



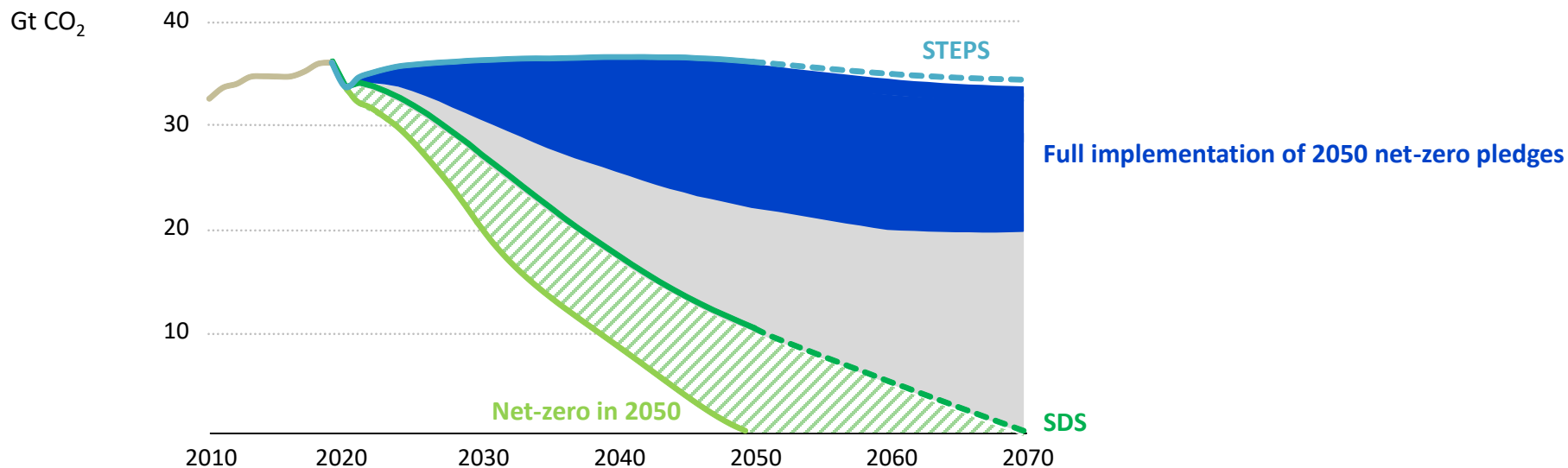
Natural gas and hydrogen in IEA climate scenarios

