

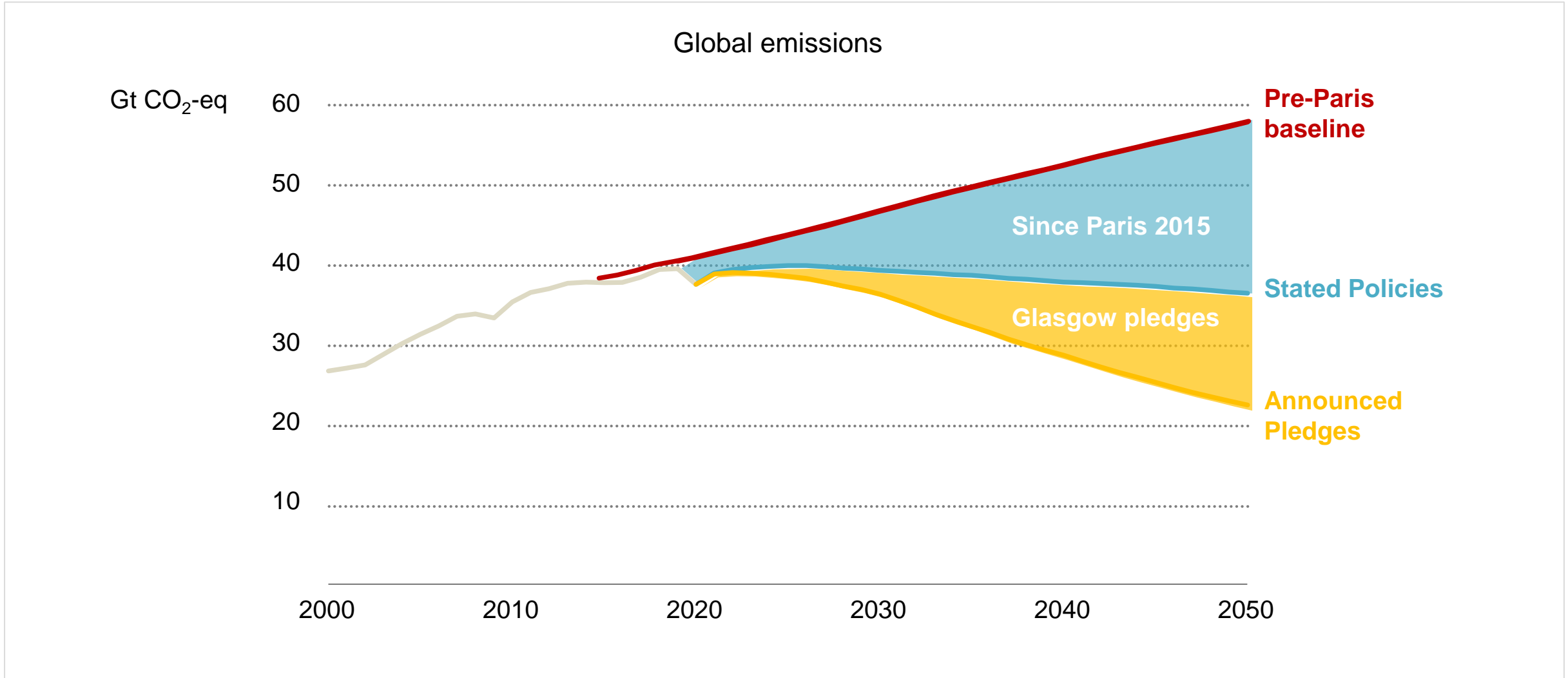


Net Zero by 2050: a Roadmap for the Global Energy Sector

Peter Fraser, Head of Gas, Coal and Power Markets Division

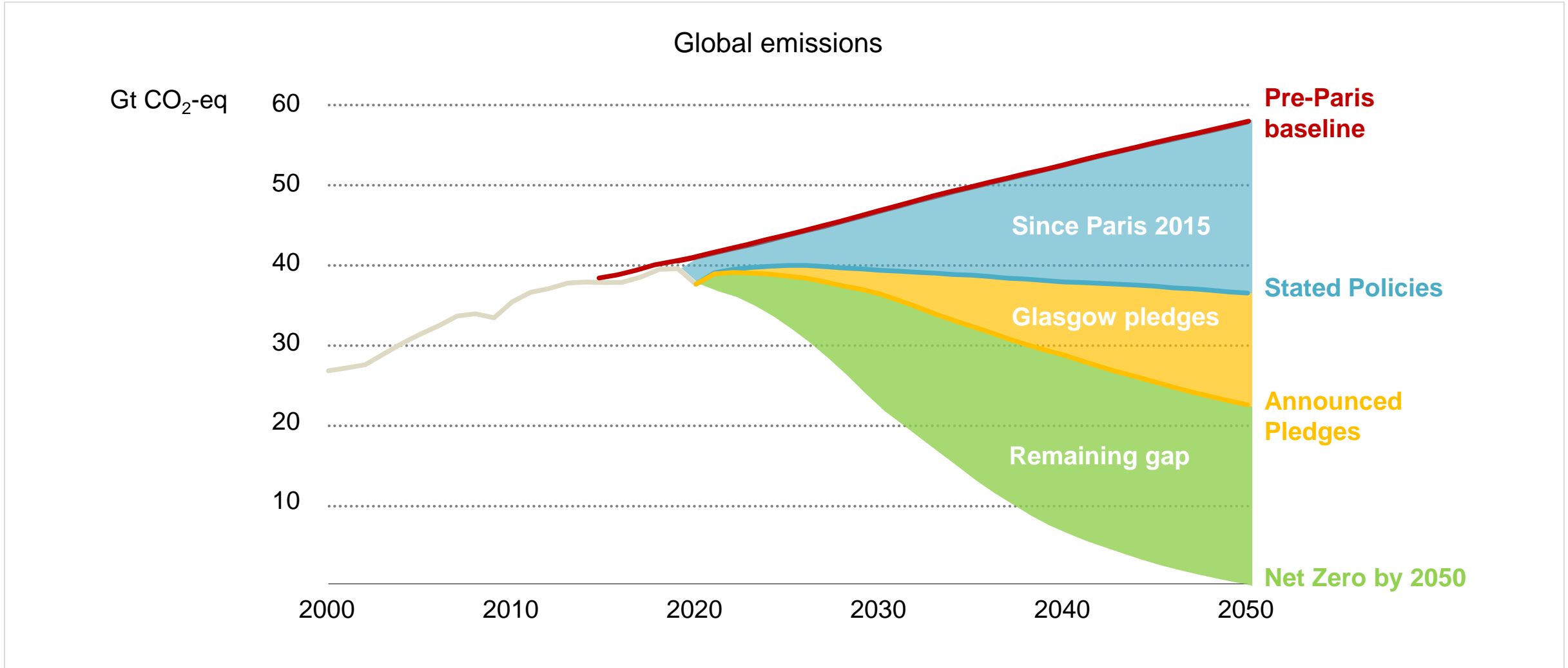
CAMPUT 2021 Virtual Conference Part II, 19 October 2021

The world is starting to bend the emissions curve ...



New policies, technology cost reductions, and the pandemic have pulled the projected emissions curve down. Updated NDCs & long-term net zero pledges decouple emissions and economic growth this decade.

