

REPORT ON PROCEEDINGS BEFORE

JOINT STANDING COMMITTEE ON ROAD SAFETY

ELECTRIC AND HYBRID VEHICLE BATTERIES

At Macquarie Room, Parliament House, Sydney, on Tuesday 26 March 2024

The Committee met at 9:15.

PRESENT

Mr Greg Warren (Chair)

Legislative Council

The Hon. Natalie Ward
The Hon. Mark Latham

Legislative Assembly

Mr Royal Butler
Mr Matt Cross
Ms Kylie Wilkinson

PRESENT VIA VIDEOCONFERENCE

Mr Warren Kirby (Deputy Chair)
Mr Edmond Atalla

* Please note:

[inaudible] is used when audio words cannot be deciphered.

[audio malfunction] is used when words are lost due to a technical malfunction.

[disorder] is used when members or witnesses speak over one another.

The CHAIR: Good morning to everyone, particularly our witnesses who are here today. Welcome to the New South Wales Parliament and thank you for coming. We truly appreciate it. I acknowledge the Gadigal people, the traditional custodians of the land, and I pay my respects to the Elders of the Eora nation, past and present and extend that respect to other Aboriginal and Torres Strait Islander people who are present or are viewing the proceedings online today.

Welcome to the public hearing of the Joint Standing Committee on Road Safety, otherwise known as Staysafe. I am Greg Warren, the Chair of the Committee, and I am joined by the Deputy Chair, Warren Kirby, member for Riverstone, who is online. I welcome my colleagues Mr Edmund Atalla, member for Mount Druitt, Mr Roy Butler, member for Barwon, Mr Matt Cross, member for Davidson, Ms Kylie Wilkinson, member for East Hills, the Hon. Mark Latham and the Hon. Natalie Ward, who has parliamentary commitments that have come up. She rang me this morning and said she will be here at lunchtime. She is tuning in to follow the proceedings and will join us later.

Ms CARLA HOORWEG, Chief Executive Officer, Australasian New Car Assessment Program Safety, before the Committee via video conference, affirmed and examined

Ms EMMA SUTCLIFFE, Director, EV FireSafe, affirmed and examined

Mr DAN FISH, Technical Director, EV FireSafe, affirmed and examined

The CHAIR: I welcome our first witnesses. Please note that the Committee staff are taking photos and videos during the hearing. The photos and videos will be used for social media purposes on the New South Wales Legislative Assembly social media pages. Please inform the Committee staff if you object to having photos and videos taken at any time during this hearing. Will you please confirm that you have been issued with the Committee's terms of reference and information about the standing orders that relate to the examination of the witnesses?

EMMA SUTCLIFFE: Yes, we have.

DAN FISH: We have.

CARLA HOORWEG: Yes, we have.

The CHAIR: Do you have any questions about the information you have been given?

EMMA SUTCLIFFE: No.

CARLA HOORWEG: No.

The CHAIR: Would anyone like to make a short opening statement before we begin questions?

EMMA SUTCLIFFE: I'm happy to jump in.

The CHAIR: Feel free. We are taking a procedural yet relaxed approach, so please feel free to give any kind of overview or opening statement. It would be good for the Committee members to get a brief understanding of where you are from and what you are about.

EMMA SUTCLIFFE: Emma Sutcliffe and Dan Fish—I am the director of EV FireSafe and Dan is our technical specialist. We are both also operational firefighters. EV FireSafe is an Australian company funded by the Department of Defence to research electric vehicle battery fires and emergency response. We received two rounds of seed funding—the second round actually ends this month—to build a global database of incidents from which we can draw learnings that we then share via our website and via various webinars and other training exercises for the benefit of emergency responders globally. We work globally now with an international network of emergency responders, vehicle manufacturers and battery fire experts, and we're also involved with the National Fire Protection Association, which is the peak body in the United States. We are involved in a two-year testing program with their team on firefighter safety around electric vehicle battery fires.

The CHAIR: Before we begin, I inform witnesses that they may wish to take a question on notice and provide the Committee with an answer in writing. If you do not know the answer, that is fine; take it on notice and then respond back through the Committee later. So please do not feel that obligation. Obviously, if you can answer, that would be truly appreciated, but we understand if you need to go away and get some more information. My colleagues were having a brief discussion during the deliberative meeting. In your view—and I would like to hear from each of you—how effective are the current standards and regulations governing battery safety in electric and hybrid vehicles, including light electric vehicles, in New South Wales? How effective are these standards and regulations? When I say light vehicles, basically, the terms of reference are broad, so anything that moves with a battery. That could be a scooter, bike, car or whatever.

EMMA SUTCLIFFE: Certainly. With regard to road-registered electric vehicles that are built from the ground up, that are an OEM build—original equipment manufacturer build—the regulations are incredibly strict and effective. Where we do see gaps and safety issues is with, as you pointed out, our light electric vehicles, which we term personal mobility devices. These include electric bikes, electric scooters, electric skateboards and unicycles. They are not subject to any regulation currently that we are aware of and can be dropshipped in from overseas very quickly and brought into Australia. According to our data—not just the data we have for Australia but certainly globally—personal mobility devices, particularly electric bikes and electric scooters, are responsible for an enormous number of property losses, injuries and fatalities.

The CHAIR: So—

EMMA SUTCLIFFE: Sorry, can I add something there? When I talked about road-registered vehicles, the other gap that we have with road-registered vehicles is in the conversion space, so when I said before about

OEM builds from the ground up—very, very safe and subject to a lot of regulation, but we have a number of companies converting petrol or diesel vehicles to electric. Most of them are doing a great job, but we are seeing some incidents in that space because there is not enough regulation in that particular area as well.

The CHAIR: Colleagues, I have a couple of questions, but I might open it up to you first.

DAN FISH: Just respectful of Carla who is online as well. We don't want to steal her thunder as well.

The CHAIR: Yes, just pipe up, Carla.

CARLA HOORWEG: Yes, sorry. Because I can't see the room, I don't want to dive in too heavily. Just to bring everyone onto the same page in terms of ANCAP's role, we're non-regulatory, so we are sitting outside or above the Australian Design Rules. We focus our star ratings program on passenger cars and light commercial vehicles—so utes like Ford Ranger and Hilux. When we're crash testing electric vehicles or hybrids or even also hydrogen vehicles, there are a number of precautions that we take to ensure that the staff et cetera are safe, but really what we are focused on is whether or not the battery remains in situ during that crash test. However, we're not testing battery integrity itself, so we're not testing batteries. We don't test components of cars. We don't test modified vehicles. We also don't test—as Emma was just alluding to—anything that has been converted. We test OEM built production vehicles with no additional bull bars or any other modifications. That star ratings program has quite good market coverage in terms of new vehicles coming onto the market, and we're seeing good performance in terms of crash protection and safety or crash avoidance.

In terms of EVs and hybrids, we're not seeing any differences there, but, to be clear, that's based around our testing battery regulation is probably much better addressed by Emma and Dan than ANCAP, because we're not really looking at how an individual battery might perform over time or what the consequences are if an individual battery sets on fire. There are some other things that we are doing to assist the first responders. We have a rescue app which Fire and Rescue NSW have now onboarded into their fire trucks with an API. In their mobile data terminals, they can get these rescue cards that we've got in our app which are ISO compliant and are essentially a blueprint of the vehicle that shows where the high-voltage lines are and other things like airbag inflators that first responders need to avoid. We can provide this kind of information free of charge to assist first responders. But to be clear, we're not actually testing batteries themselves. I'm happy to answer any questions.

The CHAIR: Did you want to contribute or go around again, Dan?

DAN FISH: I was just going to comment on that as well. We've got the OEMs that we've been talking about and then the conversion space. It's really important to have the rescue cards or emergency response guides that have been talked about. That's something else where we have a gap with the conversion market. The emergency response is very much an afterthought. The guidance and regulation in that space is really quite loose. The regulation basically uses words like "may have" and "suggest" rather than saying "you will" and "you must". So there are some gaps in that space as well. There can definitely be some improvements, but 45 minutes is a really short time to get through quite a complex and large topic. I am trying to focus on where you have your pinch points and questions.

The CHAIR: Yes. We'll go around. Matt, you go first. To elaborate on that, I know it is very detailed and very lengthy. Please send anything further you can to the Committee.

Mr MATT CROSS: With regulations, would you say there's a combination of Federal, State and local government regulations, or is it mainly at a certain level of government?

EMMA SUTCLIFFE: I believe it's primarily Federal. I'm afraid we're not across where the regulation comes in. But then we have that knock-on effect down to State with regard to departments of transport in each State that are making decisions about whether or not electric vehicles or electric trucks, for instance, are allowed to go on bridges and in tunnels and those kinds of things. So it is a bit of a mix.

DAN FISH: That will depend on where you're looking as well and if you're looking in the road-registered vehicle space or you're looking towards what we call the personal mobility devices. In the ACT, Queensland and, I believe, Western Australia, you're allowed to legally ride your e-scooter down the footpath. However, in New South Wales you're not, unless your council is under part of an agreement with a rideshare program et cetera. It's really messy and difficult for people off the street to understand.

Mr MATT CROSS: With these regulations, are there existing regulations on non-EV vehicles in which EVs are virtually unregulated compared to non-EV vehicles?

DAN FISH: In the conversion space I could take a petrol or a diesel vehicle and I can convert that to another petrol or diesel, or I could convert it to an electric. There is still some guidance there in whichever path you're taking, and that vehicle should still be engineered depending on what's being done to it as well. It's just

where you get into your personal mobility devices, we're seeing battery packs that are being changed. We're seeing motors that are being changed. There's no guidance or regulation in that space at all.

Mr MATT CROSS: Do you think regulation is required, or do you think regulation could become red tape?

DAN FISH: Both.

EMMA SUTCLIFFE: I think regulation is definitely required with the personal mobility space—definitely. We've had four fatalities in Australia. In the first six months of last year, we had 36 fatalities globally. We talk regularly to the London fire department and the New York fire department. They're seeing one of these catch fire and cause property loss, injury and fatality every single day now. That space definitely needs to be regulated, but we have to be careful not to red tape it because we have a lot of lower income earners that rely on ebikes and e-scooters to get to school, to get to work, to deliver food and those kinds of things. New York are doing some great work in that space to try to reduce the number of battery fires, but we've got a long way to go in Australia, I believe.

Mr MATT CROSS: Do you think one step could be to look at what's happening overseas? Are they ahead of us when it comes to regulation?

EMMA SUTCLIFFE: Not regulation. They're starting to come up with some solutions. For instance, in New York now, you can charge your e-bike battery in the street rather than take it up to your apartment. For that higher density living, that's a trial that has literally just started. We're off to visit them next month. I don't believe anybody is ahead of us in terms of regulation. I think in Australia we're doing a good job of identifying the problem. It's just a case of how we reduce that risk but make it fair for everybody.

Ms KYLIE WILKINSON: What is the main cause of battery fires?

EMMA SUTCLIFFE: When we talk about electric vehicles—so I'm talking here about cars, buses and trucks, which are highly regulated and very safe—we have to have enormous damage to the battery pack, typically. Primary causes are collision or submersion in water. If we have a flooding event, we can get water ingress into the pack and that can cause a fire over time. Our third highest risk factor is the vehicle is on recall from the manufacturer. There was a fault during the manufacture of the battery. But of course, being cars, if that issue arises, the recalls typically happen fairly quickly. Our final one is exposure to other fires. In Australia we've had three electric vehicle battery fires. In those three vehicles, they were in a garage, and the garage burnt down around the car. It was nothing to do with the car itself, but that took the car with them. When we talk about the damage to road-registered cars, we've had six electric vehicle battery fires in Australia where the vehicle has been in normal operation—one arson, three in garages and one high-speed collision.

Then the most recent one was in September where a Tesla Model 3 ran over the top of an 18-kilogram chunk of steel that was lying in the road. That tore open the battery pack. Typically, we're seeing enormous damage to the pack itself. When we move to our PMD or e-bike and e-scooter space, that is typically because the cells are such poor quality to start with that it's not a case of if it will happen—it's a case of when it will happen. With a battery pack, you have the cells themselves and then you have a battery management system—kind of the brain of the battery pack. It controls the charge and the temperature. We're aware of an incident in the Philippines where an electric bike killed a family of five. The battery management system and the cells were such poor quality that when they had left it on charge, it couldn't stop the charge at 100 per cent. It just kept going, which caused the fire to occur. It's a really important point that lithium ion batteries in a car—a regulated, road-registered electric vehicle—are not the same as the lithium ion batteries in our e-bikes and e-scooters. They're worlds apart, often.

DAN FISH: As well as looking at the charging system. A road-registered electric vehicle has a standardised charging system around the world and especially in Australia. I can rock up to any charging system with any electric vehicle, and I can use that quite suitably and safely, whereas if I'm using an e-bike—you may have an e-scooter and you're riding something else—they're a different voltage and require a different charger. There is not necessarily the safety involved in that. You may end up borrowing someone else's charger and inadvertently overcharging that device. Also, unfortunately, a lot of these failures aren't even related to charging. They're either while they're parked up and left stationary, or the personal mobility device may be damaged in some way, and we may not have the recall structure to go with that.

The CHAIR: When you say "parked up and left stationary", are you talking about an electric vehicle parked on the side of the road?

DAN FISH: Personal mobility devices. You wouldn't even suggest that the majority of those are related directly to charging. It's spread evenly across being used, being charged or just off charge being left somewhere

in storage. They all have their own failure events. Where we're talking about passenger electric vehicles, they are extremely safe. Where we throw numbers around of about 26 million on the road, the current stat is sitting at 460.

EMMA SUTCLIFFE: About 466 electric car battery fires, globally.

DAN FISH: That have involved the battery pack. There's also data coming out of the Netherlands and some other parts of the world that talks about how, where you have an electric vehicle that is on fire, it may not necessarily involve the battery pack. So there are a lot of concerns for emergency responders and for firefighters about how do you combat that vehicle—"Hang on, this is a lithium ion battery. This is an electric car. We can't put it out." So 60 per cent of those were actually just vehicle fires that happened to be electric, and it didn't involve the battery pack. There's a lot of learning that needs to happen in that whole space for responders across the board.

Ms KYLIE WILKINSON: Do you know what the percentage of good quality electric bikes, compared to—

EMMA SUTCLIFFE: We don't have stats on that, I'm afraid. But when we talk about the difference, we are talking thousands of dollars. A really good quality electric bike—and we always say that your first step is buy the best you can afford. It could be \$8,000 or \$9,000, compared to Aldi selling e-bikes just before Christmas for \$1,500 in the centre aisle. It's that type of thing, or the ones that have a glossy website and you click a button and it gets drop shipped to you. That's where our concerns are.

DAN FISH: In New York, particularly, they've introduced standards around what can be sold in New York itself. That saw a reduction in rates. However, they've now got counterfeit stickers showing up on packs as well. That's for the personal mobility devices. You may spend thousands on a top-quality electric bike. However, you've forgotten your charger or you're using someone else's charger and using the wrong charge. That then may impact the safety of that product as well. Compared to an electric vehicle which is all regulated through—the charge of the car actually controls the charging system.

Mr ROY BUTLER: Thank you, Emma, Dan and Carla, for your submissions. They're very interesting. I've got a lot of questions, but I'm going to try and limit it to two. I suppose we're going to take OEM electric vehicles. They're obviously not the risk, so I'm just going to push them to the side for a minute. I think we need to talk about them in terms of first responders and also in terms of other road users, but we'll get to that. I guess the grey areas at the moment, which is where you've got people doing things that are sort of outside of regulation, is the private conversion side of things—so if I take an internal combustion engine vehicle and convert it to an electric. The last time I looked, there are only 13 signatories across the State in terms of RMS engineers who can sign off a vehicle. My electorate is a big country electorate—it's 44½ per cent of the State. We don't have any RMS signatories in my part of the State.

I'm wondering if the first entry-level change could be around the blue slip/pink slip process for these privately converted vehicles. At the moment, a blue slip design check includes a brake check and a check of all the basic safety components of the vehicle—the signals et cetera. The pink slip is a bit lighter on. Surely both would have the opportunity, at a minimum, to provide some additional checks for a vehicle that had been privately converted as a first cut, if you like, in trying to make it a bit safer. I guess, in the first instance, I wanted to get your view on how that would work. Would that help to actually reduce the risk for a privately converted vehicle in that space? At the moment, there is no check to make sure there's a vacuum pump to operate the brakes or that the wiring that's being used is adequate, because they need to be fairly heavy cables for the amount of power that flows through them—these sorts of things. Could you comment on that?

DAN FISH: We'd love to see a lot more awareness and education in that space, but at the moment it's the regulator and the learner—the person out on the street—learning at the same time, hopefully learning. We have had some unofficial conversations with the assessors in that space, and they don't have the guidance necessarily or the experience to look at what they're trying to identify. Where you've got a vehicle that has been a statutory write-off because it has got a scratch on the battery pack, happy days—that's going to be extremely safe and quite a robust product if it's converted well. However, the vehicle that has been exactly the same but has rolled 15 times down the highway and then submerged in salt water for a week is still being sold at salvage auctions and going into conversions. That one there, the safety standards that are applied to testing those cells initially, or the vehicle, is only when it basically is being engineered and rolled off the production line. There is no standard or quality testing or control after that point.

Mr ROY BUTLER: Sure. Can I just jump in? I suppose you're talking about transferring the running gear out of a crashed EV or a written-off EV. As a statutory write-off, it can't be re-registered, so you're taking motors, batteries, all that sort of stuff, and putting it in a different vehicle. I suppose there's also nothing stopping people, though, from taking other components and putting together an electric vehicle, with no regulation in this space.

EMMA SUTCLIFFE: Correct.

Mr ROY BUTLER: There's nothing stopping somebody from putting in a north-south electric engine that drives through a gearbox and drives through a differential, runs off a battery. There's nothing—

EMMA SUTCLIFFE: Four years ago, I was doing exactly that.

Mr ROY BUTLER: I've seen them.

EMMA SUTCLIFFE: I took a Tesla Model S that had rolled three times. I took the pack out and put it in a DeLorean. Yes, correct, we can do that kind of thing, and it flies under the radar very much so.

Mr ROY BUTLER: I guess that's what I am/keep coming back to. Can the blue slip and pink slip inspection process, which is obviously an annual thing in New South Wales, be used—for a vehicle under five years, that's another grey area, because if it's less than five years and converted—

DAN FISH: It doesn't have a registration check.

EMMA SUTCLIFFE: Yes.

Mr ROY BUTLER: That's a grey area we'll have to look at. But for vehicles that have been converted, can we use the pink slip and blue slip process as a way of getting a minimum level of compliance with the requirements? As I said, they're things like the vacuum pump, the connectors, and the size of the cables that are used, because they overheat if they're too small.

DAN FISH: Definitely.

Mr ROY BUTLER: Is that the low-hanging fruit? Obviously, you're talking about engineering signatories. That's much harder.

DAN FISH: I would hope there's definitely some awareness there already from those that are doing the blue slips and pink slips to see what definitely sticks out as being changed and different. Even just down to do we start to record a battery state of health on an annual vehicle check as well? That will be helpful when that vehicle goes to market in its second-hand life as well.

Mr ROY BUTLER: That's a good point.

EMMA SUTCLIFFE: Yes, we absolutely agree. But, as Dan pointed out before, the engineers themselves don't know what they're looking for. When we talk about electric vehicles and putting them together, it has been an OEM thing up until very recently. OEM is now starting to train people on a wider scale. But your engineers don't know what they're looking for. They don't understand battery chemistry. They don't understand how these things work. That's the key. We need those people to understand what they're looking at.

Mr ROY BUTLER: Sure. I'll take that on board. Moving on to a totally different thing, my part of the world—so 44½ per cent of the State—has a lot of open roads. It can take a long time for emergency services to arrive. I take a lot of faith in your organisation, Dan. You're contracted to Defence. Obviously, they think you're all right, and I note that other submissions actually refer to you as well, which is interesting. I guess I'm thinking about circumstances where we see more and more electric vehicles and more and more charging stations across regional New South Wales, it may not be emergency services who have had access to training who are the first people on the scene.

EMMA SUTCLIFFE: Correct. Sorry to cut you off, but of our six electric vehicle battery fires in Australia, five of them have been managed by rural volunteer firefighters like myself—no offence to Dan, who is a city firefighter. But we often focus—that's where a lot of training is focused, but we absolutely have to be training our rural firefighters and our road rescuers, our ambulance and police. They're the people, in our mind, that are most at risk here.

Mr ROY BUTLER: I totally agree about training the emergency services. I think that will happen no matter what we do here. I think that will come about. What I'm talking about is an information or awareness campaign for average punters who are driving along, and there's an EV accident or an accident involving an EV. At the moment, how do they know what to do? How do they know how to respond? How do they know what's risky and what they should be looking for? I guess what I'm saying is there's a space for that.

DAN FISH: There's what's called FUD, which is fear, uncertainty and doubt. They go, "It's an electric car. I can't touch it. I'm going to get electrocuted." There are so many myths out there. We spend a lot of time trying to bust those down. We're a small team. The Defence funding has run out. We're basically privately funded. There are not enough hours in the day for us to continue down that path as well. There's just so much—different angles that people come up with that is impacting the actual transition to electric vehicles and zero emissions.

EMMA SUTCLIFFE: It's an interesting point, though, that I hadn't actually considered before—someone driving past actually knowing how to keep themselves safe. We've been thinking about how do we make EV drivers more aware of how to charge safely, but I hadn't thought about it from that perspective. It might be one of those questions that we take on notice and come back to you with.

Mr ROY BUTLER: Certainly. Thank you. Chair, it's certainly something we'll talk about, I'm sure, as a committee, because for regional New South Wales that's going to be an issue, moving forward.

EMMA SUTCLIFFE: Absolutely.

The CHAIR: I'm cognisant of time. If we do run out of time and we've still got questions, would you mind taking them away on notice?

EMMA SUTCLIFFE: Sure.

The Hon. MARK LATHAM: Carla, could I just ask about the work of ANCAP? Are you a quality rating star system or actual accreditation system? If someone doesn't reach a proper standard, have you got the power to say, "No, you're not allowed to import your vehicles to Australia"?

CARLA HOORWEG: Yes, a really, really good point. The Australian design rules set by the Federal Government are the rules around importation of vehicles. So a vehicle needs to be certified that it's compliant with the ADRs for it to be imported into the country, and that's a completely different process to ANCAP. Our system is voluntary; it's not mandatory. We do see a lot of manufacturers bring their vehicles to us for testing with the star rating system. That testing is conducted completely independently of the manufacturers. We're independent from the manufacturers, and the laboratories that we use are independent from the manufacturers as well. The process is a series of very strict protocols that are aligned with the European approach. There's a similar organisation to us in Europe, and vehicles are tested against those protocols and vehicles score points for performance and that's how we get the zero- to five-star rating.

What we have seen recently is that there are vehicles coming into the market that don't meet the standard expected by Australian consumers. Recently we have taken some of our own money to go and test a couple of vehicles that we had particular concerns about. One was the Mahindra Scorpio, the other was the MG5, and both scored zero stars in our rating system. Neither were EVs, but just to make that point that a vehicle can score zero stars in our system and still be street legal under the Australian design rules. ANCAP is about providing comparable consumer information so that individuals or fleet purchasers can decide where they want to spend their money and pick the safest vehicle possible.

The Hon. MARK LATHAM: Which body undertakes that first process you mentioned, the importation of these cars?

CARLA HOORWEG: That's the Federal Department of Infrastructure, Transport, Regional Development, Communication and the Arts.