Peter Zeniewski, World Energy Outlook

SIEW Webinar: Bridge or Destination? LNG & Hydrogen in the Energy Transition

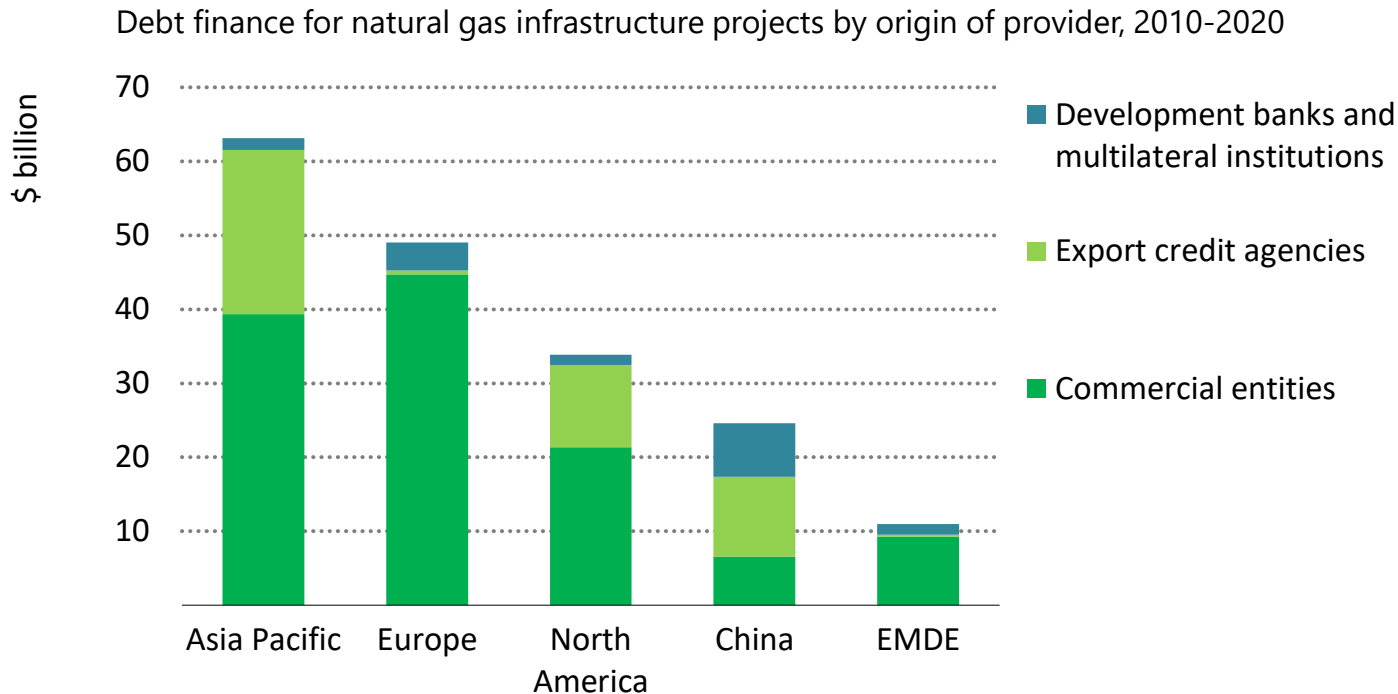
29 June 2021

The world is still far from putting emissions into decisive decline...



There remains significant near-term uncertainty about how emissions evolve in the aftermath of the pandemic, but unless recoveries are sustainable, the world will remain a long way from realising climate targets.

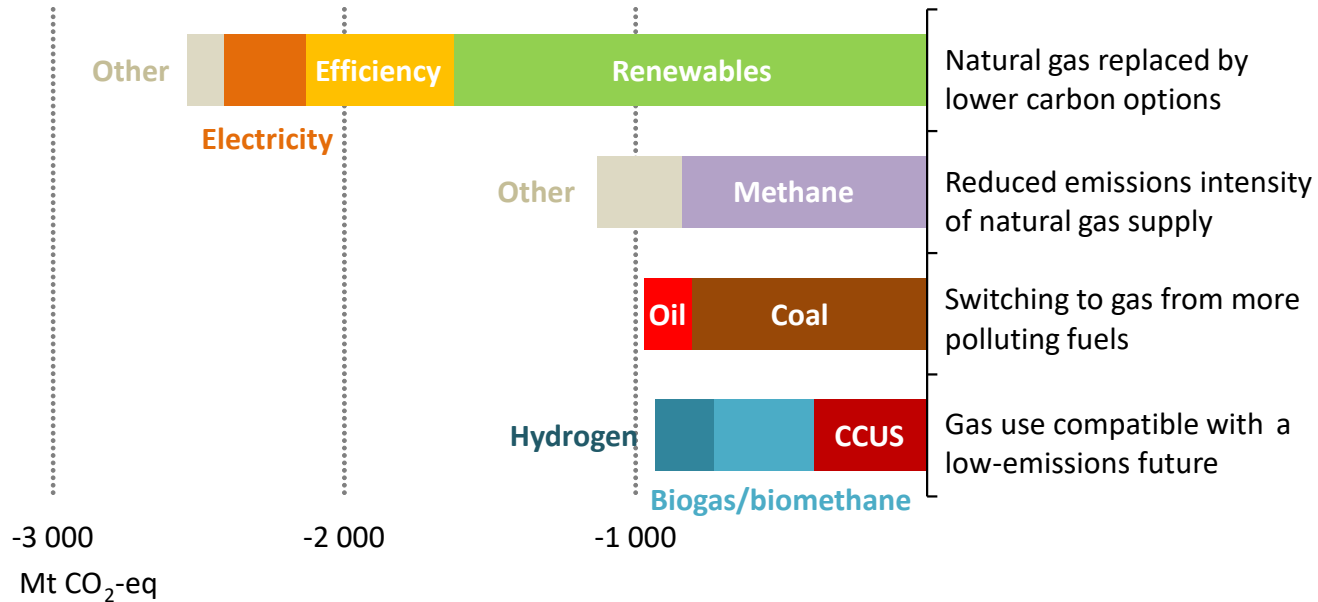
...raising questions about the role of gas and financing new projects



