

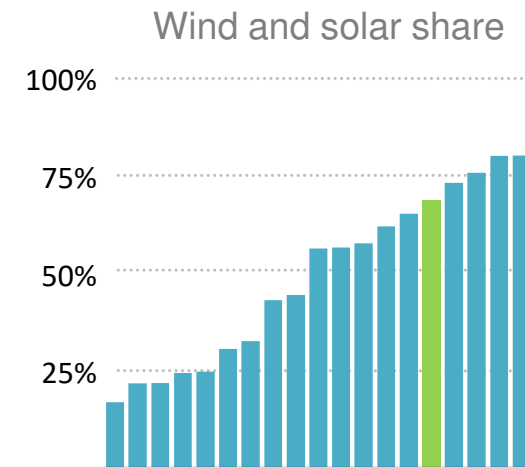
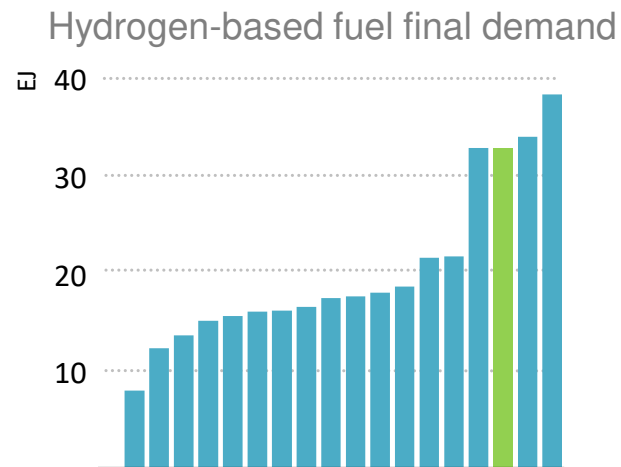
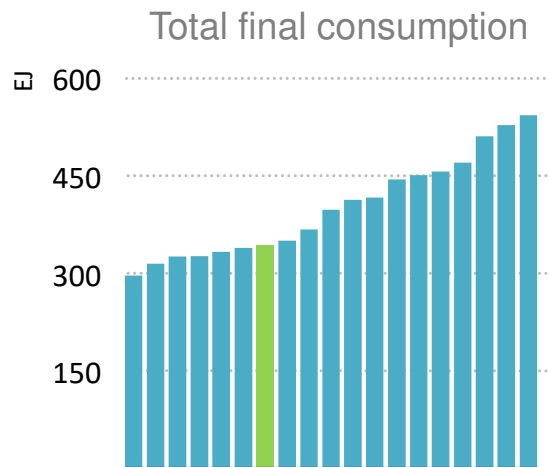
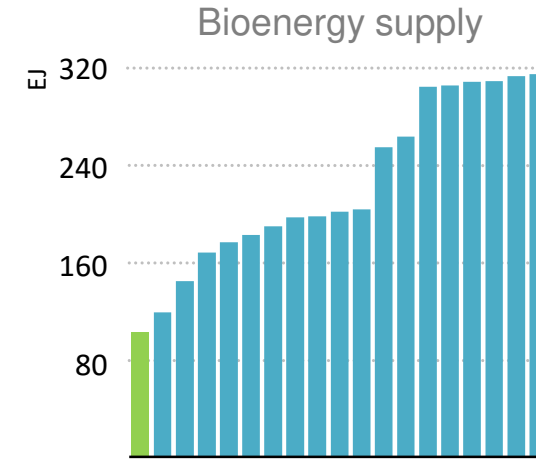
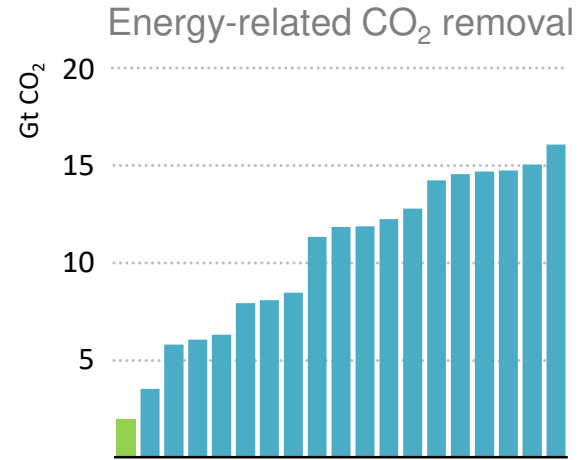
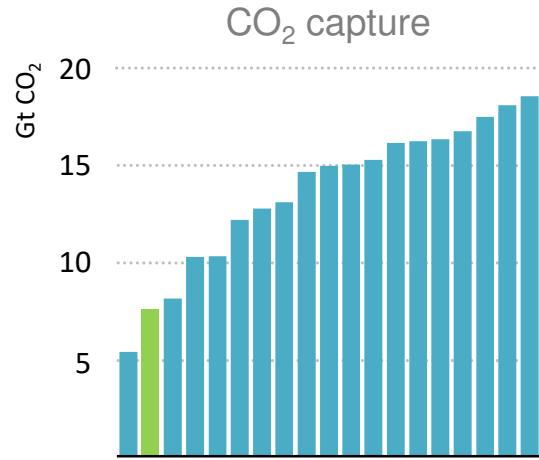


