LEGISLATIVE COUNCIL ECONOMY AND INFRASTRUCTURE COMMITTEE

Inquiry into Electricity Supply for Electric Vehicles

Melbourne – Friday 13 February 2026

MEMBERS

Georgie Purcell – Chair
Richard Welch – Deputy Chair
John Berger
Gaelle Broad
Katherine Copsey
Moira Deeming
Tom McIntosh
Evan Mulholland
Sonja Terpstra

WITNESSES

Kent Johns, Head, Government Relations and Regulatory Affairs,

Neil Roberts, Director, Policy, Technical and Safety, and

Michael Weekes, Manager, Technical, National Electrical and Communications Association.

The DEPUTY CHAIR: I declare open the Legislative Council Economy and Infrastructure Committee public hearing for the Inquiry into Electricity Supply for Electric Vehicles. Please ensure that all mobile phones have been switched to silent and that background noise is minimised. I welcome any members of the public watching via the live broadcast.

Gents, we will first introduce the committee members. I will start on my right.

Tom McINTOSH: Tom McIntosh, Eastern Victoria.

The DEPUTY CHAIR: Richard Welch, Member for North-East Metro.

Katherine COPSEY: Katherine Copsey, Member for Southern Metropolitan.

Gaelle BROAD: Hi, I am Gaelle Broad, Member for Northern Victoria Region.

The DEPUTY CHAIR: All evidence given is protected by parliamentary privilege as provided by the *Constitution Act 1975* and further subject to the provisions of the Legislative Council standing orders. Therefore the information you provide during the hearing is protected by law. You are protected against any action for what you say during this hearing, but if you go elsewhere and repeat the same things, those comments may not be protected by this privilege. Any deliberately false evidence or misleading of the committee may be considered a contempt of Parliament.

All evidence is being recorded. You will be provided with a proof version of the transcript following the hearing. Transcripts will ultimately be made public and posted on the committee's website.

For the Hansard record, can you please state your names and any organisation that you are appearing on behalf of.

Kent JOHNS: Kent Jones, Head of Government Relations and Regulatory Affairs for the National Electrical and Communications Association.

Neil ROBERTS: Neil Roberts, Director, Policy, Technical and Safety for the National Electrical and Communications Association.

Michael WEEKES: Michael Weekes, Technical Manager for the National Electrical and Communications Association, Victorian branch.

The DEPUTY CHAIR: Thank you, gentlemen. We welcome you to make some opening comments. We ask that you could keep them to 10 to 15 minutes so that we have time for some discussion as well after that.

Kent JOHNS: Thank you, Deputy Chair, and we will try and keep it under 5 to 10 minutes. Firstly, I would like to thank yourself and the members of this committee for inviting the sparkies to make a presentation to you. As you are probably aware, NECA is the peak body representing 6500 electrical contractors across Australia and around 2000 electrical contractors in the state of Victoria. Our members are the people that design, install, connect and maintain the electrical infrastructure that underpins Victoria's energy system, including electric vehicle charging and infrastructure. They are delivering the energy transition on the ground, and they see directly where policy intent is being realised and where it is being undermined by regulatory and market failures.

Can I say from the outset that NECA strongly supports the transition to electric vehicles. Electrification of transport is essential to reducing emissions, strengthening energy security and improving long-term affordability for Victorian households and businesses. However, the success of that transition will be

determined not by EV uptake alone but by how charging infrastructure is planned, regulated and delivered. Our submission and our evidence today focus on a central risk to that success – namely, the conduct and expanding role of electricity distribution network service providers and the consequence this has had for investment, competition, cost and consumer outcomes. On demand management and charging behaviour, it is important to be clear that the technical and market mechanisms already exist. This is not the area of system failure, but the risk lies elsewhere.

The most contentious issue before this committee is public charging infrastructure, particularly in older suburbs where off-street parking is limited. NECA cautions strongly against the assumption that this challenge justifies the large-scale deployment of monopoly-owned charging assets. The evidence does not support this conclusion. The market for public and kerbside charging is active, innovative and well capitalised. Private operators are already delivering fast charging for long-distance travel, destination charging, pole-mounted solutions and council-managed car parking. These solutions are being deployed when councils engage constructively and when network access is timely and cost reflective. What we are seeing in Victoria, however, is the opposite. NECA is aware of repeated instances where distribution networks have refused to negotiate in good faith, imposed excessive application and assessment fees, quoted unreasonable connection and design costs and delayed or frustrated access to network assets. While NECA can highlight this, the network providers are protected from public scrutiny, as they often hold the fate of our members and businesses in their hands. Our members are well aware of the commercial impacts these monopolies can effect, should our members become whistleblowers. These are not isolated claims by NECA alone; they are echoed in submissions from all major charging operators, including BP, EV networks and Tesla, all of whom identified distribution networks as the primary barrier to deployment, particularly in the state of Victoria.

