Submission No 18

INFRASTRUCTURE FOR ELECTRIC AND ALTERNATIVE ENERGY SOURCE VEHICLES IN NSW

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"Infrastructure for electric and alternative energy source vehicles in NSW"

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Preamble:

Ross is the former Head of Energy and Infrastructure at the Electric Vehicle Council, and has recently founded a new business, Vehicle Charging Solutions Australia.

Ross' background includes:

- Detailed work in the National Construction Code (NCC) to create EV readiness requirements in new buildings,
- Submissions to the Australian Energy Regulator (AER) that have shaped the AER's advice to ministers on consumer protections for EV charging.
- Input into regulatory reset processes, shaping the tariff structures applicable to public charging infrastructure operators in WA, NSW, Victoria, SA, and QLD.
- Close engagement with NSW government on the majority of EV charging programs currently in operation, including the kerbside program.
- Participation in committees writing Australian Standards relating to demand response, electric vehicle maintenance, and the national electrical wiring rules.

For the avoidance of doubt, this submission is not to be considered the position of the Electric Vehicle Council. It is the position of an industry expert.

This submission focusses specifically on item (c), "use of existing infrastructure and measures to ensure a competitive market, including 'ring fencing' policies"

The key point of this submission is:

"The energy networks are pursuing changes to the rules that will allow massive overdeployment of public EV charging equipment. They are pursuing these changes on the basis of data that can easily be shown to be incorrect.

They intend for the cost of their deployments to be carried by all electricity bill payers, even the ones who can't afford cars. They intend to profit from these rule changes, regardless of utilisation of the charging equipment. This is not fair.

Fair, when it comes to EV charging, looks like user pays, wherever possible. Fair looks like competitive businesses taking the risk on investment in infrastructure, not the consumer through their power bills. This is what the current rules relating to ringfencing are delivering.

These rules protect consumers by ensuring competition exists - and they are under attack."

Background:

Systems for generating and delivering energy to consumers are complex.

Some elements of the system (such as generation and retail) can operate as competitive markets, while others (transmission and distribution) operate as monopolies, because it's not feasible to have multiple competing sets of poles and wires serving individual premises.

All market participants are relatively heavily regulated, via a variety of instruments, because the reliable supply of electricity is critical to the country. The parties that act as monopolies are the most heavily regulated. This is reasonable, because without heavy regulation, for-profit monopolies that deliver critical services can be expected to:

- 1) Use their monopoly power to maximise their profit, at the expense of all other participants, including consumers
- 2) Use their monopoly power to set rules that maximally benefit their organisation, at the expense of all other participants, including consumers.

In the case of the Distribution Network Service Providers (DNSPs) and the Charge Point Operators (CPOs) that own and operate public EV charging equipment, the CPOs are competitive businesses. The DNSPs are the monopolies that own the poles and wires which the CPOs need to connect to.

The CPOs are dependent on the DNSPs in each region for connection approvals and connection timing. The DNSPs write the rules that define what the CPO needs to do to connect to the network (the Service and Installation Rules - SIRs) and own the process for each application for connection. This process fundamentally lacks oversight - the AER does not get involved in matters relating to SIRs, even when a DNSP uses the SIRs to violate the AER's advice to ministers around consumer protection.

Wherever the connection process requires an upgrade, it's the DNSP that determines what is required, and what it will cost the CPO, because it's the applicant for the connection that pays for the upgrade, not the DNSP. This is a function of market design.

The DNSPs also determine, through their tariff setting arrangements, a significant fraction of the ongoing cost associated with the operation of each site that the CPO deploys and runs. This part is overseen by the AER, and has improved somewhat over the last three years.

This arrangement very clearly gives the DNSP significant power over the competitive CPOs. It also makes the DNSPs a bottleneck in the broader process of rolling out public charging infrastructure. Failure on the part of Australian DNSPs to perform their role adequately has acted, and continues to act, as a brake on the rollout of public EV charging infrastructure in Australia.

This said, while the DNSPs can and do obstruct the work of the CPOs deploying public EV charging infrastructure, they are not able to disrupt the CPOs by competing *directly* with them through the ownership of the actual EV charging hardware.