Net Zero by 2050: a Roadmap for the Global Energy Sector

Mechthild Wörsdörfer, Director, Director of Sustainability, Technology and Outlooks

Hawthorn Club Thought Leadership Series, 8 September 2021

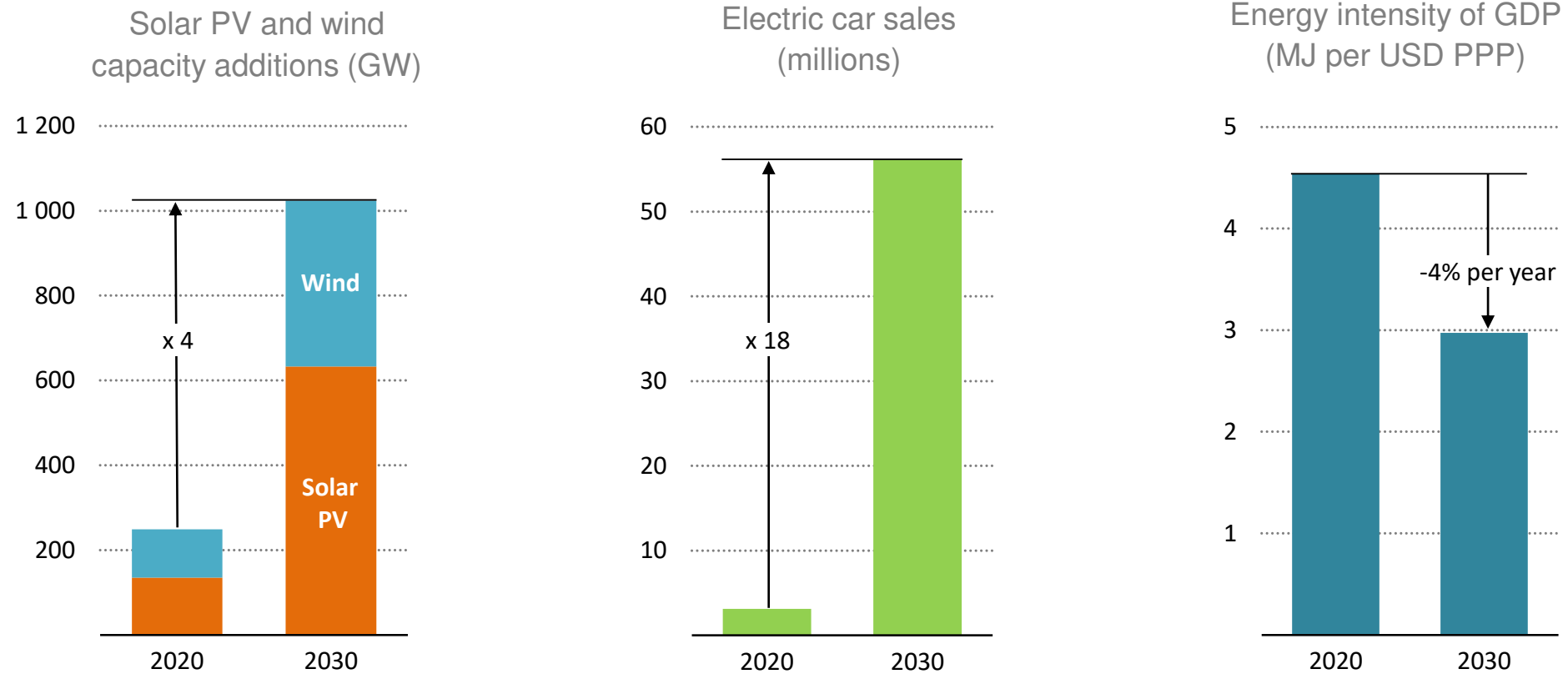
The IEA's NZE in 2050 compared with IPCC net-zero scenarios