The Hon. MARK LATHAM: So they have the accreditation system?

CARLA HOORWEG: Correct. Maybe just to expand on that a little bit, the way those rules are set up is that it's effectively an importation kind of rule. For your vehicle to be imported into Australia, as an OEM you have to demonstrate that it meets all of the required standards. There are a number of ways of doing that. It can be relying on the fact that you've met standards in other countries or it can be demonstrating through a whole bunch of technical evidence to the department here that you comply with all of those rules.

If those rules are met, then you're issued with certification and that allows you to import vehicles into the country. It's quite a complicated process, and I think it might be worth the Committee asking the Federal department for a briefing on how that works because there are a number of steps, and there's a sort of final step at importation when the vehicles actually physically arrive and that is where they're actually added to the register of vehicles that are allowed to be sold in the country. That's not our area of expertise.

Our focus for our testing is that the vehicle must have already complied with all of those requirements, which is why we don't go in and test whether or not they've complied. If we notice something during our testing and examination process, then we certainly alert the department, and there have been recent cases where we've identified things that don't look like they meet the certification and we'll have a confidential chat to the department about that, and then they follow that compliance question up with the OEM directly.

The Hon. MARK LATHAM: There can obviously be a difference between accreditation and the quality of workmanship on an individual vehicle. Is there any system of randomly inspecting the vehicles that arrive here? Obviously we don't make any of these in Australia so they're all imported, and my understanding is because of the carbon credit arrangements in Europe there's a strong incentive for car manufacturers to keep their

cars in Europe even if they're just sitting in the lot. So overwhelmingly these vehicles come from China. Is there a system of inspections of any of the vehicles that arrive?

CARLA HOORWEG: Maybe just to address that point, in terms of the vehicle supply, we're obviously receiving vehicles from Europe. What we see in our ratings system is that the vehicles coming from Europe equate to around half the sales volume each year of new vehicles sold and the other half comes from Asia and the US, and we see a high number of vehicles coming from Europe but in very small volumes, and a smaller number of vehicles or different models coming from Asia and the US but they sell in much higher volumes. Obviously Toyota is a significant player and skews those numbers.

There are, as I understand it, independent random audit checks that go on by the Federal department, but that question would be best addressed to the Federal department about how often they do those audit tests, on what vehicles and how they're selected. In terms of ANCAP's process, we also have the ability to audit vehicles where they have been issued with a star rating. We can go in and do another series of audit checks. We only do that where we have some concerns or cause that maybe the vehicle has changed in terms of specifications since we first rated it.

The Hon. MARK LATHAM: We haven't got witnesses from the Federal department of transport. I'm not too sure we even have a submission, so that's bit of a gap that we need to fix in terms of the scope of the inquiry.

The CHAIR: Yes. We should probably write to them.

The Hon. MARK LATHAM: To turn to FireSafe, why does the Defence department fund you, given that a lot of your work is on the safety and issues about civilian cars?

EMMA SUTCLIFFE: They're electrifying their fleet. We've been working on an emergency response guide for the Bushmaster, which is being electrified up in Newcastle. Like everybody, they're moving to lithium ion batteries and wanted to understand their risk, but obviously they're very happy for us to share most of that information with responders globally.

The Hon. MARK LATHAM: But you don't get funding from the Federal transport department who actually does the accreditation?

EMMA SUTCLIFFE: We don't, no.

The Hon. MARK LATHAM: Your submission mentioned the EV car fire at Goulburn—

EMMA SUTCLIFFE: Correct.

The Hon. MARK LATHAM: —saying the investigation would be complete in December. Obviously your submission preceded that date. What did the investigation show?

EMMA SUTCLIFFE: Yes, apologies, we're still waiting for information from the NSW Rural Fire Service, so it's not quite ready. But the investigation—it was a tailshaft of a truck that was lying on the road. The car ran over it at 111.98 kilometres per hour. That tore open the second module of the battery pack, leading to thermal runaway—battery fire. It was a Tesla-owned vehicle; Tesla Motors owned it. They donated it to us and we tore it down with them, so we took the battery pack out and that proved to be right that the tailshaft of the truck had at that speed caused enough damage to lead to thermal runaway.

The Hon. MARK LATHAM: In terms of the promptness of investigations, this fire was in September.

EMMA SUTCLIFFE: Correct.

The Hon. MARK LATHAM: We're now pushing into April. Is this normal? You said there's a delay from the Rural Fire Service with some information. What's the normal time for making these assessments about what went wrong with the fire, because you're pushing into seven to eight months, which normally you'd think was a bit tardy?

DAN FISH: We're a private business so we're doing this when we can as resources become available as things line up. We would love to have the power or some ability to go, "That vehicle's just had a crash; let's do a full investigation." We have no authority or control or ability to do that unfortunately.

The Hon. MARK LATHAM: Who does?

EMMA SUTCLIFFE: We don't know.

The Hon. MARK LATHAM: I mean this is all new experience, new technology, new public safety issues. As parliamentarians, we'd probably like to think that within two or three months—

EMMA SUTCLIFFE: There'd be some answers.

The Hon. MARK LATHAM: —we could learn from this incident at Goulburn rather than uncompleted after seven or eight months. Who's responsible for this?

DAN FISH: This is pretty much one of the only ones that has actually been done globally that we're aware of. We are aware of some other incidents where we've had customised vehicles that are having some investigation done where they've had a fire, but it's very rare to have this vehicle where we have all the telemetry available to it. Because this was a Tesla-owned vehicle, they were able to supply all of the information from the vehicle itself as well. We're just really fortunate to be able to do this one, even if it was several months later as well.

The Hon. MARK LATHAM: My question was: Who is providing a definitive report so the system, whether you're a first responder, a mechanic, the New South Wales Government, the Federal Government, can learn from what the actual fire tells us?

EMMA SUTCLIFFE: I don't believe there's a regulation to actually provide that information. As Dan said, we took possession of the vehicle in November. We tore it down at the end of November. As I said, we're still waiting on details from the Rural Fire Service from what's called a GIPAA—freedom of information.

The Hon. MARK LATHAM: You had to lodge a GIPAA to get the information?

EMMA SUTCLIFFE: Correct.

DAN FISH: In Australia, it's a struggle, sir.

EMMA SUTCLIFFE: As Dan said, we're a private business. We weren't funded to do that work.

The Hon. MARK LATHAM: Sure. I understand that, but you'd expect in the public interest there'd be some public authority doing this promptly as a matter of course, wouldn't you?

CARLA HOORWEG: I might add to that, if I can, that generally speaking road crashes and the data around road crashes is not great in Australia. This is probably symptomatic of that, in a way. I would anticipate that potentially Transport for NSW may have some information. They are certainly responsible for investigating road crashes where there has been a fatality or a serious injury, but even getting that data is difficult and can be a convoluted process. Fatalities are obviously, sadly, easier to identify. However, when we get into serious injuries and what happens there, we're talking about hospitalisation and there become privacy issues and time periods for understanding exactly what's happened to individuals.

But the analysis of particular crash scenarios and what went wrong, where did it occur—all of the data around that—is a little bit hard to uncover. That is, I would suggest, a question for Transport for NSW as to whether or not the Committee can get that information. Certainly, from our experience, New South Wales does have some very good data but this is all based around fatality and serious injuries. If in this incident, there was no fatality or serious injury, it's sitting in another category where road crash investigations without those consequences may not be investigated. I don't know if it was police reported. If it's police reported, there should be some tracking of it by Transport for NSW. That is my understanding.

DAN FISH: We also have a situation where a lot of emergency responders that will be on the scene don't know what they're dealing with and don't understand what they're seeing. We have a lot, unfortunately, on our database where there are unknown cause contributors to the incident. Over time, we've been able to do some really good training and awareness across that space. We've brought that number down a little bit, but to then have these investigations, that would be fantastic. Globally, we're just not there yet.

Mr WARREN KIRBY: I just have a couple of quick questions. You made a point about the convergence of vehicles and how that's completely unregulated. Is there any recognised certificate of attainment or anything in that space for people to work on EVs? The manufacturers who are bringing them in in their dealerships seem to be doing quite a lot of work in regards to training their technicians, but in New South Wales there are over 3,500 independent mechanics who undoubtedly will be coming across these vehicles in the not too distant future. Is there any authorised training for these people?

DAN FISH: The short answer is no. We have anywhere from very professional workshops with global partnerships that are doing work, right down to people that are doing it in their backyard garage. Not saying that backyard garage doesn't know, necessarily, what they are doing. However, that's a very loose space. Yes, there is some training that is available around de-power/re-energise units of competency in that space aimed at mechanical technicians. That would be a great starting point, but you're really looking to have a significant, in-depth understanding of what you're doing with these vehicles. A lot of people make the mistake of treating a lead acid

battery that we're used to from history the same as they treat a lithium ion battery. They're very different beasts and can have a significant negative outcome when things go wrong.

Mr WARREN KIRBY: The other one I had was around ISO standards. You've also made the point as well as in your submission that there's no emergency response guide for personal liability loss like the scooters and bikes. You've rated them as a very high risk; the same with the light delivery EVs. There's a moderate risk with those, and no ERG to go with it. Is there an ISO standard for that kind of battery technology that can be implemented as part of an import regime?

EMMA SUTCLIFFE: There's an ISO 17840 that relates to how you write an emergency response guide, but beyond that, no.

DAN FISH: That's also focused in four parts there towards your passenger vehicles, your heavy vehicles, your trucks, your buses, more so than the smaller devices. The smaller devices really fly under the radar. Everyone goes, "It's only a small battery pack. What could go wrong?", as well as not understanding that some of these actually run what we class in the automotive space as high voltage.

EMMA SUTCLIFFE: Yes.

DAN FISH: They look small. They look pretty tame. But they definitely are killing people globally and burning buildings down at an astounding, crazy rate.

Mr WARREN KIRBY: If I may, Chair, just to have a follow-up on that to tie it together a little bit, what kind of risk is there to the surrounding area if there's been a conversion, if an EV has been worked on by somebody who didn't really know what they're doing in this space, or with one of the smaller vehicles. I noted in your submission a number of the fires, while they may not have been directly related to thermal runaway, involve multiple vehicles once it goes up. We know that they burn hotter. We know they burn longer. Is there, for example, an instance of thermal runaway on the basement of a city tower that is surrounded by 15 electric vehicles? Is there a risk to the surrounding vehicles in that case?

EMMA SUTCLIFFE: The latest testing indicates that there were some stats around how battery fires will burn sometimes two or three times hotter than petrol or diesel car fires, but latest stats indicate it's increased, but it's roughly the same so we're talking a difference of about a thousand degrees with an internal combustion to about 1,200 degrees with a lithium ion battery. You're correct, though, in saying that it's an extended duration incident. If we look at a car fire, Dan and I can put out a car fire in under half an hour, typically. With an electric vehicle battery fire, we're looking at potentially three to five hours. That's typically the length of a battery fire in a road-registered vehicle.

When we talk about multiple electric vehicles in a car park, again early indications where we've got real-world incidents, where we've got more than one electric vehicle involved in a fire—let's say we've got 10 electric vehicles and one in thermal runaway, so one battery fire—that fire will spread, as it does with any vehicle fire. But what we typically end up with is one battery fire and nine combustible fires. It's not common for it to go battery fire, battery fire, battery fire, and spread like that, but the other cars will burn. We only have, as I say, probably four or five real-world incidents that have indicated this, and of course it's very expensive to burn electric vehicles so nobody's gone, "Let's go burn 10 and see what happens". The reason for that is those battery packs are incredibly well protected. When we talk about the smaller battery packs in, again, personal mobility devices—the kind of electric scooters, those kinds of things—we do see fire spread. We'll get multiple battery fires in those because the battery packs are smaller and not as well protected. You had another point there that I've just forgotten.

Mr WARREN KIRBY: It was on that line, and trying to take up on that, we're seeing a great push towards active transport, a great push towards especially e-bikes, stacked very tightly together in parking stations. Is that a risk that should be seriously considered?

EMMA SUTCLIFFE: Yes, it absolutely should. When we talk about electric cars, again we've registered electric vehicles in basement car parks, that kind of thing—again, the real-world incidents—it's very early data. This data changes quite rapidly. The early indications are that we're seeing a similar amount of concrete spalling with cars as we do with internal combustion engine vehicles. However, a golf buggy that set fire to a St Johns ambulance depot here in New South Wales had extensive concrete spalling. When we talk about our e-bikes and e-scooters where there are multiples of them in the basement of an apartment building, we would be very concerned about that.

We are working on some ideas and concepts for the owners corporations, the strata peak bodies, and I believe they're on next to talk about how do we charge e-bike and e-scooter batteries in a communal area that's in—kind of think of your old school lockers—a locker-style system, so those batteries, firstly, don't go into the

car park, they don't go in a lift and they don't go into a private apartment. If something does occur, we've got these batteries in some kind of open space. That's of course very, very tricky.

Mr MATT CROSS: To clarify that, you said New York has legalised it to be on the street—for PMDs.

EMMA SUTCLIFFE: Correct. They have a communal charging area but you have to stay with your ebike or scooter.

Mr MATT CROSS: You have to stay with it?

EMMA SUTCLIFFE: Correct.

Mr EDMOND ATALLA: Do you believe there are different battery types that possess more risk than others on the market? If you're aware of certain battery types that have a higher risk, what's being done about it to stop these from coming into the country?

EMMA SUTCLIFFE: We've recently done a comparison of battery chemistry and the most common NMC versus LFP. In good quality battery cells, we don't believe there's a higher risk due to chemistry. We're still trying to understand how fire behaves if the battery is cylindrical or it might be kind of a prismatic, so a brick shape, or it might be the pouch one like you have in your mobile phone. We don't understand yet how that fire changes depending on the form type or the chemistry of the battery. What we do know is there's no such thing as a fireproof lithium ion battery. It just doesn't exist, including in semisolid state lithium ion batteries. What we do know is, as we alluded to before, very -poor-quality battery cells are coming into the country in our e-bikes, e-scooters, things like vapes of course, which sit outside the scope of this—but -ebikes and -escoters. As Dan mentioned before, people that we collaborate with, where they've torn down some of these battery packs that claim to be UL or CE certified—they are actually just counterfeits. There's no way to actually check- that unless we pull that battery pack apart and pull those cells apart.

DAN FISH: It's probably important to understand as well that you may not be making an incident safer; you may just be changing what hazards you're potentially dealing with. With the NMC chemistry, which is one of the earlier ones, it's really good for rapid fast discharge. It gives lots of great power but it can go into a thermal runaway at a slightly lower temperature. However, when it does it, it's usually got a flame involved in that as well. If we change that across to the LFP chemistry, it's more of a sustained over a longer time energy output where, when it goes into a thermal runaway, it's usually at a little bit of a higher temperature but also more common to give a larger amount of off gassing. A lot of people go, "It's just a bit of smoke. It's safe". No, it's actually a highly toxic and highly explosive vapour cloud, so you've changed your fire event to an explosive event. I can't say what's going to be safer, given whatever circumstance.

The CHAIR: Thanks, Carla, Emma and Dan, for appearing before the Committee today. You'll each be provided with a copy of the transcript of today's proceedings for any corrections that you may have. The Committee staff will also email any questions taken on notice from today and any supplementary questions from the Committee, noting that Roy has a couple he's going to send through as well, but of course all Committee members may have some. We kindly ask that you return these answers within 14 days of receiving the questions. Again, I appreciate your time and contribution. It's invaluable. Please stay safe and have a good rest of the day.

(The witnesses withdrew.)

Mr FRED TUCKWELL, Chair of the Board, Owners Corporation Network, before the Committee via videoconference, affirmed and examined

Mr DOMINIC DODWELL, Board Member, Owners Corporation Network, before the Committee via videoconference, affirmed and examined

Mr GARY RAKE, Chief Executive Officer and Head of Division, Australian Building Codes Board, before the Committee via videoconference, affirmed and examined

The CHAIR: Welcome. I note that you are all online. Thank you for appearing before the Committee today to give evidence. Please note that the Committee staff will be taking photos and videos during the hearing. The photos and videos will be used for social media purposes on the New South Wales Legislative Assembly's social media pages. Please inform Committee staff if you object to having photos and videos taken. Can you please confirm that you have been issued with the Committee's terms of reference and information about the standing orders that relate to the examination of witnesses?

DOMINIC DODWELL: I can confirm that.

GARY RAKE: I confirm that I've received that.

FRED TUCKWELL: I confirm that I've received it.

The CHAIR: Thank you, everyone. Do you have any questions about this information?

FRED TUCKWELL: I don't.

GARY RAKE: No questions.

The CHAIR: Would anyone like to make a short opening statement?

FRED TUCKWELL: I'm happy to make a brief opening statement on behalf of OCN. Owners Corporation Network of Australia, or OCN, strives to create a better future for residential community living and ownership. We support the transition to resilient, empowered communities living in climate-ready, defect free buildings. Our perspective represents the large and rapidly increasing sector of apartment owners in Australia and our evidence relates directly to the needs of apartment owners. We are concerned about the existence of sensationalist media commentary regarding electric vehicles, creating FUD—fear, uncertainty and doubt—which promotes both misinformation and barriers to the introduction of electric vehicle charging equipment in apartment buildings. This directly impacts the implementation of the Government's sustainability and safety agenda.

We urge the inquiry to keep two high-level goals in focus. One is the overarching priority—excuse me again; I've got a frog in my throat unfortunately—to create a better, cleaner future that electric vehicles provide and let the facts rather than opinions speak. I did listen to Emma and company from EV FireSafe. We certainly support them as an organisation and quoted them during our responses. The data shows that electric vehicle traction batteries are very low- fire risk and far less fire risk than petrol or diesel-powered vehicles. Emma mentioned there were only six EV battery fires. The real risk, as was pointed out in the last session, is not road-registered electric vehicles but rather poor---quality PMDs, personal mobility devices. OCN supports a risk-mitigation approach to this PMD risk, including education on the safety risk of EMDs. We have actually held recently on 15 February a webinar on this subject and we had over 1,000 registrations and 500 questions from that webinar-

We have also issued in the strata community what's called a by-law, which gives owners' corporations some insights to how they could go about making their apartment building safer. We support the Electric Vehicle Council's suggestion that the New South Wales Government should increase resourcing to NSW Fair Trading to address the rising incidents of unsafe products outside of -road-registered vehicles, and including the ACCC and CSIRO recommendations on testing and labelling, and that the New South Wales Government also investigate the case for recommendations relating to safe storage and charging of electric scooters and bikes, especially in environments such as apartment buildings and offices. We do not support an outcome where additional requirements such as special hazards are imposed on the built environment, at a substantial cost to consumers, without evidence as to the need for these measures.

The CHAIR: Before we begin, I inform witnesses that they may wish to take questions on notice and provide the Committee with an answer in writing. I'll ask the first question to you, Gary. It is in relation to regulations and standards of electric and hybrid vehicle batteries and the impact of design and safety features on residential buildings. Are there adequate regulations and are the standards where they need to be, in your opinion?

GARY RAKE: I believe there are and, having listened to some of the earlier evidence, there were some questions from Mr Latham in relation to safety standards for vehicles. The Australian Design Rules, which govern the safety of vehicles that are being imported, now have two new appendices or two new requirements to deal specifically with -battery-powered electric vehicles and hydrogen fuel cell vehicles. I think, as we think about this as a risk, we should always look to regulate or manage risk as close to the source as we possibly can. So if the source is the battery inside the vehicle, then we want to test and reassure ourselves around the safety of that battery in all phases, whether it is being driven, whether it is being parked, whether it is being charged or, indeed, whether it has been involved in a road incident or accident. The ADRs require testing to demonstrate that that is safe in all of those phases. It's indication of safety is that the testing should reveal no sign of unreasonable leakage of substance, emission of gas, fire or explosion. That's the same standard that applies to all of the traditional petrol and diesel vehicles that come in. So the vehicles themselves, yes, we're confident that there are good national standards in place there.

In terms of the built environment and the risk for vehicles in buildings, especially in structured car parks—so think about basements or multistorey car parks—Australia has very good fire safety records and very good fire safety standards already, but we have recently reviewed our car park standards for new buildings. That's the remit of the Australian Building Codes Board; we set standards for new buildings. Taking account of changes in Australian vehicles, the biggest change is that we are now driving, on average, much larger vehicles and those

vehicles have larger fuel tanks, where they're liquid fuels, and the vehicles have more plastic in the body and the interior—on average, somewhere around 200 kilograms additional per vehicle.

Mr EDMOND ATALLA: Just following on from Gary's remarks, many of the charging stations are now located in car parks around petrol vehicles. You said there are standards in place, safety regulations. What measures are in place in case a fire from one of those electric vehicles spreads to all of the petrol cars in the car park? What safety precautions are taken in residential apartments to address this issue?

GARY RAKE: Again, talking about the standards for new buildings, car parks that have more than 40 vehicles in them and that are located below a residential building, for example, would be required to have sprinklers and would be required to have fire-resistant protection between the car park and the adjacent storeys above. The residential area, if we stay with an apartment building, will have fire alarms, fire-protected evacuation routes. So there is a lot of effort put into making sure that we're able to detect and manage a fire for long enough for people to safely evacuate. The protection of life is the number one aim. In our recent review we've looked at whether we need to remove some of the concessions that have previously existed for smaller, open-deck car parks, where they might not have been required to have the same level of fire resistance or sprinklers, and we'll be recommending that those concessions be removed.

Mr EDMOND ATALLA: That's great for the design of new buildings. Are we not putting any charging stations in existing buildings that don't have those measures in place?

GARY RAKE: I apologise, I'm unable to comment on existing buildings. My purview is only for new buildings.

Mr EDMOND ATALLA: Are you aware that there are charging stations being put in existing buildings? I presume there are.

FRED TUCKWELL: I might jump in on that question. There has been a lot of work on trying to establish EV charging in apartment buildings. My colleague Dominic might want to comment. He is on the board of OCN but also of a project management company who do a lot of work on the fire safety of those buildings. So perhaps, Dominic, you might want to comment on that?

DOMINIC DODWELL: Yes. Thank you, Fred. I run a range of projects, which include fire upgrades to existing buildings to increase the fire safety of older buildings or defective buildings and we've also run a few projects looking at retrofitting EVs into existing buildings. We're obviously aware there is a multitude of different structures and construction types and layouts and measures within existing buildings—the measures being the sprinklers, hydrants et cetera. What would be very helpful to the industry would be to have a guideline on the requirements and that obviously comes from BCA Consultants, the private certifiers writing up their reports. But having a standard interpretation on a national level is probably a preferred outcome because otherwise there is a lot of interpretation. The space to upgrade existing buildings to modern standards is already exceedingly interpretative and what you can achieve in one council versus the next is very disparate, basically. I am happy to take a further question on it but, yes, there is obviously a lot of retrofit going on and I think a lot of it is into larger modern buildings which have all the necessary services. There are the older buildings, as well, which may require further consideration in some cases.

Mr MATT CROSS: Thank you so much for coming today. In a past contribution you said that NSW Fair Trading should step up and play more of an active role. When it comes to personal mobility devices in both existing and new buildings, how can we educate individuals on how to charge their personal mobility devices, and do you think that's a role for Fair Trading?

