

TRANSCRIPT

STANDING COMMITTEE ON THE ECONOMY AND INFRASTRUCTURE

Inquiry into electric vehicles

Melbourne — 9 November 2017

Members

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Witness

Mr Tim Washington, Founder, JET Charge.

The CHAIR — The committee today is hearing evidence in relation to the inquiry into electric vehicles, and the evidence is being recorded. Mr Washington, welcome to the public hearings of the Economy and Infrastructure Committee. All evidence taken at this hearing is protected by parliamentary privilege; therefore you are protected against any action for what you say here today, but if you go outside and repeat the same things, those comments may not be protected by this privilege.

I would ask you just to begin by stating your name, your company, your position in that company and the suburb or city in which you are based and then go on to a 5 or 10-minute opening statement. Then we will open it up to questions. Thank you.

Mr WASHINGTON — Sure. Thank you. My name is Tim Washington, I am the founder of JET Charge and the co-founder of Chargefox. I just want to thank you for establishing this inquiry. Our young industry really thanks you for that. JET Charge is a supplier, installer and manager of electric vehicle charging infrastructure. I really want to focus today on the infrastructure itself because I think it is easy to talk about electric mobility and it is easy to say, ‘Well, infrastructure needs to catch up’, or, ‘We need to establish infrastructure’, but as someone, day to day, who is involved in actually putting stations in the ground I can tell you that the challenges around that are not as simple as saying, ‘Well, we need 1000 stations by 2020, thanks, for all of this autonomous mobility and shared mobility to happen’. So I am hoping to provide some practical and on-the-ground experience for you.

We are a Melbourne-based business operating out of North Melbourne. We have deployed the most charging stations of any one company in Australia, closing out to 1000 by the end of this year. We service some of Australia’s largest car brands — not Australian-made ones but ones that have electric vehicles for sale here. We count some of Australia’s largest companies and property developers as our clients.

Chargefox, my other company, is a joint venture with another software business and is also based in Melbourne. We are the first Australian-coded electric vehicle charging infrastructure software solution. So when you see the charging stations on the street, they need to be controlled by something. Just like you need an app to open a car, you also need some form of control over the charging station. Up until now everything has been foreign-imported, off-the-shelf, but the reality is that for people to take this infrastructure seriously it needs to be locally coded, which is why we have taken that step. We consider that part of the manufacturing landscape of Victoria as well; it is just a different type of manufacturing. You will hear from some of those foreign operators later on in the hearing.

I really did not want to talk about the environment today. I think that is in the back of all of our minds, but today I am really here to talk about the business that sits behind the charging, and in particular I want to talk about leadership, jobs and innovation — I know those are all kind of stupid buzzwords, but I want to talk about those.

There is currently a race on globally to control the electric vehicle ecosystem. There is a big race on, and we are a bit shielded from that because we are a bit far away from where all the action is, but there is a really big race on to control the EV side, the charging side and the services side. A really good example is in the UK, where they have got the Office for Low Emissions Vehicles, a very practical example set up by the UK Parliament. They have an actual department dedicated to ultra low emissions vehicles backed by about £900 million of investment, and their stated aim is to make the UK the leader in ultra low emissions vehicles. The European Union is allocating another €900 million for the build-out of the electric vehicle charging infrastructure alone, basically as part of their low emissions vehicle scheme over the next 10 years. There are serious dollars being pumped into here; China will install 800 000 charging stations alone this year. To put that into context, Australia has about 500 public charging stations. There are more private ones, and we have installed a lot of those, but that kind of gives you a flavour of that.

There will be clear winners in this race. I will not say there are losers, but there are going to be clear winners. I think as a Victorian business we have to make a decision: do we want to be part of that circle or do we want to sit back and kind of let the rest of the world dictate what we should and should not take? Doing nothing is definitely an option. We can do nothing. But from my perspective, if we choose to do nothing, then we will forever be a technology taker in this space and not a technology provider. Given that this is one of the greatest modal shifts in automotive history, I think it is important for us to provide the technology that sits behind that, and there are Victorian businesses that are doing that right now.

We think investment in this area, if the government chooses to do nothing, will be primarily controlled by foreign entities. We have seen that around the world. For example, in India, where they have announced ambitious electric vehicle plans but have not had the government support to back them up until very recently, all of the investment, all of the infrastructure provision, has been provided by overseas companies or joint ventures with overseas companies. Given how important charging infrastructure is to our grid — and I know a lot of our grid is also owned by foreign entities — increasingly electric vehicles will become a critical part of our electricity grid. To what extent we want also that to be controlled by entities outside of Victoria — my preference is for it not to be, and we are taking the steps towards that — with Victorian government support we can ensure that a lot of the technology comes from here.