■ Scenarios assessed by IPCC
■ IEA NZE scenario

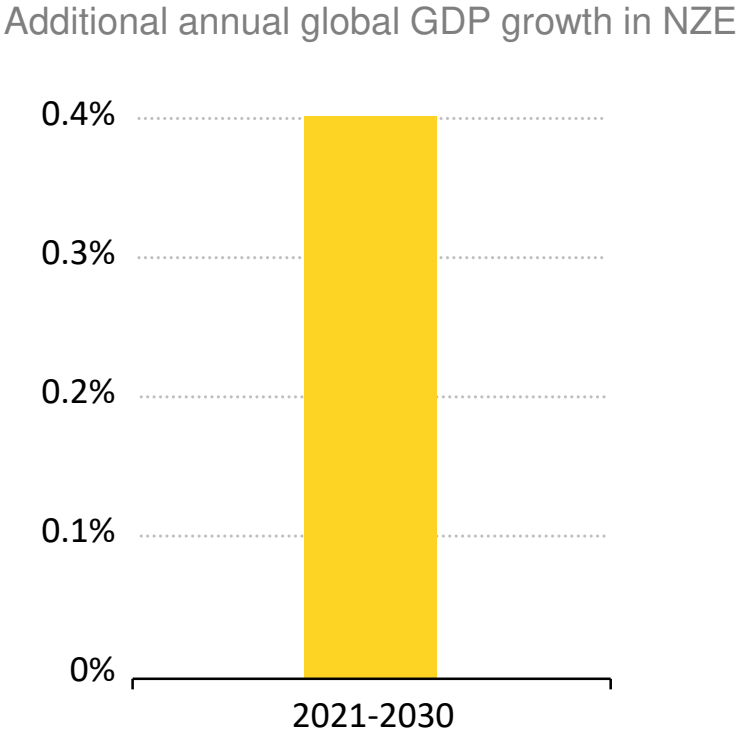
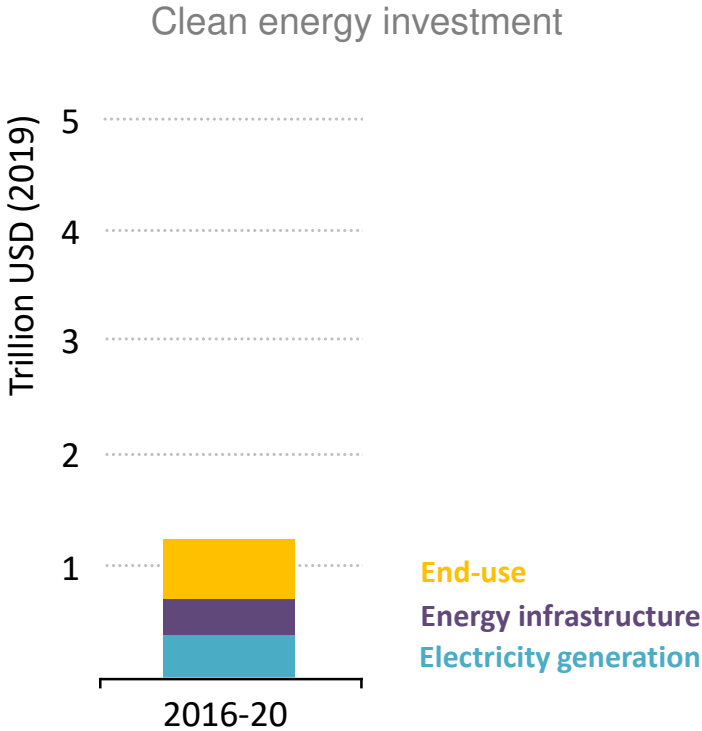
The IEA NZE scenario uses more renewables, energy efficiency, and hydrogen – and less CO₂ capture, negative emissions and bioenergy – than IPCC scenarios of a comparable ambition

