NET ZERO MOMENTUM TRACKER

TRANSPORT SECTOR

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MONASH University
MONASH SUSTAINABLE DEVELOPMENT INSTITUTE
ClimateWorks AUSTRALIA

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This report is part of a series of Net Zero Momentum Tracker assessments focusing on sectors within the Australian economy. Net Zero Momentum Tracker is an initiative of ClimateWorks Australia and the Monash Sustainable Development Institute that demonstrates progress towards net zero greenhouse gas emissions in Australia. It brings together and evaluates climate action commitments made by Australian businesses, governments and other organisations.

Achieving net zero emissions prior to 2050 is a key element of the Paris Climate Agreement (UNFCCC 2015) to limit global temperature rise to well below 2 degrees Celsius above pre-industrial levels and to strive for 1.5 degrees.

SUMMARY

More actions are needed if Australia's transport sector is to cut emissions in line with global goals

Transport is Australia's third largest and fastest growing source of greenhouse gas emissions. While the current COVID-19 crisis has significantly impacted transport companies – the latest emissions data show a dramatic drop in emissions in this sector due the pandemic shutdown (Department of Environment and Energy 2019b; Elsworthy 2020) – the broader trends are expected to see emissions rise again when economies reopen.

This is because growth in transport emissions in Australia stems from ongoing dependence on fossil fuels and rising demand for freight and passenger transport services due to population growth, economic growth and urbanisation. Other trends include the increase in demand for freight, which is outstripping population growth as consumers push for swifter and more direct goods delivery.

This Net Zero Momentum Tracker Transport Sector report evaluates the climate commitments of 32 Australian transport operators and logistics companies to assess their alignment with the goal of net zero emissions by 2050, a key element of the Paris Climate Agreement.

The report focuses on companies required to report their emissions under Australia's National Greenhouse and Energy Reporting (NGER) Act (Clean Energy Regulator 2020) that operate heavy rail, light rail, road, air and water transport to provide commercial freight and passenger transportation services. The analysis therefore excludes initiatives to reduce emissions from privately owned and fleet vehicles.

The analysis considered activities and commitments that address transport emissions from direct combustion of fuel and indirect emissions from electricity consumed for vehicle propulsion for both owned vehicles and outsourced transportation services.

It also evaluated emissions associated with transport facilities and supporting operations, such as direct and indirect emissions from corporate buildings, business activities, staff vehicles, depots, hangers, maintenance facilities and maintenance activities.

Our assessment found none of the 32 transportation companies have disclosed climate commitments that are fully aligned to the goals of the Paris agreement. Their commitments and activities fall into three categories:

- 3% or one company, Qantas, had a target to reduce a significant proportion of its emissions, in line with the global net zero emissions by 2050 goal.
- 69% or 22 of the companies assessed are taking steps to reduce some of their emissions, but these efforts are not in line with the global net zero emissions by 2050 goal.
- 28% or nine companies have no disclosed emissions reduction activities.

The results suggest that much can be done to align Australia's transportation sector with net zero emissions by 2050. Zero emissions transport solutions are available, and globally many are already being rolled out and scaled up. Policy, infrastructure and market measures can drive more widespread adoption of zero emissions transport options in Australia. More detail on this can be found in ClimateWorks' *Moving to Zero* report *(2020)*.

There is a clear opportunity for Australian transportation companies to assess their business strategies, in line with the net zero emissions commitments of Australia's state and territory governments, as well as global peers. The current disruption in the transport sector associated with the pandemic measures could present the unexpected chance to do just that.

Net zero emissions assessment of Australia's transport sector

THE CLIMATE COMMITMENTS AND ACTIVITIES OF 32 AUSTRALIAN TRANSPORT OPERATORS AND LOGISTICS COMPANIES FALL INTO THREE CATEGORIES:

+3%

have a target to reduce a significant proportion of their emissions, in line with the global net zero emissions by 2050 goal.

+69%

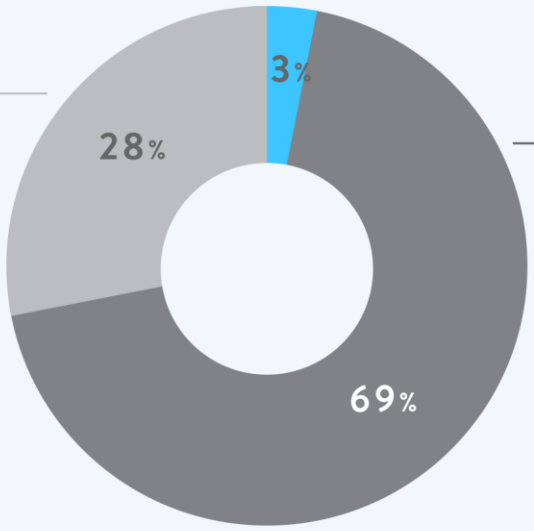
are taking steps to reduce some of their emissions, but not in line with the global net zero emissions by 2050 goal.

+28%

have no disclosed emissions reduction activities.

1
Qantas

9
Alliance Aviation, Collins Transport, Emergent Cold, Kinetic TCO, Lindsay, SCT Logistics, SeaRoad, TT-Line Company, Ventura Motors



22
Aurizon, Australia Post, Cobham, ComfortDelGro, Fedex Express, Keolis, Linfox, Mainfreight, Metro Trains, NSW Trains, Public Transport Authority WA, Qube, Queensland Rail, Regional Express, Ron Finemore, Solstad Farstad, State Transit Authority NSW, Sydney Trains, Toll, Transdev, Transit Systems, V/Line

- **FULLY ALIGNED**
  Net zero by or before 2050 target for all emissions
- **ALIGNED ASPIRATION/PATHWAY**
  Net zero by 2050 aspiration or an aligned interim target
- **CLOSELY ALIGNED**
  Net zero by 2050 target which covers most but not all emissions
- **PARTIALLY ALIGNED**
  Net zero by 2050 target for a small proportion of emissions
- **NOT ALIGNED**
  Undertaking emissions reduction activities but these are not sufficient to reach net zero by 2050
- **NO TARGET**
  No emissions targets or activities have been disclosed

SECTOR INFLUENCE

Transport is Australia's fastest growing emissions source

In the year to June 2019, transport emissions were 18.9 per cent of Australia's total (Figure 1) and, since 1990 have grown faster than emissions from any other economic sector (Department of Environment and Energy 2019d). The rise in transport sector emissions since 2005 has more than cancelled out the decrease in Australia's electricity sector emissions (Infrastructure Australia 2019).

