

TRANSCRIPT

LEGISLATIVE COUNCIL ECONOMY AND INFRASTRUCTURE COMMITTEE

Inquiry into Electricity Supply for Electric Vehicles

Melbourne – Friday 27 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 (*via videoconference*)

Lauren Pulitano, Vice-President, Public Affairs, and

Tim Camilleri, Director, e-Mobility Solutions, Volvo Group Australia.

The CHAIR: I declare open the Legislative Council Economy and Infrastructure Committee's public hearing for the Inquiry into Electricity Supply for Electric Vehicles. Please ensure that mobile phones have been switched to silent and that background noise is minimised.

I would like to begin this hearing by respectfully acknowledging the Aboriginal peoples, the traditional custodians of the various lands we are gathered on today, and pay my respects to their ancestors, elders and families. I particularly welcome any elders or community members who are here today to impart their knowledge of this issue to the committee or who are watching the live broadcast of these proceedings. I also welcome any other members of the public watching via the live broadcast.

To kick off, we will have committee members introduce themselves to you, and we will start with Ms Broad.

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

The CHAIR: Georgie Purcell, Member for Northern Victoria.

Katherine COPSEY: Katherine Copsey, Member for Southern Metropolitan.

Tom McINTOSH: Tom McIntosh, Member for Eastern Victoria.

The CHAIR: Thank you so much for taking the time to appear before us today. All evidence taken is protected by parliamentary privilege as provided by the *Constitution Act* and further subject to the provisions of the Legislative Council standing orders. Therefore the information you provide during this 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, and you will be provided with a proof version of the transcript following the hearing, and then transcripts will ultimately be made public and posted on the committee's website.

For the Hansard record, could you both please state your full names and the organisation you are appearing on behalf of.

Lauren PULITANO: Lauren Pulitano. I am the Vice-President, Public Affairs at Volvo Group Australia.

Tim CAMILLERI: Tim Camilleri, Director of e-Mobility Solutions at Volvo Group Australia.

The CHAIR: Great. Thank you. We now welcome your opening comments but ask that they be kept to around 10 to 15 minutes to ensure plenty of time for discussion and questions.

Tim CAMILLERI: Of course. Thank you very much for having us here, and we do apologise for not being able to make it in person. An inquiry like this is a very important one and one that Volvo supports highly.

While we at Volvo Group Australia appreciate the opportunity to speak here in terms of this charging infrastructure inquiry, we are honoured to be able to share our knowledge and our customers' experience and look to push towards the future of e-mobility in Australia. We would first like to reiterate that Volvo Group Australia is the commercial vehicle side of the business, separate to Volvo cars, so our views will be on industrial/commercial heavy vehicles, not passenger. In particular for today our reference points will be towards Volvo Trucks, Volvo Buses and Volvo Penta in terms of our battery energy storage systems with Penta. I am not feeling that marine may be totally applicable in this instance, but we can come back to that in the future if need be.

At Volvo Group Australia we have 1600 local employees; we may have actually expanded recently with some acquisitions. We manage manufacturing, distribution and operation of Volvo Mack and UD trucks, Volvo

Buses and Penta, as I stated before, and construction equipment, and then we have the entity of Volvo Financial Services as well. VGA has been part of Australia since 1972, when our first factory was constructed. Somewhere between 80,000 and 85,000 trucks – Mack and Volvo – have been built in the factory in Wacol just outside of Brisbane, employing up to 800 staff in that factory, with 120 local suppliers and somewhere in the order of \$600 million to \$800 million going into those local suppliers supporting that factory, with both the Mack and the Volvo products proudly wearing the ‘Made in Australia’ certification.

On the truck side of the business, what is exciting for this year is that we will be building the first 10 electric trucks in our Wacol facility as a pilot program towards our future ambition of building electric trucks here in Australia towards the end of 2027 or start of 2028, depending on how that project develops. Those first 10 are critical this year to ensure we can look to understand and refine our manufacturing processes to enable us to have that full series production here in Australia of electric vehicles in line with our internal combustion engines.