Make the 2020s the decade of massive clean energy expansion



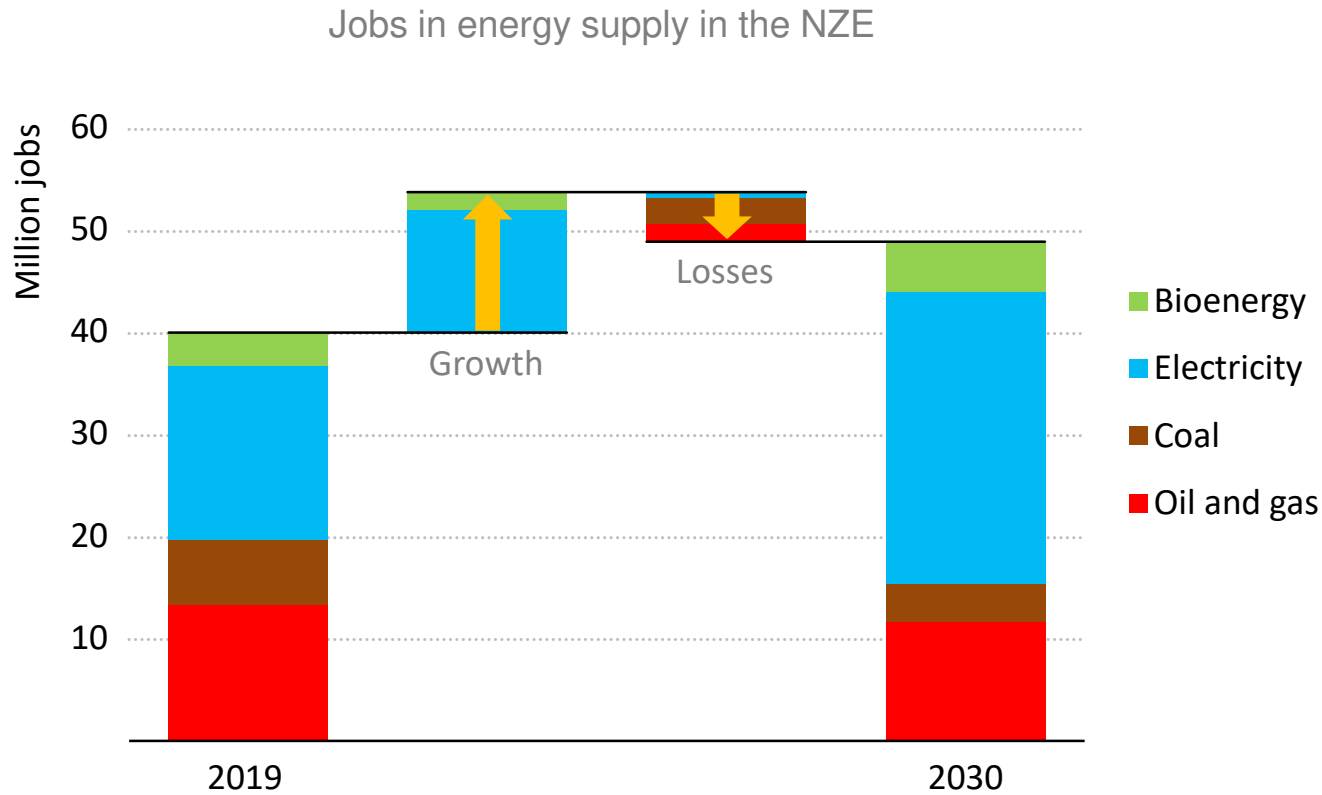
Technologies for achieving the necessary deep cuts in global emissions by 2030 exist, but staying on the narrow path to net-zero requires their immediate and massive deployment.

Drive a historic surge in clean energy investment

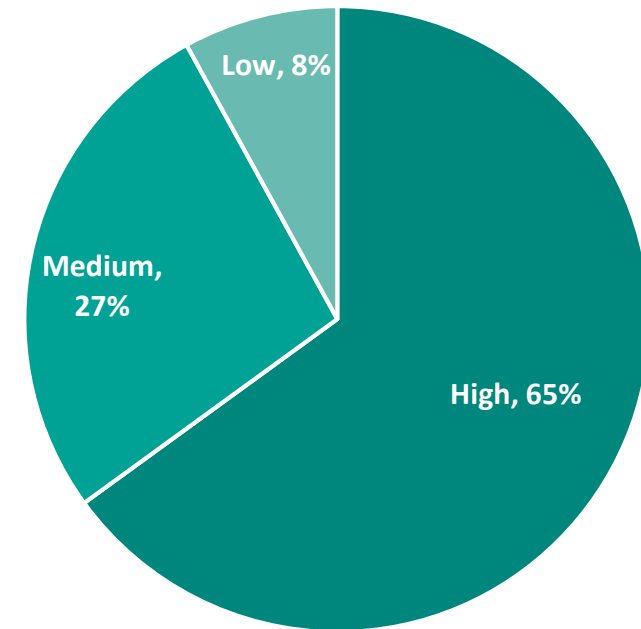


Annual clean energy investment more than triples by 2030 in the NZE scenario, driving an average 0.4% per year increase in global GDP to 2030 & speeding the recovery from the COVID-19 shock