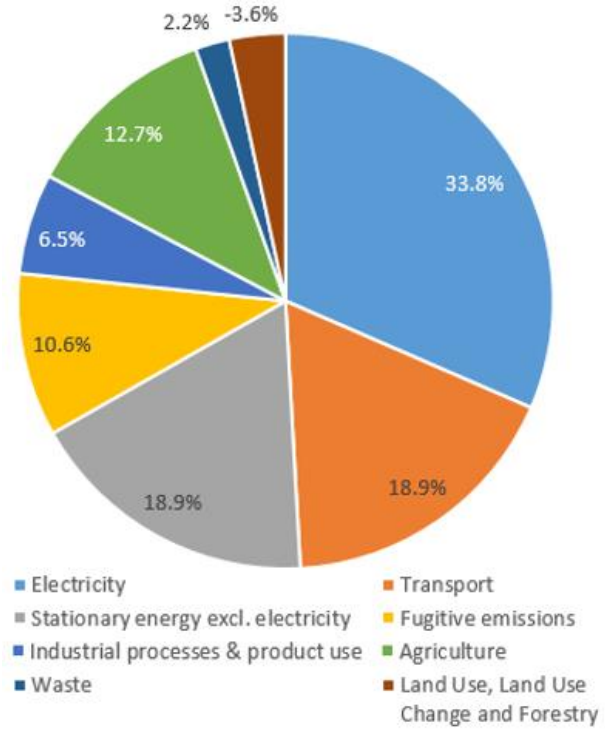


Figure 1: Proportion of Australian emissions by sector for the year to June 2019 (Department of Environment and Energy 2019c)

Recent projections anticipate Australia's transport emissions growing a further seven per cent above current levels by 2030 (Table 1) – although this estimate may be revised in the context of transport sector impacts from the COVID-19 outbreak.

Factors driving the increase in Australia's transportation emissions include population growth, economic expansion, urbanisation and changing consumer habits (Bureau of Infrastructure 2019). A significant consequence is growth in freight volumes (Bureau of Infrastructure 2019). Demand for freight is growing at a faster rate than population growth because Australian consumers are purchasing more and increasingly expecting goods to be delivered quickly and directly to their door (Infrastructure Australia 2019). This is expected to increase road transport emissions, the biggest contributor to Australia's overall transport emissions (Table 1), due to growth in emissions from trucks.

Demand for freight is also projected to increase emissions from domestic shipping and rail, although prior to the COVID-19 outbreak, the main cause of future growth in Australia's non-road transport emissions was expected to be domestic passenger aviation (Department of Environment and Energy 2019a).

Subsector	2020 Mt CO2e	Change 2020 to 2030
Passenger vehicles	44	-2%
Light commercial vehicles	17	+1%
Articulated trucks	13	+14%
Rigid trucks	9	+14%
Domestic aviation	9	+31%
Railways	4	+13%
Buses	3	+1%
Domestic shipping	2	+26%
Other transportation[1]	1	+30%
	102	+7%

Table 1: Australian transport emissions projections by subsector (Department of Environment and Energy 2019a)

[1] Other transportation includes motorcycles, off-road recreational and pipeline transport.

GLOBAL CONTEXT

Zero emissions transport solutions are available but not being globally deployed at scale

In 2016, transportation was responsible for almost a quarter of global carbon dioxide emissions from fuel combustion and 14 per cent of total greenhouse gas emissions (Wang & Ge 2019). Transport emissions principally emanate from cars, trucks and buses, with emissions from road vehicles accounting for 72 per cent of global carbon dioxide emissions from transport (International Energy Agency 2019; Wang & Ge 2019).

The transport sector remains heavily dependent upon fossil fuels and is responsible for almost two-thirds of global oil consumption (IEA 2019; World Energy Council 2016). Despite efficiency improvements and increasing electrification, global transport emissions continue to rise, growing on average by 1.6 per cent annually in the decade prior to 2018 (International Energy Agency 2019). This rise has occurred across all principal transport modes – road, international and domestic aviation, and international and coastal shipping. Railways, a significant proportion of which are electrified, are the exception, with rail emissions in decline (Wang & Ge 2019).

The global transportation sector can be divided into two categories – commercial freight and passenger transportation (Planete Energies 2017). Global demand for freight and passenger transport is expected to triple between 2015 and 2050. Commercial freight is expanding rapidly due to growth in international trade and the globalisation of supply chains. Growth in global passenger kilometres is predicted to be driven mainly by increased demand for air and non-urban rail transportation (International Transport Forum 2019).

Zero transport emissions can be achieved through: minimising passenger and freight kilometres; switching to more efficient transport modes, such as electrified passenger or freight rail; and transitioning to transport technologies powered by renewable electricity or zero emissions fuels such as biofuels or renewable hydrogen.

Zero emissions transport solutions are increasingly available. Policy, infrastructure and market measures are necessary to drive widespread adoption, although some are already being used at scale by transport operators and logistics companies, and proving to be financially advantageous compared to fossil fuelled alternatives (Todts 2019; Turner 2020).

Electric delivery vans and rigid trucks are in widespread use by organisations including UPS and DHL (Baertlein 2019; Jolly 2020; SEA Electric 2020), and over 14,000 orders have been placed for electric and hydrogen powered articulated trucks, which are due to be commercially available by late 2021 (Carpenter 2020; Vorrath 2018).

Over 30 cities, including Los Angeles, London, Moscow, Mexico City and Auckland have pledged to decarbonise their bus fleets. The Chinese city of Shenzen has already fully electrified its fleet of 16,000 buses (C40 Cities 2020; Keegan 2018).

Electric ferries are operating in several European countries (Murray 2020) and increased electrification is reducing emissions from rail networks (Lawson 2018). Hydrogen trains are a potential alternative to diesel locomotives for heavy rail freight, and are already in commercial use in Germany (Agence France-Presse 2018; Mayers & Bamford 2019; Scott-Quinn 2019)

A broader view of the issues and opportunities to achieve net zero transport emissions is explored in *Moving to Zero* (ClimateWorks Australia 2020).

Globally, some transportation and logistics companies have committed to net zero emissions by 2050. These include British Airways owner AIG Group, Deutsche Bahn, DHL, Maersk and Qantas, (Deutsche Bahn 2020; DHL 2017; Maersk 2019; Qantas 2019; Smout 2019). Organisations such as UPS and Kuehne + Nagel are also offering carbon

neutral[2] freight services (Kuehne + Nagel 2020; UPS 2020).

While not yet aligned to the net zero emissions before 2050 target, peak international transport organisations have also committed to reduce emissions from their sector. The International Maritime Organisation has committed to reduce emissions from international shipping by at least 50% by 2050 compared to 2008, and pursue efforts to reach zero emissions (IMO 2020). The International Air Transport Association (IATA) has committed to cap net aviation emissions from 2020, and to reduce aviation emissions by 50% by 2050, relative to 2005 levels (IATA 2020).

