

Choosing and using an EV

Thinking ahead to 2035...

How do you charge?

Charging versus refuelling

Charging options

How to find a charger

What's coming soon

Buying second-hand?

EV Mythbusting

Useful EV resources



By: Bryce Gatton, [EV Choice Consulting](#)

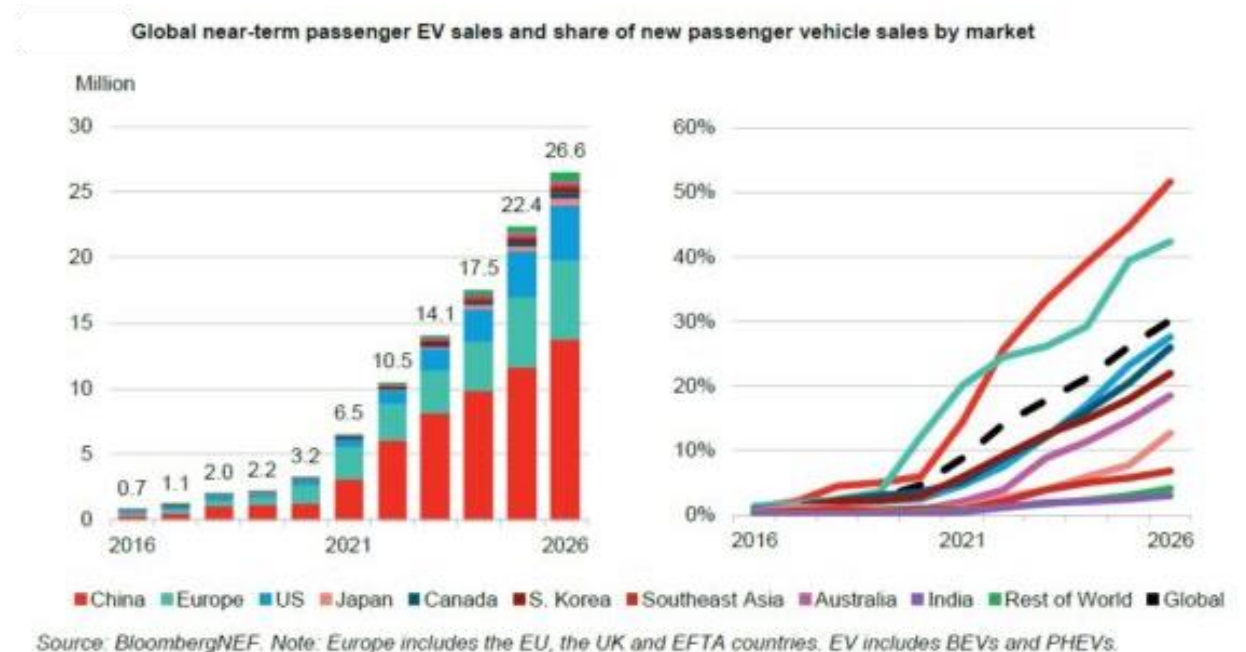
EV writer/commentator, [TheDriven.io](#) and [Renew magazine](#)

© B. Gatton 2026

It's 2035

- BEV sales have passed 80% of new cars and Australia's car parc has hit 50% BEV.
- Fuel sales have dropped off a cliff and petrol stations are closing at a rapid rate.
- Internal Combustion Engine (ICE) car resale values have plummeted as BEVs are the desired car - but BEVs are still only 50% of the second-hand market.

Images: left-B Gatton, right-Bloomberg NEF



EV Transition is coming in ALL forms:

- Trucks
- Machinery
- Tractors
- Bicycles & scooters
- Motorbikes
- Planes
- 'Flying cars'
- Autonomous cars
- Busses
- Ferries
- General equipment
- Boats



BEV versus ICE running costs:

Assumptions:

- 10,000 km/yr
- 2024 Hyundai Kona electric EV at 14.7 kWh/100 km¹
 - charge overnight only, EV off-peak tariff of 6c/kWh
- 2024 Hyundai Kona petrol 1.6L auto, 2WD at 6.2 L/100km¹
 - using 91 RON fuel at \$2.00/L



Fuel cost comparison (per 10,000 km):

EV Kona: **\$90**

ICE Kona: **\$1240**

Fuel savings: \$1,150

Service savings: estimate **\$60/yr²**

Total saving using EV/10,000 km (approx.): **\$1,200**



Notes:

- 1: WLTP test cycle data from Hyundai Australia
2. Service costs - EV \$520/2 yrs, ICE \$320/yr

Charging

two ways, one socket:



Note:
Pre-2017 DC socket (CHAdemo)
Now a legacy standard

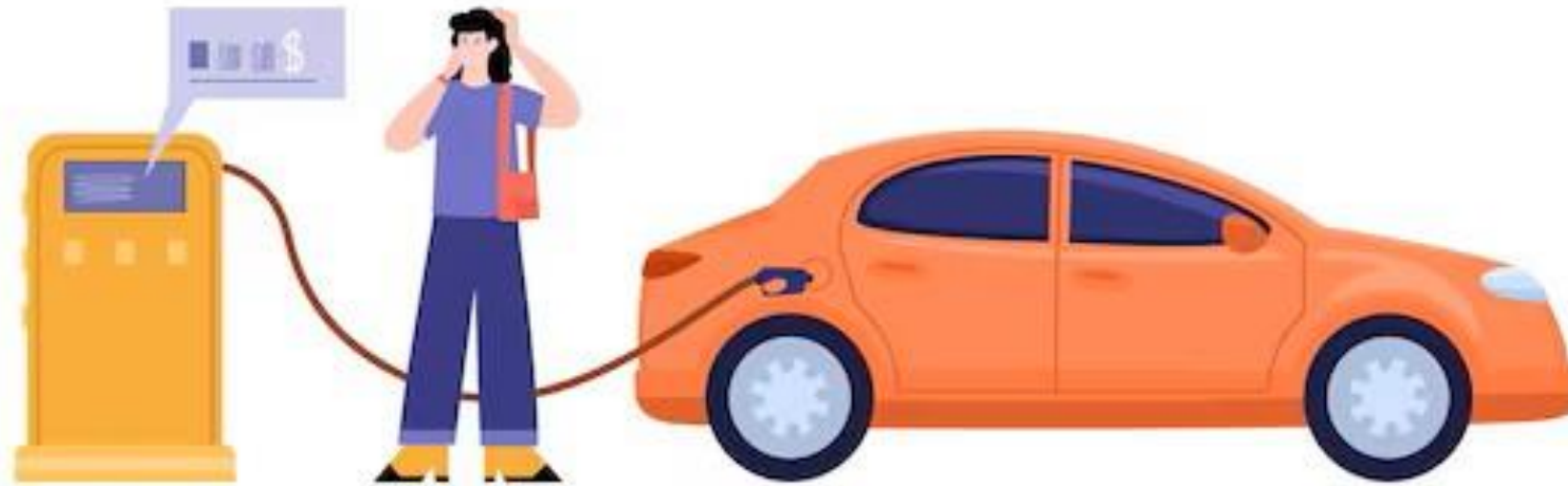


Top images: <https://zcar.com/resources/byd-seal-charging-guide>

Bottom image: B Gatton

Key Point #1

- In any 24hr period: the average car is parked 95% of the time*.
- So why waste time charging *during* a trip?



*Reference: <https://www.reinventingparking.org/2013/02/cars-are-parked-95-of-time-lets-check.html>

Image: <https://www.freepik.com>

Key Point #2

“Not in Kansas any more”.



- (a) Private charging will predominate. (roughly 80% of all charging)
- (b) i.e. EV transition DOESN'T need 1:1 swap of fuel bowsers to car chargers.
- (c) Best public places to recharge often different to fuel station locations.

Public recharging model differences:

- **Cities:** multiple AC and DC options, more diffuse, smaller footprint per site;
- **Roadhouses:** mostly very fast DC, expansion potential for more food and break options;
- **Country towns:** mix of medium-fast DC and AC chargers, depending on dwell-time.

'Refuelling' reinvented

Think plug-n-ignore 'mobile phone' model

NOT



find, stop and act as a
'fuel pump attendant'

Key Point #3

EVs use a mix of charging options

AC:

DC (fast-charge):

Portables



Image: EVSE Australia

Hard wired



Image: JetCharge



Image: Tesla



Image: Tritium



Image: ABB



Image: EVolution



Image: EVSE Australia

What charger do I NEED at home?

1. Less than 100km in a day

- Overnight charge @ 2kW: 100km charged in 8hrs
- \$500 up installed. (Must go back to switchboard on own circuit).
- BTW: 15A outlet (same cost) will add almost 200km in 8hrs.

2. Within range of one car charge/day (Kona = 400+km)

- Overnight @ 7kW: 100km in 2 hrs/full charge by morning
- \$750 up (plus EVSE) installed.
- Options for solar-only charging, control by Apps, etc



Charging (charger)

Rule of Thumb #2:
If you need to home charge more than 4 hrs at a time, more than twice a week: go up a size in charging.

Rule of Thumb #1:
Charger kW = km charged in 10 min

Examples:




- 2 kW portable charger: 2 km in 10 min
- 350 kW charger: 350 km in 10 min

References/further information:



Notes to table:

- a. At 15kWh/100km efficiency
- b. Single phase
- c. Three phase
- d. Theoretical at maximum kW rate. DC kW charging rate varies with state of charge and other factors

Typical outlet example	Maximum kW supplied	T	for 100km charged ^{a,d}
AC charging			
10A power point 	2 ^b	8 h	50
15A power point 			20 m
Home charger 	22 ^c		m

No off-street parking? What NOT to do!



Image: Keith Bensley
(Sawtell, NSW)

Private AC on-street parking solutions:

Netherlands: ChargeArm



Merri-bek council trial:
Vehicle Charge Solutions Australia

<https://www.vcsa.au/>



Some Melbourne councils: Kerbcharge <https://www.kerbcharge.com.au/>

UK: Kerbo Charge



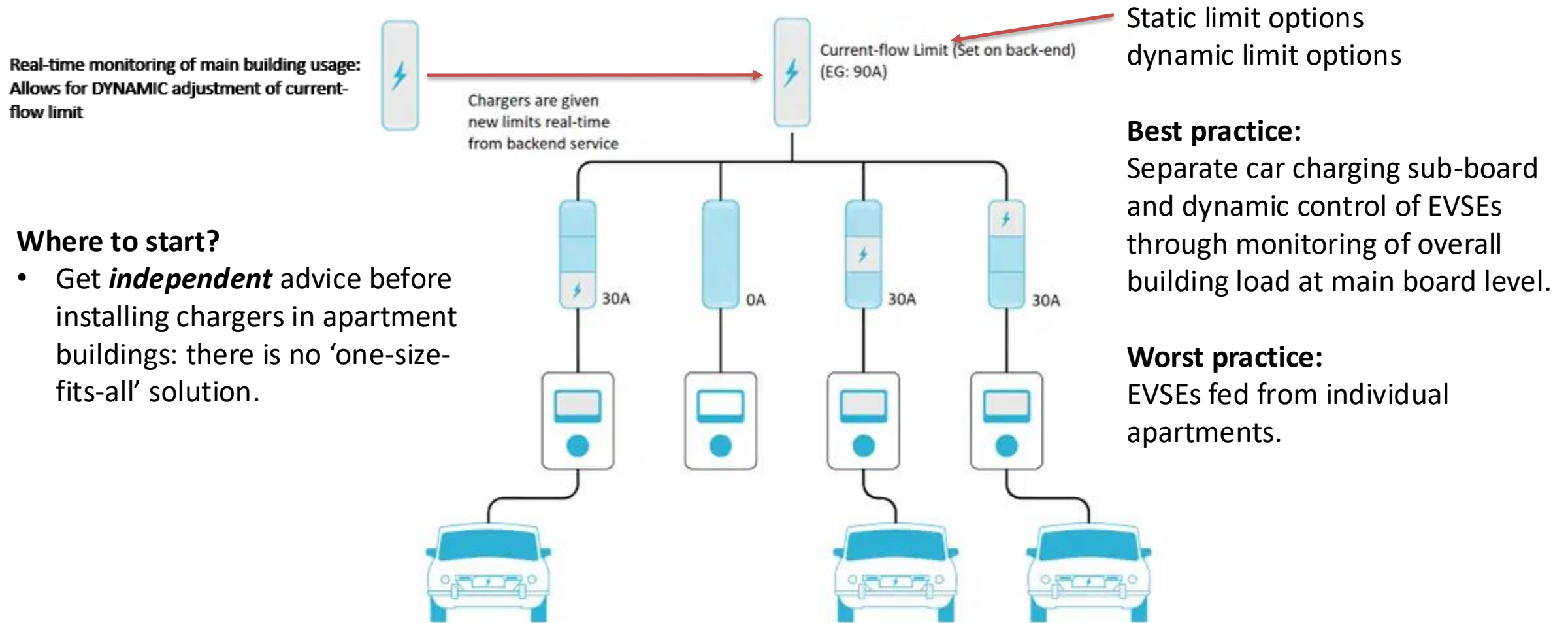
Public AC on-street parking solutions: NSW public AC chargers trial



