Legislative Council Economy and Infrastructure Committee
Parliament of Victoria

Inquiry into Electricity Supply for Electric Vehicles

Date: 16 March 2026

From:

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Re: Follow-up note on evidence to the Inquiry into Electricity Supply for Electric Vehicles

We thank the Committee for the opportunity to give evidence on 26 February 2026 and for the subsequent proof transcript. This note provides clarifications and supplementary material that we hope will assist the Committee in its deliberations. Markups are provided (pp. 53, 54, 55, and 59) which do not seek to change the substance of our oral evidence or our written submission, but to ensure that the factual basis and quantitative statements are as clear and robust as possible.

1. Electric vehicle uptake and market trajectories

In our evidence we referred to Australian battery electric vehicle (BEV) sales exceeding 100,000 units in 2025 and to plug-in market shares in the "mid-teens" in some months. These remarks were based on provisional national sales data available at the time.

For clarity:

- National BEV sales in calendar year 2025 were in the order of 100,000 units, with BEVs representing around 8 per cent of new light-vehicle sales over the year.
- When plug-in hybrid vehicles (PHEVs) are included, national plug-in market share reached the low- to mid-teens in several months in late 2025.

- Victoria remains one of the leading jurisdictions for BEV uptake, with BEV share of new sales now well into double digits and rising.

Our core point for the Committee is unchanged: EV adoption in Australia and Victoria is tracking at or above the "fast" scenarios that many planning documents contemplated only a few years ago. This confirms that EV-related electricity demand, and the associated opportunities for flexible load, will be material within this decade rather than a distant 2040 issue. (Fig. 1)

We also indicated that, in other mature markets, hybrid vehicle sales tend to peak and then decline once BEVs reach roughly 20–25 per cent of new sales. This should be read as an observed pattern rather than a rigid rule: experience from countries such as Norway, the Netherlands and the UK shows that once consumers gain confidence in BEV range, reliability and charging, demand shifts from hybrids towards full battery electric options. We expect a similar dynamic in Australia as BEV choice grows, charging networks expand and running-cost advantages become more widely understood.