Volvo Group globally has a net zero ambition by 2050. We have signed up for net zero – the science-based targets. For us, that means that relatively soon there are achievements we need to have in terms of reduction of emissions of our vehicles we sell – our scope 3 emissions. Our products used in our customers’ hands and our operators’ hands make up over 90 per cent of our total emissions. It is important for us, if we are going to achieve net zero by 2050, that 2040 and 2030 goals are achieved so we can do that. In Australia, in terms of both our bus and truck progress in the electric space, it has been mostly in line with Europe. It has been a progress we have done over many years and committed to quite early on in the piece. Our first trucks are hitting over five years old in Australia, the first two outside of Europe, so there is a lot of experience and knowledge we have garnered over that time in terms of the deployment of electric heavy vehicles.

For Volvo Group in general, and especially in Australia, we always take the methodology of deploying electric vehicles as an equation. It is not a transaction but a partnership, where each part to the equation has to add up together. To make sure they are successful and sustainable deployments – sustainable in this instance meaning that they are successful for sustainable growth; we are not here to deploy things that do not work and not see this industry move forward and decarbonise as it should in meaningful ways – part of that equation is ensuring that we have the products not only available to Australia at as high a level as we can, ensuring they are streamlined and aligned with the offerings around the globe as well, but ensuring those products are put into operations that they are capable of and that make commercial sense. In instances with heavy vehicle trucks or buses: can they do the routes? Can they do the job? Can they carry the payload? So those feasibilities need to be enacted. That is one part of the equation. Considerations towards total cost of ownership, whether that is incentives or regulations or financial considerations, are all adding together to make sure that the total cost of ownership and the aspirations from a commercial point of view add up for us, our partners and the industry.

Electrical infrastructure, which we will talk about today, is a very exciting and important part, and we are very happy to have this inquiry brought to us and participate in it to talk about electrical charging infrastructure and what it means to heavy vehicles and their deployments. Hopefully the equation, depending on the aspiration of the customer or the end application in fossil-free or CO₂-reduced energy to help the equation, makes feasible change and reductions in the space, and then helps the supply of that energy as well. We are looking to ensure that where we have customers wanting to deploy in depots, back-to-base charging, destination charging at loading docks and the like, or en-route charging at shared charging hubs or existing service stations and the like, that supply of electricity, where it is demanded, is possible as well. If any of these passing the equation are zero or significantly reduced, the deployment of that vehicle or those vehicles in those applications does not work if it does not carry what it needs to, if it does not go the range it needs to, if it does not have the charging available. If the costs do not work, then we are unable to deploy and make change in this space.

Talking about that equation and our way of working in terms of deployments, we are always looking to ensure that we put the right vehicle into the right job. Obviously, Volvo Group Australia is not just an electrical vehicle manufacturer. We have other offerings as well in terms of our internal combustion engine and looking to ensure we decarbonise that as much as possible, always looking to make sure that we put the right vehicle into the right job and with the aspiration of decarbonising as much as possible and applicable. That means different things for metro Melbourne to a regional mine site in Western Australia, for example. But we are wanting to achieve what we can with our partners as much as possible in that space.

Lauren PULITANO: Maybe I will just say – I think Tim, as our main spokesperson, will come back to this equation a lot – I think the one thing to stress is that none of these elements can be viewed in isolation. So it is fantastic that you are looking at the charging today, which is definitely an important part. But equally, if the electric products are not there, this will not work. Equally, if the regulations are not there to enable things to run, they will not work. We will come back to this equation quite a bit, but I think it is one thing to stress that, hopefully, this inquiry into the charging is not going to be viewed in isolation.

Tim CAMILLERI: That is us for our introduction. Would you like to move it to the reference?

The CHAIR: Yes, great. Moving to questions, I will go first. Apologies if you did mention this at the start – I may have missed it – but how much of your involvement is in the electric vehicle space? How much of your fleet is EVs?

Tim CAMILLERI: My involvement is 100 per cent in terms of my role. And the team's role, we have a wider sales network and a team organisation who participate in it. Our fleet in Australia at the moment would probably be around 130 trucks on the road in operation, close to 200 in Australia awaiting deployment or fit-ups or different things. We have probably travelled in that space getting closer now to 2 million kilometres all electric in the truck space. Our bus team have over a hundred –

Lauren PULITANO: Over a hundred in orders. We do not actually have the figure on how many, but there are quite a few hundred in the pipeline, especially with the contract that they have with the PTA over in the west as well, but [Zoom dropout]

The CHAIR: Wonderful, thank you. I was reading in your submission that you have a target of a net zero emission truck population by 2050. Could you explain to us a little bit of the process in terms of reaching that goal, but also the role that governments have to play to ensure that other vehicle manufacturers can set goals like this?