Clean energy jobs will grow strongly but must be spread widely



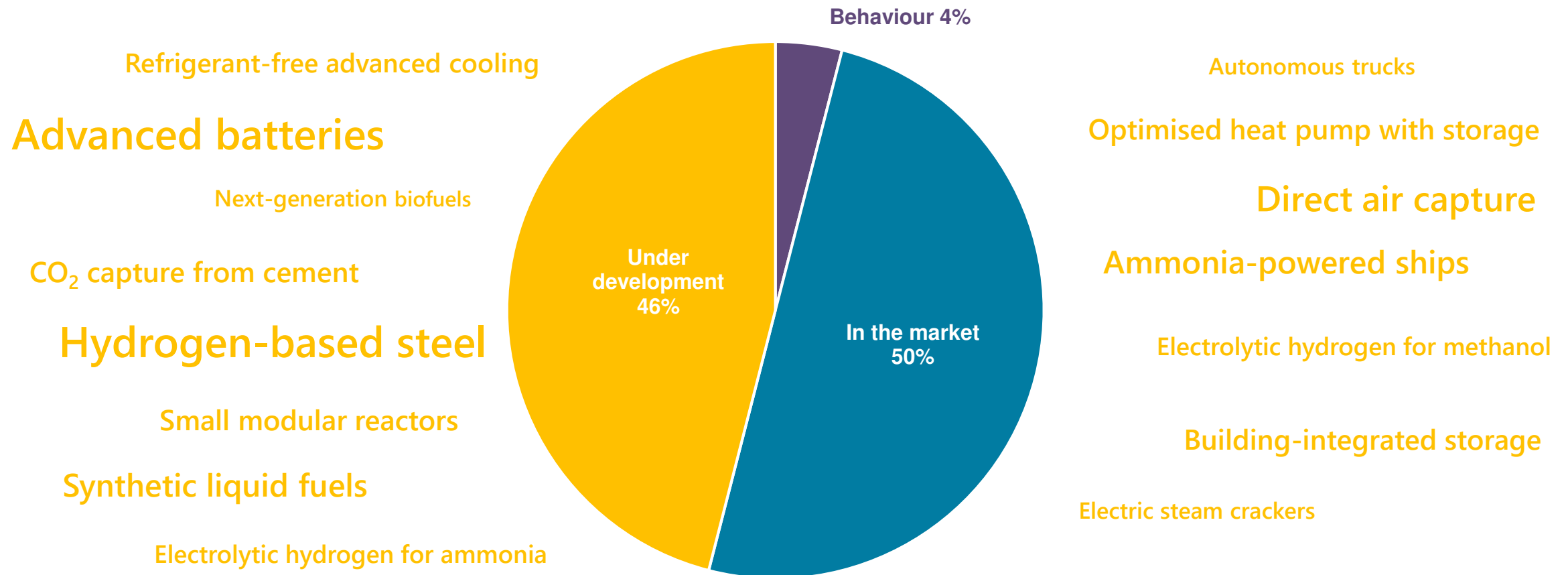
Skill level of new workers in the NZE, 2030



By 2030 there are 14 million jobs created in global energy supply, and a further 16 million in clean energy end-uses; but inclusive policies are needed to support reskilling & diversification in fossil-fuel dependent communities

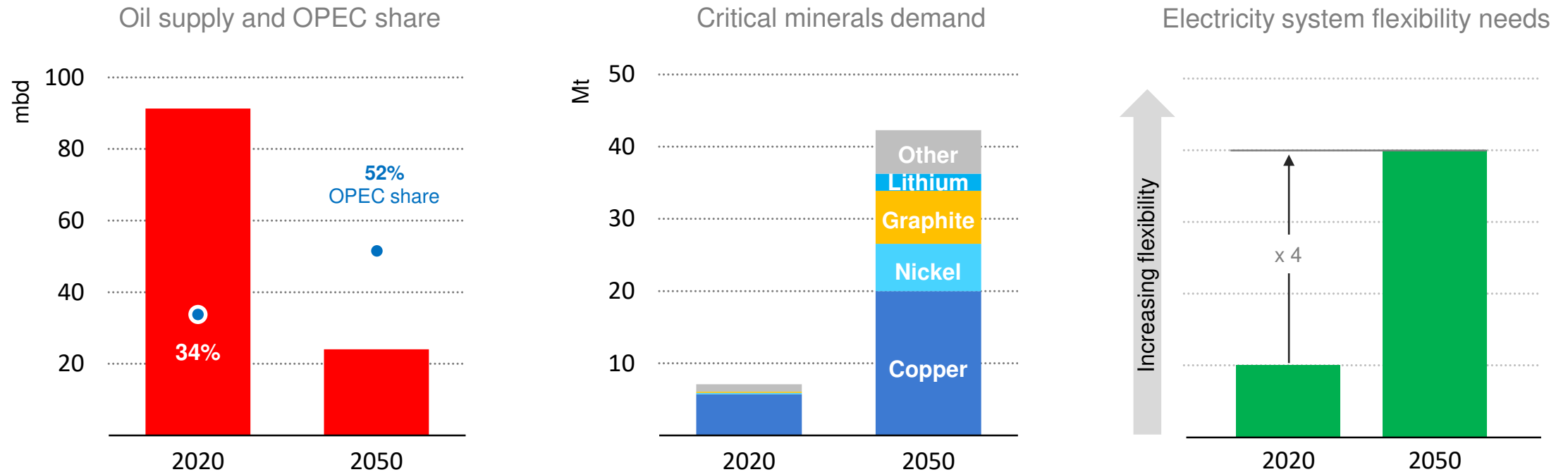
Prepare for the next phase of the transition by boosting innovation

