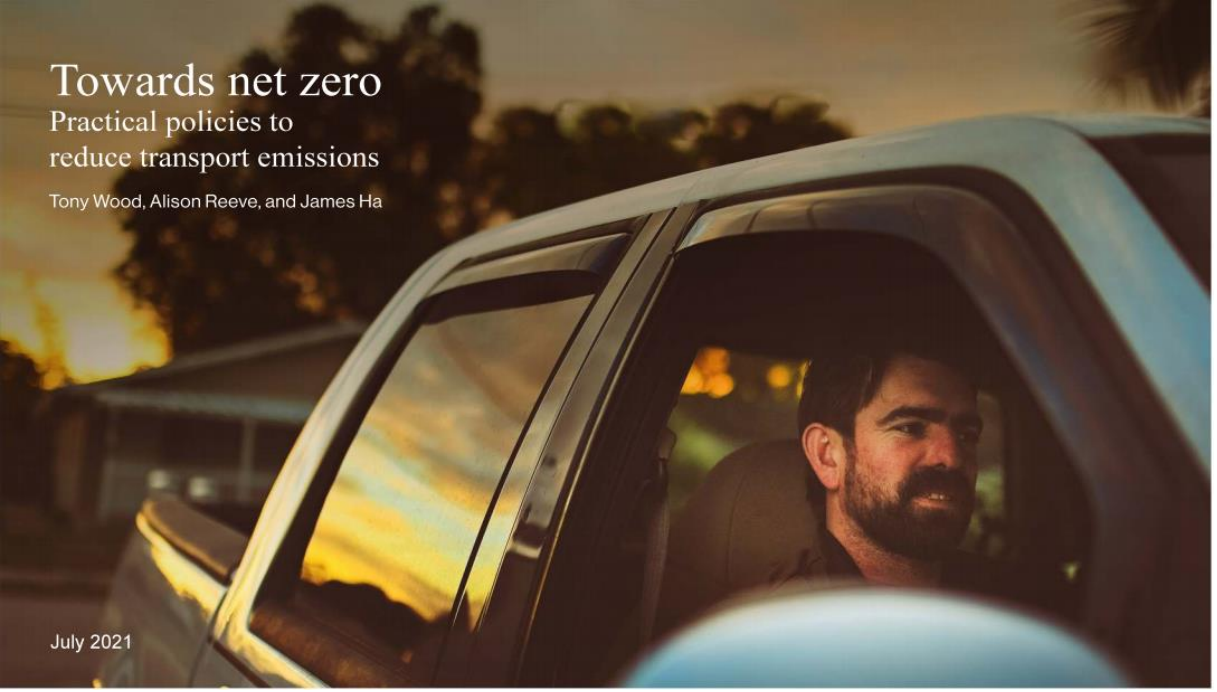

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Towards net zero: Practical policies to reduce land-transport emissions

ISIS SWC50 Webinar
August 2021

The time is right for practical climate action

- Australia's net zero commitments from:
  - States and territories
  - PM (preferably 2050)
  - EU, US, UK, plus major trading partners Japan, Korea, China (by 2060)

- Possible carbon tariffs (CBAMs)

- COP26 in Glasgow

Outside electricity, there's very little emissions reduction expected in Australia over the next decade