Image: City EV

Apartments: long-term

Load sharing and load management are key



Finding charge stations:

The screenshot shows the PlugShare app interface. At the top, there's a navigation bar with the PlugShare logo, 'PlugShare for Business', 'EN', 'Login', and 'Register'. Below this is a search bar containing 'South Gippsland Shire Offices'. The main area is a map of the region with various charging stations marked by icons. A pop-up window for a station at '9-15 Smith St, Leongatha VIC 3953, Australia' is open, showing '1 of 1 chargers available' and 'Plug Types: CCS2, CHAdeMO'. On the left side, there's a detailed view of the selected station, including its name, location, payment information, and parking details.

PlugShare for Business EN Login Register

South Gippsland Shire Offices

10 South Gippsland Shire Offices
CHAdeMO, CCS2
Chargefox 60 kW Workplace
Check In

BOOKMARK ADD PHOTO DIRECTIONS EDIT

9-15 Smith St, Leongatha VIC 3953, Australia

Payment may be required
Please refer to station details for up to date pricing

Please download the "Chargefox" app from the App Store or use a Chargefox RFID card

Parking: Free
Pull in parking
Handicapped parking
Illuminated

EV Parking, Dining, Restrooms, Shopping, Grocery

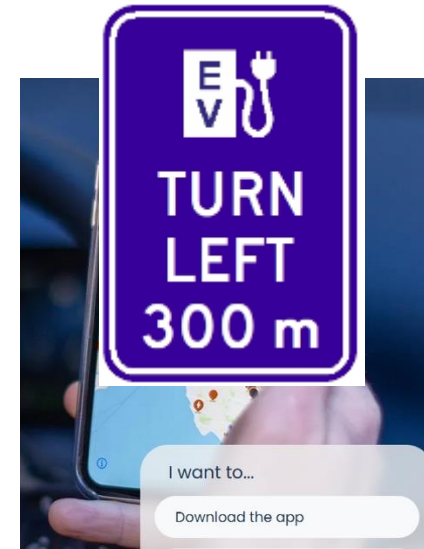
Open 24/7

60kW public charger located in the carpark out

95 Charging Locations Traffic
Map Terrain Satellite

Map data ©2026 Google 5 km

<https://www.plugshare.com/>



<https://ampcharge.ampol.com.au/>

https://www.bp.com/en_au/australia/home/products-services/bppulse.html

How far can I go on a charge? (Range estimates)

Beware: one of three test standards may have been used.

Vehicle	NEDC (Australia)	WLTP (Europe)	US EPA
	Range estimates in kilometres (km)		
Nissan Leaf: 40 kWh	315	270	240
Hyundai Kona: 64 kWh	557	484	415
BYD Atto: 3 50 kWh	410	345	Not sold in US
Volvo C40 AWD: 78 kWh	500	432	364

1. NEDC = Old European standard/still Aust standard. (WLTP coming July 2026)

Commonly around 30% too high. (Same, or worse, for Chinese CLTC)

2. WLTP = New European standard (since 2017).

Very close to mainly city/middle to outer suburban use.

More detail:

[Renew ed. 155](#) or [EVchoice.au](#)

3. US EPA = United States Environmental Protection Agency

Very close to mainly middle/outer suburban and regional driving.



Coming trend: V2X

- ❶ V2L: Vehicle to Load —————→ CCS2: AC
~~CCS2: DC~~
 - ❷ V2H/B: Vehicle to Home/Building
 - ❸ V2G: Vehicle to Grid
- } DC

Currently:

- a) Many new cars offer V2L now
- b) Many new cars arriving now V2H/G capable (but not enabled)
- c) Some CCS V2H/G connection boxes approved and available
- d) Hold-up is the vehicle manufacturers