The transport sector has been severely impacted by curbs on travel and the global economic slow-down due to the COVID-19 outbreak. Whilst there has been increased demand for certain freight and delivery services (Leeuwen 2020; Lucas 2020; Shepard 2020), passenger transportation companies, particularly airlines, have suffered a drastic loss of revenue. Global air passenger transport is expected to decline by over 40 per cent in the near term and the IATA expects airlines to loose in excess of US$100 billion in passenger revenues (Diop 2020). The long-term impacts of these events on the global transport system are currently unclear. However, the post-COVID economic stimulus packages that many national governments are currently preparing are a potential opportunity for significant investment in low-carbon transportation infrastructure and services.

PLEDGE PLATFORMS

Climate action initiatives that have been embraced by transportation companies include:

- **SBTi**: A collaboration between CDP (formerly the Carbon Disclosure Project), the UN Global Compact, the World Resources Institute and the World Wide Fund for Nature (Science Based Targets 2020). SBTi considers targets to be science-based if commitments are consistent with limiting global temperature rise to well below 2 degrees Celsius or 1.5 degrees Celsius above pre-industrial levels. SBTi's goal is for target-setting based on this definition to become standard business practice by 2020 for direct and indirect[3] value chain emissions as well as for purchased electricity. SBTi's approach does not require organisations to make an explicit pledge to achieve net zero emissions by 2050. SBTi targets can, however, be considered to be aligned with pathways to net zero by 2050. Transportation and logistics companies that have set targets through SBTi include The Anderson-DuBose Company, The International Consolidated Airlines Group, New Zealand Post, SNCF and Thalys.
- **TAKE2**: A pledge initiative led by the Victorian Government (Sustainability Victoria 2019). It provides a platform for individuals and organisations to pledge action and initiatives to address climate change. Amongst the transport and logistics companies assessed, Qantas has made a TAKE2 pledge.
- **EV100:** A pledge initiative designed to accelerate the transition to electric transport and make it the 'new normal' by 2030. Through this initiative, organisations are invited to make a public pledge that showcases their efforts to use electric vehicles for their corporate fleets or encourage their uptake by employees and customers. Transport and logistics companies that have made an EV100 pledge include DHL, Schenker AG, Austria Post and Swiss Post.

[2] Carbon neutrality refers to the achievement of net zero carbon dioxide emissions by balancing emissions with removal or simply eliminating carbon dioxide emissions altogether. 'Carbon neutral' and 'net zero emissions' are often used interchangeably, although the scope of net zero emissions should include greenhouse gases other than carbon dioxide.

[3] Direct emissions are from an organisation's owned or controlled sources. Indirect emissions include those from the generation of an organisation's purchased energy and those that occur in the value chain upstream and downstream from owned and controlled sources.

ANALYSIS

Australian transport sector climate commitments

The Net Zero Momentum Tracker assessed the pledges, commitments and activities of 32 Australian transport and logistics companies to evaluate their alignment with the goal of net zero emissions by 2050.

The analysis focused on companies that operate or utilise heavy rail, light rail, road, air and water transport to provide commercial freight and passenger transportation services that are required to report their emissions under the National Greenhouse and Energy Reporting (NGER) Act[4] (Clean Energy Regulator 2020). The analysis therefore excluded activities and commitments to reduce emissions from privately owned and fleet vehicles.

The analysis considered activities and commitments that address emissions from:

- **Transport**, including emissions from direct combustion of fuel and indirect emissions from electricity consumed for vehicle propulsion for both owned vehicles and outsourced transportation services.
- **Facilities and supporting operations**, including direct and indirect emissions from corporate buildings, business activities, staff vehicles, depots, hangers, maintenance facilities and maintenance activities.

Table 2 summarises the assessment of each company's overall net zero ambition based on analysis of commitments and initiatives that address direct and indirect emissions from transport, facilities and supporting operations.

Table 3 provides an assessment of each company's emissions reduction activities in terms of their impact on energy conservation (through equipment efficiency improvements and route planning for example), renewable energy use, fuel switching (through electrification or use of low emissions fuels) and the mitigation or offsetting of non-energy emissions. This analysis is presented for each transport mode a company operates or uses, as well as for its facilities and supporting operations.

Supporting details for Tables 2 and 3 are provided in the Appendix.

Note that when considering the analysis results, it is important to be mindful of the emissions intensity of an organisation's main mode of transport. For example, even without a commitment to net zero emissions, electrified public transport and electrified freight rail are less emissions intensive options than aircraft.

The assessment of net zero ambition found that, of the 32 companies assessed:

- One (3 per cent) is **closely aligned** to net zero by 2050 (Qantas).
- Twenty-two (69 per cent) are **not aligned**, since they have made no net zero by 2050 commitments but are taking steps to reduce some of their emissions (Aurizon, Australia Post, Cobham Aviation Services, ComfortDelGro, Fedex Express, Keolis, Linfox, Mainfreight, Metro Trains, New South Wales Trains, Public Transport Authority of Western Australia, Qube, Queensland Rail, Regional Express, Ron Finemore Transport, Solstad Farstad, State Transit Authority of New South Wales, Sydney Trains, Toll, Transdev, Transit Systems and V/Line).
- Nine (28 per cent) have **no disclosed emissions reduction targets or activities** (Alliance Aviation, Collins Transport, Emergent Cold, Kinetic TCO, Lindsay, SCT Logistics, SeaRoad, TT-Line Company and Ventura Motors).

Overall, the analysis found that 23 of the 32 transport and logistics companies assessed

[4] The criteria that determine which facilities and corporations are required to submit emissions and energy reports under the NGER Act are outlined at http://www.cleanenergyregulator.gov.au/NGER/Reporting-cycle/Assess-your-obligations/Reporting-thresholds.

(72 per cent) are taking steps to reduce their emissions, although none yet have a target and supporting strategy to achieve net zero before 2050 that comprehensively addresses all direct and indirect emissions from transport, facilities and supporting operations.

Of this 23, Qantas is the only organisation that has a net zero emissions by 2050 target. The company is doing a great deal to measure and address its emissions within the confines of what is currently feasible for an airline (see the case study below), although it has not been assessed as ‘fully aligned’ because its supporting strategy and targets are not exhaustive (Qantas Group 2020b).

TABLE 2: ASSESSMENT OF NET ZERO AMBITION

The transport operators and logistics companies below are those required to report their emissions under the NGER Act that are listed in the emissions and energy data for 2018-19[5]. The table groups the companies by net zero ambition and then orders them by total scope 1 and 2 emissions[6] within each group.

