



New Energy Outlook 2020

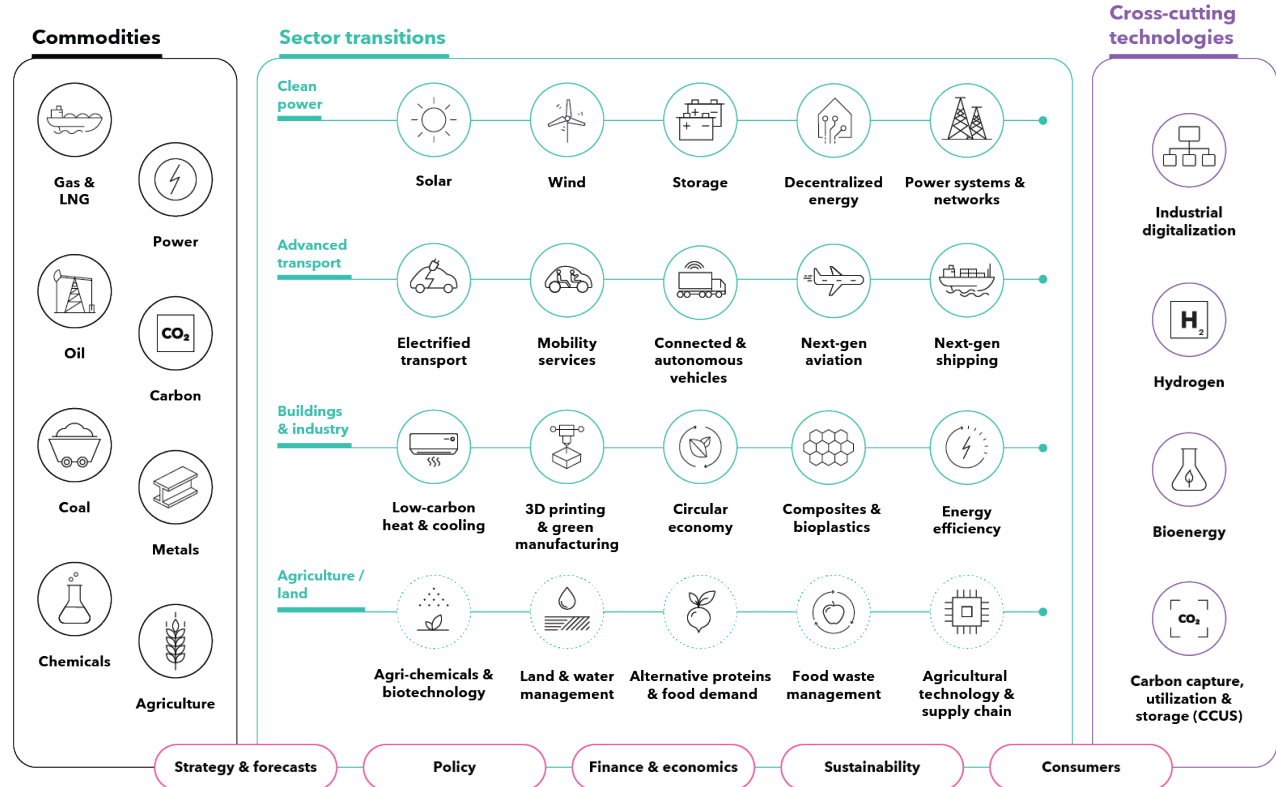


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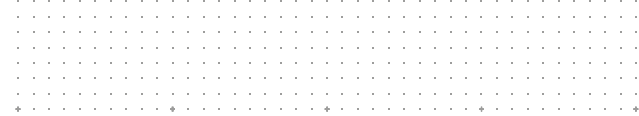
BloombergNEF

