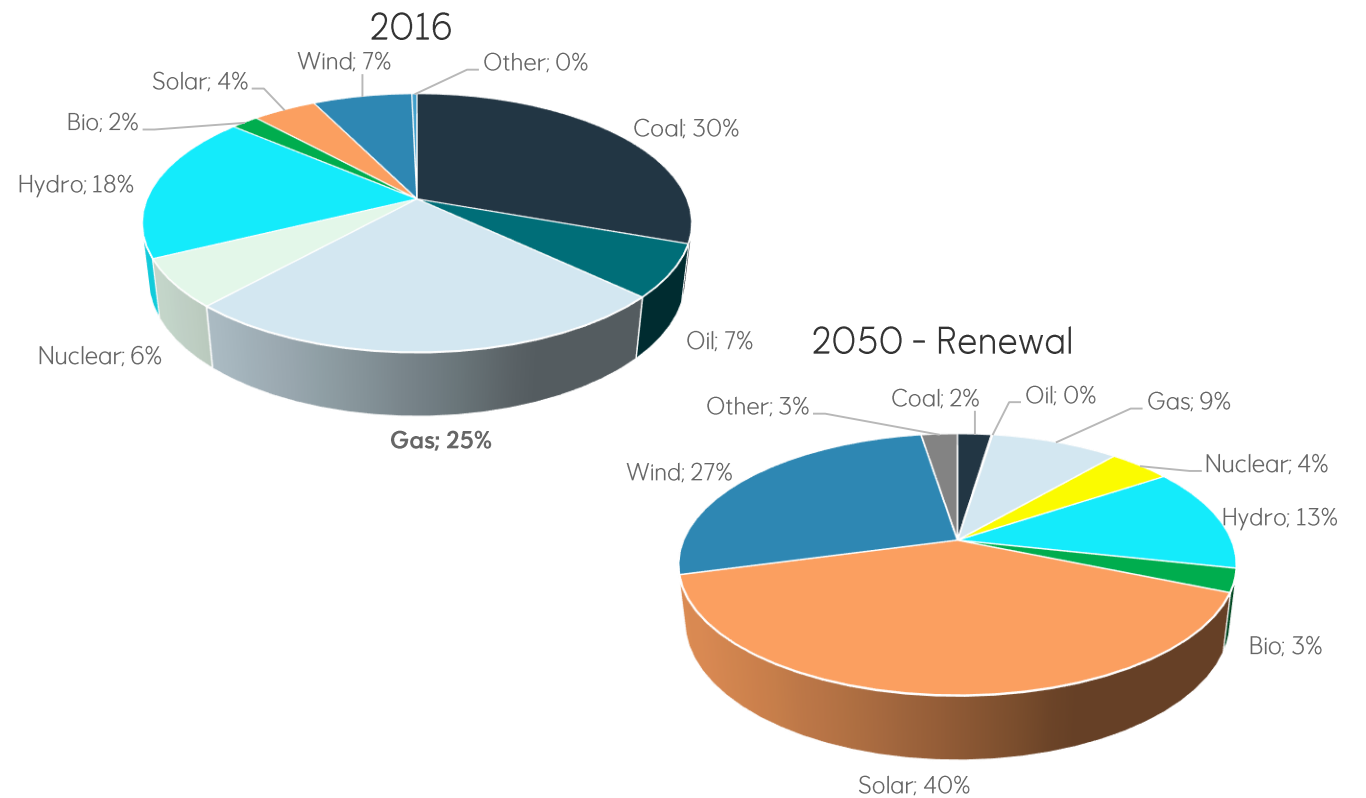
... and power generation capacity is by 2050 only about 11% fossil