Overall net zero ambition	Total scope 1 and 2 emissions[7] (tCO2e)	Mode of transport (owned or outsourced)	Company
☆	4,410,293		Qantas Airways Limited
•	847,607		Aurizon Holdings Limited
•	573,777		Toll Holdings Limited
•	545,749		Sydney Trains
•	505,879		Metro Trains Melbourne Pty Ltd
•	331,605		Qube Holdings Limited
•	275,962		Queensland Rail
•	272,921		Australian Postal Corporation
•	227,815		NSW Trains
•	217,608		Linfox Proprietary Limited
•	183,610		Keolis Australia Pty Ltd
•	166,029		Transit Systems Pty Ltd
•	155,886		Public Transport Authority of Western Australia
•	145,847		V/Line Corporation
•	134,130		Transdev Australasia Pty Ltd
•	120,463		ComfortDelGro Corporation Australia Pty Ltd
•	117,305		Regional Express Holdings Limited
•	116,901		State Transit Authority of NSW
•	98,265		Cobham Aviation Services Australia Pty Ltd
•	81,123		Solstad Farstad Pty Ltd

[5] Virgin Australia Holdings Limited is excluded since they have entered into voluntary administration.

[6] Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect emissions from the generation of purchased energy. Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company.

[7] Scope 3 greenhouse gas emissions are not reported under the NGER Scheme.

Overall net zero ambition	Total scope 1 and 2 emissions[7] (tCO2e)	Mode of transport (owned or outsourced)	Company
•	80,697		Ron Finemore Transport Pty Ltd
•	63,654		Mainfreight Distribution Pty Limited
•	50,748		Fedex Express Australia Pty Ltd
o	170,606		Alliance Aviation Services Limited
o	166,272		TT-Line Company Pty Ltd
o	132,356		SCT Logistics
o	120,730		Lindsay Australia Limited
o	92,024		Emergent Cold Pty Ltd
o	66,811		Collins Transport Group Pty Ltd
o	63,328		SeaRoad Holdings Pty Ltd
o	57,847		Kinetic TCO Pty Ltd
o	55,458		Ventura Motors Proprietary Limited

Road
Road freight and buses

Heavy Rail
Freight and passenger

Light rail

Shipping
Ferries and maritime freight

Air
Freight and passenger

★	**Fully aligned**	The organisation has made a pledge to achieve net zero emissions by or before 2050. This pledge includes all the organisation's direct and indirect emissions and is supported by a strategy and/or interim reduction target for avoidable emissions with a goal to only use offsets for unavoidable emissions.
☆	**Closely aligned**	The organisation has made a pledge to achieve net zero emissions by or before 2050. This pledge includes a significant proportion (but not all) of the organisation's direct and indirect emissions.
▪	**Aligned aspiration/ pathway**	The organisation has an aspiration to achieve net zero emissions by or before 2050 or has interim targets or initiatives that align with this pathway.
▲	**Partially aligned**	The organisation has made a pledge to achieve net zero emissions by or before 2050. This pledge includes a small proportion of the organisation's direct and indirect emissions.
•	**Not aligned**	The organisation has made a commitment, pledge or is undertaking activities that will reduce its emissions but not in alignment with net zero by 2050, or the alignment is unclear due to insufficient information.
○	**No emissions reduction targets or activities**	No disclosed emissions reduction targets, commitments or activities.

TABLE 3: ASSESSMENT OF EMISSIONS REDUCTION COMMITMENTS AND ACTIVITIES

This assessment of emissions reduction activities and initiatives is informed by the pledges and commitments summarised in Table 4. This assessment focuses on energy conservation, the use of renewable energy, fuel switching (such as electrification, hydrogen or biofuels) and the mitigation or offsetting of non-energy emissions. For each company, the assessment is made for each transport mode they operate or use, and for supporting facilities and operations.

	Energy conservation	Renewable electricity	Electrification / fuel switching	Non energy
Alliance Aviation Services Limited				
Facilities & supporting operations	o	o	o	o
Air	o	N/A	o	o
Aurizon Holdings Limited				
Facilities & supporting operations	☆	■	■	o
Rail	■	o	■	o
Australian Postal Corporation				
Facilities & supporting operations	☆	■	o	■
Air	o	N/A	o	o
Sea	o	N/A	o	o
Rail	o	o	o	o
Road	■	o	■	o
Cobham Aviation Services Australia Pty Ltd				
Facilities & supporting operations	■	o	o	■
Air	■	N/A	o	o
Collins Transport Group Pty Ltd				
Facilities & supporting operations	o	o	o	o
Road	o	o	o	o
ComfortDelGro Corporation Australia Pty Ltd				
Facilities & supporting operations	■	■	■	■
Road	■	■	■	o
Emergent Cold Pty Ltd				
Facilities & supporting operations	o	o	o	o
Road	o	o	o	o
Fedex Express Australia Pty Ltd				
Facilities & supporting operations	☆	■	■	■
Rail	o	o	o	o
Air	☆	N/A	☆	o
Sea	o	N/A	o	o
Road	☆	o	■	o
Keolis Australia Pty Ltd				
Facilities & supporting operations	■	o	o	o

	Energy conservation	Renewable electricity	Electrification / fuel switching	Non energy
Road	■	o	■	o
Rail	o	o	■	o
Light rail	o	o	★	o
Sea	o	N/A	o	o
Kinetic TCO Pty Ltd				
Facilities & supporting operations	o	o	o	o
Road	o	o	o	o
Lindsay Australia Limited				
Facilities & supporting operations	o	o	o	o
Road	o	o	o	o
Linfox Proprietary Limited				
Facilities & supporting operations	■	■	o	o
Rail	o	o	o	o
Road	■	o	o	o
Mainfreight Distribution Pty Limited				
Facilities & supporting operations	■	■	■	o
Rail	o	o	o	o
Sea	o	N/A	o	o
Air	o	N/A	o	o
Road	■	o	o	o
Metro Trains Melbourne Pty Ltd				
Facilities & supporting operations	■	■	o	o
Rail	■	o	★	o
NSW Trains				
Facilities & supporting operations	■	o	o	■
Rail	o	■	o	o
Road	o	o	o	o
Public Transport Authority of Western Australia				
Facilities & supporting operations	o	■	o	■
Road	■	o	o	o
Sea	o	N/A	o	o
Rail	■	o	■	o
Qantas Airways Limited				
Facilities & supporting operations	☆	o	o	★
Air	■	N/A	■	★
Qube Holdings Limited				
Facilities & supporting operations	■	■	o	■