Image: Nissan Australia



Futureproofing your electrical installation

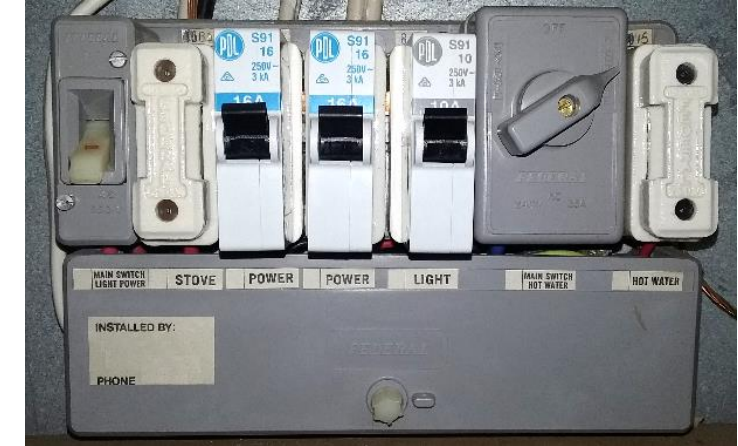


- Smart chargers may be mandated in the future
- V2G options coming (sometime 2026??)
- Moving to all-electric homes
- i.e: when doing electrical work: **PLAN AHEAD**
 - If changing the switchboard, 2 rows & 24 slot minimum
 - install cable for 32A, even if using a standard power point for now.
 - Run data cables between charger and switchboard (or to data hub).



Other EV transition practicalities:

- Current switchboard and street supply cable capacities.
 - See ReNew magazine, edition 143.
- Do you have somewhere to charge off-street?
 - See Renew magazine edition 145.
- Choosing the right electricity tariff.
 - See ReNew magazine, edition 144.
- ‘Smart-ish’ or ‘Dumb’ charger choice (Fully ‘Smart’ yet to come).
 - See Renew Magazine edition 156 (July – Sept 2021)
 - <https://thedriven.io/2023/08/22/what-is-an-ev-smart-charger-and-can-i-buy-one-now/>
- Lead to use public ‘BYO’ chargers.
- Useful to carry a higher power charger for remote area travelling.



Renew articles also available at EVchoice.au



Passenger cars

Honda Super ONE: **H2 2026**
Micro. Range: 200km?
Price: \$30k?? TBC



Nio Firefly: **H2 2026**
Light. Range: 300 km (TBC)
\$40k?? TBC



Leapmotor B05: **Mid 2026**
Small. Range: 420 km?
Price \$45k??



Mazda 6e: **Q2 2026**
Medium. Range: 560 km
\$55,000 + ORCs



Polestar 5: **H2 2026**
Large. Range: 678 km
\$TBC, but comfortably over \$100k

Small SUVs



Suzuki e-Vitara: **June 2026**
Small SUV. Range: 344/395 km
\$47k, \$57k



MG4 EV Urban: **HERE! 2026**
'Small' SUV. Range: 325/415 km
\$32k, \$35k



Skoda Epiq: **Q4 2026**
Small SUV. Range: 315/430 km
Price: TBC

Medium SUVs



Mazda CX-6e: **Q4 2026**
Medium SUV. Range: 475 km
\$50k + ORCs



Volvo EX60: **Q4 2026**
Medium SUV. Range: 620/810 km
\$90k + ORCs



MG S6: **H1 2026**
Medium SUV.
Range: 529/484 km (2WD/AWD)
\$60k+ORCs (TBC)



Deepal S05: **H1 2026**
Medium SUV
Price: \$TBC



Smart #5: **H1 2026**
Medium SUV. Range: 550 km
Price: \$TBC

Light Commercial BEVs



Kia PV5 Cargo: **H2 2026**
Range: 295/412 km (TBC)
NZ\$79,990 OTR, Au \$93k +ORCs. (!??)



Toyota Hilux BEV: **H2 2026**
Range: 240 km; 1600kg towing
\$75k+ORCs



Mg U9 ute: **Q4 2026 (TBC)**
Range: 300 km (TBC); 3500kg towing
\$TBC



Victory light truck. **2026?**
Range: 240 km (TBC)
\$45k on-the-road??

**2016 TESLA Model S**

70 Sportback 5dr Reduction Gear 1sp AC235kW

**BATTERY CERTIFICATE
PREVIEW**

CERTIFICATE NUMBER: 551C22EE-FE9A-4439-****-****

VEHICLE

BRAND: Tesla
MODEL: Model S - 70**MILEAGE:** 111,670 km
DATE AND TIME:
12/05/2026, 09:02

RESULTS

STATE OF HEALTH (SOH)**91.3 %****ENERGY**

63kWh | 69kWh

WLTP RANGE

367km | 402km

CHECKS

EVALUATION

GOOD HEALTH - NO ABNORMALITIES DETECTED

Based on the detailed battery diagnostics performed with the AVILOO FLASH Test, we hereby certify that the drive battery of this vehicle is in good condition. The drive battery is therefore officially AVILOO Certified.

There's no need to buy new: Buying a second-hand EV

What should I look for when checking out a potential second-hand EV purchase? Bryce Gatton explains the ins and outs of shopping around for a used EV.

For a BEV (battery electric vehicle), in place of the internal combustion engine (ICE) and its associated fuel, exhaust, emissions control and cooling systems are the new components of an electric drive system. (These being the main battery, electric motor, charger, charging socket/s and all the EV associated electronic controls).

Remember though, the electric propulsion parts are only roughly one third of the car: the rest of it is identical to its ICE powered predecessor. Consequently, many of the pre-purchase checks needed for a second-hand BEV remain identical to those needed for a second-hand ICE vehicle. For a PHEV (plug-in hybrid electric vehicle) or HEV (hybrid electric vehicle), these checks include all the ICE ones, plus additional EV ones.

Whilst an in-depth knowledge of either BEV or ICE systems is needed to diagnose and fault-find such systems, the average car buyer can make a reasonable assessment of their fitness.

The general inspection categories for each EV type



The ZEO Nissan Leaf is the cheapest second-hand EV readily available in Australia. Despite being up to nine years old and with short range compared to modern EVs, they still command good prices, rarely being found for less than \$16,000. Many other EVs can sell for as much second-hand as they do new, such is the demand for EVs in Australia, although prices will drop once new lower-priced EVs such as the BYD Dolphin enter the Australian market.

