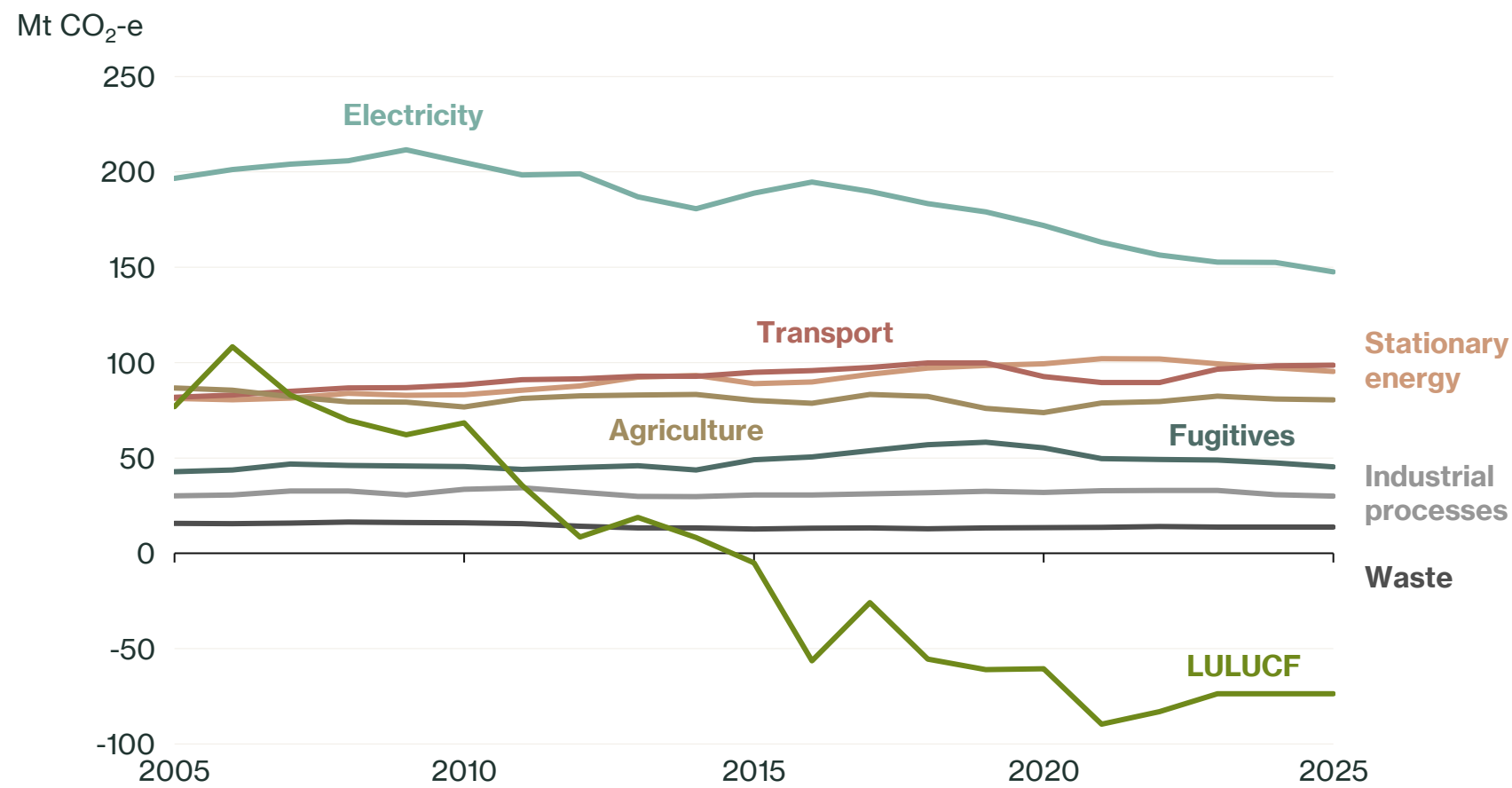


The energy transition is going better than you think

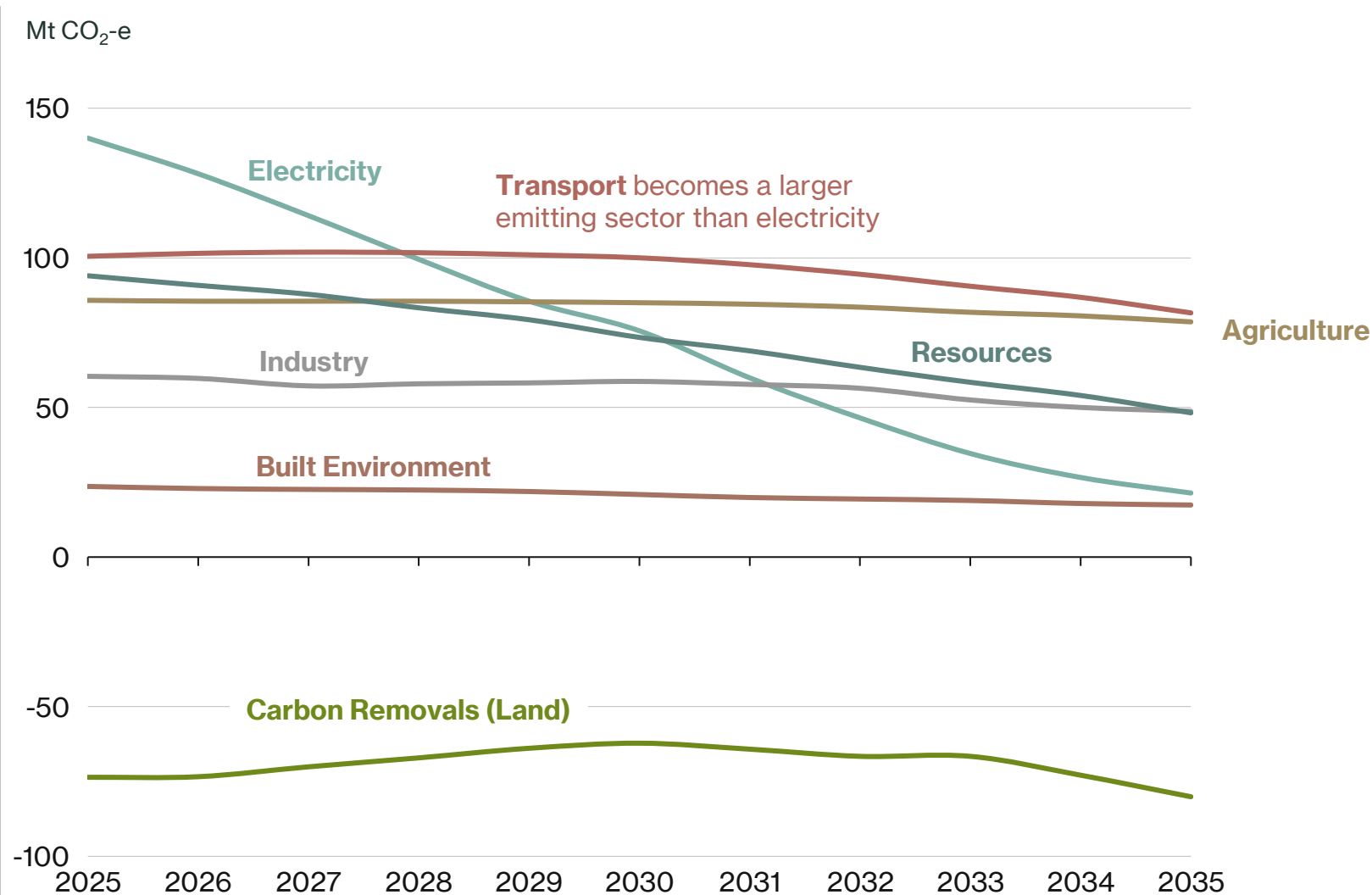
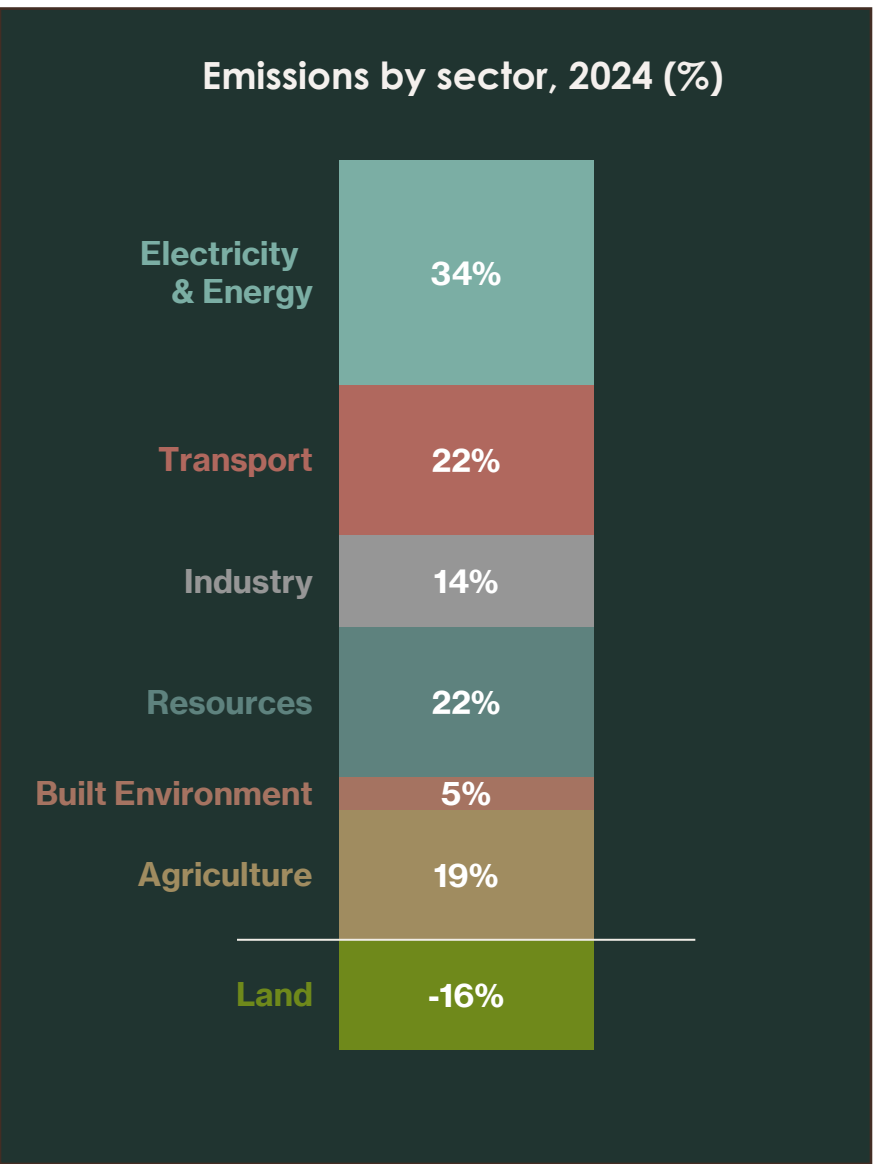
Dr Guy Debelle, Fred Gruen Public Lecture, ANU, 17 September 2026

Australia's historical emissions by sector (Mt CO₂-e)



Source: DCCEEW, Australia's emissions projections 2025.