In some cases, investment capital has been redirected offshore because projects here cannot secure timely or affordable connections. This is not a failure of the charging market; it is a regulated monopoly behaviour constraining competition so they can argue for entry into regulated markets. Despite this, the distribution networks have argued that these very barriers justify their entry into the EV charging market and have sought ring-fencing waivers to allow them to own and operate charging infrastructure. That approach would entrench the problem rather than solving it. Allowing entities that control access, pricing and timing of connections to also compete in downstream markets creates an inherent conflict of interest. It undermines contestability, deters private investment and shifts risk and cost onto all electricity consumers through regulated returns. NECA's position is clear: the appropriate role of distribution network providers is not to own charging infrastructure but to enable it. This requires transparent publication of network capacity data, prompt and consistent processing of connection applications and facilities access agreements that are fair and reasonable, with cost-reflective tariffs. NECA supports the AER's draft decision to classify access to distribution assets, including poles, as a regulated service. This approach addresses the real problem, which is access, without collapsing competitive markets.

On EV uptake more broadly, it is important to distinguish perceived barriers from real ones. Purchase cost and model availability are improving rapidly. Range anxiety is diminishing as battery performance and fast charging networks expand. Safety concerns are not supported by evidence. The remaining decisive factor for many consumers is charging convenience, particularly for apartment and strata residents. This is where policy intervention can be the most effective. Enabling retrofits into existing strata, supporting low-cost technologies such as intelligent power sockets and learning from programs such as the EV ready building grants will deliver far greater returns than mass deployment of kerbside monopoly assets. The committee should also consider the unintended consequences of current fire safety interpretations. Treating EV charging bays as existing special hazard locations is not built and based on evidence. NECA supports appropriate emergency planning, but regulatory settings must be proportionate and evidence based. Consultation with fire authorities is essential to remove barriers that are not justified by data.

Finally, building standards do matter. The deferral of the residential EV readiness provision in the National Construction Code risks locking in higher retrofit costs for decades. Victoria has a real opportunity to act. Simple, low-cost measures such as ensuring adequate switchboard capacity and prewiring for car spaces in new homes can materially reduce future barriers to EV adoption. These are sensible, consumer-focused reforms that align with electrification objectives and impose minimal costs at construction.

In closing, Deputy Chair, the transition to electric vehicles will not succeed if monopoly control over essential infrastructure is allowed to expand unchecked. Victoria does not need government-owned or network-owned charging empires; it needs competitive markets, clear rules, accountable networks and empowered local

councils. NECA urges this committee to focus on removing barriers created by distribution networks, preserving contestability, supporting evidence-based planning and ensuring that the benefits of electrification flow to the consumers, not to the regulated monopolies.

The DEPUTY CHAIR: Thank you, Mr Johns. We will move now to questions, and we will start with Mr McIntosh.

Tom McINTOSH: Thank you very much for all being here. The EV rollout – 6500 members. We are not sort of hypothecating putting people on Mars; this is work that is here right now, I presume, for sparkies in Victoria?

Kent JOHNS: Yes.

Tom McINTOSH: A good serious amount of work as the fleet expands of EVs in Victoria?

Kent JOHNS: It is not just the work for our electricians – our electricians are seeing a huge demand for these types of installations – but charge point operators are usually electrical subcontractors as well. What we are seeing is there are real opportunities there. The competition is coming from the DNSPs and usually their unregulated subsidiaries, which are trying to take their market. What we are seeing with our guys is investment is drying up for manufacturers of this equipment, because they are concerned about the market stability that they have got here. But the contractors themselves have got a lot of work out there at the moment.

Tom McINTOSH: We heard earlier about councils having delays from DNSPs and what that means for them and for their communities, for consumers, but also the costs and the time delays that council and council staff are incurring with sometimes years of delays. What does that mean for your 6500 members, their staff and their customers from these delays coming from the DNSPs?

Kent JOHNS: Essentially what we are seeing, Mr McIntosh – and I will have our technical director explain better the charges that we are seeing imposed – is we are seeing examples of some occasions where a DNSP is just simply not allowing the private charge point operators to install their equipment. They can identify up to six or seven spots in a street and either for technical reasons or because their own unregulated entities have already claimed to be able to put something there, they are being told they cannot place their charge points there. When our members put their EV chargers out into public spaces, they pay the charges to the DNSPs. They are also willing to pay the councils themselves for access to those, so there is a benefit being derived back to the community through paying for the parking spaces. This is not being derived from the DNSPs or their unregulated subsidiaries. What we are seeing is the community benefit of privately provided charge points has double benefits, and it also does not come back on the regulated asset base, so it does not go into your energy prices. But Neil, you might want to expand on Tom's question.

Neil ROBERTS: Yes. The issues are slightly different between New South Wales and Victoria. In New South Wales the charge point operators have been able to negotiate reasonable access to poles to put in kerbside charging. Independently they have been putting in fast chargers in selected locations. They have been negotiating with councils. In Victoria the problem has been – some of the charge point operators have managed to put in some volume. For example, EVX put in about 50 chargers under an ARENA grant. Now, under that process they paid a rental per pole for the installation per annum. That was basically controlled and agreed to as part of that process. At the expiry of those 50 places, that charge point operator wanted to move on to expand and put in more pole-mounted chargers, but what they found was the per annum rental rate asked for by the DNSPs quadrupled. It basically destroyed their business model. These were the same DNSPs that then requested a waiver from the AER to own and operate pole-mounted chargers. They were effectively extinguishing competition so that they could then prosecute the argument that, 'Well, we can do it more efficiently than the private sector.'

