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B. Gaton, 2026.

Choosing and using an EV

Thinking ahead to 2035...

The savings

Understanding charging

Understanding range

New car buying

Buying second-hand?

EV Mythbusting

Useful EV resources

100

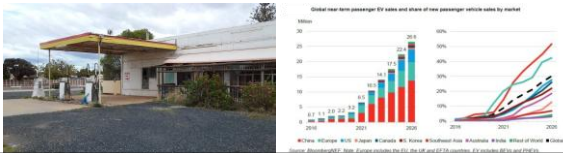
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Registered Electrical Contractor (REC 12393)

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It's 2035...

- New Battery Electric Vehicle (BEV) sales exceed 80%;
 - Australia's car parc has hit 40% BEV;
 - Fuel sales are plummeting, city petrol stations are closing at a rapid rate;
 - Internal Combustion Engine (ICE) car resale values are falling as BEVs are the desired car - but BEVs are still only 40% of the second-hand market.
- Images: left © Garton, right Bloomberg

Images: left-B Gaton, right-Bloomberg NFI



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 10,000km):

EV Kona: **\$90** **Fuel savings: \$1,150**

ICE Kona: **\$1240**

Service savings: estimate \$60/yr²

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



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

Charging.

Two ways, 1 socket:



Images: <https://www.vic.gov.au/transport/road-transport/charging-guide>

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.cipinvestingparking.org/2013/02/cars-are-parked-95-of-time-lets-check.html>
Image: <https://www.shutterstock.com>

Key Point #2

"Not in Kansas any more".





(a) Private charging will predominate.
(roughly 80-90% of all charging)

(b) i.e. EV transition DOESN'T need 1:1 swap of fuel bowisers 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:

Portables



Image: EVSE Australia

Hard wired



Image: JMC Charger
Image: Tesla
Image: EVSE Australia

DC (fast-charge):



Image: Tritium
Image: JMC

What charger do I NEED at home?

- 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.
- Within range of one car charge/day (Kona = 450+km)
 - Overnight @ 7kW: 100km in 2 hrs/full charge by morning
 - \$750 up (plus charger) installed.
 - Options for solar-only charging, control by Apps, etc

Apartments: long-term

Load sharing and load management are key

Real time monitoring of main building usage:
Allows for DYNAMIC adjustment of current flow level

Chargers are given new limits real time from backend console

Current flow limit (set on back-end) (0-10kW)

Static limit options
dynamic limit options

Best practice:
Separate car charging sub-board and dynamic control of EVSEs through monitoring of overall building load at main board level.

Worst practice:
EVSEs fed from individual apartments.

Where to start?

- Get **independent** advice before installing chargers in apartment buildings: there is no 'one-size-fits-all' solution.

Image: (adapted from) <https://www.egenelectrical.com.au>

Charging (charger)

Typical outlet example	Maximum kW supplied	Time to charge for 100km
10A power point	2 ^a	8 h
15A power point	3 ^a	50
22A power point	22 ^d	20 m

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

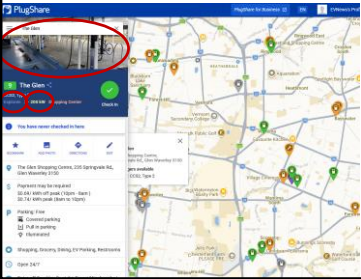
Examples:
2 kW portable charger: 2 km in 10 min
350 kW charger: 350 km in 10 min

References/further information:

Notes to table:

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

Finding charge stations:



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



<https://www.chargefox.com.au/>



<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: some existing new models)	WLTP (Europe, Australian new models post 1.7.26)	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

Rule of thumb for NEDC (and Chinese CLTC):
 - For highway use, subtract 30%

More detail:
 Renewed, 155 or EVchoice.au



Coming trend: V2X



❶ V2L: Vehicle to Load → CCS2: AC

❷ V2H/B: Vehicle to Home/Building } DC

❸ V2G: Vehicle to Grid }

Currently:

- Many new cars offer V2L now
- Many new cars arriving now V2H/G capable (but not enabled)
- Some CCS V2H/G connection boxes approved and available
- 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 2027??)
- 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 charger, even if a standard outlet 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 for 2026



Honda Super ONE: H2 2026
Micro, Range: 200km?
Price: \$39k?? TBC



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



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



Mazda 6e: JUST ARRIVED!
Medium, Range: 560 km
\$55,000 + ORCs



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

Small SUVs for 2026



Suzuki e-Vitara: **Available to order**
Small SUV, Range: 344/395 km
\$47k, \$55k



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



Skoda Eniq: **Q4 2026**
Small SUV, Range: 315/430 km
Price: TBC

Medium SUVs for 2026



Mazda CX-60: **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+ORC (TBC)

Deepl 50S: **H1 2026**
Medium SUV
Price: \$TBC



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



Light Commercial BEVs for 2026



Kia PVS Cargo: **JUST ARRIVED!**
Range: 416 km
\$56k+ORCs



LDV eDeliver 5: **July 2026**
Range: 335/321/301 km
ABN price to \$1.7: \$48k (private-\$52k)



Toyota Hilux BEV: **JUST ARRIVED!**
Range: 240 km; 1600kg towing
\$75k+ORCs



MG U9 electric: **Q4 2026 (TBC)**
Range: 300 km (TBC); 3050kg towing (TBC)
\$TBC

Things to consider when buying new:

- Dealer availability?
- Are the stalks (wipers, indicators, drive selector) logical and easy to use?
- Driver's display, HUD, or none?
- Screens & Apps vs knobs & buttons
 - new regs in Europe and China bringing back analogue controls
- Test the ADAS! (Advanced Driver Assist/Annoyance?/Aggravation? System)



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

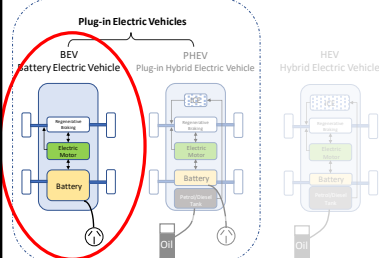
Nissan:
In first 13 years of Leaf manufacture (and over 650,000 sold) – NO battery fires or thermal runaway events. (Kazuhiro Doi, Nissan)

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) 1698 (64.8 kWh)	11% 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/>

A mix of tech is needed?



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EV information: AEVA/EV Choice Fact Sheets

aeva.au/fact-sheets

To find out more: Australian organisations

Australian Electric Vehicle Association

<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 Choice