Image: EurovisionNim/Wikipedia (CC BY-SA 4.0).

more than one radiator for the electric motor, controller and/or battery cooling).

- Differences between ICE and BEV

The biggest changes are in what you don't need to check. For a BEV, these include the

- Operation of charging system(s)
- Condition of charge socket(s)
- Portable EVSE—existence, condition and operation
- Operation in different driving modes (as fitted to the vehicle)

EV



**MYTH
BUSTING**

EVs catch fire a lot?

The headline:



The facts:

US vehicle fires by the US insurance company *AutoinsuranceEZ.com* found the following:

Hybrid vehicles: 3,474 fires per 100k sales
Petrol vehicles: 1,529 fires per 100k sales
Electric vehicles: 25 fires per 100k sales

Nissan:

15 years of Leaf manufacture (and over 600,000 sold) – NO battery fires or thermal runaway events. (Kazuhiro Doi, Nissan)

EVs “weigh significantly more than ICE cars” ... and damage our roads lots more??

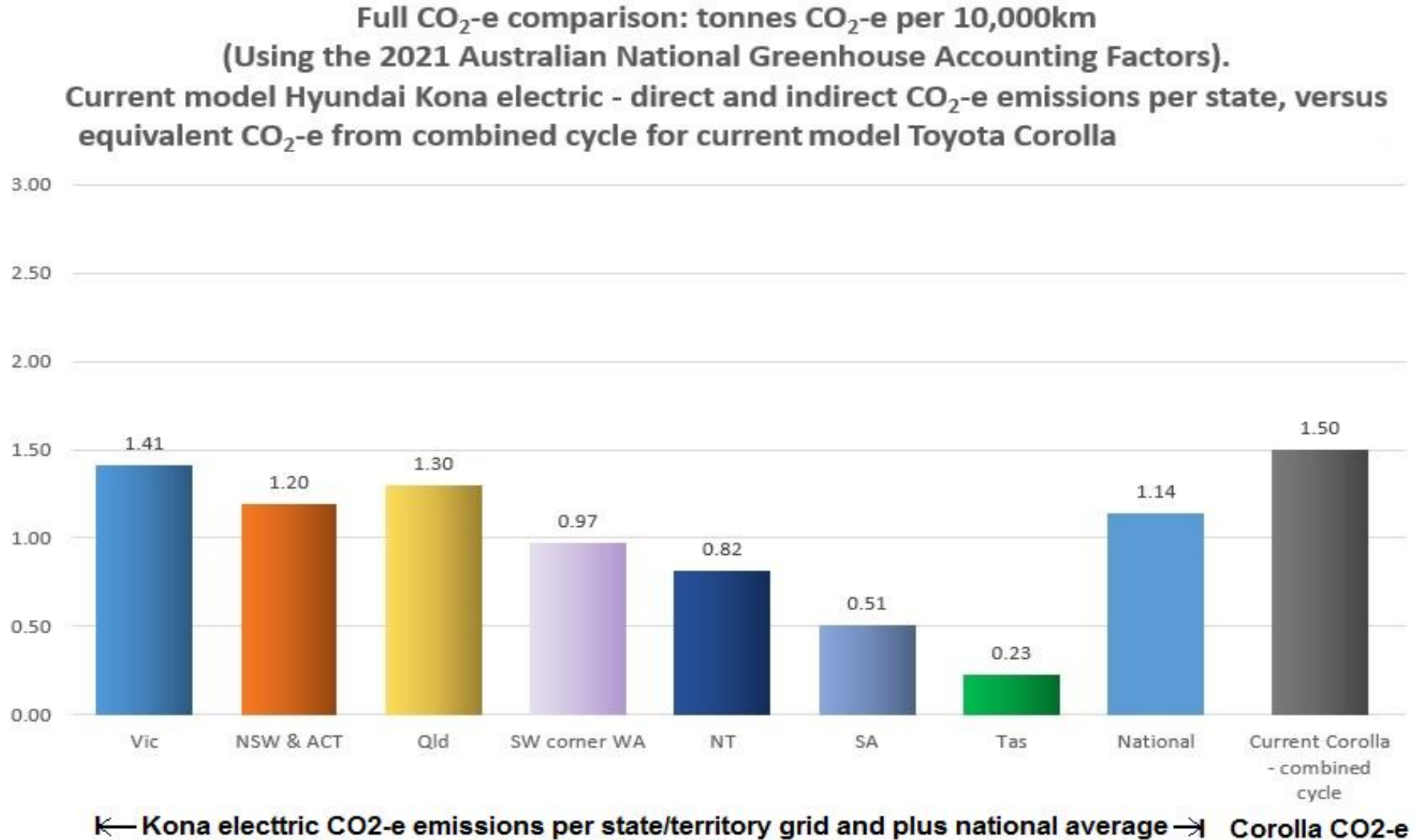
Make/model	ICE tare mass (kg)	BEV tare mass (kg)	% increase: BEV to ICE
Hyundai Kona	1450	1615 (48.6 kWh)	11%
		1698 (64.8 kWh)	17%
Genesis G80	2023	2325	15%
Genesis GV70	2038	2310	13.3%
Volvo XC 40 recharge	1760	2001	14%

<https://thedriven.io/2024/05/03/are-evs-really-much-heavier-than-their-ice-equivalents/>

Are EVs are more polluting than ICE cars?