That limitation is provided through the ringfencing provisions that are owned by the Australian Energy Regulator, which define the things that DNSPs are not allowed to do.

It's the ringfencing limitations that enable the existence of a competitive market for EV charging in Australia. It's the competitive market that will deliver lower costs and fit-for-purpose infrastructure for Australians.

The ringfencing limitations are under threat, through efforts by DNSPs to remove them.

Why do the DNSPs want to get into owning public EV charging equipment?

DNSPs make money through an approved rate of return (set by the AER) on their regulated asset base (RAB).

The return payable to the DNSPs on their RAB is factored into everyone's electricity bills. This is a reasonable approach, when the equipment is genuinely shared infrastructure like the poles and wires that deliver electricity to every premises in the region.

To the extent that DNSPs can secure permission from the AER to put more dollar value into their RAB, they can make more money, paid for through increases to everyone's electricity bills.

A change in the rules that would allow the DNSPs to include public facing EV charging equipment into the RAB represents a significant opportunity to them. ENA's 'time is now' report calls for over 50,000 public EV chargers, deployed as part of DNSP RABs, by 2030¹.

At minimum, this would represent about a quarter of a billon dollars worth of addition to the network's collective RAB. They'd be paid a solid return on every dollar worth of increased asset base, regardless of whether the EV charging equipment deployed in this fashion gets used or not.

The '2030' time horizon is obviously not the end goal, of course. We'll only have converted 10-15% of the light vehicle fleet to electric by then, and we'll barely have gotten started on the trucks – but if the rules are changed in this way, the DNSPs will be able to crowd the competitive players out, which means they'll pick up the bulk of the deployments post-2030.

A change in the rules that enables DNSPs to own public EV charging hardware today, would ultimately be worth billions of dollars over a period of decades to those businesses, which is why we're seeing pressure applied at all levels (upon public servants, regulators, ministers, and in the media) by the DNSPs and their advocates and lobbyists to bring it about.

This play is happening in the context of the DNSPs being publicly told by the CEO of the AER to "use more before they build more".

The DNSPs will make more money by building more, irrespective of the usage of whatever they build.... so they're trying to change the rules to allow them to build things they're currently forbidden to.

¹ https://www.energynetworks.com.au/assets/uploads/The-Time-is-Now-Report-ENA-LEK-August-2024.pdf

Can the DNSPs be trusted to roll EV charging equipment out efficiently?

There's a basic problem of motivation in this regard.

A competitive business that makes money from the *usage* of public charging equipment is incentivised to deploy efficiently. This means the right kind of equipment, in the right place, with the right complementary settings – for example, they'll engage with local government to ensure that

- the parking space is dedicated to EV charging, to reduce the chance of a petrol car blocking the charger.
- the local community is supportive of the specific locations being used.

To the extent that a competitive business like a CPO invests money in deploying EV charging equipment, and gets this stuff wrong with the result that the charging equipment doesn't get used much, the people that carry the cost are the investors in the business.

A DNSP that makes money from the *deployment and maintenance* of public charging equipment is incentivised to deploy maximally, rather than efficiently.

If a DNSP is permitted to incorporate EV charging equipment in the RAB, they will be ten times better off if they deploy ten EV chargers, where one would have sufficed.

Where a DNSP over-deploys in this fashion, and the equipment is then under-utilised, the consequence is that the DNSP *makes more money* than they would have done, if they had deployed efficiently.

With that background, it's worth considering how many chargers the DNSPs are talking about deploying this way – they've got a strong financial motivation to over-deploy; how many are they talking about deploying?

ENA are talking about over 50,000² public EV chargers, owned by DNSPs with the RABs, deployed by 2030. Ausgrid, who serve about 16% of the Australian population, are talking about 11,000³, just in their served area (as in, that's not the whole number for NSW according to Ausgrid, it's just the number in their patch).

A more reasonable number for NSW by 2030, based on analysis of publicly available data, would be on the order of 1700-3000 EV charging units of this type – and the existing grant programs are on track to deliver those⁴.