BNEF coverage

Strategies for a cleaner, more competitive future



New Energy Outlook 2020



PART 1

Economic Transition
Scenario

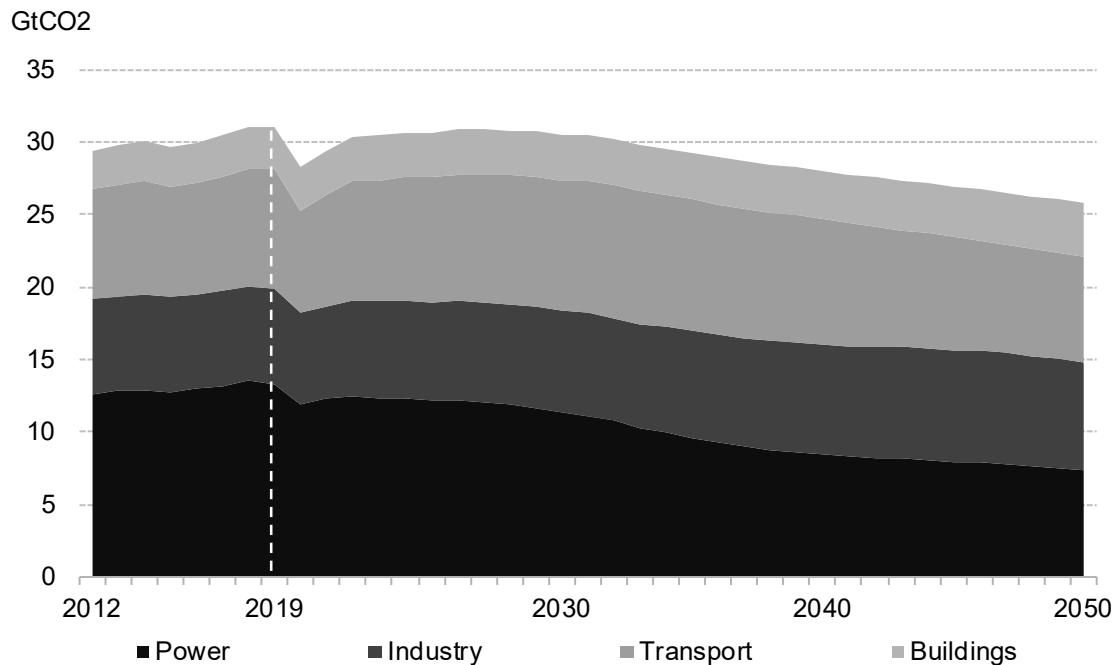
PART 2

NEO Climate Scenario

PART 3

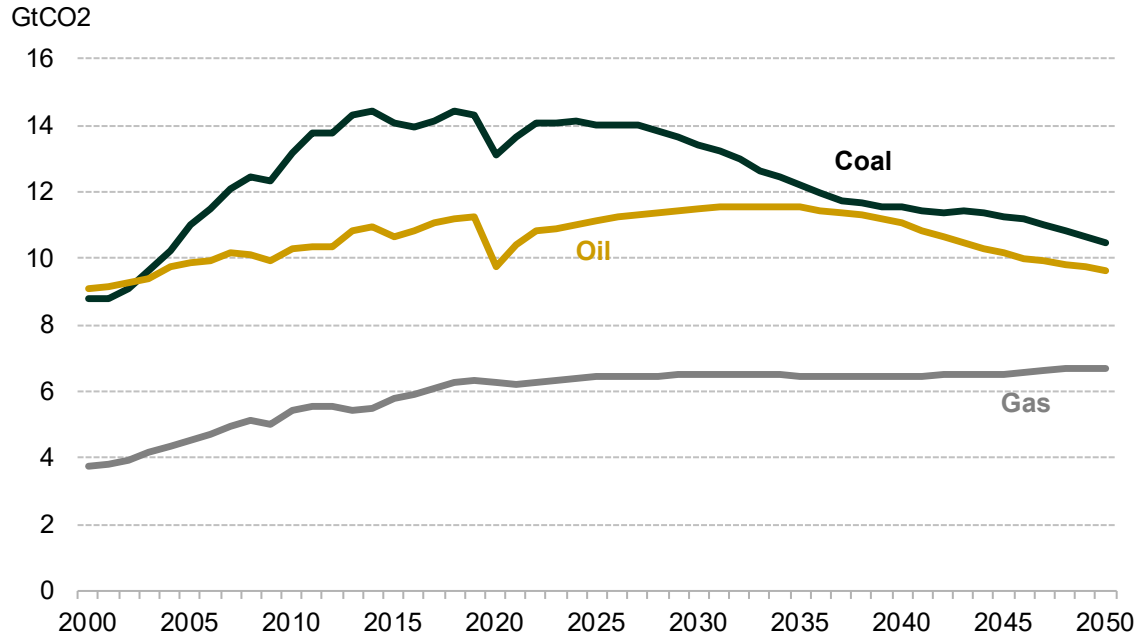
Implications for policy

Energy emissions in the NEO Economic Transition Scenario



Source: BloombergNEF

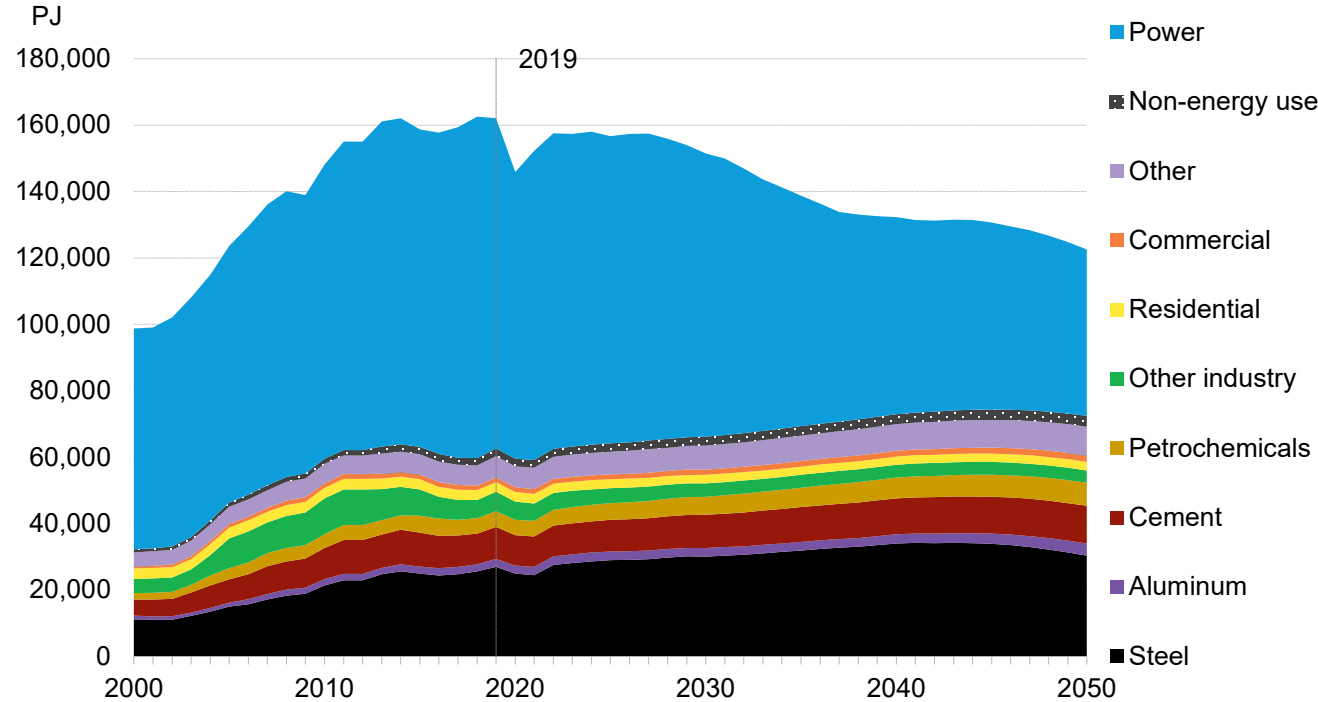
Fuel combustion emissions



Source: BloombergNEF

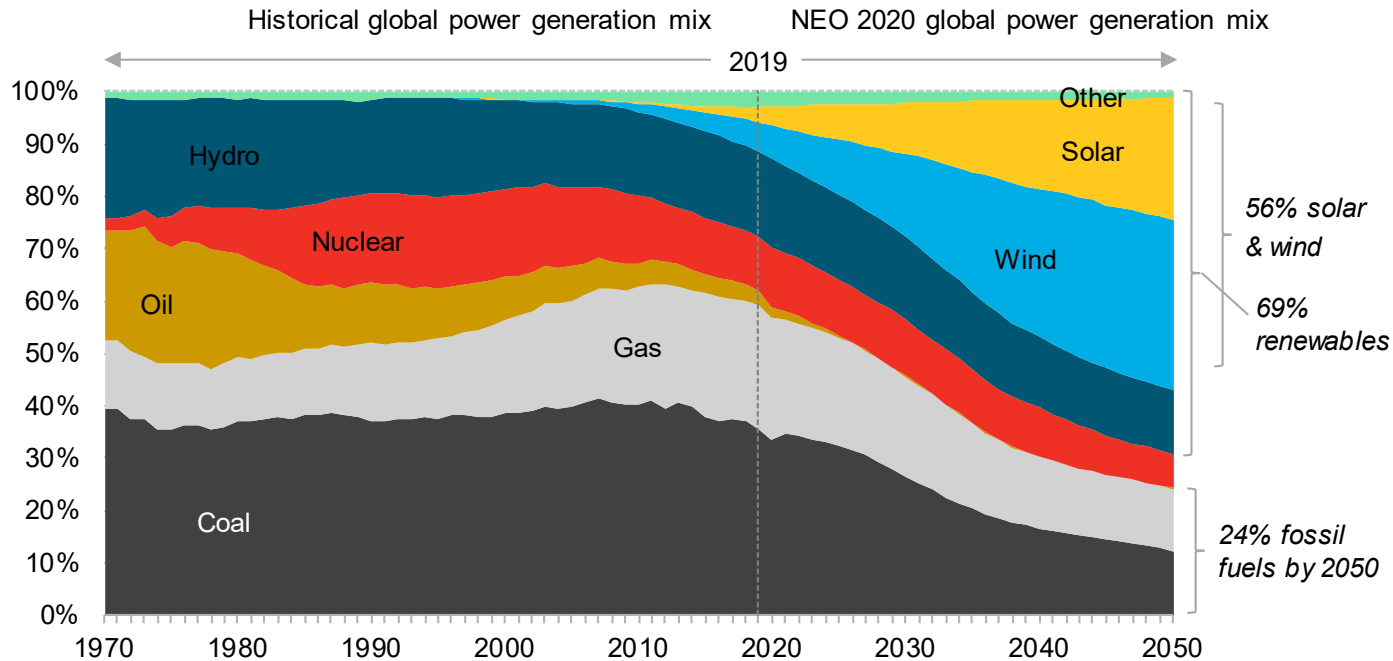
Coal demand peaked in 2018

Coal demand, by end-use sector



Source: BloombergNEF

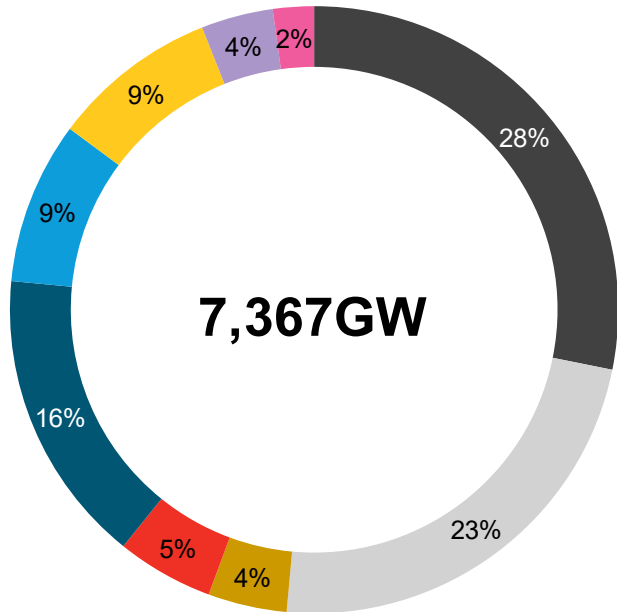
Wind and PV grow to 56% of electricity generation worldwide in 2050



Source: BloombergNEF

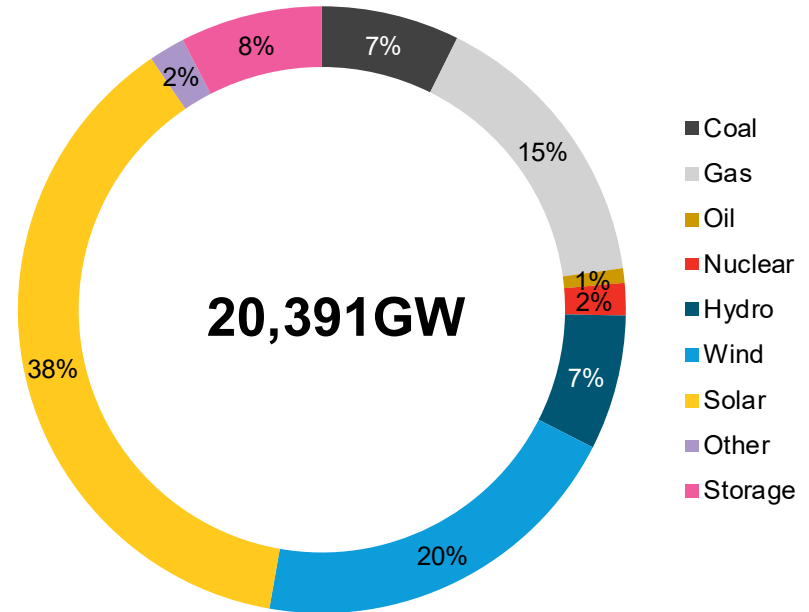
Power capacity almost triples to 2050

Total installed capacity, 2019



Source: BloombergNEF

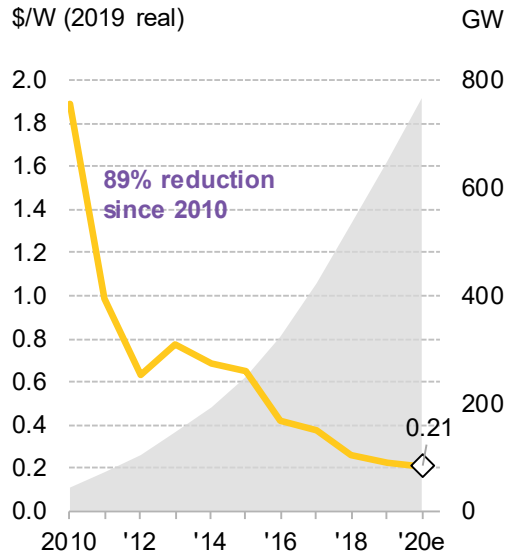
Total installed capacity, 2050



Source: BloombergNEF

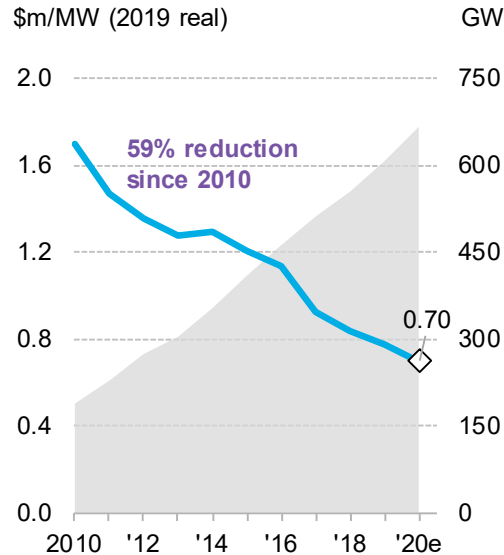
Innovation and scale have driven down the costs of renewable technology...