Electricity share of global TFC in Renewal



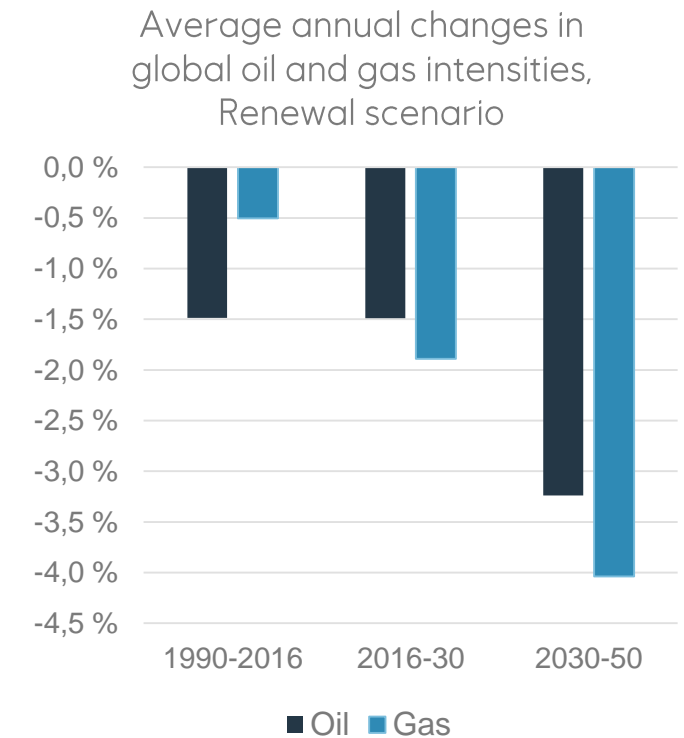
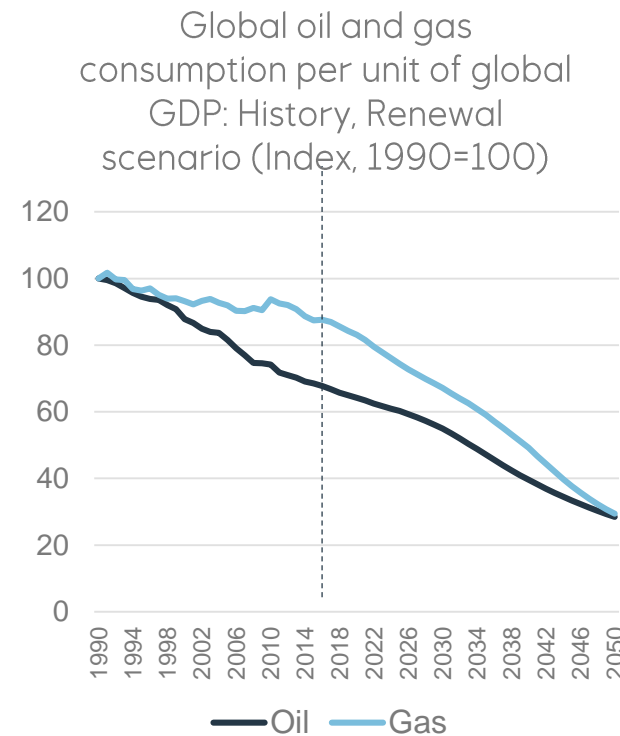
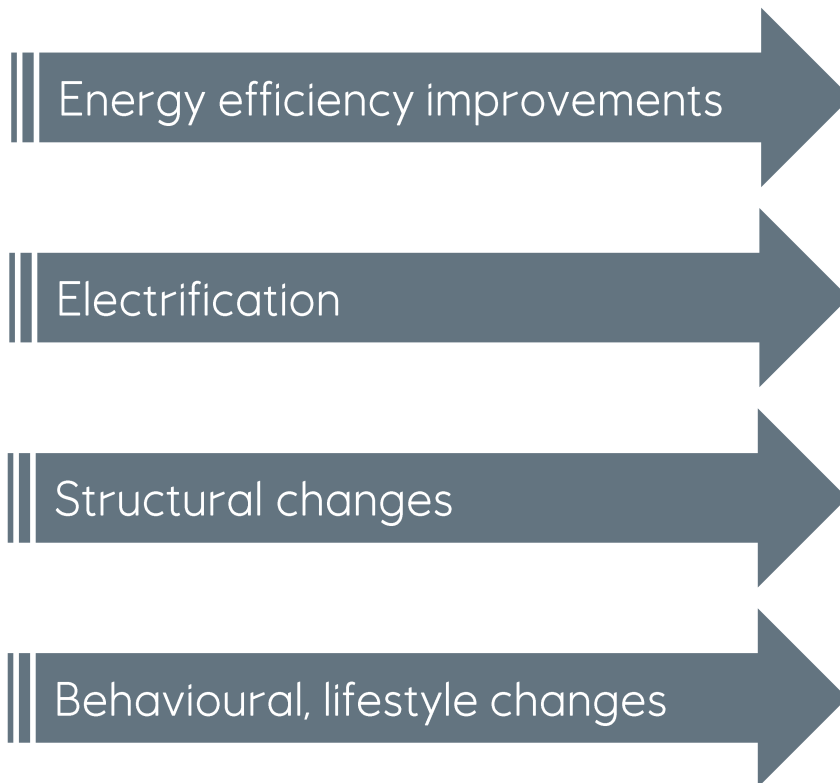
Source: IEA (history), Equinor (projections)