National Greenhouse Accounts Factors

Australian National Greenhouse Accounts

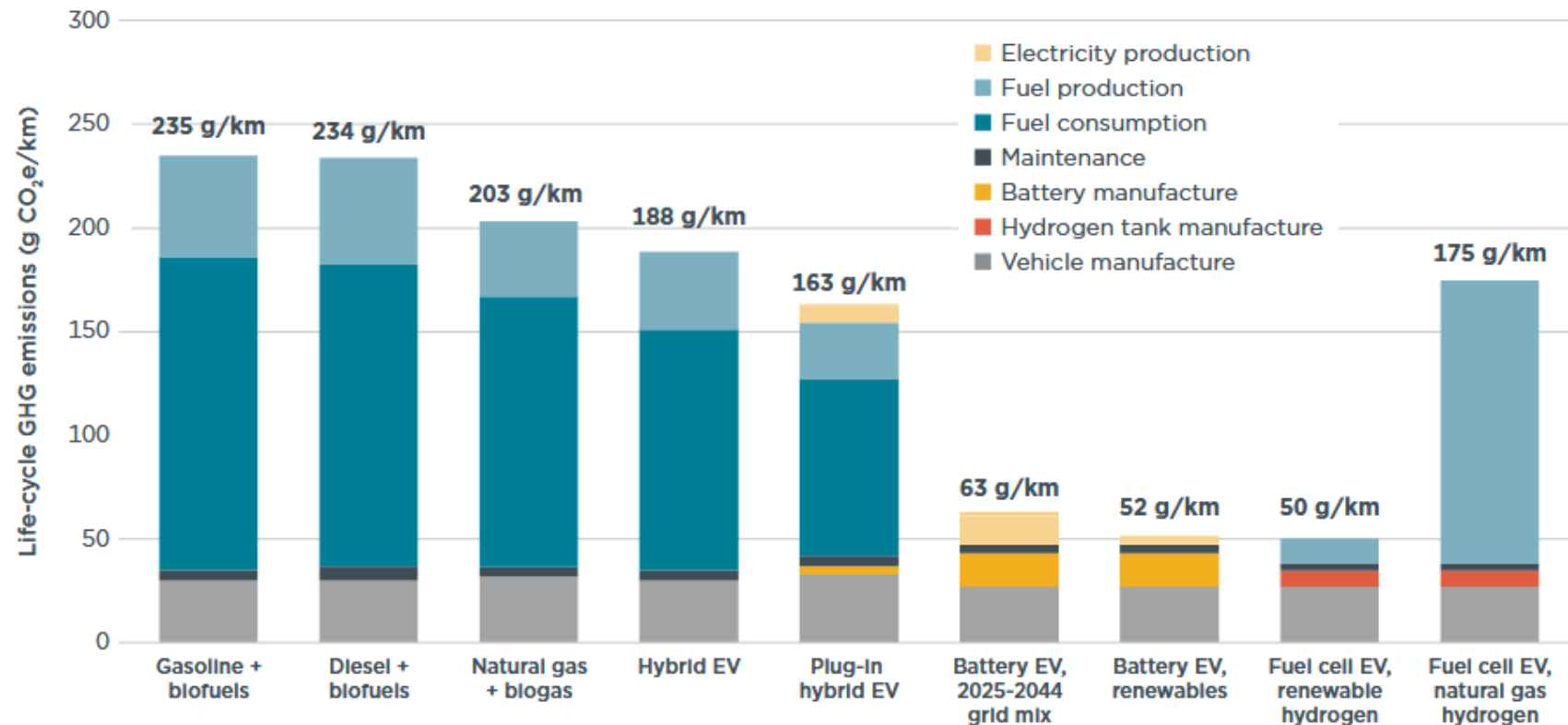


*Calculations done to Department of the Environment and Energy National Greenhouse Accounting methodology using the 2021 NGA Factors data. For full (2021 data) article: see ReNew 159, April-June 2022).

But what about the full EV life cycle?

- US: [Union of Concerned Scientists report](#) 6 – 16 months driving to pay back manufacturing emissions.
- Europe: 1 to 2 years by the [International Council on Clean Transport](#) (ICCT).
- Getting better as manufacturing moves to renewable sources: Volvo, Polestar moving to zero carbon debt as it leaves the factory!

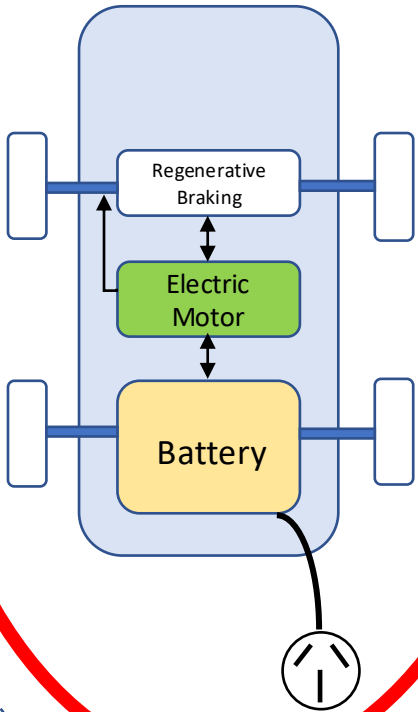
Life-cycle GHG emissions of medium segment passenger cars sold in the European Union in 2025



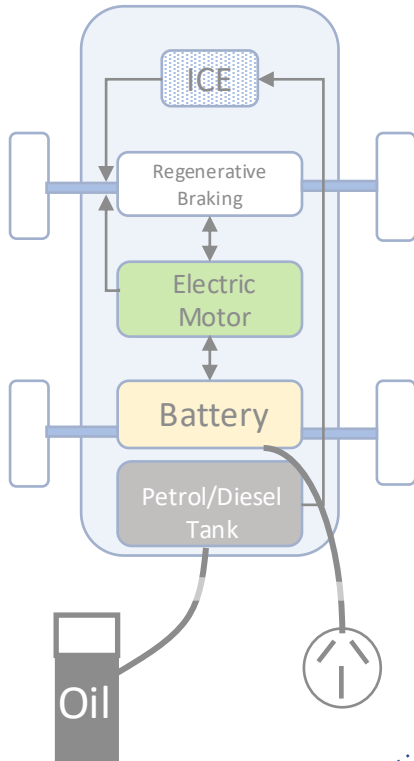
A mix of tech is needed?