FRED TUCKWELL: Yes, I do. As I said in my opening remarks, OCN has a very well-participated webinar on the subject. There is massive interest out there. I know there is a role for Fair Trading. In the previous presentation by Emma there were a lot of questions on the standards for PMDs. Absolutely, the standards for PMDs need to be upgraded and part of that is the by-law that we established. I don't see any reason why Fair Trading shouldn't adopt a similar sort of model by-law that makes it clear what you can and can't do in apartment buildings with respect to personal mobility devices, and some simple things like preferably charge them outside. If you can't charge them outside, don't charge them anywhere near any flammable material and certainly don't charge them in a fire egress path. There are some simple commonsense things but the most pervasive thing are the standards, and don't play with them. The issues about incompatible batteries and chargers and people modifying—they're where the fires are. It is a lethal risk.

GARY RAKE: I would agree. There is a helpful role for all of us in helping consumers understand how to use these new products safely. We have done it in other areas for fire safety. We have the daylight savings campaign to remind people to change batteries in their smoke alarms. We have community-led campaigns with

the assistance of fire brigades to encourage people not to dry washing in front of portable heaters or open fire places, and it's the same space here. I think we could get to that very easily.

Mr WARREN KIRBY: I ask a couple of questions in regard to new builds, notwithstanding concerns of existing builds. Has there been any modification to the amount of parking being offered in unit towers to cope with the emergence of electric vehicles? In my particular area we have seen enormous growth in units and there is nowhere near enough parking for those vehicles. It's not practical to be running 20-, 30-, 40-, 50-metre electrical cables out of the sixth storey of an apartment and onto a street. Is any consideration being given to new builds to accommodate the charging of electric vehicles beyond a tokenistic two or three spots in a station?

GARY RAKE: Could I jump in and talk about new buildings first? The National Construction Code as updated for 2022 now requires that all new class two buildings—all new apartment buildings and all new commercial buildings—have infrastructure roughed in with the conduit, electrical wiring and space on the switchboard to support the future installation of electric vehicle chargers, and to do that for, in the case of an apartment building, every car park. We're not requiring the installation of the actual chargers at this point. It's really to take out the most burdensome part of the retrofit and make sure that the base wiring and infrastructure is there and then, as the building or individual owners are ready to make the switch to an EV, it's much easier for them to just wire in their charger. That provision is now in place and New South Wales has already adopted that. Other States are progressively adopting it. The ACT is on board, with Queensland and Victoria at the beginning of May.

Mr WARREN KIRBY: What about the overarching internal number of spaces?

GARY RAKE: The number of spaces required on an individual development is largely influenced by the planning system. But, where a car park is provided for a new apartment building, we now require that it have roughed-in infrastructure to support electric vehicle charging.

Mr WARREN KIRBY: Secondary to that is that it's emerging that PMDs are by far the greater risk. I have noticed in some of the towers I have been in that there are holding pens for bikes and things like that. Presumably, that mix is going to move further and further towards e-bikes and e-scooters. Is there any provision to isolate those holding facilities for them to protect the buildings or, quite specifically, the concrete work in the buildings?

GARY RAKE: We don't have a particular provision for that at the moment, but it's an area that we continue to monitor. The change in consumer habits might prompt a change for the future, but it's not something we're working on at the moment.

FRED TUCKWELL: To add to Gary's comment there, we are absolutely advocating for that to be the case, and create safety. Emma alluded to the fact that there are certain safes at the moment, similar to a gun safe—lockable containers where you can put the battery in those. We are advocating for those as well. But I think there is a role in government and the building code to start to think about establishing safe charging areas for these things.

Mr ROY BUTLER: I think you have mostly addressed this. The second part of my question, Mr Rake, you answered, which is in regard to new builds. In terms of existing structures, Mr Tuckwell, you commented that there are some simple things to do, like don't charge in a fire egress area, don't charge near combustibles, don't take the battery into your residence where you've got carpet and that sort of thing. Is that the first thing that we should be doing? Is that the first stage? Obviously, most of our buildings are existing buildings and won't necessarily have a dedicated charging space because it will be much harder to control the quality of batteries and that's going to add cost to the consumer as well. Is the first thing we should do just basically make it part of a tenancy agreement in any apartment complex that there are certain things you cannot do with a battery on charge?

FRED TUCKWELL: The way you do that in an apartment building is via a by-law. I've been thinking as we have been discussing it now. We have provided a by-law. It's on our website. We usually charge for those things but the more I talk about it and the more I think about it, I did mention in the opening comments about it being made into a model by-law. The Strata Schemes Management Act does have model by-laws which people can choose from. I would be very happy to make our by-law available for that purpose. I think a further education program on that—because it's people's safety we are talking about here. It's dangerous stuff.

DOMINIC DODWELL: Just to add to Fred's comments, I've got a background in safety in construction. I was a permit officer on Caltex sites, for example. One of the key things there is that what is requested of you as a contractor is often overbearing for that specific task that you're undertaking. But when it comes back to base principles, you're simply protecting against the lowest common denominator, which is somebody doing the wrong thing. It is a game of chance when it comes to charging batteries for micromobility or other devices. Because of

the uptake at the moment, it really has to be a very considered effort to make sure that it doesn't get out of hand and become a bigger task to retrofit whatever the protections are in the future.

FRED TUCKWELL: Just adding a little bit to that, trying to manage these by-laws and enforce them is a serious challenge. How can you go into somebody's apartment and say, "You can't plug that thing in there." It has to be an education program and there are consequences if you do the wrong thing of that education program. That's what we are planning to do with the by-law.

The CHAIR: Thank you guys for appearing before the Committee today. You will each be provided with a copy of the transcript of today's proceedings for corrections, if you have any. The Committee staff will also email any questions taken on notice from today and any supplementary questions from the Committee, if they may have them. We kindly ask that you return these answers within 14 days of receiving the questions. Thank you very much for taking the time to contribute to today's hearing. We really appreciate it. It is invaluable.

(The witnesses withdrew.)

Mr ARMIN PAUZA, General Manager and Principal Electrical Engineer, Lithium Batteries Australia and LiFeTech Energy, sworn and examined

Ms KATHARINE HOLE, Chief Executive Officer, Association for the Battery Recycling Industry, sworn and examined

The CHAIR: I welcome our next witnesses. Thank you both for appearing before the Committee today to give evidence. Please note that the Committee staff will be taking photos and videos during the hearing, which will be used for social media purposes on the New South Wales Legislative Assembly's social media pages. Please inform the Committee staff if you object to having any photos or videos taken. Can you please confirm that you have been issued with the Committee's terms of reference and information about the standing orders that relate to the examination of witnesses?

ARMIN PAUZA: No.

The CHAIR: You haven't? Ms Hole, have you?

KATHARINE HOLE: No. I have the terms of reference but not the standing orders.

The CHAIR: It's information about the standing orders. Apologies. We'll get them to you now. The staff advise that you were emailed the information, but we'll get you a hard copy now. Would you like to take a moment to review the information and see if you have any questions?

ARMIN PAUZA: That's okay. It's all here.

KATHARINE HOLE: That's fine, thank you.

The CHAIR: You have no questions about the information at this time?

KATHARINE HOLE: No.

ARMIN PAUZA: No.

The CHAIR: Would either of you like to make a short opening statement or would you like to go straight into questions? Your submission has been tabled to all Committee members.

KATHARINE HOLE: I don't wish to make a short statement.

ARMIN PAUZA: If I could make a short introductory statement, I was responsible for introducing the first rechargeable lithium battery to Australia back in March 2007. In the first 10 years or so of the industry, there were no fires and no issues because they were all original US-patented, genuine cells. The issues with the fires have only arisen in the last four or five years with the proliferation of the junk Chinese batteries entering the country. The Committee may not know that I manufacture batteries for the New South Wales Government for numerous applications, including Sydney Ferries and Sydney Trains. They're used everywhere, and they're high--safety, military-grade batteries that can't catch on fire. I am the only manufacturer of lithium batteries in Australia that manufactures batteries that can't catch on fire. They're all high- safety, military-grade batteries.

A few of the customers and government departments that I manufacture batteries for—you may not be aware of this—are Victoria Police; the New South Wales Police Metropolitan Wireless Network Services division; Transport for NSW; Sydney Trains; Sydney Ferries; the New South Wales Roads and Maritime authority;

Australian Government Parliament House in Canberra; Department of Defence; the Australian Antarctic Division; the Centre for Automotive Safety Research; La Trobe University; Charles Darwin University; Rio Tinto; Yancoal; Caltex; Lytton Oil Refinery; and Shell Queensland gas corporation. It has affected the industry badly because these fires have made the regulations tighten up in various areas, specifically in transport. Several years ago, I used to send all of the medical application batteries that we manufactured in Sydney to Royal Perth Hospital for things like CPAP machines. We used to just put them in an express post satchel and they'd get there in about three hours. Now, because the IATA regulations have changed because of the Chinese battery fires, they can't go by air. They have to go by road, so now it takes five days to get from Sydney to Perth.

The Chinese battery factories have caused so many problems in so many areas with the junk they're spewing out. Many people are not aware that there are high-safety batteries that do not catch fire. That's all I manufacture. That's why I manufacture these batteries for Parliament House in Canberra. All of the critical backup power systems are my high-safety batteries. The six Sydney Harbour ferries that were built in Tasmania, which have been on the harbour for the last six or seven years, all have my high-safety, military-grade batteries installed to run the power and all of the marine electronics. That was a stipulation for the government contractor because they could not risk a fire on a ferry when the batteries are located under seats close to passengers. You could imagine if there was a fire, a passenger gets burnt and they sue the Government because they installed hazardous batteries. There are high-safety batteries that do not catch on fire. There are many of them around. We only talk about the hazardous batteries, the Chinese batteries. There are three main reasons why these batteries are hazardous and catch on fire. I would be happy to answer any questions on why that happens.

The CHAIR: I might begin with questions to Ms Hole. Before I begin the questions, I wish to inform witnesses that they may wish to take a question on notice and provide the Committee with an answer in writing. If you don't know it in totality or if you want to go away and get more information, that's perfectly okay. You can respond later on. My question is to Ms Hole. Your submission states that light vehicles and electric vehicles use different types of batteries. Can you explain the differences in these battery types? What are the different fire risks for both?

KATHARINE HOLE: I'm not really in a position to comment. We deal with the batteries at end of life, so we get the batteries at the recycling stage. I think there have been discussions earlier about different battery chemistries that make up those EVs. The manufacturers are best spoken to about that. There's also still starter batteries in those cars, which might be lead acid batteries, not lithium, as you would have on a normal car today. I'd suggest you're better off talking to the manufacturers about those batteries in EVs.

Mr MATT CROSS: Thank you, Armin, for your contribution. In relation to the batteries that you said come from overseas—you said China—what percentage of those in Australia are not to your standard?

ARMIN PAUZA: Are we talking about just e-bikes and e-scooters?

Mr MATT CROSS: Correct.

ARMIN PAUZA: Or electric cars? What are we talking about?

Mr MATT CROSS: Say, e-scooters.

ARMIN PAUZA: For e-scooters and e-bikes, probably 99 per cent would be made in China.

Mr MATT CROSS: In relation to that regulation, that would be a regulation about importing, so it's the Federal Government?

ARMIN PAUZA: The biggest problem—also, with the batteries used in RVs, caravans and motor homes, all of these caravans are catching on fire. These companies are getting on to Chinese buying sites like Alibaba and buying pallet loads of batteries, bringing them into Australia, labelling them with their own labels, making it look like their own product and they don't know anything about the batteries. You see it on the websites. Some of them are so unscrupulous, they actually label them with kangaroo "Australian-made" logos on the batteries, but they're made in China. That's how low these people are. They are just sales and marketing companies. They've got no experience with lithium batteries. They're in it to make a quick buck. These are all of the companies that have come out of nowhere in the past four or five years. They're very poor quality.

There are three main reasons why the batteries catch on fire, especially with the e-bike batteries. But to answer the other question, there are three main lithium chemistries. There's lithium iron phosphate, which is relatively safe. There's lithium titanate oxide, which is the latest chemistry, which is very safe and doesn't catch on fire. And there's the cobalt-based lithium cobalt oxide batteries. They're the hazardous ones. They're all the ones we talk about with e-bikes. Any of the batteries that catch on fire, pretty much, are cobalt-based batteries. They're the ones we're talking about with e-bikes and e-scooters.

Mr MATT CROSS: With those batteries, would you say it's because there's a lack of regulation or is it because there's a black market operating because there is regulation?

ARMIN PAUZA: There's a lack of regulation. Anyone can buy them on eBay, Amazon or anywhere and bring them in. There is a lot of information that people don't know. A lot of consumers will buy a battery on eBay, for instance, and they'll see it has five years warranty. They don't know that if they buy a battery from China or anywhere—from USA or Europe—there's zero warranty now under IATA regulations because it is now prohibited to return a defective or faulty battery back to the manufacturer overseas for repair. There is no company in China—they're not going to accept them back, and you can't ship them back. The shipping companies just won't accept a faulty battery because they're afraid it is going to catch fire when they send it back. So all these companies are misleading Australian consumers by saying, "This battery's got five years warranty"—or three years warranty or whatever it may be. If you buy a battery from overseas, it comes with zero warranty.

Mr MATT CROSS: And Fair Trading in New South Wales is aware of this?

ARMIN PAUZA: I don't think so. It's a shipping regulation. I'm not sure whether they're aware or not.

Mr ROY BUTLER: Mr Pauza, I note your comments in your submission regarding an unscrupulous, or potentially unscrupulous, vendor in Queensland labelling things incorrectly and advising that the lead acid charger could be used in place of a smart charger that would identify the battery type and charge accordingly. Has that been raised with the State consumer protection groups? If so, has there been an adequate response?

ARMIN PAUZA: I've raised it with the Australian Made Campaign because they're putting the Australian Made kangaroo logos on them, but they've done virtually nothing.

Mr ROY BUTLER: What about the equivalent of Fair Trading in Queensland?

ARMIN PAUZA: I haven't raised it with Fair Trading in Queensland. I raised it with the ACCC when they asked for my advice but I haven't heard back about what they've done about it.

The Hon. MARK LATHAM: Armin, we heard evidence earlier on from representatives of EV FireSafe saying that there's no such thing as a fireproof lithium battery, but your evidence is that there is such a—

ARMIN PAUZA: If you have a look at the photo I sent, my own electric ute—that battery cannot catch on fire. It's a lithium titanate oxide battery. I had to bring that vehicle directly from Japan with that battery. All the main manufacturers—Tesla, all the main manufacturers—use basically cobalt-based batteries, which are very hazardous. They use cobalt-based batteries because of the high energy density. That's the only reason that they get the range they can get but they are very dangerous. They're very hazardous. So even though we don't see many EV car fires, they are still very hazardous. I would be pretty sure that in future years we'll see more of them because the batteries catch on fire as they get old. Even in an e-bike or an e-scooter you never see a brand new battery catch on fire; it happens over time mainly due to cell imbalance. It's a cumulative thing based on the quality of the BMS—the battery management system—in it and the quality of cells. These are all the factors that the Chinese companies are cutting back on—making them more basic and not as reliable—and causing fires.

The Hon. MARK LATHAM: At page 8 of your submission you write:

... while the cobalt lithium ion-battery is a bit like dynamite wrapped in cotton wool, then the titanate oxide lithium battery behaves a bit like a block of wood. It is inert and you would have to hold a flame directly to it a long time before it could catch on fire.

So it can catch on fire. How long has that flame got to be applied?

ARMIN PAUZA: It's not severe like the sort of flames you see from a normal lithium battery fire. It's like lighting a bit of paper or something; it will just burn and you can just put it out easily. It doesn't want to catch on fire. It's not self-sustaining, as in thermal runaway.

The Hon. MARK LATHAM: How long does the flame need to be applied? You say a long time before it would catch on fire. What's a long time?

ARMIN PAUZA: You'd have to have it in a fire and heated for it to start to burn. The materials—the shrink wrappings and the plastic insulated wires—are the things that are going to burn, not so much the battery itself. It's all the flammable things that are around it—the insulation. The battery itself is very safe.

The Hon. MARK LATHAM: What's your evidence then? The battery that you're describing will burn but, in its own right, it's not combustible and would not start a fire?

ARMIN PAUZA: Yes. You look at all the safety testing. All the high-safety batteries do penetration tests, bullet impact tests. It passes all those tests. If you fire a bullet through a Tesla battery, it'll burst into flames. If you fire a bullet through a lithium titanate oxide battery, it will just make a hole; nothing happens. Penetration, impact, dropping on a concrete surface—it passes all those the tests and results are always no fire, no explosion.

The Hon. MARK LATHAM: The difference in these batteries and how flammable they are—is this also true with all these bike and scooter battery fires that we're getting now?

ARMIN PAUZA: Yes, the bike and scooters are all cobalt-based batteries. They're all very hazardous.

The Hon. MARK LATHAM: All of them?

ARMIN PAUZA: All of them, yes.

The Hon. MARK LATHAM: Will that always be the case in the technology and affordability? We won't have these titanate oxide lithium batteries in bikes and scooters?

ARMIN PAUZA: Lithium iron phosphate batteries, which are a fair bit safer, are getting more common in scooters but people will go for the cobalt-based batteries because they're 30 per cent higher in energy density, or double the energy density of lead acid batteries. That's why they use them—because they get further range for a lighter battery.

The Hon. MARK LATHAM: Do we make those in Australia or are they, too, imported from China?

ARMIN PAUZA: The titanate oxide lithium and the lithium iron phosphate?

The Hon. MARK LATHAM: No, the cobalt ones that are catching on fire.

ARMIN PAUZA: They're all coming from China. All of the e-bike batteries and e-scooter batteries come from China. It's only the enthusiasts—the people who know about them—that are building custom batteries that have been in it for many years. They use the lithium iron phosphate or other chemistries.

The Hon. MARK LATHAM: What's your understanding, then? If they're so flammable and they're causing these problems, particularly in apartment blocks—you could wake one morning and there's a complete disaster underway if the apartment block catches fire in a substantial way—why haven't they been banned?

ARMIN PAUZA: That's the Government's call and—

The Hon. MARK LATHAM: But you know the industry and government, why do you think government hasn't banned them?

ARMIN PAUZA: It's just getting to that point where I'm wondering if they're going to do something or not. For more than 10 years we've had e-bike batteries with no issues whatsoever. It's only the last few years that we're getting so many now. Just like with cars, if there are more cars on the road, the more car accidents you're going to have. The more batteries we're going to have from China, the more fires we're going to have. As time goes on, batteries get older and they get metal fatigue in the spotwelded joints. That's one of the causes of fires. Cell imbalance is the main thing that causes them because of the poor-quality cells—that's why they catch on fire. That's why, if you see a lot of these videos of fires, the fire starts in one spot and then it spreads throughout the battery. It's not the whole battery all of a sudden. It spreads throughout the battery and gets stronger and stronger. That's due to cell imbalance.

That's one of the three main causes, as well as the poor manufacturing quality in China. These cells are like an oversized power tool battery. They're spot-welded—they've got little nickel tabs with little spot welds. It's fine when they're new but as they age—there's vibration as you're going potholes and bumps—you get metal fatigue in the little spot welds and they get a high-resistance joint eventually and then they can catch on fire. Cell imbalance is probably the biggest thing that I think is the contributor to fires because the cells are very cheap and poor-quality cells. They cut out a lot of the quality control. In Australia, for instance, we're doing impedance and capacity matching so they're all very close together.

It's often said in the lithium battery industry that the old lead acid and NiCad batteries are very safe. Lead acid batteries is a bit like herding sheep: They want to stay together. Lithium batteries is a bit like herding cats: They want to go all over the place. You've got to keep them together. They are not tolerant. They just will not stay together. So the more cells you've got, the higher the voltage and the greater risk of the battery. That's why in the early days of mobile phones—do you remember that there were all those Sony battery fires in mobile phones et cetera? We virtually never hear of mobile phone fires these days and that's because instead of them having several cells in series to make a higher voltage battery—you look at your phone—it is one 3.6-volt cell and it uses DC to DC electronic converters to step the voltages up electronically to run the other electronics in your phone rather than having multiple cells. That's why phones are so safe these days. The more cells you have in series, the higher the battery voltage and the greater risk of fire.

The Hon. MARK LATHAM: We're getting a lot of these EVs from China. Are they cobalt batteries?

ARMIN PAUZA: Yes, they are. Even car batteries—the quality control is much higher. They've got very sophisticated battery management systems to monitor the—as I said in my analogy of using a—

The Hon. MARK LATHAM: You've got more faith in the Chinese car batteries than you have in the scooters and the bikes?

ARMIN PAUZA: Yes. I still wouldn't buy one personally but that's because of what I know. It's not an issue while the batteries are new; it's more as they age and get older because they're driving over potholes and they've got vibration. Even with e-scooters and e-bikes, how often do you see that someone buys one and it catches fire straightaway? It happens over time due to cell imbalance because the battery management system can't balance and keep the cells even. Some still start to overcharge and some are undercharged and as soon as one gets to a critical point of overcharge, it catches fire and then spreads through the whole pack. That's purely due to the cutting of corners in quality control and using poor-quality cells in China to make the batteries as cheap as possible so that Australian consumers get sucked in.

Mr EDMOND ATALLA: Mr Pauza, you did a comprehensive submission on the hazardous batteries being used in the market and you've indicated, in one instance, 99 per cent of batteries in e-scooters, I believe you've said, are hazardous batteries. You have indicated there are no regulations—and I think this is a Federal issue because it's associated with importing those types of vehicles—but what regulations would you like to see put in place, if they confirm that these batteries are hazardous? To ban them or put better controls in place? What would you like to see to address this issue?

ARMIN PAUZA: I think the importers would be the first area to clamp down on. All the false claims of people being drawn in with the long warranties because they get confidence that if they've got an issue, they're going to have backup et cetera if the battery fails. People can import cordless power tool batteries and use them in an e-bike, so I don't know how you're going to change that. It's not just e-bike batteries, as such. It's the same cells used in cordless power tool batteries, laptop batteries—they're the same cells used in e-bike batteries. They're just welded together into a different pack shape to fit the bike, but they're the same cells inside. It's only the poor quality of the Chinese cells. There are a lot of good-quality batteries made in China under brand names, for instance, Panasonic and Apple. All of the manufacturers manufacture batteries in China, but under their own quality control. It's only the Chinese battery companies themselves—they're the problem.

Mr EDMOND ATALLA: There's no solution?

ARMIN PAUZA: Because they're so widespread, I think the horse has bolted. I don't know what you can do now. I think it's too late. I don't know what we can do.

Mr EDMOND ATALLA: It's never too late to better control these issues. But thanks, Chair, anyway.

ARMIN PAUZA: Unless we can encourage the public, when there's a fire, to report what make and brand of battery it was and where they brought it from so we can build up a list. Then those companies can be prosecuted for bringing this crap from China.

Mr MATT CROSS: Katharine, I enjoyed reading your submission. I think it's a really interesting topic about recycling and reusing batteries. In your submission you state:

The groundwork needs to be commenced to underpin long term safety and risk management outcomes as the battery reuse, repurposing and recycling ... sectors grow.

With that groundwork, do you think it's a role for government to kick off?

KATHARINE HOLE: Yes, government definitely has a role to play in this space. If you're repurposing an EV battery into an energy storage battery, there are all those issues that were discussed earlier about what does the consumer need to know, battery standards—it's a new place. There's a variety of people doing it out there at the moment with a variety of skill sets. It's definitely something, knowing the risks with lithium batteries, that should be a high priority because it's happening on the ground today. We know from the discussions and fire agencies about people tampering with batteries. If you want people repurposing high-voltage EV batteries into energy storage systems for homes, how does that work? What are the implications for their insurance? What should they know about how all the warranties work? That's an evolving space globally.