	Energy conservation	Renewable electricity	Electrification / fuel switching	Non energy
Road	■	o	o	o
Sea	o	N/A	o	o
Rail	o	o	o	o
Queensland Rail				
Facilities & supporting operations	o	o	o	o
Rail	■	o	■	o
Regional Express Holdings Limited				
Facilities & supporting operations	■	■	o	o
Air	o	N/A	o	o
Ron Finemore Transport Pty Ltd				
Facilities & supporting operations	o	o	o	o
Road	■	o	■	o
SeaRoad Holdings Pty Ltd				
Facilities & supporting operations	o	o	o	o
Sea	o	N/A	o	o
Road	o	o	o	o
SCT Logistics				
Facilities & supporting operations	o	o	o	o
Road	o	o	o	o
Rail	o	o	o	o
Solstad Farstad Pty ltd				
Facilities & supporting operations	o	o	o	o
Sea	☆	N/A	o	☆
State Transit Authority of NSW				
Facilities & supporting operations	o	■	o	■
Road	■	o	o	o
Sydney Trains				
Facilities & supporting operations	■	■	o	o
Rail	■	o	☆	o
Toll Holdings Limited				
Facilities & supporting operations	■	■	o	o
Air	■	N/A	o	o
Rail	■	o	o	o
Sea	■	N/A	o	o
Road	■	o	■	o
Transdev Australasia Pty Ltd				
Facilities & supporting operations	■	■	o	■

	Energy conservation	Renewable electricity	Electrification / fuel switching	Non energy
Road	■	o	■	■
Light rail	■	o	★	■
Sea	■	N/A	o	■
Transit Systems Pty Ltd				
Facilities & supporting operations	o	o	o	o
Road	o	o	■	o
TT-Line Company Pty Ltd				
Facilities & supporting operations	o	o	o	o
Sea	o	N/A	o	o
V/line Corporation				
Facilities & supporting operations	■	■	■	■
Rail	■	o	o	o
Road	o	o	■	o
Ventura Motors Proprietary Limited				
Facilities & supporting operations	o	o	o	o
Road	o	o	o	o

★ Specific target that aligns with net zero emissions before 2050. For example:

- Energy conservation: commitment equivalent to one of the EP100 pathways or similar.
- Renewable energy: commitment to use 100 per cent renewable energy.
- Electrification/fuel switching: 100 per cent shift to electrification and/or non-emitting fuels.
- Non-energy: Offsetting of unavoidable emissions only.

☆ Activities to reduce emissions supported by a detailed strategy or target.

■ Activities without a detailed strategy or target that will reduce emissions.

o Generic expression of intent or no information.

Case studies

QANTAS

Qantas is Australia's largest airline by fleet size, international flights and international destinations. It typically operates around 1,500 flights using over 300 aircraft, which consume up to 14 million litres of fuel each day. Over 95 per cent of the organisation's emissions come directly from jet fuel (Qantas Group 2020c).

In November 2019, Qantas became the second airline group in the world, behind British Airways owner IAG, to commit to 'net zero carbon emissions by 2050' (Qantas 2019; Smout 2019). Qantas' pledge covers both its flights and supporting ground activities, and includes a commitment to cap the organisation's emissions from domestic and international flights at 2020 levels (Qantas Group 2020b).

The airline is striving towards the IATA industry target of a 1.5 per cent average annual fuel efficiency improvement from 2009 to 2020 (Qantas Group 2020c). Although the airline has not yet achieved this, with an average annual improvement of less than 1 per cent so far (Qantas Group 2020b), Qantas expects a step change towards this target with the retirement of older fleet and the introduction of more efficient aircraft at the end of 2021. Qantas is using data and analytics to optimise fuel efficiency through flight planning, in air route optimisation, changes to flying and taxiing techniques and maintenance planning. The company is also reducing the weight of on-board components and equipment, and increasing the proportion of ground equipment powered electrically.

Qantas has committed to invest $50 million to accelerate development of more sustainable aviation fuels. The lifecycle greenhouse gas emissions from aviation biofuels can be significantly lower than those from fossil fuels with certain feedstocks and end-to-end processing techniques (de Jong et al. 2017). Qantas anticipate that lifecycle emissions from aviation fuel could be reduced by 80 per cent.

Offsetting is a necessary component of Qantas' efforts to reduce its emissions. The airline offsets emissions from their employees' business travel and fuel consumed by ground based activities (Qantas Group 2020a).

The global airline industry has been hit particularly hard by the COVID-19 outbreak, and may experience permanent changes in the wake of the crisis. Some airlines including Qantas, are receiving government financial support to assist their survival. At the time of writing, Qantas' net zero by 2050 commitment remains in place.

YARRA TRAMS

Yarra Trams is the brand name for Melbourne's tram network. It is a franchise, currently operated by Keolis Downer, a joint venture that operates light rail and bus services in several Australian states.

All of the electricity used to power Melbourne's tram network and its fleet of more than 400 trams is offset by renewable energy from two Victoria solar facilities; the 38 MW Bannerton Solar Park and the 128 MW Numurkah Solar Farm (Victoria State Government 2020b).

The Victorian state government buys certificates from renewable energy projects in the state, which provides funding for their development. Through this process, the state has linked 35 MW of generation capacity specifically to the electricity load of Melbourne's tram network (Victoria State Government 2020a).

AUSTRALIA POST

Australia Post is in the process of replacing its delivery motorbikes, vans and trucks with electric vehicles (Australia Post 2019). It is deploying electric bikes and three wheeled electric delivery vehicles (eDVs) to reduce its last-mile emissions, which are those incurred in the last stage of delivery from postal

distribution hubs to the customer. The organisation has also trialled electric vans and rigid trucks. It plans to grow its fleet of electric bikes and eDVs to 5,980 within three years and, once this transition is complete, will operate Australia's largest electric vehicle fleet. Australia Post is also working with its suppliers to reduce scope 3 emissions. For example, the organisation has asked Linfox, a supplier of freight services, to replace air and road freight with rail, a less emissions intensive transport mode (Potter 2018).

Next steps

Australian transport companies are taking some steps to reduce their emissions, but much remains to be done to put the sector on a path to net zero emissions. The next step for the majority of Australian transport and logistics companies is to define a strategy with supporting targets that clearly indicates, to investors, customers and peers, how they will transition to net zero transport emissions to align with the global shift to a low carbon economy.

As Australian federal and state governments consider how to boost the economy in the wake of the COVID-19 outbreak, transportation companies and peak bodies can encourage investment in infrastructure and services to accelerate the shift to low-carbon transport systems. This will bring forward long-term economic, environmental, health and safety benefits by enabling transport companies to shift earlier from unsustainable technologies and practices that are destined to become economically untenable.

By adopting and working towards net zero by 2050 emissions targets Australian transportation companies can, through their influence on their peers, suppliers, customers and government, help build momentum towards net zero emissions Australia wide.