There will be companies like ours that will endeavour to succeed regardless of what the Victorian government does, but we are just one company. I do not really want to see one or two companies; I want to see an entire industry spawn out of Victorian government support. There is a reason why some of the biggest names in charging infrastructure come from places with the most government support behind electric vehicles and electric vehicle infrastructure. The biggest names in the world come from California, the Netherlands, Norway, Germany, China and the UK, and they also have the most support for electric vehicles, so it is just a natural ecosystem. When there is government support, it is all about giving confidence to private enterprise and so you have more confidence to invest. Vehicle manufacturers will bring it here because they know that fleets will buy EVs. You have conferences that attract a local audience for electric vehicles, and jobs are more likely to be created.

I just want to touch on jobs for a second. I think it is useful to provide some context in relation to jobs. In California electric vehicle charging, not the electric vehicle space — people like Tesla employ 33 000 people so we are not talking about them; we are talking about charging alone — employs 2600 people right now in 2017, with a near-term growth rate of 8 per cent. Controlled for population, Victoria should have around 330. I could probably tell you every single person who works in the electric vehicle charging space in Victoria, and it is not close to 330. It is probably about 10, and probably seven of them are in our office. I am quite sad to say that we do not those jobs. Those job numbers in California are quite modest until you consider that they have about 1 per cent EV penetration in the US. We are really in infancy, and they are already at 2600 jobs in California.

Globally the charger industry is expected to grow at a compound rate of close to 50 per cent from now until 2025 and will reach annual global revenue of A\$60 billion. In the US alone, EV charging infrastructure has increased by 576 per cent in revenue for the last five years and was expected to go from \$27 million in 2011 to \$182 million last year, so it is a significant business. I am quoting these numbers because I wanted to illustrate the opportunities there are for Victorian businesses in this space. We offer some of those jobs. We are a very young business. We have been around for four years now, but we have been growing at a steady pace — but we could grow faster with your support. I think the best way to push for a bigger slice of the pie is through innovation. I know innovation is just a silly buzzword that everybody talks about, but in reality it is really about finding the right product to export. When it comes to software and services, I think there is a real exportable market because we have some of the best research institutions in the world here in Victoria. We have a rich automotive history and industry, and we have entrepreneurs like me who want to find the right product to export.

We are working with people like Adelaide City Council to deliver the most sophisticated electric vehicle infrastructure in a car park around the world, and we are doing that because Adelaide City Council and the South Australian government have offered us support to do that. Those are the kinds of things where, if the Victorian government were involved, we could offer the same things. We will naturally focus our attention in the markets that will support us the most. Victoria was one of the leaders in the electric vehicle space in Australia, with the electric vehicle trial. We are probably going to be the last to develop an electric vehicle policy in Australia. As a Victorian business and as someone who has been involved in a family business in Victoria for the past 25 years, I find that quite sad. I would like us to retake that leadership position.

There are three things I think we can do specifically around electric vehicle charging infrastructure to help us retake the lead. The first is to mandate electric vehicle charging infrastructure in new buildings. That can be done through the state planning scheme, and it does not come at a big cost to developers. The systems already exist, and developers — the good ones — are in fact already doing it. It is just a matter of making the people who do not care as much about their reputation in the long term do it as well, because these buildings are going to be around for a long time and nobody pretends that we are going to be driving anything other than majority

electric vehicles in 50 or 60 years time. It is an inevitability; it is just a question of when. We need to make sure that the buildings we are building now are mandated to include that. Overseas it is anywhere between 10 to 20 per cent of car spaces. I think we can do that with no revenue impact on the Victorian government.

The second thing is to create an exemption to the congestion levy for parking spaces. By doing that you create a natural economic incentive for people to install charging infrastructure, and you can create one of the largest metropolitan charging networks in the world, which helps things like car share. When we heard before about hub and spoke charging hubs, essentially those charging hubs have to be built and there needs to be an economic case for those charging hubs to be built. It is easy to say these high-capacity chargers will just be installed. Well, no. There is no economic incentive for them to be installed, because the charging stations cost \$100 000 before installation. How do we go about encouraging people to install charging infrastructure to service these autonomous vehicles and share vehicles?

The third thing is I think we need to encourage local manufacturing and local jobs by supporting them through something like the New Energy Jobs Fund and having a specific stream dedicated to mobility. For a long time we concentrated on renewables and energy efficiency, and we definitely needed to do that. But recognising that low emissions transport forms part of that pie and that puzzle I think is really important.