CO₂ savings by technology maturity in 2050, NZE scenario



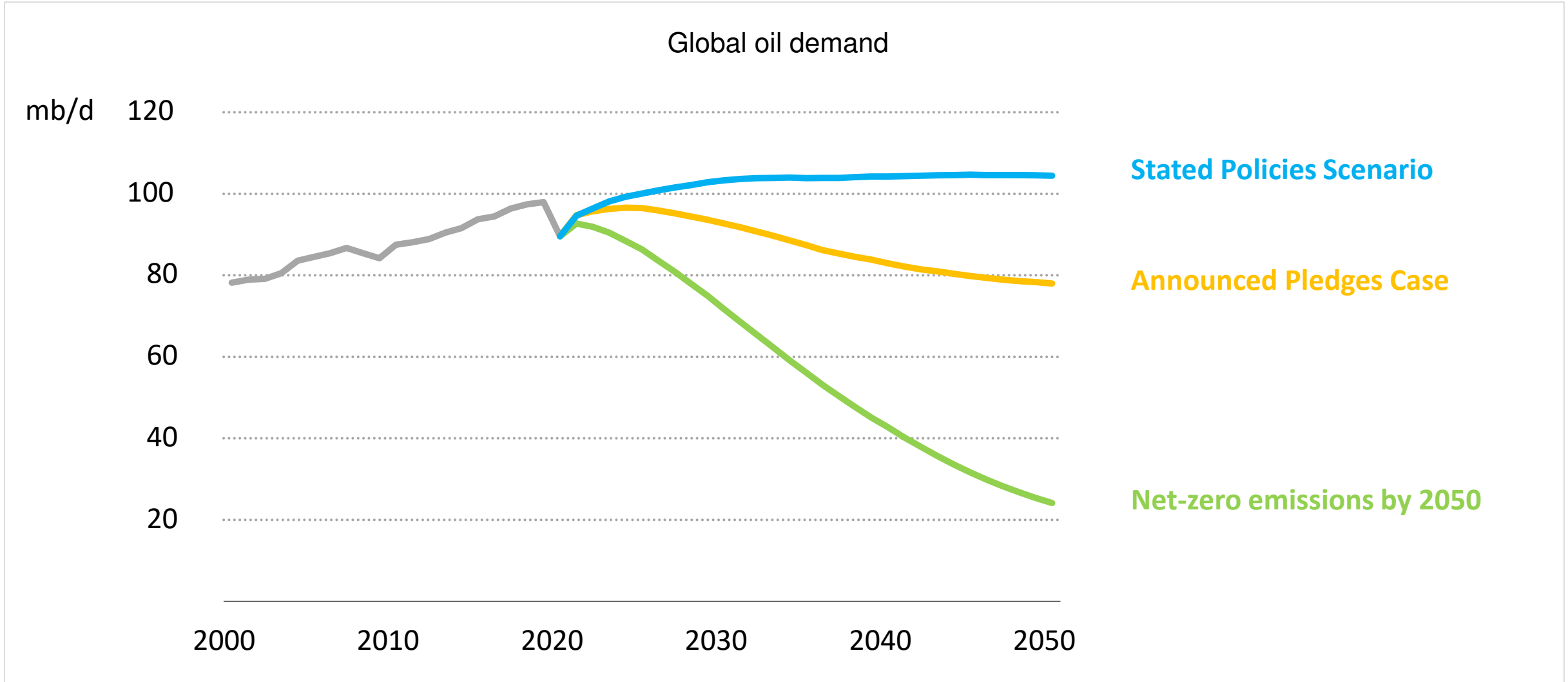
Unlocking the next generation of low-carbon technologies requires more clean energy R&D and \$90 billion in demonstrations by 2030; without greater international co-operation, global CO₂ will not fall to net-zero by 2050.

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.