The key here is that if a competitive market is allowed to exist, then the free market will ultimately work out what the right number is, in the same way that the free market works out where we need petrol stations, bakeries, hairdressers, and all the other competitive businesses with fixed installations that meet the wide variety of consumer needs.

Changing the rules to let monopolies push the competitive businesses aside, and then incentivising those monopolies to massively over-deploy with the cost recovered from

² https://www.energynetworks.com.au/assets/uploads/The-Time-is-Now-Report-ENA-LEK-August-2024.pdf

³ https://www.ausgrid.com.au/About-Us/Future-Grid/Electric-Vehicles/Kerbside-charging

⁴ https://www.linkedin.com/pulse/power-pole-mounted-ac-ev-charging-how-many-do-we-need-ross-de-rango-kvble/

electricity bills, is not a recipe for an efficient rollout – it's a recipe for a massive and underutilised rollout, and higher electricity bills for everyone.

This has played out already overseas.

Korea's the only jurisdiction I'm aware of that has taken an 'energy-monopoly-owned' approach to the rollout of public EV charging equipment at scale. In that case, a monopoly-owned public EV charging model has deployed 1 public EV charger per 3 EVs on the road⁵

Naturally, with this many EV chargers deployed, most of them sit idle most of the time. The Korean rollout of public charging compares to Australia's 1 public EV charger per 68 EVs on the road⁶.... And yet, uptake rates of EVs as a percentage of new vehicles sold are comparable in Australia and Korea, with both jurisdictions badly lagging the leading global jurisdictions.

Allowing the incumbent monopoly in Korea to massively roll out charging equipment – at a level 20 times greater than what is reported by the IEA for Australia - didn't move the needle on electric vehicle uptake, but it definitely cost a lot of money, ultimately recovered from the Korean population.

The IEA data is highly questionable (for Australia at least), which is addressed later in this paper, but the key point here is that Korea has deployed much more public EV charging infrastructure than Australia, in a utility lead manner, and hasn't seen levels of EV uptake as a proportion of new vehicle sales that have come close to what's occurred in Europe.

By comparison, jurisdictions more like Australia, but further advanced on the EV journey – the UK, and California, for example – use a market led approach for kerbside charging, with the monopoly businesses staying in their lanes, and acting in support of the competitive businesses.

The motivation to over-deploy is pretty clear – but what about the cost of individual deployments? Could the DNSP be trusted to execute individual deployments at lower cost than competitive players, if they were limited in the number they were allowed to build?

Once again, they're motivated in the other direction, to grow the value of their asset base.... And we have the adjacent example of community batteries to look at, where the DNSPs have successfully secured the right to directly compete with businesses that aren't able to spread the operating costs across all electricity bill payers.

What we've learned from that exercise (as reported by ARENA) is that the DNSPs generally have the highest costs, for the least capability achieved, when considering both power output and energy storage⁷:

⁵ https://www.iea.org/reports/global-ev-outlook-2024/trends-in-electric-vehicle-charging

⁶ https://www.iea.org/reports/global-ev-outlook-2024/trends-in-electric-vehicle-charging

⁷ https://arena.gov.au/assets/2024/11/ARENA-Community-Battery-Market-Snapshop.pdf



Figure 12: Total project costs (\$/Wh) by project size (# batteries)

Figure 13: Total project costs (\$/W) for each project



It would be reasonable to assume that DNSPs would perform even more poorly on this type of measure when it comes to public EV charging infrastructure, relative to competitive businesses, because the competitive businesses in the EV charging industry are already established.

They can all draw on years of actual experience in the local market, and many of them can draw on global experience as well, because they are global players.

What are the other options to support power pole mounted EV charging equipment?

In NSW, the existing market rules are working to deliver large numbers of public chargers, quickly.

There are hundreds of pole-mounted EV chargers being rolled out in NSW by multiple enterprises in a competitive fashion, on the basis of collaboration between:

- local governments who own the parking space,
- DNSPs who own the poles,
- CPOs who own the EV chargers, and
- state and federal governments who are providing initial financial support.

It's early days for deployments of this kind, but competition is successfully driving costs down, which can be expected to flow through to consumers.

