



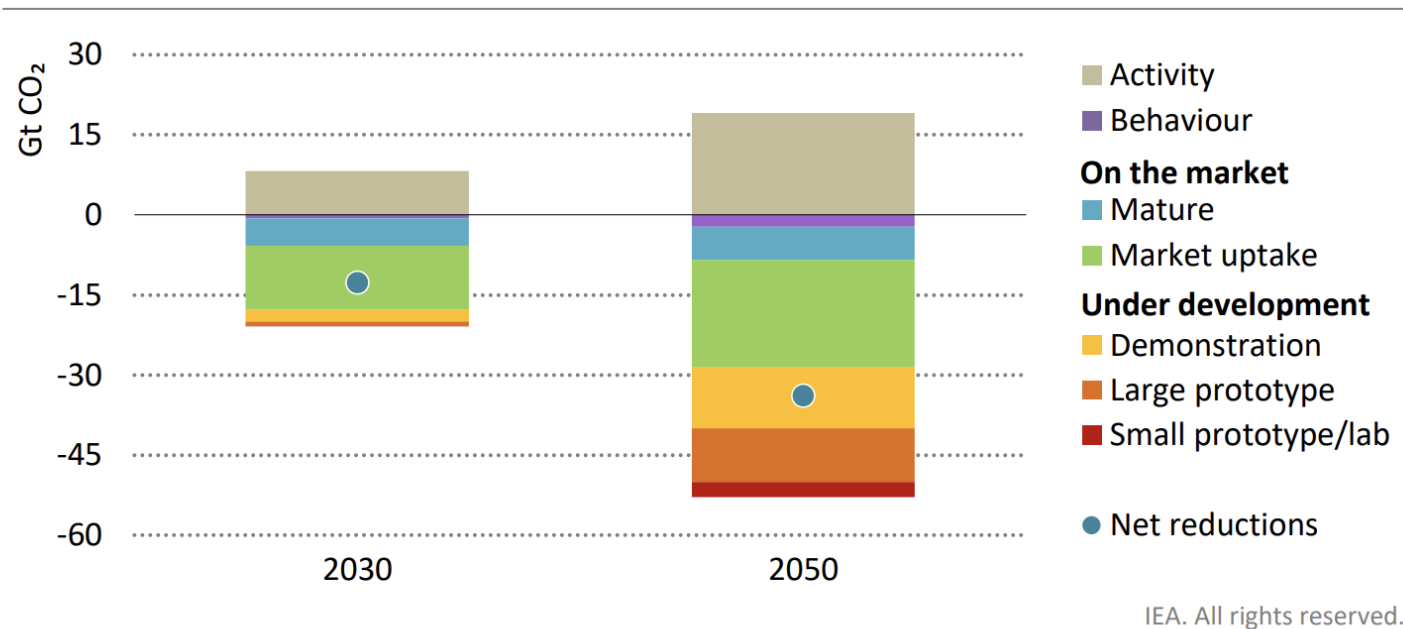
# Global perspective on high impact energy innovation

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# 1. Energy innovation needed for climate targets

