

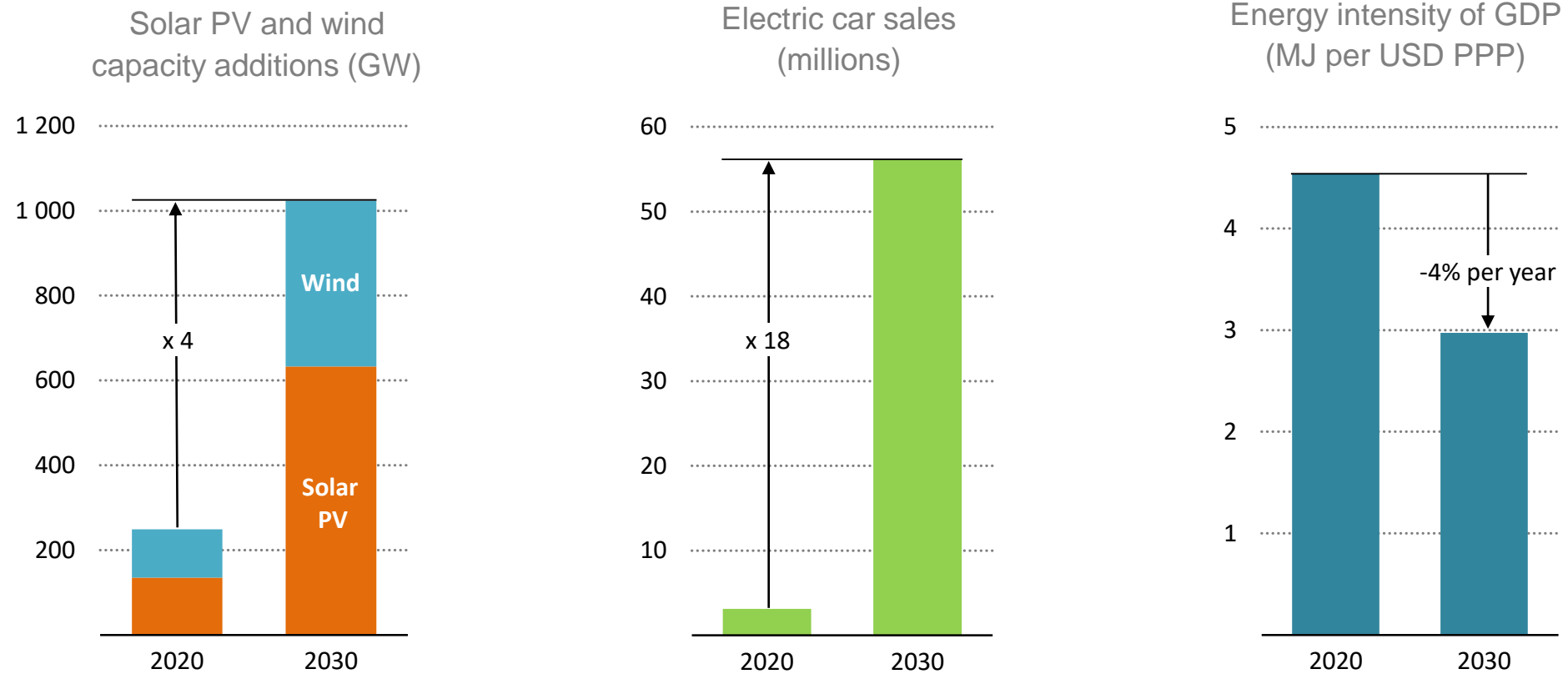


Net Zero by 2050: a Roadmap for the Global Energy Sector

2 July 2021

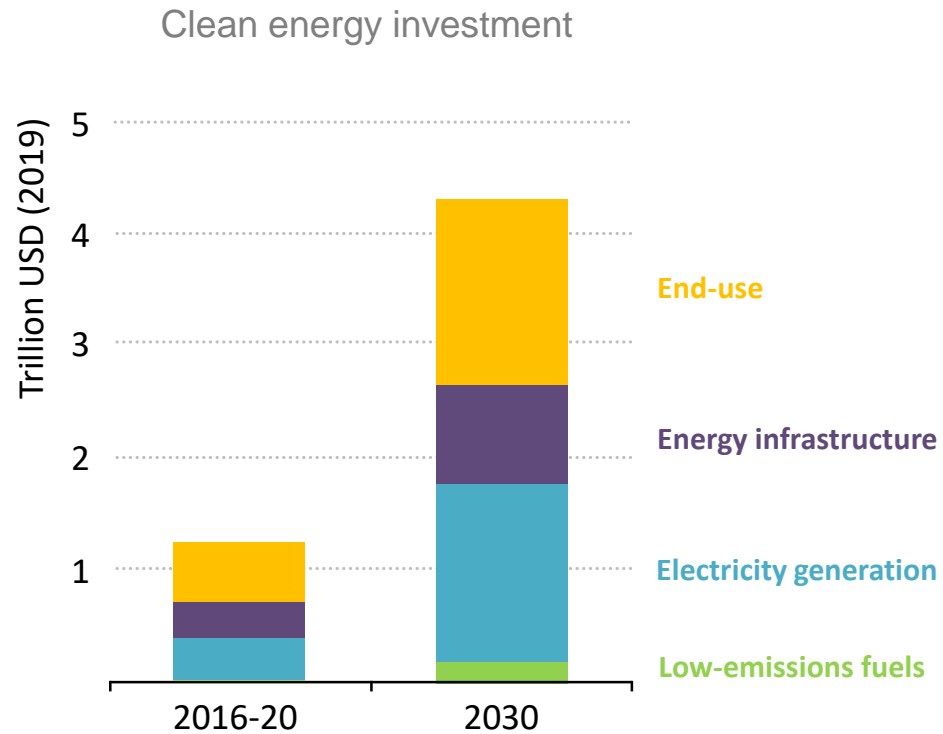
Christophe McGlade, Head of Energy Supply Unit, World Energy Outlook