Kent JOHNS: To give you a specific example, in New South Wales one DNSP currently charges $750 for access; in Victoria it is close to $4000.

Tom McINTOSH: And is that a fixed amount?

Kent JOHNS: No. They can charge whatever they like, but these are what we have obtained from members, actual quotations. So it was $750 for access to a pole in New South Wales; up to $4000 for access in Victoria.

The DEPUTY CHAIR: On a like for like basis.

Kent JOHNS: Same. It is one charge point, which is two chargers.

Neil ROBERTS: As a result of these experiences – and we took this to the AER – we put submissions in when the three distributors in Victoria asked for their waiver. Now, they got their waiver to own and operate up to 100 pole-mounted charge points. The restrictions that the AER put on that basically validated our argument in that the AER's restrictions are aimed at reining that back in, making that a regulated service so that the rental charges are much more cost reflective and so it will not destroy the business models of the private sector. They effectively have to charge themselves the same rate as they would charge any other charge point operator, so you start to get that levelling out. But that is only effective in Victoria, because that is the five-year cost control period and it has just come into effect in Victoria. We are expecting that sort of policy outcome and regulatory outcome to be realised in other states as well, because as the AER have recognised, up until now that has been an unregulated aspect of the DNSP business – those facilities access agreements.

Tom McINTOSH: We are hearing from councils, and out in my electorate I have heard from building owners, if the DNSPs are not able to meet the community, economy and productivity needs of getting this infrastructure put in – they are going to come in here in a fortnight, so we will hear from them – what do you think their argument is, then, to be allowed to have control of the charging network as well?

Kent JOHNS: I will probably ask Michael to expand on it, but their argument is going to be: 'We currently aren't seeing it rolled out quickly enough and as a monopoly we can roll it out because we control the assets; we can deploy it more rapidly because we can get the approvals.' And that is if you allow them to put it into their regulated asset base so that they can directly deploy them. What they are saying is: 'All the delays, confusions and costs we've added to it have made it difficult to roll them out, so therefore give it to us, and we won't have those problems because we'll be nicer to ourselves than we are to the private sector.' Michael, I do not know if you want to be more technical than me, but essentially they see this as their business model to expand their returns.

Michael WEEKES: The argument they will possibly put forward is that they know where the power is available and then they can distribute the chargers in those appropriate locations, but that should be freely available to any provider of the chargers; it should not be a secret where the power is available on their network to facilitate these. If there needs to be requirements to increase power in certain locations, well, that is a different discussion, but if the power is available on a street it should be open to the open market to provide that service.

Tom McINTOSH: It might not be possible to be able to put a set or capped pricing on connections, but as far as a timeframe – let us say we had a clear view of what is available in the state, where there is capacity in the grid for EV charging infrastructure. Do you think there should be timeframes that DNSPs have to communicate, approve and enable installations to occur in?

Michael WEEKES: Yes. Like I said, they have got monitoring on all their assets, all their power distribution systems. They can tell you exactly how much power is being used down to a house level through the metadata on the meters and stuff like that, so they can clearly distinguish how much power is being drawn off a transformer into a street and how much power is available in that area.

Neil ROBERTS: Now, to some extent the timeframes are already established in the National Electricity Rules. It should not be treated as any different to any other connection.

Tom McINTOSH: Can you just elaborate on that?

Neil ROBERTS: Well, if I as an applicant put in an application for supply through my electrical contractor, then the DNSP is obligated to acknowledge and respond within certain timeframes. It is written into those rules.

Tom McINTOSH: And is that applying to EV infrastructure, or –

Neil ROBERTS: Like I said, they should not be considered any different to any other connection application. The only difference possibly with the pole-mounted stuff is that you have to do a little bit more

asset analysis to respond to say, 'Okay, that is a suitable place to mount an EV charger', but for the electrical load assessment itself it should not be treated as any different to any other connection.

Tom McINTOSH: Okay. I am out of time.

The DEPUTY CHAIR: Thank you. We will move on to Ms Broad.

Gaelle BROAD: Thank you, Chair. Thank you very much for attending this afternoon. I am particularly interested in regional areas and the network capacity. I have been to towns where there is a single line; no power means no water access and no sewerage in your home. I have heard reports that people cannot unlock their front door because some people are changing over to electric things now, or they cannot get out of their garage. So when the power goes out you are in major problems. This seems to be very common in regional areas, the regular power outages. What do you see are the risks for the rollout of more EVs in regional areas and the capacity of the system – across the state in a way, too – because I have seen two Auditor-General's reports indicating that power outages are a risk, and we have got offshore wind projects that have not commenced. There are a whole lot of problems I see with the increased demand for power. So what are the risks as you look at a huge number of EVs potentially entering the market?

Michael WEEKES: Yes, that is going to be a problem. The public street charging facility should not be affected to that extent. If you cannot charge your car, you cannot charge your car. A lot of the time when there is no infrastructure available for rural and regional areas, that is going to be a property supply problem, not so much an EV public charging facility issue. Again, the power companies or the DNSPs should be able to review that as it becomes apparent and make the necessary upgrades to those areas if it is happening.