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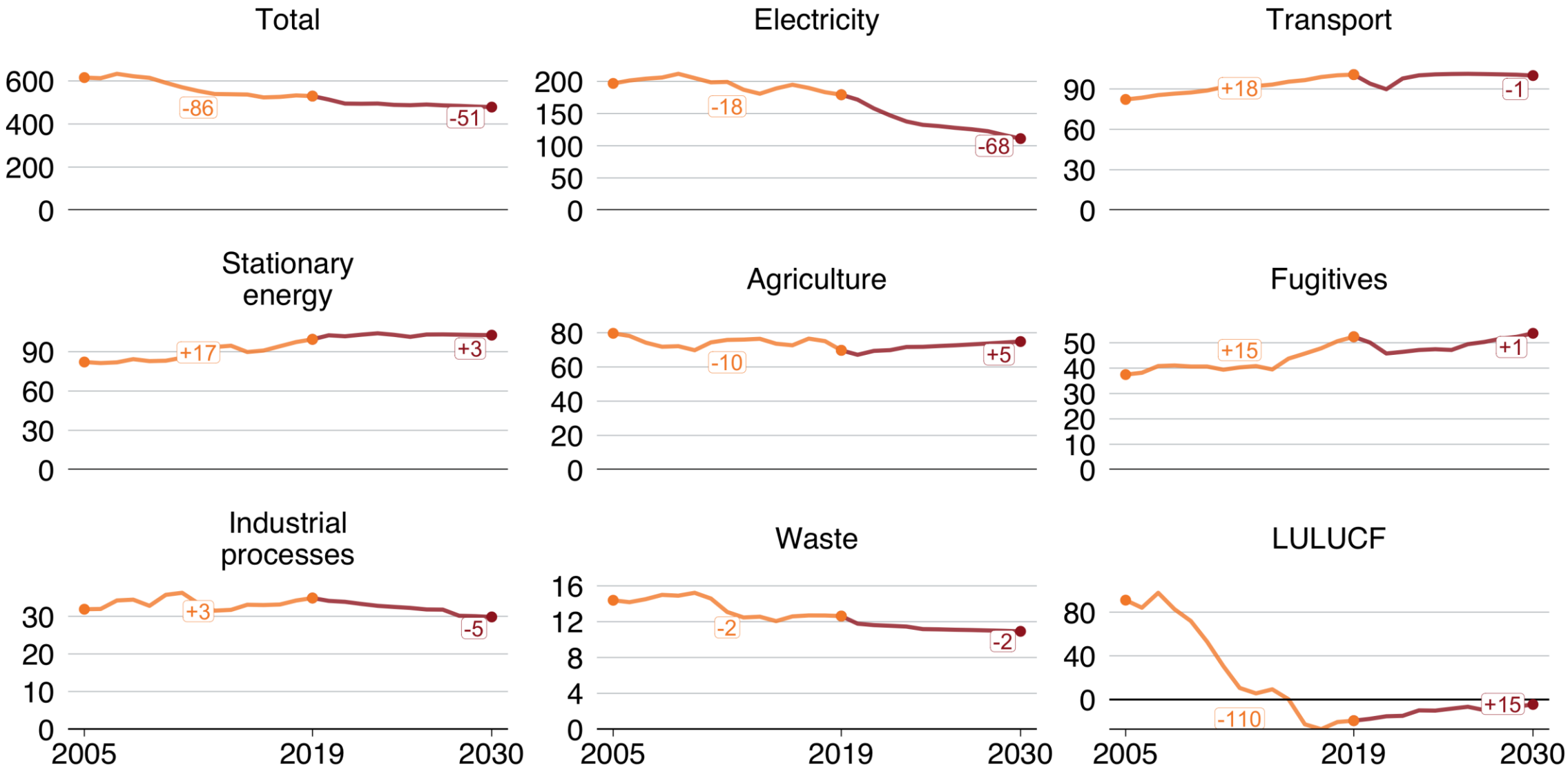
