

iMove webinar series: one

The Convergence of Energy and Transport

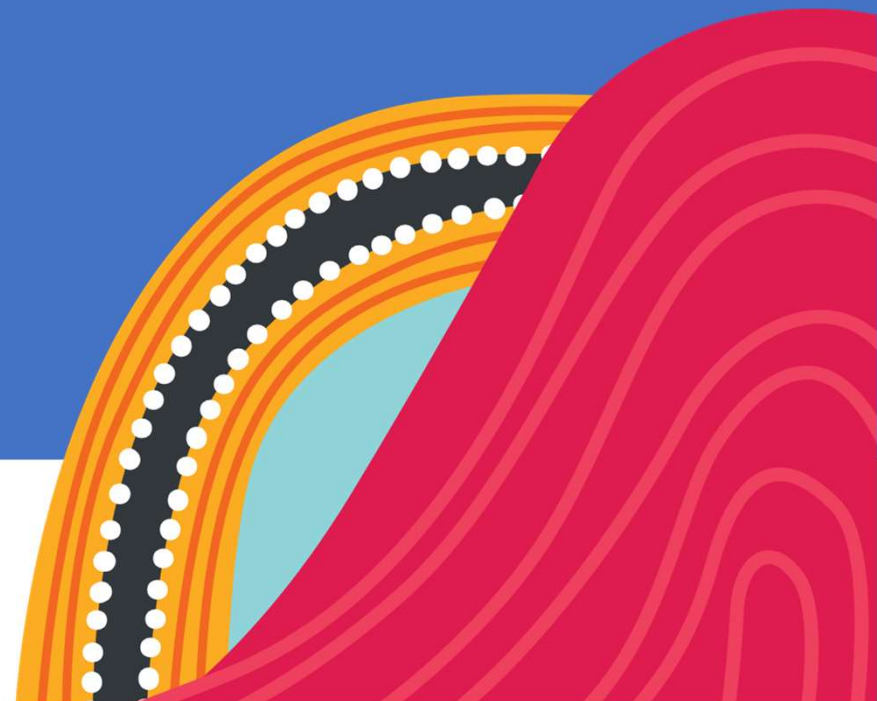
Transitioning to EVs

- Timothy Reid | Future Mobility Project Manager



- transport.nsw.gov.au

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Acknowledgement of Country

Transport pays respect to Elders past and present, and recognises and celebrates the diversity of Aboriginal peoples and their ongoing cultures and connections to the lands and waters of NSW.

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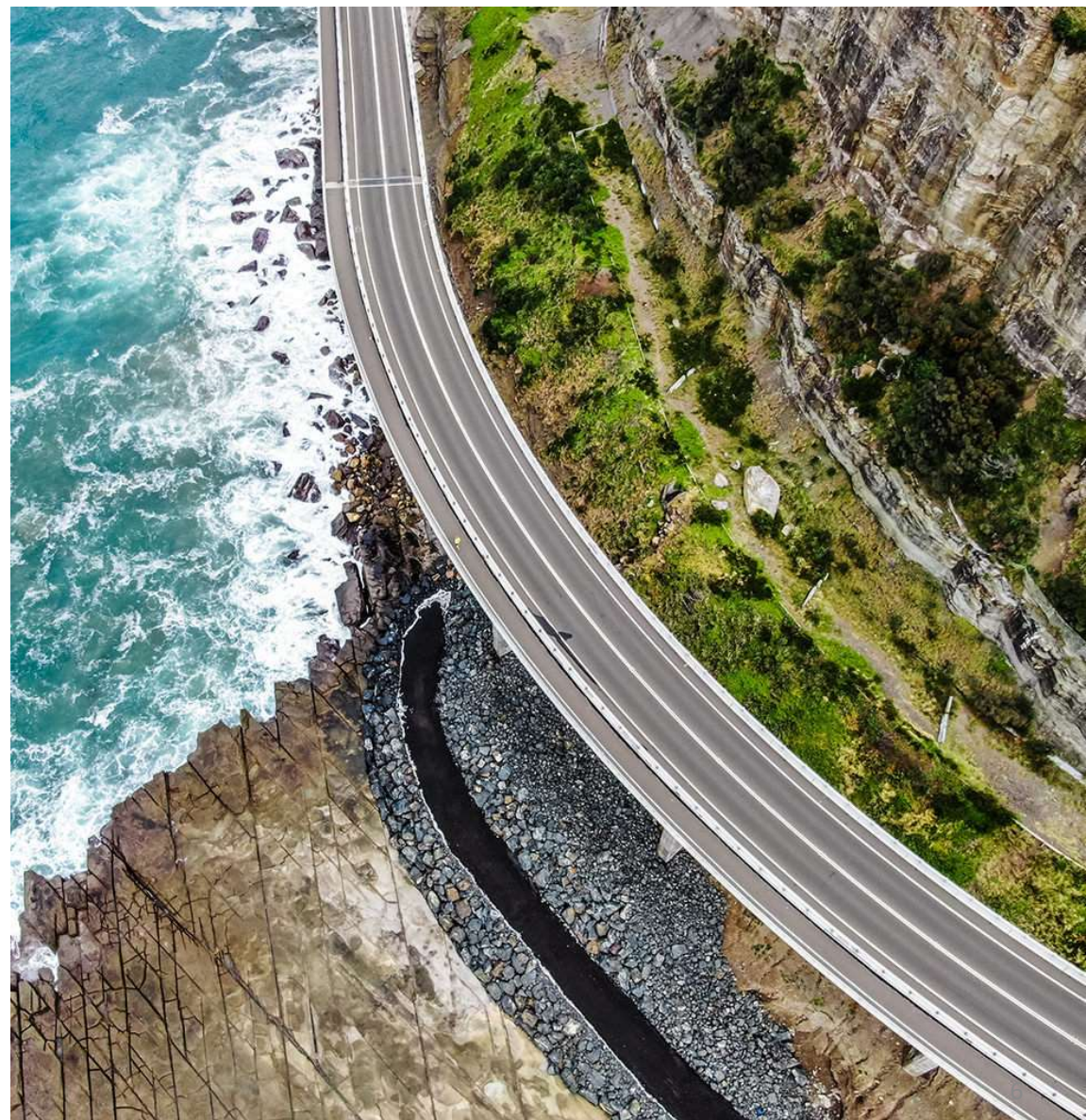
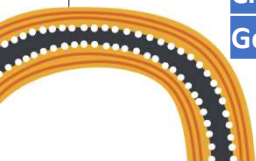
The Decarbonisation of Transport