Split of world power generation capacity



Oil and gas intensities sharply down

Electrification a key measure

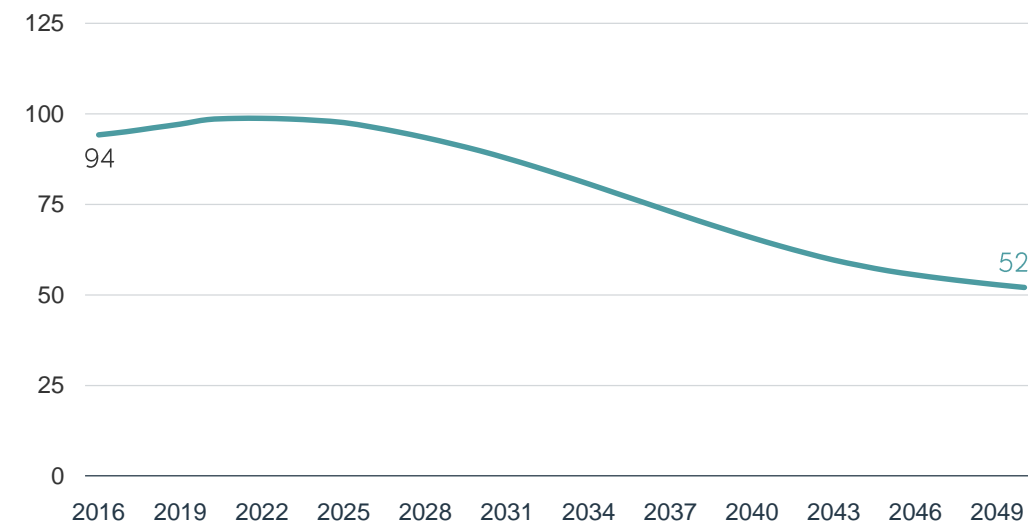


Oil demand nearly halved

Transport is the key sector for long-term oil demand

Oil demand in Renewal 2016-2050

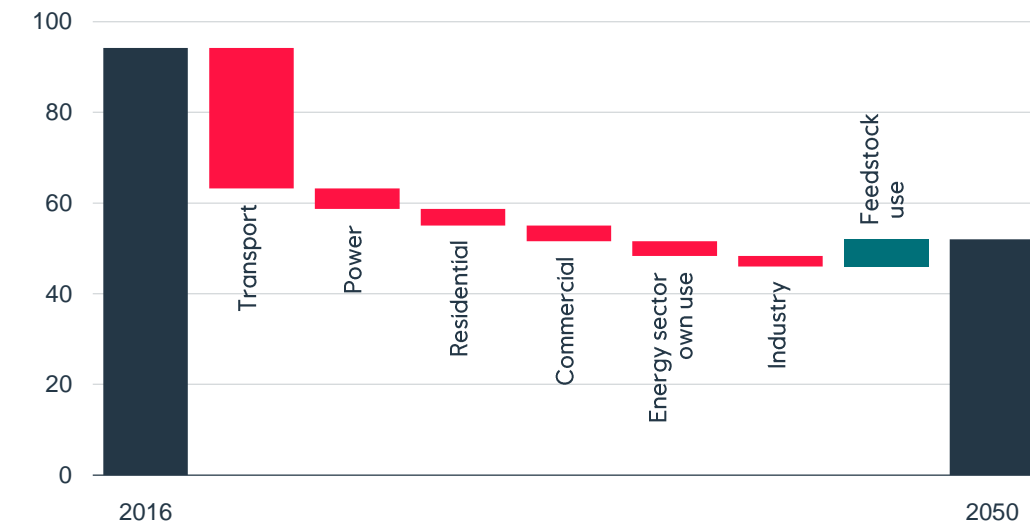
mbd



Source: IEA (history), Equinor (projections)

Change in global oil demand by sector in Renewal 2016-2050

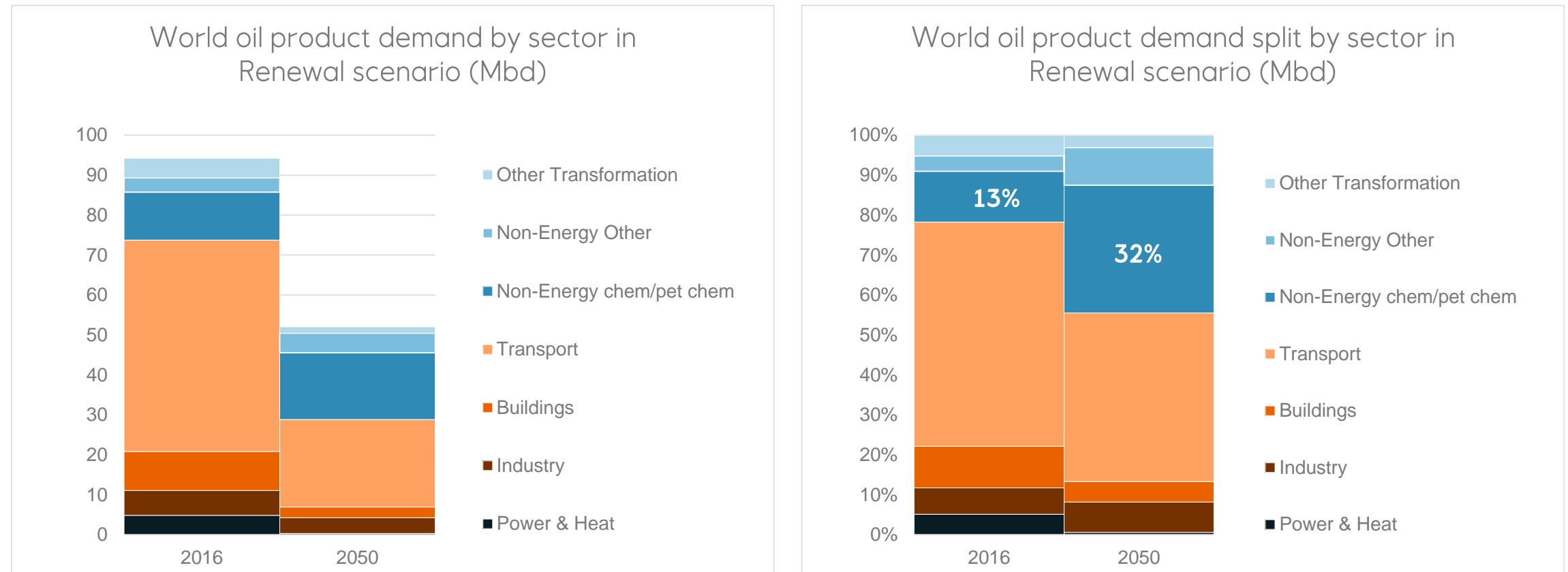
mbd



Source: IEA (history), Equinor (projections)