The ARENA kerbside program in 2022 committed \$871k to secure 50 chargers, working out to about \$17k per charger of government support⁸. This was a good result for a 'first of its kind' program in the country, where multiple overlapping jurisdictional, technical, and commercial issues needed to be solved.

Round 1 of the NSW government kerbside program in 2023 worked out to about \$6k per charging port of government co-funding⁹. Many of the chargers funded under this round of this program are DC, rather than AC – meaning that on average, the NSW program deployed higher power equipment, at one third of the level of government support per charging port than the earlier ARENA program.

Provided competition continues to exist, it can be expected to keep pushing prices down because this is a nascent industry, and there is plenty of room for the costs to keep falling.

The current market rules include the ability for enterprises that share common ownership structures, or are wholly owned by, the NSW DNSPs (Plus ES, Intium, and AusConnex) to own public charging equipment. These enterprises are already active in the space, with Plus ES being a recipient of NSW Government's kerbside grant program and seeking to deploy 1000 more chargers over the near term¹⁰, and Initum actively promoting EV charging infrastructure as a core competency on it's website¹¹

The crucial difference between a DNSP using its subsidiary or affiliated enterprise to own public EV charging equipment (which is allowed today), and the DNSP owning it directly (which is not), is that the subsidiary or affiliated enterprise *does not* enjoy the right to spread the cost of the charging equipment across all electricity bill payers. The subsidiary or affiliated enterprise is expected to operate like a normal, competitive business, without any special treatment or advantage.

There's still a degree of risk of an unlevel playing field existing between the likes of PlusES, Intium, Ausconnex, and the rest of the market, because of how close those enterprises are with their respective DNSPs - but the risk they present to the existence of a competitive market is

⁸ https://arena.gov.au/news/utilising-local-power-poles-for-street-side-ev-charging/

⁹ https://www.nsw.gov.au/grants-and-funding/electric-vehicle-kerbside-charging-grants

¹⁰ https://www.aer.gov.au/news/articles/news-releases/aer-grants-trial-waiver-innovative-kerbside-evchargers

¹¹ https://intium.com.au/

nowhere near as pronounced as the risk presented by allowing DNSPs to own public EV charging equipment directly.

The rollout of power pole mounted EV charging equipment is a good idea, and NSW is a currently leading the country in it, using market rules that are comparable to the countries that are best in class globally, and which place risk and cost appropriately.

Changing the rules at this point for the benefit of a handful of greedy monopolies, at the expense of energy bill payers who are already struggling to make ends meet, would be a colossal own goal.

What about equity?

One of the points commonly raised in this debate relates to equity as it applies to EV charging.

This is sometimes framed in terms of DNSPs being better placed to deliver equitable outcomes than other enterprises.

It's important to clarify that equity in this context doesn't mean "everyone pays the same". That would be equality. The test for "equity" is, "is it fair?"

Requiring people who can't afford cars, to pay higher electricity bills in order that monopolies can profit from deploying public EV charging equipment, is self-evidently not very fair. User pays - which is where the current rules are taking us - is quite a bit closer to the "equitable" mark.

A proposed solution can feature a push for equality, while also being terrible. The wisdom of Solomon is the go-to reference for that:

- Two adults arguing before an authority about which of them should have custody of a child.
- Solomon says, "How about I divide the child in two, and you can have half each?"
- One of the adults agrees with this proposal.
- Solomon says, "No... the other adult here is pretty clearly the one that can be trusted with a child".

In any debate around equality and equity, it's reasonable to ask who's investing effort in sharpening figurative knives, presenting them to authorities, and clamouring for their urgent use.

It's also reasonable to consider who is speaking against the application of the knife, and what their motivation might be.

The question of what it costs to charge a car at home also comes up in this context. The person with off street parking is often presented as getting a 'better deal' than the person without. It's certainly *easier* for the person with off street parking.... But "easy" and "fairness on price" are not the same thing.

If a driver owns an electric car and lives in a home without off street parking, and uses public charging infrastructure to charge their car, they will probably pay a few hundred dollars more

each year to charge their electric car than someone who parks on their own property - noting that it's still going to be a lot cheaper than petrol.