The Global Shift to EVs

National commitments to end the sale of ICE vehicles

Country	Ban Start Date
Norway	2025
Denmark	2030
India	2030
Ireland	2030
Israel	2030
Japan	Ongoing
Portugal	Ongoing
Netherlands	2030
UK (Scotland)	2032
Canberra	2035
UK (Except for Scotland)	2035
Spain	2040
South Korea	2035
Taiwan	2040
France	2040
China	2040
Germany	2050



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Major OEMs commit to ending the production of ICE vehicles

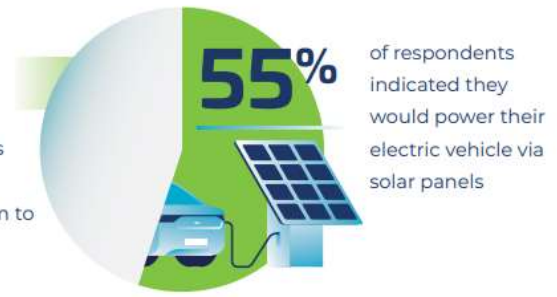
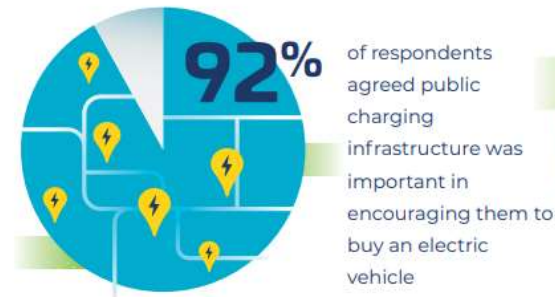
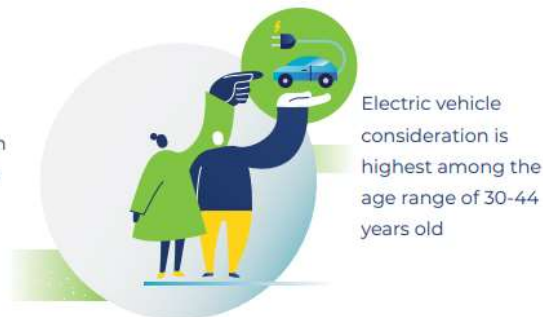
Vehicle	Date for PHEVs-BEVs Only / Date for BEVs Only	Milestones
General Motors	N/A By 2035	Electric Hummers and Silverado coming
<u>Honda</u>	N/A 2022 (Europe), 2040 (North America)	2 new EVs in 2024 to be built by GM
<u>Hyundai-Kia</u>	N/A N/A	23 types of EVs and hydrogen cars by 2025
<u>Jaguar Land Rover</u>	100% with some electrification by 2030 By 2030	6 electric Land Rovers over the next 5 years
<u>Mercedes-Benz</u>	All new platforms EV-only in 2025 2030 with caveats in some markets	EQS luxury sedan on sale this fall
<u>Mitsubishi</u>	N/A N/A	A plug-in hybrid focus. The Airtrek EV shown for the Chinese market.
<u>Nissan</u>	N/A N/A	8 EVs models on the road by the end of 2023
Toyota	8 million electrified vehicles by 2030 N/A	70 electrified models by 2025, 15 of them battery EVs
<u>Volkswagen Group</u>	50% fully electric sales in U.S. by 2030 Last new combustion platform in 2026	The VW Group has 70 new electrified models in the pipeline
Volvo	By 2025, half of global sales fully electric By 2030	All fully electric models will be available online only

