

Convergence in Transport - Fleet

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Mandi Mees
RA Policy Committee



Natalie Hanna
Acciona



John Edgley
Hyzon Motors



Adam Begg
Kinetic



Geoffrey Rutledge
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.

Roads Australia'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

This RA Policy Insight is the third from a series of webinars on the convergence of transport, energy and technology supporting the transition to Zero Emission Vehicles (ZEVs).

The two previous webinars looked at the [overarching issues and opportunities](#) and the [simultaneous efforts required from the energy and transport sector](#) in order to meet Australia's net-zero goals.

This webinar included panellists discussing the issues in the supply, purchase and use of zero emission fleet vehicles, light and heavy.

Event summary

The speakers at this webinar were:

[Natalie Hanna](#) – Senior Advisor Business Development, [Acciona](#)

[John Edgley](#) – Managing Director ANZ, [Hyzon Motors](#)

[Adam Begg](#) – co-CEO, [Kinetic](#); and

[Geoffrey Rutledge](#) – Deputy Director General, Environment, Water and Emissions Reduction at the [ACT Government](#)

The webinar was hosted by RA's CEO, [Michael Kilgariff](#), and 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.

Why fleets?

Fleet buyers have a very large impact on the ZEV market and on Australia's transport emissions.

According to the [Australian Bureau of Statistics](#), more than half the kilometres travelled by vehicles in Australia are for business purposes or to travel to and from work. [Government, rental and business fleets](#) also make up almost half of all new vehicles purchased in Australia.

With ZEVs nearing, and in some cases equalling or surpassing, the total cost of ownership of fossil fuel powered vehicles, companies seeking to achieve their ESG goals are also looking for lower carbon options for their fleets.

With the scale of their purchasing, and with light vehicles generally rolled over after 3 to 4 years, fleet purchasing of ZEVs also boosts inventory for the future second hand market.

The ACT Government has assembled a passenger fleet of 78 BEVs, 82 Plug-In Hybrids, 161 Hybrids and 29 hydrogen Fuel Cell vehicles. **Geoffrey Rutledge** said the ACT's passenger fleet changeover to zero emission fuels shows leadership, helps get charging infrastructure built, reduces petrol costs and reduces emissions.

"We're showing our community that an electric future is actually electric reality."

Geoffrey Rutledge, ACT Government

Large fleet purchases can also change the type of mobility options to meet modern needs. **Natalie Hanna** outlined Acciona's global efforts to introduce 12,000 e-scooters in Spain and Italy and the development of relatively more affordable 2-seater "Silence" EVs.

Making the transition to electric is also seen to be the right thing to do for the world's climate and for its communities.

"We recognise that achieving about 80% of the UN Sustainable Development Goals ...can be [done] through good infrastructure...that is people and planet positive. And that's what we mean by sustainable infrastructure."

- **Natalie Hanna, Acciona**

Adam Begg from Kinetic explained that is the key reason why Kinetic will not submit a tender price without a zero emission option, even if one is not requested.

At the same time, Kinetic is also aware of an underlying logic justifying transition to EVs. Up to 70% of its routes can be serviced by the range available from its battery electric buses today.

For heavy vehicle fleet operators, recent instability on fuel prices and necessary additive products like AdBlue, used to reduce emissions from diesel powered vehicles, brings out the case for self-control of their energy supply, such as hydrogen.

John Edgley outlined the business case for back-to-base logistics operations supported by behind the fence hydrogen generation.

"Behind the Fence" hydrogen production breaks link to commodity diesel and creates tremendous advantage for the corporate operator



John noted some early adopters of hydrogen have made the transition based on their own firm belief that hydrogen is the future for zero emissions for heavy duty applications.

There is also a strong underlying logic to this decision with benefits becoming particularly clear at the scale of 10-20 vehicles.

Hyzon is showing operators a pathway to a decarbonised fleet. This happens as they move towards using more green power to produce hydrogen sourced from large scale renewables being developed and/or through local solar at their premises.

Knowing your fleet needs

Improved data collection could reveal paths to greater efficiency and overcome perceived fleet problems. Natalie said data insights are helping Acciona realise where 4x4s, which are currently difficult to obtain in a zero emission format, were not actually essential and where a smaller Toyota RAV4 hybrid could be substituted.

With modern vehicles becoming moving computers, John pointed out how vehicle telematics can further help complete a picture of user needs.

Data flows are already helping operators with diagnostics, insurance underwriting and driver comfort. But he said with hydrogen vehicles in particular, telematics can contribute to fuelling infrastructure decisions.

“...whether it's EV battery electric vehicle charging, whether it's hydrogen and that generation, power strategy is absolutely key to being able to make sure that you can develop and function on sites for large scale fleets.”