Make the 2020s the decade of massive clean energy expansion

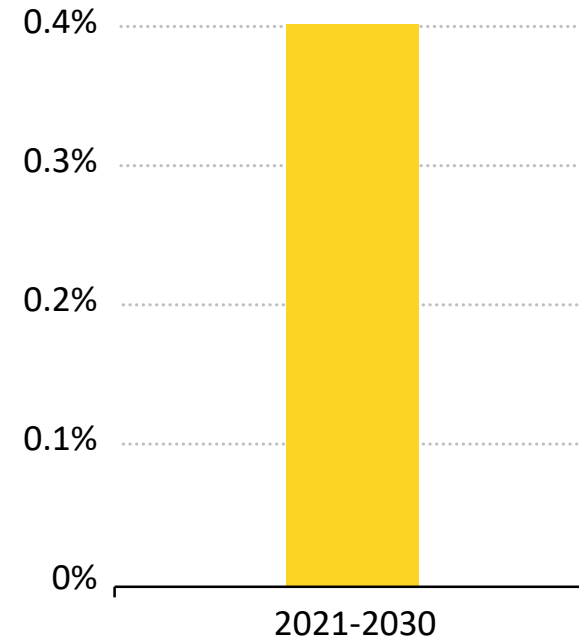


Technologies for achieving the necessary deep cuts in global emissions by 2030 exist, but staying on the narrow path to net-zero requires their immediate and massive deployment.