Meeting Australia's 2035 target: 62–70% reduction below 2005 levels

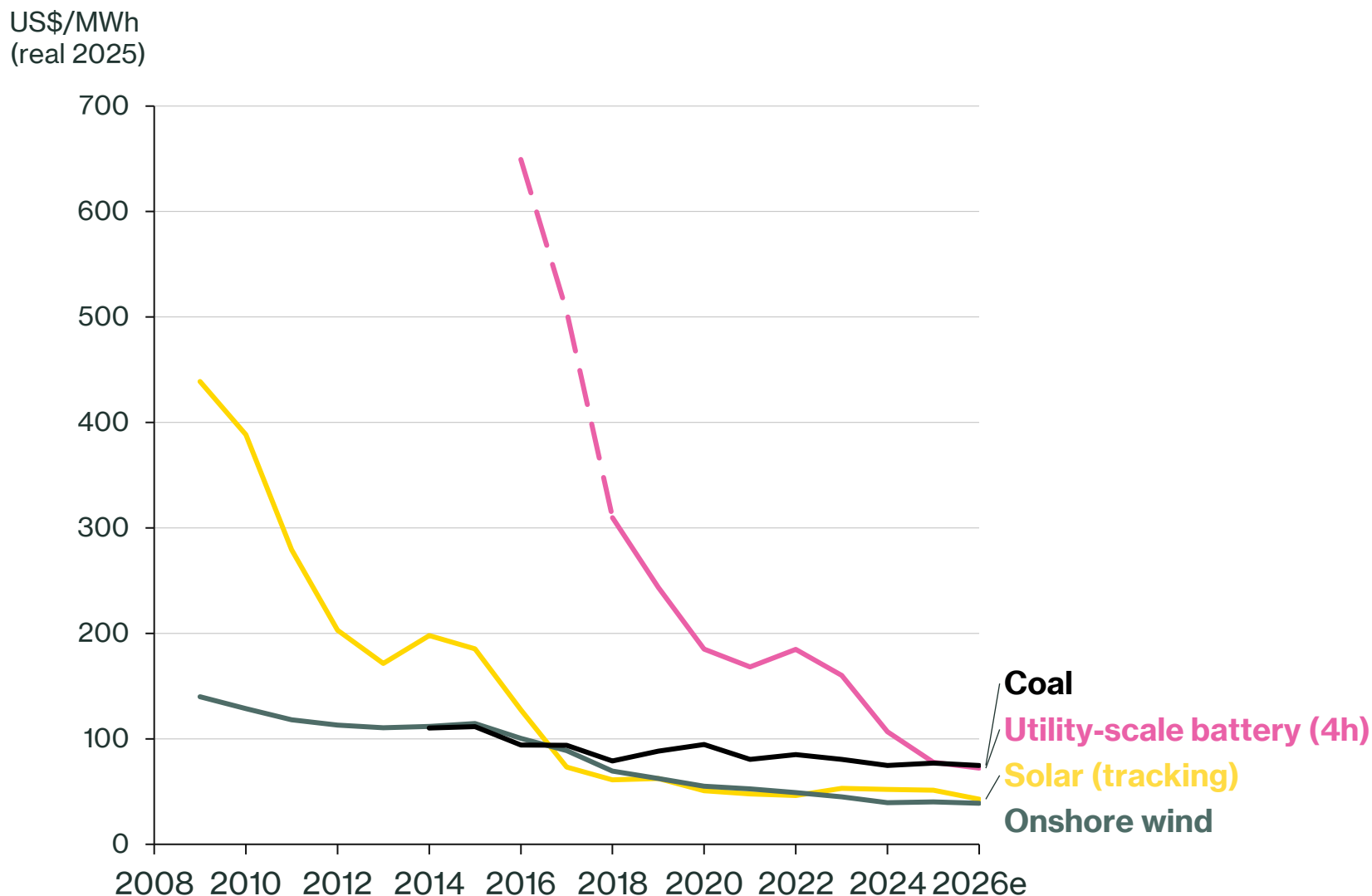


Source: Australia's Net Zero Plan, 2025, DCCEEW; Treasury modelling. Figure 5.1 digitised via CoPilot.

Solar, wind and battery costs have fallen dramatically

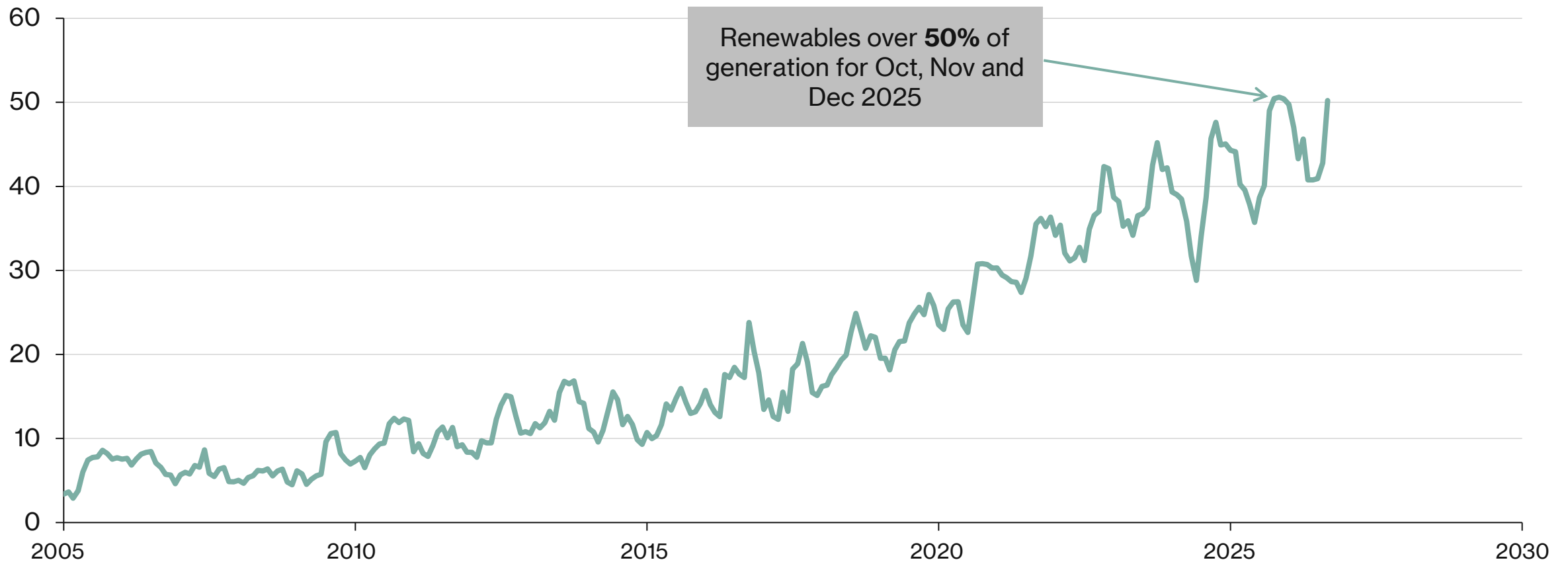
Renewables are the cheapest source to meet new demand almost everywhere.

Global benchmarks for the levelised cost of electricity, 2009–2026



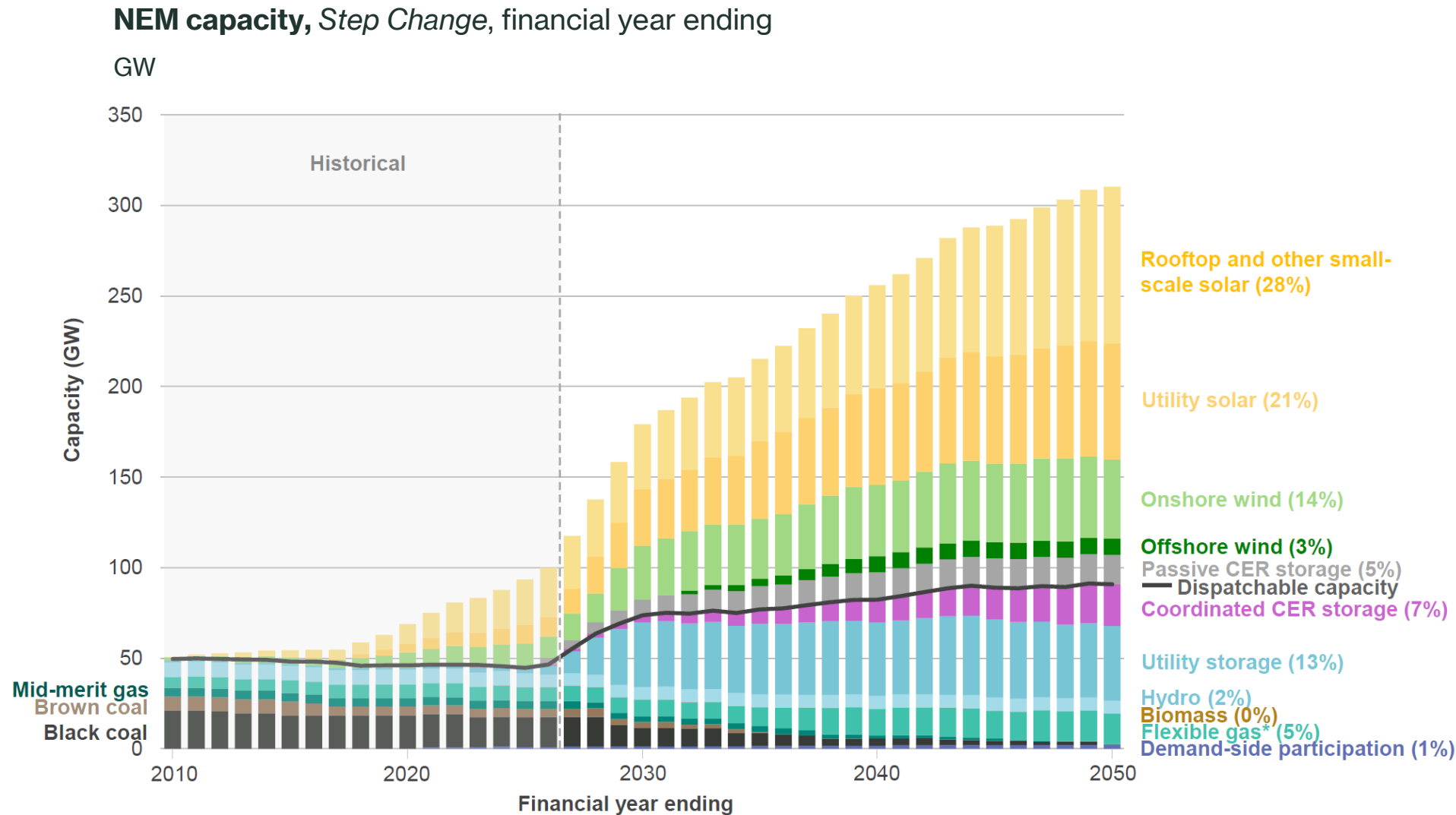
Source: BloombergNEF, Levelized Cost of Electricity Update 2026.