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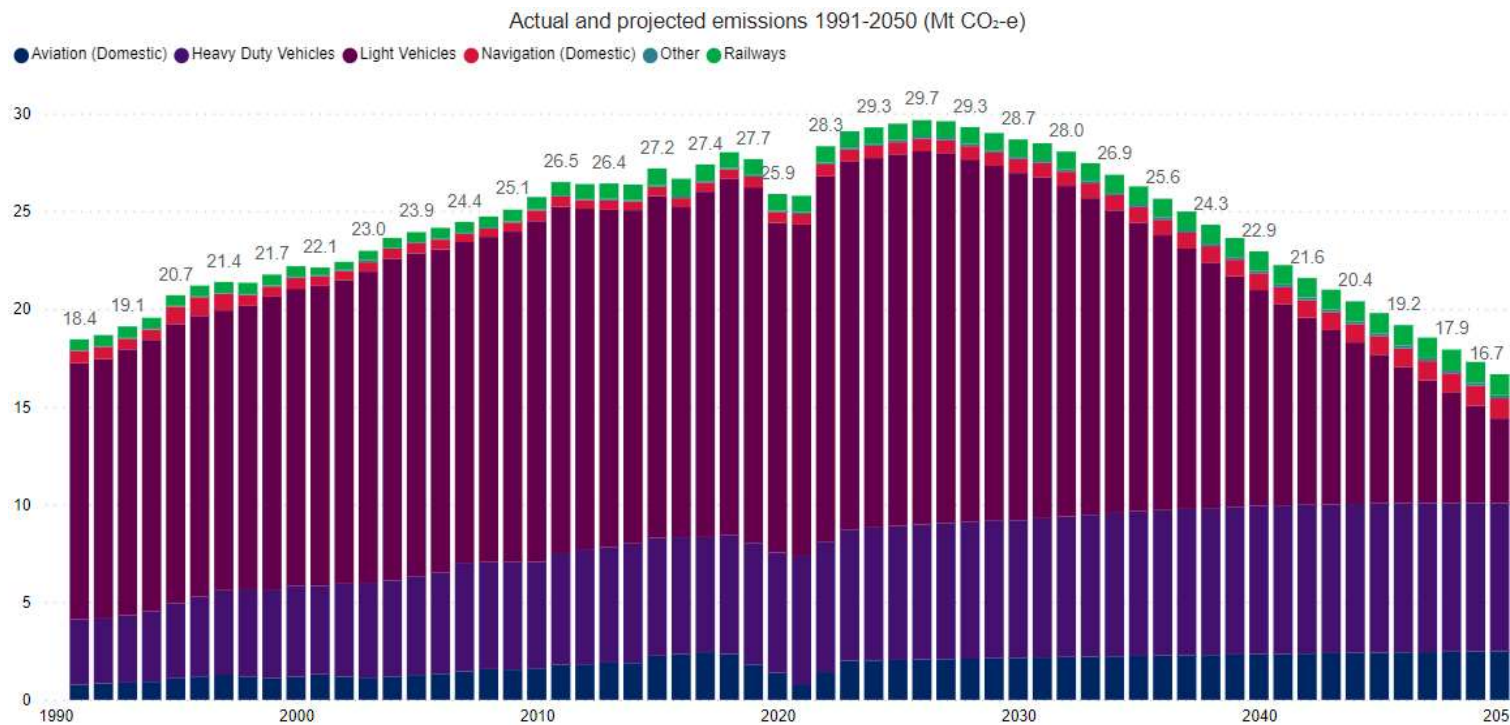
Consumer Insights:

Key insights



Source: [2021-EVC-carsales-Consumer-attitudes-survey-web.pdf](https://electricvehiclecouncil.com.au/2021-EVC-carsales-Consumer-attitudes-survey-web.pdf)
(electricvehiclecouncil.com.au)

Transport Sector is a major contributor to GHG



Actual emissions based on national inventory report to 2020

Base case emissions under business-as-usual without Net Zero Plan Stage 1: 2020 – 2030

Current policy emissions with Net Zero Plan Stage 1: 2020 – 2030

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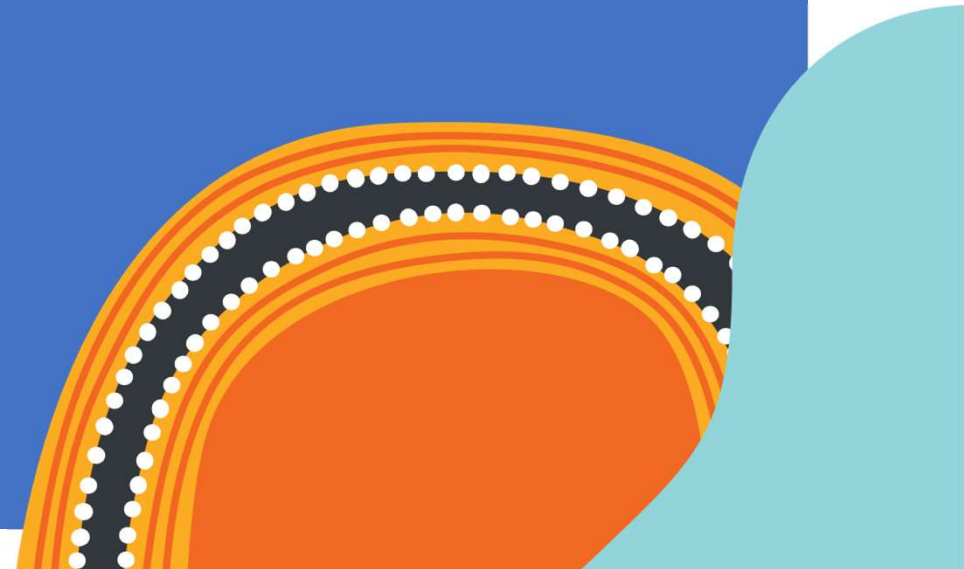
Source: [Net Zero Emissions Dashboard | SEED Portal \(nsw.gov.au\)](https://netzeroemissions.nsw.gov.au/dashboard)