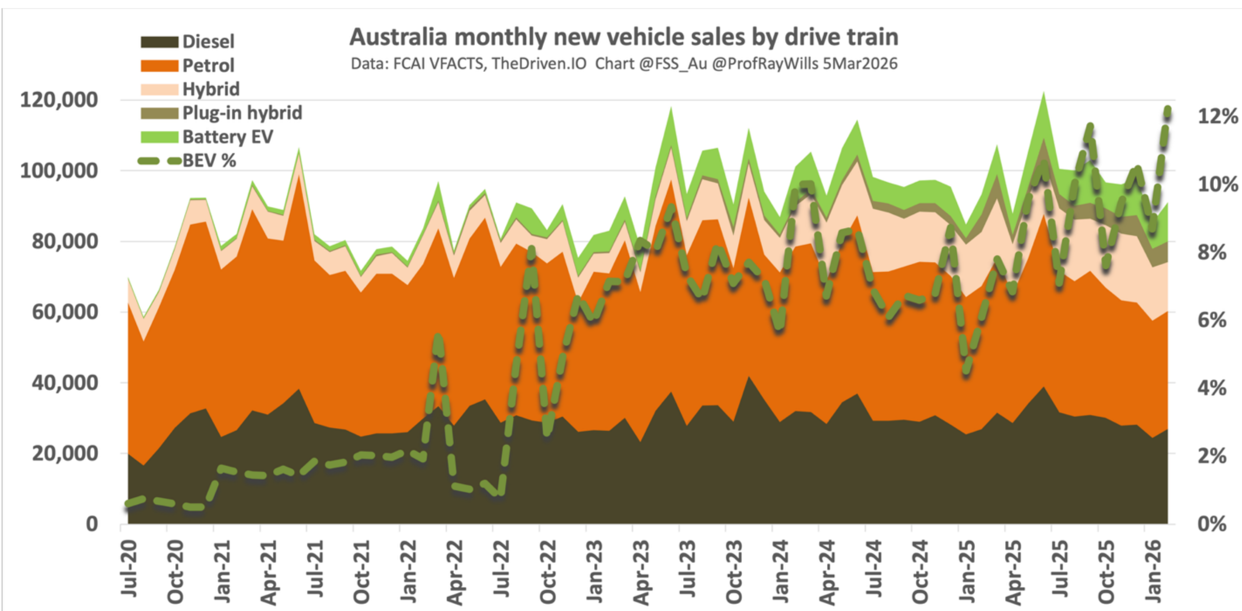

Figure 1 [*Monthly sales of vehicles by drivetrain in Australia: electric vehicles ~8.2% share in 2025] from* Figure 2 from original submission updated to be current up to Feb 2026. (NB: BEVS sales in last 3 months Dec-Feb in Australia 10.5% BEV share.)

2. Renewable penetration, prices and the role of EVs

We stated in our evidence that:

- Victoria has "surpassed approximately 50 per cent renewable generation over the past year",
- the NEM on the east coast and the SWIS in Western Australia have "gone over 50 per cent" renewables, and
- that recent data show downward pressure on wholesale electricity prices as renewable penetration rises.

To avoid any misunderstanding, these statements should be read in the following way:

- Victoria and other Australian regions are now regularly recording periods (hours, days and months) in which renewable generation (including rooftop solar) supplies more than half of electricity demand.
- Annual averages for the NEM and SWIS are approaching, but have not yet stably settled above, 50 per cent renewable share. The direction of travel is clear: renewable penetration is rising steadily and fossil generation is declining over time.
- Multiple analyses of NEM price outcomes show that higher shares of low-marginal-cost renewables have contributed to lower average wholesale prices in periods of strong renewable output, whereas fossil fuel generators, especially gas peakers, remain a dominant source of price volatility and high price events.

Our expectation that higher renewable shares (around and above 60 per cent) will put sustained downward pressure on average wholesale prices is therefore best framed as a forward-looking assessment based on observed trends and well-understood cost structures, not as a claim that such a threshold has already been fully reached on an annual basis.

In that context, the harmonisation of EV charging with renewable supply is central. EVs, if managed as flexible, price-responsive loads, can:

- absorb surplus solar and wind generation that would otherwise be curtailed,
- improve utilisation of existing network and generation assets, and
- reduce the need for some future investment in high-cost peaking plant and long-distance transmission.

This is a key reason we emphasised smart charging, vehicle-to-grid (V2G)/vehicle-to-home (V2H) and distributed energy resource (DER) integration in our submission and oral evidence.

3. Battery costs, battery volumes and system implications

We indicated that battery prices have been declining at more than 20 per cent per year, and that this rapid cost reduction was underpinning both EV uptake and stationary storage deployment.

To be more precise:

- Over the past decade, global analyses of lithium-ion batteries indicate learning rates on the order of 15–25 per cent: each doubling of cumulative deployed capacity has been associated with roughly a 15–25 per cent reduction in cost.
- Year-on-year declines can vary, but the long-term trend remains strongly downward, making both EVs and stationary batteries progressively more affordable.

We also discussed the scale of battery manufacture and the associated materials requirements, contrasting it with the scale of global coal extraction. The essential points we wish to reiterate are:

- Even under rapid electrification scenarios, the annual tonnage of critical minerals required for batteries is small compared with the billions of tonnes of fossil fuels currently mined and combusted each year.
- While new critical minerals production will expand, it is coupled with the opportunity to phase down and ultimately eliminate recurring emissions from fossil fuel combustion.
- In addition, batteries are durable capital assets with multi-year lifetimes, and battery materials can be recovered and recycled. By contrast, coal and gas are extracted and burned once, with the waste (CO_2) accumulating in the atmosphere.

We recognise that the Committee heard evidence about the need for local battery recycling capacity. We support early development of such capacity and emphasise that:

- volumes of end-of-life EV batteries will be modest for the remainder of this decade and will grow more substantially in the 2030s and beyond,
- this provides a valuable window to establish robust standards for second-life use, safe storage and recycling, and

- early policy support can help Victoria capture economic value from battery refurbishment and recycling while managing environmental and social risks.