Renewable electricity penetration in the National Energy Market (NEM) %, monthly



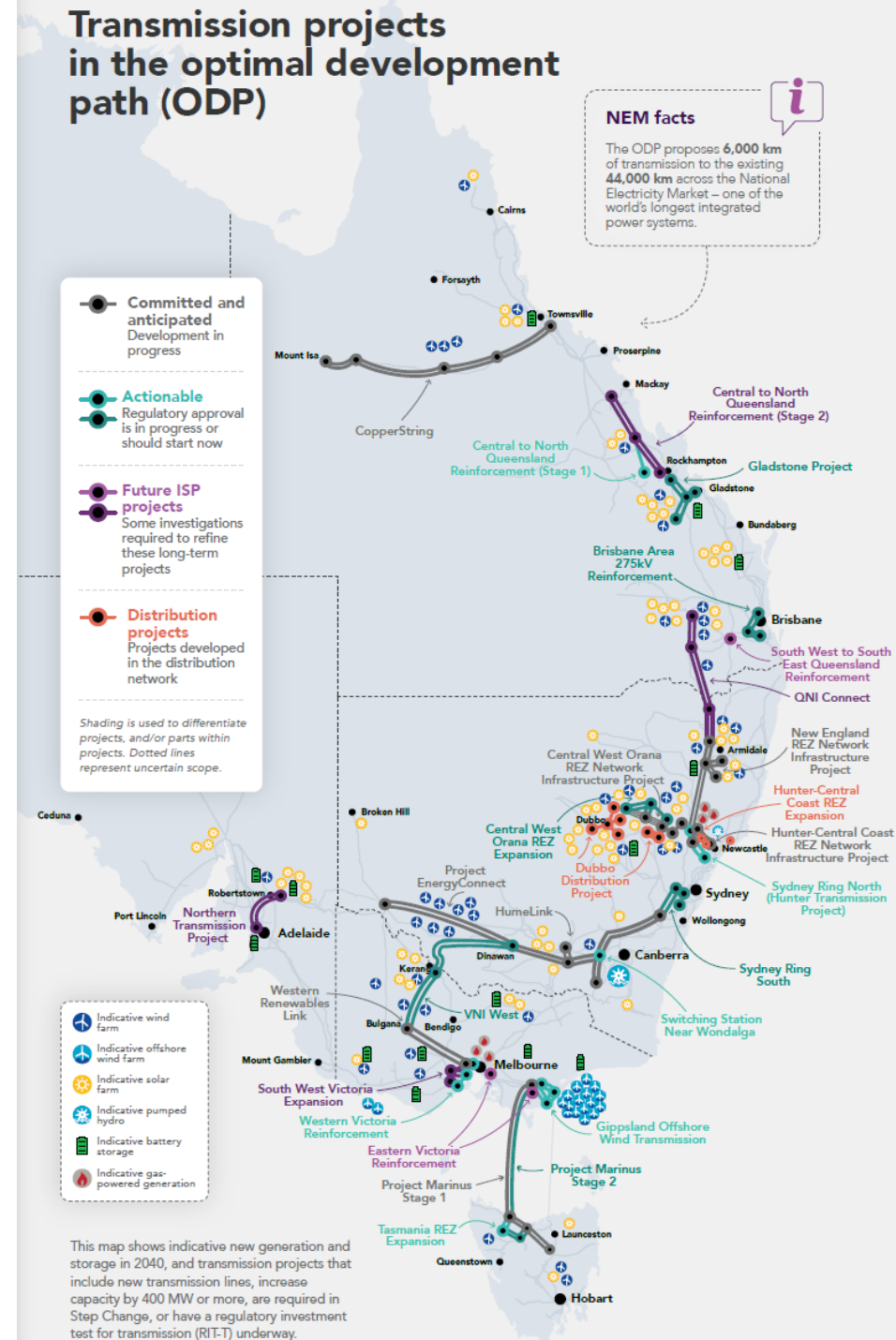
Source: OpenNEM, accessed September 2026.