Gaelle BROAD: Yes, but there are restrictions, aren't there, on what upgrades? I guess the government has to approve things, and there have been barriers to that.

Michael WEEKES: There are limitations on the amount of power each property can have, and that is to make sure that the infrastructure does not fail at a higher level. Generally a house is allocated about 40 amps of supply, single phase. You can have more than that, but there are diversity factors involved in that so that a whole street will not be caught running at 40 or 60 amps and drop the fuses out at the main substation and stuff like that. So they work on diversification and things like that. When you are talking about regional areas with single wire, that is a single transformer providing power to a single property. That is the problem where we are electrifying a lot more. People are moving away from bottled gas and other types of fuel for heating and cooling and stuff like that, so that will inevitably become a problem. How the DNSPs and government are going to look at that is probably a bigger picture than electric vehicle charging as well, though.

Kent JOHNS: Probably the argument we have placed too is the DNSPs, while wanting to enter this market, should be focusing on those issues and getting them fixed first before they enter the competitive markets, because the competitive market, I can tell you now, is well serviced. In fact it is being challenged by the fact that there is this ambiguity now of DNSPs entering this market, that private equity funds are no longer investing in the private sector to develop this better. So tell the DNSPs to do what they are supposed to be doing, and that is fixing the problem that you have so well put to us. Go and fix these problems out there. That is where they need to put their investment.

Gaelle BROAD: So particularly in regional areas, I see there is already an existing problem which then impacts your internet connection, mobile, and some people rely on a booster. That relies on electricity. The minute that goes out you cannot even see the bushfire updates that are around the corner.

Kent JOHNS: Smarter energy management is occurring as well, and that will assist some, but the infrastructure is the issue.

Gaelle BROAD: I saw just in one of the reports it said a 40 to 50 per cent rejection rate of proposed sites from DNSPs. Can you speak to that? Do you get any line of sight on what reason they are rejecting particular sites? Victoria seemed to be a lot higher than New South Wales in comparison.

Kent JOHNS: I think Michael will answer the technical side, which is power allocation. But we also see, while I am loath to say it, there is across Australia a certain propensity, for the DNSPs who own subsidiaries that are unregulated, of examples where charge point operators have said, 'We would like to put one on this

pole,' and they have said, 'No, it's already been allocated to ours.' 'Okay, we'll have the pole next to it.' 'Well, there's not enough power to that one.' 'Well, we'll have the pole up the end of the street,' and they go, 'Sorry, all 12 of them are taken.' There is some gaming of the system that we suspect is occurring. The dilemma is that our members cannot highlight it, because they can also at times be clients of the DNSPs. There is a bit of that going on. But the argument you will probably get from them, which is what Michael will talk to, is about access to power that has the capacity to feed it at that particular pole.

Michael WEEKES: Yes, we have seen the issue with larger charging infrastructure required at service stations and stuff like that. The DNSPs are rejecting and have been pushing back on the dual points of supply to properties – those sorts of things. That has been dealt with at the Victorian Service and Installation Rules committee for probably 18 months now, where there has been pressure from government to amend that requirement, which has been going to and fro between the contractors, the government and the DNSPs. Again, there are some safety concerns. Are they all justified? Can they be mitigated? Probably. That is for the larger infrastructure. For the pole-type stuff it is the same problem. As Kent said, they have allocated the poles already in some cases and they are not willing to give them up.

Gaelle BROAD: Thank you.

The DEPUTY CHAIR: You can keep going if you want, Gaelle.

Gaelle BROAD: Well, if there is time. That is great. Thank you. I am just interested in your insights, because you talked about competitive markets. I guess what we have heard a lot, yesterday and today and in submissions, is that there are subsidies for the purchase of the vehicles. There are tax benefits at the moment. There have been calls for assistance, because particularly in regional areas it is not commercially viable to invest, so it would need government support. There have also been calls for government support for education programs to promote it. Councils have relied on grants to progress this initiative. But if you remove the subsidies, because we did hear from people yesterday saying, 'Oh no, not yet; we still need subsidies,' – because the uptake is slower than projected, I guess some would say – can this survive? How do you see the costs? I guess the costs seem to differ between Victoria and other states, but how would it go having less subsidies or none?

Michael WEEKES: I think subsidies can skew the market. In a lot of areas where there are subsidies involved, the price goes up and then quite often plummets because too many people are getting in just to get the subsidies. We have seen that with the Solar Homes program. This could be also happening with the DNSPs and private providers of street charging. If there are government subsidies, it will push the price up. An open market will level everything out. It is a case of everyone wants the free money. We have seen it with most government subsidies.

Neil ROBERTS: I will add to that, if we are talking about regional areas. Part of the EV problem is having the infrastructure in regional areas to sustain journey and tourism. The convenience of charging dissuades a lot of people from owning an EV, simply because they will do some regional travel. There needs to be a build out of that infrastructure, and subsidies do play a part in that. Government does have a part to play in that. Until we hit a critical mass of EV ownership, those types of installations may be marginal for some time. But once you get to that stage, companies will basically be in a position to build it out themselves. We are already seeing charging networks appear. NRMA and Tesla are building out strategically placed stations to accommodate that. Probably the missing link to that is the service stations that need a second source of supply to provide fast chargers associated with their regular fuelling outcomes.

