

Convergence in Transport

Thursday 10 March 2022



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Rory Butler
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Natasha Santha
L.E.K Consulting



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ACT Government

About Roads Australia

[Roads Australia](#) (RA) is the peak body for roads within an integrated transport system, representing an industry that contributes \$236 billion annually to the economy and supports 1.4 million jobs.

RA brings industry, government, and communities together to lead the evolution of Australia's roads, integrated transport and mobility.

RA's members include all of Australia's transport agencies, road owners, major contractors and consultants, material suppliers, service and technology providers, and other relevant industry groups.

RA's policy focus extends across five activity streams: Safety; Capacity; Transport Reform; Customer Experience; and Sustainability. Diversity and Inclusion is a commitment across each stream.

Background

In the lead up to our [2022 Transport Summit](#), RA will explore the cross-sectoral policy objectives that must be advanced to support Australia's transition to low and Zero Emission Vehicles (ZEV).

Focusing on the themes of energy, fleets and holistic government policy goals, we will hear from experts working in these fields and analyse their interconnectedness as we work towards decarbonisation.

In this first webinar our panel discussed the trends, barriers and opportunities for Australia in the transition to Zero Emission Vehicles.

Event summary

The speakers for this webinar included:

- [Rory Butler](#), Associate Director, Policy and Research, [Infrastructure Australia](#);
- [Natasha Santha](#), Partner, [L.E.K Consulting](#);
- [Geoffrey Rutledge](#), Deputy Director-General, [Environment, Water and Emissions Reduction](#), ACT Government.

The webinar was hosted by [Aneetha de Silva](#), RA's Vice President, Chair of the Transport Reform Policy Stream and Managing Director, Government Australia & New Zealand at Aurecon.

RA's Deputy Chair of the Transport Reform Policy Stream and Head of Program and Partnerships at the [National Transport Commission](#), [Mandi Mees](#), facilitated the event.

Our future transport challenge

The need to decarbonise the transport sector is obvious given the impacts of climate change. But how to achieve this in the timeframe and at the scale required is less obvious.



In 2020 Australian transport emissions were approximately 18% of total emissions, with light vehicles (cars and light commercial vehicles) making up the majority of that. Under current policy settings, transport emissions are projected to decrease slowly as gains from an increase in zero and lower emission vehicles are balanced by increased vehicle use.

The escalating severity and frequency of natural disasters are another major catalyst for change, given their impacts on people and property.

Repairing damage from recent floods in Queensland and New South Wales to the road network alone is [expected to cost in excess of \\$1 billion](#).

Despite Australia not having a national incentive for purchasing a ZEV, demand is relatively high. Natasha Santha mentioned surveys showing that 30%-40% of people would consider an EV purchase for their next new vehicle.

But she went on to spotlight the supply side issues currently impacting the sector.

As Natasha pointed out, Australia is a small market which uses right hand drive and has unique safety standards as a part of our success in bringing down the road toll. In addition, the lack of an emission reduction target in Australia means many manufacturers prefer to sell the EVs they can produce in other markets where there is a greater profit incentive.

Issues, such as the slow vehicle turnover rate – just 5% per year – also mean it will take at least 20 years to turn over Australia's passenger car fleet, even if every new car sold was a ZEV.

“So change is required now if we're going to get close to our goal of net zero by 2050.”

- **Natasha Santha, L.E.K. Partners**

Transport and energy's interdependency

A “spider's web of inter-dependencies” was how IA's Rory Butler described the challenge Australia faces to decarbonise by 2050 or earlier.

Dealing with the capital-intensive nature of the transition to EVs was one of the challenges put forward. This is best addressed by achieving the right level of collaboration among a diverse group. That includes not only energy infrastructure players. It must extend to the energy retail sector, those involved with renewables, and financiers who are needed to help alleviate the upfront capex challenges.

Currently the Australian Energy Market Operator estimates that electric vehicles will consume more than 2,200 GWh in 2030, with growth in consumption of approximately 1,000 GWh per year in the years following.

Making sure that the renewable energy capacity is there to meet the demand requirements from the fleet is an obvious concern, but meeting intermittent demand spikes from EV charging is a growing concern. Rory mentioned that distribution network upgrades, without appropriate user demand response controls, could be in the tens of billions of dollars.

“If done at the wrong scale and time, ZEVs are going to be a tidal wave and not a rising tide.”

- **Rory Butler, Infrastructure Australia**

Vehicle charging infrastructure, public and private, is another key interdependency.

Geoffrey Rutledge from the ACT Government has been overseeing not only the ACT Government's fleet change over to hydrogen and battery electric vehicles, but also the development of a public recharging strategy for the ACT. These are some of the attributes that make the ACT arguably Australia's leading jurisdiction on ZEVs. This practical experience has taught him many lessons with a major one to be concerned more about buying chargers than buying vehicles.

“If I knew what I know now three years ago, I would have stopped worrying about buying cars and started worrying about buying chargers”.