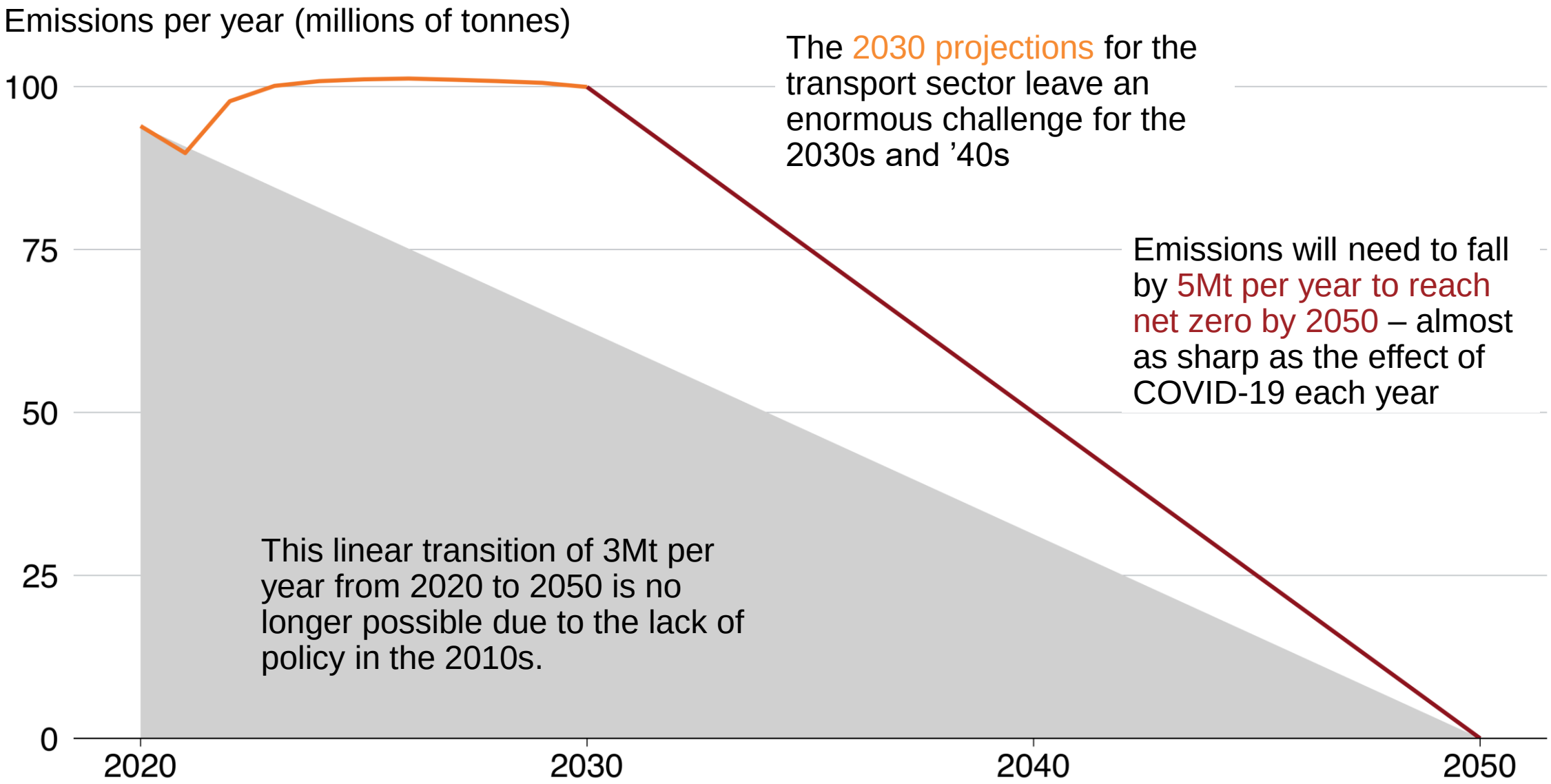
Emissions per year (millions of tonnes)