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NSW Government Actions

TRANSPORT

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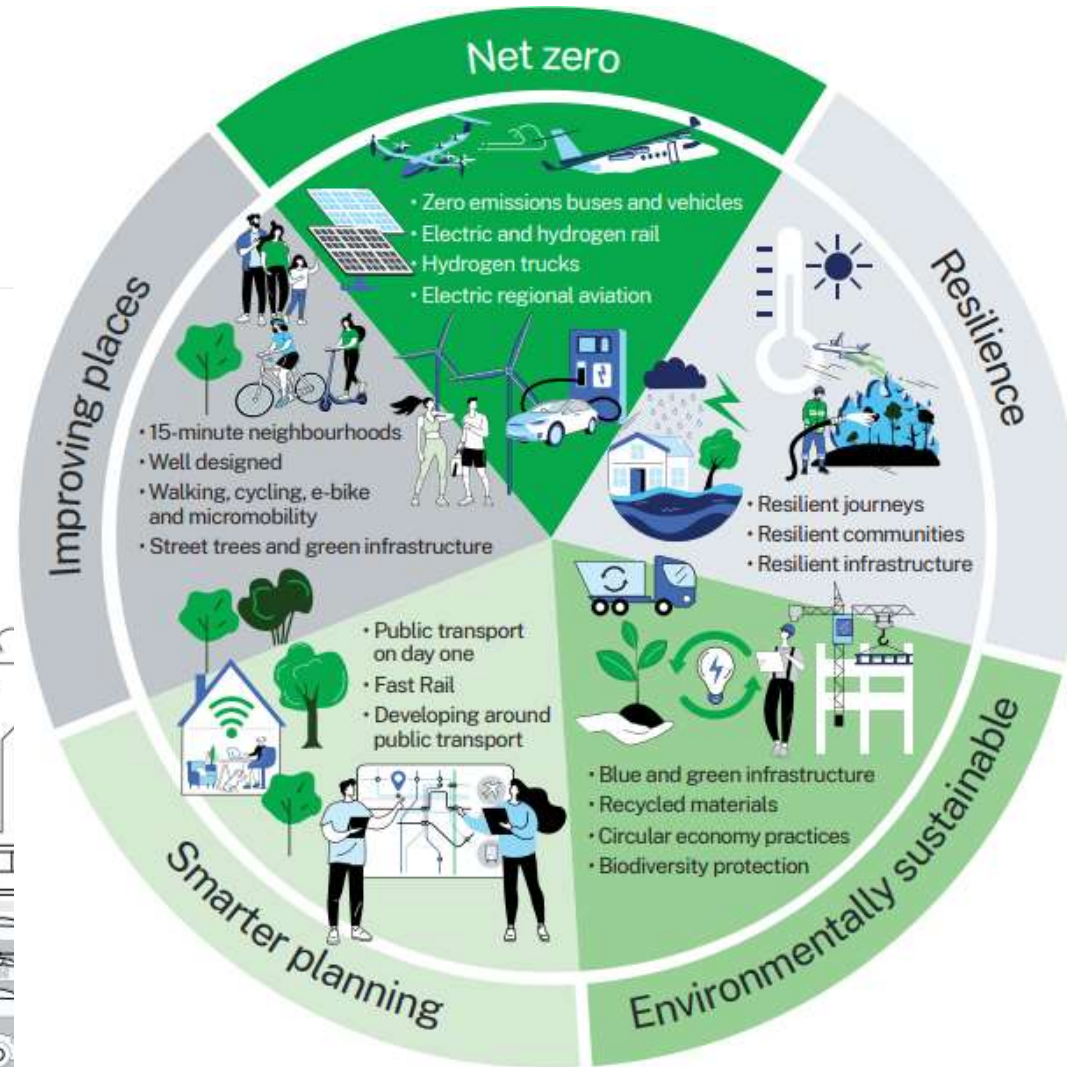
Future Transport Strategy

Strategic Directions:

P3 Transition to net zero greenhouse gas emissions

P3.1 Achieve net zero emissions from our operations and fleet by 2035

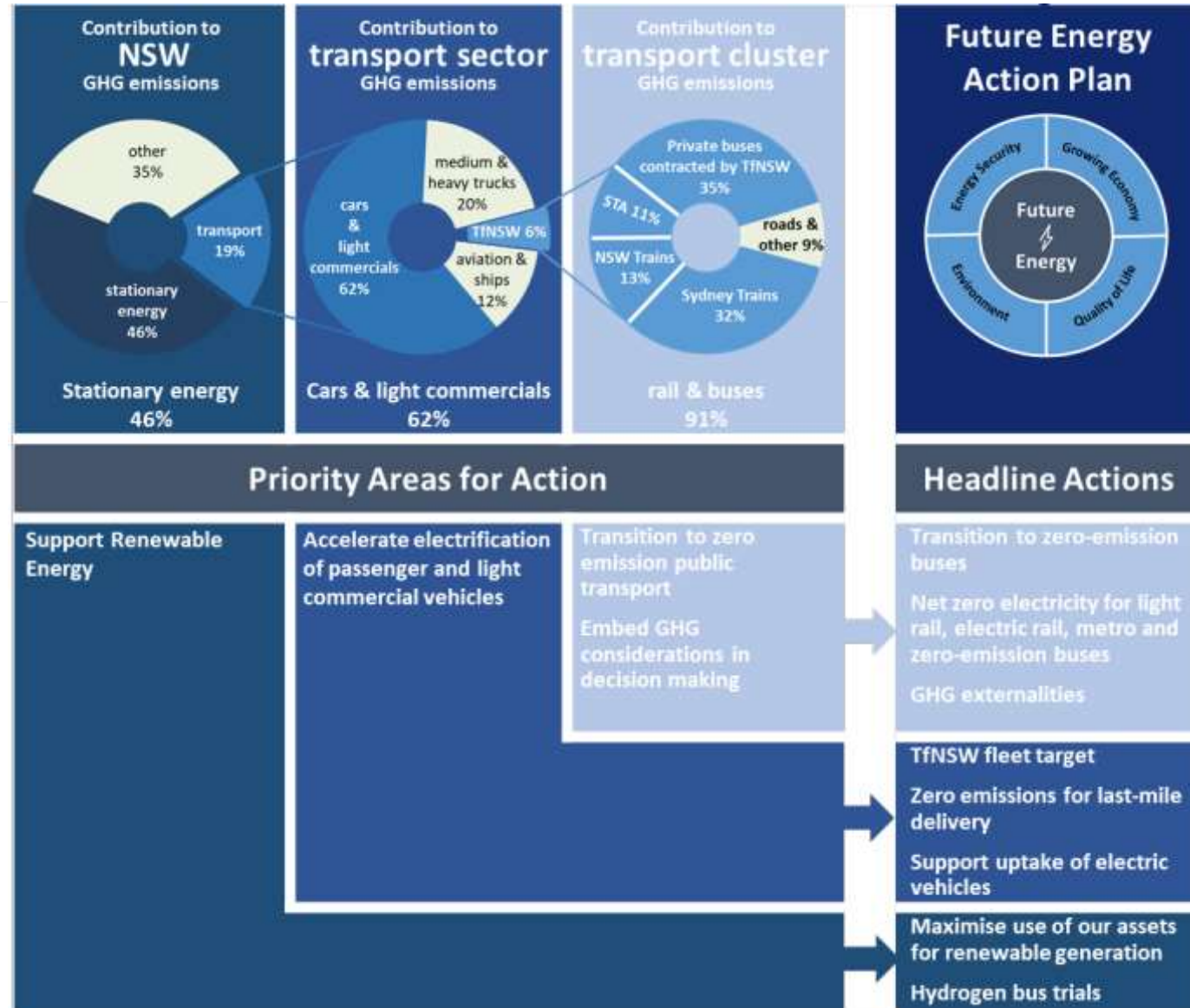
P3.2 Help the transport sector achieve net zero emissions by 2050



[Source: Future Transport Strategy: Our vision for transport in NSW](#)

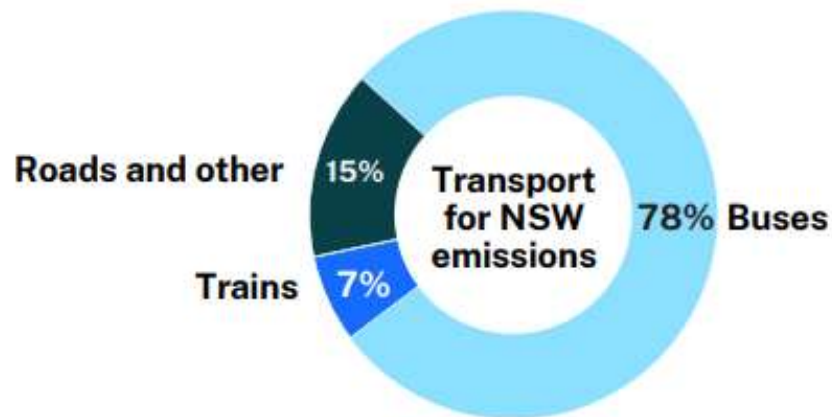
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Green House gas emissions are the benchmark



Zero Emission Buses

June 2022



The NSW Government is investing \$633 million to accelerate up-take of electric vehicles (EVs) and decarbonise the state-owned vehicle fleet