Mr MATT CROSS: Generally, you'd say we're at a very early stage around the reusing, repurposing and recycling of batteries? Is that right?

KATHARINE HOLE: Yes, we are at the very early stage—but it does need to happen now. There are battery recalls happening, so industry is trying to step up quickly to make sure that the batteries that are coming through, they can process. But that requires capital and other investment. There's a lot of work to go around safe storage and handling. Again, globally, everyone's in the same position, right, with the rollout with lithium

batteries. The other challenge for Australia is going to be regional: How to manage those batteries in regional and remote areas, particularly around the logistics costs? Recycling is a long part of that chain. When the battery comes out of the system, so to speak, who collects it? Who handles it? How do you get it to the recycler? There's work going on with modular recycling systems to try to reduce the costs for regional areas, but it's going to be a challenge—and it's a challenge globally. We get contacted by South Pacific islands to see if we can help them out as well.

Mr MATT CROSS: It says here that you're working with a range of stakeholders in this area. Are there any stakeholders that are government stakeholders?

KATHARINE HOLE: Yes, absolutely, and New South Wales government stakeholders as well.

Mr MATT CROSS: Just specifically, which agencies, generally?

KATHARINE HOLE: I'm part of the—the EPA's had a group on safe battery storage. We're on SARET, the Fire and Rescue NSW program. They would be the primary ones. The big focus has been getting small batteries out of the waste stream and how to do that.

Mr MATT CROSS: Any Fair Trading, as of yet?

KATHARINE HOLE: Not specifically, but I wouldn't necessarily expect—apart from the re-use and repurposing space, which is much newer than recycling, that engagement may come. I don't see it as an issue that we haven't had a huge discussion with Fair Trading. I think they're on some of those committees anyway. Depending on how big you make that Fair Trading portfolio, right, there is SafeWork and we do a lot of work with the dangerous goods teams as well.

Mr MATT CROSS: You were talking about safe collection of batteries. I know, as a consumer, when you think about cell phones, councils step up and do that. Have you been working with local government at all around potentially them playing a role in collection?

KATHARINE HOLE: Our association's played less of a role because there's been the B-cycle stewardship scheme. When you think about battery collection, it's really different routes depending on the battery usage. Small consumer batteries are a very different collection network and consumer behaviour and drivers. Again, electronics—we do some work with the electronics association, but not all the recyclers do e-waste. Again, as the battery size steps up, it's different commercial arrangements and different collection networks. It might be installers for small energy storage; grid-scale storage again is a different step up; and big electric vehicles, like the passenger vehicles and bigger, is again a different step up in sophistication and much narrower collection networks.

Mr WARREN KIRBY: Katharine, noting that you speak quite a bit about the work that needs to commence, is it fair to assume that there is inadequate capacity in Australia for vehicle recalls for major incidents? For example, Corolla has a recall; there are 20,000 vehicles that need to be recalled. If we're looking at a future where the dominant vehicles in the market are EVs, do we have a capacity to be able to cope with those, both in terms of recall and also end of life cycle?

KATHARINE HOLE: I'm not familiar with the details of the Corolla recall so I'll just talk in general. I'd say that now we can manage the recalls, but in 10 years time, when the volumes have totally changed, you wouldn't have today's capacity. There's investment underway. There has just been an announcement for a large investment in Victoria. But batteries work on a national distribution channel, not State based. How is all that picture going to fit together in terms of infrastructure? How will those reverse logistics work? Yes, there's definitely work to do.

Mr WARREN KIRBY: The follow-up to that was that in the case of motor vehicles, recalls are common. It happens to every brand. Are you aware of a mechanism that's in place for the smaller personal mobility vehicles that we've heard so much about as being problematic? Is there any mechanism that you're aware of to alert consumers that there is a potential risk with the item that they've purchased?

KATHARINE HOLE: I'm not aware of that, but that would again be more—we'd just be dealing with the consequences of that as the recyclers. As to how product owners communicate to customers about their e-bikes, that would be the front end of the discussion.

Mr WARREN KIRBY: Of course. From your end, I wasn't sure whether you were aware, "Hey, there's a recall going on. You need to"—

KATHARINE HOLE: The recyclers might be. Sometimes, particularly if it's a direct, one-on-one commercial arrangement, the companies might go to a recycler. I won't necessarily hear about that because it might be commercial in confidence, the terms of that recall. Quite often that happens: I'll hear something very

up-front but won't hear the outcome until it's a publicly announced outcome. That doesn't mean people aren't working on it behind the scenes.

The CHAIR: If there are no further questions, I thank you both for appearing before the Committee today. It's invaluable for us to get that information. We truly appreciate your contribution. You'll each be provided with a copy of the transcript of today's proceedings for any corrections that you may have. The Committee staff will also email any questions taken on notice from today and any supplementary questions from the Committee. We kindly ask that you return these answers within 14 days of receiving them. Thank you very much. Have a good rest of the day.

(The witnesses withdrew.)

Mr STUART CHARITY, Chief Executive Officer, Australian Automotive Aftermarket Association, affirmed and examined

Mr BRADLEY PIDGEON, Acting State Secretary, Australian Manufacturing Workers' Union, sworn and examined

Mr DAVID RUSSELL, Senior Policy Manager, Australian Automotive Dealer Association, before the Committee via videoconference, affirmed and examined

The CHAIR: I welcome our next witnesses. Thank you so much to each and every one of you for your time. Please note the Committee staff will be taking photos and videos during the hearing. The photos and videos will be used for social media purposes on the New South Wales Legislative Assembly's social media pages. Please inform the Committee staff if you object to having photos and videos taken. Can you please confirm that you have been issued with the Committee's terms of reference and information about the standing orders that relate to the examination of witnesses?

STUART CHARITY: Yes.

BRADLEY PIDGEON: I can confirm that.

The CHAIR: Can you confirm, please, Mr Russell?

DAVID RUSSELL: We are getting a bit of a loop of your audio. You've been repeated as it comes through, so it's a bit hard to understand what's going on.

The CHAIR: Apologies, not a problem. Do you have any questions about this information?

STUART CHARITY: No.

BRADLEY PIDGEON: No.

DAVID RUSSELL: No.

The CHAIR: Would anyone like to make a very short statement, or would you like to go straight into questions?

BRADLEY PIDGEON: Yes, thank you, Chairman. I'd just like to say that I would like to make reference to paragraph (c) of the terms of reference around the skills and the requirement of skills for this particular subject.

The CHAIR: Sure, no problem.

STUART CHARITY: I might just make a couple of really brief comments. Our association represents the end-to-end supply chain of the automotive aftermarket, so that's something that happens on a car after it's manufactured and sold. Obviously, high-voltage vehicles aren't new to our industry. We've had hybrid vehicles for over 20 years, and there are around 430,000 vehicles on Australian roads at the moment that are either battery, electric or hybrid vehicles. Our industry is well skilled in servicing and repairing those. The challenge we have is obviously there's a focus from the Government on really stimulating the uptake of particularly battery electric vehicles with the lithium ion technology. Consumer demand is swinging that way as well, so we're going to see a massive uptake in that technology over the coming years.

We've just done a recent survey and 33 per cent of Australian workshops have done some sort of training, mainly in the basic safety around working with high-voltage vehicles—so de-powering and reinitialising—and another 40 per cent plan to do so in the next 36 months. Just in New South Wales, though, we've got over

7,000 independent workshops employing 16,500 people, so we've got a massive job, collectively, to reskill or upskill our industry on working with this technology. One of the challenges that we're having is just the lack of training infrastructure and availability of training providers, particularly in rural and regional areas, so we certainly need to look at that. Another risk is obviously around first responders, and they need access to that training. Often they're in a time-critical situation. There's also a requirement to educate the industry.

There are standards in place around workshop design and PPE for working on high-voltage vehicles, but we do need to focus around educating the industry on risk-mitigation strategies to try to manage and reduce risks around chemical leaks and fires. The third thing, which I think was touched on before, is we really need the recycling infrastructure to be able to handle these batteries at the end of life, and not only just that—the transportation and safe recycling of these is a real challenge for the entire industry. Certainly, a lot of the focus of Government has been on the point of sale and encouraging the sale of these vehicles, but we really support and thank this Committee for focusing on some of the downstream issues that this transition is going to make, so thank you.

The CHAIR: I might ask the first question and then hand over to Roy, because I know that he has a number of inquiries, particularly in rural and regional New South Wales. But before I do, I inform the witnesses that they may wish to take a question on notice and provide the Committee with an answer in writing if they don't have adequate information. I'll kick off with a question to Mr Pidgeon. What is your view, and what are you hearing from industry and your membership, about the primary risks of handling and maintaining electric and hybrid vehicle batteries, particularly around automotive industry workers and any other associated industry workers?

BRADLEY PIDGEON: Our membership at the AMWU—we look after automotive technicians, as such, as a part of our coverage. Obviously, we're going through a transition away from diesel buses and internal combustion engines for transport assets. Going to electric vehicles is part of the Government's policy moving forward in the future. Some of the problems we're facing are that we've identified that we need up to 6,000 skilled technicians to either deal with the current capacity that's forecast or replace the existing ageing workforce as well. That is problematic for us. We've identified that for over the past three years. I've spoken about it on numerous occasions in different settings.

But we do need a commitment around safety. Safety is paramount. We've seen the application of electric vehicles around safety is held in the highest regard around the world. We look at how they're applied in motorsport. Formula 1 have got hybrid vehicles—very -high-voltage vehicles to which those electrical standards for those track officials that have to rescue drivers or remove cars are somewhat quite stringent. But our members have identified that they just don't have the access to get the skills and training, especially in regional areas—talking about areas like the Hunter, where I'm from, or even where I grew up, in places like Moree. To get those skills to get people enrolled in suitable, adequate training is just near non-existent. There is quite a shortfall in relation to the skills that are required- now, but more importantly in the future.

Mr ROY BUTLER: I'll say something that I said to another group of witnesses earlier: I think that you guys are aware of some of the risks. When I read through the submissions, you're taking action and making plans to actually make sure that people are trained and that they're safe. I think that would happen regardless of the work of this Committee, but we'll try to help push that along. I'm wondering whether one thing is a bit of blind spot, and this is probably to Mr Charity. We've got a proliferation of relatively high-capacity lithium batteries being used as second battery systems in caravans and cars, some as high as 340 amp-hours in a single battery. We're focusing here on EV battery systems, and that's going to be a problem in my area in regional New South Wales, just because of the distances and the fact that we've got a lot of people to train. But I'm also concerned about the bigger lithium batteries that are second battery systems. Is that a blind spot for us in this inquiry, in terms of looking at the safety around lithium batteries and the disposal and recycling of lithium batteries? Is that something that you think we should be looking at?

STUART CHARITY: Definitely. Our industry is predominantly around servicing and maintaining passenger and light commercial vehicles but, as you say, there are secondary battery systems on RVs and other vehicles. It's the same technology so the same issues apply, although it might not be as evident when a technician is actually working on those vehicles that there are lithium batteries there. So I think it could be a blind spot. It certainly should be a focus from a training and education point of view.

Mr ROY BUTLER: I directed that question to you because I've got you listed as Australian Automotive Aftermarket Association but I can see that's obviously your bailiwick, looking at accessories that are going onto vehicles post-sale.

STUART CHARITY: That's right, yes. But it doesn't extend to caravans, trailers and other vehicles that are being towed. It's just the base vehicle and all the accessories.

Mr ROY BUTLER: Maybe we can include that at some point, Mr Chair, those other batteries that are out there.

The CHAIR: Sure. The terms of reference are broadened for that purpose, so certainly.

The Hon. MARK LATHAM: To both organisations, what is the solution here for training? The Motor Traders' Association has said that TAFE is not doing any training for mechanics or first responders about electrical vehicles. The MTA is setting up a centre down there in the Sutherland shire and taking on a responsibility as an industry association but, beyond that, there needs to be a much bigger effort. Where do you think it should come from? How, particularly with regard to funding?

STUART CHARITY: There's something like 180 automotive RTOs nationwide but many of them aren't offering EV training, despite the fact there is significant demand. The demand is outstripping supply. Part of that is to do with the availability of trainers and, for some time, also, the availability of vehicles. We were actually having difficulties with supply chains getting vehicles into the country. But there needs to be a coordinated effort. I think there needs to be government funding. This training can't be done online. You actually have to work with the vehicles. You have to have a couple of different vehicles, because the de-powering and other systems in the vehicles are different by brand. We need to be able to offer training that's accessible to rural and regional industry as well. The need is urgent. You have to do the training before the vehicles proliferate, otherwise we're playing catch-up and that's when things can go wrong. If people start trying to work on vehicles that they haven't been trained to adequately service, then there are significant occupational health and safety risks.

The Hon. MARK LATHAM: Brad, how does the union see it?

BRADLEY PIDGEON: The position in the AMWU—we've fought long and hard for the reinstatement at TAFE over many years. This is one example of an industry where we haven't got the framework in place to deal with a transition such as electrical vehicles and training for those industries. What we need to do is to look at what we've done in Victoria. The AMWU in Victoria and the State Government have joint funded in getting a program through the Bendigo Kangan Institute. They offer some of the accreditations that are required to perform works on these vehicles. I'll read out to the Committee what those are. I'm happy to forward this through too at a later stage—de-powering and reinitialising of vehicles, which Stuart mentioned; and inspecting and maintaining battery electrical vehicles. We also have diagnostics and repair of high-voltage rechargeable energy storage systems; and system instrumentation in safety interlocks in battery vehicles. This pilot project that's been implemented through Victoria has had some success, to the point where it's actually going to be an approved accreditation through the Victorian Registration and Qualifications Authority, which is the VRQA. So I think what we need is a firm commitment from this Government to, essentially, try to combat the issues that this industry is facing.

The Hon. MARK LATHAM: In your representations to the TAFE Minister here, what's been the response?

BRADLEY PIDGEON: In terms of talking to the TAFE Minister, this has been one of several subjects that I've had discussions about for transition. Obviously we're aiming towards a net zero economy and part of that is electrification of vehicles. We've had some discussions with the TAFE Minister, but we want to see more than just discussions transpire. We want to see a well-funded, well-sustained TAFE framework that delivers outcomes for the communities, not just in metropolitan areas but also regional New South Wales as well.

The Hon. MARK LATHAM: Has the manufacturing union put forward a proposal for a joint funded training institute like you've got in Victoria?

BRADLEY PIDGEON: Yes, we're currently working on one now at the moment, Mr Latham, to try to deal with this issue. This is one of several issues that, unfortunately, the AMWU in New South Wales has to deal with at the moment, especially around transition. This is a very important one for society as well because, by and large, we all use vehicles or get transport in vehicles in our day-to-day lives.

Mr MATT CROSS: I'll ask some general questions. Stuart, in your submission you outlined the risks to emergency service workers, particularly that high-voltage batteries is where the risk is at. Are there any other risks from electrical vehicles other than the high voltage?

STUART CHARITY: Yes, there are the fire risks, particularly for the fire brigade. I know in Europe where the uptake of EVs is more advanced in some countries, the emergency services will have trucks with large tanks of water and a crane to actually lower the vehicle in, because it's almost impossible with thermal runaway to put a vehicle out once it's alight. They're having to deal with that on the side of the road and so on. Certainly, there are risks with electrocution if they're unable to safely de-power, and also the fire risks.

Mr MATT CROSS: Essentially, Fire and Rescue or the RFS will need to modernise equipment in future years when electrical vehicles grow in number. Would that be correct?

STUART CHARITY: Absolutely. Certainly unless the battery technology changes significantly—and I think the previous witnesses talked about the fact that the risk of fire increases as the age of vehicles increase. Most battery electrical vehicles on Australian roads are under five years, so we're not seeing the worse of it yet. It's not just a skills issue for RFS; it would be an equipment issue as well. They're going to have to be skilled in being able to put these vehicles out.

Mr MATT CROSS: I have a question to both Stuart and Bradley around personal protective equipment, particularly for TAFE but also for emergency service personnel. That's something that the Government will have to clearly invest in as well, correct?

BRADLEY PIDGEON: Yes, that's correct. We would also call for a code of practice to be developed as well to ensure that that protective equipment has a certain Australian standard applied to it and also that any employer that chooses to engage in these activities understands what level of PPE is required to perform the task safely.

Mr MATT CROSS: Would it be a government-led effort to get that code or would it be other bodies?

BRADLEY PIDGEON: I think it would have to be a tripartite approach.

STUART CHARITY: There is an Australian standard that has just been updated around workshop design and layout, which includes PPE. There is a base level standard in place. That doesn't apply, though, to emergency responders that are outside a traditional workshop environment. I think there'd have to be some safety considerations around PPE for that. The industry, through Standards Australia, is proactively working on standards. They will be renewed as required, because the technology is changing quite quickly as well.

Mr MATT CROSS: To give some perspective because I know that currently with combustible engines you would have PPE for that and you also would have infrastructure in place for dealing with fires with combustible engines. Essentially, you'd be transitioning a lot of the infrastructure or the PPE. Would that be a fair comment, too?

STUART CHARITY: Yes, but lithium ion batteries present a whole different risk again. We've got a large automotive conference coming up in three weeks, and we're bringing an international expert out on workshop design and being able to put out or prevent fires operating in workshops. There are things like vehicle covers that you can put on vehicles that will contain a fire so you don't get the thermal runaway and your workshop doesn't burn down overnight. I don't know how that will translate to residential settings and so on. There are also sensors that can detect gases that are being released from an EV if it's starting to overheat and is at risk of fire. There are best practices internationally, but there are no standards around fire prevention and risk mitigation in workshops. So that's something we have to deal with and use best practice internationally.

Mr WARREN KIRBY: I note that in the submission from the Aftermarket association you talk about standard training that needs to be undertaken before you can work with electrical vehicles, including AURETH101 et cetera. Who is providing that training?

STUART CHARITY: That's provided through TAFE and other registered training organisations. It's also provided by the car manufacturers for their dealership networks and other component suppliers that are involved in electrical systems like Bosch and so on. There is a broad range of organisations delivering that training. I will say, though, that AURETH101 is just a basic safety training; it's not competency about working around EVs. It's simply being able to de-power them safely, work on them and then reinitialise them and calibrate any systems on the vehicle. It's base-level training. It's only a one-day course. When I quoted those figures at the start—around 33 per cent of workshops having at least one technician trained in that—that's the base level. The training in full EV competency around diagnosing faults and working with the vehicles that Brad went through is very low. Certainly in the automotive aftermarket at the moment, there are really low levels of training.

Mr WARREN KIRBY: Do I take it from that you would advocate for higher levels of competency?

STUART CHARITY: Absolutely. There's a role for government to play in increasing our training capacity but also in helping offset the cost of training. It's not just the cost of delivering the course. A lot of mechanical workshops are small, family-owned businesses that have to shut down the business or lose a technician for a few days. So there's a cost to the business in that. As I said at the outset, we've got a huge job in upskilling all those technicians around Australia to work on this technology. So I think government absolutely has to play a role. You can't just stimulate the uptake and sale of electrical vehicles. You have to look at the downstream impact, and skills from a service and repair point of view are critical.

Mr WARREN KIRBY: That's what we're attempting to do. David did you want to jump in on that? I know you have your hand up.

DAVID RUSSELL: Yes. I apologise I haven't been able to hear what has been going on very well, but I'll make some comments about training from a dealer's perspective. Dealers, of course, have their people trained through the factory by the manufacturer. So they have direct training on the product, which does put them at a great advantage. Also, dealers are, in general, training their staff constantly on the product. They are trained through their apprenticeship. They are trained through trainers provided on the job, and then they're also trained, and many of them have been qualified, to access technical information through the requirements of the Motor Vehicle Service and Repair Information Sharing Scheme. Whilst I agree with Stuart that more training will be required as the market develops, dealers have provided that training and it should be recognised that is being done. What I'm trying to say is they shouldn't have to train again. The best people to work on vehicles are qualified motor mechanics who have been trained.

Mr WARREN KIRBY: I appreciate that. Another question is quite specifically for Stuart. We have heard some submissions from OEM dealers about their concern with grey imports. There are ways that vehicles can be recalled or tracked by VIN numbers and coming through the official channels of importation of vehicles, but they've noted that there is a significant grey import market in Australia. That is something that they're concerned about, particularly when it comes to electrical vehicles. Is that something that you're aware of and that you are working towards mitigating or dealing with?

STUART CHARITY: Certainly there are vehicles that are brought in under our RAWS scheme. They're individual vehicles and so on. I'm not aware that vehicles are being brought in in any great numbers in Australia. There is an opportunity if a vehicle manufacturer decides not to bring in a model or vehicle, then there's a set period of time where I think importers can bring in small numbers. We're certainly nowhere near the sort of level of New Zealand where something like 40 per cent of vehicles are grey imports. The number would be pretty low here. But it is a debate that is festering over time. We don't have a view one way or the other on grey imports. But I think there is a consideration around bringing vehicles in that aren't backed by the manufacturer. David probably has more to say on this one.

DAVID RUSSELL: Yes, AADA does have a view, and that is that under the Specialist and Enthusiast Vehicles Scheme, which does allow some importation as Stuart described, there are quite a lot of electrical vehicles in particular coming in. We would not want to see that scheme advanced or go any further than it currently has. It does become dangerous because these vehicles become unsupported in the market—that is, they're not dealer OEM original equipment and original vehicles. They're coming from another country. They're second-hand. Their origins can sometimes be questionable, and the Australian manufacturer doesn't necessarily support that model. There are quite a lot of these coming in. You can find them very readily on the internet as second-hand vehicles. We should take care with this. We shouldn't be encouraging a further increase in that market.

Mr WARREN KIRBY: Finally for Bradley, from a union perspective, one of the things that keeps emerging as an area of concern is the number of small operators who, by choice or not their own choice, have to go into the repair of electrical vehicles, especially in rural and regional areas. Is there adequate enough union protection for people who are working in small operations, and is the union doing anything in terms of collective training to assist some of the workers who are in smaller workshops that don't have access to the resources of large dealer networks or, indeed, large independent dealers?

BRADLEY PIDGEON: There is some considerable work being done within our vehicle division within our union. Whilst predominantly we were a union of making things and manufacturing stuff, safety is also paramount in anything that we do as a union, irrespective of what industry. There have been some efforts to date to inform workers about what their safety rights are under the Work Health and Safety Act but also targeted, specific information relating to their industry. Examples could be diesel fume, it could be stored energy devices and isolations. It could be handling of chemicals and what to do if there are fires in the workplace. So we are doing a tailored solution to try to alleviate the concerns around safety within the industry. It's not just workshops that are our members; it's roadside technicians such as the NRMA or Club Assist, whose environments are quite different. We are doing a considerable amount of work to try to inform our members about safety and make sure the workplaces are safe, along with informing employers about what their obligations are to ensure safe workplaces.

Mr ROY BUTLER: I have a follow-up question, probably for Mr Russell. I was interested when you were talking about the grey market, and I'm thinking about things like the JDM or Japanese domestic market. They can't pass their Shaken test. They've got low kilometres. They're a relatively new vehicle, probably built to the same standard. I was thinking, wouldn't it be better to identify the markets that we're concerned about vehicles coming from—certain markets—as opposed to saying we want to restrict it or stop it altogether? The other thing

is that very soon, or maybe even now, we're going to hit the 15-year import test for some of these vehicles, which means that regardless of what you want to do you, you're going to have 15-year-old vehicles that have a much easier pathway into the country and into registration.