Tim CAMILLERI: It is difficult for us to talk about other manufacturers – our competition – but it is a good point, I think, because what Volvo are trying to do is in line with global policy and pushing that agenda. The way in which we approach it is always to ensure that we are developing products that will meet the market and help enable that. We are conscious that the technology is developing and not capable of using all segments and all operations at this point in time. We see it filtering through from what we had, as you know, a few years ago of 100 per cent internal combustion engines into emerging technologies or new and alternative fuel source technologies. As they progress, we will see a mixture of those. In Volvo the terminology is 'there is no silver bullet' between electric, gas and internal combustion engine. We see our place being to bring the products into Australia that enable the transition, and even on the internal combustion engine side of things, ensuring that there are renewable alternatives or carbon-reduced alternatives to those in terms of the fuelling source. Our primary one at the moment is twofold: the right vehicle for the right job, the right specs, the right size engine, the right efficiencies and options, but also from factory in November 2024 we started deploying hydrotreated vegetable oil renewable diesel to decarbonise that side of it. Then going back to gas and electric, I think electric speaks for itself, but for gas we see two different ways: hydrogen or LNG injection into an internal combustion engine. But specifically relevant to this inquiry would be the hydrogen electric vehicle, which can also be charged and filled with hydrogen, where the hydrogen fuel cell works as a generator to charge an electric truck.

Lauren PULITANO: I think to answer part of your question, in terms of what government can do to support how we get there – and it would be relevant to Volvo Group Australia and probably the industry at large as well – it is filling in this equation that I keep coming back to. If we have the products that match into all that, there is regulation to enable those products to operate on the roads. Then they have the road network when it comes to axle weights and the like, not only having those regulations for state roads but expanding the networks to include the local roads, as one example. So there are really tangible things that government can do to enable this progress. I think it is the regulations, the access and then, in this inquiry, to make sure that charging stations are available. I think we will get into the conversation of whether they are public charging stations or our customers, who are operators, are also able to do the ones on their depots as well. That is where the topic comes up in terms of commercial viability and if there have to be grants, or the price of electricity and all those wonderful things. So I think there are really tangible things that government can do to remove the roadblocks for actually driving this forward. Probably also just to say, Volvo Group have that target for 2050,

given that operators will have the trucks that they are putting on the road in 2040 are probably going to be the ones in the fleet that are there in 2050 – so that time is quickly running out.

The CHAIR: Gotcha. Thank you. I will go to Mr McIntosh.

Tom McINTOSH: Thank you. It is really good to have you here, because it is giving us a different perspective that we have not had in our four days of hearings now. I wanted to ask about Australia's national vehicle emission reduction targets, or whatever the right title for those is. I understand that they do not include heavy vehicles; however, that is being reviewed in 2026. Do you think that heavy vehicles being included in those emission reductions would help to speed up investment in new electric trucks and buses?

Tim CAMILLERI: I think if it was measured and understood and applied the right policies to enable it, so if they are recorded, reported and then potentially we have got incentives versus disincentives applied to them, then it would help. That first point is identifying where emissions are and how people are emitting with their heavy vehicles, to understand where their opportunities are, and then moving through to policy positive situations to enable that change. We have not seen a great deal of local – we have seen that overseas with low-emission or zero-emission zones in metro areas and the age limit on vehicles or emission standards limits on vehicles being on the road, so looking to have those policies brought in needs to have time and consideration for the industry in making change like that.

They would all support the zero-emission vehicles. It may not be to 100 per cent conversion, but at least looking towards newer vehicles. The other side of things we like to talk about a bit is in terms of access. It is not just about always having a heavy electric vehicle with additional regulation requirements but also in terms of curfews, night-time running and things of that nature if the vehicle is not making noise and is capable of working at night-time, allowing operation flexibility but also using the road network in times that are not congested. The road network having no vehicles on it at 2 am can help with operator efficiencies, but it also starts to flip towards your charging discussion, electrical infrastructure and peak electrical demand. So if the vehicles were to run – I will just use 8 am until 5 pm – and then come back and plug in at 5 pm, you would be compounding upon existing electrical demand, whereas if the vehicle load or operations were shifted so that finish time, that plug-in time, was outside of electrical demand, we could start to see complements to the electrical network as well as the road network, as well as greater efficiencies and flexibilities to operators of electric vehicles with their benefits.