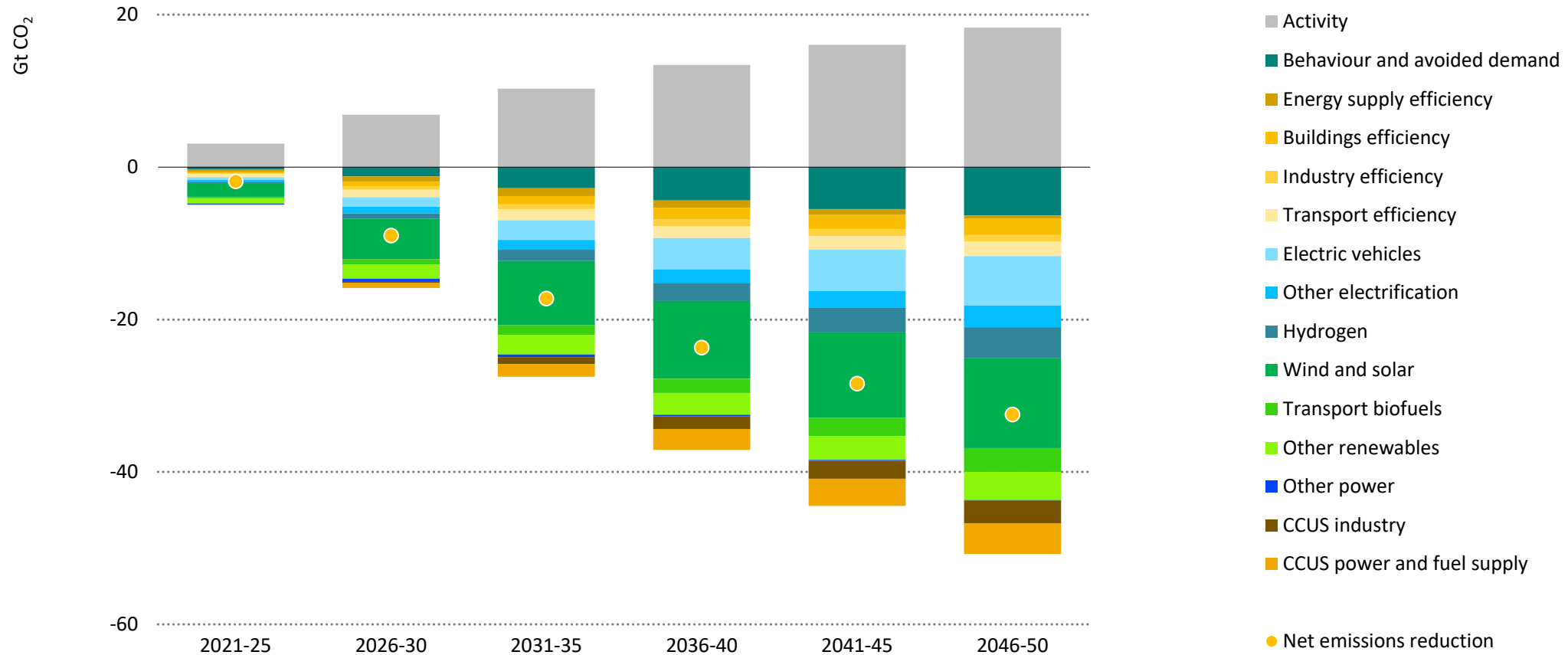
Yet a large ambition gap remains



Despite some positive signs, today's pledges close less than 20% of the gap to the Net Zero by 2050 scenario: countries with net zero pledges and countries without each account for about half the remaining ambition gap