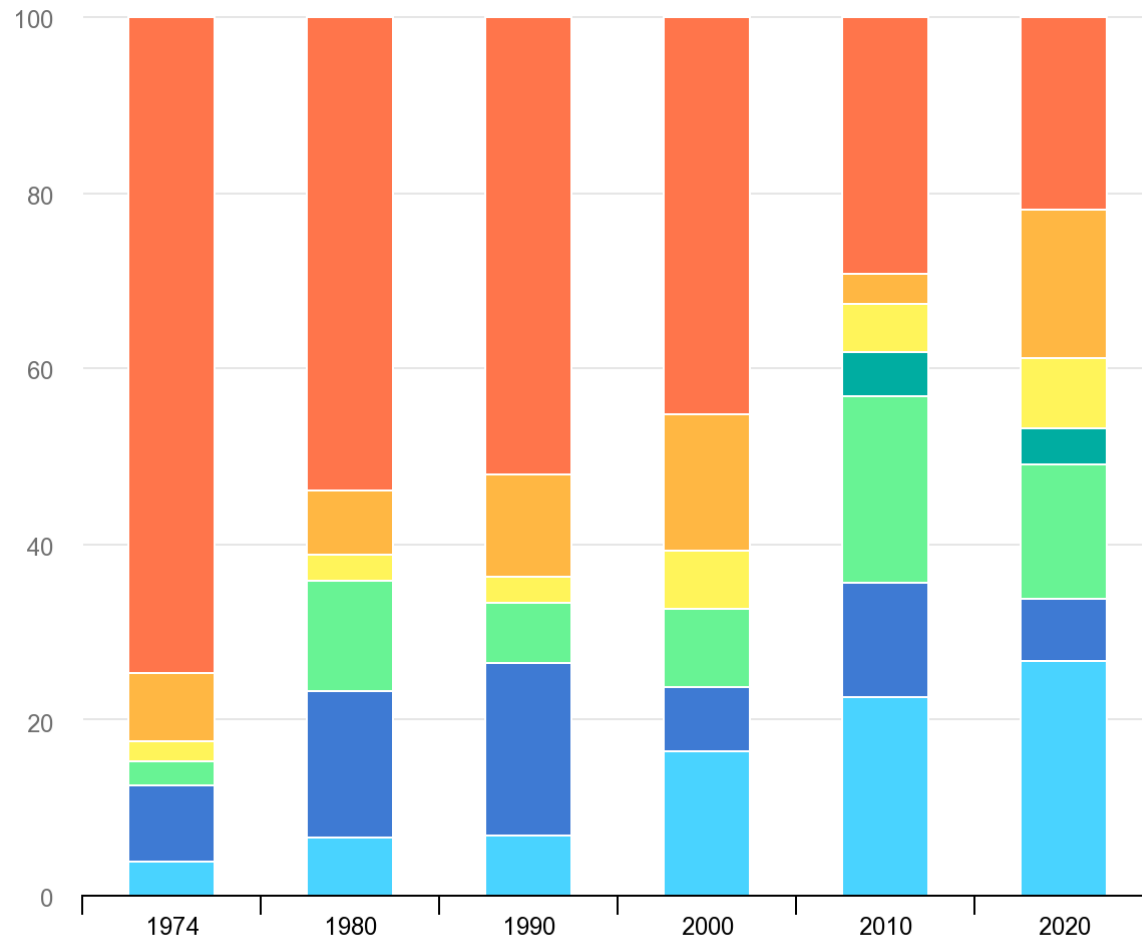
**Figure 4.22** ▶ Global CO<sub>2</sub> emissions changes by technology maturity category in the NZE



*While the emissions reductions in 2030 mostly rely on technologies on the market, those under development today account for almost half of the emissions reductions in 2050*