Drive a historic surge in clean energy investment



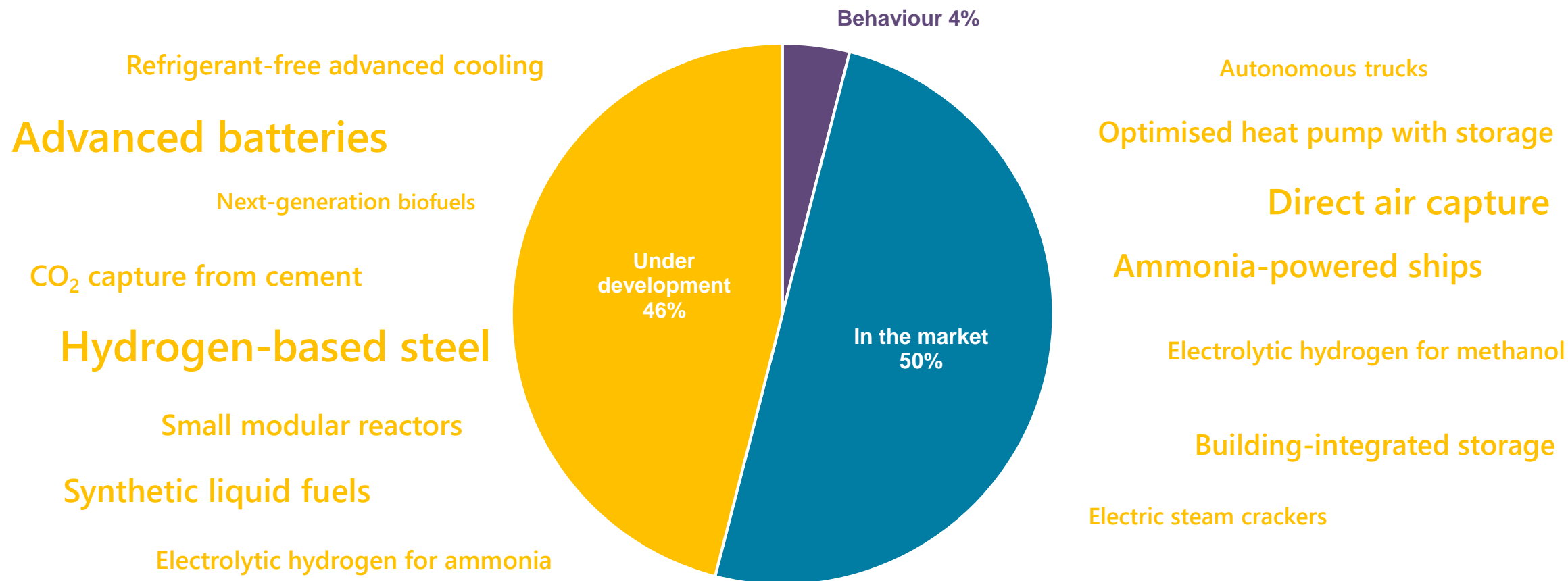
Additional annual global GDP growth in NZE



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

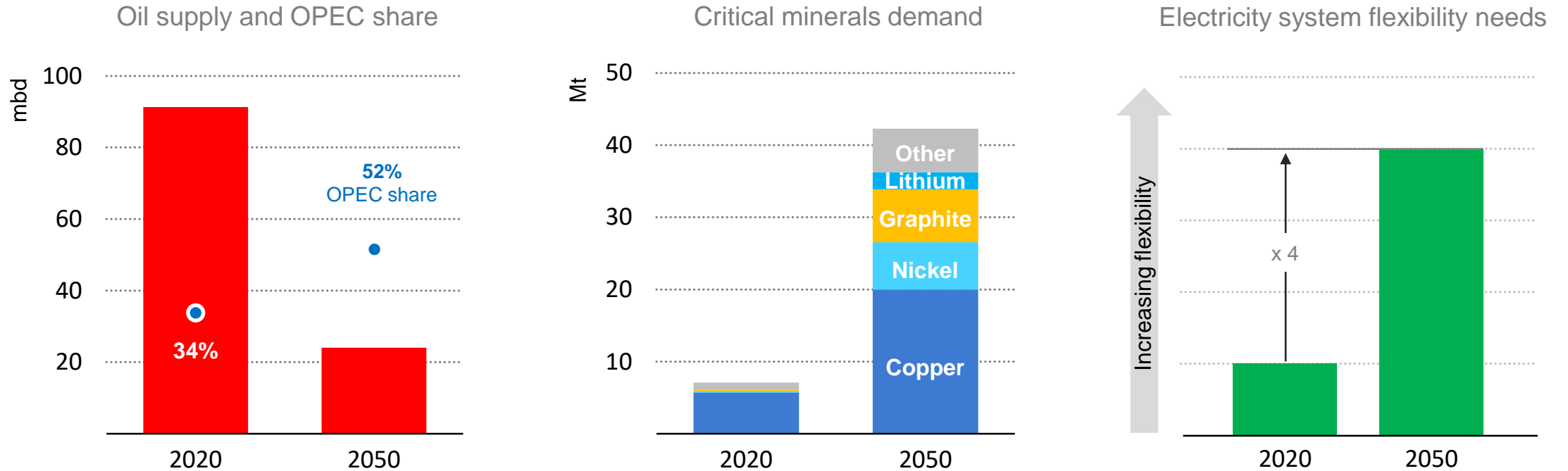
Prepare for the next phase of the transition by boosting innovation