Source: Grattan analysis of DISER (2020a).

Transport will need transformative action in the 2030s and ’40s



Notes: Emissions are ‘carbon-dioxide equivalents’. The two trajectories depicted do not have an equal effect on the climate, despite both reaching net zero by 2050 – it is the total amount of emissions in the atmosphere, not the annual contribution, that drives climate change. Source: Grattan analysis of DISER (2020a).

Car emissions are expected to fall slightly, but freight and aviation emissions are expected to increase

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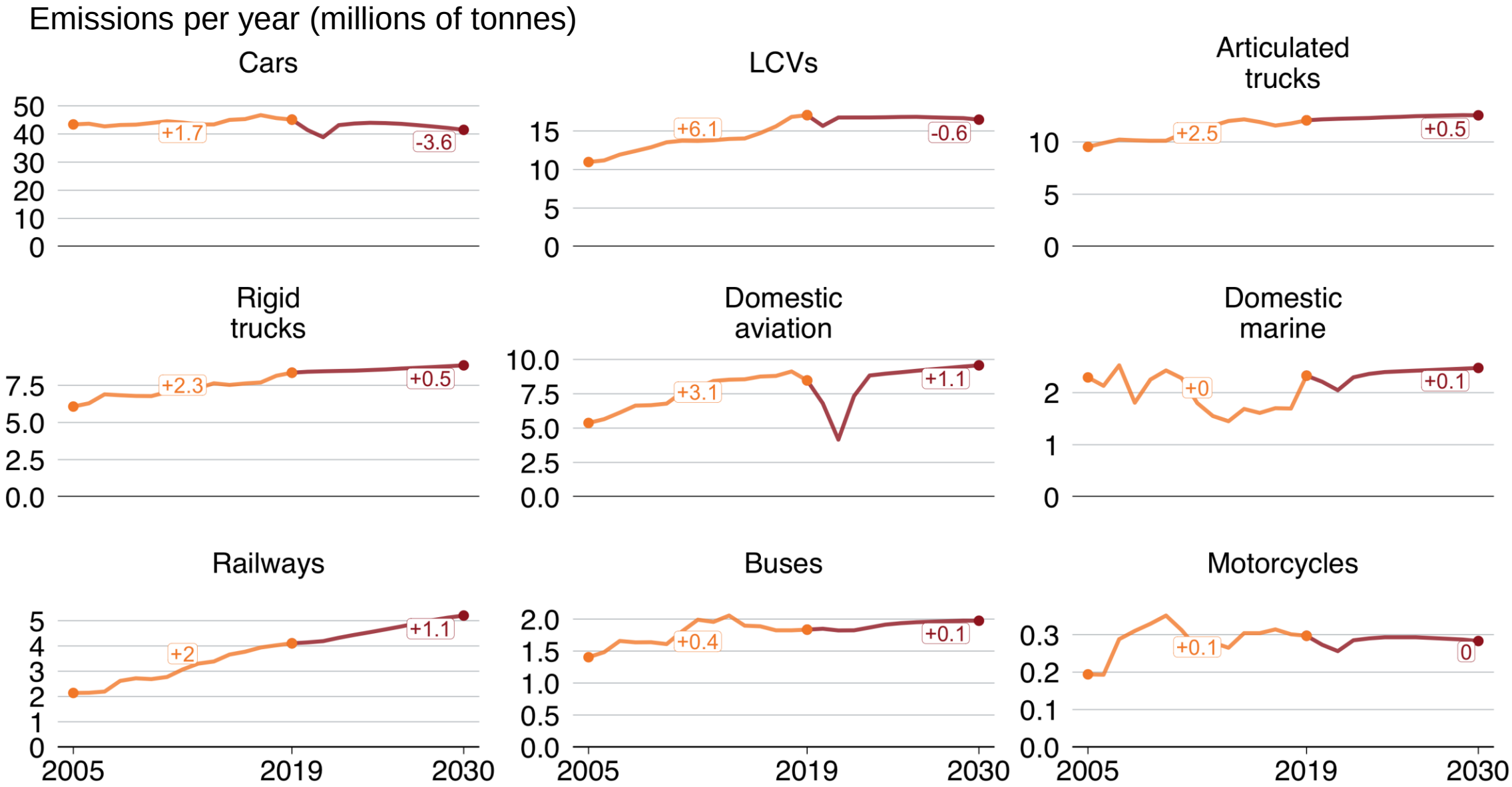

Notes: LCVs = light commercial vehicles. Emissions are 'carbon-dioxide equivalents'. Source: Grattan analysis of DISER (2020a).

What to do about light vehicles (cars, vans, and utilities)?

Main challenge: average life of 20 years means we urgently need to get on track

Barriers to zero-emissions vehicles:

- Availability of models to suit Australians' needs
- Upfront cost
- Access to charging

Key recommendations:

- Use a vehicle fleet emissions standard (technology neutral) to phase out sales of new petrol/diesel models by 2035 (Europe, Japan, Canada, California, also a preference in NSW and SA)
- Scrap inefficient taxes (motor vehicle duty, import duty, LCT)
- Boost access to charging for those who have few option:
  - Change National Construction Code in 2022
  - Amend tenancy standards by 2030
  - Local charging in suburbs without off-street parking
  - Tariff reform to encourage smart charging