2026 ISP projects a mix of renewables, storage and firming to support consumer needs and meet policies

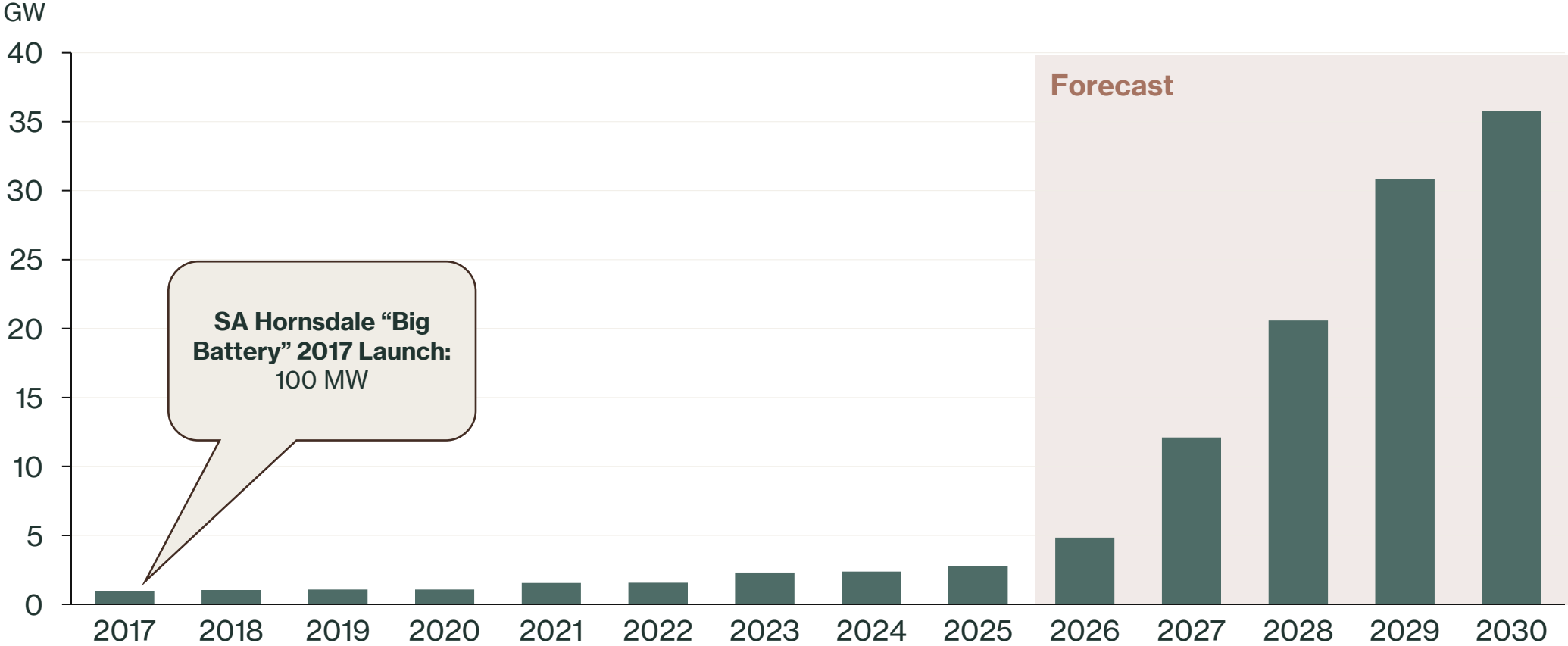


Notes: “Flexible gas” includes gas-powered generation, and potential lower-carbon fuel alternatives (including hydrogen). “CER storage” means consumer energy resources such as batteries and electric vehicles.

Transmission network is projected to be extended by about one-seventh



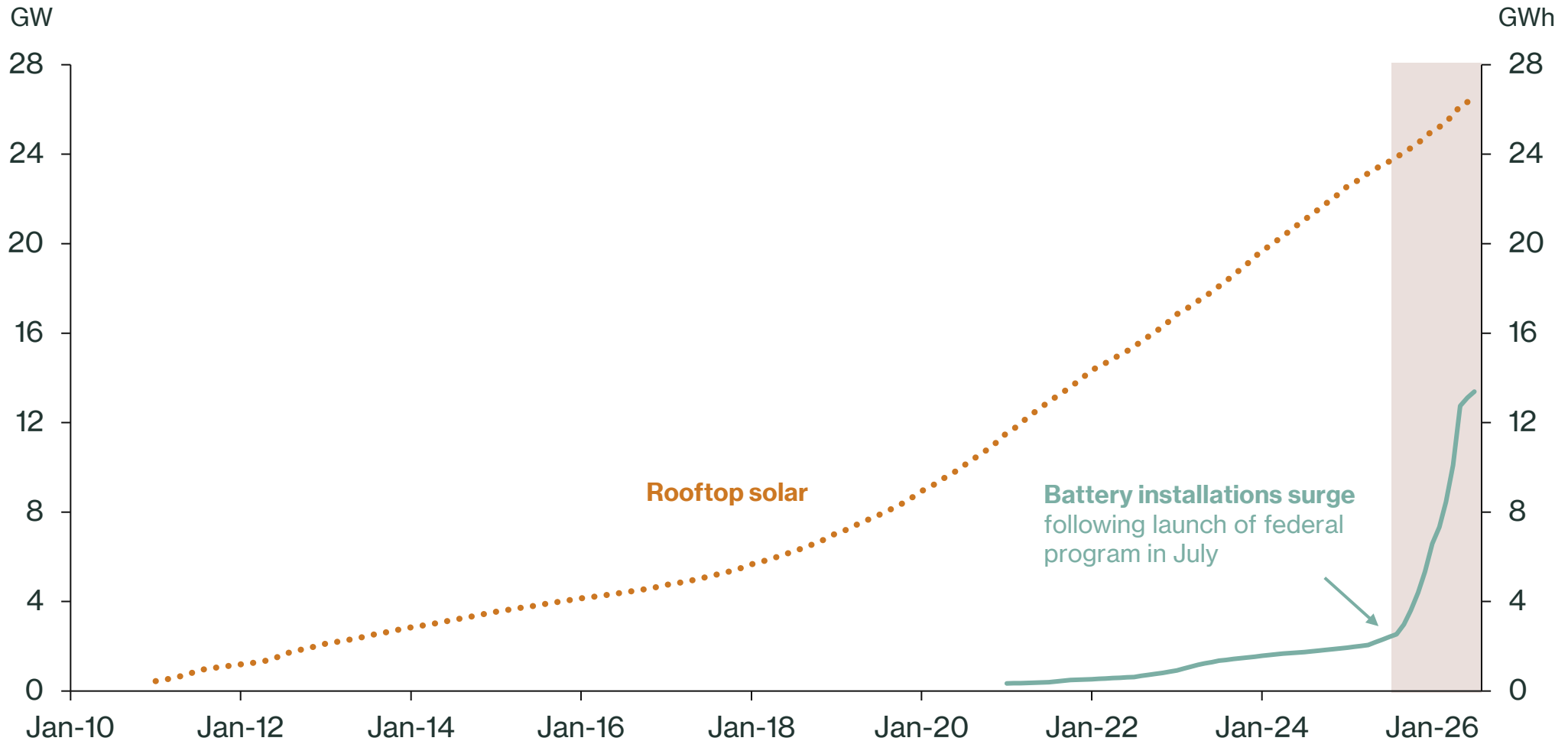
NEM utility scale storage capacity



Source: 2026 ISP, AEMO. Note: Utility scale storage includes batteries and pumped hydro.