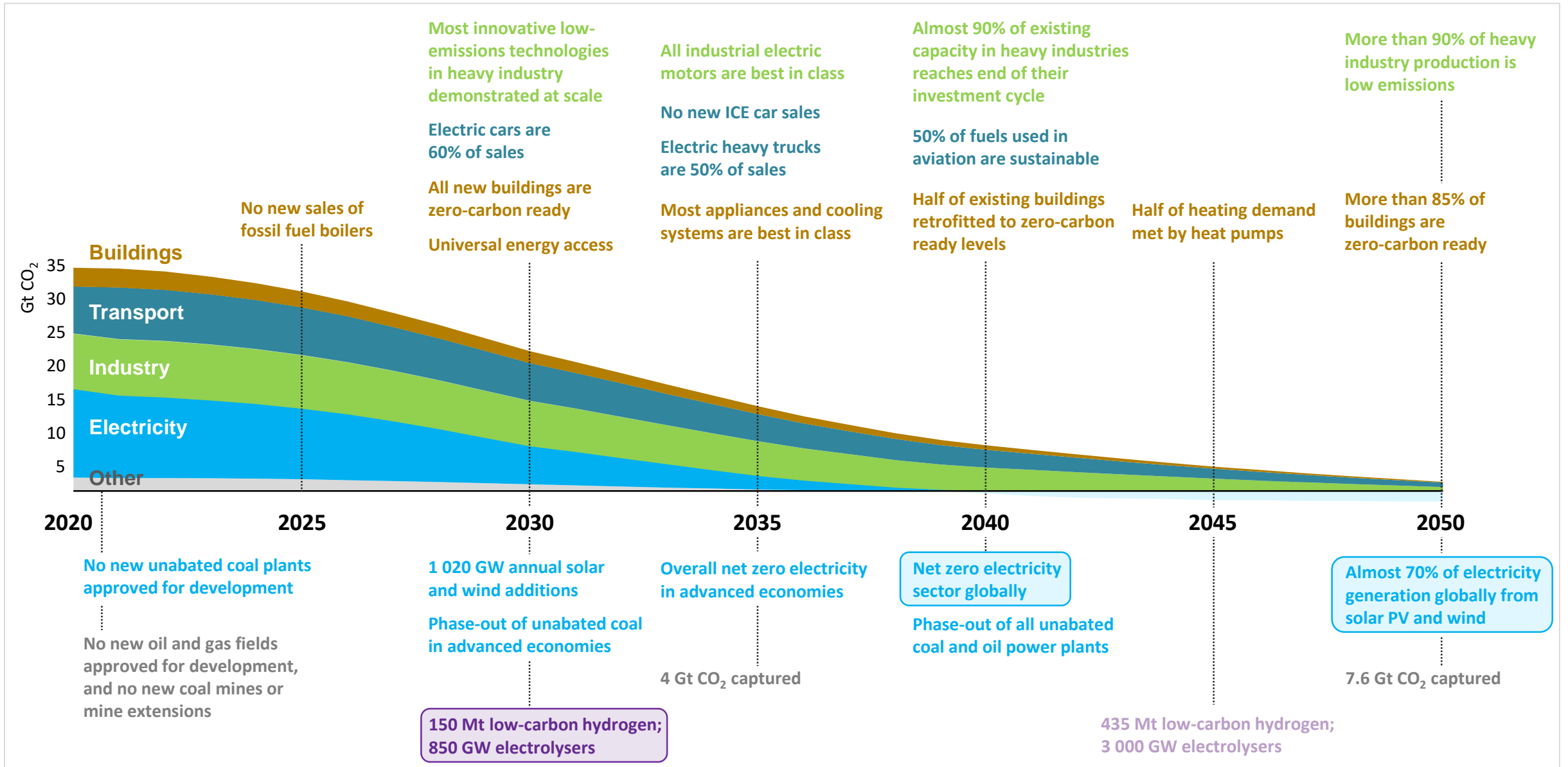
Net zero will take more than “electrify everything”