At the end of the day, electric vehicles are a sunrise industry. We call it a sunrise industry because you know it is inevitable that it is going to come but around the world some people are going to see it sooner than others. We are just hoping that in Victoria we can basically see it sooner. Thanks.

The CHAIR — Thank you very much indeed. You mentioned that there is a race on for this technology and to lead in this technology. Where is Australia in that race at the minute?

Mr WASHINGTON — I would not say dead last because I do not know where a lot of the countries are, but we are not part of the pack. We are not in the peloton.

The CHAIR — I noticed that you mentioned that the UK and Europe are putting in huge sums of money to this.

Mr WASHINGTON — Correct.

The CHAIR — If I can be the devil's advocate for just a moment, why is the government leading this in those areas and not the market? If people see an opportunity to make money on this, surely they would be the ones who actually are investing instead of the taxpayer.

Mr WASHINGTON — Yes. I think that is a really good question. There is classic market failure in this space in that there is a psychological barrier that people need to cross to buy an electric vehicle, and that is the infrastructure that is involved. I will not say it is a chicken-and-egg problem, because I think that is a cliché. I think it is a solvable problem. But the reason we have needed government support to boost that is because governments have recognised that without the infrastructure they cannot transition to lower emissions transport in the time frame that they want to. And that is why they have put money into installing charging infrastructure — because when the charging infrastructure is out there, people then have the confidence to go and buy electric vehicles and manufacturers have the confidence to bring them in. But we are all trying to work to a time line. As I said before, if we do nothing, eventually all of this will happen. It is just a question of whether we want to be a leader in this space or whether we want to wait for 50 or 60 years.

The CHAIR — So how much taxpayers money would you be looking for?

Mr WASHINGTON — Well, as I said before, I think a lot of the things that can be done do not need to involve any taxpayers money. I think there are policies that we can institute that spread the cost among businesses that stand to benefit from this transition — petrol stations, property developers — because you are really talking about a distribution of fuelling. With that comes a lot of opportunities for property developers, but they need the right policies to move them in that direction. I have not done the sums of exactly how much money is required, but certainly the policies would be a start.

Mr LEANE — Thanks for helping us with our reference, Tim. I just have a couple of nuts-and-bolts questions. One of the electric vehicle chargers that your company installs — say it is on the street or it is in a car park. I suppose it is a unit that gets built completely off site and it gets brought onto site —

Mr WASHINGTON — Correct.

Mr LEANE — What needs to be there other than a power supply? Does there need to be a data line or is it remote? Does the software talk to somewhere remotely?

Mr WASHINGTON — The software is all 3G and 4G operated — it is all cellular based — and it basically talks directly to our servers. There needs to be nothing other than a power supply, but it is ensuring that the right power supply is on-site.

Mr LEANE — When you say, ‘The right power supply’ —

Mr WASHINGTON — Enough power supply is on-site. A very simple example is when a property developer is building a building they look at what they call max demand for the building — so, ‘How much electricity are we going to use?’. What I am saying is that if in the state planning scheme we had a mandate for electric vehicles, that consumption would just form part of the max demand profile. Right now it does not, which means electric vehicle charging is often an afterthought for a lot of developers. What they find is that they go through all of the application process and they come out the end and say, ‘Okay, we have this much spare, so we can only put in two charging stations’.

Mr LEANE — So when you say — and in your submission you mentioned this — ‘developers to take this into account’ or ‘be mandated to take this into account’, are you talking about commercial development, residential development —

Mr WASHINGTON — Both.

Mr LEANE — So for a large residential development it should be mandated that there is a number of charging stations for the residents that are about to move in?

Mr WASHINGTON — Yes, that is correct.

Mr LEANE — Just getting back to the public chargers, with the infrastructure that we have currently got as far as the power infrastructure we currently have in Melbourne, are there any issues around being able to install the chargers at a large number of locations?

Mr WASHINGTON — No.

Mr LEANE — So with the infrastructure we have got now, nothing needs to change —

Mr WASHINGTON — That is correct. I can understand where this question is coming from, because obviously there is a lot of publicity around energy security at the moment. The reality with electric vehicles is that as long as their charging is managed, we are okay. In fact the University of Melbourne did a study a few years ago that showed we can have 90 per cent EV penetration doing nothing to the grid. That is because you can move charging to off-peak times when everyone is asleep, because with charging you are not standing next to the car. You plug it in and you go away, and you just want to make sure that it is charged by the time you need to go in the morning. So by moving the majority of charging to off-peak times we can basically introduce a whole heap of electric vehicle chargers without worrying about the security of the grid. When you have a lot of shared vehicles around, they will only be charging when everyone is asleep.