4. EV batteries as distributed storage and unit clarification

In answering questions on the storage value of EVs, we used a simple example derived from some mental arithmetics – to consolidate that here:

- A typical EV battery today is in the range of 50–80 kWh; using 60 kWh as a round figure is reasonable.
- A cohort of 10,000 EVs thus represents around 600 MWh of storage capacity (10,000 × 60 kWh).
- A cohort of 50,000–60,000 EVs represents around 3–4 GWh of potential storage.

This simple arithmetic highlights how, at scale, EVs can provide storage resources comparable with multiple large grid-scale batteries, particularly if V2G/V2H functionality is enabled and appropriately orchestrated.

Similar arithmetic underpins the CRC RACE work on the South West Interconnected System (SWIS) in Western Australia, where modelling suggests that, under high-adoption scenarios with active V2G participation, up to around half of the total storage requirement in certain periods could be provided by vehicles. We expect the forthcoming CRC RACE report to provide the Committee with more detailed assumptions and results, and we would be pleased to supply a short summary once it is publicly released.

5. Network upgrades, V2G and DER-hosting capacity

During questioning we emphasised that many of the steps needed to integrate V2G and higher levels of DER are related to control systems, software and operating practices. It is important to stress that:

- There are indeed physical network elements that must sometimes be upgraded: local transformers, low-voltage feeders, protection systems and communications infrastructure, particularly in areas where existing assets are constrained.
- However, experience to date in Western Australia and other jurisdictions shows that a significant amount of additional DER hosting capacity can be unlocked by improved visibility, better voltage and frequency control algorithms, flexible export limits and other “non-wires” solutions.

- These measures do not eliminate the need for traditional network investment where justified, but they can defer or reduce it and improve the efficiency of existing assets.

We have not yet seen a comprehensive, nationally agreed estimate of the total cost of all V2G-enabling upgrades for a fully electrified transport system. That sort of estimate would inevitably depend on assumptions about:

- timing and location of EV uptake,
- the extent to which EV charging remains “dumb” versus orchestrated,
- the evolution of rooftop PV and other DER, and
- how quickly smart-grid practices are adopted by each distribution business.

Our central recommendation is therefore not to rely on a single cost number, but to ensure that:

- planning frameworks (including the Integrated System Plan and Victorian Annual Planning processes) explicitly consider high-EV-DER scenarios, and
- DNSPs are encouraged, through regulation and incentives, to adopt the least-cost mix of software, operating practice and targeted hardware upgrades to accommodate growing EV and DER penetration.

6. Nuclear, renewables and comparative energy transitions

In our presentation we used a slide comparing the growth trajectories of various energy sources once they reach a substantial scale (100 TWh per year globally), and we remarked that:

- oil-fired electricity grew rapidly until the 1970s and then declined,
- nuclear grew rapidly in several countries from the late 1970s but has since flattened, and
- wind and especially solar have shown very rapid, sustained growth, with batteries now exhibiting an even steeper early trajectory.

The aim of this discussion was not to make a detailed case for or against nuclear power in Victoria, but to provide context for the pace and direction of global energy transitions. In that regard, the key observations we would emphasise are:

- Nuclear's share of global electricity has declined from its peak in the 1990s, and while some new capacity is being built or restarted, the aggregate growth rate is modest and dominated by a small number of countries.
- By contrast, solar and wind have been growing much more rapidly in both absolute and percentage terms, driven by sharp cost declines and modular deployment.
- Batteries, though a storage technology rather than a generation source, now show deployment curves that are even steeper than those of solar in its early years, reflecting their central role in supporting high-renewables systems, EVs and other applications.

  (Fig. 2 and Fig. 3)