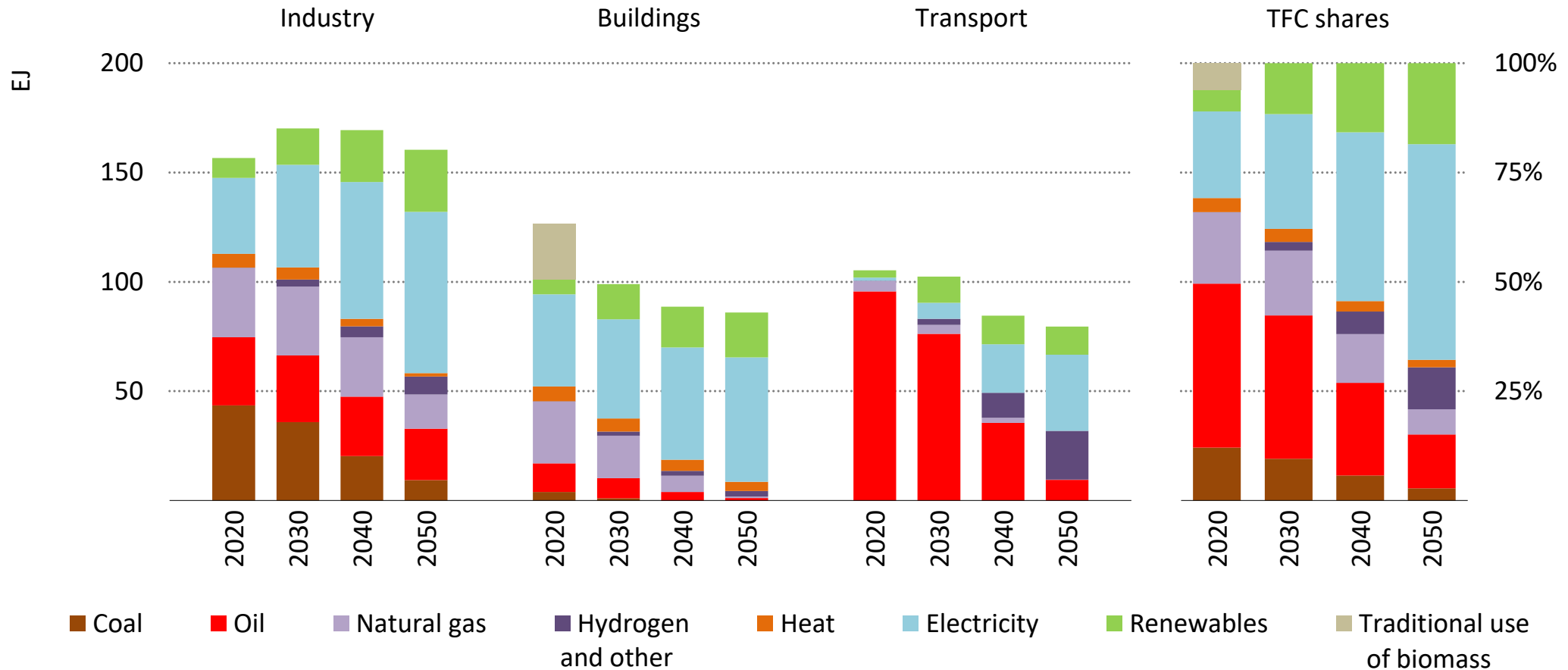
...creating a wide spectrum of possible trajectories for oil



The outlook is shaped by the pace of policy action and technology innovation: in our Net Zero by 2050 scenario there is still 25 mb/d of oil used by mid-century for non-energy purposes and in hard-to-abate sectors, notably aviation