NSW Electric Vehicle Strategy

environment.nsw.gov.au



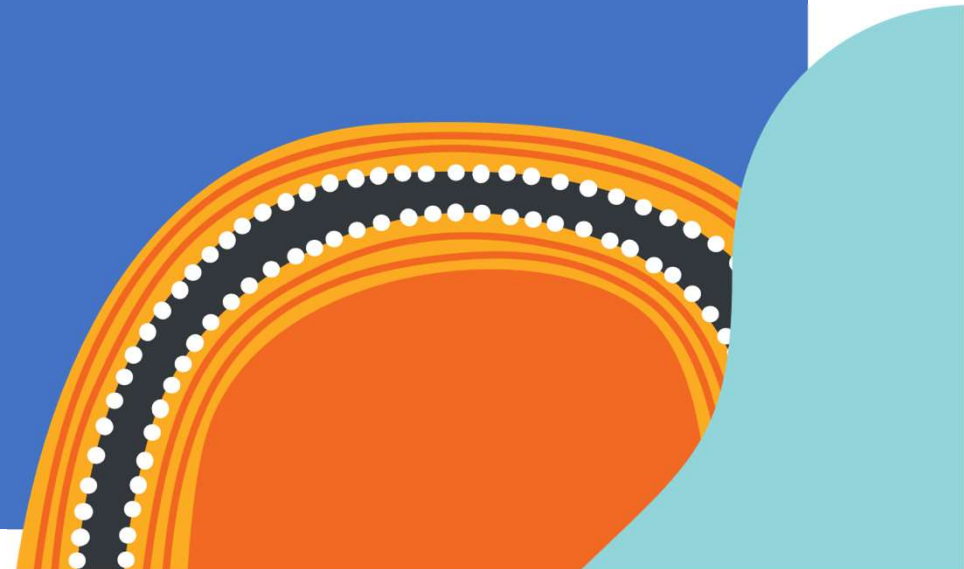
This Includes:

- \$149 million is for ultra-fast charging infrastructure in areas with limited off-street parking, as well as to build EV Commuter Corridors and Super Highways across the State.
- \$20 million is for destination charging infrastructure in or near commuter carparks and other popular TfNSW sites.
- \$20 million is for destination charging infrastructure at regional tourist locations, such as motels, restaurants and wineries.
- \$10 million to co-fund 500 kerbside charge points to provide on-street charging in residential streets where private off-street parking is limited.
- \$10 million to co-fund around 125 medium and large apartment buildings with more than 100 car parking spaces to make EV charging electrical upgrades.
- \$75 million for cash rebates of \$3,000 for eligible EVs under \$68,750
- \$33 million to help NSW Government transition to an all EV fleet for a 2029-30 target;
- Stamp duty waived for eligible EVs under \$78,000

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Energy and distribution for EVs



NSW EV Strategy

The NSW Government will manage the integration of electric vehicles into the electricity grid

Increased numbers of EVs will put demand on the electricity grid as more vehicles are plugged in to charge. The NSW Government will work to ensure that the increase in EV uptake is appropriately integrated with the electricity system, including with rooftop solar, batteries, and with smart chargers to manage the impact on peak electricity demand. With bidirectional charging capabilities, EV batteries can help support the grid at peak demand times in the future.