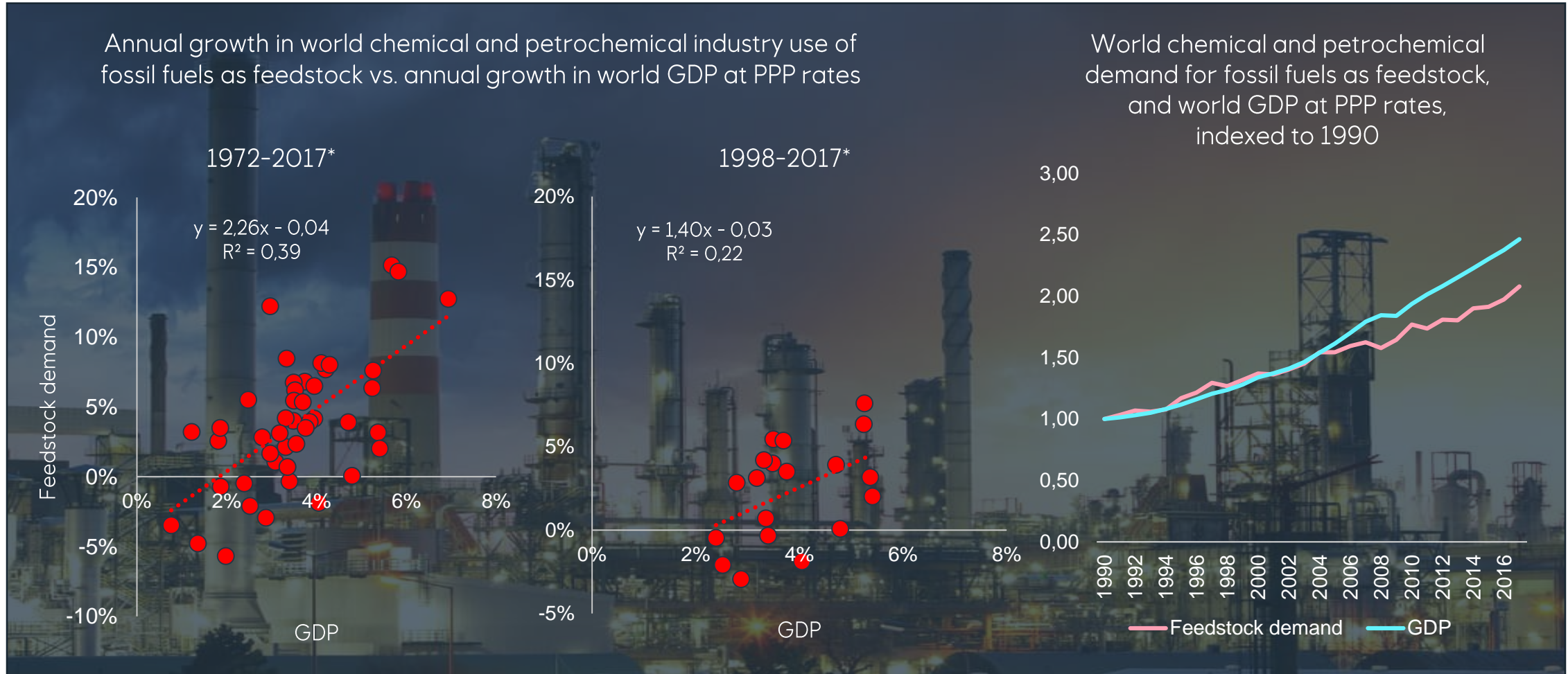
Where do we see continued demand for oil?

The petrochemical industry considered a bastion of demand growth – for now...



Source: IEA (history), Equinor (projections)

Petrochemicals: Demand growth slowing but still robust



*2009 removed from series. Source of data: IEA

But, robust forever?

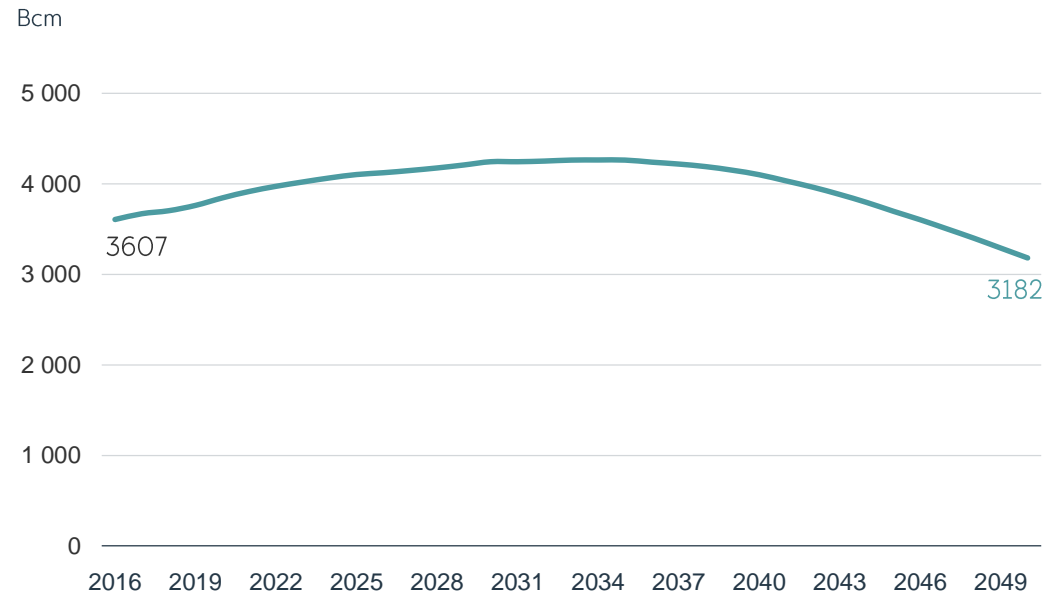
- Plastics: Cheap, convenient and with some environmental upsides: Facilitates light-weighting, helps preserving foods
 - And the alternatives have their own problems
- But, we produce ~350 mill tons per year with 250 mt ending up in landfills and 10 mt in oceans
 - Over past century 9 bill tons of plastics have been produced and 7 bt become waste
 - UN: By 2050 12 bt will have been dumped into landfills or leaked into the environment
- Single-use plastic products under attack; more than 50 governments have banned at least some types
- Bans will matter: Flexible packaging accounts for ~50% of all plastics consumption
- For other products, increased mechanical or chemical recycling, or if necessary incineration, will increase