Average annual CO2 reductions from 2020 in the NZE

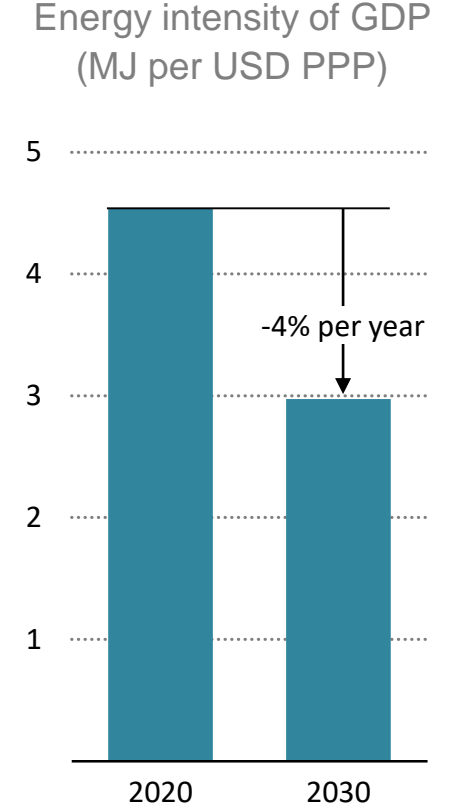
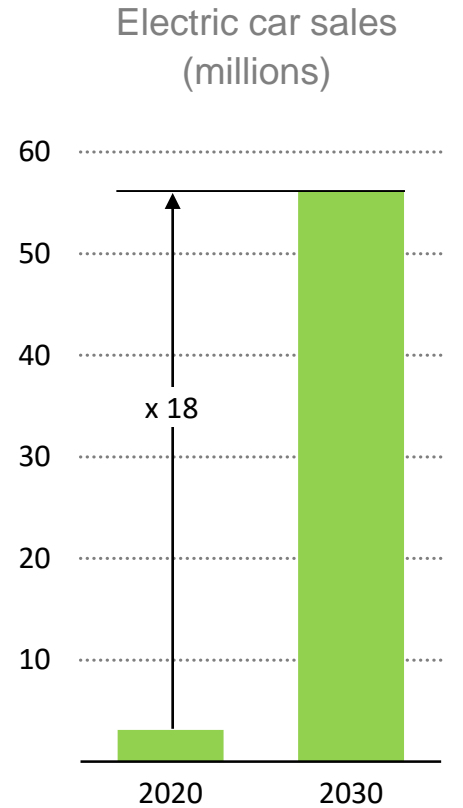
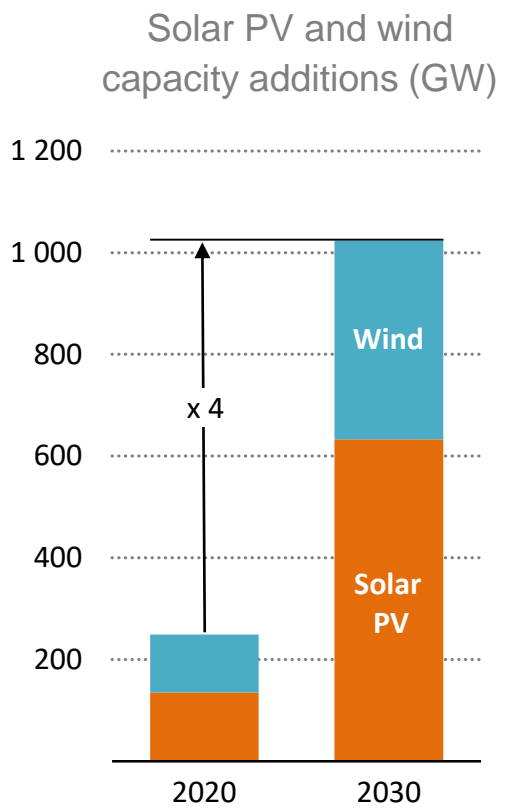


Efficiency, decarbonising generation, electrification, hydrogen, biofuels, and CCUS are all needed