- **Geoffrey Rutledge, ACT Government**

Delivering an equitable transition is also important, with affordable energy distribution for all. Gaps could easily eventuate between urban centres and regional and remote areas or between those who will not have ready access to charge at home and will rely on charging at public facilities.

Building standards and land use planning

Geoffrey came to recognise that running a fleet day-to-day would also require retro-fitting buildings and upgrading switchboards. It revealed the value of smaller bus depots (with less need for power network augmentation).

Meanwhile the ACT has already installed 125 fast chargers – and this will grow to 350 by the end of June.



Geoffrey said his experience had reinforced the value of having standards, certifications, and good access to skilled engineers.

There is also growing realisation that land use planning considerations are important when seeking to accommodate charging infrastructure.

Workforce skills and capabilities

The need for such new skills is across many areas. One example is to craft new business models. Geoffrey described how the ACT is looking to develop new workforce skills that address the underlying commercial and legal processes needed to support the transition. As such skills grow, it helps the ACT adopt things such as four- year lease cycles. Geoffrey said the ability to negotiate such terms enable it to buy

more expensive upfront EVs, with the maintenance and fuel costs offset over a longer period.

“Whether they're buying transport trucks or plant equipment, both Governments and corporations need to think about new business models,” Rory said. Managers like Geoffrey have entered an era of new contracting, “because we're buying something quite different”.

New expertise will also be needed to ensure updated building codes capable of accommodating the greater electrical load can be handled effectively and safely.

There will also need to be new skills capable of tasks such as creating nationally consistent technical standards for ZEV buses.

Road pricing

To accompany such practical measures, Rory said IA also has a variety of reforms relating to road user pricing. The data these generate will help ensure the right sequence of infrastructure delivery measures and public transport initiatives.

Rory explained that tariffs will be a key driver of energy demand. They will influence when, where and how electric vehicle drivers will charge. The extent of the uptake of automation will also be a key factor.

Geoffrey said smart devices talking to each other will be another key part of the challenge. Measures will be needed to ensure motorists still feel they (rather than an energy retailer) are in control over things like bidirectional EV charging.

Rory called for conversations about distribution grid upgrade costs in urban and regional settings, and who would have to pay for them. The panel agreed that a fair approach must be taken.

It was noted that those with access to home charging are in a luckier position than those needing more expensive public charging facilities. IA's 2021 Infrastructure Plan underpins this by advocating adoption of the quadruple bottom line, introducing smart electricity tariffs that support EVs, and making

appropriate cost allocation for fair and equitable grid upgrades.

On the EV price tag itself, Natasha said a 15-20% reduction was needed to really move the needle on demand. However, levers such as stamp duty or various penalties could be used to bring down the EV price. And these could drive uptake and help achieve greater equity of access to EVs as well.

The panel also considered the challenge of finding financially sustainable measures that can be phased out as EV demand picks up.

They agreed different settings for each state and territory must be avoided. Those different settings could extend across areas such as the role of road user charging and how society will pay for the incentives to drive demand.

Rory observed national coordination was also needed between the Government's current policy patchwork and its technology approaches to reducing emissions such as in its Future Fuels and Vehicles Strategy.

Wholesale government policy

Against the backdrop of this need for national coordination, Natasha pointed to a number of other dilemmas for policy makers: Do we go down the same path as Norway and start disincentivizing the purchase of internal combustion engine vehicles? Do we consider ICE bans? And can we benefit from this transition from an economic development perspective?

As society debates such policy choices, there will need to be appropriate community engagement to ensure benefits are realised. Without that, it is possible that the community's generally falling levels of trust in institutions may lead to resistance to EV charging infrastructure being installed. As suggested by overseas experience, lack of trust can make consumers wary about aspects of their new role as electricity producers who feed energy back into the grid.

For the public to accept and take up such opportunities, the electricity operators will need to develop better grid integration tech through cross-industry collaboration. Government will need to regulate against assets becoming unduly gold-plated.

Parting thoughts:

Aneetha described the ACT as a “living laboratory for the nation” on EVs, one that beautifully combines policy and design debate with implementation tensions and opportunities. She concluded the webinar saying Australia is “running out of alibis” to not accelerate the transition to low emission vehicles.

Aneetha said Australia needs to “step up to the mark and start courageously looking at a national framework that will be an enabler”. And she said RA can additionally support some of the areas the Webinar had touched on in passing - such as the new skills and capabilities that would be needed for development of the necessary infrastructure, particularly for charging and evolving the Hydrogen economy.

In conclusion, Aneetha noted that analysing and drawing insights about the future of transport from such trends is the goal of this webinar series. “Bringing incredible insights, both at a policy and implementation level, was the aspiration for this kick-off,” Aneetha said. “It was getting our membership starting to think about future transport...in particular, the sort of pressures associated with the decarbonisation challenge.”

Event outputs & next steps

An overview of the Convergence in Transport event and the broad themes addressed by each speaker was circulated via [RA's LinkedIn feed](#).

This was the first in a series of webinars on the transition to Zero Emission Vehicles held by RA. Follow up webinars will focus on the issues in energy and fleet.