The fairness aspect, though, is that the person with off street parking, who can charge their car in that location at low cost from their home supply, is paying for that parking space. A parking space is about 12 square metres.... At typical inner urban property prices in Sydney, that's worth at least \$30,000 as bare dirt.

If, having paid for over \$30,000 worth of additional asset value (by buying it, paying the mortgage for it, or by paying higher rent because of it) the resident is able to access a saving of a few hundred dollars per year when charging their car.... That's actually fair.

The person who is allowed to take advantage of public space near their house, which they're not paying for, to store their private car, is getting a great deal – irrespective of who pays what for fuel.

Reform to make it easier for competitive businesses to deploy public EV charging equipment is a great idea. Reform to make it easier for drivers to bridge the gap between their house and their car, to enable charging at the kerbside from their house, where it can be done safely, is also a great idea.

Efforts to reduce the price paid by the driver using **public EV charging infrastructure**, to a level comparable to what the person who has off street parking pays form their home supply, by socialising the costs of the EV charging infrastructure they're using across all electricity bill payers, won't lead us to fairness.

There are also questions raised by some people relating to who the driver pays for electricity, when they charge their car at a public charger. Some views have been expressed that a driver should be able to have their choice of electricity retailer at any public EV charger they use.

To that point, the driver is able to choose which public charging location they take their car to, in the same way that they get to choose the retailer of any other service they buy that *doesn't* come from a monopoly.

It's not necessary for the local bakery to let its customers pay the local butcher or grocer for their bread. It's not necessary for Coles to let customers pay Woolies, Aldi, or IGA for a trolley full of groceries from their store.

If the customer doesn't like the deal on offer, they're free to shop elsewhere, because the local bakery or supermarket isn't a monopoly.

EV charging is the same: provided a robust competitive environment continues to exist, through the retention of the ringfencing rules, Australian consumers can expect to get better results, on both their EV charging, and their general electricity use.

Is the data being used by the DNSPs in their efforts to change the rules accurate?

As part of their claim that the competitive market is inadequate to deliver sufficient public charging infrastructure, Energy Networks Australia cite¹² figures from the IEA¹³, which imply that Australia is a global laggard with 68 EVs per public charger.

A review of the data presented over the last three years from the IEA, compared to reports produced locally by the Electric Vehicle Council, casts serious doubt on the accuracy of the IEA data point in this respect. By extension, the validity of the claim that changes to the market rules are necessary from Energy Networks Australia and the DNSPs they represent - who rely on this data to back their argument – is highly doubtful.

The links for the last three years of IEA reports are available here:

https://www.iea.org/reports/global-ev-outlook-2022/trends-in-charging-infrastructure

https://www.iea.org/reports/global-ev-outlook-2023/trends-in-charging-infrastructure

https://www.iea.org/reports/global-ev-outlook-2024/trends-in-electric-vehicle-charging

The IEA's 2025 report, which covers data from 2024, is expected to be released in May 2025 – at time of preparation of this submission, it's not available, but should be available soon after.

The EVC has historically reported on light vehicle sales in Australia, which can be used to create a running total of the number of EVs on the road, for comparison purposes.

This data sits in the 'state of EVs' reports that have been coming out since 2018. For simplicity, this has been rounded to the nearest 5,000 cars.

YEAR	EVs per charging point in Australia (IEA)	kW of public charging per EV in Australia (IEA)	Number of EVs on Australian roads at year end (EVC)
2021	20.7	0.8	45,000
2022	35	0.52	85,000
2023	68	0.3	180,000
2024	pending	pending	295,000

When we put this data from both IEA and the EVC into a table, what we find is:

The story this table tells is one of EV charging infrastructure badly failing to keep up with uptake of the cars.... But the data presented by the IEA over time is **clearly not accurate**.

If we were to use these data points to determine how many public EV chargers existed in Australia in 2021, we'd take the 45,000 number, divide it by the 20.7 number, and come up with about 2173.

Looking two years down the track at 2023, we'd take the 180,000 number divide it by 68, and come up with 2647 – representing the addition of about 470 public EV chargers over two years, across the whole country.