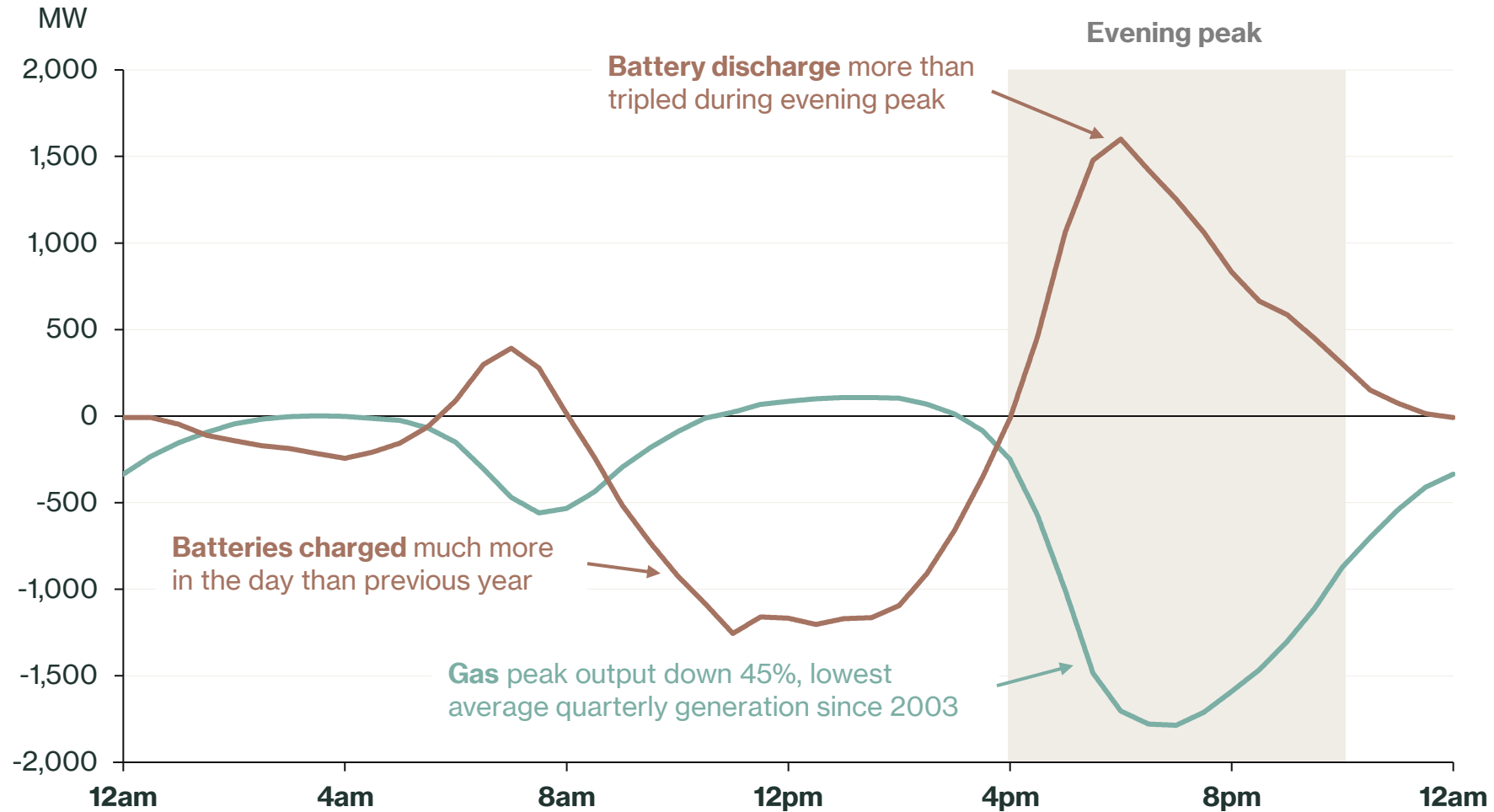
Home battery uptake is moving faster than solar

NEM installed capacity, Rooftop solar vs Small-scale battery



Sources: Analysis of CER, AEMO.

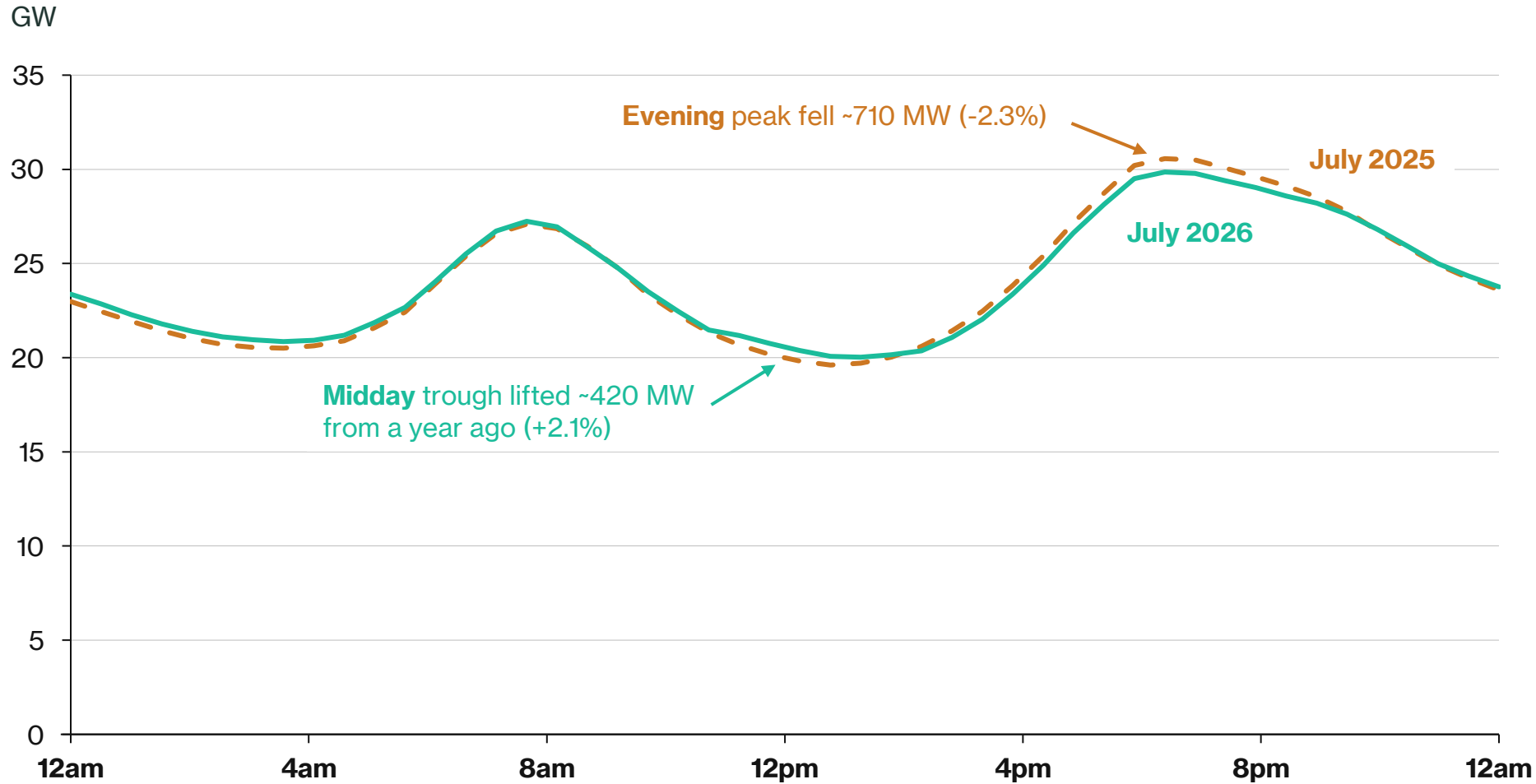
Change in NEM battery discharge and gas generation by time of day, Q2 2026 vs Q2 2025



Source: Analysis of *Quarterly Energy Dynamics Q2 2026*, AEMO. **Note:** Battery changes are presented on a net basis, with increases in supply (discharging) being positive and increases in load (charging) being negative.