Source: <https://www.iea.org/reports/net-zero-by-2050>

## 2. Public energy RD&D funding in IEA member countries reflects priorities and technology maturity



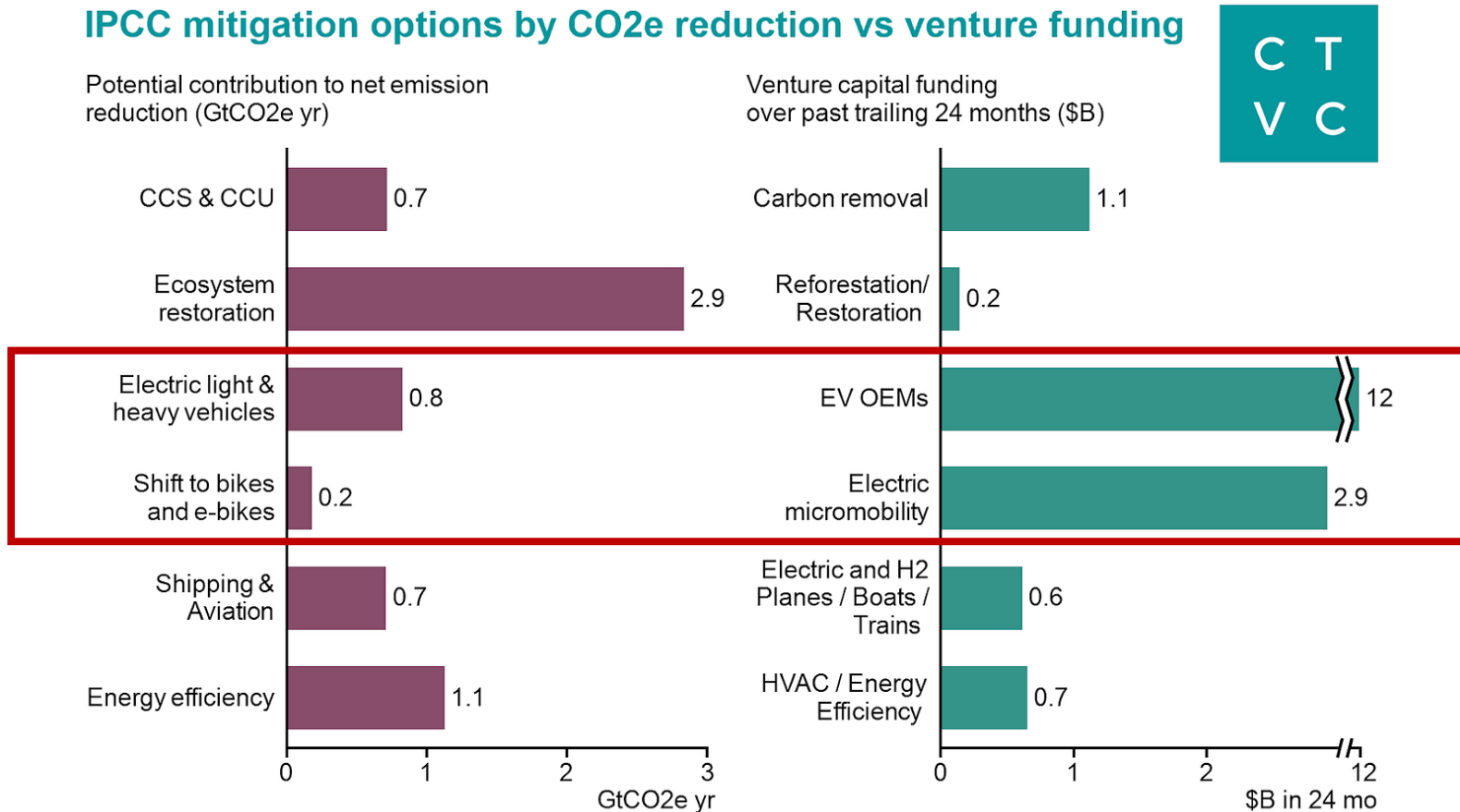
Source: IEA

● Energy efficiency ● Fossil fuels ● Renewable energy ● Hydrogen and fuel cells ● Other power and storage ● Cross-cutting ● Nuclear

### 3. What beyond public RD&D?

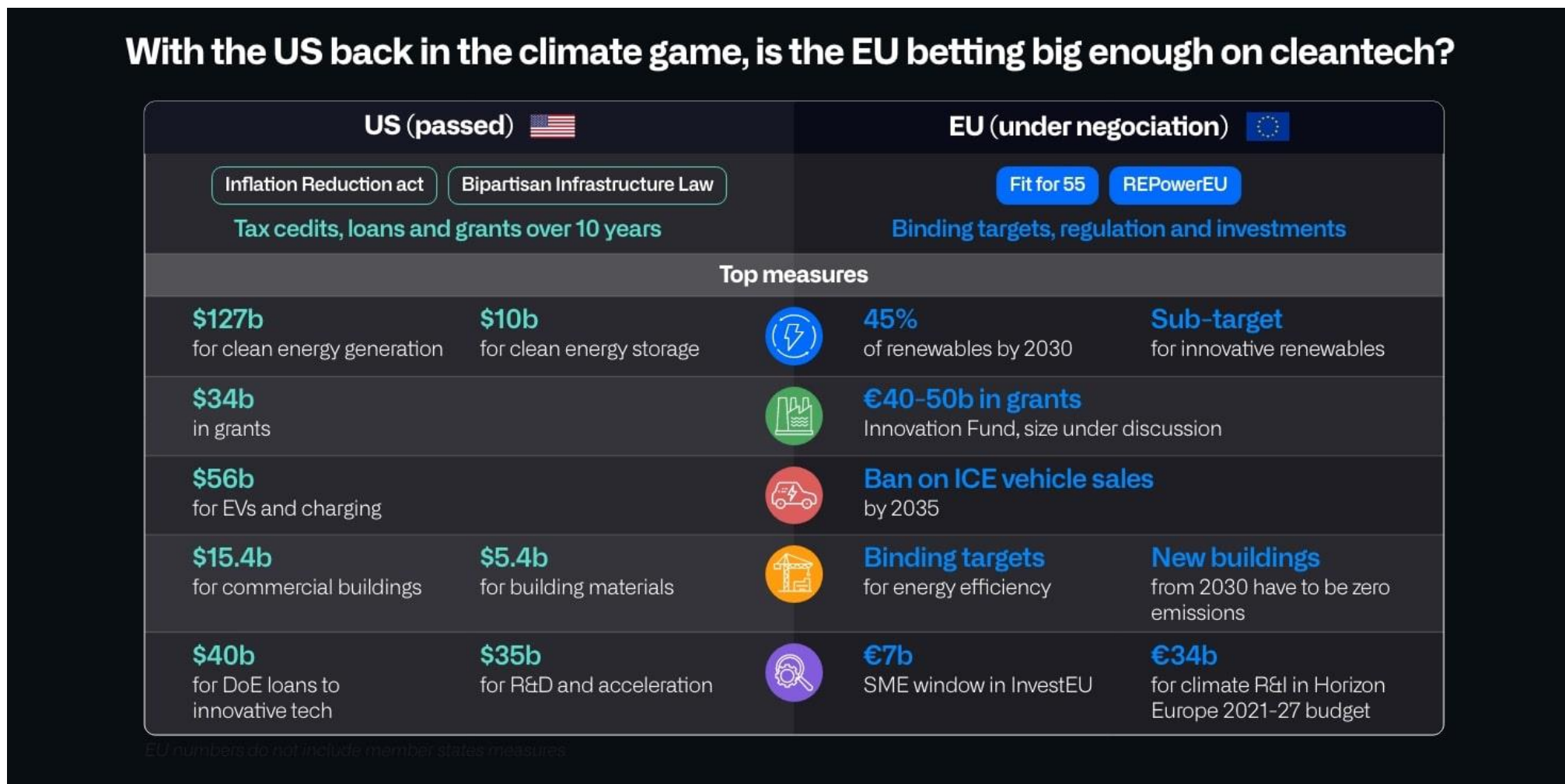
Private investment does not always align with climate needs