Global gas holding up until mid-30s

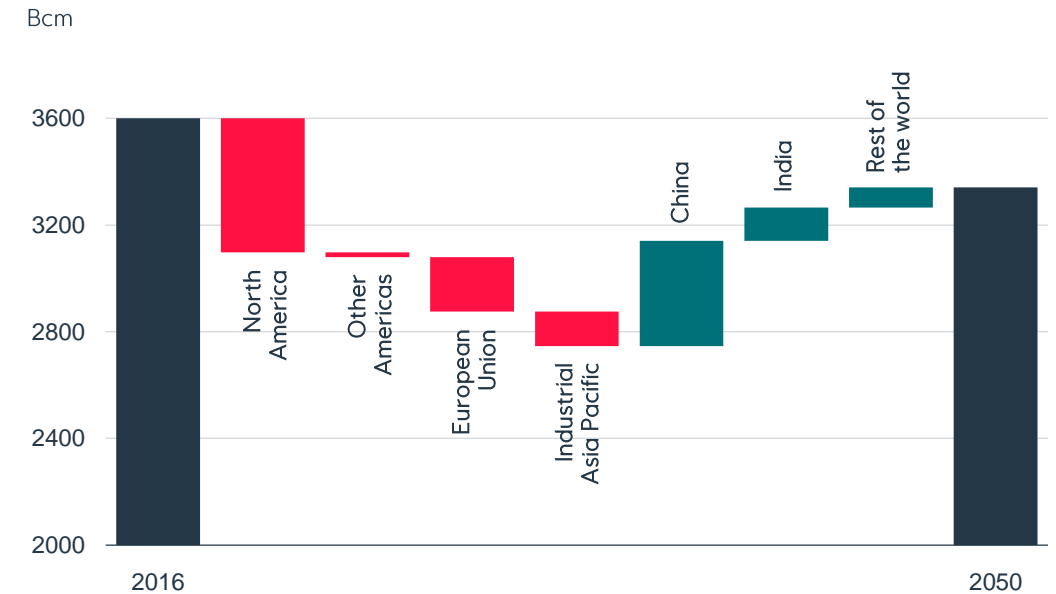
But major interregional differences

Gas demand in Renewal 2016-2050



Source: IEA (history), Equinor (projections)

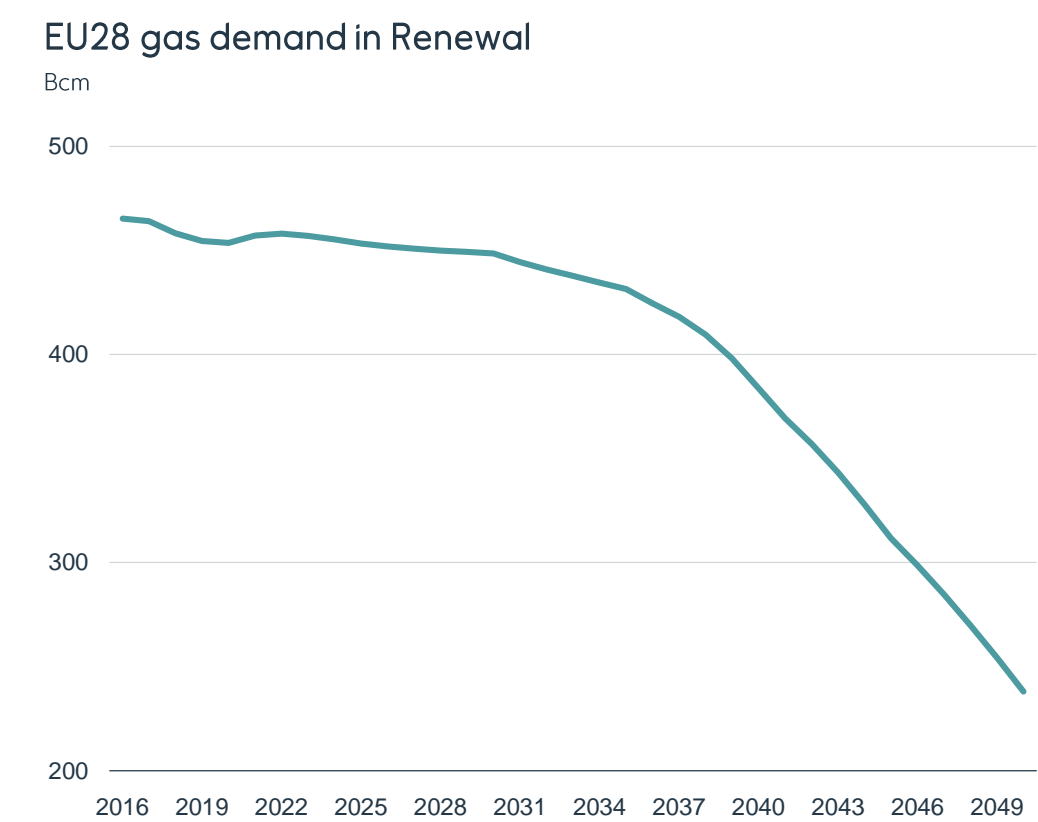
Change in global gas demand by region in Renewal 2016-2050