Appendix

PLEDGES AND COMMITMENTS

The transport operators and logistics organisations considered by this analysis are those required to report their emissions under the National Greenhouse and Energy Reporting (NGER) Act that are listed in the emissions and energy data for 2018-2019 (Clean Energy Regulator 2020). They include organisations that operate or utilise heavy rail, light rail, road, air and water transport to provide commercial freight and passenger transportation services.

Table 4 summarises the emissions reduction commitments and activities used to inform the analysis and data sources consulted. Table 5 details the assessment of net zero by 2050 ambition for each company considered.

TABLE 4: EMISSIONS REDUCTION COMMITMENTS AND ACTIVITIES

Company	Emissions target	Emissions reduction activities	Sources
Alliance Aviation Services Limited	No information.	Seeking ways to minimise the environmental impact of the business' activities.	Alliance Airlines Website
Aurizon Holdings Limited	No information.	15% reduction in the greenhouse gas emissions intensity of the locomotive fleet by FY2020 (FY2015 baseline). Reduced locomotive emissions intensity by 7% since 2015 and 20% since 2010. Completed an audit program to improve facilities' energy efficiency and offset energy consumption with a combination of solar, LED lighting, control systems, and upgrades. Developing an energy efficiency implementation program across FY2019-FY2022. Installing solar panels in the corporate office. Retiring ageing fleet, substituting fuel and improving fuel efficiency and productivity. Early adopter of TCFD recommendations. Engage with policymakers regarding incentivisation of low-impact transport modes and enabling infrastructure.	2019 Sustainability Report: Delivering for a Sustainable Future
Australian Postal Corporation	2020 target: 25% reduction in absolute scope 1 and 2 emissions from a 2000 baseline.	Energy efficiency program with the National Energy Management Program has continued with rolling energy efficiency and renewable energy investments with cost savings and avoidance of $10 million every year. Installed LED lighting across 105 facilities and solar PV systems across 49 facilities. Supporting the Melbourne Renewable Energy Project (MREP). Test new and innovative building and transport related technologies. Collaborate with suppliers to move a large amount of freight to rail. Leading the Revamp Network to provide a collaborative cross-sector forum on circular economy.	2020 – 2022 Group Corporate Responsibility Plan Environmental Action Plan 2018-2020 Annual report 2019

Company	Emissions target	Emissions reduction activities	Sources
		Considering defining a post 2020 carbon target, in line with science-based models and consideration of Scope 3 impacts. 100% recyclable packaging. Target for 2020: Enable the reuse and recycling of 100,000 tonnes of material. Increased the size of our electric delivery vehicle fleet.	
Cobham Aviation Services Australia Pty Ltd	Reduce total facility GHG emissions by 15% by the end of 2022 (2016 baseline).	Target to decrease the energy intensity of direct energy use normalised by turnover (i.e. Scope 1 and Scope 2) by 10% annually. Implementing energy efficiency measures including upgrading to LED lighting, replacing old cooling towers and removing HVAC units. Implemented diesel-saving initiatives for airline tractors. Reducing legacy aircraft fuel consumption via operational efficiency programmes and ultimately transitioning to more fuel efficient aircraft where possible. Investing in design concepts to reduce the size and weight of products as well as energy consumption, with a corresponding reduction in environmental impacts.	Annual Report and Accounts 2018 Safety, Health and Environment Policy Responsible Supply Chain Management - Policy Summary Environmental Performance Report 2018 Cobham Website
Collins Transport Group Pty Ltd	No information.	No information.	Collins Transport Website
ComfortDelGro Corporation Australia Pty Ltd	No information.	Reduce GHG emissions intensity by 20% by 2023 and by 50% by 2030 (2015 baseline). Aiming to increase solar photovoltaic (PV) output to 4 MWP by 2023 and to 8 MWP by 2030. By 2023, achieve 100% hybrid vehicles in taxi fleet and by 2030, increase hybrids for all other vehicles. Phasing out diesel fleet and converting fleets to higher standards, with hybrids and electric vehicles. Supporting research of alternative fuels. Introduced the largest hybrid bus fleet in Melbourne. Training drivers to drive efficiently. Minimising waste and offsetting electricity used to run EV Cabs by purchasing green energy.	The Green Statement Sustainability Report 2019
Emergent Cold Pty Ltd	No information.	Planning to implement measures to minimise energy and material consumption and reduce waste.	Emergent Cold Environment Policy
Fedex Express Australia Pty Ltd	No information.	Aims to reduce aircraft emissions intensity by 30 percent from a 2005 baseline by 2020 and to increase vehicle fuel efficiency by 50 percent from a 2005 baseline by 2025. 2030 target: To obtain 30 percent of jet fuel from alternative fuels. Implementing efficiencies in flight operations and modernised the fleet through the Fedex Fuel Sense program. 2,690,828 metric tons of CO2e emissions avoided from enterprise-wide fuel and energy saving initiatives in FY18. The implementation of the 'Reduce, Replace, Revolutionize'' Strategy has led to a 37% decrease in CO2 emissions intensity (on a revenue basis) since FY09. Increasing the use of intermodal rail transport at FedEx Freight.	Fedex Website Multiplying Opportunities: 2019 Global Citizenship Report

Company	Emissions target	Emissions reduction activities	Sources
		Clean energy is generated around facilities (33M kwh in FY2018). Working through its Earthsmart innovation program on technologies as Hydrogen fuel cell. 100 percent of FedEx-branded packaging is recyclable, and 54 percent is made from recycled content.	
Keolis Australia Pty Ltd	No information.	Aims for a 10% increase in energy efficiency by 2020. Priority goals: optimising energy consumption, improving waste management and reducing the amount of drinking water consumed for industrial purposes. Supports public transport authorities by offering solutions such as alternative fuels, particulate filters and energy recovery and efficiency systems. Drivers are trained in eco-driving techniques. Several buses and coaches worldwide are powered by alternative energy sources. Preferential agreements with suppliers offering circular economy solutions.	Keolis Driving Responsibly Report Keolis Annual Report 2018 Keolis Downer website
Kinetic TCO Pty Ltd	No information.	No information.	Kinetic Website
Lindsay Australia Limited	No information.	Adopt products or processes that have a positive environmental or social sustainability impact where possible.	Lindsay Australia Annual Report 2019 Corporate Governance Charter
Linfox Proprietary Limited	No information.	Target to cut GHG emissions across the business by 50 per cent (based on 2006/07 levels) was exceeded in 2017. Vehicle routes and warehouse locations have been optimised to maximise efficiency and reduce resource use. Prime mover aerodynamic kits are fitted to new vehicles to reduce fuel consumption. Educating drivers on efficient driving practices. New truck and tyre technologies have minimised energy waste and improved fuel economy across the fleet by approximately 4.5 per cent. Invested in renewable energy with solar panel systems installed across the warehouse network.	Linfox Website
Mainfreight Distribution Pty Limited	No information.	New vehicles comply with the highest environmental standards. Implement route planning measures and software to bring efficiencies to freight deliveries and pick-ups. Promoting off-peak distribution. Driver training programmes on efficient driving techniques. Solar installations at new facilities. Implementing EV and hybrid vehicles for the sales team. Converting gas and diesel powered forklifts to electric and using manual pallet trucks to replace forklifts where practicable.	Annual Report 2019 Mainfreight Website