Key milestones to net zero

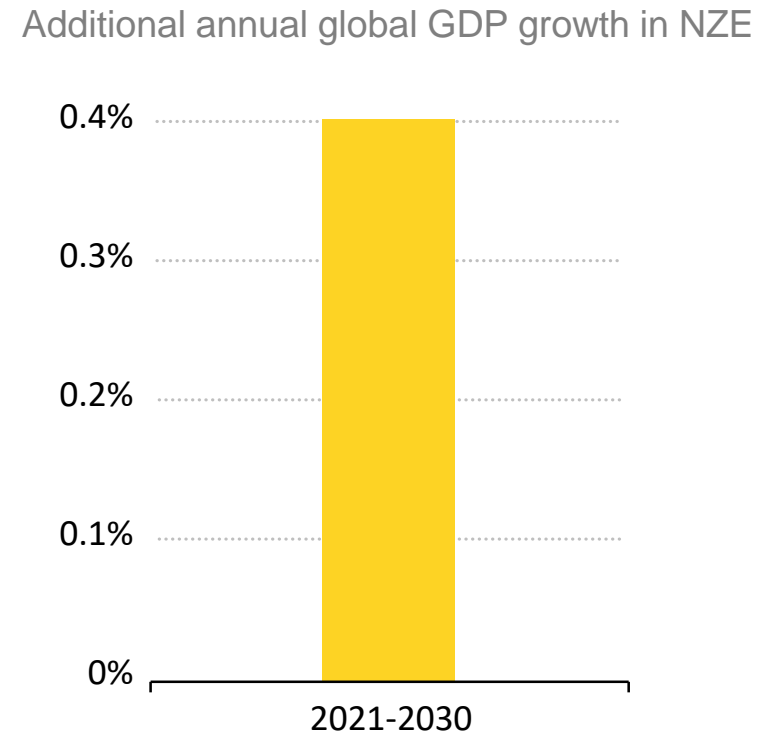
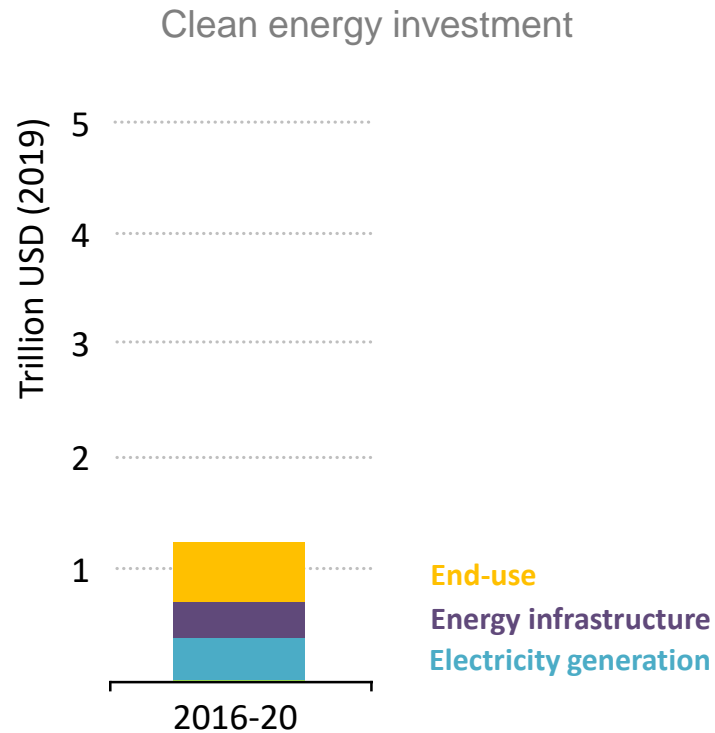


Huge push on renewables, electrification and efficiency needed this decade



Technologies for achieving the necessary deep cuts in global emissions by 2030 exist, but staying on the narrow path to net-zero requires their immediate and massive deployment.

