roads australia

POLICY WEBINAR *proudly sponsored by* ARUP

ABOUT ROADS AUSTRALIA

Roads Australia (RA) is the peak body for roads within an integrated transport system, representing an industry that contributes $207 billion annually to the economy and supports 1.3 million jobs.

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

The nation's only roads champion, RA's 150+ members includes all of Australia's road agencies, major contractors and consultants, motoring clubs, service providers and other relevant industry groups.

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

Register for upcoming policy events to contribute to the debate.

BACKGROUND

In lieu of the deferred 2020 Study Visit to UK and Europe announced earlier in the year, RA has introduced an International Insights webinar series.

Our second webinar focused on the transition from Internal Combustion Engines (ICE) to Electric Vehicles (EVs), including an update on the progression to EV's in Europe, and the challenges being faced.

EVENT SUMMARY

Over 100 attendees joined RA's webinar on 16 September 2020 to hear from:

- **Sharon Masterson,** Manager, Corporate Partnership Board, International Transport Forum (ITF) at the Organisation for Economic Co-operation and Development (OECD)
- **Pierpaolo Cazzola,** Advisor - Energy, Technology and Environmental Sustainability, ITF at the OECD
- **Sandra McKay,** Executive Leader, Sustainability, National Transport Commission (NTC)
- **Mark Rowland,** Transport & Highways Advisory Leader – Australia, Arup

Individual speaker presentations are available on the RA website.

The webinar was moderated by **Clare Gardner-Barnes**, Transport Reform Policy Stream Chair, Roads Australia and Head of Strategy, Planning and Innovation, Infrastructure NSW and sponsored by Arup.

POLICY INSIGHTS

The webinar brought together leading experts from across Europe and Australia.

Sharon Masterson from the International Transport Forum (ITF), kicked off the session by providing an overview of the work of the ITF. The Corporate Partnership Board (CPB), which Ms Masterson manages, is ITF's official platform for engagement with the private sector.

She explained that with businesses at the cutting edge of a rapidly changing world of transport and mobility, the CPB allows private sector stakeholders to contribute their valuable business insights to policy discussions, and provide an effective mechanism for collaboration on issues of common interest.

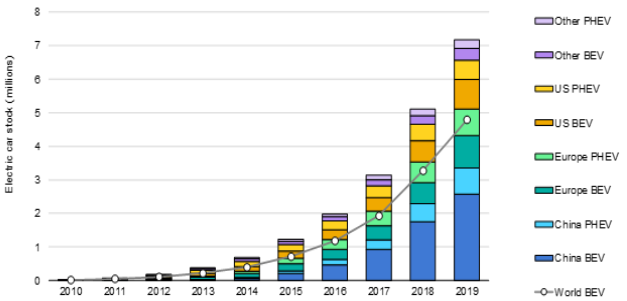
She also outlined how the work is organised into a number of different work-streams, one of which was the Decarbonising Transport Initiative. This Initiative focuses on promoting carbon-neutral mobility to help stop climate change, and provides decision-makers with the tools to select CO_2 mitigation measures that best deliver on their climate commitments.

For more information on the ITF (of which Australia is a member country), including their extensive body of leading research covering areas such as road, rail, infrastructure, energy and new mobility, visit their website.

Pierpaolo Cazzola, Advisor in the Energy, Technology and Environmental Sustainability area of the International Transport Forum (ITF), provided the keynote presentation, focusing on the policy drivers and market development of vehicle electrification in Europe.

He explained the importance of electrification in helping to promote the transition to clean mobility, and highlighted the current mix of vehicle technologies, including plug-in hybrid electric vehicles (PHEVs), battery electric vehicles (BEVs) and fuel cell electric vehicles (FCEV). He further highlighted the crucial importance of increasing the use of renewable or low-carbon energy for such electricity generation.

F1. Electric Cars on the Road

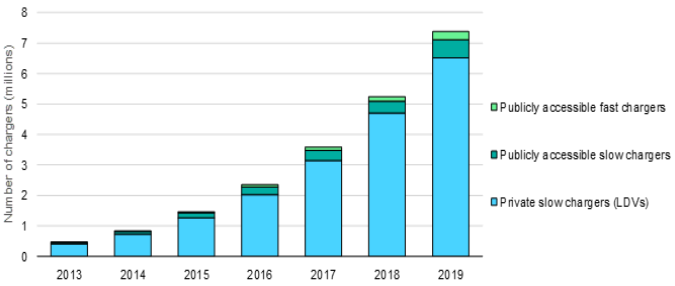


Source: IEA Global EV Outlook 2020

In terms of EV take-up, Mr Cazzola described how this was accelerating at a rapid pace, noting that in 2019, the global electric car fleet had reached 7.2 million, up 2 million from 2018, with China having the world's largest EV market, and Norway the highest electric car market share, as shown in Figure 1.