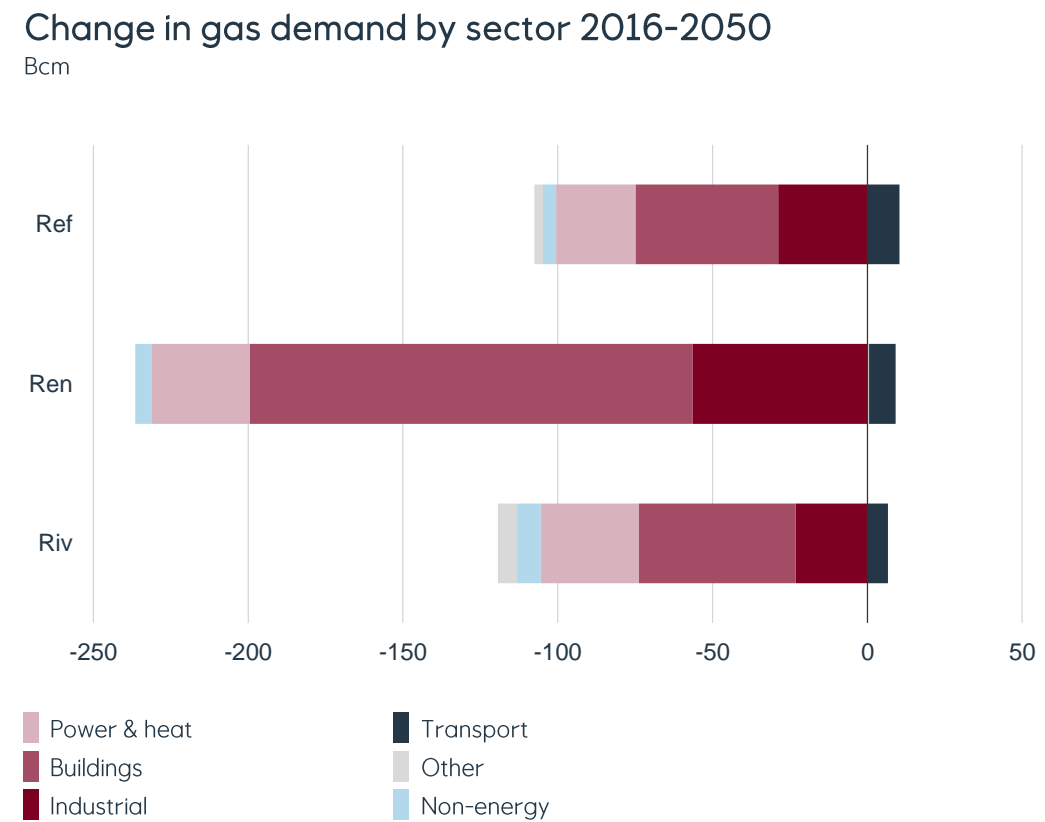
Source: IEA (history), Equinor (projections)

EU gas demand: Limited upside, residential and commercial heating demand may drop sharply

Energy efficiency improvements, electrification, potentially hydrogen key drivers



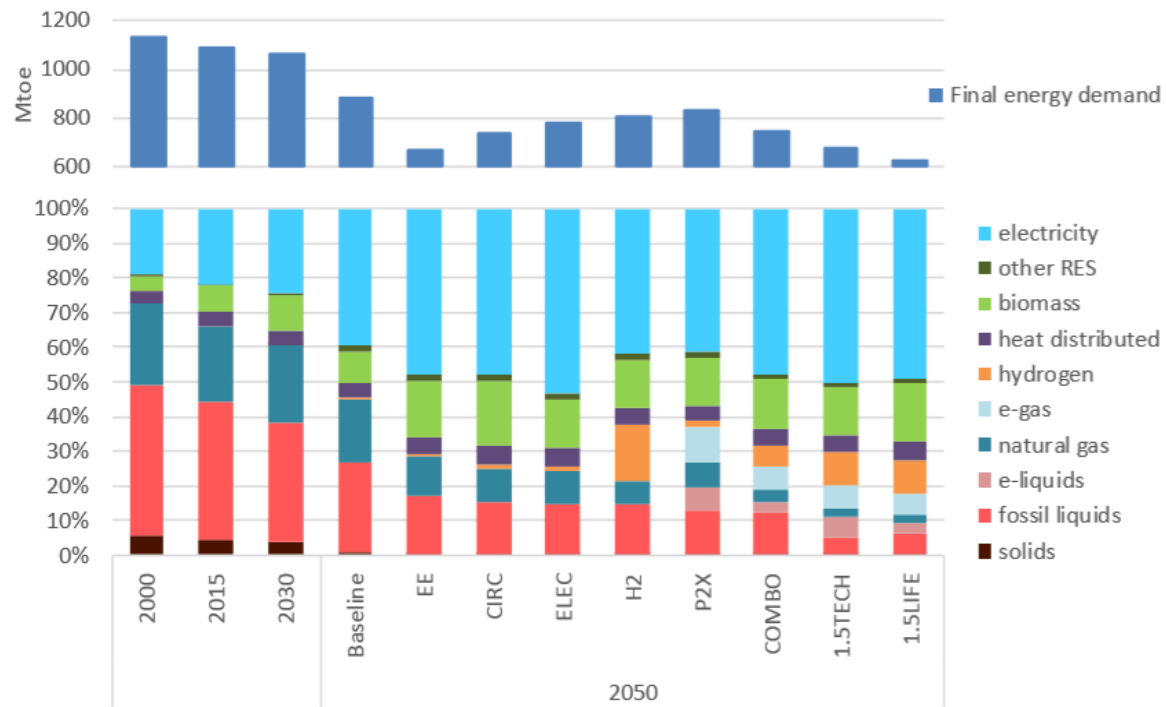
Source: IEA (history), Equinor (projections)