Large-scale gas projects often rely on raising debt through project financing. 95% of total lending over the last decade has arisen in countries or regions that now have net zero targets

Is natural gas still a 'transition fuel'?

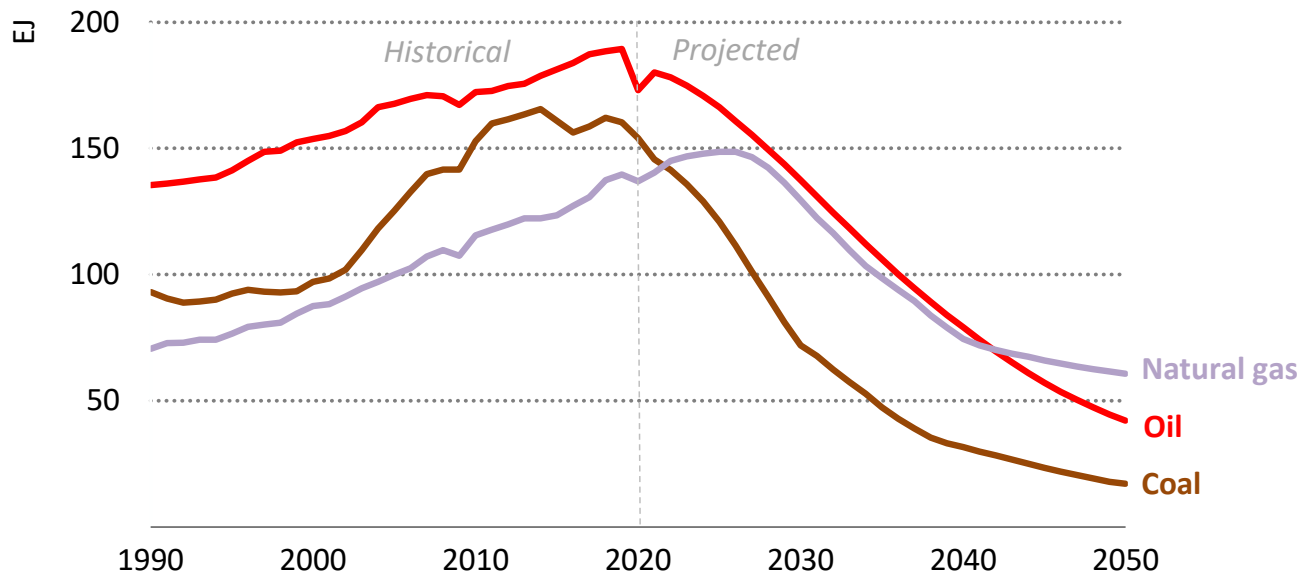
GHG reductions attributable to changes in natural gas supply and use in the Sustainable Development Scenario, 2019-2040



Gas use and related emissions are affected by a variety of measures in the SDS. There is some switching to gas, as well as the use of CCUS, but the net effect is a reduction in natural gas demand to 2040