PV module price and cumulative installed capacity



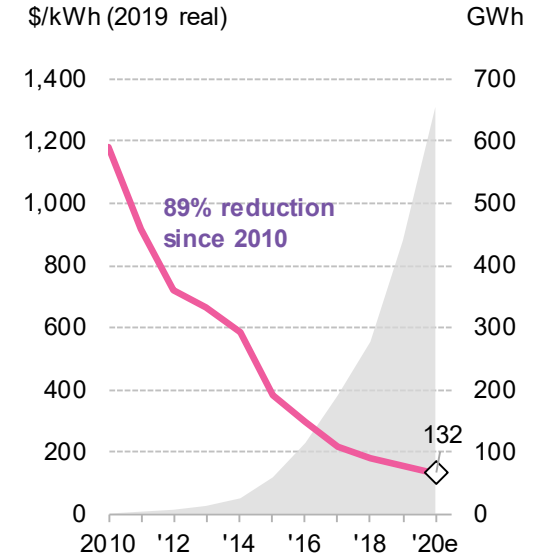
Source: BloombergNEF

Onshore wind turbine price and cumulative installed capacity



Source: BloombergNEF

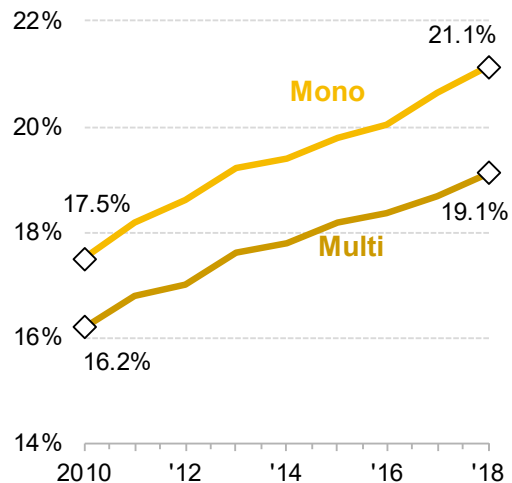
Li-ion battery pack price and demand



Source: BloombergNEF

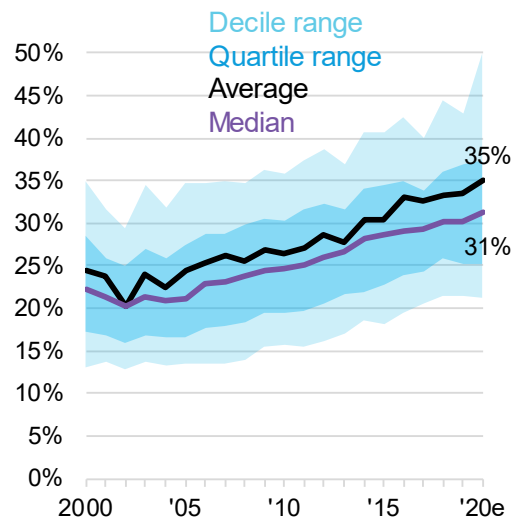
...and at the same time the technology keeps getting better

PV module efficiency



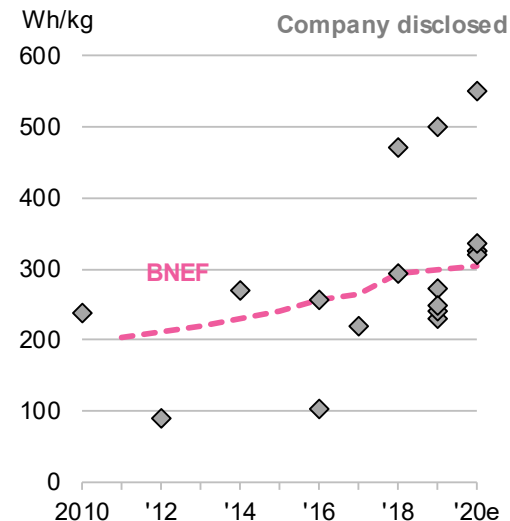
Source: BloombergNEF

Onshore wind capacity factors



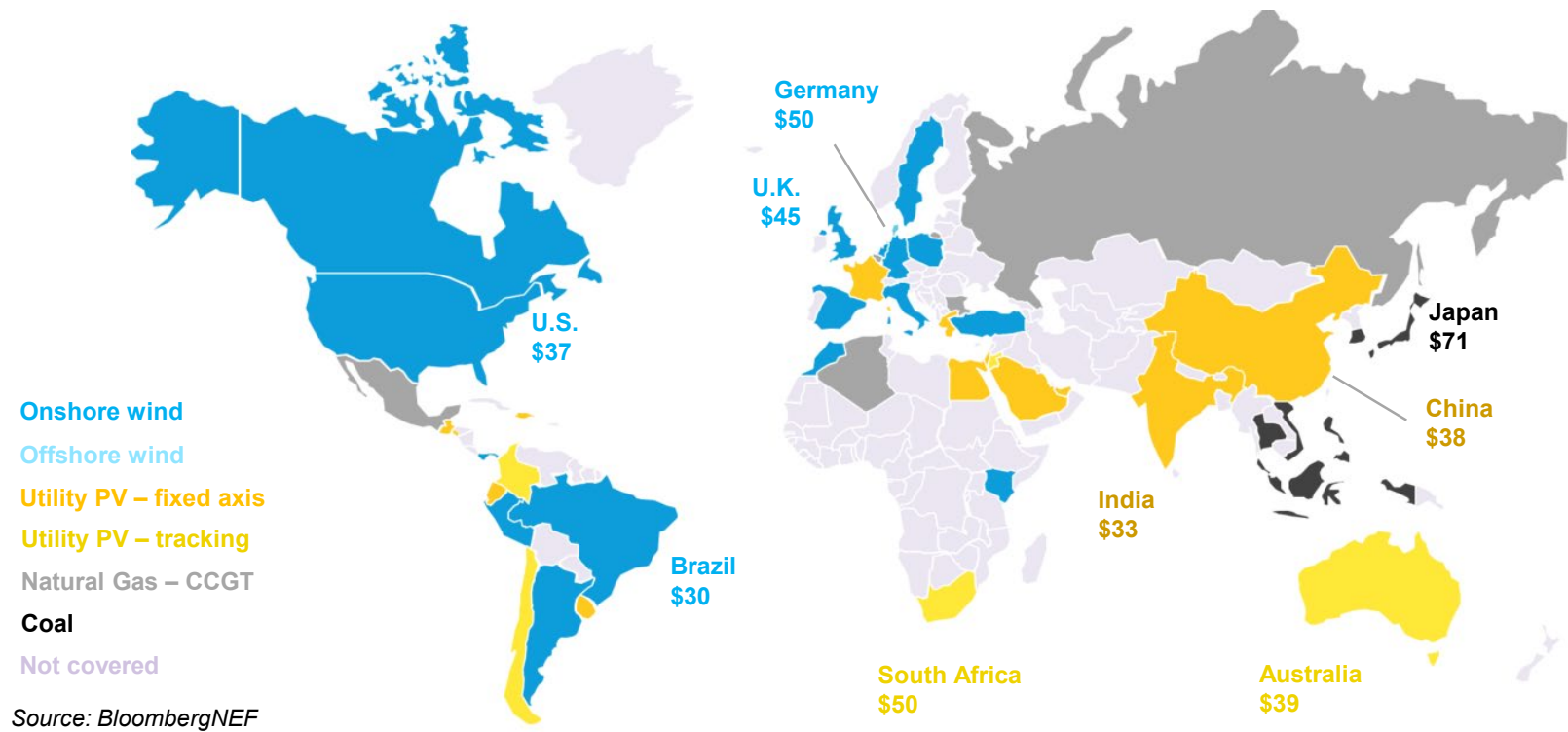
Source: BloombergNEF

Battery cell energy density



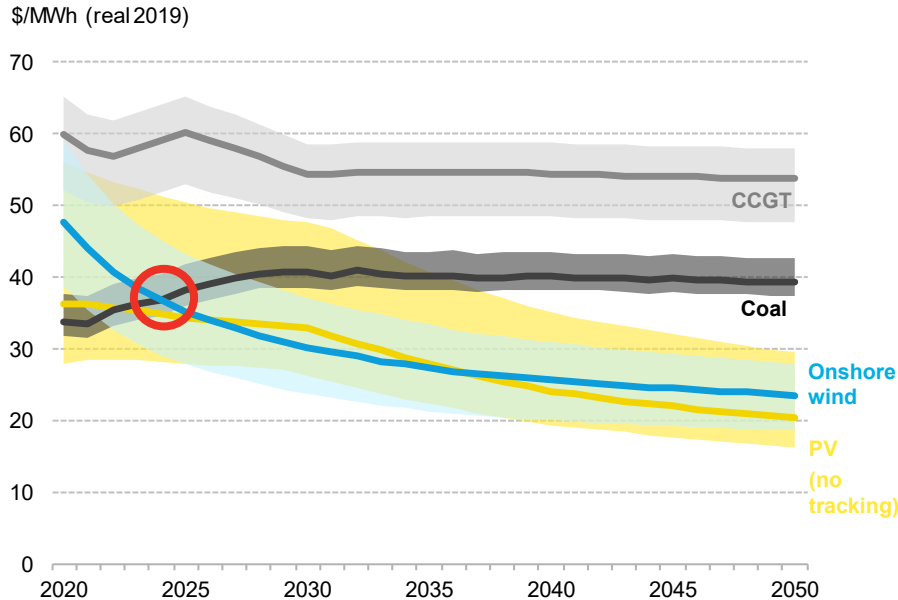
Source: BloombergNEF, public announcements, company interviews