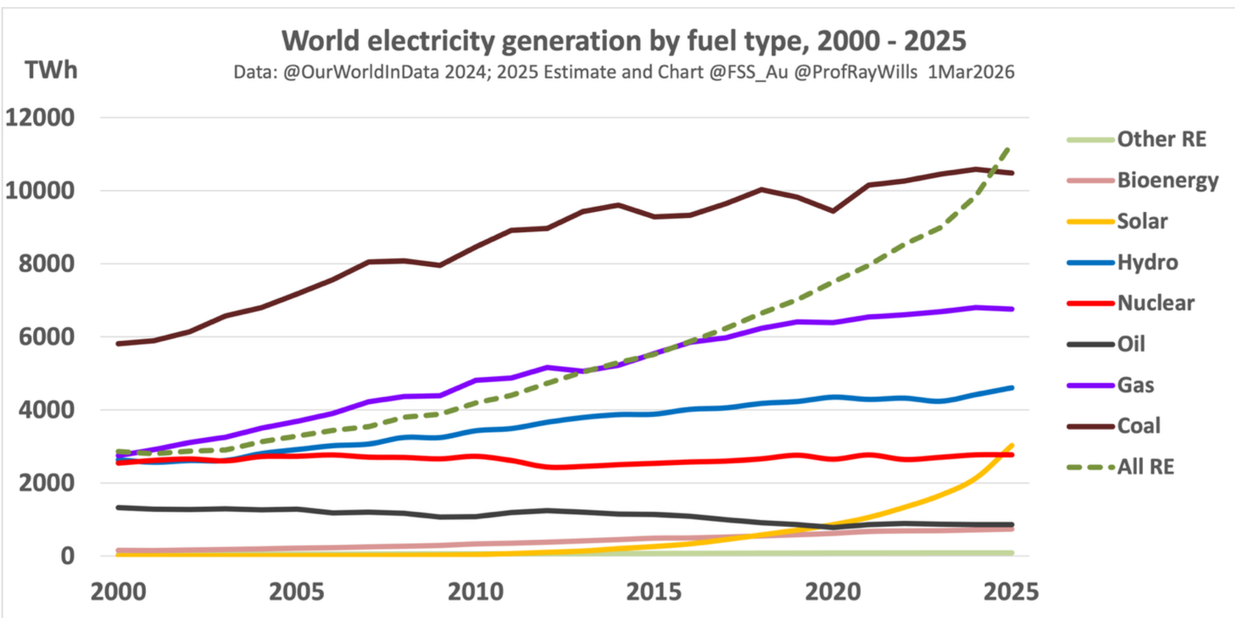

Figure 2: World electricity generation (TWh) by fuel type to 2025.

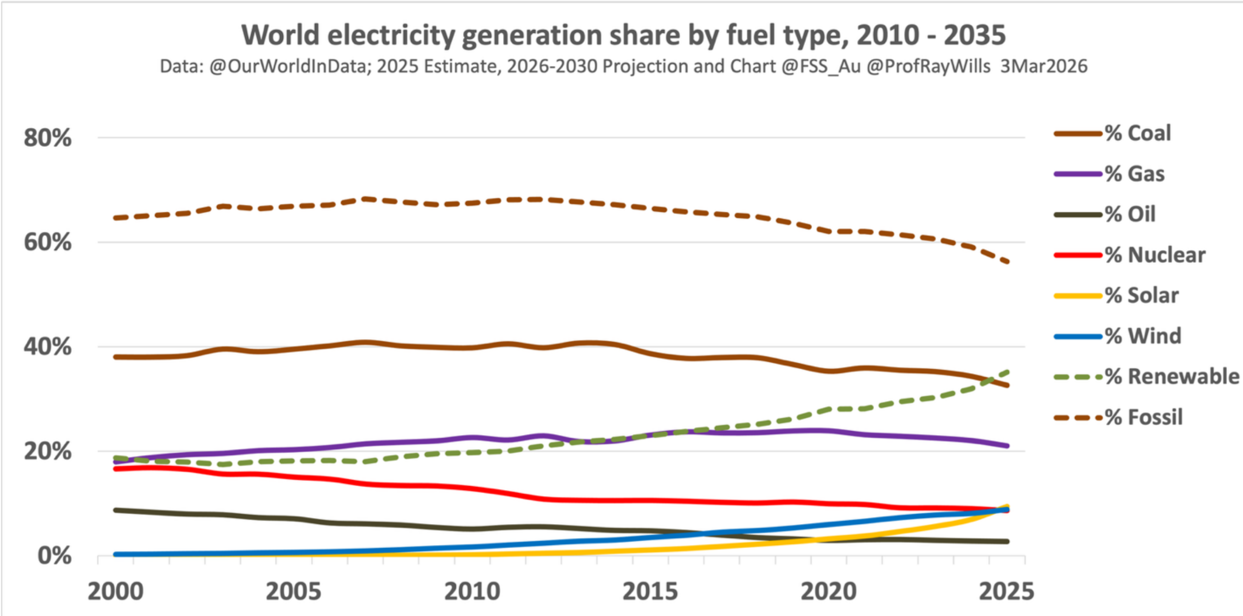

Figure 3: World electricity generation per cent share by fuel type to 2025.