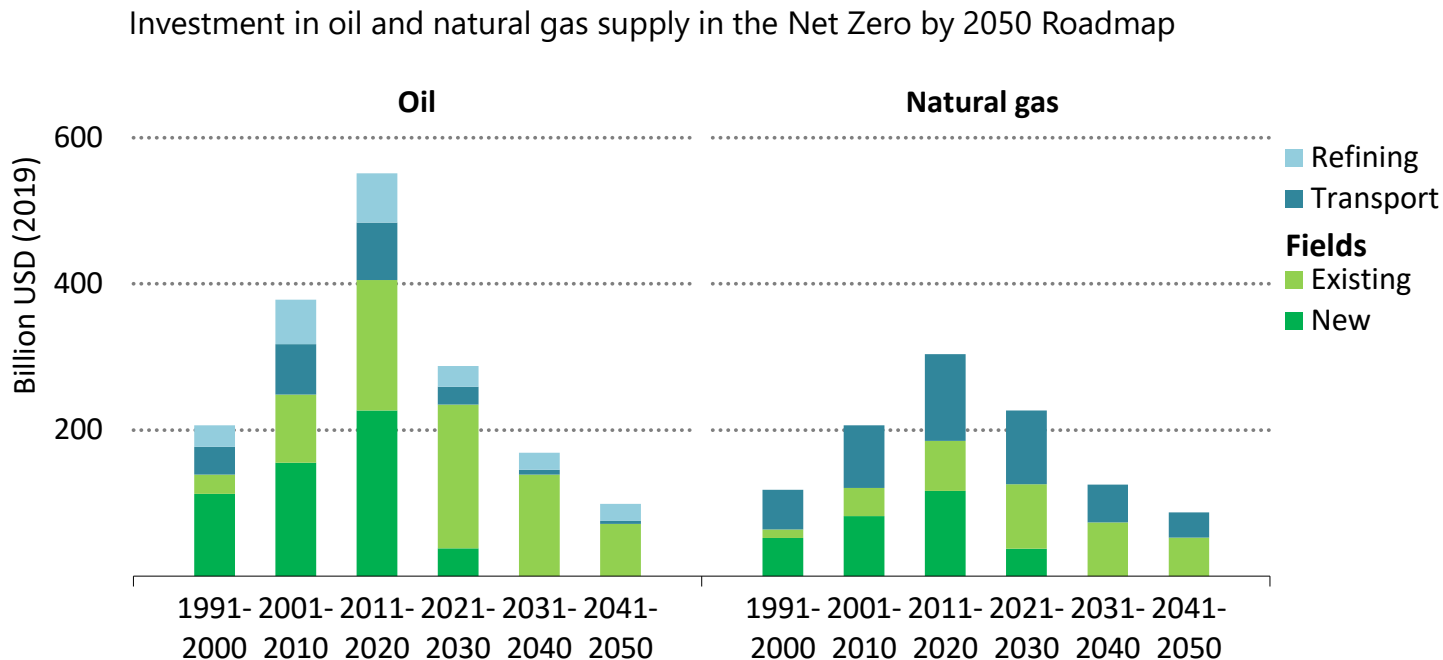
What happens to fossil fuels in the Net Zero by 2050 Roadmap?

Global oil, gas and coal supply projections in the Net Zero by 2050 Roadmap



Between 2020 and 2050, demand for coal falls by 90%, oil by 75%, and natural gas by 55%