Renewables are now the cheapest new electricity in countries making up just under 3/4 of world GDP



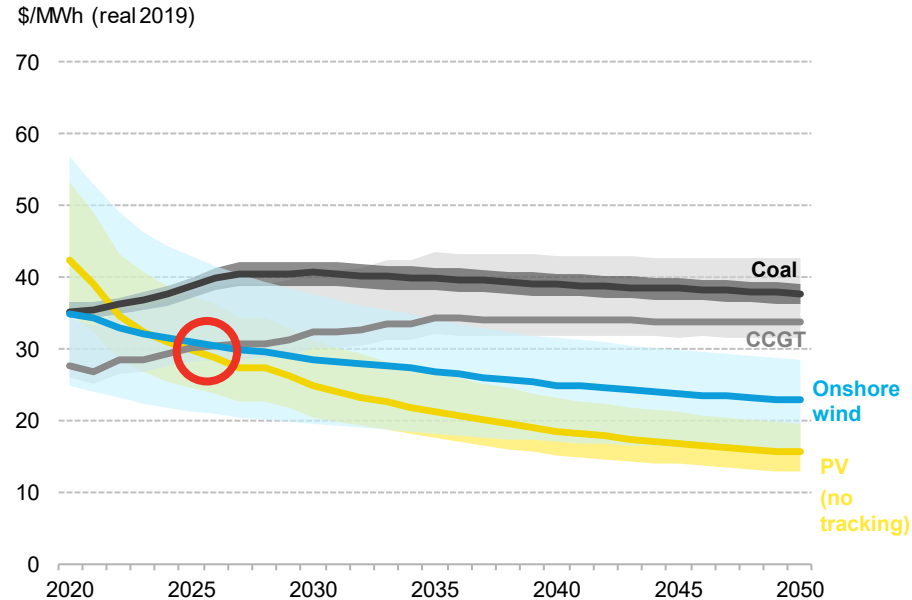
In the next 5 years, wind & PV are on track to be cheaper than running existing coal and gas

China: new wind & PV vs. existing coal & gas



Source: BloombergNEF

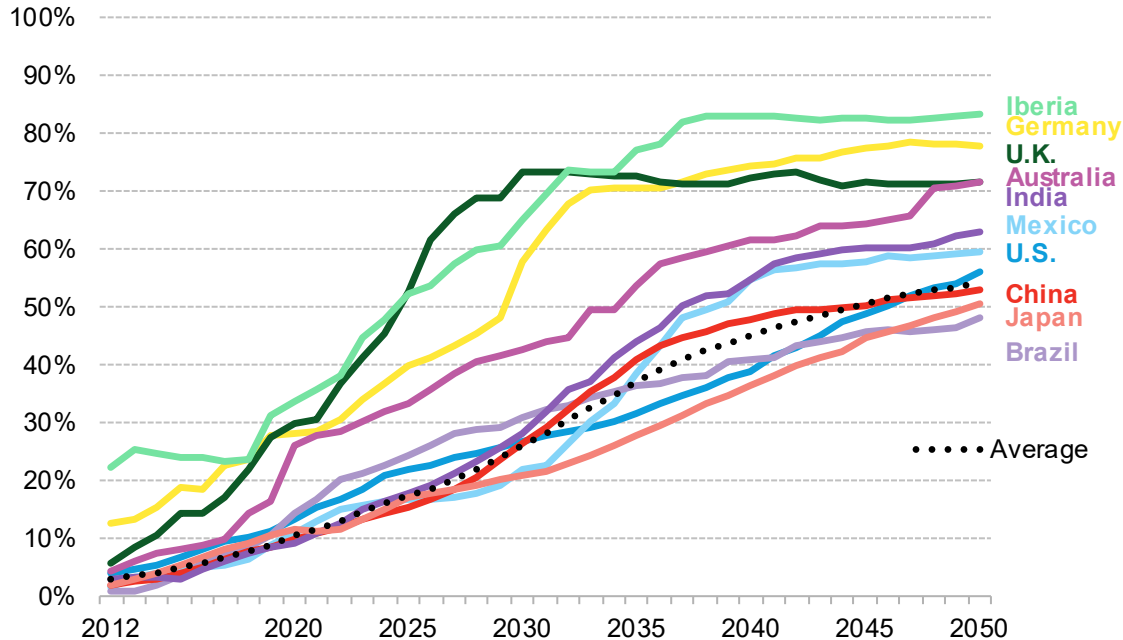
United States: new wind and PV vs. existing coal & gas



Source: BloombergNEF

But limit appears to be 70-80% wind & PV

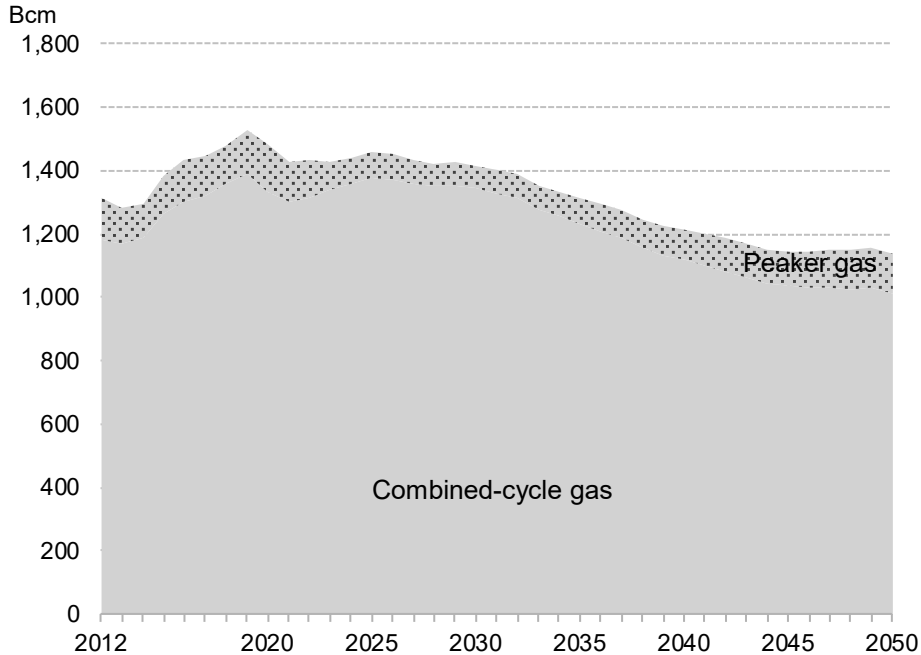
Penetration of wind and PV in electricity generation, by country