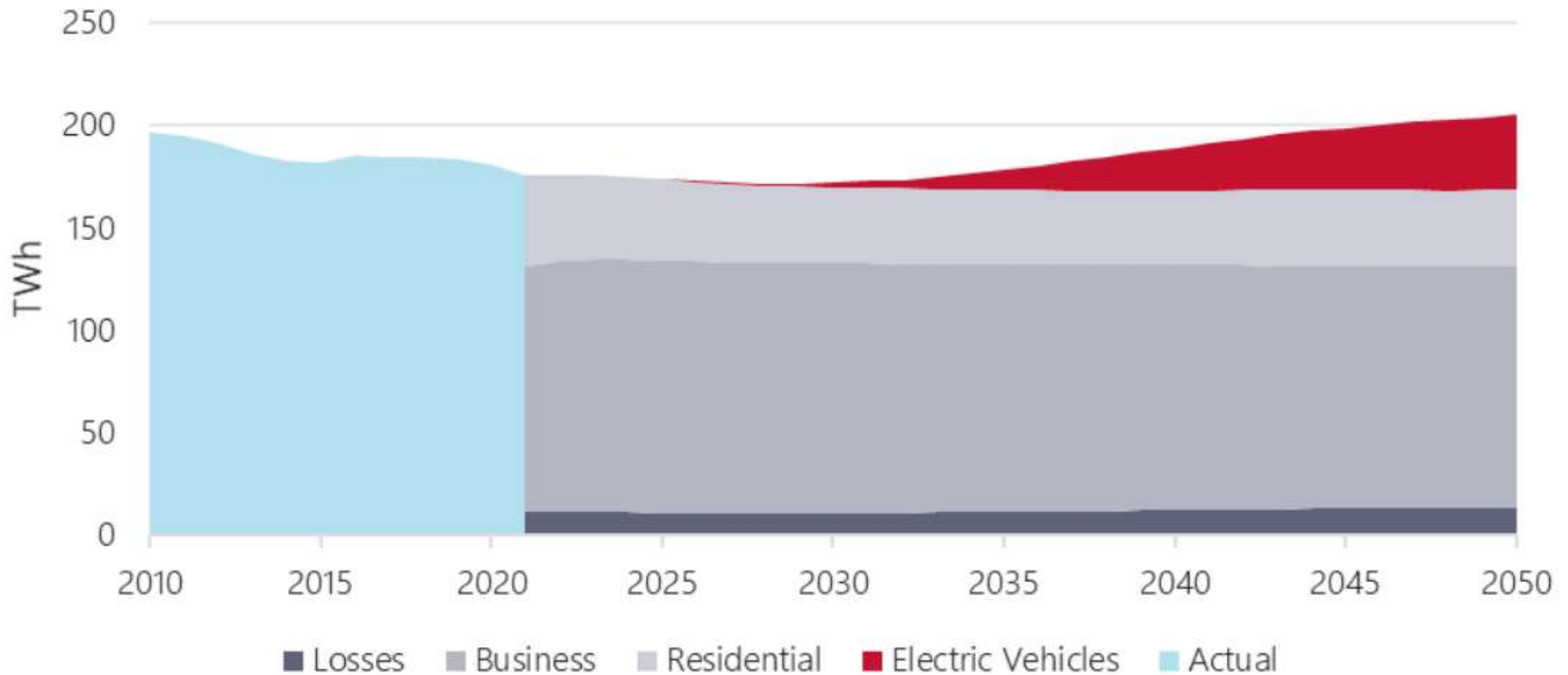
NSW Electric Vehicle Strategy

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NEM operational consumption & projections, 2020 ESOO Central scenario

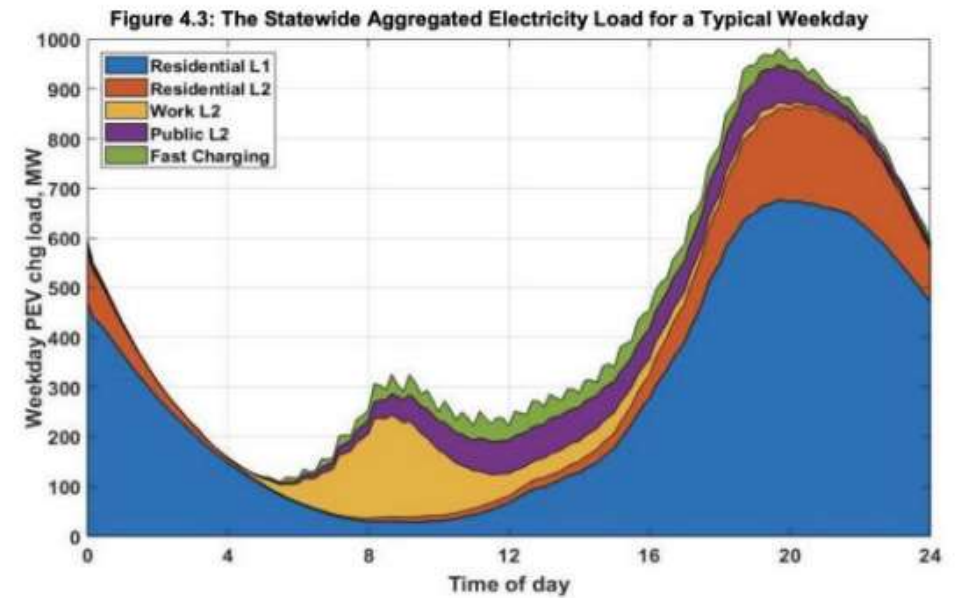
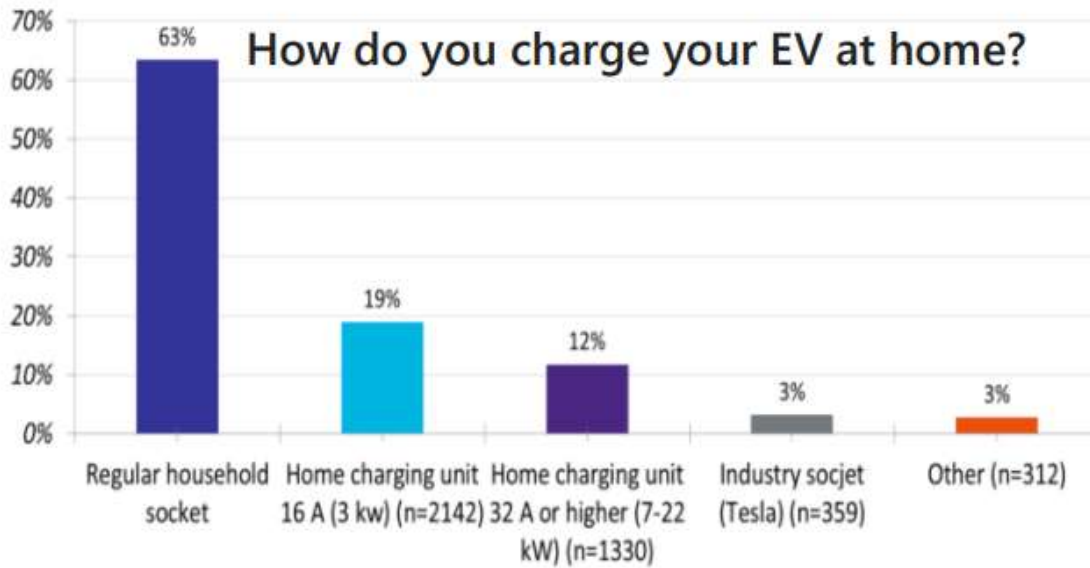


Source: AEMO's 2020 Electricity Statement of Opportunities (ESO)

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Insights from Norway

How do you charge your EV at home?