Tom McINTOSH: So currently would night curfews impede upon that?

Tim CAMILLERI: Current night-time curfews are a blanket truck or heavy vehicle restriction. They do not delineate between internal combustion or electric vehicles, where electric vehicles make significantly reduced sound emissions.

Tom McINTOSH: Yes. How much less noise is that?

Tim CAMILLERI: I could not quantify it. I can only give probably a reference point to say that when we built the first electric vehicles in Europe, when they were designed in their infant stage, we identified that we needed to add additional noise to the vehicles to enable safety of people working around or being around the vehicle so they were made aware of it. So it is a significant reduction from the alternative.

Tom McINTOSH: Do you think it could be a recommendation of this committee that state, fed or local government, whoever the appropriate regulator is, takes into consideration the night curfews through the lower noise of EVs?

Tim CAMILLERI: Yes, I think that would be a tangible outcome to this and a beneficial one in enabling that flexibility or choice by operators. It is not just about the operator's choice but their end customer as well, but it does enable benefits to the industry, to the road network and towards electric vehicles in terms of having a different advantage to their counterparts.

Tom McINTOSH: A big part of our consideration has been the solar-soak bonus of EV. So with a truck, what sort of kilowatts are we talking, batterywise?

Tim CAMILLERI: Our standard offering –

Tom McINTOSH: Or a bus – sorry.

Tim CAMILLERI: We use a shared technology between bus and truck investmentwise and supportwise. In parts of Australia it makes a lot of sense to have cross components. We range from our smallest current vehicle, which can be 280 kilowatt hours, and our current largest is up to 540 kilowatt hours of battery size. As technologies develop, we will move to larger batteries in the coming years.

Tom McINTOSH: So it is effectively four to seven cars in one?

Tim CAMILLERI: Depending on the car, it can be up to 10 times the size of a car, so quite a large battery uptake. For the interest of this team as well, we are somewhere between, at the moment, depending on the product, 150 and 250 kilowatts of charge rate. So between the battery size and the charging rate, we can have a high demand for electricity for these vehicles.

Tom McINTOSH: Good, because that was going to be my next question. So say 11 am to 2 pm you could basically go hard and fill that truck?

Tim CAMILLERI: Yes. With the right size charger, sufficient size charger, at our current maximum speed to biggest battery size, we are around the 2-hour or 2½-hour mark in the worst case for how much time we would need to charge. And yes, that 11 am to 2 pm would be sufficient.

Tom McINTOSH: Yes. Then equally on the other side, if the fleet was not being deployed till 9 pm and the truck route was not excessive, you could deploy, I do not know, 10 or 15 per cent of that charge at a quick time into the grid when there is high demand. Will that sort of vehicle-to-grid opportunity exist into the future, into the next decade, do you imagine?

Tim CAMILLERI: We will always review technology opportunities in this space, but the consideration for commercial vehicles is that a battery will only have so many cycles, thousands of cycles, in it, and the primary purpose of the vehicle is to –

Tom McINTOSH: So you can drive.

Tim CAMILLERI: move products or move people in the bus instance, so making sure that a cycle is used in the best interests, commercial or otherwise, of the end operator – the owner of the vehicle. But when we talk about our Volvo Penta side of the business with the BESS – battery energy storage system – we would see those opportunities being deployed as well, because obviously that is just a storage system for the dispensing of energy into vehicles, into construction equipment or potentially into the grid as well.

Tom McINTOSH: Great. Thanks very much. Thanks, Chair.

The CHAIR: Thanks, Mr McIntosh. We will go to Ms Broad.

Katherine COPSEY: Mine is just on this, if that is all right.

The CHAIR: Sure, we will go to Ms Copsey.

Katherine COPSEY: Thank you. I was going to ask questions on a similar topic that Mr McIntosh was just exploring there, if it is convenient. If I understood correctly, you are not currently considering vehicle-to-grid capability for large depots or fleet locations. Did I understand that correctly?