Plug-in Electric Vehicles

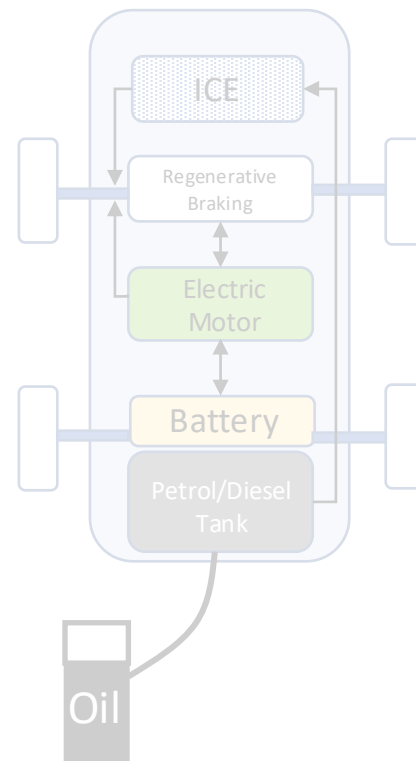
BEV
Battery Electric Vehicle



PHEV
Plug-in Hybrid Electric Vehicle



HEV
Hybrid Electric Vehicle



To find out more: Australian organisations

renew.

About us

What we do

Membership

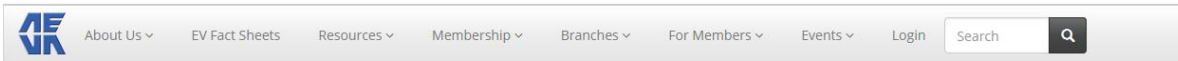
Resources



Inspiring, enabling and advocating sustainable living

Welcome to Renew. We've been providing expert, independent advice on sustainable solutions for the home to households, government and industry since 1980.

Photo by: Jason Mann, 'In the saddle' Sanctuary 42



Australian Electric Vehicle Association



Electric vehicles - they won't poison you if you forget to turn them off...

<https://renew.org.au/>

Edition 175: (Apr – Jun 2026)

- Finding public chargers

Edition 176: (Jul – Oct 2026) COMING

- 1st owners guide to buying & driving EVs

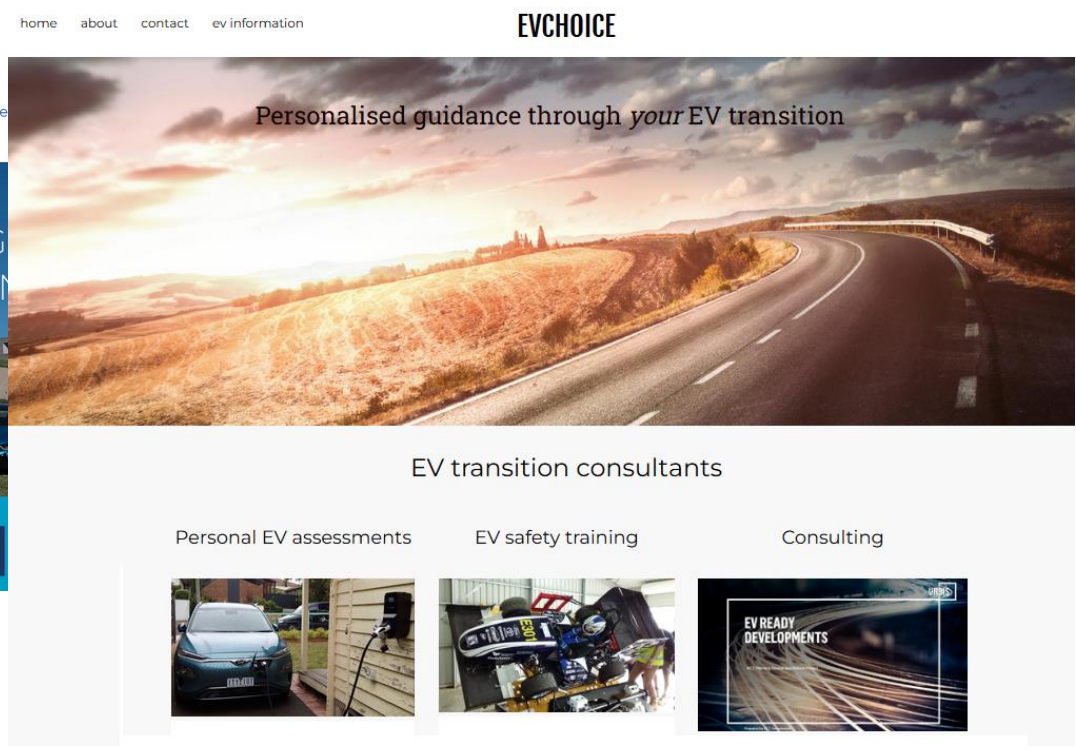
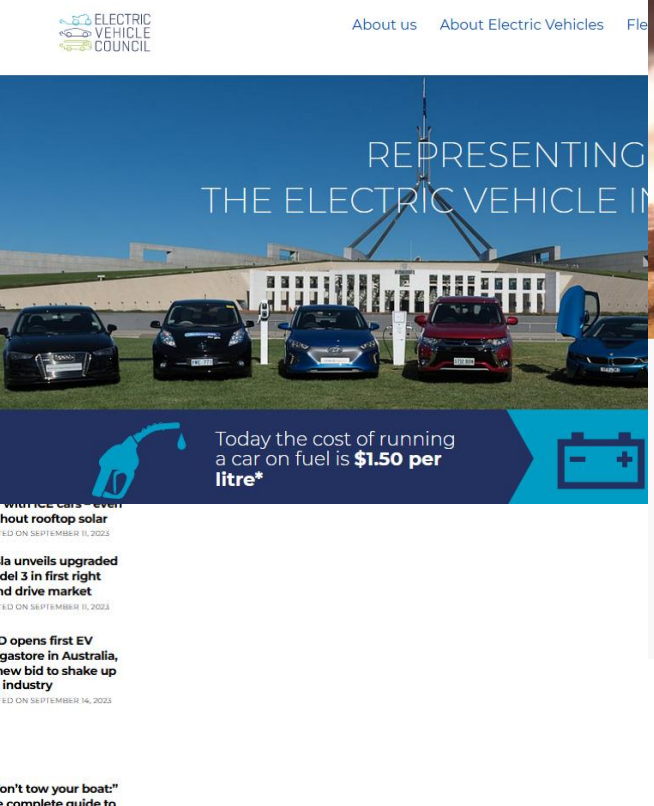
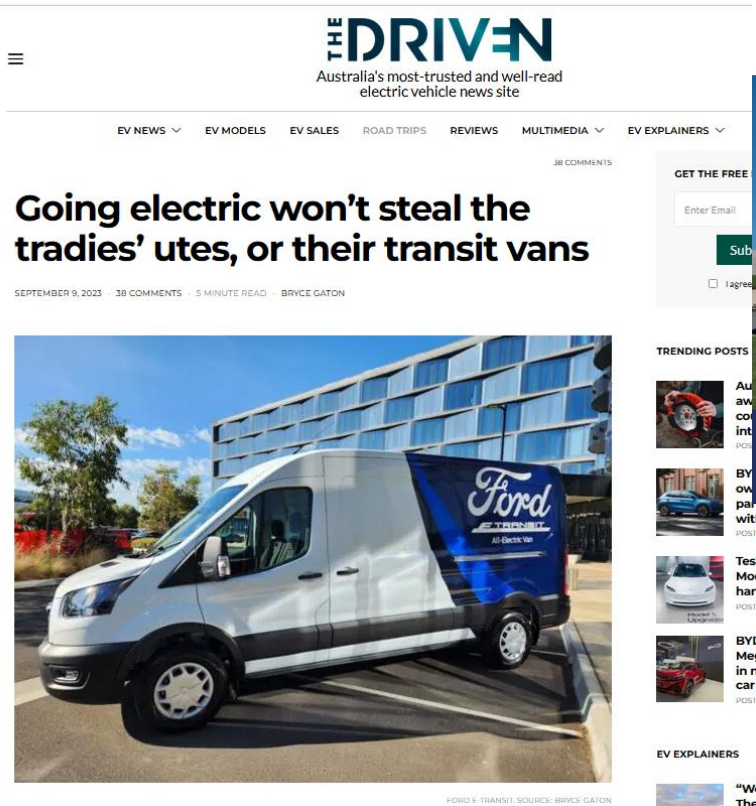
<https://www.aeva.asn.au>