I don't know if you want to comment on that. But certainly when I look at the Japanese domestic market cars that have basically just become too expensive to register in Japan, why wouldn't we want to tap into that if we want more people driving EVs? There's been a pathway, I suppose, for a very long time for vehicles to come in from Japan and be registered once the seatbelts and tyres have been changed over to Australian standard stuff. I'm interested in your comments on that please.

DAVID RUSSELL: Those vehicles would be available up to the 15-year mark as long as they are not being sold by the manufacturer here in Australia as an original vehicle. The 15-year mark—that's a question, isn't it? What is the condition of the vehicle coming from overseas—the second hand over the age of 15—going to be like? And how can you tell? Look, I would be concerned about some of those vehicles.

Mr ROY BUTLER: It's a blind spot for us at the moment. Because out of the US, for example, a 15-year-old vehicle can come in and be left-hand drive—it doesn't have to be converted. I imagine, when I look at the 15-year-old-plus vehicles coming from any country, maybe we need to have consideration for EVs or for vehicles with significant hybrid batteries or whatever.

DAVID RUSSELL: Perhaps we should separate them from some other vehicles and say, "Well, look, these ones we need to pay special attention to. Is there some kind of report that can be provided that says that they're actually in a sound condition and suitable for the Australian market?" But the long-term problem is that they do become orphans. Because the Australian manufacturer cannot support them. They do not have—they may be designed in the same place and they may be similar, but they're not the same.

The CHAIR: There being no further questions, I thank you all for appearing before the Committee today. I appreciate your invaluable contribution. You'll each be provided with a copy of the transcript of today's proceedings for any corrections that you may have. The Committee staff will also email any questions taken on notice from today and any supplementary questions from the Committee that any members may have. We kindly ask that you return these answers within 14 days of receiving the questions. Enjoy the rest of your day.

(The witnesses withdrew.)

(Short adjournment)

Professor VINAYAK DIXIT, Director Transnational Ventures, University Office of Global Affairs, University of New South Wales, sworn and examined

The CHAIR: I welcome our next witness. Thank you for appearing, Professor. Please note that the Committee staff will be taking photos and videos during the hearing. The photos and videos will be used for social media purposes on the New South Wales Legislative Assembly's social media pages. Please inform the Committee staff if you object to having photos and video taken. Can you please confirm that you have been issued with the Committee's terms of reference and information about the standing orders that relate to the examination of witnesses?

VINAYAK DIXIT: Yes, thank you.

The CHAIR: Do you have any questions about this information?

VINAYAK DIXIT: No, thank you

The CHAIR: This is a time where you can make a short statement, but my first question is probably asking you about what you're going to say in the short statement anyway. With that, if you're happy, we'll now move to the questions from the Committee.

VINAYAK DIXIT: Yes.

The CHAIR: Before we begin the questions, I inform you that you may wish to take questions on notice and provide the Committee with an answer in writing if you so need to. On that note, can you explain to the Committee your main research areas that relate to this inquiry?

VINAYAK DIXIT: My research area is transport. My name is Vinayak Dixit. I'm a professor of transport engineering and transport systems. I have been doing research in the area of electric vehicles for the last five, six years and my fundamental expertise is understanding behaviour under risk and uncertainty and how that

translates to choices as well as then how do choices influence systems in terms of either congestion or impact on electricity networks et cetera.

The Hon. MARK LATHAM: What's the main risk you've identified with these EV batteries, both car and e-bikes and e-scooters?

VINAYAK DIXIT: The battery technologies on each of these vehicle types are very, very different. The main risk—I've prepared a short note, which I will be making a submission as well to the Committee. There are three main risks. One is around overcharge and the fire associated to overcharging—overheating and cell crushing. The other risk, which is more socio-technological, is the fact that there is a gap in perception versus the objectivity of the risk. So the perceptions associated to the likelihood of fires associated with certain technologies of batteries versus what they likely are and the consequences are quite different. There's a need, perhaps, for education and awareness-building around not only how people see the risk but also how can they manage that risk.

The Hon. MARK LATHAM: We need more than education. You can be educated about everything, but if you're on the tenth floor of an apartment block and there's a fire below because of these e-batteries, you've got a major problem. Don't we need clearer safety regulation and, beyond that, with vehicles, a concerted training program for mechanics and first responders?

VINAYAK DIXIT: Yes, absolutely. That was going to be the second point I had. To fill that gap, you do need safety and warranty protocols—the protocols associated to, in the event of fires, how do you manage the fires, how do you respond to those fires, as well as maintenance protocols. These batteries have significantly high voltage and you need to train. The current workforce have been trained, particularly in the bus industry, around the maintenance and repairs—are trained for diesel vehicles and diesel buses. We do need training around the maintenance for these new vehicle types. A lot of them are being supported by the vehicle manufacturers, but there needs to be more that needs to be done.

The Hon. MARK LATHAM: I think it'd be helpful too for the witness and the Committee for these submissions to be circulated beforehand so we can ask detailed—

VINAYAK DIXIT: I have not made a submission.

The Hon. MARK LATHAM: You said you were about to. It's helpful to the Committee if we've got it prior to the inquiry to inform our questions.

VINAYAK DIXIT: Apologies.

Mr ROY BUTLER: Professor Dixit, the Committee has heard plenty of evidence in regard to road-registered battery vehicles—that they're actually quite low risk in terms of the number of incidents we see. Alternatively, we have heard that personal mobility devices, particularly those with lithium cobalt batteries, seem to be higher risk. Can you share what your research has revealed in regard to those devices?

VINAYAK DIXIT: The thermal runaway on different types of batteries is different and needs to be studied, particularly the ones—based on the review of literature, we have found that the nickel manganese cobalt batteries, the NMC batteries, have a higher thermal runaway than the lithium ferro phosphorous ones. The main difference between road-registered electric vehicles versus, say, electric cycle or electric scooter is the way the batteries are packaged as well and how much they are subjected to climate and environmental factors. There are a lot more stringent protocols that go into the vehicles because they have warranty requirements and insurance requirements, which does not translate to these personal micromobility vehicles. We do need to evaluate and be more—I hate to use the word, but perhaps be more prescriptive around the type of technology being used and being evaluated before they go onto those personal mobility vehicles.

Mr ROY BUTLER: You're suggesting being more prescriptive. That would pertain to what comes into the country, what's available for sale, all that sort of thing?

VINAYAK DIXIT: And evaluation, yes.

Mr ROY BUTLER: Maybe this is something you can't answer, but would it be as effective instead to provide advice for any lithium cobalt powered personal mobility device in regard to mitigating risk for charging and that sort of thing? Is it one or the other or is it both of those things that we need to do?

VINAYAK DIXIT: The way the lithium cobalt battery is used, say, in an electric cycle would be very different than how it would be used in an electric scooter and how it is charged and discharged and how it is exposed to the environment. The way we prescribe its use has to be through that context, because the risk would be very different. I don't know if I might have answered that question.

Mr ROY BUTLER: I think your answer is relevant. I'm just not sure if it is being prescriptive about what can come into the country and what can be sold or if it is providing a lot more guidance on how to charge and how to ensure nothing goes wrong, or is it both?

VINAYAK DIXIT: It's both, sir. It will have to be on both fronts.

The CHAIR: Are there any other questions? On that note, Professor, I thank you for appearing before the Committee today. You will be provided with a copy of the transcript of today's proceedings for corrections. The Committee staff will also email any questions taken on notice from today and any supplementary questions from the Committee. We kindly ask that you return these answers within 14 days of receiving the questions, and we look forward to seeing your submission once it is complete. Thank you, and have a great rest of the day.

VINAYAK DIXIT: Thank you so much. It's a privilege. Apologies for not circulating this before.

(The witness withdrew.)

Mr PETER McLEAN, Chief Executive Officer, Bicycle NSW, sworn and examined

Mr PETER BOURKE, General Manager, Bicycle Industries Australia, sworn and examined

Ms SAMANTHA BRANDON, Corporate Counsel, Zoomo Pty Ltd, before the Committee via video conference, affirmed and examined

Mr OLIVER DeGEEST, General Counsel, Zoomo Pty Ltd, before the Committee via video conference, affirmed and examined

The CHAIR: Welcome to the four of you. As I just stated before, we really appreciate you taking the time to give us your valuable contributions to this hearing, which is something so very important. Please note that the Committee staff will be taking photos and videos during this hearing. The photos and videos will be used for social media purposes on the New South Wales Legislative Assembly's social media pages. Please inform the Committee staff if you object to having any photos or videos taken. Will you please confirm that you have been issued with the Committee's terms of reference and information about the standing orders that relate to the examination of witnesses?

PETER McLEAN: Yes.

PETER BOURKE: Yes.

SAMANTHA BRANDON: Yes.

The CHAIR: Do you have any questions about this information?

PETER BOURKE: No.

PETER McLEAN: No.

The CHAIR: Would anyone like to make a short opening statement before we begin, or we can head straight into questions?

PETER BOURKE: If that's the case, I will do a very quick summary from my point of view. Thank you very much for the opportunity to present today. The global e-bike market and light electrical vehicle market have grown substantially, and it had the most rapid uptake of any alternative-fuelled vehicle in the history of motorisation. We know the benefits of e-bikes, the health, the economic—both to the individual and the community—the environmental and, of course, reduced congestion. We also know the economic return for every kilometre travelled, according to the Australian guidelines, is more than \$2 for every kilometre ridden. So the benefits are well known, but we are here today because of some of the challenges. From a bicycle industry point of view, the most obvious challenge for us is the fragmentation of legislation across the country, which has opened the door for inappropriate products on the market, which is certainly contributing to leading us to being here today to have this conversation. I look forward to discussing that further.

PETER McLEAN: Just quickly, from Peter McLean at Bicycle NSW. We prepared a short submission; I won't outline the contents of that. Certainly, we believe the massive benefits of these e-bike and e-mobility devices, when they are used correctly and when we have the right regulatory circumstances in place—some of these sit at a State level but many of them sit at a Federal level—that they can be very safe, reliable and efficient devices. But we also want to try and see some extended producer responsibility schemes incorporated in the current Federal legislation, which is the Product Stewardship Act and, equally, similar to what we have seen with

EVs in recent years, a move towards a universal charging plug and system which will make them not only more convenient and effective but make them much safer as well.

The CHAIR: Ms Brandon or Mr DeGeest, would you like to make a brief statement?

OLIVER DeGEEST: Yes. Just in short, [audio malfunction] the supplier within New South Wales and across Australia. We have been in business since 2017 and support [audio malfunction] have strong industry-driven and expertise-driven suggestions on primarily safety but also regulation as it relates to Australia. We appreciate the opportunity to be a part of this discussion and on behalf of Zoomo are interested in making sure that companies like ours have a voice with everyone here to make sure that there's the best result for industry and for consumers.

The CHAIR: I might kick off with the first question to either Ms Brandon or Mr DeGeest. Before I do, I inform the witnesses that they may wish to take a question on notice and provide the Committee with an answer in writing if they do not have the adequate information to hand. Ultimately, what measures do you feel should be adopted for the safe storage of e-bikes and batteries in an indoor environment?

OLIVER DeGEEST: Thank you, Mr Warren, for the opportunity to respond. We would be pleased to submit a more fulsome answer by taking the question on notice. But, in summary, I think we believe there are a few different areas that relate to both the safe storage of batteries—which would apply equally to bikes, which is another product that we offer—the first of which is establishing tougher and more equalised importation controls. The second would be developing educational resources for the safe handling of such batteries. While there is sufficient education being submitted to consumers and customers, we are not sure often if that's equalised across everyone that uses and stores batteries. Lastly, to Mr McLean and Mr Bourke's earlier suggestions, having a codified regulatory framework for lithium ion batteries that retailers and distributors must follow. Again, I'm happy to provide a more fulsome answer on the question, but thank you very much.

Mr MATT CROSS: Peter, just on something you said in your opening remarks about fragmentation around different regulatory regimes in Australia, what specific government agencies does that relate to? Is it Transport or consumer or Fair Trading?

PETER BOURKE: We currently have a situation where we have a different definition of an e-bike for import to a different definition of an e-bike for sale to a different definition of an e-bike to use. We have nine jurisdictions across the country. It goes further if you differentiate between the Federal Department of Transport and the ACCC, but we have seven different definitions of an e-bike across those nine jurisdictions. What that means is, technically, now in New South Wales it's actually illegal to sell a bike at 500 watts as road compliant. Even though it's legal to use it, it's technically illegal to sell it as road compliant.

What we've got is a very grey, fragmented framework that makes it hard for customs and makes it hard for the police to actually know what the rules are and so therefore we've got compliance as a significant issue. We did, in 2019, have a consistent framework across the country. Every single jurisdiction was the same. Along the way, individuals in their wisdom have decided that they needed to make modifications to that and we have now been placed in the situation where there is lack of clarity, which has opened up the door for less reputable brands or less reputable products to be on the market, which is very clearly, from all the fire information and from all the reports, the concern. It's a lower, poorer quality product which we have opened the door to, which is a problem.

Mr MATT CROSS: Is there a jurisdiction in Australia that you would say is the leading jurisdiction when it comes to proper regulation or are there all different apples and oranges?

PETER BOURKE: There are different apples and oranges. Each one has its positives. I met with Western Australia last week and they haven't changed—so whether you think the original is the appropriate. I believe that in New South Wales the 500 watts has quite a good framework. But the fact that we have got such differences across the sector actually means that there is no consistency—it doesn't matter who is good and who is bad because you are different—and the fact we have moved away from the Australian standard. No jurisdiction actually relates to the Australian standard anymore.

Mr MATT CROSS: Would you say, therefore, there is a black market operating in Australia or just a lack of regulation?

PETER BOURKE: It's more a lack of regulation and a lack of understanding of what is actually compliant. Previously, prior to 2021, there was a permit required to import an e-bike into Australia. The Federal Government in their wisdom withdrew that requirement when they changed the definition of an e-bike and introduced the ROVER portal, which meant there is no requirement. You may wish to apply for an advisory notice that says you don't need a permit, which no-one does. There is actually no administrative framework to bring e-bikes into the country anymore.

Mr MATT CROSS: What jurisdiction would you say has the best definition of an e-bike?

PETER BOURKE: To be honest, I would say each definition has strayed slightly from where it should be. There is a new standard currently being developed. It was released to the States last Monday, a week ago. If they all returned to that, that would be ideal.

The Hon. MARK LATHAM: On the second page of your submission, Mr McLean, you cited how there are poorly manufactured products which, in some cases, are imported illegally and sold online or in retail stores. What's the nature of this illegal importation trade?

PETER McLEAN: What we have seen is certainly a large component of highly powered product, either from a voltage or a wattage point of view, which is over the regulated number of watts or volts. We see that fairly consistently. Equally, there is quite a strong level of very poorly manufactured and poorly tested product that is coming into the country through multiple avenues and being sold very regularly. We do see some very reputable product in the country as well coming out of Europe and Japan, for example, and America. And this has got tremendous levels of R&D behind it and tremendous levels of testing and compliance behind it. They are very safe products that, quite frankly, pose very little and, in some instances, no risk at all.

The Hon. MARK LATHAM: Is it illegal to import into Australia an overpowered e-bike?

PETER McLEAN: In some circumstances it would be. In others there are the grey areas and the loopholes which allow that to be the case quite commonly.

The Hon. MARK LATHAM: How do they escape the detection of customs? How do people get them into the country?

PETER McLEAN: Through multiple avenues. Often they can be brought in as non-complete product and reassembled in the country. But, no doubt, there would be multiple means.

The Hon. MARK LATHAM: What proportion of these e-bikes are manufactured in Australia?

PETER McLEAN: None, I believe.

The Hon. MARK LATHAM: None? Like cars, we don't do any.

PETER BOURKE: May I just add to that last comment? So you are aware, there is a 5 per cent import tariff on bicycles because there is one manufacturer of e-bikes in Melbourne. They make several e-bikes. Their average wattage is about 5,000 watts. A road legal e-bike in Australia is 250 watts, but in 2018 the Federal Government reintroduced the 5 per cent import tariff on e-bikes based on their business model to protect Australian jobs. I think they have got a single digit in staff.

The Hon. MARK LATHAM: So it's a typical policy failure for tariffs in Australia. What's the tariff?

PETER BOURKE: It's 5 per cent.

The Hon. MARK LATHAM: And it's protecting, what, seven jobs or something?

PETER BOURKE: I don't know the actual number, but I believe it's less than double figures.

The Hon. MARK LATHAM: Tariff policy has always done well. There you go.

PETER BOURKE: Yes, it will be part of our tariff submission for the nuisance tariff, which is due on 1 April.

The Hon. MARK LATHAM: Good on you.

The CHAIR: Further to Mr Latham's question and your answer, Mr McLean, you said "in some circumstances". What would some of those circumstances be—not to put you on the spot if you don't know?

PETER McLEAN: That they are unsafe or that they are being reassembled?

The CHAIR: Unsafe.

PETER McLEAN: Certainly, being unsafe is when they are well and truly overpowered. Some of these e-mobility devices, whether they are e-bikes or e-scooters, are extremely powerful. The battery capability and functionality of them is in some cases poor quality or even extremely poor quality. They do pose a very much more enhanced fire risk, in my opinion. That's why we've requested far better capture of consistent State- and national-level data, so that we can actually understand which of these batteries is actually creating a fire risk. We simply know that the R&D and the quality assurance processes that are put in place in the manufacture are very different from Europe to other places.

The CHAIR: Do you know if there are any laws, rules, guidelines or regulations that govern the speed of these things? I see some of them myself and they move like lightening.

PETER McLEAN: Currently the legislation in New South Wales is that they have to be pedal assist and the assist cuts out at 25 kilometres per hour. My own e-bike assists me up a hill and when I'm going downhill or going over 25 kilometres per hour it stops and you have to be under your own pedal power, so no electric assistance at that point. There are some other little subtleties in there as well, but that's the fundamental legality behind it.

The CHAIR: Are they easily tampered with, do you know? Can someone lift the governor on it or something like that?

PETER McLEAN: Yes, there is plenty of information out there online on YouTube or wherever you want to go.

Mr ROY BUTLER: What I heard earlier is talking about—and perhaps it's my word—harmonising legislative framework across Australia and creating a standard definition for e-bikes. I read on further in your submission—and this is in regards to Bicycle Industries Australia—that you talk about the Federal legislation which sets some critical elements on regulation around speed and the maximum continuous rated power. I suppose I'm thinking about disruptors that have come along in the automotive industry, like the Can-Am Spyder and things like that, which is not a motorcycle and not a car.

In terms of being ready for the future of alternate EVs or LEVs or personal mobility devices that might not be a bicycle as such, are we better off setting limitations like that legislation does, in terms of the maximum continuous rated power and the maximum speed, rather than trying to define an e-bike and saying, "If an unregistered electric-assisted or electric-powered vehicle is going to be used, here are the limitations on what it can do"? Otherwise, someone comes along with a four-wheel pedal assist bicycle and says, "It's not a bicycle. It's not an EV. It's my own thing." Are we better off being more broad and creating something to capture it all, rather than being specific about e-bikes?

PETER BOURKE: I certainly take on board everything you've said. It's interesting. The definition that we are talking about is actually a "cycle", and it does take on anything with two, three, four, five, six, seven, eight wheels.

Mr ROY BUTLER: Pedals.

PETER BOURKE: Yes, it is but it would have to be under human power, it has to have a maximum continuous rate of power of 250 watts and it must have a maximum assisted speed of 25 kilometres an hour. Under what's called an EPAC—electrically power assisted cycle—that actually does give a loose definition of that. Then we have a greater definition under a personal mobility device which then does encompass a lot of the other—whether it might be a scooter, whether it might be a unicycle, it might be a hoverboard. So we currently already have a generic framework but unfortunately within that framework States and Territories, and even the Federal Government itself, have chosen to move away from what was a relatively consistent definition. We were consistent with Europe and now we're moving. Like I said, we've gone from one definition to seven definitions in the last four years.

Mr ROY BUTLER: That seems like an area that we probably need to get involved in, in some way, in New South Wales at least. Ms Brandon, if I could direct a question to you. When I read your submission, am I to understand that you're an organisation that provides these LEVs to people to use for delivery? Is it a sale or a rental arrangement?

OLIVER DeGEEST: That's correct. They're primarily lifestyle workers operating in the delivery space on a rental basis.

Mr ROY BUTLER: Obviously you guys have an interest in seeing, I suppose, good recommendations come out of this. You want to see that LEVs, or personal mobility devices that have electric assistance or electric power and are used for deliveries, are something that are sustainable and something that can be continued in the future because it's your business.

OLIVER DeGEEST: We do, but I think more importantly we operate in order to make that environment for those types of delivery workers be one that is safe. As we think about safety and we think about some of the comments that were made around disruptors that are introducing illegal products into the market, we think about those that have throttle assist rather than pedal assist, we think of people who have made a 25 kilometre an hour maximum obsolete by changing that themselves, we think about poorly manufactured bikes and batteries and the inability to use those two together safely. For the benefit of Zoomo, it's more that we seek to serve delivery

workers in this space to understand that when they use a product, wherever they get it from, if it's from Zoomo or a competitor, they won't have safety issues with that and there won't be knock-on effects within communities.

Mr ROY BUTLER: For the record, I suppose, even if you make a rule, there will be people who will go and change something, remove a governor or put a bigger motor on something. That's going to happen and it's probably going to be hard to detect. But I appreciate you trying to move towards a standard anyway.

Mr EDMOND ATALLA: My question is for Bicycle NSW. There seems to be a general theme from all previous speakers that hazards and fires are caused by poorly manufactured products. But none of the industry experts have been able to recommend to the Committee what it is that the Government needs to do to curtail any products that don't comply with the Australian safety standards. How do we control this area and what is it that the Government needs to do in terms of legislation, regulations, and how do we stop these poorly manufactured products from coming in?

PETER McLEAN: Certainly when I speak from the risk, I'm not speaking from a research point of view but from the point of view of many, many members and bicycle user groups across New South Wales where that information is being fed back through. We certainly believe that there is an opportunity at a State level in terms of some better restrictions around Fair Trading. And I know of circumstances where we have advised people that they can actually get refunds for not fit-for-purpose products that they have actually purchased from a number of shops in New South Wales already. That consumer legislation is already in place. It's about an education point of view as well. There are other things that can be done, but a lot of it really is, like what has been said, at a Federal level around the importation of them and around a consistent national standard.

We're a really big country but our population compared to a lot of other places around the world is very, very low. We're a pretty tiny slice of the pie internationally speaking. We really need one consistent standard so that we have those good-quality bikes being useful pieces of transport equipment, rather than the risks that they pose at the moment. The other area as well federally that we certainly believe we need to see is a number of years ago we saw multiple EV charging plugs which were present and that was growing. We see the same issue with light EVs or e-bikes and e-mobility devices at the moment. Having that in place, like I mentioned earlier, is a key opportunity to have more convenience, more consistency, but more importantly more safety.

Mr EDMOND ATALLA: If Fair Trading is the control agency in relation to complaints of poorly manufactured products, if a particular product was identified as poorly manufactured, does Fair Trading then expand to recall or ban all of those types of, say, e-bikes that that particular product was shown to be a poor standard or does it just deal with that one isolated case and all the rest have no action taken?

PETER McLEAN: They certainly could do that, but I guess the way I see it is that's an end of pipeline solution. We really need to be targeting it at the start of the pipeline when they're imported initially. If we have that Australian standard in place, then we're going to see a dramatic reduction of poor-quality, uncertified, poorly developed design manufactured products in the country in the first place.