Near-100 per cent EV sales by 2035 would get the light vehicle fleet mostly on track for net zero by 2050

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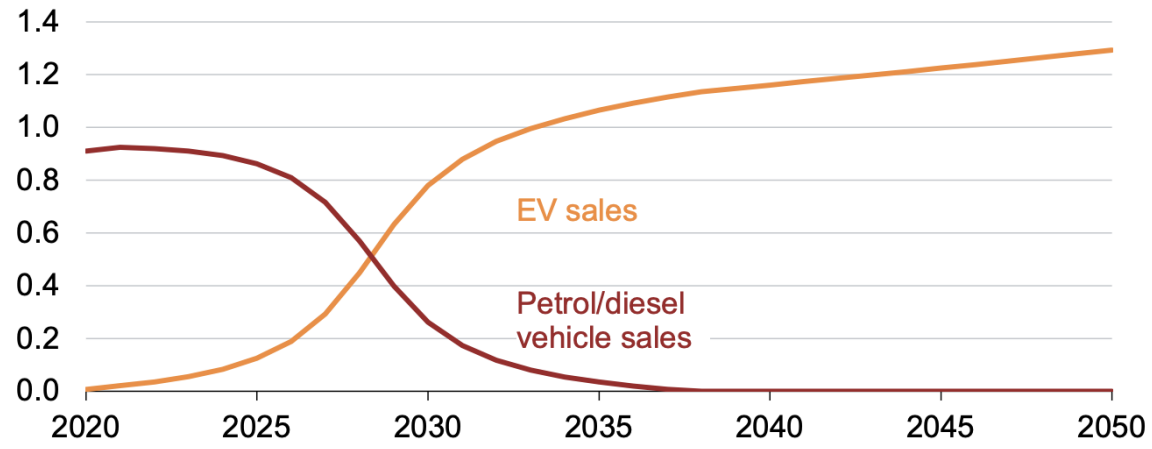
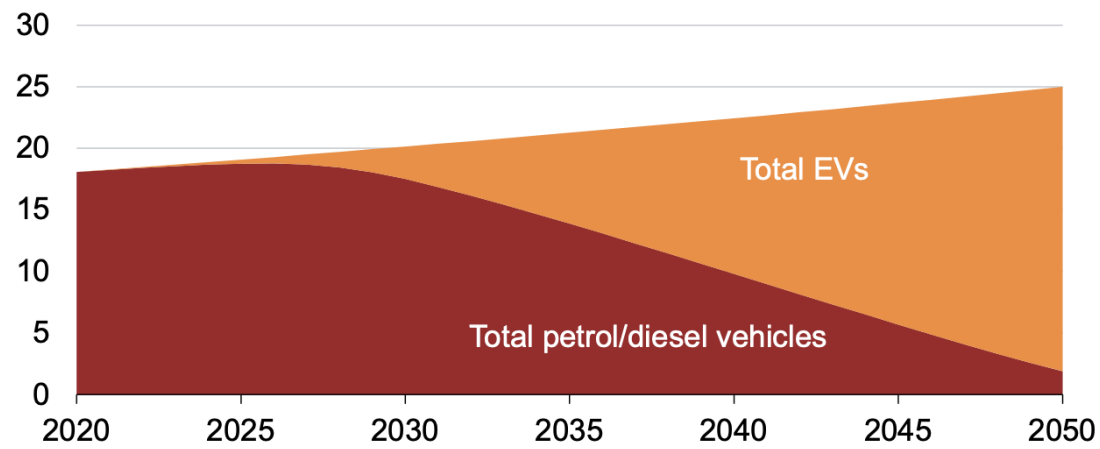
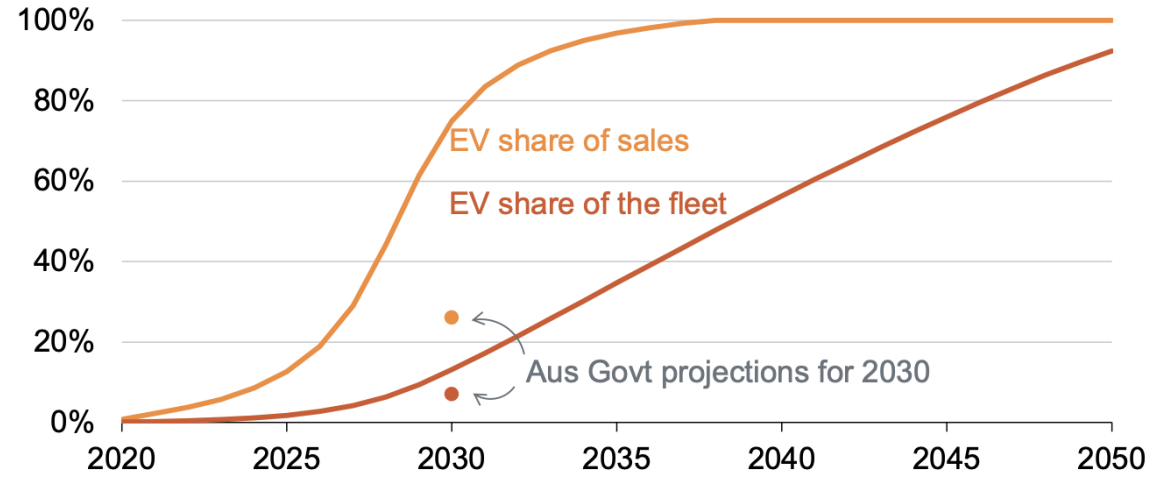
Light vehicle sales (millions)