Kent JOHNS: The grants are expediting them, but that is not the cause of delay. It is access, opaque pricing and planning, that is the delay. It is not the market. Now, grants expand and rapidly increase the uptake and the installation and make it a bit cheaper, but it is a mature market already. I think that, if we fix the structural issues, then ultimately those grants and subsidies will not be required. But we represent the sparkies that get paid too, so we do not mind them.

Gaelle BROAD: I have got a son training to be a sparky, so I am very interested. Anyway –

Kent JOHNS: He is going to earn more money than both of us.

Gaelle BROAD: Or certainly have plenty of work.

The DEPUTY CHAIR: Okay. Thank you, Mrs Broad. We will go to Ms Copsey.

Katherine COPSEY: Thank you. Thanks. I am interested in how new technologies can also help alleviate something that Mrs Broad was referring to. We are hearing also that a lot of people will and prefer to charge at home, particularly with the uptake of solar and weighing up whether you are going to get an EV or a battery. I am particularly interested in your technical expertise around not just vehicle to home, but vehicle to grid – where that technology is at, how it can help with our overall demand and usage patterns, and what government can usefully do to help overcome barriers and speed the uptake of that technology.

Kent JOHNS: That is Neil.

Neil ROBERTS: We are starting to see those technologies being approved for connection to the network. I might get you to flesh out the question again because I am –

Katherine COPSEY: It is similar, I suppose, to the boom that we have seen in home solar with batteries. With the uptake, a lot of people have a big battery sitting in their garage at the moment and not being used a lot of the time, or only being depleted occasionally. So how can vehicle to grid tech help us make the most of all of those little mini batteries out in communities that are already there, and does government have a role to speeding that uptake?

Neil ROBERTS: I am not sure about the role of government. The ability of vehicle to load helps alleviate, obviously, pressure on the networks, freeing up capacity for other people as well. Vehicle-to-grid, similar to the home batteries outcome, people can then utilise that to support the grid, potentially make some money or returns on that themselves. It is definitely an alternative that some people have accessed, and it is a very real alternative to having a home battery – having one on wheels is a useful outcome if you can manage that. But everyone's profile is different. Everyone's use case is different. So if you are travelling long distances every day, you probably need to charge your car rather than have it available to support the grid or top up your own usage at home. But if you are only doing modest kilometres per day, probably only using 8 to 10 kilowatt hours in the car itself, then it may be useful to you. But I see that very much as a market mechanism rather than a government one.

Michael WEEKES: The technology has been around for several years already. There have been 'vehicle to X' – vehicle-to-home or to grid – inverters available for multiple years. They are just not –

Katherine COPSEY: Quite expensive and new, is my understanding?

Michael WEEKES: I tried to purchase one and I could not get one, but I do know someone that had a few of them. They are not permitted under the current DNSP arrangements, unless there is some special arrangement that we do not know about. You cannot use a car with a bidirectional EV charger. At Standards Australia level we are looking at the implementation and regulation of those, at standards levels. It would be a massive boost for regional areas that do have power outages, that if they have got an EV they could plug it in and still have their internet and stuff like that –

Katherine COPSEY: A fridge.

Michael WEEKES: a fridge available through a bidirectional charger, which would just power part of the installation. They are probably more likely to invest in an EV than a battery. They can move the EV charger around to different parts of the farm or whatever they have got to plug it in if they have got multiple EV bidirectional chargers.

Kent JOHNS: But also, Ms Copsey, can I make this offer to the committee: we represent large and small contractors and manufacturers and people that have a lot of expertise on this. If I could take it on notice, I am more than happy to come back with a specific answer in regard to the latest technology and latest legislation across the country.

Katherine COPSEY: That would be great.

Kent JOHNS: I am more than happy to come back.

Katherine COPSEY: I am interested in if there are still issues around standards and people getting access to the technology at home and whether there are regulatory barriers to people accessing tech that is there, that is the crux of it too.

Kent JOHNS: Michael will be very aware of that. So the regulatory framework, I will get back to you on that question, and the technology, I will talk to the large manufacturers and the guys that are putting the new stuff out there at the moment, so I can give you a more complete answer if you give me a week or so.

Katherine COPSEY: Great, thank you. That would be great, on notice. I was happy to hear there was progress on the National Construction Code to make new properties EV ready, but I was sad to hear that we have not taken that up here in Victoria yet. Could you go into a little bit more about what the planning barriers are that people are facing to building EV-ready homes and also retrofitting existing properties if Victoria does not implement that code?

Neil ROBERTS: As I understand it, the council that sits and determines what parts of the National Construction Code go ahead, or endorse it to go ahead, basically withdrew from that and the implementation of that this time around, whereas it was written into the NCC in 2022, I think it was.

Michael WEEKES: It could have been, yes.