As to the key drivers for such increases, he explained a number of policies were being utilised, including economic instruments that help bridge the cost gap to ICE-powered vehicles as well as support for the deployment of essential charging infrastructure, which had almost doubled since 2017 (Figure 2). It was also noted that with advances in battery technology, there will be significant reductions in battery costs, and corresponding increases in battery performance.

F2. Global Installation of Electric Charging Points, 2013-2019



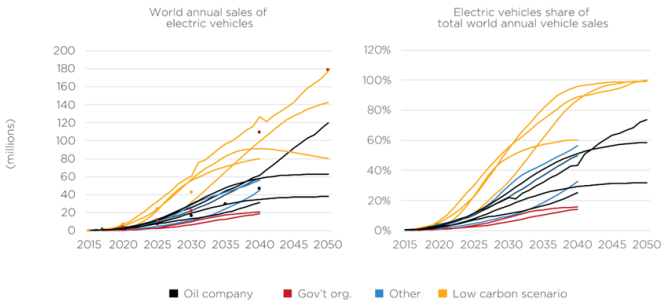
Source: IEA Global EV Outlook 2020

Mr Cazzola also highlighted that other major policy drivers included governments planning to legislate bans on the production of ICEs, with countries such as Germany and the UK planning such bans by 2030 and 2035 respectively.

These bans, together with initiatives such as the European Green Deal and other policy frameworks such as CO_2 emission standards, differentiated tax regimes favouring EVs (including significant taxation of fossil fuels), and the Clean Vehicles Directive, to name a few, would help to significantly drive take-up of EVs.

Taking these multitude of factors into consideration, Mr Cazzola indicated the outlook for the increased deployment of electric vehicles and charging infrastructure was very positive. According to research done by Columbia University, this included approximately 130 million EVs or more on the road by 2030, with the coexistence of both BEVs and PHEVs (refer to Figure 3 over page).

F3. EV Sales Volume and Market Share



Source: Columbia University, 2019

Sandra McKay, Executive Leader of Sustainability at the National Transport Commission (NTC), provided an overview of the Australian experience and new car buying trends over a decade. Ms McKay explained that the NTC was accountable to all Australian Governments, and aimed at achieving greater integration and national consistency in areas including vehicle automation, electrification and rail reform.

Ms McKay emphasised that Australian consumers were driving change, and welcomed the fact that the Commonwealth Government was about to release its National Electric Vehicle Strategy and a Technology Roadmap.

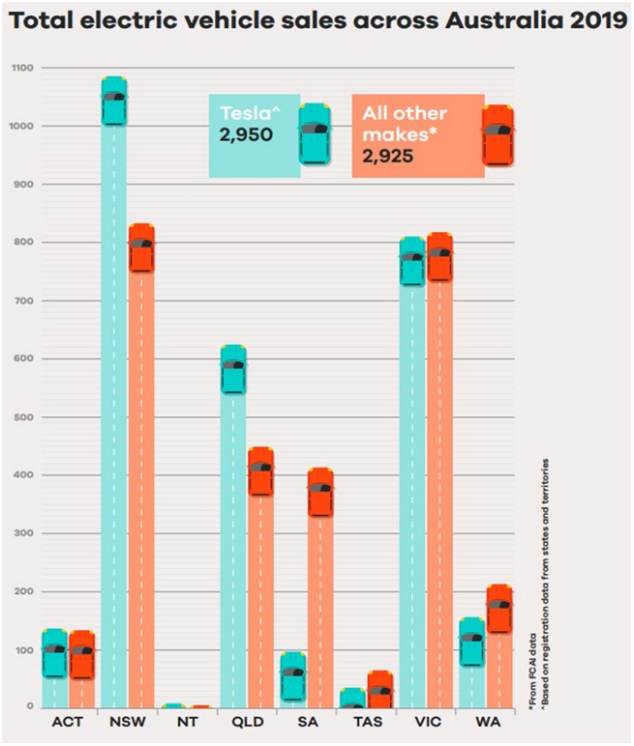
She also highlighted that Victoria, South Australia, Western Australia and the Northern Territory all have EV strategies coming out this year, while Queensland, the ACT and NSW were already advancing theirs.