Source: BloombergNEF

Gas use in power peaks in 2019 falls 0.7% year on year from 2030

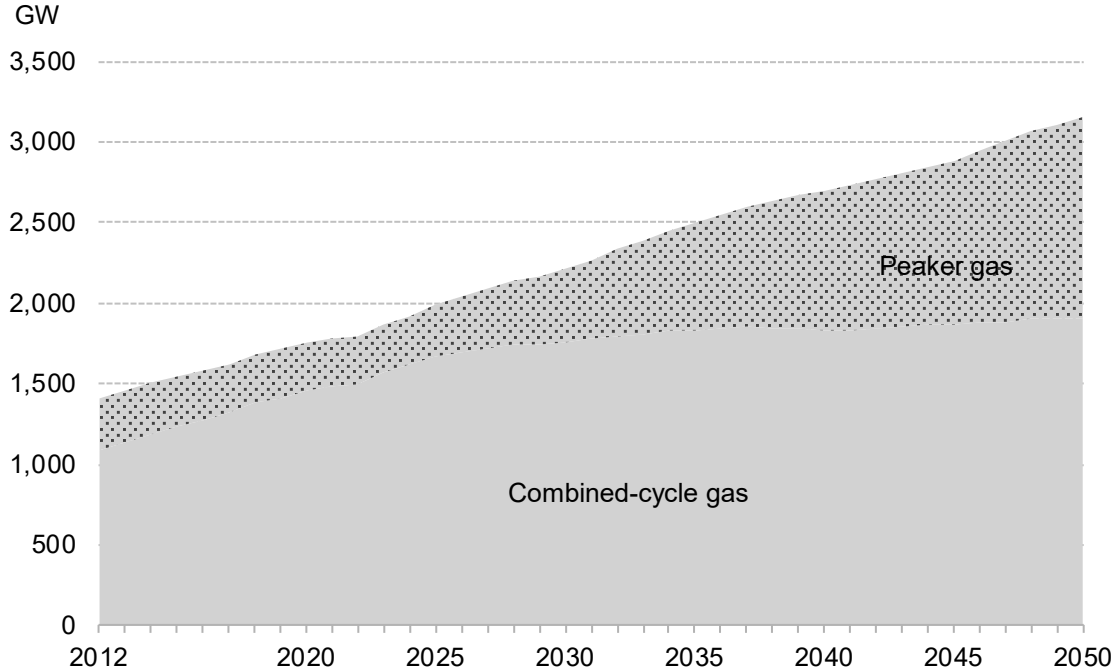
Gas use in the power sector



Source: BloombergNEF

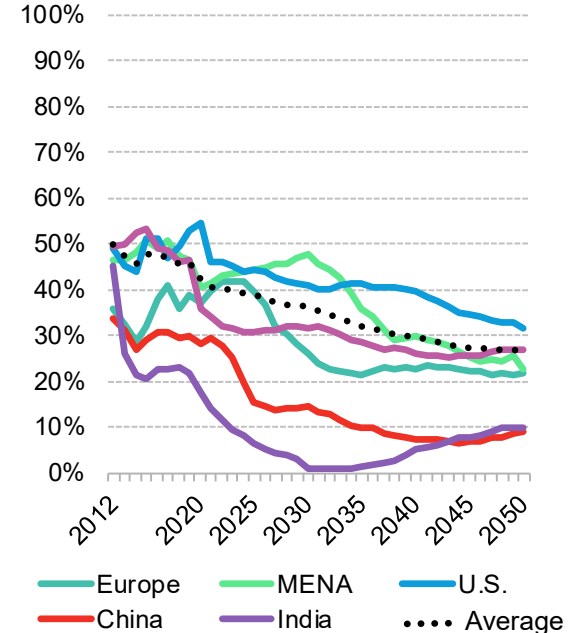
Gas capacity grows year on year, peakers outpace CCGT from 2029