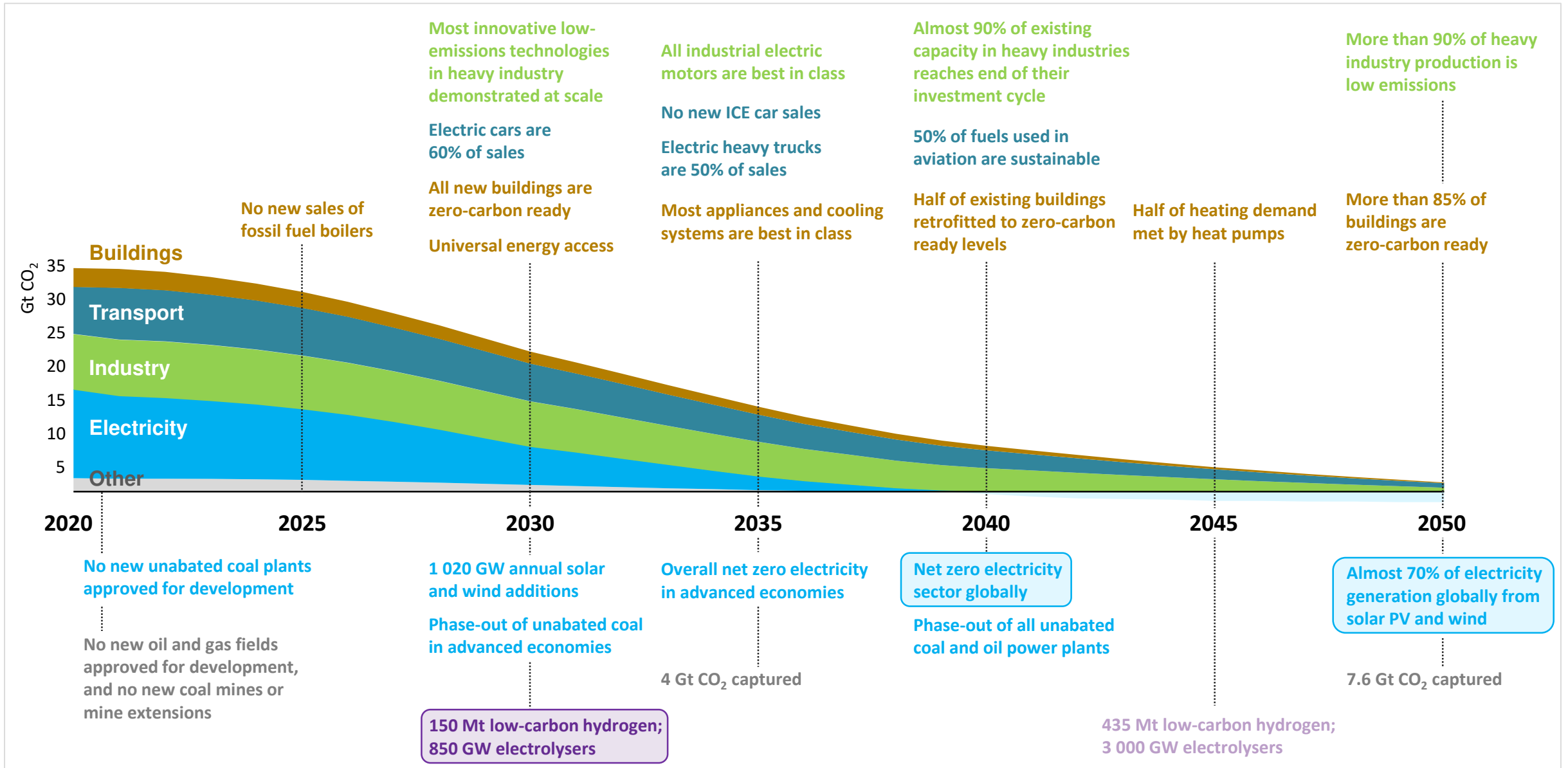
Net zero by 2050: the end of the oil age

Total Final Consumption in the Net Zero Emissions by 2050 Scenario



Broad-based, rapid electrification and the rise of alternative low-carbon fuels drives oil out of the energy mix – leading to a reduction in overall transport demand: electric vehicles are three-times as efficient as conventional ICE vehicles

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



What do we want to achieve at COP26?

- **Reinforce IEA's role as the global key energy agency**
 - Help countries implement their contributions to net zero emissions in the energy sector
- **Enhance visibility and references to IEA's work**
 - Highlight IEA's commitments for clean energy transition and global engagement (scenarios, tracking works, climate policy development, analysis on innovative technologies, etc.)
 - Improve media coverage of IEA's work and experts
- **Strengthen relationships with key countries and stakeholders**
 - Engage with energy, climate and environment ministries
 - Interact with experts from international organisations, government agencies, NGOs, private sector.

COP26 events under discussion

- **With UK**

- Energy Transition Council Ministerial (Nov 4)
- High-level event: the comprehensive roadmap to net-zero emissions by 2050
- High-level event: SEAD initiative

- **With UNFCCC**

- Marrakech Partnership Energy Day co-organiser
- Marrakech Partnership Resilience Hub energy theme-lead

- **Official side events**

- High-level event: Financing and investing in a clean and just energy transition
- High-level event: Low carbon technology roadmap for the global nitrogen fertilizer industry

- **EU Pavilion events**

- High-level event: On the road to People-centred clean energy transitions
- Operationalising the Article 6.4 mechanism: options and implications of CDM activity transition
- Electric power system resilience to climate-related physical risk

- **Other pavilion events** (tentative) with Francophonie, Nordic, Japan, Korea, India, Italy, France, Indonesia, Brazil
Climate Action ...

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