Neil ROBERTS: They have decided to delay the implementation of that, and caught up in that was the requirement to have additional capacity in the switchboard and a cable going to a car space – not requiring the installation of a charger, just the wiring to enable that to occur later on. That is no longer a requirement in the NCC, so yes, that is disappointing. So we will lobby for that, and I think we have written to the relevant Victorian minister to say, 'Well, hang on, there's an opportunity missed here. You can still enact that requirement as a state, and we would urge you to do so.'

With the other barriers to retrofitting older properties, one of the things that I highlighted in this report was there are other technologies which are coming online, so having a full-blown EV charger in every car spot in an old apartment block is probably unrealistic, because they probably do not have the capacity at the switchboard to enable that. But with the newer technologies like smart GPOs – so just a normal outlet with intelligence built in to a demand management unit on the unit block itself – in a lot of cases you will be able to put a GPO next to a car spot, have it ID verified so that you cannot steal power from that spot and keep the overall demand coming into the building below the threshold or the approved demand. Now, installing a GPO and the wiring associated with that – and they do the communications on what they call PLC, powerline carrier, so you do not need any communications wiring – that technology is now being marketed, it is there. To some extent it is older technology; they have just put all the components together. That is far less expensive than running in new busbars or large cabling to accommodate EV charging in every car spot. That technology exists; I am hopeful that it gets widespread acceptance.

The issue obviously in stratas is getting through strata committees. It is always a problem, and I have experienced it myself trying to negotiate through those processes. In New South Wales we have been consulting with the government to make suggestions for how they can change their strata management Act, because they came to us to talk about it. So we have been helping in how you define that, such that an apartment owner can reasonably ask their strata committee to progress those types of things. Unfortunately, you cannot override the rights – or maybe fortunately– of the strata committees, but we should be making it easier and providing them with clearer pathways to making those retrofits in those buildings, because a lot of the time they shy away from it, one, because of expense – 'Well, okay, if the costs are coming down.' The other thing is they are worried about liabilities, so things like fire protection stuff but also just information about how they get it done.

Michael WEEKES: We have got members that are specialising in that area, in strata-type buildings. If there are 20 or 32 spare amps available in the building, they can put in a management system that they can run 10 charges off, and they will load share. So the first one plugs in, they get 100 per cent.; the second one plugs in, they get 50 per cent; the third one plugs in, and they might only get 10 per cent until the first one's finished charging; and then they split it up again. So there are those sorts of smarts available and load management available now that are going into apartment buildings and the like.

Katherine COPSEY: Thank you. Super informative.

The DEPUTY CHAIR: Thank you. I have got a few questions. We have heard a lot from the councils about how much it costs to install charging points. I was just curious in that, within the value chain, what is your members' component of that cost? They say it is somewhere between $10,000 for a standard charging point, up to a quarter of a million dollars for a high-end one. What is your component of the cost, on average?

Kent JOHNS: It depends what the DNSP charges. Our charge, in some instances, where it is a $100 charging fee –we are 90 per cent of the cost. In Victoria we are probably 25 per cent of the cost. The DNSPs are 50 per cent. We see some DNSP access fees of $100 around the country, and we see in Victoria up to $4000. I am just saying that is why the percentage varies. Looking at the actual figures – and I will take this on notice – the average charge point that we are seeing put out in the market now in public is between $8000 and $10,000, which makes $4,000 per charger, because there are two located on the pole. If we look at that, that is the cost of equipment, labour, licensing fees, things like that. That is the cost there – so let us say $8000. If we get hit with a $4,000 access fee, that makes $12, 000, so the price increase is 50 per cent. So really, your question – and I am not trying to skirt around it – is relying on the DNSP, whether they are going to price gouge or not. If they do not price gouge, we are 75 per cent of the cost, and the labour component normally sits around 25 per cent of that cost, doesn't it? So of the $8000 – I am now making it up; that is why I am taking it on notice – it is probably about 20 per cent of the cost for the sparkie.

The DEPUTY CHAIR: But the way it all works is the DNSP –

Kent JOHNS: The network service provider.

The DEPUTY CHAIR: will charge you, and then you will charge the ultimate owner. Is that right?

Kent JOHNS: No.

The DEPUTY CHAIR: Where does the cost get aggregated?

Kent JOHNS: The costs get aggregated in the fact of what the charges will be. So the consumer pays ultimately in the end, and they ultimately pay the rate per kilowatt, if I get that accurately. So with a private provider, it is not paid by the energy consumer, and it is not paid directly there, and that is distributed commercially across the rates by the charge point operators.

The DEPUTY CHAIR: Maybe I will rephrase that a little bit. So the council comes to you and says, 'We've got permission to put a pole charger in.' They then come to you and say, 'Can you please do it?' and you charge for it. Do you get an invoice from the DNSP or do you –

Michael WEEKES: It depends on the arrangement.

Kent JOHNS: It depends on the arrangement.

The DEPUTY CHAIR: It could be invoiced either way?

Michael WEEKES: It could be the council. It could be the contractor. It could be the charge provider.

The DEPUTY CHAIR: Right.