For Victoria, this global context matters because it affects technology costs, supply chains and the maturity of solutions available to support a high-renewables, high-EV grid. The evidence strongly suggests that solar, wind and batteries will continue to be the dominant sources of new capacity and flexibility globally over the next decade. Policy and planning that leverages those trends, rather than assumes they will stall, is likely to be more cost-effective and resilient.

7. Equity, access and second-hand markets

Finally, several questions rightly focused on equity and access: ensuring that households without off-street parking or on lower incomes can still benefit from electrified mobility and cheaper, cleaner energy.

The main points we wish to underline are:

- The growth of the new EV market is a prerequisite for a healthy, affordable second-hand EV market; as more EVs enter the fleet, the stock of second-hand vehicles suitable for lower-income households will increase.
- The development of simple, low-cost battery health certification for second-hand EVs (for example, through independent testing and reporting of remaining capacity) can build consumer confidence and protect buyers.

- Community-based solutions — such as shared charging at places of worship, local community centres, workplaces and strata complexes — can play an important role in providing charging access for those without driveways or garages.
- Integrating EV and DER policy with public transport, active travel and car-share strategies can help ensure that the transition to net-zero mobility does not exacerbate congestion or inequality, but instead expands affordable mobility options.

More broadly on regional areas, electrification also creates major opportunities for farms and regional and remote communities, where solar-powered electrified equipment can displace diesel and biofuel use while cutting operating costs and exposure to volatile fuel supply chains.

A single hectare of solar on suitable farm or pastoral land can deliver on the order of 1000–1500 MWh of electricity per year, more than 100 times the useful energy from typical biofuel crops on the same area, enabling on-farm EVs, pumps, refrigeration and processing to run on low-cost local power while leaving most of the property available for its primary agricultural use, and bring considerable cost savings to agriculature and other regional enterprises.