CO₂ savings by technology maturity in 2050, NZE scenario



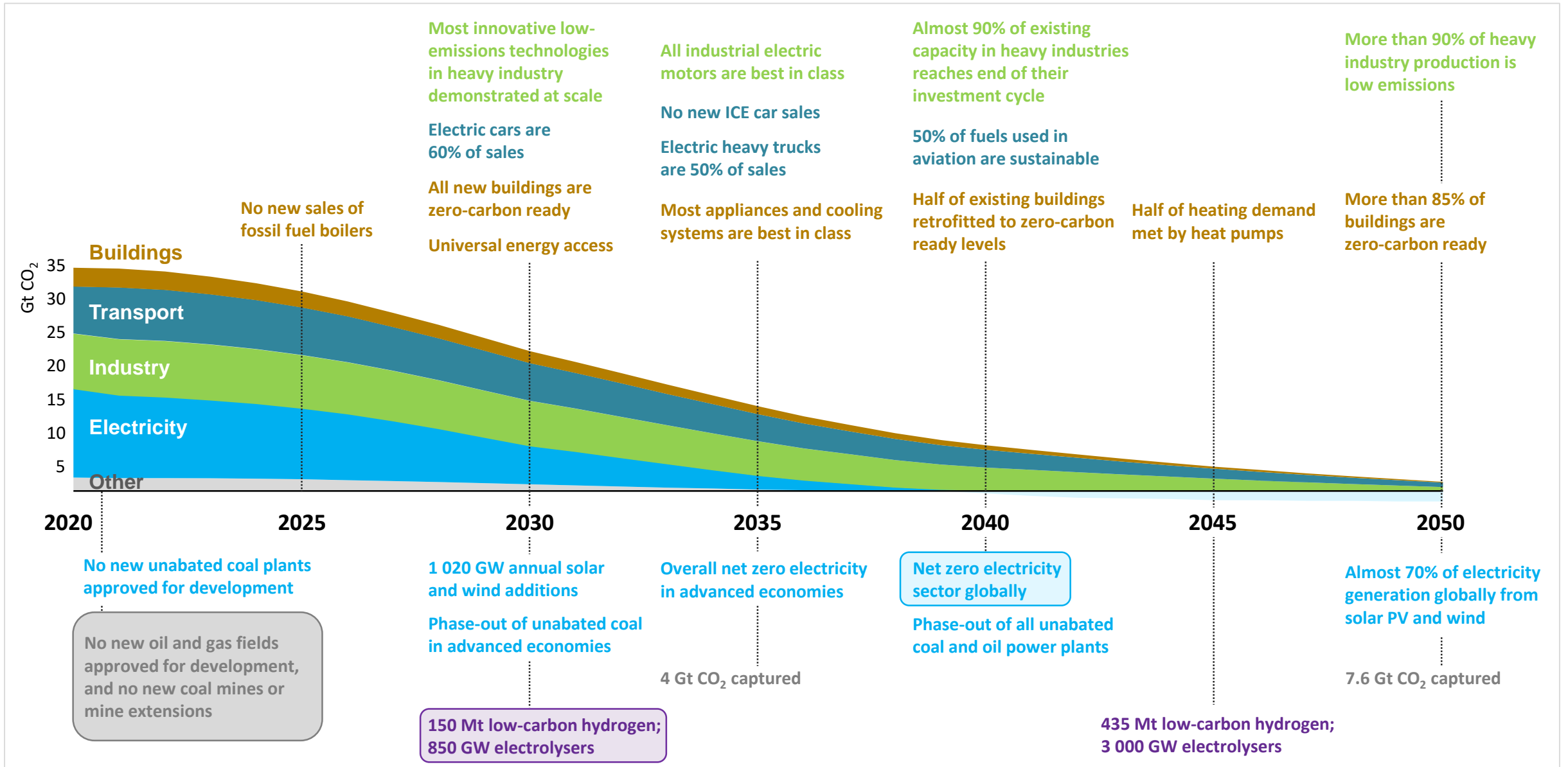
Unlocking the next generation of low-carbon technologies requires more clean energy R&D and \$90 billion in demonstrations by 2030; without greater international co-operation, global CO₂ will not fall to net-zero by 2050.

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.

Set near-term milestones to get on track for long-term targets



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