Tim CAMILLERI: We are considering it, but we do not offer it as yet.

Katherine COPSEY: So it is technically possible, but perhaps not commercially in your interests at the moment, if I understand –

Tim CAMILLERI: Of commercial interest to us and our customers at this point? It is not commercially –

Katherine COPSEY: Yes. I fully appreciate what you were saying about the primary purpose of the vehicles that are being deployed. I am interested in structures – because we have heard from, for example, some local governments that are now looking at this in terms of the lifespan of their fleet and the costs over the life cycle of that fleet and the way that participating in vehicle-to-grid charging or lowering their fuel costs can

provide a positive equation or a quicker return on investment for them, are charging locations. What sorts of things would tip the scales back towards unlocking that potential for accessing what is a huge distributed storage potential in these locations?

Tim CAMILLERI: It would be a commercial equation to ensure that, say, call it one cycle of the battery, the value coming in from dispensing that energy outweighs the value of a cycle, because with commercial vehicles sometimes it is similar to passenger vehicles that are stopped, and mostly stopped during the day. It is not the preference for a commercial vehicle to be stopped. They are an asset. They are a work tool. They should be being moved where possible, and if they are fully charged they should be moving in their primary purpose. But it would be a financial equation to understand: is there enough potential financial income from dispensing that energy that would outweigh the vehicle life?

Lauren PULITANO: And I think for operators it is looking at: are they going to be making, if we are talking about money, more money by actually utilising the vehicle for the task they purchased the vehicle for, or are they making more money essentially selling the energy?

Katherine COPSEY: Yes, and we have heard the importance of time-of-use tariffs in terms of shaping demand and supply. That is something that governments should be considering if we are looking at the potential of large-scale uptake of particularly large batteries in heavy freight. Okay. Great. Thank you. It is good to understand the drivers there.

I wanted to ask about whether in your heavy vehicle units you accept the principle of a circular economy. Is that something that is a strategic goal for Volvo?

Tim CAMILLERI: Yes. In our submission we included the circularity of the battery to talk about what a first life, a second life and a second manufactured life look like. That first life, that first manufacturing of the battery where the cell is put into a pack, put onto a vehicle and operated in its primary purpose as a heavy vehicle, at this current stage, we see for a large number of years. But with one of our other departments, our other companies, Volvo Penta, and an entity set up called Volvo Energy as well, we are looking to ensure we have options and availability of taking those batteries from the vehicle and putting them into best systems for a second life – a storage system beside depots of buses or trucks or commercial buildings, or having value added to those batteries as they come out of the vehicle and then looking to live in that second life, and then once they are depleted, because they are degrading over time, storing less energy, to a point of minimalist value as a battery, recycling them and bringing them back to a second manufactured life. We see this as sustainable in two ways, both financially and environmentally – minerals from the ground once, going through this cycle over a decade or two or three and then coming back to a second manufactured life. We have already put batteries through recycling, and we are in the high 90 per cent with recyclability, where the plastic and rubber are most of the components that we cannot get the recyclability on. We are working on that. But the aluminium, the nickel, the lithium, the cobalt –

Katherine COPSEY: The high-value components are recoverable.

Tim CAMILLERI: Those high-value components are being recycled. So per decade or two or three cycle, we are losing a single-digit percentage of the minerals as they go through, but that is a key factor for us. We have explored the recyclability already. We have done it with a bus battery here in Australia. But we have not had that second life example yet, because all of our batteries are still running in trucks and buses. They have not ended their first life yet.

Katherine COPSEY: Wow.

Lauren PULITANO: To put a number on that example that Tim referred to of the bus battery, I think they got up to 98 per cent – somewhere between 97 and 98 per cent – recyclable [Zoom dropout]

Katherine COPSEY: Thank you.

The CHAIR: Ms Broad.

Gaëlle BROAD: Thank you very much, Lauren and Tim, for appearing before the inquiry. I am just interested if you can comment a bit on this. My understanding is Volvo does sell buses to CDC Victoria, which

operates bus services in Melbourne. Can you talk to the cost of electric vehicles or electric buses? I have heard that the Victorian government has been buying bus depots. Also, there has been quite a significant overhaul of the contracts at the state level, and it has seen quite a number of family-owned businesses have to leave. Is the cost of the electric buses contributing to that? I would just appreciate your insights.