#### IPCC mitigation options by CO2e reduction vs venture funding



Notes: Exhibits select mitigation options from IPCC Figure SPM.7 with a corresponding matching subsector from CTVC climate venture deals tracking. GtCO2e yr are illustrative and non-exact, based off non-exact visual data. Some IPCC options are grouped and GtCO2e yr totals are summed. Fundraising data based off all CTVC tracked venture capital deals for trailing 24 months since April 2020.

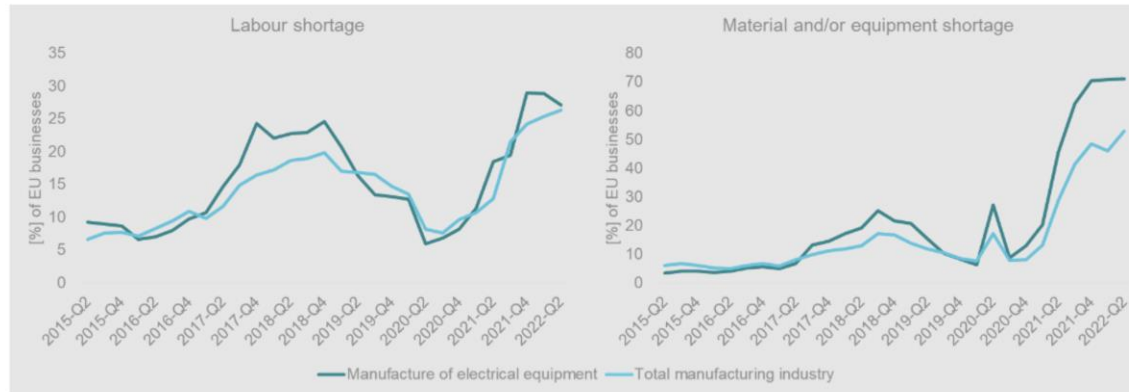
## 4. Market drivers are essential: US and EU incentives



Source: Cleantech for Europe ([link](#))

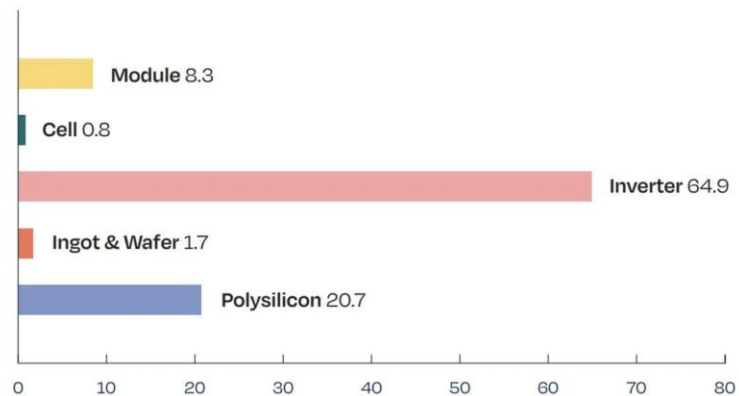
# 5. Other issues shaping energy innovation

Figure 3: Labour and material shortages experienced by EU electrical equipment manufacturers and by the EU's total manufacturing sector [%].



Source: JRC based on Business Survey data from DG ECFIN<sup>63</sup>  
 Progress on the competitiveness of clean energy technologies, European Commission, Nov 2022

CHART: EU solar manufacturing capacity (GW)



Source: SolarPower Europe, December 2021



Industry Insight

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## EU solar suppliers call for help as U.S. piles on domestic aid

By Neil Ford

## 6. What's next?

- Key technology areas (examples)
  - Grid integration, infrastructures
  - Grid energy storage
  - Advanced geothermal, next generation wind and solar
  - Heating and cooling
  - *Securing supply chains, boosting energy security*
- Deploy
  - Solar is still <4% of global electricity generation
  - Wind is still <8% of global electricity generation
- Public AND private sectors