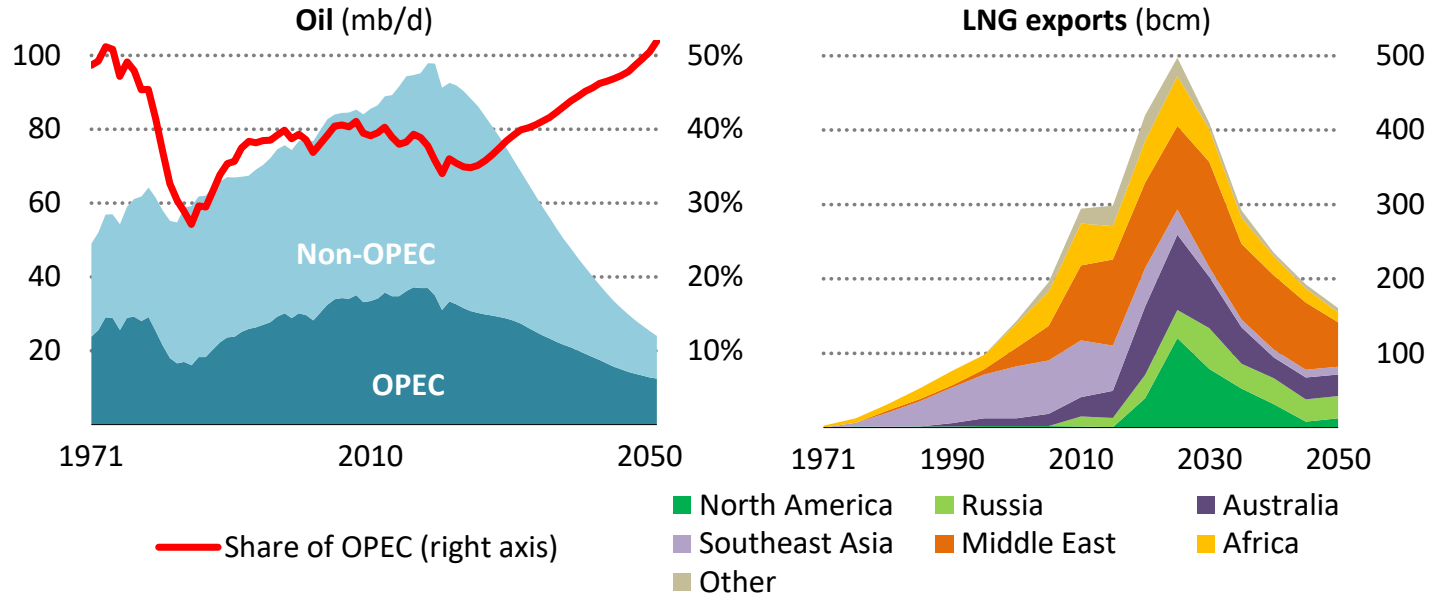
New oil and gas fields are no longer required in this pathway...



Once fields under development start production, all upstream oil and gas investment is spent on maintaining production at existing fields