AEVA discussion forum: (free to join)

<http://forums.aeva.asn.au/>

To find out more: Australian websites

- TheDriven: <https://thedriven.io/>
- Electric Vehicle Council: <https://electricvehiclecouncil.com.au/>
- EV Choice: www.EVchoice.com.au



EV information: AEVA/EV Choice Fact Sheets



EV FACT SHEET
Second-hand AUSTRALIAN DELIVERED
AEVA (Jan-Mar) 2026



EV FACT SHEET
Nissan ZE0/AZEO Leaf
(2010 – 2017)
Created and written by: Bryce Gatton
Contact: bryce@EVChoice.com.au



Looking for your first Electric Vehicle?

INTRODUCTION

Congratulations: if you're reading this, you've made a great choice. Welcome to a future of smooth, efficient driving with no tailpipe emissions ... and even fewer emissions if your Battery Electric Vehicle (BEV) is recharged with renewable sources of electricity!

However, with over [130 passenger car and light commercial BEVs](#) available new in Australia now (and more arriving every week), there's a lot of potential sifting to do before creating your personal short-list. In addition, BEVs have a number of different 'refuelling' and driving features to petrol/diesel driven ones – and these can influence those choices. [So](#) what are these differences? And where can I find out more if I need to?

Years sold in Australia
up 2020-23
up 2014-16
up 2016-19
up 2019-22
up 2021-2021
up 2019
up Jan. 2019-19
up Late 2019-22
up 2021-22
up 2022-24
up 2021-23
up 2019-23
up 2018-24
up 2021-22
up 2021-24
up 2021-23
up 2023-24
up 2019-
up 2020-25
up 2020-23
up 2010-14
up 2011-12
up 2013-2017
up 2020-24 ¹⁴
up 2023
up 2017-20
up 2014-20
up 2016-20
up 2020-21
up 2011-12


Years sold in Australia
up 2022
up 2022-24?
up 2016-22



aeva.au/fact-sheets



EV FACT SHEET
NEW BEV passenger cars CURRENTLY available in Australia



EV FACT SHEET
NEW BEV passenger car models SOON TO ARRIVE in Australia



EV FACT SHEET
NEW BEV Light Commercial Vehicles available (or coming soon) to Australia (including table for second-hand models)



EV FACT SHEET
NEW BEV Commercial Vehicles: 4.5t & over available now in Australia

Created and written by: Bryce Gatton
Contact: EVNews@bigpond.com

EV FACT SHEET
Jaguar I-Pace



Jaguar I-Pace. Image: Jaguar

INTRODUCTION

The Jaguar I-Pace is the first

Created and written by: Bryce Gatton
Contact: EVNews@bigpond.com

EV FACT SHEET
Hyundai Ioniq electric



Hyundai Ioniq electric. Image: Hyundai

Created and written by: Bryce Gatton
Contact: EVNews@bigpond.com

EV FACT SHEET
Tesla Model S

Keyline Summary
The Model S has a best-in-class range of 402 km for the 'Standard Performance' 400 km for the 'Long Range' and 531 km for the 'Plaid' version according to the

Questions?



Getty: Corbis/Hall of Electrical History Foundation

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B. Gaton, 2026.