Lauren PULITANO: I must say, Tim and I are not experts on the bus business, so some of that question we will have to take on notice and we can definitely come back on. But I think if we talk generally about the BEVs, and it is relevant for both buses and trucks, we normally look at the total cost of ownership. We have the lifetime of the bus in this case, what you are spending on the capital equipment, what you are spending on the service and maintenance and the different elements, and they work out to be roughly about the same. Depending on the operation, it can be plus or minus. There is a lot in that bus question, and I know that Victoria have undergone a major reform in terms of contracts and areas and things like that. There is an element of that question we will take on notice. But I think the modelling of the cost element – if the up-front capital cost is more expensive, the total cost of ownership needs to be considered in all of those.

Gaëlle BROAD: Yes, that is my understanding – that it does cost \$400,000, \$500,000, up to a million dollars for a bus – and that is a significant cost, particularly to a smaller business. Do you think that it lends itself to larger businesses entering the market? I did notice in your submission you did mention the road freight industry is made up of a high proportion of small and medium enterprises that own a small number of trucks and for 70 per cent it is only one truck. So yes, those up-front costs, are they going to shake things around a little bit?

Tim CAMILLERI: We always work to ensure that that total cost of ownership consideration is measured and making it into a positive reference. It is a different model than people are used to, because normally there is, as you have stated, traditionally a lower capital expenditure but higher operating expenditure over the term. In situations – and we are talking about small and medium enterprise here in the truck space – where the vehicle is going to a contract for a number of years, we work towards ensuring that over the term the financial modelling makes sense and is applicable to what is going to be experienced. This is a little bit of a change for some, but it is also breaking down those barriers from a Volvo point of view, because we have, as we stated before, Volvo Financial Services as an entity of funding working with government entities in a recent instance of the Clean Energy Finance Corporation to bring around lower interest rate lending, as well as assurance and risk sharing on an increased residual value to make sure that situations like this can be explored with asset risk held on the Volvo side of the business rather than the end operator side.

Gaëlle BROAD: I am just interested in your insights too – I mean, electric vehicles are very heavy. We have heard reports that in some suburban areas there can be tram tracks developing where there has been a higher uptake of EVs. I am in a regional area; I see the road trains, which are quite huge, on our roads already. What impact do you think electric trucks are going to have, and given how our roads are in Victoria, do we need to be considering the need to significantly upgrade to accommodate such heavy vehicles?

Tim CAMILLERI: Currently, where possible, in the majority of situations we work within the existing regulations in terms of weights that vehicles are allowed to be on the road. They have weight limits for each axle or axle group. What happens with our trucks specifically here – we are roughly one to two tonnes heavier than the equivalent diesel. What that means in normal instances is that we take away from the maximum payload legally allowed on the roads. I will use a reference point of, instead of 20 tonnes, we are 21 tonnes. The legal limits are not pushed in terms of your maximum 44 tonnes you can put on the road. The maximum payload is reduced overall. But if you are moving cardboard or something light where volume is a constraint, not weight, there are no additional increases to the regulations, but the standard vehicle is heavier. There needs to be an increase overall in terms of these axle limits.

As we bring on different vehicles, we explore those heavy weight scenarios, the heavy payload scenarios. Newer technologies, more batteries to do more work; the hydrogen fuel cell vehicle, for example, will be heavier because of more componentry. There are situations where we will need to increase on that, but overall, I feel the equation when it comes to road infrastructure funding repair or higher-demand construction will need to come as we move. We are getting heavier on the diesel side as well as we put more and more safety equipment and requirements on our drivers to be more productive. But it needs to be weighed against the societal gains as well, whether that is health, noise – scenarios and benefits that a zero-emission vehicle can bring to society as well.

Gaëlle BROAD: Thank you.

The CHAIR: Thanks, Ms Broad. I think we just have a couple more extra questions from Ms Copsey and then Mr McIntosh.

Katherine COPSEY: Tom can go first.

The CHAIR: Okay, Mr McIntosh first.