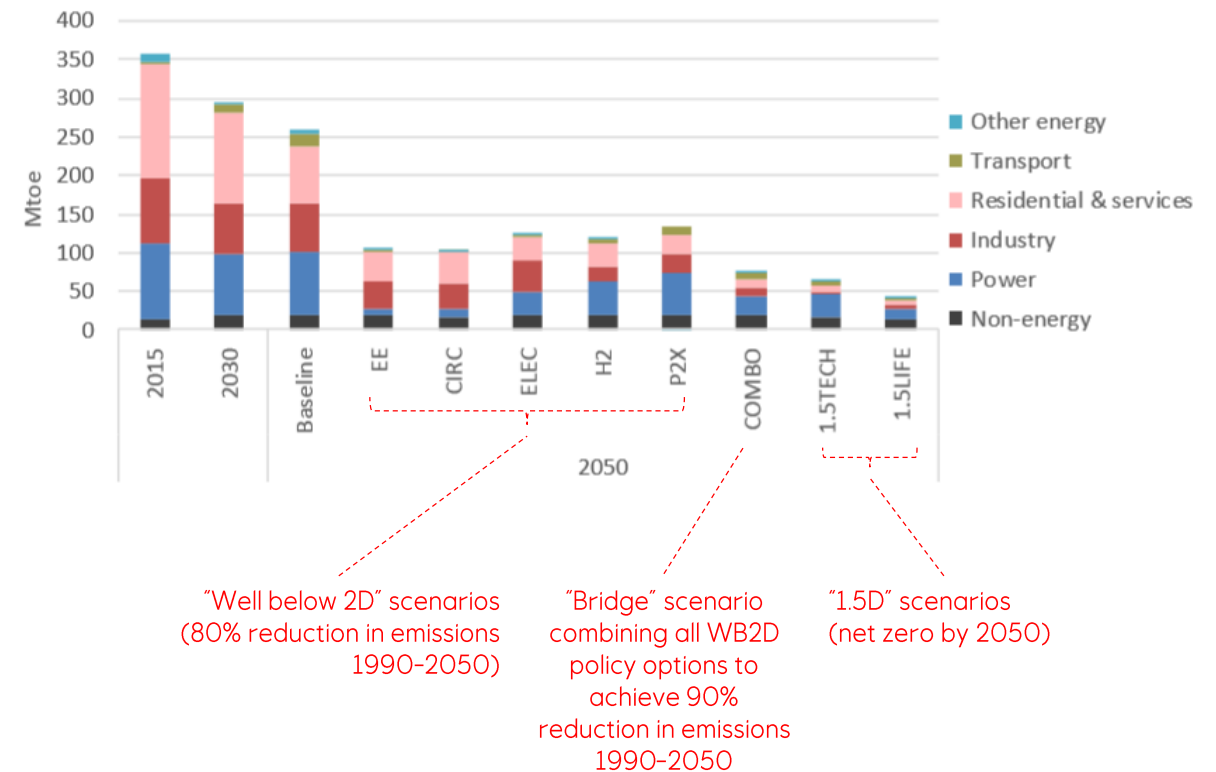
Source: IEA (history), Equinor (projections)

EU's current energy policy scenarios to 2050 foresees a very diminished role for gas

Shares of energy carriers in final energy consumption



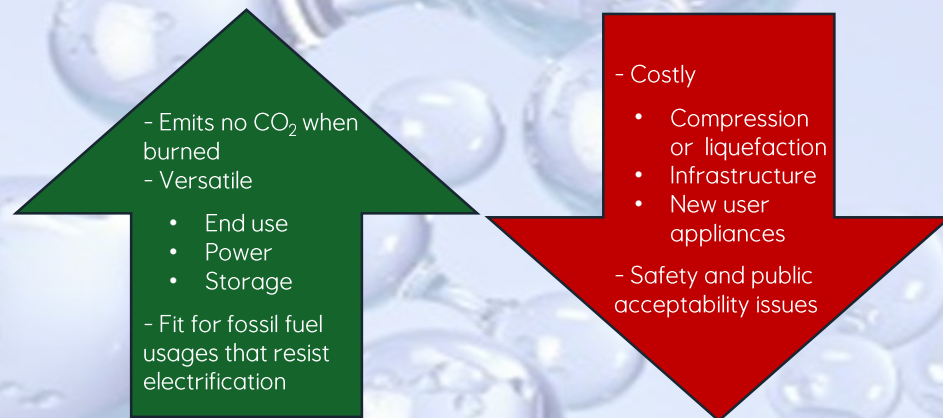
Consumption of natural gas by scenario



Source: EU Commission: "in-depth analysis in support of the commission Communication COM(2018) 773"

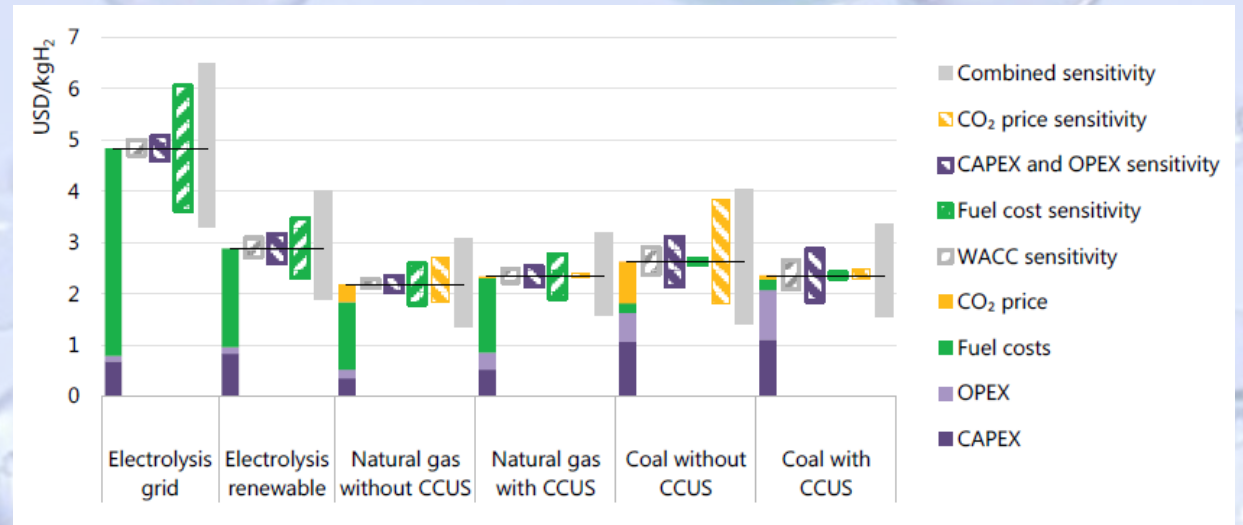
An afterlife for gas as a source of blue hydrogen?