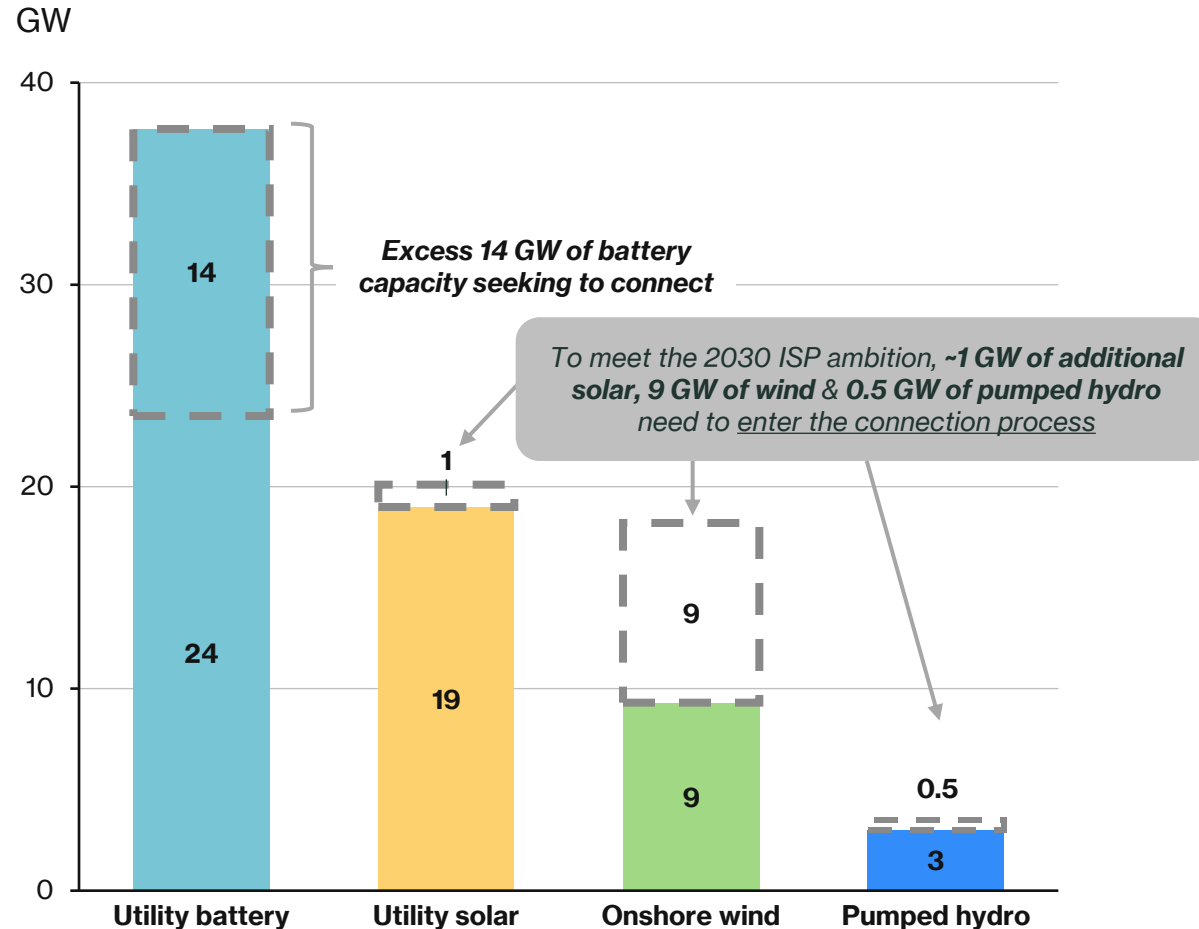
Some signs that the NEM's duck curve could be flattening: midday demand up, evening peak down

NEM average operational demand profile, July 2026 vs July 2025



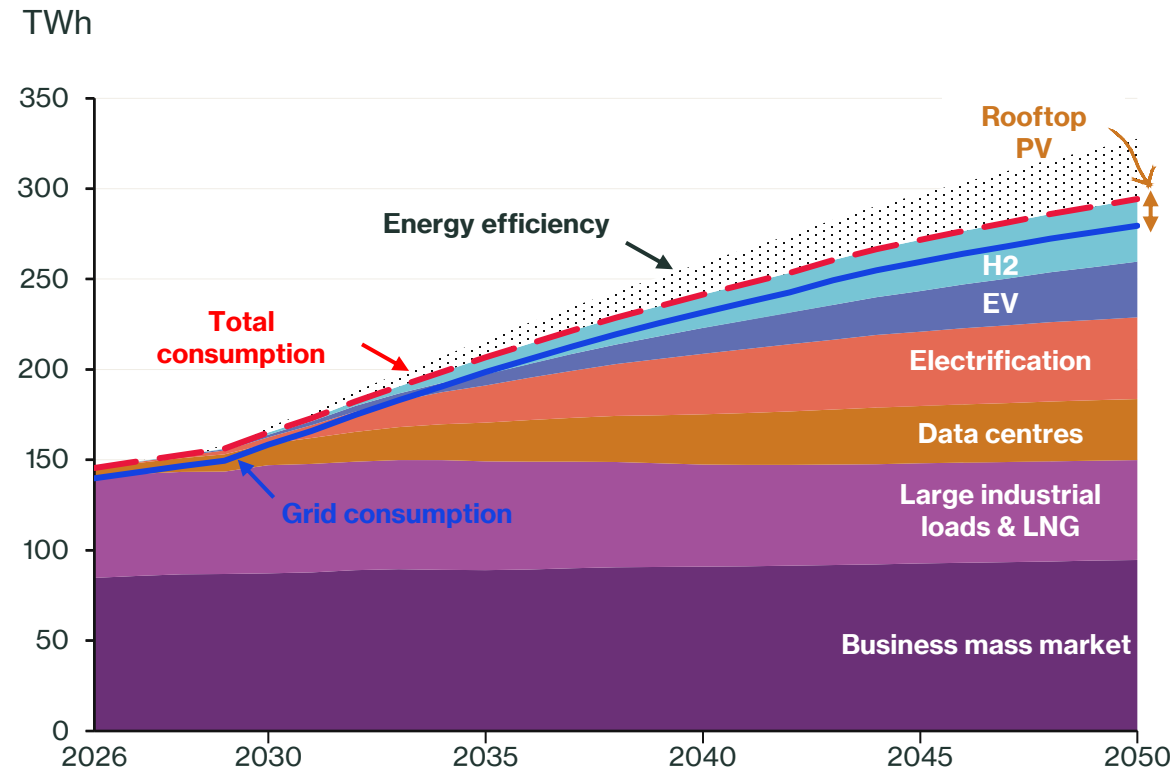
Source: Analysis of AEMO actual operational demand data. **Note:** Operational demand excludes rooftop generation and measures demand net of behind-the-meter output.