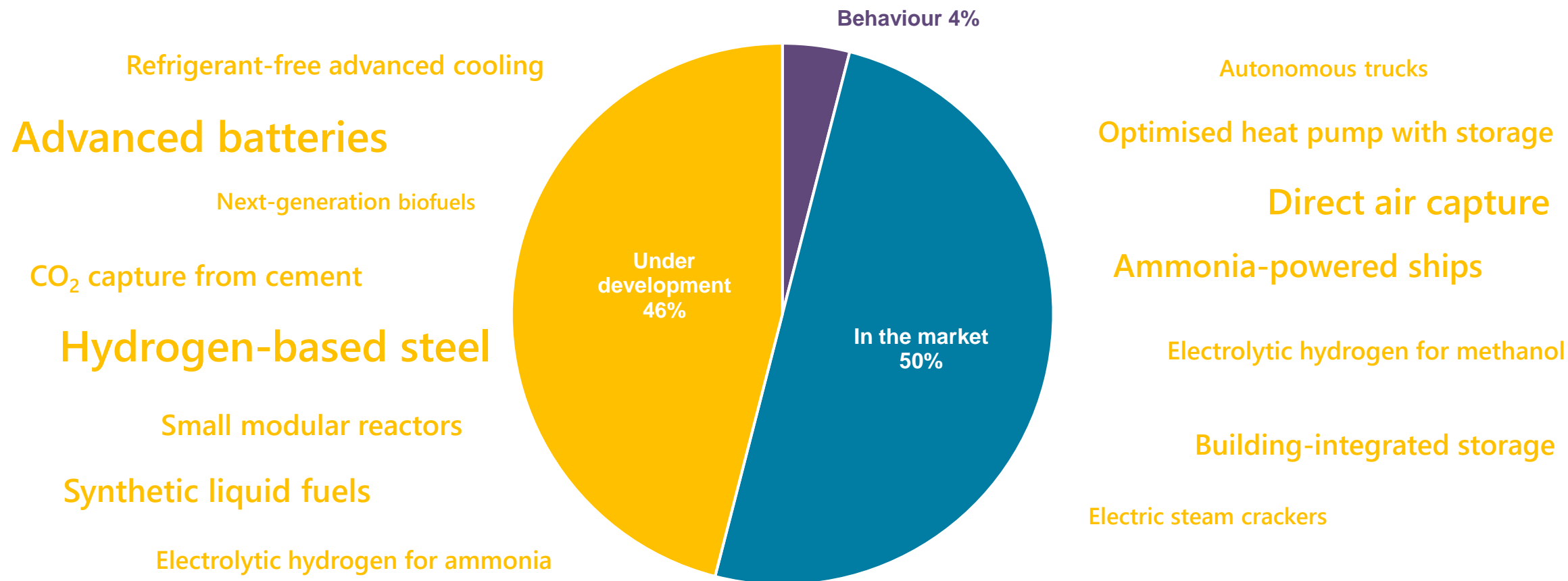
Drive a historic surge in clean energy investment



Annual clean energy investment more than triples by 2030 in the NZE scenario, driving an average 0.4% per year increase in global GDP to 2030 & speeding the recovery from the COVID-19 shock

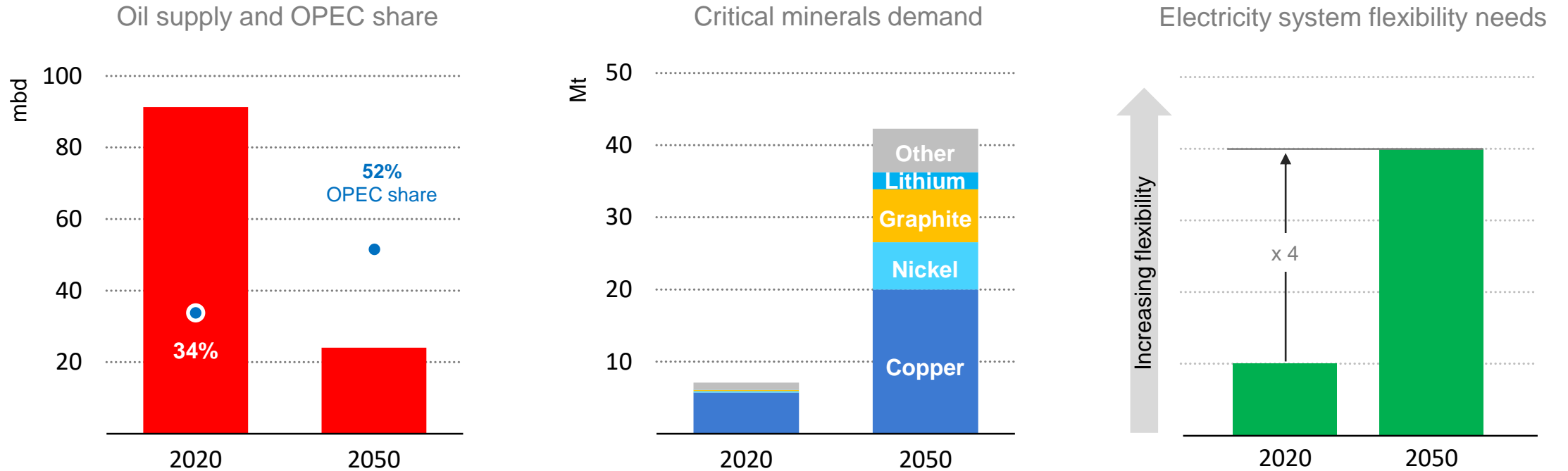
Prepare for the next phase of the transition by boosting innovation

CO₂ savings by technology maturity in 2050, NZE scenario



Unlocking the next generation of low-carbon technologies requires more clean energy R&D and \$90 billion in demonstrations by 2030; without greater international co-operation, global CO₂ will not fall to net-zero by 2050.