- Interest in H₂ on the rise – again
- Reasons to believe this time could be different



- Green or blue?
- Green attracts most interest – fit with new renewable power
- But, cost and scalability issues
- Given that CCUS opportunities exist and that gas asset stranding can be limited, blue deserves attention

Estimated delivered costs of green, blue and grey hydrogen by 2030

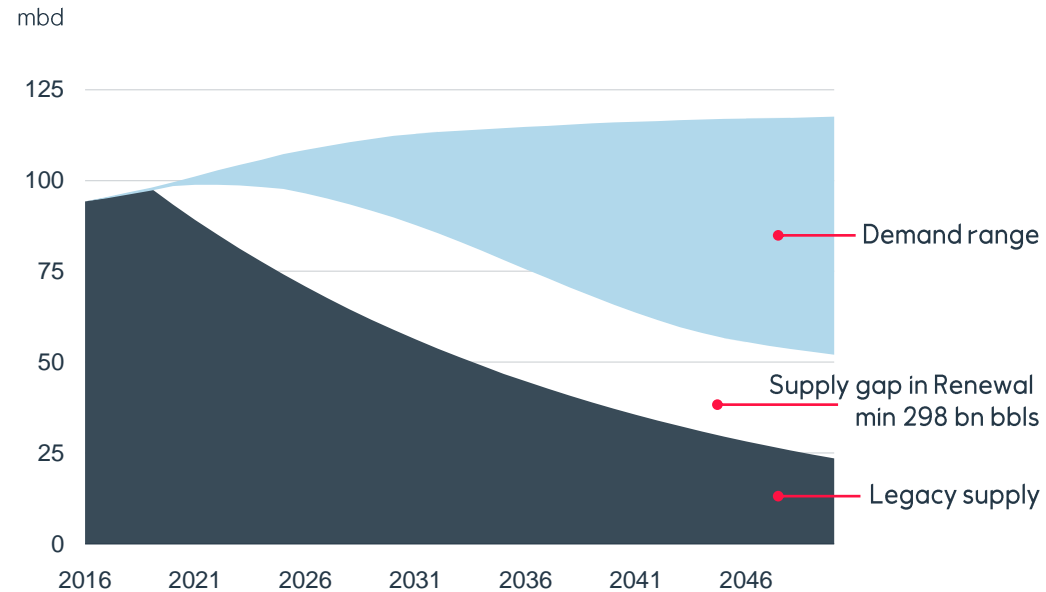


Source: IEA, «The Future of Hydrogen», 2019

A need for new oil and gas investments?

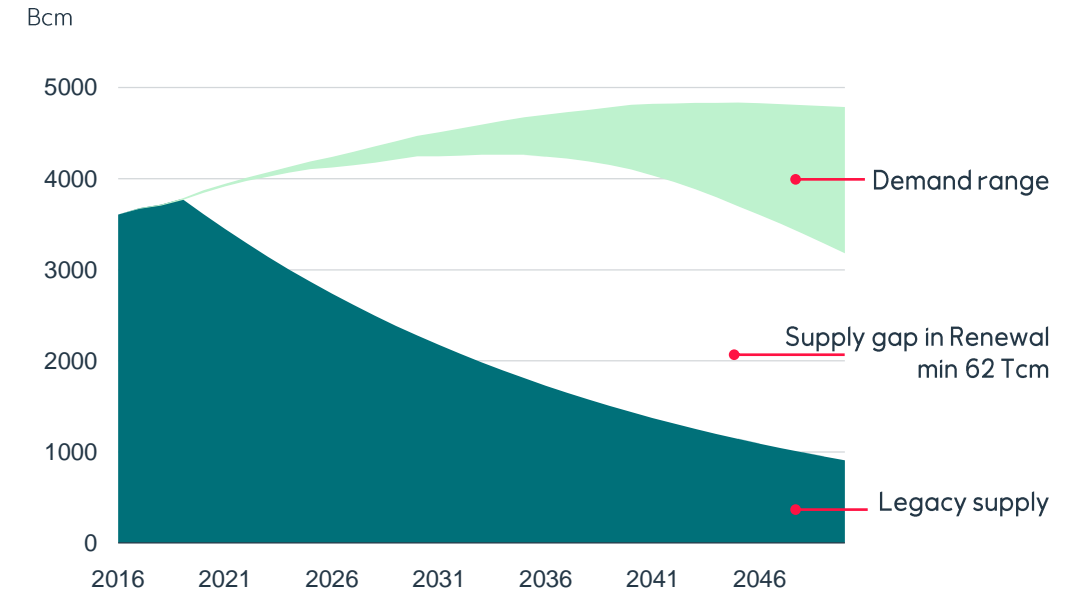
Yes, in all our scenarios, although significantly less in Renewal

Oil demand and supply from existing fields



Source: IEA (history), Equinor (projections)

Gas demand and supply from existing fields



Source: IEA (history), Equinor (projections)