Ms KYLIE WILKINSON: My question is to Peter Bourke. You mentioned earlier about the fragmentation of the different legislations across Australia and made a statement that it has moved away from the Australian standard. I want to understand: Is the Australian standard keeping up to date with the technology? I think you may have also mentioned the American standard has changed. Should we be looking at that?

PETER BOURKE: Yes, that is a very relevant question. As I think I mentioned earlier, our standard has dropped off slightly. The last time we updated our standard was in 2016. We are now in the process of adopting the 2023 European standard. That will have a much more stringent anti-tampering clause. Chair, you mentioned earlier about the ability to modify bikes, and the anti-tampering clauses within these, although they're not infallible, are certainly much stronger than our current standard, which is based on the 2009 European standard. So we are addressing that shortfall. The element about moving away from those standards include speed and power and various other elements, so they're not necessarily specific to that standard. They're just elements within it. But I believe the update will make it much better.

The Americans are currently reviewing their standard. They don't have a specific standard. They base it on road laws, so they have a three-tier road law system. They're reviewing where they sit against the European, but what they have also done is a very specific battery standard but that has only been adopted in New York and not in the rest of the country. So they're now having a look at how that battery standard might roll out across the country. But last July, I think it was, Europe introduced a new battery directive. It is my proposal that we include that into our new updated standard which will have much more stringent controls of batteries within this country. The majority of brands that sell both in Australia and Europe are already meeting that standard. It's more the lower quality or probably the cheaper brands that don't sell into Europe that will have to increase the quality of their products to bring them into the country.

Mr WARREN KIRBY: I have a couple of questions. The first one is in regard to the handling of the batteries. This one is for Peter Bourke. You make a note in your submission that there was an assessment undertaken by the New South Wales EPA that many retailers are not willing to collect end-of-life batteries despite selling the vehicles. Should there not be some sort of regulatory requirement that if you are selling these vehicles that you should also be prepared to take care of the disposal of them as well?

That seems odd to me. Certainly, in the case of car manufacturers, they look towards whole of life. I'm finding it unusual, given that we've heard multiple testimonies about the higher risk being in these smaller vehicles, that there's no capacity for end-of-life disposal.

PETER BOURKE: One of the challenges associated with this is that if I'm a Giant store, to pick a brand—it doesn't matter which brand—and I collect a Giant battery, they're very comfortable doing that. It's when I turn up with a battery of an unknown history that there is significant concern about bringing that product back within my store, whether it's a different brand or that we don't know whether it has been flooded or whether it has been damaged. It is one of the challenges. Our previous presenter mentioned that one of the biggest risks is the exposure to the environment of e-bikes that cars don't have. What we're doing is we're asking shops to take on board a battery of unknown history that may have been exposed to environmental impact that has a detrimental impact on it.

In all honesty, as an industry, we haven't been set up yet to take on board that class 9 dangerous good in a damaged state. That's one of the challenges that we need to work through, but it is very much the concern. The industry is concerned that they'll be forced to take on batteries that they don't believe are good enough quality—that they wouldn't take into their store new, so why should they take it into their store as a second-hand battery or a damaged battery? I apologise; I went around that question a little bit. But that is one of the challenges there. It is either the unknown brand or unknown history of the battery that is the serious concern.

Mr WARREN KIRBY: Which, in many ways, echoes some of the concerns around the car industry with grey imports. Is there any mechanism on the so-called "better" brands, like a VIN number on cars, where the vehicle can be identified and tracked as part of a batch for recall of the battery quality on that particular model? Is there any mechanism whatsoever in the e-bike space for that?

PETER BOURKE: Every battery will have a serial number appropriate to that. As with the car industry, there is a limited number of quality battery manufacturers, so within those brands, they're very comfortable. It's when we step outside of the quality manufacturers that we get concerned. But to your point, there is a serial number or a tracking number on every battery, so we can determine that history. Sorry, I shouldn't say the history of the battery; we can determine when it arrived in the country and was sold.

Mr WARREN KIRBY: My final one, Chair, if I may—this is perhaps to both Peters—it has been noted a couple of times about the susceptibility to weather, submersion in water and those sorts of things. There is a proliferation of e-bikes available for short-term hire, particularly in and around city areas. Many of them are finding their ways into our waterways and exposed to elements through their entire life cycle. Is this something that we should be paying more attention to and be a bit more concerned about?

PETER McLEAN: That's an area where Bicycle NSW is currently working on developing a better, more fulsome framework with Transport for NSW, because we need a far more consistent, convenient way of being able to use these e-bikes for useability, but also for safety at the same time. Currently, all of these bikes are tracked and located. If one does go missing or into the water or wherever else they end up, they can be located, salvaged and then responsibly disposed of. Equally, going back to your previous question, there is already that—I think it has to be done at a national level—battery recoverability or recyclability. Certainly, the Commonwealth product stewardship bill is already in place with a legal framework that has been developed and used for many product stewardship streams—dozens and dozens of them, from my understanding. This is something that there is a regulatory framework for federally that we should be looking at as a way of managing this risk.

PETER BOURKE: To add further to what Peter has said, we have a number of leading companies that are working in this space. Zoomo, which is one of the presenters today, is one of those leading companies that is doing a huge amount of work on their rental program and rental batteries and have a significant program. I shouldn't talk for Zoomo, but they have a significant program to assess batteries. The higher quality operators, as well as the higher quality bikes, already have systems in place. One of our challenges is—going back to our earlier questions—that under the new ROVER import portal, you can bring in any quality of e-bike. It's kind of like a Formula One car. It's legal to bring it in and it's legal to sell, but it's not legal to use. E-bikes kind of fit into the same framework. We don't have that quality control of e-bikes. Quality operators are doing the right thing by these batteries that you're talking about, but it is, unfortunately, some of these lesser quality operators and lesser quality products that we're having the major concerns with.

Mr WARREN KIRBY: Does that lead to a need for the registration of e-bikes?

PETER BOURKE: What I think is more appropriate is to actually reform the importation process to stop the import of the lower quality product. Every fire authority that we have spoken to is very clear that the quality product has deemed little to no issue. It is the product that is coming in that most people could tell is not of a great quality. The registration may address it, but I'd be very hesitant to think that it would have the impact that is required. It would be more a case of actually going back to the permit system to bring in an e-bike. It would certainly address a number of our concerns as it comes into the country.

PETER McLEAN: I was just going to add, around the issue, there's not just the environmental risk in our waterways and other parts of the environment; there is the incorrect disposal of them, which we have seen with lithium ion batteries. There's 22 to 25 of them existing in every single household across Australia on average. We're now seeing almost one garbage truck go up in fire every single week in Australia from one type or another of lithium ion battery. Potentially, if we don't address these risks, we'll start to see more of these going into landfill, like we have seen other types of lithium ion batteries that have been around for a lot longer.

PETER BOURKE: I would add one last point. Previous to the 2021 review under the Federal Government, there was a strong requirement to have a compliance plate on an e-bike that was quite visible. With the review and modification, that is no longer as stringent. Under the new standard that will, we hope, shortly be adopted at a Federal level—and then hopefully it'll find its way to the States—the requirement to have a specific compliance plate on an e-bike identifying that it has met standard, what standard and how that has been achieved is certainly going a step, in our opinion, to achieving identification of good-quality product.

The CHAIR: With there being no further questions, I thank you for appearing and for your contributions to the Committee today. You'll each be provided with a copy of the transcript of today's proceedings for any corrections that you may have. The Committee staff will also email any questions taken on notice from today and any supplementary questions from the Committee. We kindly ask that you return these answers within 14 days of receiving them.

(The witnesses withdrew.)

(Luncheon adjournment)

Chief Superintendent KENNETH MURPHY, AFSM, Senior Manager Capability, NSW State Emergency Service, sworn and examined

The CHAIR: Welcome back, everyone. I call and welcome our next witness. Chief Superintendent, thank you for appearing before the Committee today to give evidence. Please note that Committee staff will be taking photos and videos during the hearing. The photos and videos will be used for social media purposes on the New South Wales Legislative Assembly's social media pages. Please inform the Committee staff if you object to having photos and videos taken. Can you please confirm that you have been issued with the Committee's terms of reference and information about the standing orders that relate to the examination of witnesses?

KENNETH MURPHY: I can confirm that.

The CHAIR: Do you have any questions about this information?

KENNETH MURPHY: No questions at this stage.

The CHAIR: Would you like to make a short opening statement, Chief Superintendent, before we begin the questions?

KENNETH MURPHY: Yes. I'm here representing the NSW State Emergency Service in relation to the issues related to electric vehicles, hybrid vehicles and the emerging technologies associated with that to address some of the issues that have arisen in regard to our operational response to those and to ensure the safety of our personnel in our operational environments as these emerging technologies challenge our operations.

Mr ROY BUTLER: Good afternoon. I'm interested in knowing more about where SES is up to in terms of training and if that training is also across other volunteer emergency services groups, like the VRA and RFS. One of the things that I would really hope to see is collaboration when it comes to training, where it's common to different groups, especially if you've got road crash rescue and that sort of thing. I understand there have been some recent moves in regard to training from the SES, which is welcome. Could you just update the Committee on where that's up to and where you see it going, please?

KENNETH MURPHY: Recently we have just commenced training with New South Wales TAFE. We have offered that out to our general land rescuers. We are currently in the phase of developing a broader training policy in relation to electric vehicles, and we have actually changed the name to "alternate fuel vehicles" to bring in regard to hydrogen there. So there is continued development in that space. We are working very collaboratively with the other agencies and working very collaboratively with AFAC to ensure that our training package is developed that increases the safety for our members and increases the broader awareness of that.

A lot of the training packages that we are looking at are reasonably simplistic, not complex in nature, so that it doesn't complicate the training environment that we are trying to do. A lot of that is reinforced through practical training with a number of other agencies as well. So highlighting that we recently started conversations with Mercedes Australia to develop some training packages with them around large electrical vehicles and the response to that as well.

Mr ROY BUTLER: When you say with other agencies, is that RFS and VRA? Are you guys working together on the training for these sorts of things?

KENNETH MURPHY: We are collaboratively working with the Rural Fire Service, VRA and, predominantly, Fire and Rescue NSW.

Mr MATT CROSS: From your experience to date, what type of injuries have been caused—or what could be caused by dealing with what you call alternate fuel vehicles?

KENNETH MURPHY: At this stage, we have no evidence of any injuries that has occurred to any of our personnel. We are currently looking at our current levels of personal protective clothing and whether or not they require any upgrades. That is also part and parcel of the training packages that we have there. The safety packages that we are looking at are hand in hand as well with industry, looking at how we can work together. There are a number of apps that our personnel can gain access to immediately to determine some safety approaches to scenes, but we work hand in hand with the other emergency services as well at an accident scene to ensure the safety of our personnel. At this stage, I am not aware of any injuries to our personnel.

The CHAIR: Do you feel you are getting adequate support, resources, training and information and communication from government to ensure that you are adequately prepared? As a committee, when we do come back with our findings, ultimately, what we all want to achieve is—it's so new. What do we need to do more of? What do we need to do better?

KENNETH MURPHY: From a personal viewpoint, the largest challenge involved in alternate fuel vehicles and alternate energy sources is around the ability to keep up with that emerging technology. That provides some very unique challenges in regard to not only our equipment but also our policies and our procedures in relation to that. That's an immediate challenge broadly across the emergency services sector—how we deal in that space and how we try to keep that continued research up. From a New South Wales State emergency perspective, what we would like to see is some additional funding in relation to electric and alternate fuel vehicles involved in floods, during and after that event, and also during flood rescues because we have some evidence that the stability of those vehicles is challenging during those events. It has also changed the perspective of our rescuers in relation to in-water rescue.

The CHAIR: By the extension of that, if you were sitting where we are, what's one thing you would provide to the SES—if you are able to—to better equip? Would it be resource, equipment, training? What would it be?

KENNETH MURPHY: It wouldn't only be for the SES; this is more for the broader emergency services, and that's a combination of that research, a combination of additional training and some additional resources to meet some of those challenges that occur there. That research can be, particularly during our operations, to determine how these vehicles operate in a flood environment and particularly those that have been immersed in floodwater after—what challenges exist for us and other emergency services during that recovery phase and how we deal with the issues associated with that?

The CHAIR: Sure.

Mr MATT CROSS: Just picking up some comments you said about working with other agencies within the New South Wales Government, is this a conversation that you are also having with other jurisdictions, both within Australia and also around the world?

KENNETH MURPHY: Yes, very much so. We do a lot of work with the Department of Fire and Emergency Services in WA and some of the challenges that they face there, particularly in relation to these types of vehicles, given the vast distances that they have over there in regard to their emergency response. I do have a collective network broadly across the world that we continually have conversations in relation to challenges that

occur in the emergency services environment as well, and a lot of that is related around emerging technologies and how we deal with those going forward.

The Hon. MARK LATHAM: At page 14 of the New South Wales Government's submission, it says:

... FRNSW and TfNSW, in collaboration with TAFE NSW developed an online training package for emergency responders to raise awareness of EV hazards and risks and guidelines to work safely around EVs.

Have any of your staff completed this package?

KENNETH MURPHY: At this stage, none of our staff have completed that package yet. That package was widely advertised across the New South Wales State emergency services last week, and we are determining the uptake of that through our membership.

The Hon. MARK LATHAM: So which additional EV training have your staff undertaken so far?

KENNETH MURPHY: At this stage, it's just general awareness.

The Hon. MARK LATHAM: Do you find it remarkable that it's now three years after the New South Wales Government set a target—and put a lot of money first into rebates and now into rolling out charging stations across the State—to have 50 per cent EV usage in New South Wales, out there on the roads, but we are only now at the point where an online training package has been developed and it seems like none of the emergency services have actually completed it?

KENNETH MURPHY: No, I don't, because the ability of the emergency services industry to work with AFAC around developing training packages that address the issues that have been raised, that's got to be through research. We do a lot of work going through the data from our response, and that's broadly across all those agencies, to determine the issues that are coming forward. This wouldn't be a package that could be developed overnight. It has to be developed over a period of time and it has to be very well informed from data and evidence from the events that we have been to. From my own personal experience, I'm a former serving officer with Fire and Rescue NSW and I was involved in a large incident involving liquid sodium in an alternate energy platform. There had been no research whatsoever done in that and so a lot of the operations there were based around some former knowledge that we had about how to deal with liquid sodium fires. So if you take it in the context of your question, sir, any training packages that we develop need to be very well informed from data and from the experience of our membership broadly across the industry.

The Hon. MARK LATHAM: The Government submission talks up the -take-up rate for EVs. You mentioned data in these responses. What does your data show? If your staff are responding to an EV--related incident and, as you say, they only have general awareness about EVs and no specific training, what does the data show as to what response they can logically and safely make?

KENNETH MURPHY: They do their normal safe approach to the scene. They evaluate any of the danger there. They work hand in hand with the other emergency services, particularly Fire and Rescue NSW, who will ensure that any hazardous materials or anything of that nature that are on the scene are immediately dealt with, or are detected. And then we go through our normal operational response.

The Hon. MARK LATHAM: But what does your data show about responses to EVs—what role SES staff have been able to play?

KENNETH MURPHY: The normal role is for our general land rescue units who are involved in road crash rescue. They respond and do the rescue there. There is limited data in relation to that because we've only had a small number of these vehicles involved in accidents that have required actual extrication of people from those vehicles.

The CHAIR: Just before we go to Edmond, I welcome the Hon. Natalie Ward, who has been observing online. She had parliamentary duties this morning, and rang me. Thanks for coming, Natalie. I know you are really busy.

The Hon. NATALIE WARD: Thank you, Chair, much appreciated.

Mr EDMOND ATALLA: I want to get my head around this. When do you become the first responders if emergency services are required for an EV fire? Are you just a support agency or do you sometimes become the first response?

KENNETH MURPHY: In some cases we are the first response. We have 71 what are known as general land rescue units across the State. We have the largest number of road crash rescue units in regional and remote New South Wales. So in that case, we are responded immediately to a motor vehicle accident where people are trapped. That is along with the other emergency services. In some cases that is Fire and Rescue NSW, or it could

be the Rural Fire Service who are responded to ensure safety of the scene in relation to the management of hazards there, including fire. So in a lot of cases in remote and regional New South Wales, and New South Wales, SES are the first responders.

Mr EDMOND ATALLA: Over the past three years how many incidents have you attended where a fire has resulted from an EV vehicle?

KENNETH MURPHY: I would have to take that on notice and report back.

Mr EDMOND ATALLA: Thank you. Following on from Mr Latham's question, in instances of first response, what training do your staff have when they respond to an EV type of accident?

KENNETH MURPHY: When they respond? When they do their initial training there is an awareness package there in relation to electric vehicles and their response. But they do their normal scene assessment and undertake as to whether or not there are any risks there to them. As I said, they have access to numerous documentation in regards to where to access electric vehicles and ensure the extrication of any victims that are there.

Ms KYLIE WILKINSON: I just wanted a bit of clarification. You mentioned twice about flooding. Is there a reason why you've raised that? Is it an area where concern has already been raised, or an incidence? Or is it something that you're just really unaware of what the ramifications are?

KENNETH MURPHY: There has been concern raised internationally in regards to electric vehicles and alternate fuel vehicles that are immersed in floodwater and whether or not that contributes to failure of the battery and electrical systems in those. That's something that we have an interest in, given that our prominent role is response to flood events across New South Wales. So that is an area that we would like some additional research in to determine as to whether or not it is going to be an issue going forward.

Mr MATT CROSS: Earlier today we heard evidence around e--scooters and e--bikes. The risk level associated with them is considerably higher than that of light vehicles. How much work or how much impact has the SES had when going in to support communities where there are e--bikes and e--scooters?

KENNETH MURPHY: We've had limited response in relation to that. That's normally a role that Fire and Rescue NSW would undertake. We may undertake some support actions to assist them after a major fire in regards to urban search and rescue tasks. So that would be in relation to ensuring safety on that site there—using different things to support the building so it doesn't collapse, things of that nature. But we have a very limited response in relation to e-bikes or anything associated with that.

Mr MATT CROSS: In terms of when you go into certain locations, how much training and guidance do you have on the different situations? Cars is one area. Do you have training on all different types of materials and potential situations?

KENNETH MURPHY: The basis of our training at the moment is limited to the general land rescue space. We will be doing, probably, some additional work with the AFAC agencies broadly across the SES communities across Australia in relation to flood response and things of that nature. As we can determine the picture going forward of any issues or hazards, then we look at that broader approach. We have cooperative partnerships across Australia with other State Emergency Service agencies broadly across a number of issues, of which this is one of them.

Mr MATT CROSS: Do you think training on e--bikes and e--scooters will be required? You wouldn't rule out that training may be required in the future on particularly those two items?

KENNETH MURPHY: There would possibly be a requirement for training in relation to a flood rescue response and, if they came across those within a residence, undertaking a rescue of someone in that space there. But that would be more around some knowledge of any existing hazards and things of that nature and probably, again, reinforcing the position around further research whether or not if you had e-scooters or e-bikes that had been immersed in floodwaters they were going to be an additional hazard in the future.

The Hon. MARK LATHAM: I go to page 11 of the submission. It says in one of the dash points:

EVs are silent at idle and emergency responders have been seriously injured during rescue activities when the accelerator has been inadvertently pressed and the vehicle is still switched on.

Does that include any of your personnel?

KENNETH MURPHY: Not at this stage. Last year we undertook an initiative to introduce broadly across the service e-plugs. The e-plugs actually isolate the system and stop the vehicle. It basically tricks the

vehicle into thinking that it is in park and it is being charged, so it isolates the vehicle. We rolled out those broadly across the State to all our General Land Rescue units.

The Hon. MARK LATHAM: One of the frustrations with the inquiry and the nature of the Government submission is that, as it says at the top, the Premier's Department has coordinated a consolidated New South Wales Government submission based on consultations with eight New South Wales agencies—of which yours is one, along with Fire and Rescue NSW and the Rural Fire Service. The NSW Police Force is not listed, which is obviously an omission in terms of first responders. What was the extent of the SES involvement in the preparation of this document? Did you say earlier that you are speaking on behalf of all the emergency services, or just the SES?

KENNETH MURPHY: I'm speaking on behalf of the State Emergency Services.

The Hon. MARK LATHAM: So you are not able to establish what this reference on page 11 to serious injuries actually refers to?

KENNETH MURPHY: No.

The Hon. MARK LATHAM: Have you got any ideas about how we can get that information? Maybe I could ask the Chair. Why aren't there more agencies represented here? It's a serious issue. We are talking about serious injuries to emergency services personnel. Why haven't we got Fire and Rescue NSW and the RFS here? And where is the person from the Premier's Department who put all this together, and could go back to those agencies for relevant answers on notice?

The CHAIR: It is a very valid question, but that's something I'd have to take on notice too, if we could find out. I will ask the secretariat. I am advised that there were some agencies scheduled that pulled out, but we will address that in the post-hearing deliberative.

The Hon. MARK LATHAM: I think we need to get them all along here to establish things. But you can say, Superintendent, that none of the serious injuries referred to have involved your personnel?

KENNETH MURPHY: Not that I'm aware of.

The Hon. NATALIE WARD: Thank you very much, Chief Superintendent, for coming along today and also for the work of the emergency services and all the teams. We are very grateful, so please extend our thanks to them. In an answer to Mr Cross's earlier question, you referred to further research. What areas do you think that might be helpful in? I note the submission about the different types of risks to workers and understanding that. I'm interested in the data and I've got a couple of questions around that. Was there something in mind, or do you want to elaborate on the opportunities for further research? You can take that on notice if you'd like the opportunity to give that some consideration.

KENNETH MURPHY: I can take part of it on notice. But in relation to our submission, we think that we should be considering further research, as I've articulated, in relation to the effects of floodwaters, particularly on these types of vehicles, and that could be extended to include battery systems et cetera. That's also some additional research in relation to the effects of these during storm events and things of that nature. They are predominantly what we respond to. The other agencies would have concerns, particularly Fire and Rescue NSW and the Rural Fire Service, in relation to fires. I think we would find the NSW Police Force would be very similar in regards to their concerns, because of their involvement in vehicle road crash rescue, and I think we would find that the NSW Ambulance Service would be very similar in relation to that as well, for the protection of their personnel.

The Hon. NATALIE WARD: I think that would be very helpful, particularly if we could reach out to each of those agencies. I don't want to foreshadow what the Committee will decide, but it could potentially be an area for recommendation for further research. If you are able to articulate, perhaps on notice, the part that you think might be useful as a start, that would be very helpful. Just on that, what sort of data do you have at the moment? Is somebody gathering data? Is there an opportunity to pool those experiences together, or is it just each department doing their own thing and getting on with the job?

KENNETH MURPHY: There is a national approach through AFAC, the Australian Fire Authorities Council, that has involved all of the agencies involved in this. They have undertaken some research work with a number of universities—I think Monash is the major one that has been involved in that. That's particularly in relation to the fire environment, but they are looking at broadening their research across different fields as well. We currently are represented on an AFAC working group looking at hydrogen vehicles. NSW SES has a representative on that, hence why we're now looking at the broader policy change for us to alternate fuel vehicles, because this is now getting a lot broader than just electrical vehicles.

The Hon. NATALIE WARD: I understand. Are other agencies part of that working group, to your knowledge?

KENNETH MURPHY: Yes, broadly across Australia.

The Hon. NATALIE WARD: So it's Australia-wide?

KENNETH MURPHY: It's a national working group, yes.

The Hon. NATALIE WARD: This isn't isolated to Australia. Given these things are all around the world, do you have any learnings from international experiences? Is that working group looking overseas?