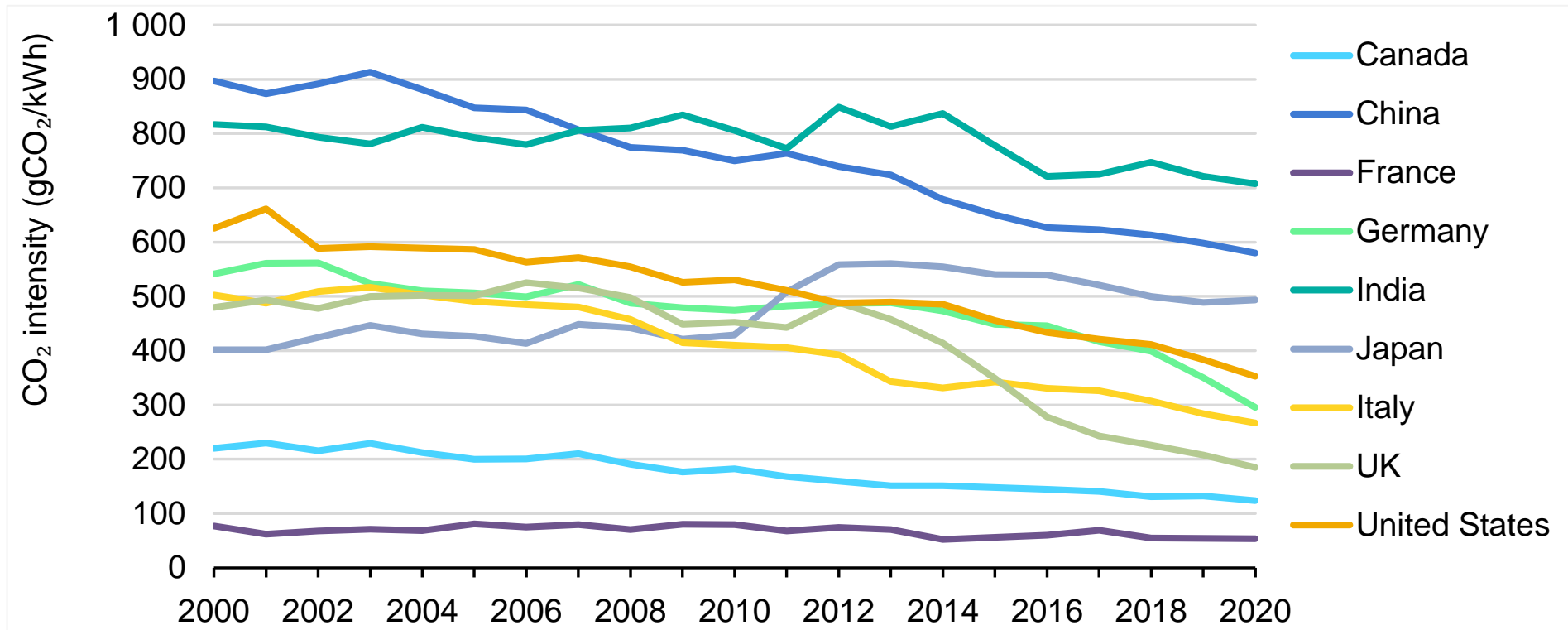
Address emerging energy security risks now



New energy security concerns emerge, and old ones remain; governments need to proactively plan for energy security risks related to market concentration, critical minerals and electricity systems.

Canada does have a head start in one area

Development of CO₂ emission intensity of electricity generation



Source: IEA (2020), [CO₂ emissions statistics](#).

Canada already has a low-carbon electricity system – a key first step to a low-carbon energy system

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