...with significant implications for supply and trade dynamics

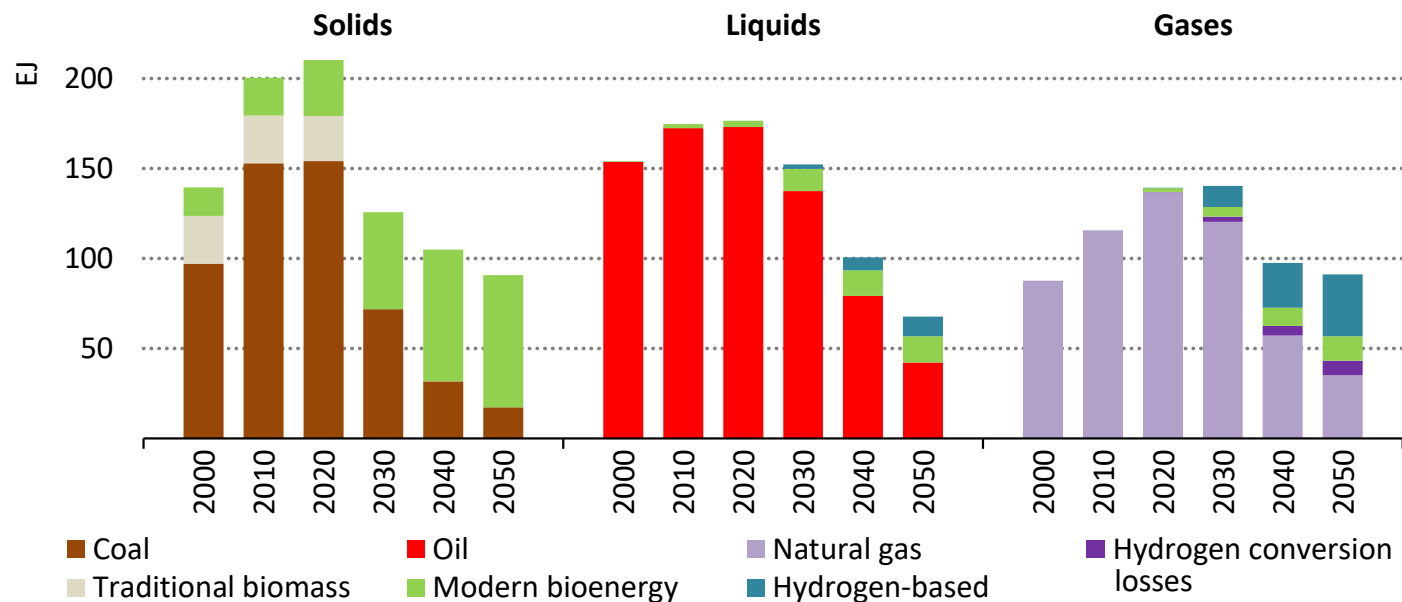
Global oil supply and LNG exports by region in the Net Zero by 2050 Roadmap



Increased reliance on OPEC and other producer economies suffering from falling oil and gas revenues could pose a risk to supply security in consuming countries

Low-carbon fuels play an important role

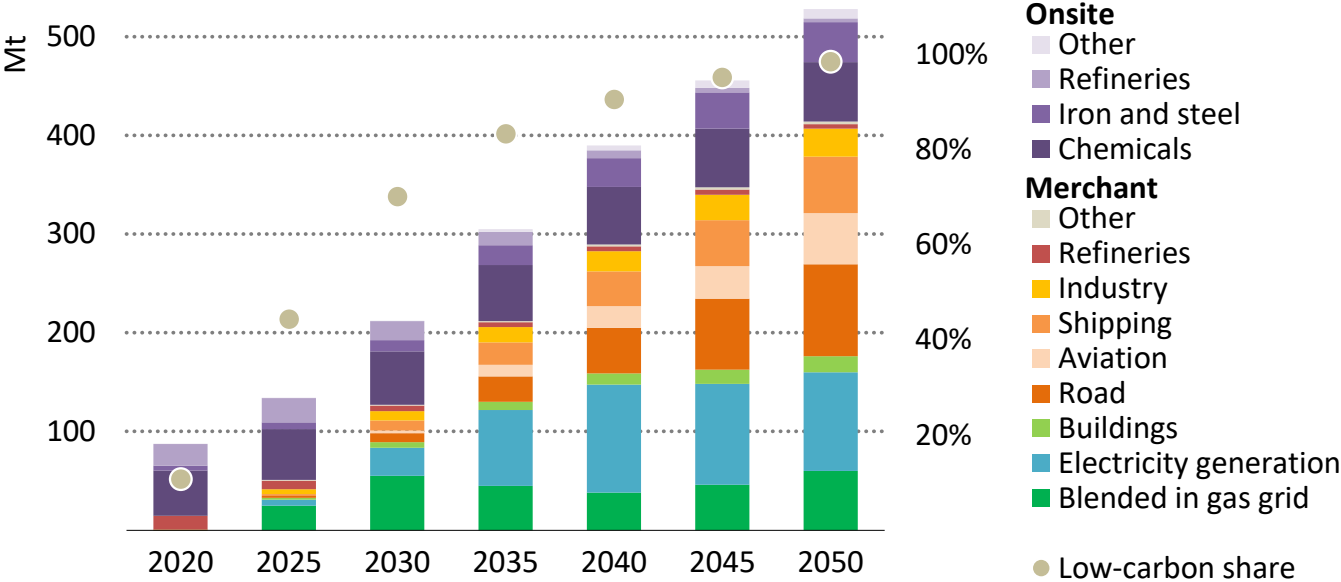
Solid, liquid and gaseous fuels in the Net Zero by 2050 Roadmap