Kent JOHNS: It depends on the commercial arrangement. Like I said, to put a charge on a pole the component of labour, equipment and internal cost for our member to put it there if they were employed to just go and put a charger on there is roughly between $4000 and $5000 per charger, and then you add the DNSP cost, which, like I said, could be anywhere between $100 or, if you are in Victoria, up to $4000.

The DEPUTY CHAIR: And to your knowledge, what is the DNSP's cost? What is it they are bearing that they need to charge you for?

Michael WEEKES: I would suggest that question needs to go to them. Ask them what the connection cost is for – not that there are too many of them around – a telephone box.

The DEPUTY CHAIR: But they are not overtly doing anything physical. They are doing an assessment. They are doing some calculations.

Michael WEEKES: They are running a cable from the top of the pole down to the bottom of the pole.

The DEPUTY CHAIR: Right. They are doing that part of it. So there is a physical element to what they do.

Michael WEEKES: Correct.

The DEPUTY CHAIR: Okay. Good. Thank you.

Kent JOHNS: Sorry, Mr Deputy Chair, to be fair to them, they need to assess whether the power is available.

Michael WEEKES: There is some assessment.

Kent JOHNS: So there is some assessment back at the office.

The DEPUTY CHAIR: We will be curious to understand whether that would be in real time. Maybe they need to do time studies or something to establish – I do not know.

Neil ROBERTS: Networks do long-term predictions and forecasting for areas of network. Like I said, for normal connections, they have timeframes in which they need to respond.

The DEPUTY CHAIR: Yes. So why is this different?

Neil ROBERTS: The initial timeframe is 10 days from memory, from the time you put in an application they normally respond within 10 days to confirm, 'Yes, we've got load here' or 'No, we don't' and then you move into more detailed assessments.

The DEPUTY CHAIR: Thank you for that. I also had a question on the retrofitting of charging stations into residences – we might say apartment building car parks and things like that. I have got an EV, and for a long time I just simply plugged it into a standard socket. It had a low feed, but it was manageable. Is there any sense that we are overcomplicating some of this, in that for many urban users that would be perfectly adequate? Is the notion of retrofitting into residences any more than making sure there is a power socket near the car park spot, or is that itself too much of a simplification?

Neil ROBERTS: That depends on everyone's usage profile. I do the same. I plug into a GPO, but my daily commute takes up 8 kilowatt hours, so it charges up within about 4 hours overnight. For someone with a heavier usage case, then retrofitting a 7-kilowatt charger into their house makes more sense. This is something that Ross De Rango did quite a bit of analysis about. Most people's daily commute would equate to somewhere around 8 to 10 kilowatt hours.

The DEPUTY CHAIR: Within urban areas especially.

Neil ROBERTS: Yes, within urban areas.

The DEPUTY CHAIR: I think the country has got a very different story.

Neil ROBERTS: Regional areas are certainly a different profile. Apartment blocks: yes, there are going to be differences for people within that.

The DEPUTY CHAIR: For people who are not technically minded, including me, using just a standard power point to do a charge overnight which will drip feed 40 kilometres range back into your battery or something like that, 80 kilometres at best – how could the ordinary person equate what that load means? Is that the same load as a refrigerator, or is that the same load as running a heater all night? What is that the equivalent to?

Michael WEEKES: Similar. Most people do not realise that they can actually download their load patterns for the last two years from their smart meters. We are actually designing courses now for electricians to get more involved in that so that they can actually see how much power is being used at the house and if there is capacity to put 7 kilowatts into a house.

The DEPUTY CHAIR: I was thinking if we are talking about an apartment building –

Michael WEEKES: Yes, same thing.

The DEPUTY CHAIR: and we are worried about the total load going into the building, well, if you had five cars running, is it any different to having five refrigerators running in the building? Is it going to overload the –

Neil ROBERTS: It is slightly higher. Each GPO will put out 2.5 kilowatts, typically. My car charges at less than 2 kilowatts.

Michael WEEKES: This is where we look at that load management. Like I said, if they have got 20 amps or 32 amps or 50 amps available at an apartment building or even a house, that is where we look at the load management to make sure everyone has got a fair bite of the cherry to get the power they need for their 7 o'clock drive the next morning.

The DEPUTY CHAIR: But some of that nuance, then – we are talking about getting it into the building regs. Some of that nuance is actually valuable because it does not become incredibly onerous in every case.

Neil ROBERTS: To put it in simple terms, a GPO will power a toaster, so if you are plugging your EV into a standard-rated GPO, it will not draw any more than a toaster.

The DEPUTY CHAIR: So in some senses it just seems to me then that it is not as big a deal as we perhaps are making out. People have access to charging –

Michael WEEKES: It is just load management, yes.

Katherine COPSEY: It will depend on the charging rate.

The DEPUTY CHAIR: Then maybe the rates are the relevant point.

Neil ROBERTS: And the management of that demand on an overall apartment block –

The DEPUTY CHAIR: And then a street.

Michael WEEKES: And then a street, and then a state.

The DEPUTY CHAIR: It can cascade, absolutely.

Neil ROBERTS: Correct. So many apartment blocks will be able to be to be retrofitted without requiring a $50,000 upgrade to their main switchboard. Some larger, older blocks will require some re-engineering of their electrical infrastructure, but a lot of them, if they are using a standard GPO and a smart system –

Michael WEEKES: And that will be the problem.