¹² https://www.energynetworks.com.au/assets/uploads/ENA-April-2025-Powering-our-Future_final-2.pdf

¹³ https://www.iea.org/reports/global-ev-outlook-2024/trends-in-electric-vehicle-charging

Is it **not credible** that there were 2173 sites in 2021, and that less than 500 additional ones were built over the following two years.

As a simple example of why not: Round 1 of the NSW destination charging program, which ran from May 2022 to November 2022, funded almost 500 EV chargers at 187 locations¹⁴.

That was one round, of one state-level government program, which co-invested a shade under \$2 million alongside private investment. This was a tiny fraction of the money spent on public EV charging in Australia in the time frame.

With respect to public fast charging, we can look at other work done by the EVC, like the EVC's 2023 industry recap report¹⁵

That document reports that the number of public fast charging sites increased by 75% from 2022 to 2023. This implies that while the fast charger rollout (by number of locations) didn't quite keep up with the incredible ~110% year on year increase in number of EVs on the road, it came pretty close.

It's worth noting that while the number of fast charging locations might not have quite kept pace with uptake of the cars in that particular year, the **aggregate power level available** probably did. Ultrafast charging sites, where power available to the cars plugging in exceeds 100kW, and each site has multiple charging bays, grew from 99 locations to 229 - growth of 130% in a single year, significantly exceeding the growth rate of the on-road vehicle fleet, in a year when the number of EVs on the road more than doubled.

If we estimate those 130 new sites as 500kW each on average - this being the minimum allowed under the NSW government fast charging program - that's roughly **65,000kW** of new EV charging capacity, just from the ultrafast chargers, added in one year.

By comparison, the IEA's data suggests that the incremental addition of public EV charging power from 2022 to 2023 in Australia – of all kinds - was about **10,000kW**. This is what you get when you take the 180,000 cars and multiply it by the 0.3 kW/EV number from the IEA (2023), and then subtract from that the 85,000 cars multiplied by the 0.52 kW/EV number (2022).

This lowball estimate of addition of new public EV charging hardware is why it looks like the public EV charging power available per car is shrinking over time in the IEA's reports.

With the annual growth rate of the on-road EV fleet having now tapered to 60% or so, there shouldn't be any issue going forward with public charging infrastructure keeping up with uptake of the cars, provided the obstacles presented to businesses rolling out public fast charging equipment – many of which are created by the monopoly enterprises that run the electricity distribution networks - continue to be addressed by government.

The sanity check for this data is EV driver experience. We can look to the media for that. Media reports of queuing at public chargers in Australia have reduced over time, rather than increased, while the number of EVs on the road has grown exponentially – which is a very strong indicator that the infrastructure is keeping up.

¹⁴ <u>https://www.nsw.gov.au/grants-and-funding/grant-recipients?nid=22953</u>

¹⁵ https://electricvehiclecouncil.com.au/wp-content/uploads/2024/03/EVC-Australian-EV-Industry-Recap-2023.pdf

Summer of 2021/22 included lots of media coverage of queues at limited numbers of public charging stations. Summer 2023/2024, not so much.

There's still room to improve of course – public EV charging is a new industry, and not every driver is going to get a perfect experience every time - but real world outcomes for drivers are getting better over time, not worse, under the current market settings.

In short:

The peak body for Australia's energy networks (the ENA) is pointing to the IEA's most recent report on this topic as part of their lobbying efforts. The IEA's data for Australia over the period 2021 to 2024 with respect to EV charging infrastructure does not stand up under cursory inspection.

Rather than considering and fixing their own failures to support the transition to EVs (which have been consulted on and publicly debated extensively¹⁶), the DNSPs are making an ambit claim, on the basis of dodgy data, to expand their monopolies into what's currently a thriving competitive space.

The fact that the data they're citing is easily identified as being incorrect, is not stopping them from using that data as the basis to seek changes to the rules of the market in their favour, at the expense of everyone who pays a power bill.

¹⁶ <u>https://electricvehiclecouncil.com.au/wp-content/uploads/2024/09/EVC-submission-to-Streamlining-network-connection-processes-for-CER-and-EVSE.pdf</u>