KENNETH MURPHY: That working group and some former working groups within AFAC have looked internationally at some of the lessons learnt there as well.

The Hon. NATALIE WARD: This is a loaded question. Is there scope, potentially, for further work to be done on that, if it would be helpful as the technology evolves? There are different types overseas—as a layperson, I don't want to name them. But do you think there is an opportunity, going forward, for further collaboration?

KENNETH MURPHY: There are broad opportunities going forward in relation to continued research. There is a need to keep up with those emerging technologies. Whether or not we have the ability to do that—technologies emerge so quickly. There needs to be considerable work done in relation to that so that we can keep up with those emerging technologies and ensure the safety of our personnel.

The Hon. NATALIE WARD: Those are the words I was looking for: emerging technologies. My understanding as a layperson is that e-bikes and things like that are being imported here and not necessarily regulated. That technology might be something that we are potentially not even across, and it is coming here, and you are having to deal with the fallout of that before we can even regulate it. There might be an opportunity for further work.

KENNETH MURPHY: Yes, there are opportunities there, broadly, internationally, to look at what those emerging technologies are and how we deal with those. From a personal viewpoint, being an emergency services worker for nearly 45 years, the challenge there is to get that information in a timely manner and then to adjust training packages, policies and procedures related to that. In some cases we just don't have the ability to do that because the time frames are so limited and the technology is moving at such a pace.

The Hon. NATALIE WARD: You are racing Amazon and Australia Post by the time they are delivered here.

KENNETH MURPHY: All the time.

The CHAIR: Superintendent, does the SES have SOPs?

KENNETH MURPHY: Yes, we do.

The CHAIR: For the benefit of my colleagues, SOPs are standard operating procedures. Are operational procedures written into the SOPs for how to respond? Has there been a risk analysis done for your volunteers and your staff in relation to electric vehicles?

KENNETH MURPHY: We're currently working on a broader policy in relation to response to alternate fuelled vehicles. That outlines all the safety aspects, the requirements for personal protection, equipment, scene approaches—things of that nature there—so there's a broader policy that we're looking at developing there. That's been developed through research in relation to policies that existed nationally, so we've done a lot of work with the State emergency services in Victoria, whose response to operations are very, very similar to ours. They do a lot of the general land rescue and road crash rescue in regional Victoria and, as I said earlier, that collaborative approach with all other agencies across New South Wales. Our operational procedures are based upon that evidence that we currently have. All of those documents are live to allow us to continually adjust that policy as things emerge and technology changes.

Mr ROY BUTLER: Very much related to that, I suppose—and we've danced around this but I guess I'll be more specific and make it in regional New South Wales—it's good that we're moving on training. It probably seems like it's been a little slow, especially if there have been incidents where people have been injured. But I guess in terms of anticipating changes, there are some things that we know are going to happen. We know that we're going to end up with modular battery packs that are used for agricultural equipment and for transport vehicles. We know that cars and those battery packs can be used, especially in the off-harvest season or the off-sowing season, to store power of solar and then put it back into the household at night and that sort of thing.

In flood operations for SES, which is obviously part of your core business, that's a whole new risk, a whole new thing you haven't really come across before. We know it's going to happen. We know that's on the cards that we'll have most houses that have an EV will have a car that charges off solar and discharges to some extent into the house. That's going to be the way it works. Given we know that's going to happen, isn't that something that we could start planning for and we could start developing some training or SAPs to make sure that our emergency services volunteers and staff that go out to these scenes and the first time they go see it, they can go, "Yep, I know what this is. I know what I've got to do"?

KENNETH MURPHY: Yes, it is and that should form part and parcel of the national approach that the AFAC council is addressing in relation to that. That way, once again, that can ensure that that information is broadly spread across the sector and the industry. That's to increase not only the awareness of us but also the other emergency services that respond to those events. Normally, during a flood event it's a multi-agency approach for that, so any educational process that we can do in that regard would be of great value and ensure broader safety for emergency services personnel.

Mr ROY BUTLER: That forward-looking thing, it is happening? There is some process by which we say, "Let's do a bit of a scan of what the future might look like in the next 12 months, 24 months." That is happening?

KENNETH MURPHY: That is happening, yes.

Mr ROY BUTLER: Great.

KENNETH MURPHY: It's around the ability of agencies, as I've previously said, to just keep abreast of those emerging technologies and then try to determine what the risks should be and what mitigation strategies we can undertake to minimise those risks.

The CHAIR: If there are no more questions, just a comment from me, Superintendent. Thank you so much for coming in today but thank you so much to you and your organisation for everything you do for all our communities, right across New South Wales. It's very clear that whilst you guys are doing everything you can with this emerging technology, we need to do the best that we can. Not to foreshadow or anticipate the findings of this inquiry, but ultimately this Committee is seeking to see how we can support better. Further to Mr Latham's point, particularly our police, RFS, Fire and Rescue, we will address that, colleagues, in our deliberative meeting because their contribution, their input, is vital. I think one of the key fundamentals that we need to understand is: What is our essential and frontline workers' understanding of how and what to do, and how can we support and resource them better? I see Warren Kirby has his hand up for a quick question.

Mr WARREN KIRBY: This may well be on notice. Has there been any attending of fires or problems with the disposal of batteries? We heard from a previous witness that it's common for garbage trucks going up from fire because of battery disposal. We've heard of a number of problems with households not being able to get rid of, particularly, the cheaper quality batteries. Is that something that has become an issue for you?

KENNETH MURPHY: No. Given our operational remit, which is in regard to floods, storms and, as I articulated before, in regard to general land rescue, we've had no involvement in relation to that and no involvement in relation to any action following a fire in that regard there. I can take that on notice.

Mr WARREN KIRBY: There have not been any stored in a household somewhere where a flood's come through and that's caused a problem?

KENNETH MURPHY: I can take that on notice and have a look through our systems and determine through our after-action review process if that has been a problem.

The CHAIR: Colleagues, with there being no further questions, again, Superintendent, I thank you for coming in and for your valued contribution to the Committee today, which is very important. You'll be provided with a copy of the transcript of today's proceedings for any corrections that you may have. The Committee staff will also email any questions taken on notice from today and any supplementary questions from the Committee. We kindly ask, if you're able to, to return those answers within 14 days of receiving the questions. That would be sincerely appreciated. Have a good rest of your day.

(The witness withdrew.)

(Short adjournment)

Mr JOHN HARDWICK, Executive Director Asset Management and Acting Head of Transport Safety, Safety Environment and Regulation Division, Transport for NSW, sworn and examined

Mr CRAIG MORAN, Executive Director, Customer Journey Management, Operations, Office of the Coordinator-General, Transport for NSW, affirmed and examined

Mr JAMES KELLY, Acting Executive Director, Operations and Enforcement, SafeWork NSW, Department of Customer Service, affirmed and examined

Ms ELIZABETH WALLER, Acting General Manager, Health Safety Environment, Transurban, before the Committee via video conference, affirmed and examined

The CHAIR: Welcome to our next witnesses. Welcome to the New South Wales Parliament. Thank you for taking time out of your day to come and contribute to the inquiry and give evidence today. Please note that Committee staff will be taking photos and videos during the hearing. The photos and videos will be used for social media purposes on the New South Wales Legislative Assembly social media pages. Please inform the Committee staff if you object to having photos and videos taken. Can you please confirm that you have been issued with the Committee's terms of reference and information about the standing orders that relate to the examination of witnesses?

JAMES KELLY: Yes.

CRAIG MORAN: Yes.

ELIZABETH WALLER: Yes.

JOHN HARDWICK: Yes.

The CHAIR: Do you have any questions about the information that you have been given?

JAMES KELLY: No.

JOHN HARDWICK: No.

CRAIG MORAN: No.

ELIZABETH WALLER: No.

The CHAIR: Would anyone like to make a short opening statement or would you like to go straight into questions?

JOHN HARDWICK: I have one. There is a need for a national approach to design standards. A consistent national approach recognises that States and Territories are all grappling with the same challenges posed by electric and hybrid vehicle batteries. Mitigating the risk of electric vehicle battery fires and other related hazards primarily relies on testing and design provisions within the international and national standards, as well as the federally set Australian Design Rules, which Transport for NSW implements as part of its registration process. I am aware of concurrent initiatives seeking to introduce regulatory frameworks that govern the production, use and management of lithium batteries and electric vehicles being progressed across the Commonwealth Government.

New South Wales government agencies are contributing to the following Commonwealth-led initiatives: the development of a National Battery Strategy to grow a sustainable and thriving battery industry in Australia, which will also consider recycling and safe disposal of batteries, including lithium batteries; a regulatory product stewardship scheme for small electrical and electronic equipment and solar photovoltaic systems; and proposed new Australian Design Rules prescribing the national safety standards for electric vehicles and hydrogen vehicles, of which Transport is contributing. The National Transport Commission is currently leading the process of establishing new guidelines to vehicle modifications, including national safety standards for electric vehicles.

Transport has a range of management systems, frameworks, policies and procedures to provide safety and technical assurance. Transport's enterprise safety management system applies to all Transport staff and any service providers. Transport's standards management framework governs a portfolio of technical standards, which define the performance and safety requirements for Transport assets through their lifecycle. The standards are developed in close connection with other government agencies, industry and international bodies to take advantage of innovations and learnings. The standards management framework is supported by asset management, configuration management, technical supplier assurance and technical capability frameworks. Transport collaborates with manufacturers, suppliers and emergency services in standards development and processes.

JAMES KELLY: Thank you for the opportunity to meet with you today. On behalf of SafeWork NSW, I would like to thank the Joint Standing Committee for your interest and work in this important and rapidly emerging area. SafeWork NSW is the New South Wales work health and safety regulator and provides a vital role in protecting the health and safety of workers in New South Wales through ensuring compliance with work health and safety legislation. SafeWork NSW sits within the Department of Customer Service. The Minister for Work Health and Safety recently announced that SafeWork NSW will become a standalone entity separate from the department. In response to recent external reviews, SafeWork NSW is currently moving to become a stronger and more robust regulator for work, health and safety in New South Wales. SafeWork NSW adheres to the national model work health and safety framework, and adopts the regulatory approach under the National Compliance and Enforcement Policy.

SafeWork NSW's commitment to workplace safety extends beyond compliance. We have an important advisory role to play, raising awareness and building capability of industry to respond to new and emerging hazards and risks in the workplace. Our team works closely with other regulators and agencies both in New South Wales and across Australia to work collaboratively and ensure work health and safety standards in New South Wales are upheld. SafeWork NSW's multifaceted approach encompasses advising, educating, licensing, inspecting, investigating and, when necessary, prosecuting to achieve compliance with work health and safety laws.

SafeWork NSW has a dedicated and passionate team of inspectors, policy and project staff committed to securing the health and safety of everyone at work in New South Wales. SafeWork NSW undertakes both proactive and reactive compliance operations. Compliance activities may include inspections, audits and other verification activities with the aim of enhancing work health and safety management practices and achieving sustainable compliance with work health and safety laws. SafeWork NSW reviews and triages all reported incidents or breaches of work health and safety laws and takes action on noncompliance where appropriate.

Aligned to the National Compliance and Enforcement Policy, more serious matters progress to further investigation with a view to prosecution. These investigations are generally undertaken in response to workplace incidents that result in a serious or fatal injury of workers but may also be in response to dangerous occurrences, serious safety risks or work-related illnesses. Other matters are addressed in a variety of different ways, including the issuing of notices such as improvement notices, prohibition notices and penalty notices, with education, compliance programs and advisory support.

In recent times SafeWork NSW has been monitoring and observing the shift towards renewable energy and the use of new and emerging forms of energy supply and storage. This includes the use of lithium ion batteries in electric and hybrid vehicles, and micromobility devices like scooters and e-bikes commonly used in the food delivery industry. The food delivery industry has been a priority area for SafeWork NSW in terms of reducing fatalities and serious incidents, strengthening work health and safety laws, and improving compliance, with most incidents arising in transit.

In relation to battery and charging of e-micromobility devices, we have been working with industry and other government agencies, including Fire and Rescue NSW, to learn from recent incidents and research in relation to fires associated with lithium ion batteries and identifying improved controls in safety management. In light of the rapid advancements in automotive technology, it is imperative to address the unique safety challenges posed by these intricate battery systems. From manufacturing and maintenance to recycling and disposal, workers are exposed to potential risks associated with handling these high-voltage batteries, not to mention others who may be exposed in the case of an emergency. The findings of this Committee will be invaluable to our knowledge and insight into these emerging challenges.

Currently, there is no specific licence class or mandatory training for workers undertaking work on electric vehicles. However, there are requirements under work health and safety legislation for licensed repairers to ensure that staff are competent to undertake the work, including providing adequate training, instruction and supervision to ensure that their employees can work competently and safely. SafeWork NSW will look to ensure workers who are required to work on electric vehicles are competent through these obligations under the work health and safety legislation.

Emergency service personnel may be exposed to a broad range of hazards or risks when responding to vehicle incidents due to the vehicle itself or the contents contained within the vehicle, often unknown at the time of the incident. Whilst the increase in electric-powered vehicles has introduced a new hazard associated with the batteries, similar caution is required when approaching vehicles that may contain explosives or hazardous substances. SafeWork NSW would therefore consider these organisations experienced and well equipped to manage any increased risk presented by electric vehicles.

SafeWork NSW notes the recently released training package Emergency Responder Electric Vehicle Incident and Emergency Response, developed in collaboration with Fire and Rescue NSW and TAFE NSW, is available on the TAFE NSW for a fee or free for emergency service operators. In addition to risks to workers in the automotive industry, SafeWork NSW is also concerned about others who may be exposed to lithium ion batteries in the waste and recycling sectors and other industries that depend electric micromobility. We are collaborating with other agencies across government on these issues at present. SafeWork NSW welcomes the inquiry into electric and hybrid vehicle batteries and looks forward to the findings.

ELIZABETH WALLER: I would like to thank the Staysafe Committee for inviting me to speak today representing Transurban on this important issue of electric and hybrid vehicle batteries and road safety more generally. I would to begin by thanking the Committee members who were able to attend Transurban's Road Safety Centre at Neuroscience Research Australia, or NeuRA, last month. The centre undertakes vital injury prevention research into child restraint systems, rear seat safety, safety of older vehicle occupants and motorcyclist safety. It's housed at NeuRA's headquarters in Randwick and the centre combines world-class research with state-of-the-art facilities including a crash test sled capable of reaching real-life crash speeds and cameras that can record up to 1,200 frames per second, allowing researchers to see what occurs in collisions. By hosting this Committee at the centre, Transurban has been able to demonstrate our unwavering focus on road safety.

We do work closely with the New South Wales Government and emergency services crews to regularly test safety systems and protocols, including fire-safe zones, emergency lighting and ventilation systems. As well we have 24/7 coverage on our roads and tunnels so we can swiftly respond to incidents and be on the scene within minutes. We also champion road safety by implementing very targeted and evidence-based and led safety initiatives. We use proven and innovative technology to reduce incidental crash risk. We support and conduct ongoing research into diverse road safety issues and deliver tailored community education programs. This focus on continuous improvement is to ensure our roads are as safe as possible. This should provide the Committee, the New South Wales Government and the broader community evidence of our ability to manage any emergencies involving electric, hybrid and hybrid vehicle batteries.

Last year an EV work group was formed to support the wider Transurban teams in ensuring an alignment of risk management for EV fires across our organisation with important industry partners such as Fire and Rescue NSW and Transport for NSW. Part of the working group's remit is to update processes and procedures for managing EV fire incidents on our roads or in our tunnels and ensure risks are managed collaboratively. As an organisation, we regularly run training programs with our operational teams to enhance their skills should a real incident occur, and we practise how to deal with car and truck fires and this includes EV fires in real life and in desktop scenarios. Ongoing training, upskilling, practise and preparedness of our operational teams never ceases. As vehicle technology and road infrastructure changes, we ensure our training and safety practice evolves to meet these new demands.

As part of our commitment to reducing emissions, we have been promoting the benefits of EVs and fuel-efficient driving techniques through public awareness campaigns. This has been happening over the last few years. We are really passionate about our role in meeting emissions targets and are currently transitioning parts of our own fleet to hybrids and EVs. In June 2023 we supported the launch of Australia's Parliamentary Friends of Electric Vehicles and Future Fuels Transport to promote efforts to reduce greenhouse gas emissions by accelerating the uptake of EVs. As important as creating a cleaner and a reduced-emissions environment is, we must balance our environmental obligations with our commitment to road safety.

The CHAIR: Before we begin the questions, I wish to inform the witnesses that they may wish to take a question on notice and provide the Committee with an answer in writing at a later date.

The Hon. NATALIE WARD: Thank you all for coming along today. Nice to see you again, Mr Moran. Thank you for all the work that you're doing in this very important space. I might start with some questions to Transport and then, if there's time, direct similar questions to Transurban about some of the new opportunities for improved safety. Mr Moran, you'd expect me to know as a former Minister but, for the benefit of the Committee, could you elaborate on some of the work and strategies that Transport has in place to manage electric and hybrid vehicle battery fire risks on our public roads?

CRAIG MORAN: I think the key point to highlight right from the get-go is that Transport has a very strong and collaborative working relationship with Fire and Rescue NSW, who are the combat agency for fires and hazardous materials throughout the State. The importance of that relationship is particularly with our frontline workers—they're our transport commanders, traffic emergency patrols and our tow truck operators—who respond to incidents on the road network, which can include an incident that involves an electric vehicle or a hybrid vehicle. Being aware of that particular risk, we have already put all of our frontline people through a six-hour face-to-face training course facilitated by TAFE, where they've learnt a range of skills around dealing with electric vehicles.

Obviously it's not just dealing with an electric vehicle at the point of a fire; it's dealing with a broken-down electric vehicle. How do you get it out of gear to be able to tow it away? There's a whole range of skills that they've been trained on in that face-to-face course prior to the new course being more broadly available. Off the back of that course we've also issued all of our people with personal protection equipment, particularly in the forms of gloves to protect them from electric shocks. There is a lot of work that we've been doing to look after our people. We're also working with Fire and Rescue NSW about how we can mitigate the impact of an electric vehicle fire on the road network because, as we're aware, an electric vehicle fire, whilst not as common as a conventional petrol vehicle fire, can have a longer duration before that fire is put out.

We are working with Fire and Rescue looking at what's being done around the world and looking at whether we need to develop some specialised equipment to deal with that. That work is ongoing at the moment but it is part of a collaboration, particularly between us and Fire and Rescue NSW.

The Hon. NATALIE WARD: That's pleasing to hear, thank you. We might come back to that if there's time. Ms Waller, if I may direct a question to you if you're there. It's in a similar vein. Thank you for the work being done by the NeuRA centre. I've been out there and it's very impressive to see that the work's being done and the collaboration—I was pleased to hear Mr Moran talk about collaboration but it's important that we're taking new and emerging opportunities as well. Could you help the Committee to understand what steps Transurban is taking to improve road safety? I am interested in the new initiatives in place to manage these risks.

ELIZABETH WALLER: We have set up a working group across the business to make sure that our people are kept abreast of latest technology and that is working closely with government departments, including Transport for NSW and Fire and Rescue NSW. The teams have had discussions with the Safety of Alternative and Renewable Energy Technologies—SARET—program as well as the Heavy Vehicle Industry Association regarding their experience with EVs and that's to inform us. As I mentioned earlier we have a 24/7 incident response program that runs across our network. The things that we do when there is an incident, regardless of whether it's an EV or a regular vehicle, is that we close lanes and we reduce speed to keep everybody in that vicinity safe.

When it comes to EVs we have approaches to be able to remove vehicles from the network. In the case of where it could be a fire, we're keeping abreast as much as possible—as Mr Moran was saying in a similar vein—and working with those partners, understanding what's going on overseas and supporting any regulation or legislation that is going to be made. Where there would be a serious event, we practise for this—how we bring and work with those emergency services and provide a safe environment for them to undertake the work when something like that happens.

The Hon. NATALIE WARD: Thank you. That's helpful. It's a bit of a leading question, but obviously you're in a position to influence broader policy and broader road safety outcomes by your actions. Can you just elaborate on how Transurban can do that? Obviously through the NeuRA centre and other research, but there are other opportunities for you to lead in that space.

ELIZABETH WALLER: What we do have access to is really strong data because of the network that we operate there. We have CCTV right across the network. We can measure the range of vehicles on the network. We can look at a range of things, including speeds, and, when incidents happen, how long they take to clear and the types of impact that they have on the broader traffic. So using that data, we're able to support the State Government in providing our experience, and then we undertake research in organisations, including our partnership with NeuRA and the Transurban Road Safety Centre. That work that's being done there has been very much at the forefront of influencing policy and standards around the protection of children and vehicles. That's ongoing as we speak, in moving from how people use child restraints, the errors they make and how we can transport children with disability. That work is world-first and hasn't been done before. So it's really important work. We can look at what we do, from an operational sense, on the network but also how research can impact the broader community and people who use every road.

The Hon. NATALIE WARD: Keep going. Thank you for your collaboration with Transport.

Mr EDMOND ATALLA: A question to Transurban. I presume your team are the first responders if there is an accident on your road. Has your team or those responding had training in relation to what to do when the accident involves an EV, particularly if there is a fire as a result?

ELIZABETH WALLER: Our people in incident response undertake ongoing training for all incidents and how to make the environment safe for themselves, for those who have been impacted and for the other motorists or other people that are in the vicinity. In terms of the specific training, I will take that on notice in terms of EV fires, but I do know that the training that they undertake is contemporary and it is continually evolving as new and emerging issues arise.

Mr EDMOND ATALLA: That would be good, if you could take that on notice. I am specifically interested in EV accidents and fires associated with EV accidents, so it would be good if you can take that on notice. The other question, which you may also take on notice is: Have you got data to show how many incidents of EV fires have occurred as a result of an accident on your roads over the last three years?

ELIZABETH WALLER: I will take that on notice. If there have been, we will certainly be able to provide that information.

Mr MATT CROSS: In the New South Wales Government's submission, on page 8, it says:

Risks are higher in LEVs than in EVs

It actually goes into further detail, saying:

As the uptake of LEVs increases, incidents are expected to rise.

Which agency within the New South Wales Government would you say is responsible for light electric vehicles?

JOHN HARDWICK: Looking at lighter vehicles, as in micromobility devices and those sorts of things, obviously in New South Wales we're looking for a national standard and regulation related to micromobility devices and electric batteries. We're certainly working carefully with the Australian Government and others. Also under the Australian Design Rules, we'd like to see some focus on what is available, what is to be used. If I look at it in a New South Wales context from there, we're also looking at what are the things we can do related to those devices in an education point of view. As far as the regulation of them and those sorts of things, it's really trying to stay on a national level as much as we possibly can, because importation and other things are driving some of those things. We have seen in different parts of the world some bad outcomes related to that, in London and New York and other places. A lot of that was the lack of regulation and the lack of guidance given to people about how to charge them and those sorts of things and how to use those devices.

Mr MATT CROSS: Outside of even just electric vehicles, or light electric vehicles, in terms of just scooters and e-bikes, is there quite a bit of regulation at the moment from Transport for NSW?

JOHN HARDWICK: As far as the micromobility devices, at the moment there's not a lot of regulation, as we're looking across at a national level. So we're working to try to get national regulation. What we don't want to do is have each of the States—we're all grappling with exactly the same issue, and all of us are now inputting into the national scheme to try to see if we can get a national approach, because that then gives clarity to people on importation as well as at a State level, how to deal with it, and then we can look at our rules around those devices at a State level within that scheme.