Cumulative installed power capacity



Source: BloombergNEF

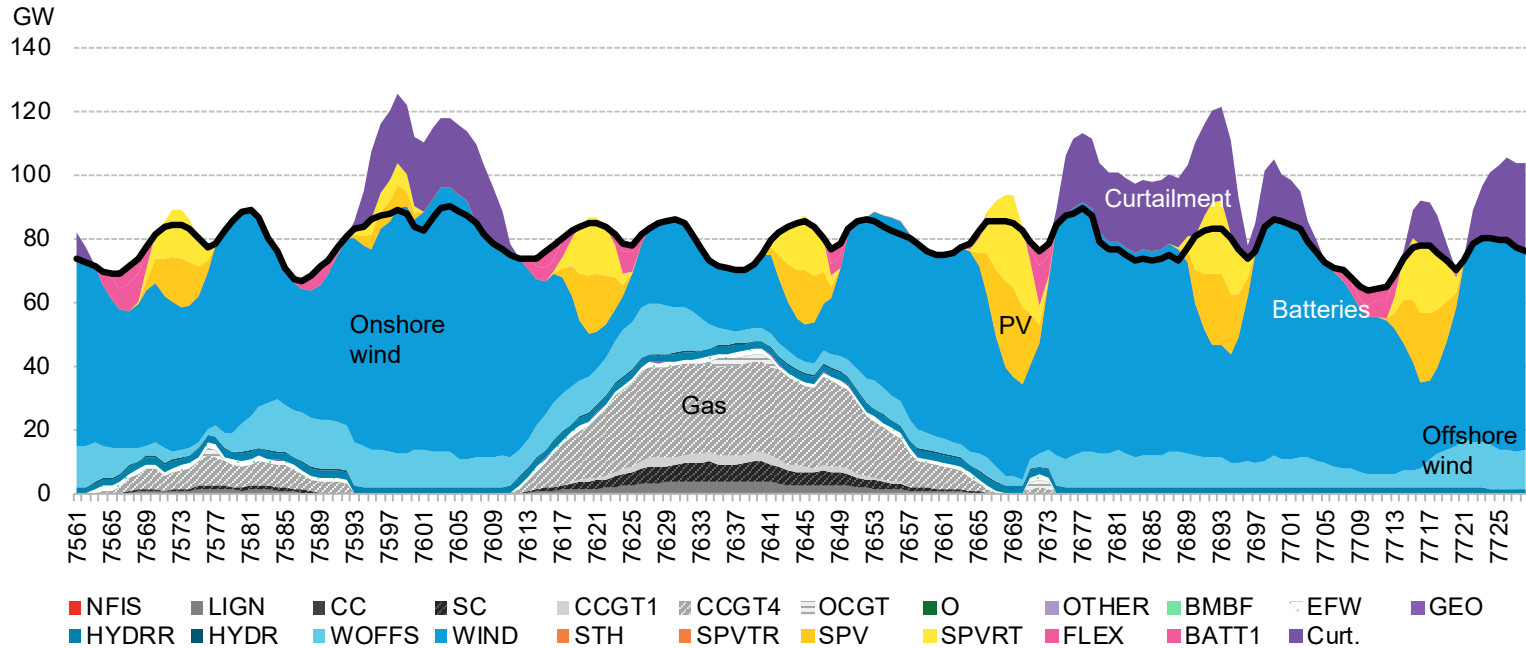
CCGT capacity factors, by country



Source: BloombergNEF

Weekly electricity generation, Germany

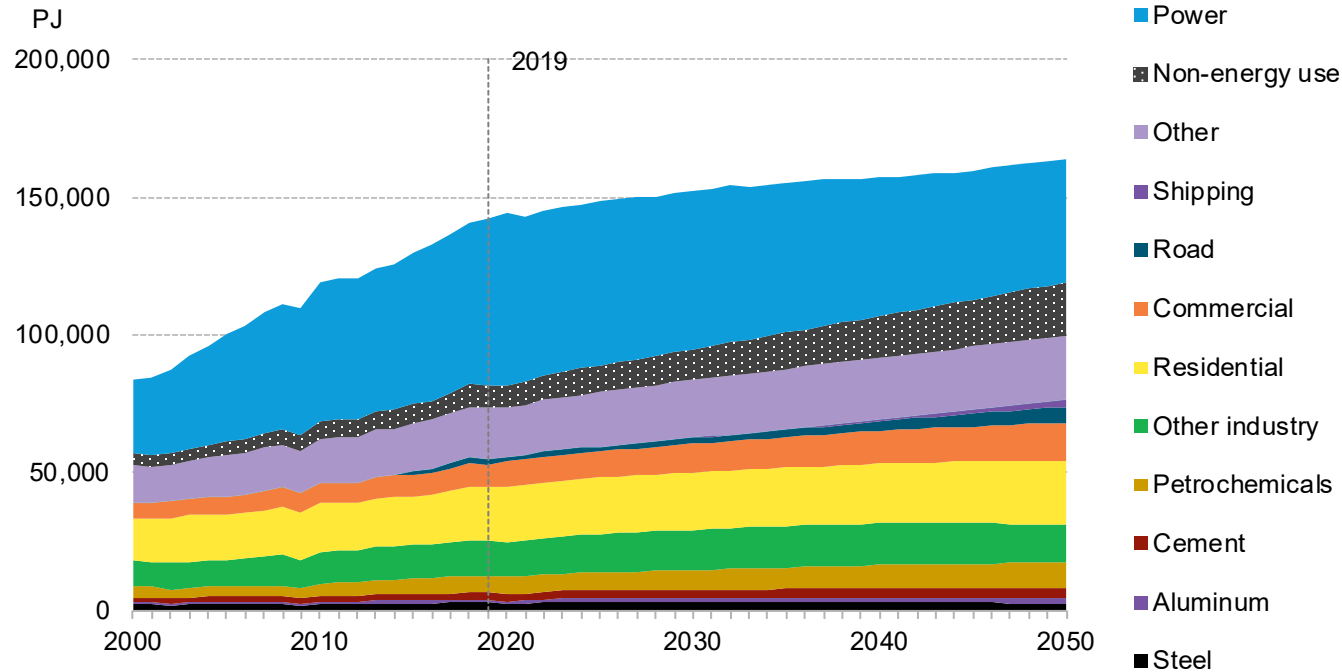
2040



Source: BloombergNEF

Gas demand grows 0.5% year on year to 2050

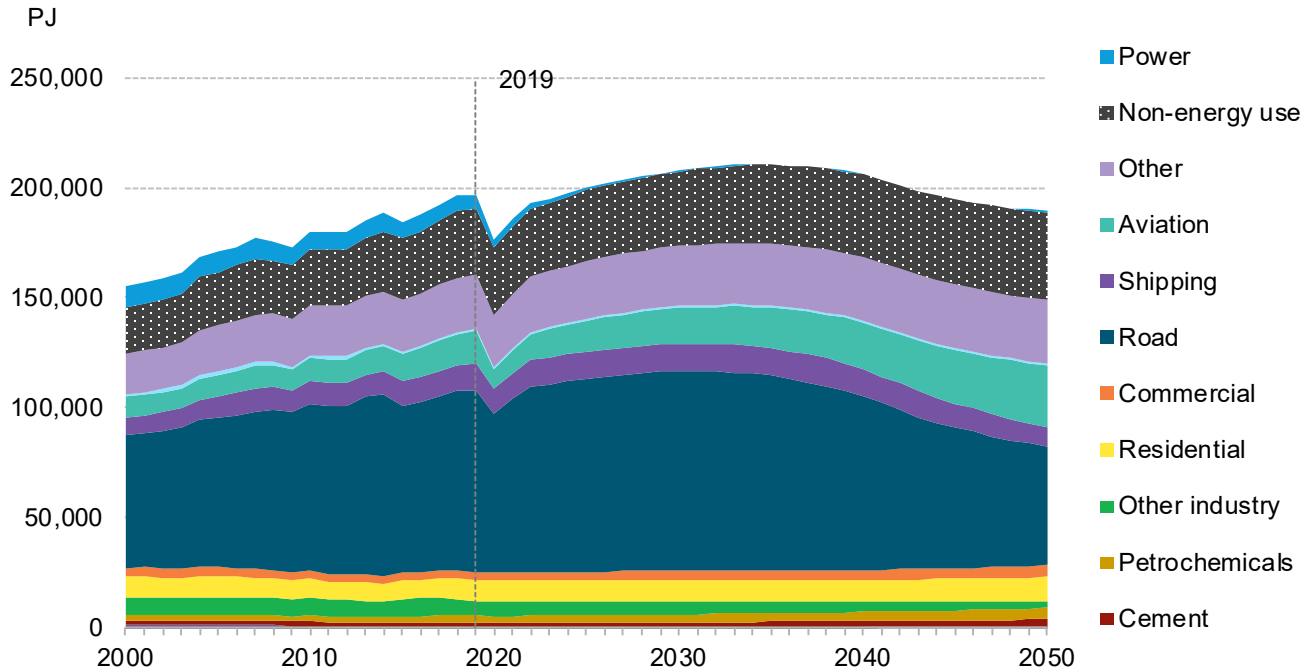
Primary gas demand, by end-use sector



Source: BloombergNEF

Oil demand peaks in 2035

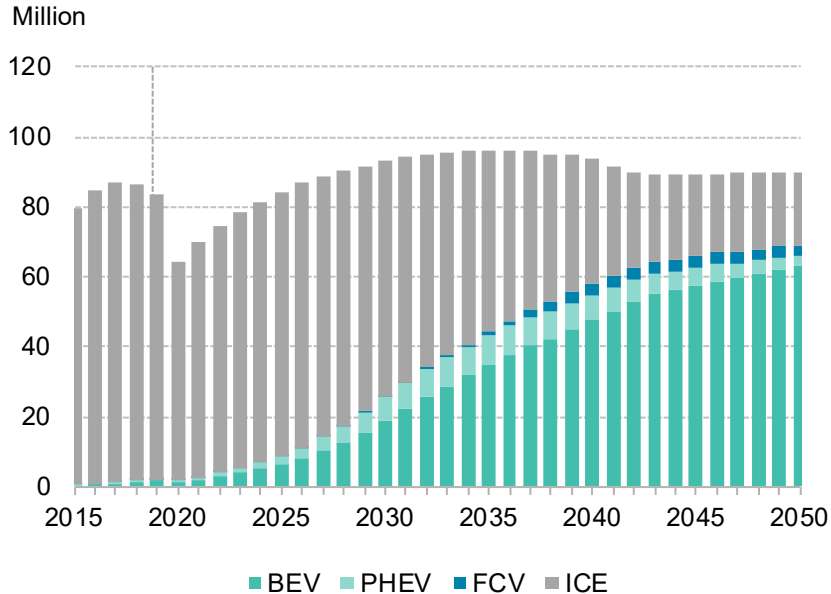
Primary oil demand, by end-use sector



Source: BloombergNEF

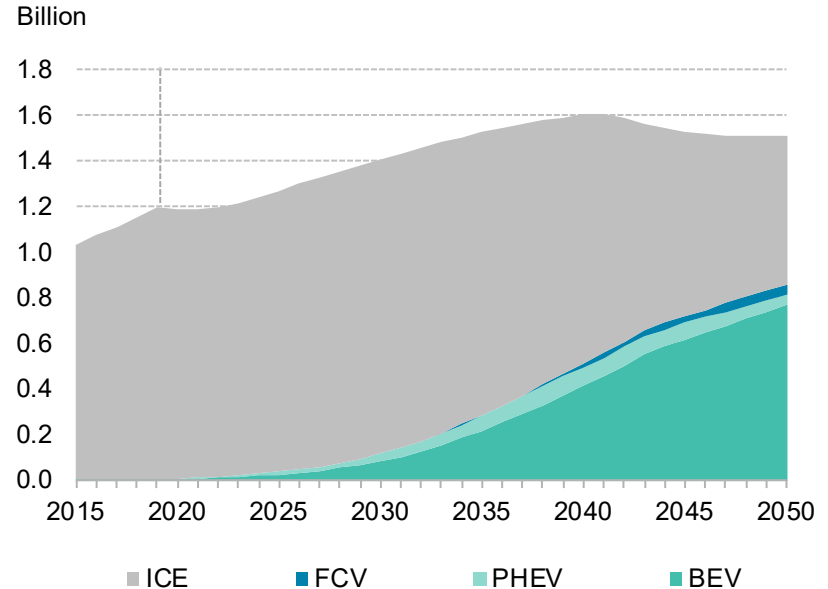
Oil demand is shaped by the transition to electric drivetrains in road transport