Company	Emissions target	Emissions reduction activities	Sources
Metro Trains Melbourne Pty. Ltd.	No information.	Operating a largely electrified network. Aim to develop an energy and carbon reduction strategy in 2020. Retrofitting LED lighting at 15 stations and installing remote monitoring solutions on the solar systems that are generating renewable energy on the rooftops of 14 stations. Investigating further opportunities to improve energy efficiency. Installed LED lighting on 136 train units of the Comeng fleet in 2019.	Corporate Responsibility & Sustainability Report 2019 Environment and Sustainability Policy ISCA Infrastructure Sustainability Ratings Directory
NSW Trains	No information.	Improving stations' energy efficiency through the Station Refresh Program. The program includes LED lighting upgrades at some intercity and regional stations. Delivery of an innovative waste management contract.	NSW Trains Website NSW Trains Annual Report 18/19
Public Transport Authority of Western Australia	No information.	Three and six-car electric trains are fitted with regenerative brakes helping reduce energy consumption by at least 20 per cent. Transperth division includes a fully-electrified urban train system. Replacing bus fleet with low emissions vehicles. Installing solar panels at stations. Minimising waste.	Environment policy PTA WA Website
Qantas Airways Limited	Net zero emissions by 2050	Investing in new technologies and fuel-efficient aircraft. Increasing carbon offsetting. Aiming to double the number of customer flights offset. 2020 net emissions capped. 35% reduction in electricity consumption by 2020 (achieved). Improving lighting efficiency by adopting a series of initiatives such as adopting LED technology and replacing inefficient cooling towers. Investing and supporting the development of biofuels and developing fuel efficiency initiatives (from smarter flight planning to weight minimisation). Targeting a $50m investment in sustainable aviation fuel.	Our Commitment to Environmental Sustainability Qantas Group Net Zero Emissions Commitment Qantas Website
Qube Holdings Limited	No information.	Long-term sustainability strategy includes switching 1.55 million TEU freight containers from road to rail. Investigating the use of renewable fuels and electrification. Building warehouses that are energy efficient through renewable energy installations and lighting systems. Delivering sustainable construction practices by minimising resources' consumption and optimising resource efficiency.	Sustainability Report 2019
Queensland Rail	No information.	Several trains utilise regenerative braking to feed electricity back into the traction network. Investing in a new modern trains improving the energy efficiency of services delivered.	Queensland Rail Website Queensland Rail Strategic Plan FY2020 – 2024

Company	Emissions target	Emissions reduction activities	Sources
Regional Express Holdings Limited	No information.	Assessed opportunities to implement LED light and solar panels in facilities.	Public report template 2013 - Energy Efficiency Opportunities Shifting Winds: Annual Report 2019
Ron Finemore Transport Pty Ltd	No information.	Vehicles use biodiesel B20 blended liquid for half of the 50 million-plus kilometres travelled annually reducing the company's carbon footprint by 10 percent. Testing new technologies and practices to improve the efficiency of resources and environmental performance of heavy road transport vehicles. Incorporate high productivity vehicles, continuous improvements in liquid economy and provide eco-driver training.	Ron Finemore Website
SeaRoad Holdings Pty Ltd	No information.	Continually operate in an environmentally responsible manner, reflecting a commitment to fostering the sustainable use of resources.	Environment Policy SeaRoad Website
SCT Logistics	No information.	No information.	SCT Logistics Website
Solstad Farstad Pty Ltd	No information.	Implementing a fuel saving system, Solstad Green Operations (SGO), which can help reduce fuel consumption by 15-20%. Introducing the opportunity to operate climate-neutral ships through the Climate Neutral Operations (CNO) concept. Aims to achieve zero spills from vessels.	Solstad Website Annual Report 2018
State Transit Authority of NSW	No information.	Improving fuel efficiency in the bus fleet. 51 per cent of the bus fleet is of the latest Euro 5 or EEFV standard, while 86.8 percent is of a Euro 3 or higher standard. Exported 914kWhrs of electrical energy to the grid as excess energy generated from the 10KWh Ryde Regional rooftop solar PV system. Depot electricity consumption was 19.3% less than the previous year's consumption. Reducing waste to landfill and increasing recycling rates.	State Transit Authority Annual Report 2018-2019
Sydney Trains	No information.	Improving energy management systems and processes: including targets, governance and reporting, and awareness and continual improvement. Implementing energy efficiency and carbon abatement projects and tracking improvement. New trains equipped with regenerative breaking capability. Undertaking trials of energy efficient LED lighting and photo-voltaic technology at some stations.	FY2019-FY2020 Sydney Trains Corporate Plan Environment and Sustainability Policy Sydney Trains Environment and Sustainability Website
Toll Holdings Limited	No information.	Committed to reduce greenhouse gas intensity by 20% by the end of 2020 against a FY10 baseline. Implemented the 'Smarter Planning' program' which includes: route and network optimisation, modal switching between air, road, rail and sea, and use of higher productivity vehicles. Considering the use of alternative energy sources and low emissions technology.	Toll Group Website

Company	Emissions target	Emissions reduction activities	Sources
		Environmental Sustainable Design incorporated into new facilities. LED and Solar rolling out to all facilities where commercially viable.	
Transdev Australasia Pty Ltd	No information.	33.9% of the global fleet is considered to be low emission. Regenerative braking systems in light rail vehicles. Developed energy efficient driving assistance systems to reduce fuel consumption. Carbon offsetting by investing in carbon credits from renewable electrical energy generation Improving energy management systems and processes. Incorporated the TfNSW Energy Futures Strategy targets. Equip Australian vessels with the BlueFlow system to improve fuel consumption. On-site photovoltaic and thermal renewable energy generation	Statement of Extra Financial Performance 2019 Environmental Solutions Report
Transit Systems Pty Ltd	No information.	Contracts set to operate bus services with emerging electric and hydrogen vehicle technologies. Trialling a small fleet of electric buses in Sydney's inner bus network.	Transit Systems Website Environmental Management Plan 2018-2023
TT-Line Company Pty Ltd	No information.	Upgrading current vessels to be fully compliant with new international regulations in relation to sulphur emissions.	Annual Report 2018-2019
V/Line Corporation	No information.	Target for 2018-19 was for energy intensity (MJ/passenger kilometre) to be at or below a 2017-18 baseline. Upgrade lighting to more efficient forms such as LED. Phased out LPG vehicles usage. Switching to lower-emission vehicles at replacement when appropriate. Actively managing the environmental risks associated with the handling of fuels and other potential pollutants. Implementation of a four-stream recycling system at head office.	Annual Report 2018-2019
Ventura Motors Proprietary Limited	No information.	No information.	Ventura Website