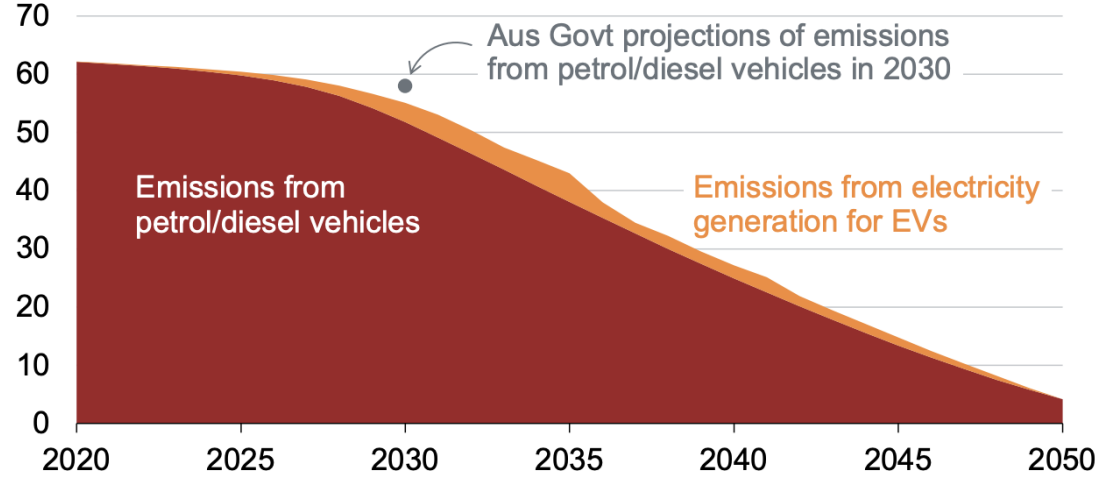
Total light vehicle fleet (millions)



EV share



Annual emissions from the light vehicle fleet (millions of tonnes)



Notes: Adoption curve is stylistic only. Electricity emissions intensity is assumed to decline nationwide at the same rate as the National Electricity Market over 2021-2042, according to AEMO's Step Change Scenario, and then linearly to zero emissions by 2050: AEMO (2020a). 4.1 per cent of the vehicle fleet is scrapped each year, in line with the attrition rate over 2015-2020: ABS (2020b). Based on data from VicRoads (2020), one-fifth of the turnover is assumed to be due to random crashes, with the rest due to vehicle age. Source: Grattan.