Global passenger vehicle sales, by drivetrain



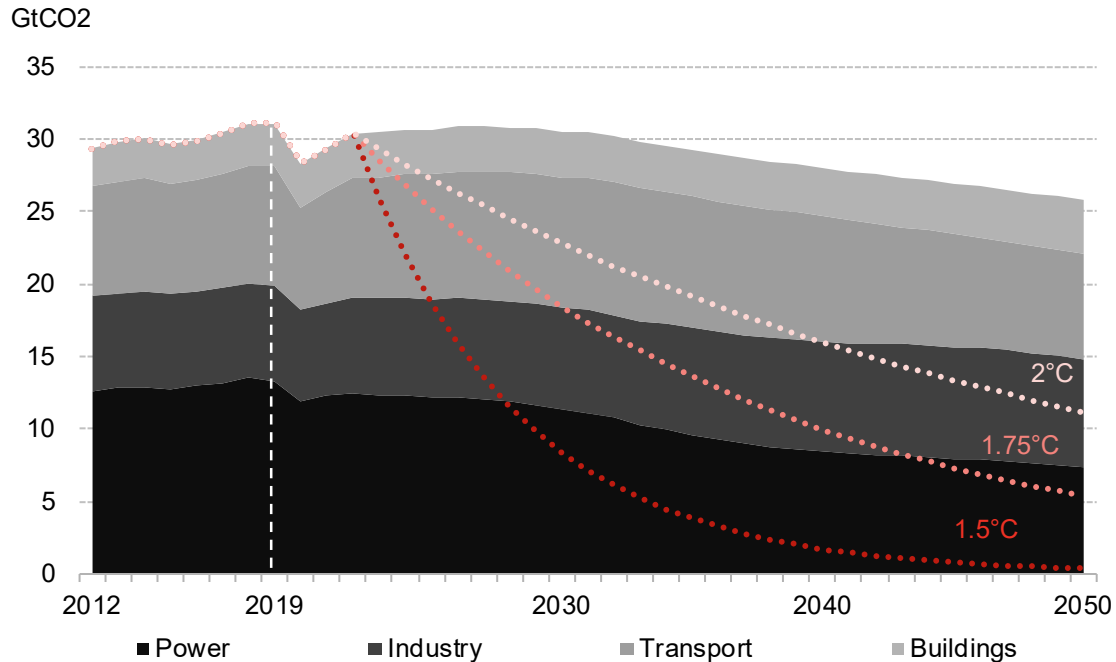
Source: BloombergNEF

Global passenger vehicle fleet, by drivetrain



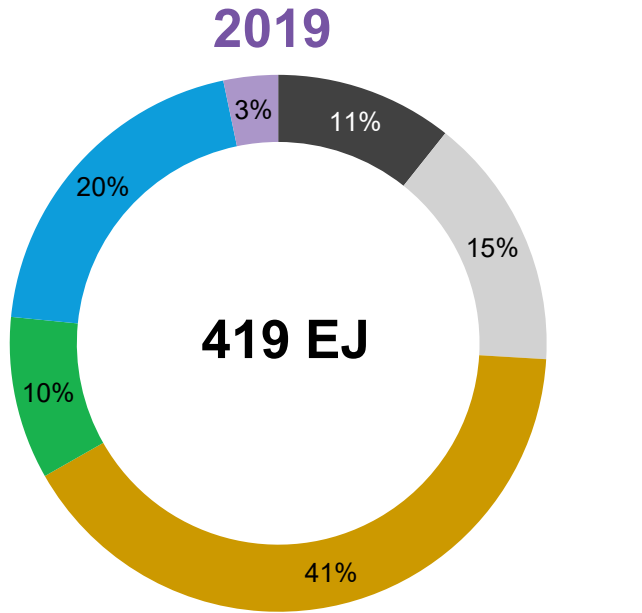
Source: BloombergNEF

Energy emissions in the NEO Economic Transition Scenario, and climate pathways



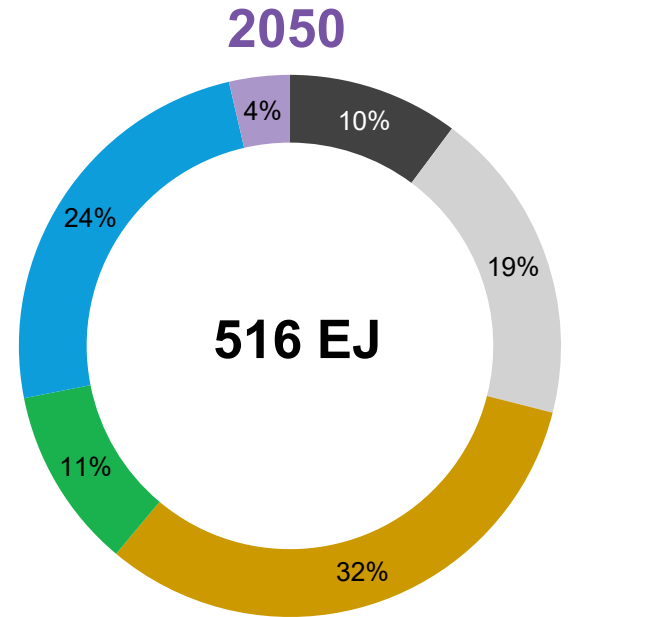
Source: BloombergNEF

Total final energy



■ Coal ■ Gas ■ Oil ■ Bioenergy ■ Electricity ■ Other

Source: BloombergNEF

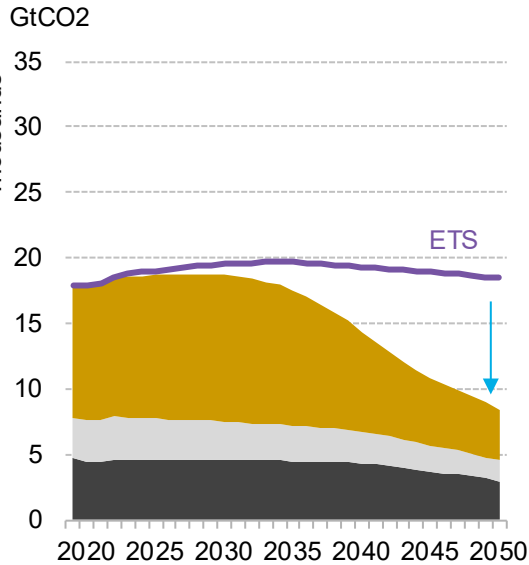


■ Coal ■ Gas ■ Oil ■ Bioenergy ■ Electricity ■ Other

Source: BloombergNEF

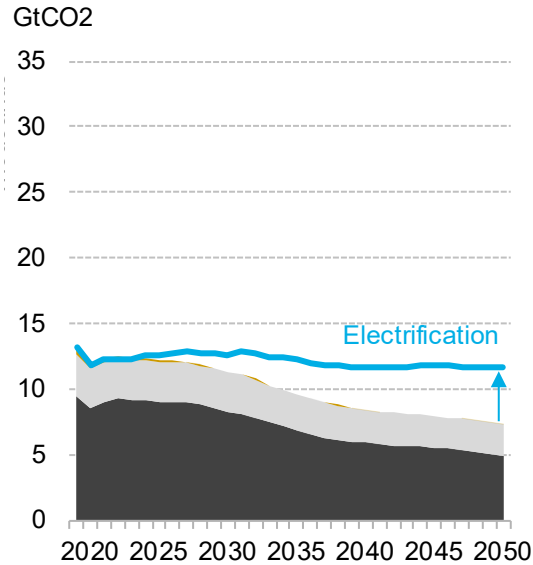
Electrification of transport, buildings and industry saves emissions...

Emissions from end-use sectors



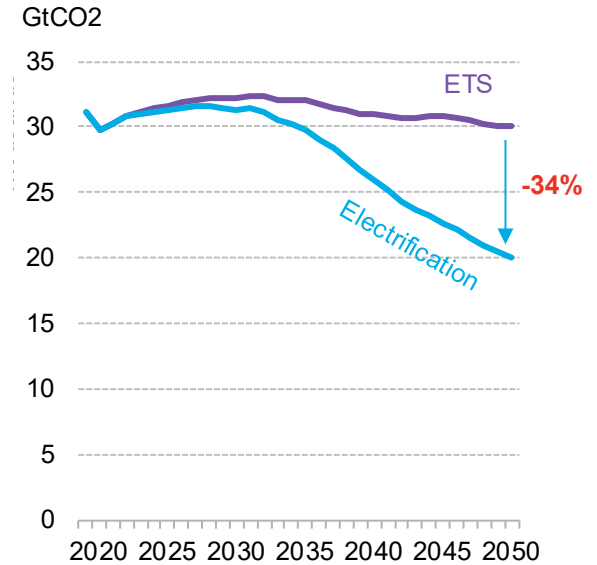
Source: BloombergNEF

Emissions from power sector



Source: BloombergNEF

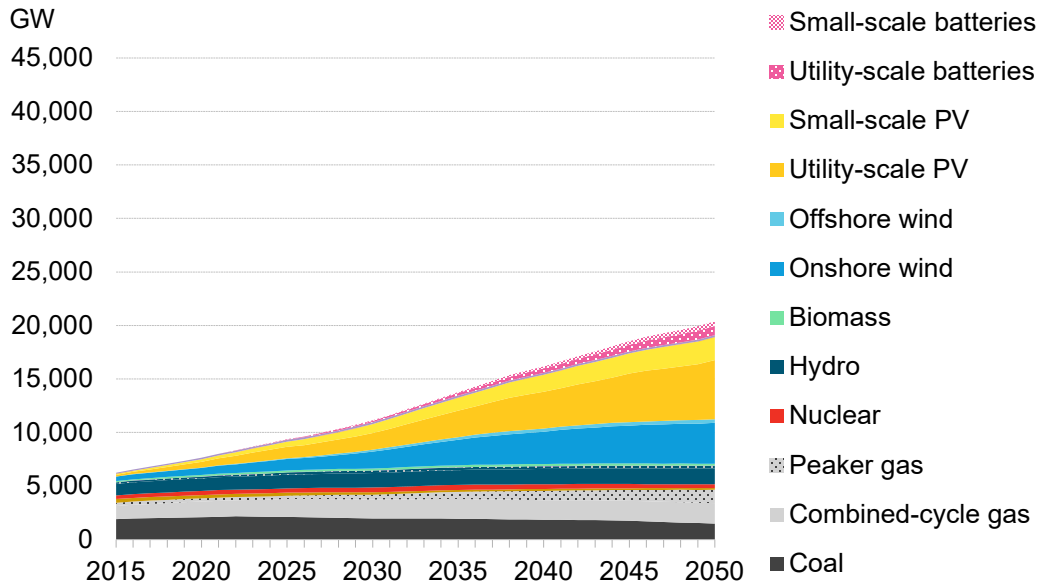
Net impact of electrification



Source: BloombergNEF

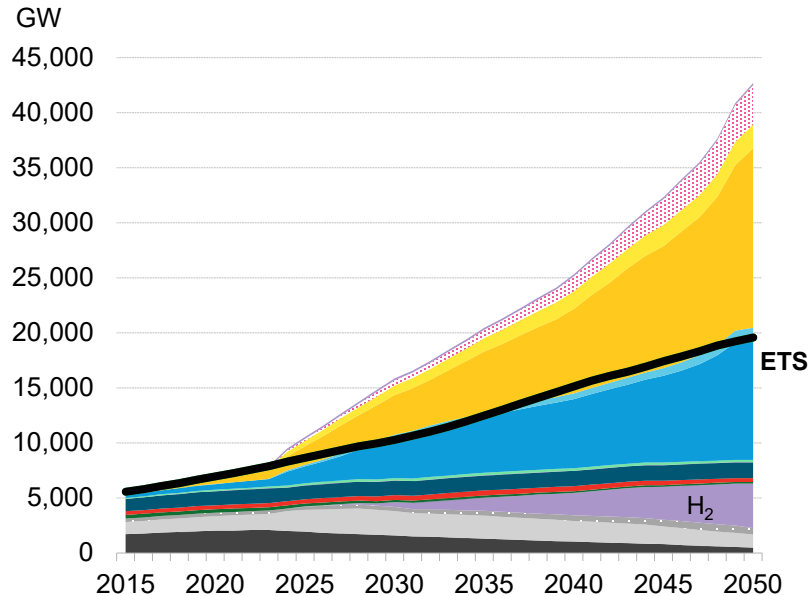
...and doubles the size of the power system