Mr MATT CROSS: In relation to those regulations, if a national scheme does come into place, would it then be the States' responsibility of enforcement or would it be a partnership?

JOHN HARDWICK: If it's brought into play at a national level, then that national regulation comes into play. So importation and other things would be dealt with at a national level, but then at an enforcement level, at a State level, we would be looking at whether we've added anything to that to change that outcome, but then we would look to—when I say "we", as in the New South Wales Government would look to do that, and that would primarily be the role of the police department.

Mr MATT CROSS: Just on another topic but related to the submission, there was another submission we got from a member of the public that said that they were switching their licence plates, or numberplates, from a non-electric vehicle to an electric vehicle and that the licence part of the numberplate didn't update it. I do understand there are rules around the heavy vehicle standards and national regulations. From a New South Wales perspective, is compliance extremely strict around making sure electric vehicles are clearly identified on licence or number plates?

JOHN HARDWICK: In New South Wales, yes, there's a little triangle that goes onto everybody's numberplate. When you go to re-register or register the vehicle, it says what type of vehicle it is, and if you don't have that registered, then it will be identified to the police that that vehicle does not have the symbol on it and you can be fined as an outcome of that, for not having the appropriate symbols on there. It's really, really important for fire brigade—Fire and Rescue. When they arrive at a site, that's the first thing they will look for to know whether they're dealing with an electric or hybrid vehicle versus a petrol vehicle.

Mr MATT CROSS: Maybe not today, but do you have figures on the enforcement of that?

JOHN HARDWICK: We would have to take that on notice, but it's actually not a Transport for NSW one; that would be New South Wales police—

Mr MATT CROSS: Correct.

JOHN HARDWICK: —because they would have the numbers of fines or warnings they've given for people to have that fitted. So it wouldn't be a question for Transport for NSW.

Mr MATT CROSS: Okay. That's good.

The Hon. MARK LATHAM: To the panel from the New South Wales Government, do we know how many of the nearly 50,000 motor mechanics or car repair licensed people that we've got in New South Wales have had training in issues concerning EVs?

JOHN HARDWICK: We would have to take that question on notice. I wouldn't know from a Transport for NSW point of view. We wouldn't know.

JAMES KELLY: SafeWork NSW doesn't keep those records.

JOHN HARDWICK: I do know—

The Hon. MARK LATHAM: As part of that, can you find out how many of them have undertaken the six-hour face-to-face training module at TAFE that Mr Moran mentioned earlier on? Mr Moran, on that, you said these were all your frontline personnel. Is that for Transport for NSW, or are we talking about the police, the SES, Fire and Rescue, Rural Fire Service?

CRAIG MORAN: That was a specific training program that we put all of our frontline people through.

The Hon. MARK LATHAM: Transport for NSW?

CRAIG MORAN: Correct, yes.

The Hon. MARK LATHAM: Right. How many frontline people have you got and what do they specifically do?

CRAIG MORAN: In total, around 130 who do that emergency response activity.

JOHN HARDWICK: Did you want to describe what they do?

The Hon. MARK LATHAM: Do you know if those other agencies, emergency services agencies, first responders have undertaken any training through TAFE?

CRAIG MORAN: I don't. I couldn't say exactly whether Fire and Rescue have, but I would presume that, being the responsible combat agency for fires, Fire and Rescue definitely would have, because they informed the course that our people did with TAFE NSW. I might clarify what the role of our first responders is out on the road environment. They're not people who deal with a fire or put out a fire. They're very much there to work with the emergency services when they get on site to make sure that we provide a space that is safe for them to deal with a fire or deal with people who may be injured if there has been a crash or something of that nature. They also deal with towing away disabled vehicles, and that's why it's very important that those little blue triangle stickers are on the vehicle—because they've been trained to look for those to identify that that's an electric vehicle when they're dealing with it and that they need to use their gloves and things of that nature. I would say Fire and Rescue definitely would have, as part of their ongoing training around emergency response to fires. We very much focused on our frontline people because they do have to interact with electric vehicles that are now in the fleet.

The Hon. MARK LATHAM: Finally, why does New South Wales have a pink slip system for cars aged over five years to see that they're still safe to operate on our roads but we don't have any comparable system for the older cobalt lithium batteries in e-bikes and e-scooters, especially given the fact that it seems like there's a growing number of fires that come from these batteries failing? It's more dangerous than cars on the road because some of the fires are in apartment blocks that have a large number of people.

JOHN HARDWICK: I think one of the key things is trying to find a way of getting a national approach to that. It's really important that we have a national approach to how we regulate, because a lot of those incidences that are occurring are very much related to the wrong charger with the device. If you've got battery and people use a different charger for that battery, you can get thermal runaway and other events that will occur which start fires. There's a lot of education and training required for people to understand that you don't modify a micromobility device or batteries.

The Hon. MARK LATHAM: I don't know if we've got a national approach for pink slips but do you think people endangered by a fire in an apartment block are going to worry too much whether it's a national or State approach that might save their life?

JOHN HARDWICK: When I look at the bicycles and scooters, for instance, they are not a registered vehicle, so under our schemes we don't have a registration scheme. When you talk about a pink slip, it is for a vehicle that is registered, so that is the way in which we use it. The fact that they are not registered vehicles makes

it very difficult for us to put into place anything that's related to putting those regulations in place. If that type of scheme came into place, then you would be able to see an ability to regulate or at least have an equivalent of a pink slip for a micromobility vehicle.

The Hon. MARK LATHAM: Is it hard to register them—to have a printout of who owns these different e-bikes and e-scooters, particularly when they've got the old cobalt lithium batteries that are so dangerous? You wouldn't have to charge them. You just need to know who owns these things at the point of sale.

JOHN HARDWICK: As far as who owns the vehicles when they're imported from overseas, there's very little information for us in New South Wales alone to know who has bought a scooter or a bike from different parts of the world. Because we don't have importation rules around the way in which that's done and the regulations there, it means that they can be bought by anyone. So we don't have visibility of that within Transport for NSW.

Mr ROY BUTLER: Mr Kelly, we've heard a couple of phrases today—light electric vehicles, micromobility devices and personal mobility devices, I think they're all the same thing. But as we've just heard and discussed today, they're not subject to the same standards or regulations as regular vehicles in terms of a vehicle that's going onto the road-registered system. These are very different. We've heard plenty of evidence that the older cobalt lithium batteries, especially lower quality and lower cost ones, are probably at the high-risk end of this. What implications do those devices—whatever you want to call them—have for PCBUs or workers under section 28? If an employee buys a low-cost device with the lithium cobalt battery, commutes to work and parks it in the workplace, under section 28, a worker has an obligation. A PCBU has an obligation, but how? How would that play out? That's the first one.

JAMES KELLY: To date, we have not had any complaints or requests for service of that nature; however, it is something we certainly do need to give some consideration to. For the transport to and from the workplace, it is solely the worker's responsibility to get there safely. Once it comes into the context of the workplace, the workplace has some duties and obligations to ensure a safe workplace, and that includes things like providing safe charging stations if the devices or vehicles need to be charged, for example, and providing training, education and equipment to make sure they do it safely as well. When people are starting to bring their own devices into the workplace context, which I think is the nature of your question, it presents a new risk and a new hazard that the workplace needs to consider. The onus firstly starts with the control of the workplace. It may be a shared workplace or strata-type scheme. Employers have obligation to consult with each other to identify the hazards and risks and whether or not they want to permit vehicles of employees' purchase coming into that workplace. As I said, to date we have not seen issues arise in that context at present. However, it's a very real risk that businesses should turn their attention to.

Mr ROY BUTLER: When I was talking about it I'm thinking about government offices particularly, because I'd like to think that government offices would lead the way on something like that, as these things proliferate. Obviously, we're seeing fleets—government fleets particularly—transition to hybrid and electric vehicles. This has been happening for a while. I know your legislation is incredibly powerful. I've been subject to a provisional improvement notice and a prohibition notice previously, which was in a police station, so that wasn't fun. But in terms of what we've done to prepare both our workforces and our workplaces for this transition to vehicles, can you talk a little bit about the SafeWork activity in that space to try to make sure our staff—government employees, particularly, and private sector employees—the garages they're parking in and everything is ready or prepared for that transition?

JAMES KELLY: That is a very good question. It's certainly a new and emerging issue for us. The numbers are extremely small in terms of any kind of request for service or any incidents being notified to us as the regulator to date, which is really fortunate. However, in saying that, we are actively working with other government agencies, including Fire and Rescue, to monitor the situation. We also do a regular work health and safety radar survey to get a sense of the issues arising from health and safety representatives, workers and employers around a whole range of work health and safety issues. In the autumn edition last year we did a bit of a dive into electric batteries in particular. That is certainly an issue that staff are starting to raise. At this stage, it's an awareness-raising exercise. It's starting to build our knowledge and research base, in partnership with our Centre for Work Health and Safety, to start to build awareness around the potential risk in this area. But we are yet to start to go down the path of compliance activities and really zone in on that, because the information is really limited. We're relying heavily on Fire and Rescue NSW and their insights to date.

Mr ROY BUTLER: The answer that you just gave will answer my next question, which is in regards to people who, as part of their work—whether they're part of the gig economy or whether they're police or ambulance officers—have no control over the environments they go into or what devices are in there. I guess it's the same answer—that you're still working through assessing and understanding those risks and making sure that you cover it off. I can see at the moment that we've got these things existing. As they get older, apparently they

get less and less stable. So the chances are, as there are more of them and they get older, we're going to see more incidents.

JAMES KELLY: I think the key message is for persons conducting a business or undertaking out there to take this risk very seriously. It's a great opportunity for them to start to identify the hazard of people bringing batteries and devices that rely on lithium ion batteries and other similar batteries into the workplace context. They have to identify that as a hazard and risk and have control measures in place to control it. The onus is on the PCBU.

Mr ROY BUTLER: No pressure.

The CHAIR: Mr Kelly, how do you currently capture data on injuries to workers caused by electric vehicle batteries? And what are the most prominent challenges that you're confronting, and do you feel that you are resourced adequately to deal with those challenges?

JAMES KELLY: Our primary source of data comes from the Xero database and the insurance companies that claim through workers compensation data. We can proactively request information through that database to identify injured workers and those who are lodging claims in relation to workers compensation. To date, I'm not aware of any data to that extent. We haven't requested data in preparation for this. The primary source of data that we collect ourselves is request for service when people put in a complaint or concern in relation to a work health and safety hazard and/or incidents in relation to notifiable incidents in the workplace context. The numbers are extremely small when it comes to electric batteries—less than five were identified in preparation for this.

The CHAIR: To either of the gentlemen from Transport for NSW, do you feel that Transport for NSW is keeping pace with the emerging technology in terms of procedural practice? Do you feel that you are resourced adequately to keep pace with that emerging industry, particularly around safety?

JOHN HARDWICK: Certainly, from a resourcing point of view, we're implementing electric vehicles within Transport for NSW, such as our zero-emission bus fleets and other things of that nature, so we've got a lot of work happening around the safety side at the moment. There's a big transition of capability that we're dealing with right now. With the resourcing point, it's actually re-skilling people to make sure that we've got the right skills for the future. A lot of the work that we're doing at the moment is around the re-skilling of the individuals. The resourcing side of it is quite similar. Once you move into a new technology, the need for the similar types of resourcing is what you would expect. But at the moment, as we're in transition, we're finding that we're able to keep pace. Implementing it ourselves within the bus fleets and our own fleets is helping us keep pace with all of that because we're doing that in parallel with the rest of the State implementing electric vehicles.

The CHAIR: With there being no further questions, I thank you for appearing before the Committee today. You will be provided with a copy of the transcript of today's proceedings for any corrections that you may have. The Committee staff will also email any questions taken on notice from today and any supplementary questions from the Committee. We kindly ask that you return these answers within 14 days of receiving the questions. Thank you again. I appreciate your valuable contribution. On behalf of the Committee, we appreciate your time and commitment to working with us to determine the best outcomes going forward.

(The witnesses withdrew.)

Ms KYLIE MACFARLANE, Chief Operating Officer, Insurance Council of Australia, affirmed and examined

Ms ALIX PEARCE, Senior Manager, Climate and Social Policy, Insurance Council of Australia, sworn and examined

The CHAIR: Thank you, Ms Pearce and Ms Macfarlane, for coming in today. I understand that you were going to be here earlier, but you had to postpone.

KYLIE MACFARLANE: I apologise. I wasn't sure if my flight would arrive in time.

The CHAIR: No problem at all. We appreciate you coming along and going to the effort. I note that the Committee staff will be taking photos and videos during this hearing. The photos and videos will be used for social media purposes on the New South Wales Legislative Assembly's social media pages. Please inform the Committee staff if you object to having photos and videos taken. Can you confirm that you have been issued with the Committee's terms of reference and information about the standing orders that relate to the examination of witnesses?

ALIX PEARCE: We have.

The CHAIR: Do you have any questions about this information?

KYLIE MACFARLANE: No.

The CHAIR: Would you like to make a short opening statement before we begin questions?

KYLIE MACFARLANE: Thank you for the opportunity to appear before the Joint Standing Committee on Road Safety. Alix Pearce and I look forward to the discussion today. By way of background, the Insurance Council of Australia is the national body of the general insurance industry in Australia, representing around 90 per cent of private sector general insurers. Australia's general insurance sector provides protection for 41 million homes, buildings and vehicles against unexpected events. Your inquiry into electric and hybrid vehicle batteries is both important and timely. I want to make it clear at the outset that there are three distinct types of electrified transport that use lithium ion batteries, from our perspective, and require connection to power to recharge the battery pack. These are personal mobility devices, like hoverboards and scooters; light delivery EVs, like golf buggies; and road-registered EVs. It's critical that we treat each of these types distinctly, as they come with different risk profiles and different mitigation solutions.

Starting with road-registered EVs, the latest report from the Electric Vehicle Council shows that there are now more than 180,000 EVs on Australian roads, with nearly 100,000 of those bought last year. We welcomed the release of the Federal Government's National Electric Vehicle Strategy and support the introduction of a fuel efficiency standard. We also welcome the New South Wales Government's commitment to increase EV sales to 52 per cent by 2030-31 to help the State achieve net zero emissions by 2050 and the \$209 million investment to build the State's EV charging network. Research from EV FireSafe indicates that road-registered EVs do not present a greater risk of fire occurrence than conventional vehicles. This is something that is also reflected in engagement with our members, many of whom have substantive motor books. However, when a fire does occur, it needs to be managed differently. More research and training for first responders like fire, police and paramedics, and secondary responders like tow trucks, salvage yards and recycling yards will help to minimise the risks associated with EV fires, along with other recommendations outlined in our submission, such as improved consumer education.

The electrification of Australia's transport sector, including passenger and commercial vehicles, will play an important part in decarbonising our economy. Insurers are already working in collaboration with governments and key bodies across industries to support the acceleration of Australia's electric vehicle transition whilst appropriately managing risks. Separately, we are also seeing an increase in consumer demand for alternative and less emissions-intensive transport, which we would refer to as personal mobility devices and light delivery vehicles. Unfortunately, this has led to a growth in imports of cheap, non-compliant e-scooters and e-bikes that can present a higher risk of battery fire and a higher risk of causing injury, fatality and property loss. There have been reported fire incidents involving lithium ion batteries in light delivery EVs, including, for example, battery fires in golf buggies. These risks from personal mobility devices and, to a lesser extent, light delivery EVs necessitate a stronger role for government in research and enforcing regulations.

Tragically, we have seen a number of serious incidents in New South Wales in recent months, including one with fatalities. Given these differences, we encourage policy-makers not to adopt a one-size-fits-all approach to EV regulation. Electric vehicles are subject to regulations and testing, and associated charging infrastructure is subject to technical specifications and updates. Existing regulations and guidance, as well regulatory gaps, are considered by insurers when assessing risk. The import of personal mobility devices needs to be regulated. Personal mobility device batteries and lithium ion products need to be appropriately stored, and consumers need to be aware of risks associated with damaged batteries and chargers. Alix and I are happy to take your questions.

The CHAIR: Before we move to questions from the Committee, I wish to inform you both that you may wish to take a question on notice and provide the Committee with an answer in writing at a later date.

The Hon. NATALIE WARD: Thank you both for coming along. We appreciate your participation and assistance to the Committee in this emerging area. I'm surprised to see the reference to tuktuks about light delivery vehicles.

ALIX PEARCE: They make everything electric these days.

The Hon. NATALIE WARD: Can I refer to your opening statement and perhaps the idea that it is unregulated. I'm paraphrasing, of course, but, "Thank you, Amazon, you can import pretty much anything you like"—that was ironic. Can you comment about that and the steps that you think would be necessary to regulate that, given how prolific it is? I think that there's a lack of awareness, perhaps, of home owners about these items being in their homes, apart from the occasional news story about things that there may be very many sitting out

there. I'm sure that you've done some work on what you think the numbers might be. Can you give us an understanding of what you think the current situation is and how regulation might help?

KYLIE MACFARLANE: Certainly at the moment, because of demand, there has been a spike in the importation of personal mobility devices. I have nine-year-olds, so both wanted hoverboards for Christmas. Luckily our paper came out before Christmas and I decided that was a bad idea. But there is certainly a demand out there. What we need to do is see both regulation and consumer education—the latter being most important in the first instance. People are buying these products, unaware of the risks associated with them. They're unaware of the charging risks, in particular. Many of these devices are stored within people's homes or in strata complexes, stored on verandas, for example.

We need to educate consumers more broadly on the risks associated and on how they ensure they have properly functioning personal mobility devices—the batteries: are they leaking, are they blowing up or do they look damaged? Have you had an accident on your personal mobility device? Has that caused an injury to the personal mobility device that you need to be aware of? And also the storing and charging of those devices. Secondly, is the point of regulation. Like we see with motor vehicles, how do we regulate these devices so that there is a minimum standard of product being imported and purchased by consumers and that there is a level of certification that can go along with that so that consumers understand—like when they buy a fridge and see an efficiency standard—and know whether or not that product meets the minimum standard of compliance?

ALIX PEARCE: I'm pleased to add to that in terms of regulation. The ACCC has recommended that State and Territory governments go about creating a harmonised electrical regulatory framework—you probably heard about that today from other witnesses—and that will establish consistent requirements of things like testing, labelling, transportation and storage; the points that my colleague has made. We think that's a really sensible next step and look forward to engaging with the regulator on how that might be implemented. We've also engaged with strata bodies; I know you've had some of them present today as well. We think there's also a real opportunity for government engagement as well as engaging with specific strata groups on by-laws, for example. The risk we hear about storage in strata—what role is there for some standardisation of by-laws, for example, that could do a bit of that softer regulatory work alongside the ACCC framework as well.

The Hon. NATALIE WARD: Thank you, that is very helpful. I'm just talking theoretically, of course, but if you weren't strong enough to say no and you did, potentially, import a hoverboard unknowingly to try and impress your kids at Christmas—probably misunderstanding the potential risk or not even being aware of it—is that something that your members have some data on or are gathering or that you might be in a position to consider? You're welcome to take it on notice if that's helpful, but you might be in a position, given your membership, to be able to get that sort of data about how much might be out there. I think there would be a lot of garages with a lot of things in them that people don't know might be a risk.

KYLIE MACFARLANE: Electric vehicles is an easier one to gather data on because they're insured as a unique product. Personal mobility devices fall under home and contents insurance, so the home owner needs to actually disclose that they have a personal mobility device for an insurer to capture that information. So, unfortunately, I don't think we would have sufficiently robust data on that matter.

The Hon. NATALIE WARD: Is that something you might consider, potentially? I'm not trying to tell you how to do your job. I'm just saying it could be very helpful in your members' interests and the interests of our emergency service workers and everyone else who has to deal with the fallout.

KYLIE MACFARLANE: We can take that on notice.

ALIX PEARCE: I was just going to add as well that we've engaged with other groups. I know you heard from EV FireSafe this morning, who are doing some really critical work on that data piece. There could also be an opportunity for cross-collaboration with groups like that that are looking at building those really comprehensive databases that do track those kinds of things.

Mr MATT CROSS: Building on what you've said around the need for stronger regulatory enforcement for importation, that's a Federal Government matter, correct?

KYLIE MACFARLANE: I will take that. As I said, I think that ultimately, if you can have a consistent regulatory framework nationally along the lines of what the ACCC has suggested, then you're going to get consistency State to State.

Mr MATT CROSS: To clarify, it's set out pretty clearly and articulately in your submission but for electric cars, buses, trucks and motorbikes clearly there's a low risk of accidents or related fire compared to current vehicles on the road. Is that correct?

KYLIE MACFARLANE: The evidence at the moment certainly suggests that. But we also need to remember that there aren't actually a lot of electric vehicles on the road in Australia at the moment. We don't have a long span of historical data. As more vehicles come into the country and as more data is collected on those vehicles around insurance, insurers will adjust their settings. I think that's why it's really important that government and the insurance industry collaborate going forward to make sure that we understand if there are any systemic risks or opportunities that are being seen as we start to increase the number of vehicles in this country.

ALIX PEARCE: We do have some additional data that wasn't in our submission but that we've gained from engagement with our members—because it has been such a prominent issue since we did provide that submission—that I can also provide now. In the UK market where we've seen much more EV infrastructure on the roads as well as EV usage, the Cambridge independent research institute has found that, based on that current dataset, fires and EVs are much less common actually than ICE vehicles. But, as you have heard consistently today, those fires need to be treated differently when they occur. In Sweden, there are also similar datasets that show that, from 2018 to 2022, ICE vehicles experience more fires than passenger vehicles that run on lithium ion batteries. At that time, when that analysis was done, there were around 600,000 EVs on the road and 4.4 million vehicles powered by other fuels. Finally, Zurich is one of our members and they have an excellent risk dataset on this issue. Their recent history has also shown that fire frequency is not higher for road-registered EVs when operated normally. I think that's really clear that what we're seeing in other markets is really reinforcing that risk.

Mr ROY BUTLER: Thank you both for being here and for your submission. Ms Macfarlane, I want to pick up on something you said in your introductory statement. We've heard a lot of evidence today about a lack of regulation when it comes to some of those cheaper products coming into the country, especially the personal mobility devices that have many other names. You made the comment—and I'm paraphrasing—about an influx of cheap noncompliant personal mobility devices. To what enforceable standard are you referring when you talk about noncompliant?

KYLIE MACFARLANE: I think we're making the point that there isn't a regulatory framework that we can point to at the moment that encompasses and encapsulates personal mobility devices in their totality. We know that there are regulatory frameworks, like the National Construction Code and others, that regulate EV vehicles but we don't have a certification system in this country. Noncompliant may not be the right term, simply unregulated.

Mr ROY BUTLER: Thank you for clarifying because I thought, "Oh, crap, I've missed something."

KYLIE MACFARLANE: No, apologies. It was bad use of language.

The CHAIR: Thank you both for taking the time to come in and for your valued contribution, as well as for working with the Committee to address this emerging technology. We're here to help you help your members and do what we can for all of industry and community to make sure that we are best prepared and make appropriate recommendations. That is ultimately what we are trying to achieve. You will each be provided with a copy of the transcript of today's proceedings for any corrections. Committee staff will email any questions taken on notice and any supplementary questions from the Committee. We kindly ask that you return these answers within 14 days of receiving the questions. That concludes our public hearing for today. I thank all the witnesses who appeared today. In addition, I thank Committee members, Committee staff, Hansard and DPS staff for their assistance in the conduct of this hearing.

(The witnesses withdrew.)

The Committee adjourned at 16:45.