Increases in low-emissions solids, liquids and gases from bioenergy, hydrogen and hydrogen-based fuels offset some of the declines in coal, oil and natural gas

Hydrogen sees broad based growth in a net zero pathway

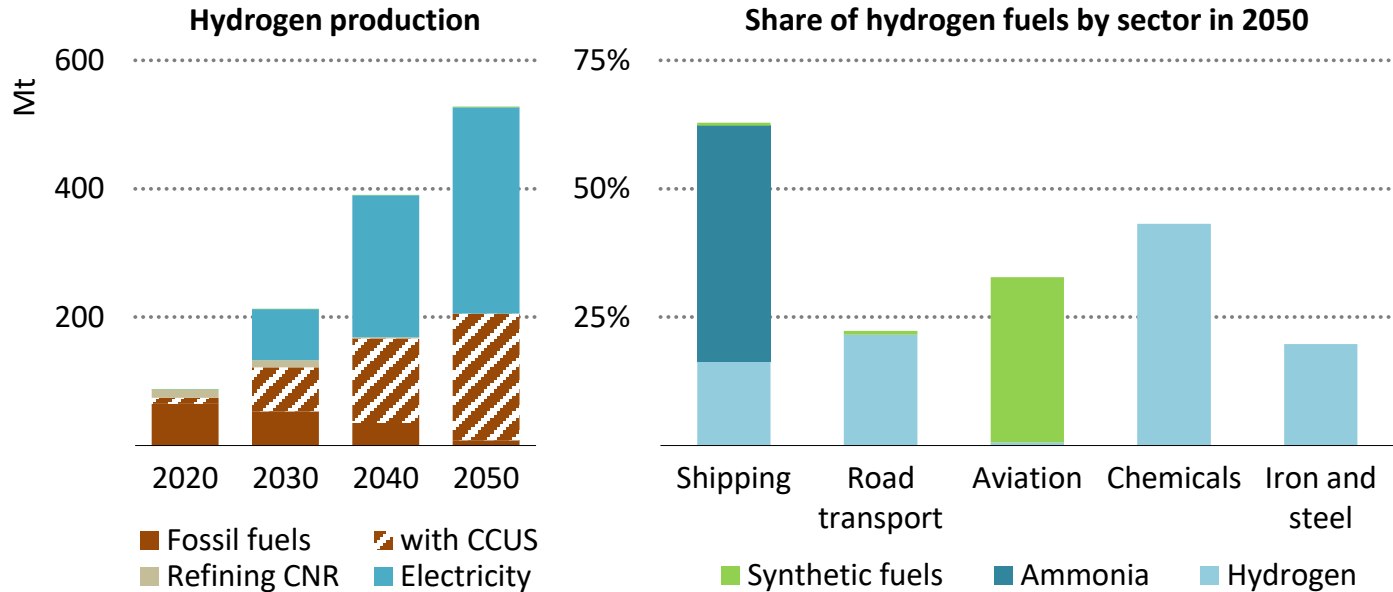
Global production of hydrogen by fuel and hydrogen demand by sector in the Net Zero by 2050 Roadmap



The initial focus for hydrogen is to convert existing uses to low-carbon hydrogen; hydrogen and hydrogen-based fuels then expand across all end-uses

A huge increase in electrolyser capacity and CCUS is required

Global production of hydrogen by fuel and hydrogen demand by sector in the Net Zero by 2050 Roadmap



Hydrogen production jumps sixfold by 2050, driven by water electrolysis and natural gas with CCUS, to meet rising demand in shipping, road transport and heavy industry

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