- John Edgley, Hyzon Motors

For instance, data collected for regular runs – such as between Sydney and Melbourne – have shown the need for only two large refuelling stations, each about 250 kilometres inland from Sydney and Melbourne. That not

only provides a repeatable and secure pattern for hydrogen prime movers delivering goods between Australia's two largest cities, but it also means that it can be achieved with minimal capital expenditure and without the complexity of building hydrogen refuelling stations everywhere along the Hume Highway.

Geoffrey also pointed to how a small change in the economic case in fleet vehicles has underpinned the ACT's transition. By shifting their lease cycle from three to four years, the lower fuel and maintenance costs of ZEVs means that they achieve total cost parity with existing fossil fuel powered vehicles.

Geoffrey said the ACT had learned about the magnitude of power draw from its testing of various kinds of electric vehicles. Its fleet includes tipper and garbage trucks.

Understanding how fleet vehicles use available energy has been important. In the case of the ACT, their new plug-in hybrid fire truck uses batteries for propulsion, but still needs fossil fuels to provide energy for other functions on the vehicle.

Hydrogen powered vehicles being developed by Hyzon, such as their new garbage trucks, also need to consider the total energy needs for the vehicle to still fulfill its role.

Realising how much energy the air conditioners in buses needed has meant that Kinetic has installed solar shades to keep vehicles cool at their depots and reduce their energy demands when leaving.

Preparing for unknown unknowns

The panellists agreed that moving away from a mature fossil fuel system had presented a variety of unexpected challenges.

On the hydrogen front, Adam pointed out that servicing hydrogen assets required a specialised facility that takes into account hydrogen's dangers as a volatile commodity. For example, he said it may be necessary to decide whether a separate workshop is needed that is separated from diesel-based workshops where sparks are a risk.

Asking users of fleet cars to charge them at home raises similar payment and tax questions to those related to working from home.

Sharing information gathered through the ACT Government's fleet journey is a way to help others cope with many of the unexpected challenges that arise.

To assist others on their journey to reduce their own transport emissions, Geoffrey is passionate about sharing the lessons the ACT Government has encountered and overcome.

"We think by offering this level of expertise and fleet advice, we might be able to help them be more focused on their service delivery, with less need for focus on back end functions,"

- **Geoffrey Rutledge, ACT Government**

The panellists also agreed that new fleets engendered a pressing need to find staff with new skills and training.

Natalie said Acciona was very aware of the need to transition skills amongst its diesel mechanics, and that this needed to be managed in a coordinated and sensitive way.

Within a period of a year, Kinetic has needed to review the contracts it uses to attract mechanics including a significant increase in remuneration.

Adam said he hoped Kinetic's reputation as a leader in moving to zero emissions would

attract mechanics to the business, along with its investment in upskilling its people.

"Kinetic faces a huge labour supply challenge. It's not far off being a crisis."

- **Adam Begg, Kinetic**

Vehicle energy demands: infrastructure

As an owner of an EV, Natalie explained her experience in charging her vehicle. Using an app on her phone, Natalie can program charging for off-peak times at home, which is not only providing sufficient energy for her daily use but does so at the lowest possible cost.

For the ACT's EV fleet, Geoffrey found that even merely knowing the electrical capacity of each of its buildings was a challenge. In supporting the ACT's fleet, they have had to install large amounts of extra capacity, working with both the building owner/landlord and the energy network operators.

Shared premises can be a particular problem requiring the additional need to deal with individual metering (similar to the challenge faced by people living in apartments).

Meanwhile Kinetic has grappled with the challenge of getting power companies to come along on their transition journey. Kinetic had found it took 12 to 18 months to get power connections upgraded to its immediate requirements. That has proved a much greater challenge than the supply of zero emission buses.

Adam said depot upgrades for 10 buses cost about three quarters of a million dollars even before adding additional infrastructure.

Adam also raised the possibility of dual-direction charging at bus depots as an additional community benefit.

The large amount of energy that can be stored in the battery banks of zero emission buses could act as an additional source to supply neighbourhoods in times of need.

“What we’ve learnt through the early days of transition to zero emission buses, is we just don’t see it as a revolution.”

- Adam Begg, Kinetic

Geoffrey said finding an Australian standards-compliant, vehicle-to-grid charger had been particularly difficult. But he said the ACT is now replacing its single direction chargers with dual chargers.

John discussed the development of hydrogen communities as a means to help make the transition to a hydrogen economy.

Biogas, an environmentally damaging by-product from many landfill sites, is now a cost-effective way to produce hydrogen. Clustering operators together around a facility based on using biogas for hydrogen production could help the transition to a hydrogen economy.

Parting Thoughts

Mandi concluded the event, noting the value of hearing about actual experience of panellists from such organisations.

Hearing from people who are actively and successfully working in the transition can only lead to more people and companies joining in and helping to accelerate the transition.

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 third in a series of webinars on the transition to Zero Emission Vehicles held by RA

in the lead up to the 2022 Transport Summit in Melbourne on 19-20 May.