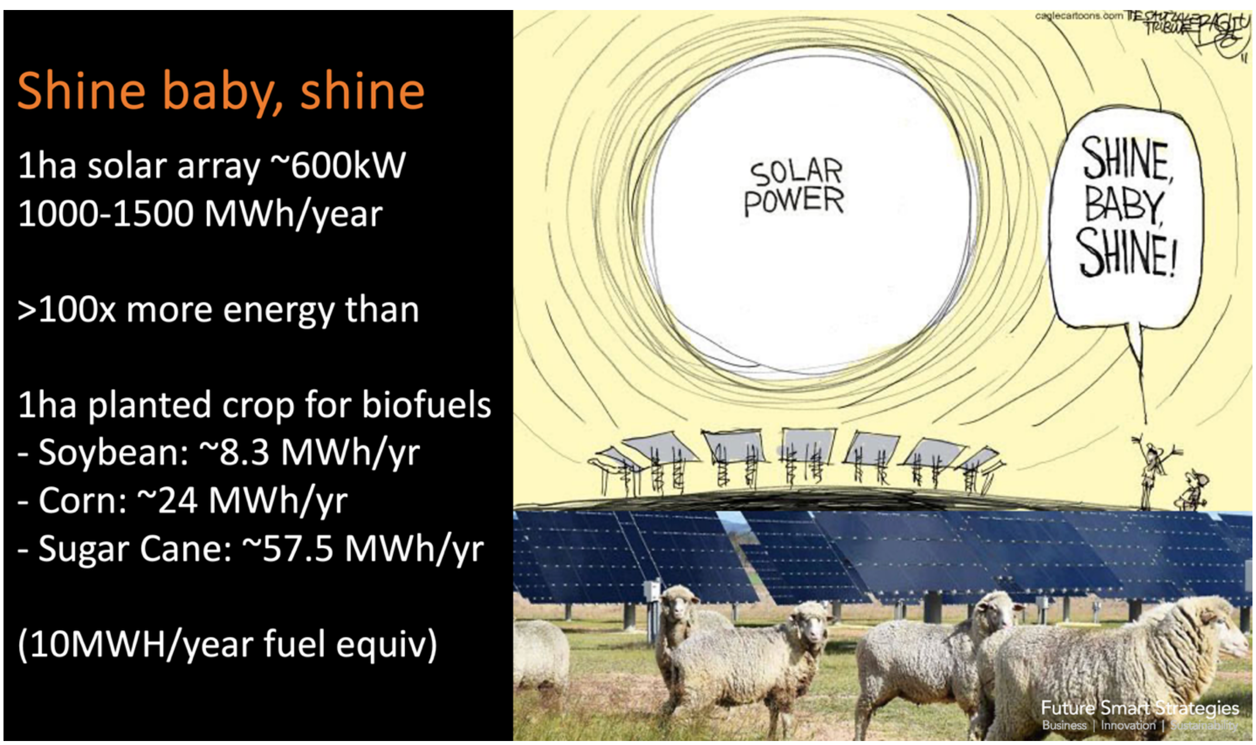

Figure 4 A comparison of the amount of energy generated from solar versus energy available from biofuels derived from different sources using the same land area.

Finally, in closing, we would highlight that the world is living through the fastest energy transition in history with the extraordinary rate of uptake of solar, and even faster uptake of batteries (Fig. 5). It would be a shame to not to be taking advantage of this opportuntiy.

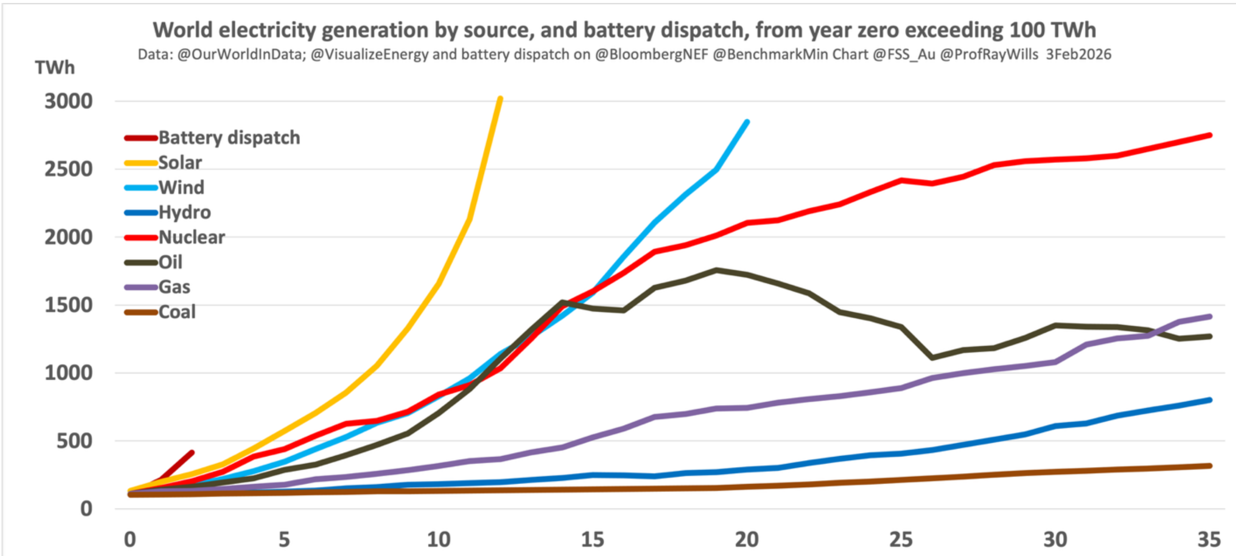

Figure 4 Uptake of energy dispatch from generation sources, and energy dispatch from batteries, measured from Year 0 when those sources first exceed 100 TWh of dispatch.

We would be pleased to provide further detail on any of these aspects if the Committee considers it useful.

We also observed some others present evidence to the Committee – we found their evidence inaccurate and indeed tending to misleading, but we have chosen not to comment directly on those occurrences here. However, should the Committee have concerns on the information arising from other presentations and wish assistance, we would be happy to provide expert commentary.

We trust that our clarifications and additions are of assistance. We remain at the Committee's disposal should any further information be required or wish to explore any of these topics in more depth.

Yours sincerely

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