Nevertheless, it was noted that Australia had significant work to do to change the trajectory of emissions if we are to meet our commitments to the Paris Agreement by the target date of 2030.

In regards to Australia embracing EVs, Ms McKay explained that although we were coming off a low base, we were starting to build pace. In fact Australia had substantially increased sales of EVs in 2019, with 40% of all EVs on the road in Australia sold last year (5,875), largely driven by a tripling of private sales (refer Figure 4).

Although still a minor user of EVs, the Federal Government fleet had increased from 1 to 16, State Government fleets from 34 to 123 and Local Government from 36 to 215.

F4. Total EV Sales Across Australia 2019



Source: FCAI, Registration Data 2019

However, looking at total national vehicle sales in 2019, whilst the purchase of EVs had increased by 149% since the previous year, the overall number of EVs on the roads (14,500; 0.08%) was still small in comparison to the nation's almost 18 million cars and light trucks.

Nevertheless, consumer sentiment indicated that there were encouraging signs that would help drive up-take of EVs. For example, according to a survey carried out by NRMA, RACV and RAA on behalf of the Electric Vehicle Council, 56% of surveyed consumers would now consider purchasing an electric vehicle as their next car.

There were also positive developments with the rollout of ultra-fast charging network along Australia's highways. This included 42 charging sites to connect a number of Australia's capital cities, as well as 21 ultra-rapid charging stations, to connect Australia's most trafficked inter-city routes along major highways.

Ms McKay also highlighted a number of other positive state-government based initiatives, including current and future commitments to the electrification of government fleets and further roll-out of charging infrastructure.

She concluded that, taken together with the soon-to-be-released National Electric Vehicle Strategy, Australia was moving in the right direction.

Mark Rowland, the Transport & Highways Advisory Leader from Arup, presented on de-carbonising Australia's on-road public transport system and opportunities for accelerating the transition of the bus fleets. Mr Rowland noted that although 17% of the world's buses are electric, 99% of them are operating in China, with very few operating in Australia.

Taking Sydney as an example, with a fleet of approximately 5,000 buses, and an average electric bus cost of $750,000, it would take a significant investment of around $3.75 billion to electrify the fleet. In terms of performance however, those electric buses that were currently being trialled were reportedly capable of doing up to 500 kilometres in a day, which included topping up with 30-35% through regenerative braking.

Mr Rowland also spoke about the franchise model ('Fleet as a Service' models) and noted that this was a significant policy lever for governments. Specifically, it would create an opportunity to accelerate the electrification of the bus fleet as those contractual arrangements started to come up for renewal over the short- to mid-term.

He also highlighted the importance of having clear definitions around what constituted zero and low emissions vehicles, noting a broader scope beyond just tail-pipe emissions needed to be consistently applied. Specifically, the carbon footprint associated with electricity generation, and for hydrogen fuel cell vehicles (FCEV), the manner in which that hydrogen had been produced (i.e. 'green' vs. 'brown' hydrogen), needed to be factored in.

Another key challenge was the length of the franchise cycles and associated contractual rules. In Australia, this meant that buses of up 25 years old were being used (this contrasts to 10 to 12 years in London) and then would continue their service in the second-hand market.

Considering the lifespan of the bus, this means that an ICE-powered bus purchased today could still be operating in 2050, which it was noted was misaligned with current climate change goals, particularly accounting for the 2030 Paris Agreement emission targets to which Australia had committed.

Therefore, the next round of franchise contracts would create a rare, yet vital, opportunity to accelerate the electrification of Australia's bus fleets, and help contribute towards lowering greenhouse gas emissions.

This would however require new and innovative thinking on vehicle electrification, together with a harmonised strategy, including but not limited to, investment in charging infrastructure, possible local manufacturing of buses using 3-D printing technology, and low carbon power generation.

RECENT DEVELOPMENTS

In further developments, the Commonwealth Government has just announced business incentives to invest in new electric car fleets to aid the push towards net-zero emissions beyond 2050.

The Electric Vehicle Council has also just commissioned Ernst & Young (EY) to analyse the costs and benefits of electric vehicles to the government and society.

EVENT OUTPUTS & NEXT STEPS

A snapshot of the event was promoted through Roads Australia's LinkedIn channel.

A second webinar, on active transport and the role it plays in a multi-modal transport system was held on 15 September. The synopsis of that event can be downloaded on the RA website.

Future topics to be discussed in the International Insights series include Road Worker Safety and Hydrogen, both of which are planned for November and December 2020.

In addition, Roads Australia plans to host further webinars on this and related topics.