NSW

QLD

VIC

SA

TAS

Chart view ▾

Pre-Dispatch ▾



CURRENT SPOT PRICE

\$125.34 (MWh)

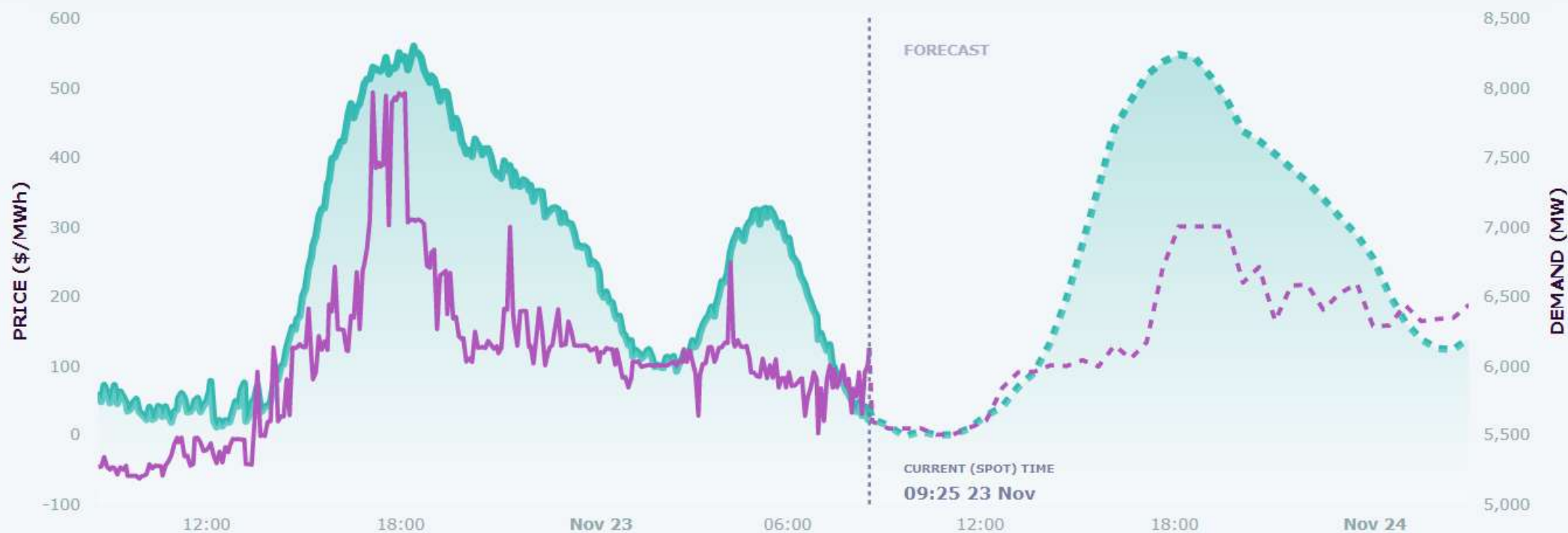
CURRENT DEMAND

5,695 (MW)

FORECAST PRICE (NEXT 30MIN)

\$19.24 (MWh)

FORECAST DEMAND (NEXT 30MIN)

5,611 (MW)Source: [AEMO | NEM data dashboard](#)

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Feature	Attribute	Notes
Scheduled charging	Pre-program when the EV will and wont charge	Useful if you wish to avoid peak energy costs
Optimised Charging	Allows a 3 rd party to manage the charging schedule dynamically on your behalf limited by the rules you set	May provide a lower cost of energy, may integrate with home solar systems
ADR (Automated Demand Response)	Allows the DNSP or provider to control the charger to respond to energy network issues.	May provide income for demand response actions.
V2H Vehicle to Home	Allows EV owners to use the battery energy from their car to power their home. Think of it as a mobile home battery.	Great to avoid power cuts and avoid peak energy costs. Check your vehicle battery warranty terms allow for this. Currently only available with CHAdeMO. The technology and legislation is still developing in this space
V2G Vehicle to Grid	Allows EV owners to use the battery energy from their car to support the power grid	Not currently available with the exception of limited trials, has the ability to support the power system and generate income.
Automated billing	A smart charger (with a pattern approved meter) can manage your energy bills for you and can separate the charging costs for your EVs and potentially bill your employer directly for charging a company car	A smart meter that can authenticate vehicles and manage billing can make life easy for EV drivers or businesses who share vehicles or wish to charge employees for charging at work
Real time information	Allows monitoring (and sometimes control) of vehicle status through an app, so you can always know the battery SoC (State of Charge)	A great feature for those who like to know what's going on in the palm of their hand

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Questions

- Transitioning to EVs
- Timothy Reid | Future Mobility
Project Manager



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