ASSESSMENT OF EMISSIONS-REDUCTION AMBITION

Table 5 details the assessment of emissions reduction ambition for each of the companies considered by the analysis. This assessment considers both commitments and activities. It is informed by the assessment of emissions reduction activities that address emissions from each company's transport mode and its facilities/supporting operations outlined in Table 3, and the pledges and commitments summarised in Table 4.

This assessment is based on the following criteria:

Net zero target/commitment?	Indicates whether a company has an overarching target to be net zero by or before 2050 (Yes/No)
Interim emissions reduction commitments?	Indicates whether a company has defined an interim emissions reduction target over a period against a baseline year (Target) or no information can be found regarding an emissions reduction target (No information).
Target aligned with pathway to net zero?	Indicates whether the organisation's interim emissions reduction target is aligned with a sector pathway to net zero by or before 2050 (Yes, No).
All emissions included?	Indicates whether a company's emissions reduction target includes all emissions (Yes, Partial)
Emissions reductions activities?	Indicates whether a company has a commitment or is undertaking activities that will reduce its emissions.

Based on the above criteria, each company's emissions reduction ambition was assessed as follows:

★	Fully aligned net zero target	The organisation has made a pledge to achieve net zero emissions by or before 2050. This pledge includes all the organisation's direct and indirect emissions and is supported by a strategy and/or interim reduction target for avoidable emissions with a goal to only use offsets for unavoidable emissions.
☆	Closely aligned net zero target	The organisation has made a pledge to achieve net zero emissions by or before 2050. This pledge includes a significant proportion (but not all) of the organisation's direct and indirect emissions.
■	Aligned aspiration/pathway	The organisation has an aspiration to achieve net zero emissions by or before 2050 or has interim targets or initiatives that align with this pathway.
▲	Partially aligned net zero target	The organisation has made a pledge to achieve net zero emissions by or before 2050. This pledge includes a small proportion of the organisation's direct and indirect emissions.
●	Not aligned	The organisation has made a commitment, pledge or is undertaking activities that will reduce its emissions but not in alignment with net zero by 2050, or the alignment is unclear due to insufficient information.
o	No emissions reduction targets or activities	No disclosed emissions reduction targets, commitments or activities.

TABLE 5: ASSESSMENT OF EMISSIONS REDUCTION AMBITION

Company	Overall net zero ambition	Net zero target/ commitment?	Emissions reduction target			Emissions reduction activities?
			Interim emissions reduction commitments?	Target aligned with pathway to net zero?	All emissions included?	
Qantas Airways Limited	☆	Yes	No information	-	-	Yes
Aurizon Holdings Limited	●	No	No information	-	-	Yes
Australian Postal Corporation	●	No	Target	No	Partial	Yes
Cobham Aviation Services Australia Pty Ltd	●	No	Target	No	Partial	Yes
ComfortDelGro Corporation Australia Pty Ltd	●	No	No information	-	-	Yes
Fedex Express Australia Pty Ltd	●	No	No information	-	-	Yes
Keolis Australia Pty Ltd	●	No	No information	-	-	Yes
Linfox Proprietary Limited	●	Aspiration[8]	No information	-	-	Yes
Mainfreight Distribution Pty Limited	●	No	No information	-	-	Yes
Metro Trains Melbourne Pty Ltd	●	No	No information	-	-	Yes
NSW Trains	●	No	No information	-	-	Yes
Public Transport Authority Of Western Australia	●	No	No information	-	-	Yes
Qube Holdings Limited	●	No	No information	-	-	Yes
Queensland Rail	●	No	No information	-	-	Yes
Regional Express Holdings Limited	●	No	No information	-	-	Yes
Ron Finemore Transport Pty Ltd	●	No	No information	-	-	Yes
Solstad Farstad Pty Ltd	●	No	No information	-	-	Yes
State Transit Authority of NSW	●	No	No information	-	-	Yes
Sydney Trains	●	No	No information	-	-	Yes
Toll Holdings Limited	●	No	No information	-	-	Yes
Transdev Australasia Pty Ltd	●	No	No information	-	-	Yes
Transit Systems Pty Ltd	●	No	No information	-	-	Yes

[8] On its website, Linfox mentions the initiative “GreenFox: Towards Zero Net Environmental Emissions”. However, no specific future targets or supporting strategic details are provided.

Company	Overall net zero ambition	Net zero target/ commitment?	Emissions reduction target			Emissions reduction activities?
			Interim emissions reduction commitments?	Target aligned with pathway to net zero?	All emissions included?	
V/Line Corporation	●	No	No information	-	-	Yes
Alliance Aviation Services Limited	o	No	No information	-	-	No
Collins Transport Group Pty Ltd	o	No	No information	-	-	No
Emergent Cold Pty Ltd	o	No	No information	-	-	No
Kinetic TCO Pty Ltd	o	No	No information	-	-	No
Lindsay Australia Limited	o	No	No information	-	-	No
Sea Road Holdings Pty Ltd	o	No	No information	-	-	No
SCT Logistics	o	No	No information	-	-	No
TT-Line Company Pty Ltd	o	No	No information	-	-	No
Ventura Motors Proprietary Limited	o	No	No information	-	-	No

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WHAT IS THE NET ZERO MOMENTUM TRACKER?

Reaching net zero emissions is a core action of the Paris Agreement goal to limit global warming to well below 2 degrees Celsius and strive for 1.5 degrees. Many major global companies have incorporated this goal into their business strategies. In Australia, businesses and governments are doing the same, but there is no easily accessible place to assess these commitments, making them difficult to track.

The Net Zero Momentum Tracker tells the story of Australia's growing momentum towards net zero across key sectors in the Australian economy through a series of sector reports supported by an online platform.

WWW.NETZEROTRACKER.ORG

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ClimateWorks Australia is an expert, independent adviser, committed to helping Australia, South East Asia and the Pacific region transition to net zero emissions by 2050. It was co-founded through a partnership between Monash University and The Myer Foundation and works within the Monash Sustainable Development Institute.

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