Tom McINTOSH: I am just interested in looking at the life cycle of a bus – you know, 10 to 15 years, whatever it might be – and the payback period of buying an EV over a diesel bus and what that looks like to your customers.

Tim CAMILLERI: We have talked about that total cost of ownership, and I think that is answering your question in terms of understanding what the use case is. When it comes to a total cost of ownership equation, it is highly variable, some of the inputs we have to work with and measure, because we are talking about, in your instance here, a 10- to 15-year lifespan. Obviously the initial outlays between the two are understood. Maybe the second-hand values are over that term primarily understood because the vehicle has done its job and completed its work. But getting the average price of diesel – in most instances we are talking about here – versus the average price of electricity over a 10- to 15-year period can be highly variable. But what we want to try and see is confirmed and understood inputs to those costs, as well as high kilometres. In the general sense, the electric vehicle, as Lauren talked about the equation and all the rest of it, was that the maintenance of the electric vehicle is reduced compared to the internal combustion engine, so the more years, the more maintenance you do, the more you will be saving over time for the electric vehicle, but also its operating costs from an energy input as well. A diesel cost per kilometre versus an electrical cost per kilometre, in the majority instances the electric is cheaper per kilometre. You want to achieve more kilometres daily, yearly, over a longer term to bring down that differential between the capital expenditures.

Tom McINTOSH: Great. So just to sum that up, it would be fair to say, for electric buses, the service costs are lower, and leaving aside how many kilometres it is, the cost of electricity to propel the truck or the bus is cheaper than using diesel.

Tim CAMILLERI: Yes. The only qualifier I will add to that is the high variability of cost of electricity. Solar systems depots can be 3 to 5 cents a kilowatt hour, public charging can be up to 84 to 89 cents per kilowatt hour. Depots can have high multiples of variability of electrical costs. If we are in that 84, 85, 89 cents per kilowatt hour, then the diesel would be cheaper than the electric. But in the majority of cases electric is cheaper.

Tom McINTOSH: Great. Okay. Thank you.

Lauren PULITANO: I think whenever we do that we should model because we have to factor in the cost of infrastructure. So if it is a bus customer or a truck customer, not only are they purchasing the product, the capital equipment, but they are also having to purchase and set up their charging infrastructure. That is when the question comes in: is it in-depot or is it public charging? We have seen the cost of that can vary depending on the accessibility to the grid and things like that. In some cases the depot is in an area with good grid access and capacity. In other scenarios we have seen the operator needing to go down the path of paying for an additional substation. That is where the total cost of ownership can really vary depending on the particular circumstance, and that is relevant for buses and trucks. We have seen scenarios where unfortunately a lot of depots or where customers are based tend to be in industrial areas where they may not yet have good grid capacity.

Tom McINTOSH: That probably depends on the size of the fleet. If you have got lots of trucks and buses, the payback on the infrastructure is much quicker.

Lauren PULITANO: Yes.

Tom McINTOSH: All right. Thank you.

Tim CAMILLERI: It is an asset to be utilised.

Tom McINTOSH: Thanks.

Lauren PULITANO: I know it is not an easy scenario to explain, but yes.

The CHAIR: Thanks. Ms Copsey.

Katherine COPSEY: Thank you. I just wanted to come back to battery reuse and then recycling. I think it is great to hear that that hierarchy is being considered, because we hear a lot about concern of how to dispose of the batteries but actually we really need to explore that lifecycle in between as well. Do I understand correctly that you have got an international pilot or established project – I think it was in Sweden – but no pilot for a BESS reuse scenario as yet in Australia?

Tim CAMILLERI: We do not have a pilot in Australia for BESS reuse for a Volvo battery. We have pilots being explored for new batteries because we do not have second-life batteries on our commercial vehicles yet.

Katherine COPSEY: Is there an estimate for the timeframe of when that might occur? I understand that batteries have been having a longer real-world life than they might be warranted for, but do you have an estimate, if we were interested in exploring a pilot scenario like that, when there might be sufficient availability of post-fleet batteries?

Tim CAMILLERI: Our oldest vehicles on the truck side are over five years old. They are living a lot longer life on those batteries than we had anticipated. On the bus side, four years I think it is in terms of buses. We would welcome an opportunity to use those batteries in a pilot program, but it would be at the discretion of our end customer at this point in time, because as we said, those batteries still have many cycles to do in their primary purpose of moving the vehicle. But we would welcome an opportunity to do it. We are working to be ready and prepared in a few years time for those batteries to come back and come out of the vehicles to deploy a pilot program for a BESS second-hand battery.