Projected progress of new renewable and storage capacity to 2030



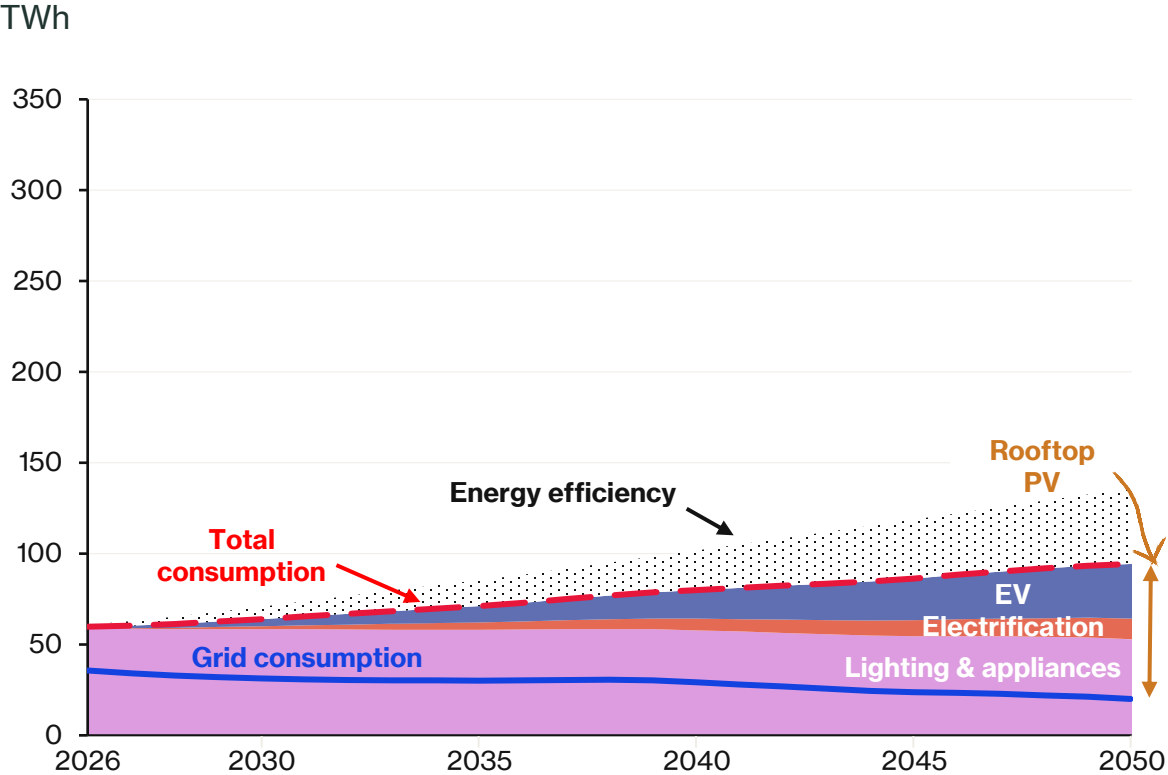
Source: Analysis of 2026 ISP and NEM Connections Scorecard – Jun 2026, AEMO. **Note:** Original ISP analysis updated to account for ~5 GW of utility battery connected as at of end of June. Pipeline capacity is adjusted for a historical 10% attrition rate. Solar and wind projects are assumed to deliver 90% of connection applications over an average four-year process.

NEM business and industry consumption, 2026 ISP, *Step Change*



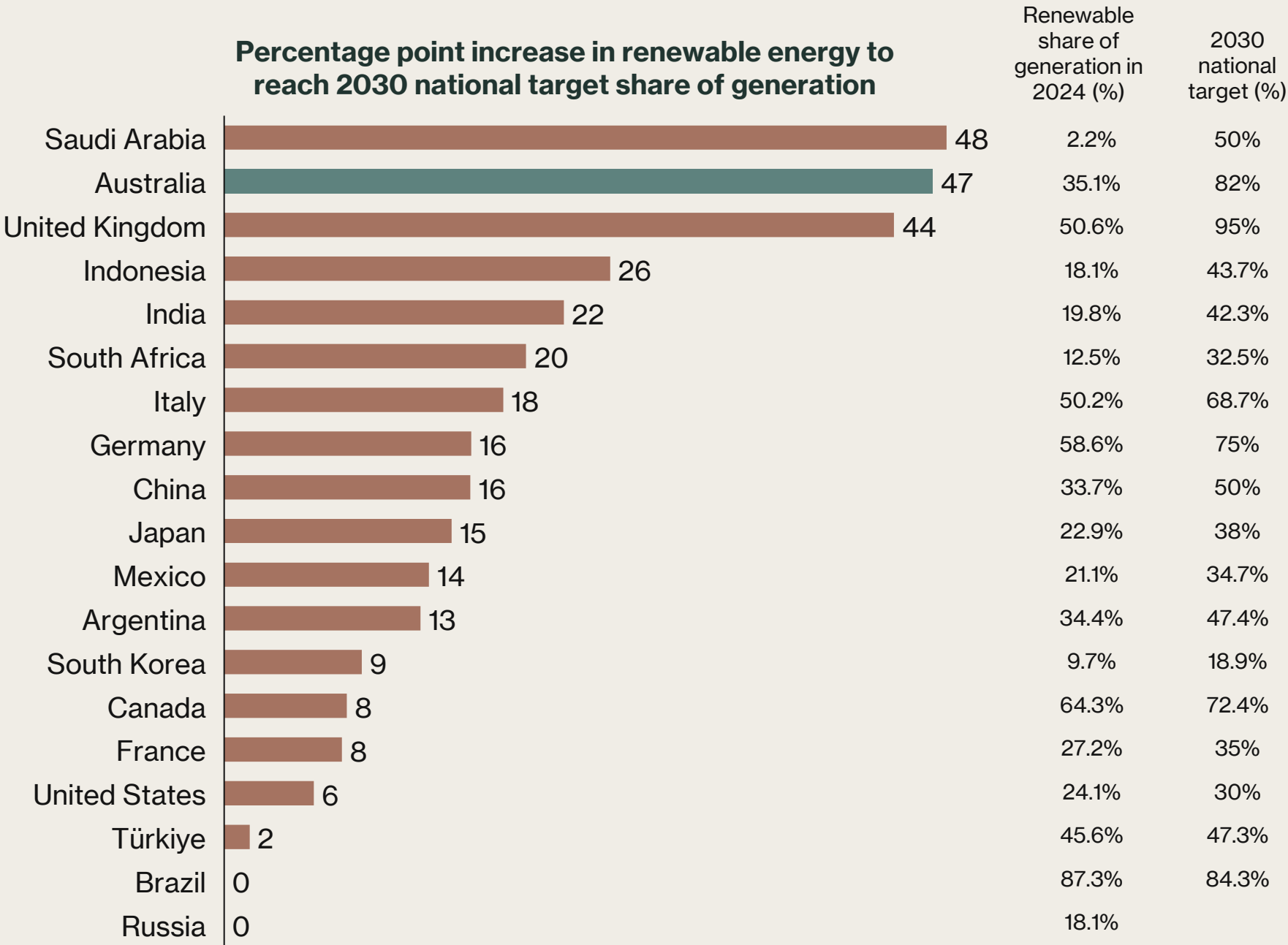
Grid consumption by industry to rise 100% by 2050, driven by electrification & new industries like data centres and hydrogen

NEM residential consumption, 2026 ISP, Step Change



Household grid consumption to reduce 44% by 2050, as households rely more heavily on CER for self-consumption

Australia's renewables target is world leading



Source: 2030 Global Renewable Target Tracker, Ember. Note: Where there are inconsistencies between the tracker and its underlying datasets, we have used data from the latter.