Neil ROBERTS: and demand management – will get away with not having to upgrade their main switchboard. It is a case-by-case situation.

The DEPUTY CHAIR: That has neatly brought us up to time, gentlemen – sorry.

Katherine COPSEY: I had one –

The DEPUTY CHAIR: Okay. Go for it. You can go for a quick one.

Katherine COPSEY: I will just sneak in. Just to clarify something we spoke about, I was pretty keen to hear about vehicle to grid, and just in our discussions – so vehicle to load or vehicle to home – you were distinguishing between that and vehicle to the grid. Vehicle to home does not touch someone's connection. It is essentially like a self-contained appliance; it does not require more grid interaction.

Neil ROBERTS: That is right.

Katherine COPSEY: Great. Good – I understood that.

Michael WEEKES: There are some protections that need to be put in place to make sure that that does not happen, though – to make sure the system does not generate power back into the grid when it is not supposed to – but that is all done under standards.

Katherine COPSEY: Right, yes. Great. My actual question was: given your expertise around the electrician workforce – there is a lot of work – currently are there enough contractors to perform all of this work? With it increasing in future, do we need to plan for workforce expansion and training?

Kent JOHNS: The answer is no. In 2030 – the analysis has been undertaken – we will be, across Australia, 32,000 electricians short. If you consider the rate of people, electricians, leaving the industry, as opposed to those coming into the industry – 35,000. It is a four-year apprenticeship. 2030 is four years away, so theoretically, because the completion rates for apprenticeships are close to 50 per cent, we should have 70,000 electrical apprentices enrolled today. We do not, and we will run short. The dilemma that you will have is not only this. You have the community home batteries program, which is extracting a lot of our workforce. You also have everything to do with net zero and energy efficiency drawing on it. You have a housing and infrastructure shortage. This is where all the electricians are going to be dragged from. The federal government is doing some good work with substantial incentives for electrical and new energy apprenticeships, but that said, there needs to be a lot of work done across the country to fix that 35,000 shortfall. Where that will come from – it will have to come from, I believe, greater engagement with female participation to become sparkies, because a lot of them are looking at their brothers earning $250,000 or $150,000 a year and they are seeing that they have done three degrees and cannot earn anything near that. So there has never been a better time to be a bad sparky.

What I can also say is we need to age more with mature-age apprenticeships. We are seeing a lot of people over the age of 21 who want to enter the trade, but there is a cost barrier with mature-age apprenticeship rates. A lot of employers, especially the small- and medium-sized enterprises, will not pay those additional funds even though they are probably better performers. But if we can get those mature-aged – there are a lot of people that are over the age of 21, which is not mature-aged, but we even have apprentices coming in at the age of 45 that want to enter the trades, so how we allow them to enter into our industry will be significant. But we are not going to have enough electricians. You see that today – if you want to ring up a sparky and get something fixed, see how quickly it happens.

The DEPUTY CHAIR: Thank you, Mr Johns. I think we are –

Katherine COPSEY: I have a very quick one, even though we are over time. I am sorry.

The DEPUTY CHAIR: It is going to be very quick.

Katherine COPSEY: We started late. It was our fault. But just a quick answer: the skills required for the electrification boom, are they general electrician skills or do people who are mid-career need to upskill in this stuff as well?

Kent JOHNS: The answer is yes and no. An electrician is an electrician, so whether you are working in a coalmine, whether you are working on a wind farm, whether you are working in your house or you are doing the major build, an electrician's qualification is an electrician's qualification. It has to stay that way so they can transition through the industry. But at NECA – and our industry members know and you can speak more broadly on Victoria – a lot of our work is post-trade training. You do your three years of study plus your fourth year, and you have got four years work experience with it, but I can say that a lot of the very good sparkies then come back and do post-trade. For example, if you want to do battery installation or solar installation, you have to be accredited through separate accreditation. That is definitely a requirement. So there is a lot of post-trade training that gets done and electricians are always undertaking that. But we can never dilute the electrical qualification, which is the equivalent of a degree. Let us be quite honest, they are the prince of the trades – I will just throw that one in. But it is important that that ongoing training is done, because the technology changes so many times. Michael?

Michael WEEKES: I could talk about training for 2 hours, but yes, the training needs to be reviewed to make sure that it is keeping up with incoming technologies and stuff like that. The trade schooling was written last century in the 1980s and 90s, and it does need reviewing. We are having discussions with the training minister and the energy minister on those sorts of issues as well at a state and federal level. We need to make

sure that the baseline for an A-grade electrician is still moving forward to keep up with the evolving technologies, and we need to put more investment into post-trade training to make sure that they are skilled for energy demand, monitoring, control, batteries, EV charging and all that sort of stuff as well.

Katherine COPSEY: Thank you. Thanks for indulging me.

The DEPUTY CHAIR: Thank you. Thank you, gentlemen, for your contributions. We greatly appreciate it. It is very, very informative. There may be questions forwarded by committee members to you afterwards as well, if they are interested.

Witnesses withdrew.