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

Emissions per year (millions of tonnes)

**Total**

- 600
- 400
- 200
- 0

**Electricity**

- 200
- 100
- 0

**Transport**

- 90
- 60
- 30
- 0

**Stationary energy**

- 90
- 60
- 30
- 0

**Agriculture**

- 80
- 60
- 40
- 0

**Fugitives**

- 50
- 40
- 30
- 0

**Industrial processes**

- 30
- 20
- 10
- 0

**Waste**

- 16
- 12
- 8
- 4

**LULUCF**

- 80
- 40
- 0

Source: Grattan analysis of DISER (2020a).
Transport will need transformative action in the 2030s and ’40s

The 2030 projections for the transport sector leave an enormous challenge for the 2030s and ’40s. Emissions will need to fall by 5Mt per year to reach net zero by 2050 – almost as sharp as the effect of COVID-19 each year.

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.

Emissions per year (millions of tonnes)

- **Cars**: Expected to fall slightly with emissions from 40 to 37 million tonnes.
- **LCVs**: Expected increase with emissions rising from 15 to 17 million tonnes.
- **Articulated trucks**: Expected increase with emissions rising from 10 to 12 million tonnes.
- **Rigid trucks**: Expected to remain constant with emissions at 8 million tonnes.
- **Domestic aviation**: Expected increase with emissions rising from 6 million tonnes.
- **Domestic marine**: Expected increase with emissions rising from 1 to 2 million tonnes.
- **Railways**: Expected increase with emissions rising from 4 to 5 million tonnes.
- **Buses**: Expected increase with emissions rising from 1.5 to 1.7 million tonnes.
- **Motorcycles**: Expected to remain constant with emissions at 0.3 million tonnes.

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.

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

Zero-emissions trucks (electric or fuel cell)

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

ISIS SWC50 Webinar
August 2021