The rest of the transport sector is harder

Heavy vehicles (trucks)

- Probably a mix of electric and hydrogen fuel cell
- Run targeted trials of hydrogen trucks on key routes
- Amend truck width limit from 2.5m to 2.6m to match US

Aviation

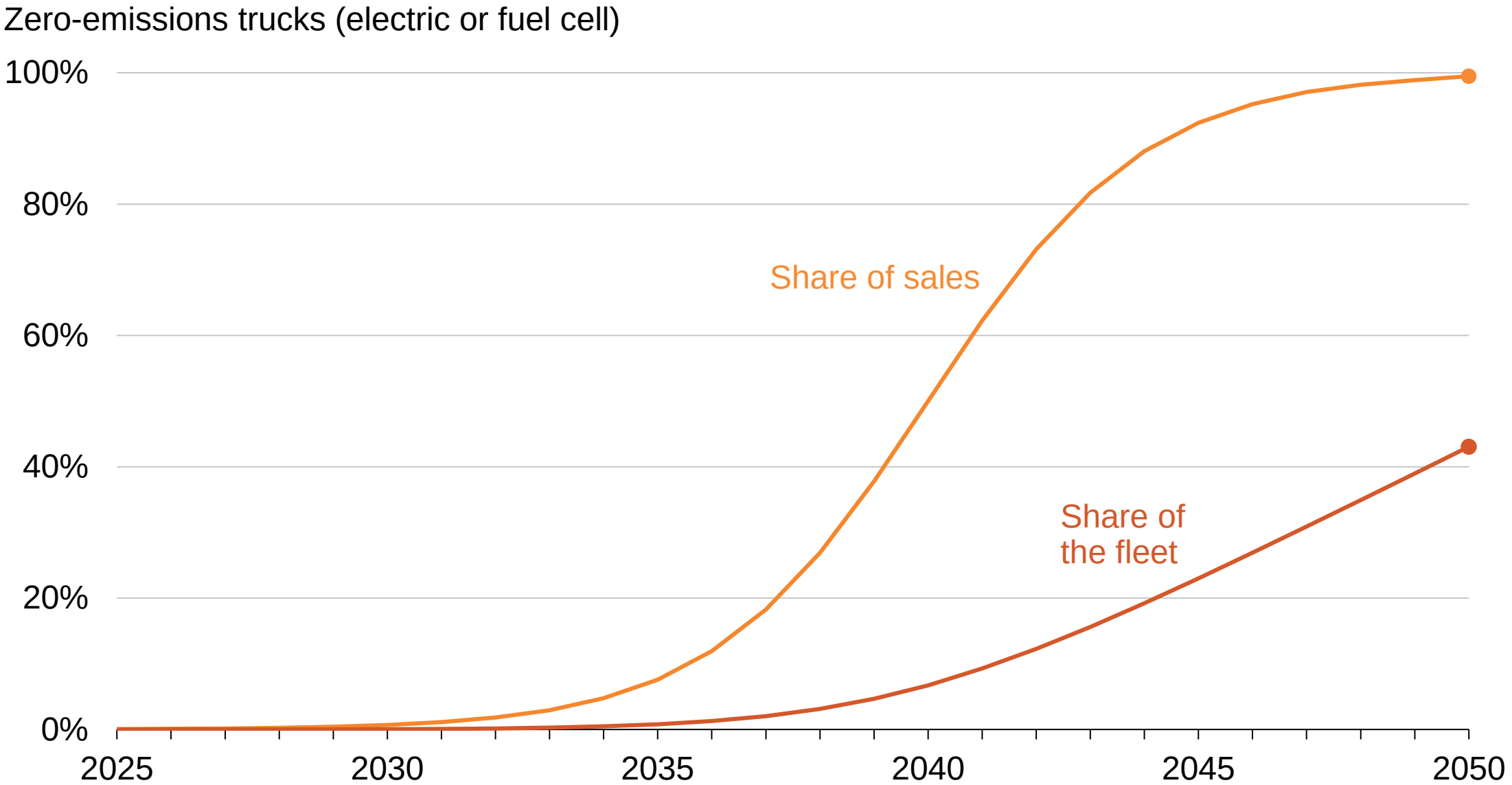
- Probably jet fuel made from biomass, or just offset the emissions
- Implement a renewable hydrocarbon standard to develop domestic capabilities