Katherine COPSEY: Okay. Thank you. Then just to the final disposal and recovery, is that something you are undertaking internally and privately? From your learnings, where is our recycling industry at in Victoria when it comes to complex products? I suppose it is quite akin to our e-waste stream that is existing. Is this a task that Victoria is prepared to undertake? I am thinking of things like our labour costs and so on. What sorts of things does government need to do in order to get up to speed with e-waste recycling and prepare for eventually an influx of batteries from vehicles?

Tim CAMILLERI: I will answer the first half of your question in terms of we would always work with our customers or our partners to ensure they can get the most value out of their vehicle at the end of life. That is why we are looking to have those opportunities for them to have a plug-and-play system for their batteries into a BESS system or it could be recycle those batteries, because we feel that our responsibility not just to our customer but to the industry is to have those solutions available and keep the value of those batteries moving on.

For Victoria, in terms of recyclability, to use a little bit of a colloquialism, it is the chicken or the egg. We do not have batteries, so commercially it is difficult to set up commercial solutions for better recycling. We are not producing many or any at this point in time. We have engaged with a few different companies in Victoria in terms of their capabilities. Our bus colleagues have signed an agreement with one who will recycle fleet when it needs to happen. Advocating for and understanding and working as an industry for the demand as it comes online will be critical in ensuring that we have the capabilities in Australia, because in particular I say that as an island – moving those batteries elsewhere is costly and environmentally disadvantageous to having opportunities within Australia, within our borders, to recycle them and bring them back to a second manufactured life.

Lauren PULITANO: Just adding to that chicken-and-egg scenario, I think we absolutely have capabilities in Australia and Victoria. There are companies, as Tim mentioned, in Victoria that are doing this, but I think also those organisations are a little bit waiting before they invest a lot into their set-ups because the batteries are not ready for recycling yet. I think they are waiting and watching the population of EVs grow. Obviously the more data and information and the more we can grow that population of EVs, I think the more they will then have the motivation and the carrot there to invest more heavily in operations. It is a little bit chicken and egg,

but I think we can definitely do it locally. I think, as Tim mentioned, at the end of the day we are doing this for sustainability. It does not make sense to then be shipping things and transporting things overseas.

Katherine COPSEY: Thank you.

The CHAIR: Thanks, Ms Copsey. Ms Broad, do you have a question?

Gaelle BROAD: Yes, just a quick question on if you had any insights about any of the challenges that are more specific to rural or regional areas when it comes to moving to EVs and if there were any specific challenges with distance that we have in Australia compared to other countries like Sweden.

Tim CAMILLERI: I will talk in the negative first. The primary concern we probably have in the regions is in terms of regulatory buy-in and change and access and approvals in those areas, because our experience – and it is not in Victoria, to be fair, in this regard – with regions a lot of the time is that the person approving permits or additional axle allowances and regulations is wearing many hats and is not a dedicated resource for this. But in terms of the opportunities in the regions for electric vehicles, the only real detractor to it is the fact that the volumes are not wholly there compared to other areas, but the want and need seem to be overall.

We are seeing a lot more progress in the region space than we anticipated. I think that is coming down to a positive attitude and willingness to embrace change and be on the forefront as well as probably some of those other ideologies. But the regions in terms of operation are not going to, in instances, cover off what we would call linehaul on the trucks in terms of going between regional Victoria and Melbourne, because we do not have the capability or the technology to make that range. But in our work around the region, within the region, we are having a lot of discussions and opportunities being investigated because as produce or contents are brought into the region they then need to be dispersed and distributed, and that is a perfect operation for an electric vehicle. We are seeing a lot of those companies leaning into and leaning forward in that space, which is a great surprise and good to see.

Gaelle BROAD: Thank you.

The CHAIR: Thanks, Ms Broad. I think that is all we have time for today. Thank you so much for taking the time to appear before us and answer our questions. You might receive some follow-up questions on notice from committee members, but that concludes the public hearing.

Witnesses withdrew.