Cumulative installed capacity, ETS



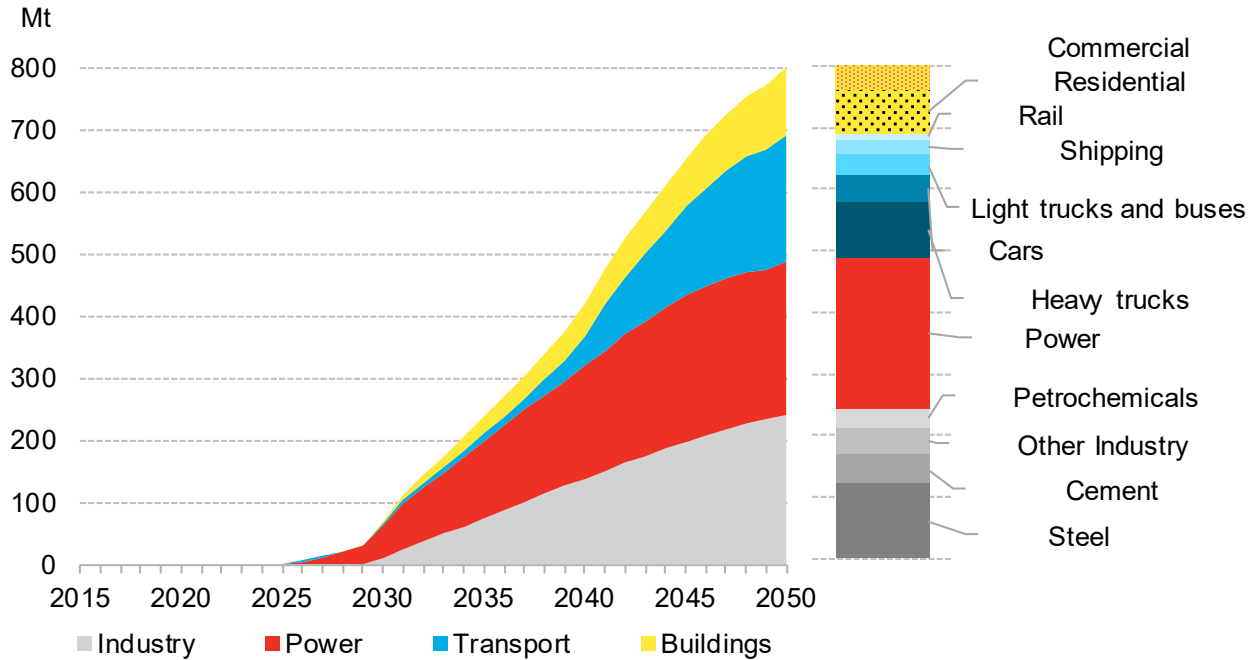
Source: BloombergNEF Note: ETS is Economic Transition Scenario

Cumulative installed capacity, NCS-CEHP



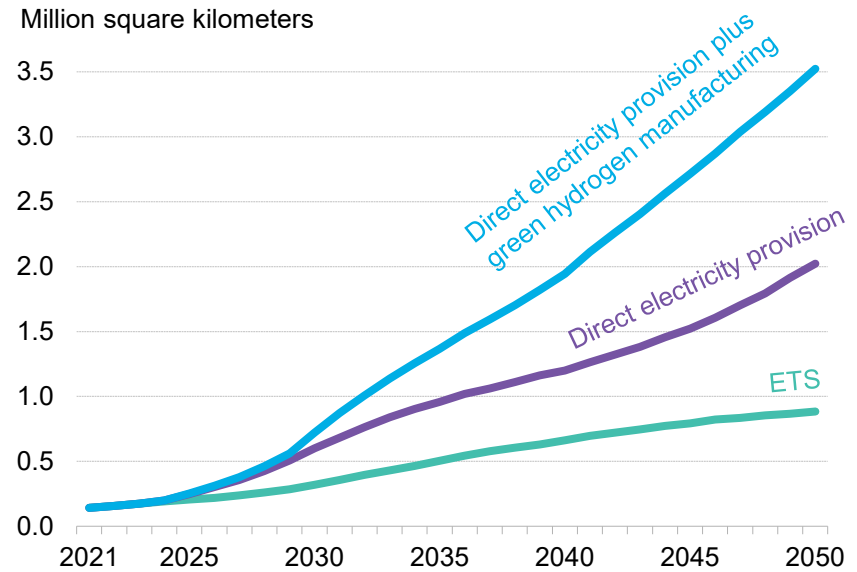
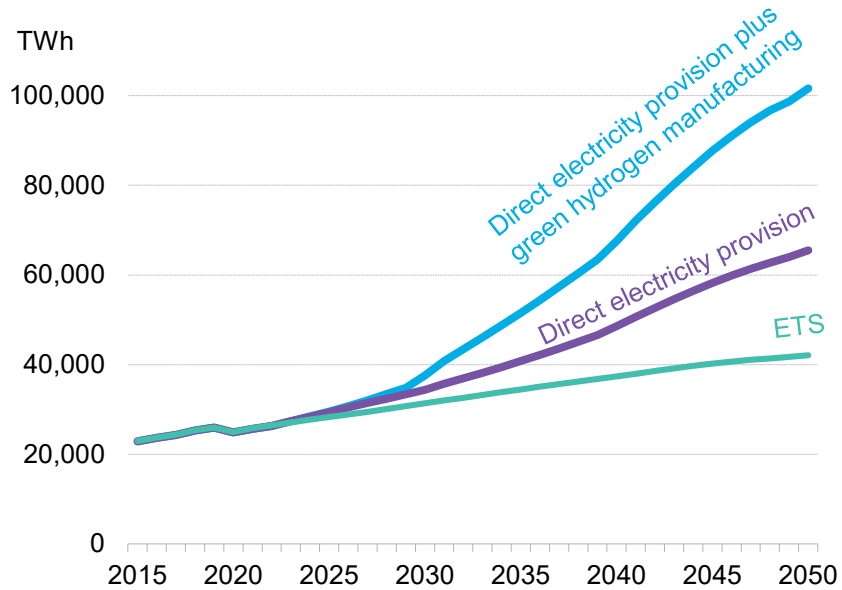
Source: BloombergNEF Note: NCS-CEHP is NEO Climate Scenario: Clean Electricity and Green Hydrogen Pathway

Hydrogen demand, by sector, NCS-CEHP



Source: BloombergNEF Note: NCS-CEHP is NEW Climate Scenario: Clean Electricity and Green Hydrogen Pathway

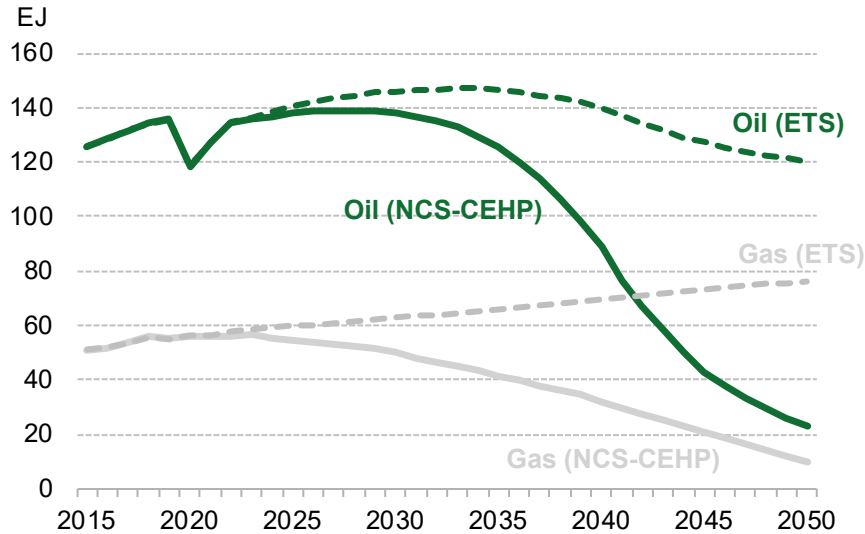
A 100,000TWh clean electricity & green hydrogen energy economy in 2050



Source: BloombergNEF Note: ETS is Economic Transition Scenario

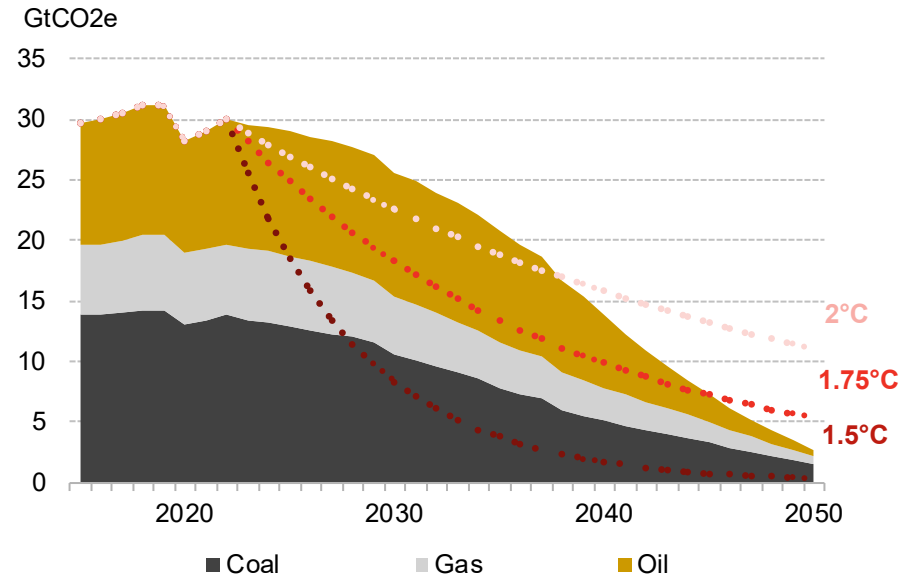
Oil demand peaks in 2028, gas in 2023 and emissions on track for 1.75 degrees

Oil and gas demand, ETS vs NCS-CEHP



Source: BloombergNEF

Energy emissions in the NCS-CEHP and a range of carbon budgets



Source: BloombergNEF

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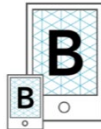
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