Shipping and watercraft

- Electricity for small vessels, possibly hydrogen or ammonia longer term for large ones

Rail, buses, motorcycles: small, mix of electrification and possibly hydrogen for freight rail/coaches

Slow uptake of zero-emissions trucks could mean most of the fleet still uses diesel in 2050



Notes: Adoption curve is stylised, based on a logistic function. It assumes sales of zero-emissions trucks reach 1 per cent by 2030, 50 per cent by 2040, and 100 per cent by 2050. Trucks are assumed to be retired due to age only, at a rate of 4.1 per cent per year (consistent with average vehicle turnover between 2015 and 2020: ABS (2020b). Source: Grattan analysis.

Our policy recommendations (recap)

Reduce barriers to zero-emissions vehicles:

- Availability of models to suit Australians' needs
- Upfront cost
- Access to charging

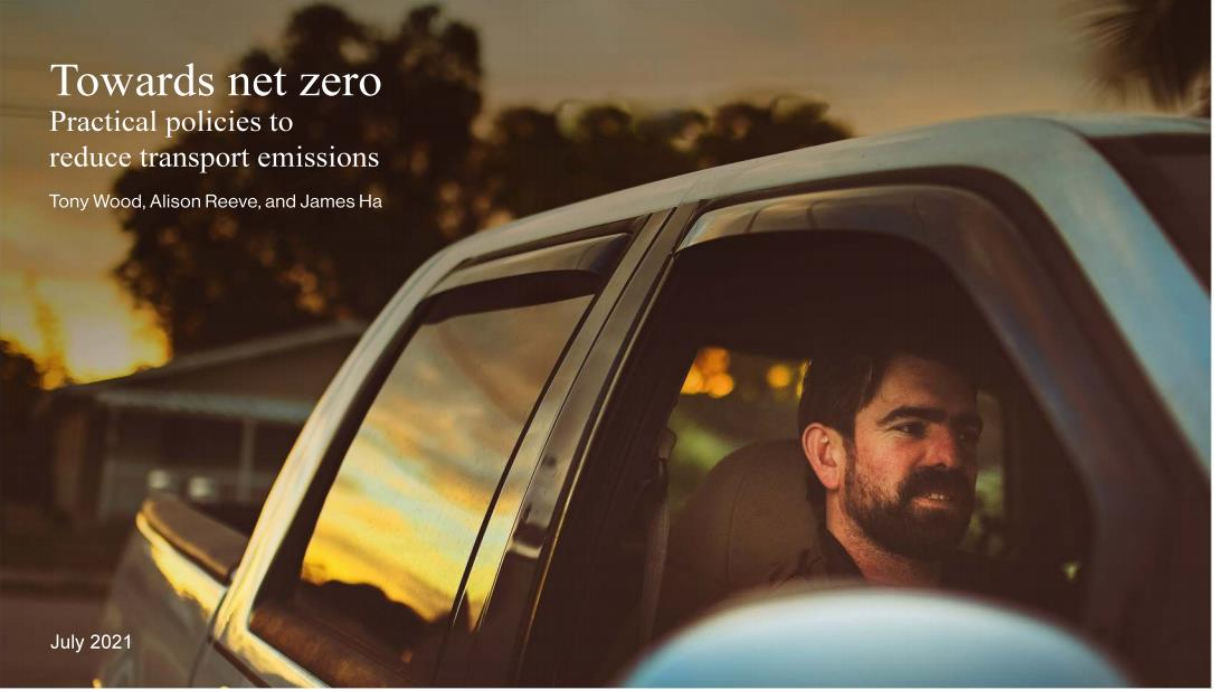
Key recommendations:

Light vehicles

- Use a vehicle fleet emissions standard to phase out sales of new petrol/diesel models by 2035
- Scrap inefficient taxes (motor vehicle duty, import duty, LCT)
- Boost access to charging for those who have few option:

Heavy vehicles

- Amend truck width limit
- Support trials for zero-emissions trucks along key routes
- Establish renewable hydrocarbon standard as a hedge for hard-to-decarbonize transport tasks



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