The CHAIR — If you get a couple of million of those, would that not turn off-peak to peak?

Mr WASHINGTON — If you have a couple of million of those —

The CHAIR — If they are being charged at the same time, that would change things significantly, I would have thought.

Mr WASHINGTON — Absolutely. Just like with the introduction of solar you have seen lower power prices in the middle of the day, you will see different peaks coming into effect, and there needs to be, obviously, planning around the electricity grid to handle that. But the reality is that we have enough power in the grid to supply it. For example, with a rapid charging network that we look at, we do battery buffering. So when we say,

‘We have to handle 100 cars’, it is not like 100 cars are drawing from the grid all at the same time; it is buffered by battery storage. And that will increasingly happen in public charging areas.

Mr LEANE — And part of that technology is what you are developing as far as the software —

Mr WASHINGTON — Yes, that is right — the software and the hardware that sits behind that we are developing right now.

Ms HARTLAND — Can you talk about the Adelaide project?

Mr WASHINGTON — Yes, absolutely. The Adelaide project is an initiative by the Adelaide City Council to install charging stations in every single Adelaide City Council-owned car park. They have what is called UPark, which is kind of like Wilson or Secure, but council owned, and we are installing charging stations in there. There are a few innovative things that are going in there. One, it is basically completely credit card operated, so it is payWave. We are developing the payWave option here in Melbourne. The second thing is that they do not preserve all the car spaces for electric, but it dynamically changes which spaces are allocated for electric vehicles based on how many people are charging at any one time. We are working with a couple of businesses to implement that system.

Car park operators have said to me, ‘We’re worried about the revenue losses that come from reserving spaces for electric vehicles’. I said, ‘Well, in the short term there’s technology to help you overcome that, and in the long term a car space will only be a space if it has an electric vehicle charging station on it’. That is the reality of it. In the next 10 to 15 years to enable high penetration of electric vehicles all car parks in the city — whole floors, every single one — will have an electric vehicle charging station. They will not be reserved for electric vehicles; they will just be part of the space. If you have an electric car, great — plug it in. If you do not, then you do not plug it in. That is what is going to happen. That is the trend in markets with higher EV penetration.

Unless these businesses are given a push in the right direction, they will delay that, and if they delay the infrastructure, the infrastructure delay will forever be an excuse for the delay of the introduction of low emissions vehicles and people will point to us and say, ‘Why haven’t you got your act together?’. We can push as much as we can, but without the support of an actual industry, it is very difficult.

Ms HARTLAND — How many charging stations are there in Adelaide?

Mr WASHINGTON — In Adelaide?

Ms HARTLAND — Yes, that have been put in.

Mr WASHINGTON — There are 40. In Melbourne’s CBD I think we have around 20 to 30. The vast majority of them are Tesla owned and can only charge Tesla cars, and that is something that needs to change. In Victoria as a whole we only have a couple of hundred; most of them are locked away as well. We want to be able to change that, but it is very hard to change that when businesses do not see it as a priority and see no signal from government.

Ms HARTLAND — So that is why you are saying that it is really important for either government or state government to be involved in getting that infrastructure in the ground and to stop that blockage?

Mr WASHINGTON — Yes, correct. I think there are some very clever ways that you can do that to send the right signal to market, because if there is perceived to be government support in this area, then there will be other private enterprises that invest. A lot of them will be our competitors, which will keep me up at night, but ultimately I will be happy if there are more than one or two companies in this space.

Ms HARTLAND — Fascinating.

Mr LEANE — You mentioned Tesla chargers. So electric cars are not like mobile phones where you cannot put a charger into a different type of phone?

Mr WASHINGTON — If you imagine Tesla as Apple, they are the Apple of the car world.

Mr LEANE — Is there such a thing as an adapter that you can put into the Tesla end?

Mr WASHINGTON — Let me put it this way: Tesla cars can use universal charging stations, but other cars cannot use Tesla stations.

Mr LEANE — Which is an issue seeing that, as you said to Colleen, 30 out of the 40 at the moment — in Adelaide is it —

Ms HARTLAND — No, in Melbourne.

Mr WASHINGTON — In the CBD.

Mr LEANE — I know it might be a dumb question, but there is no such thing as putting an adapter onto the end?

Mr WASHINGTON — There are adapters available online but they are against Australian standards. Lots of people use them, because it is an early-adopter market, but it is against Australian standards. We sit on the standards committee and we will try to change that, but I do not like our chances.

Mr LEANE — Why are they against Australian standards?

Mr WASHINGTON — Because we follow the European standards, and the European standards ban them. As to why the Europeans ban them, there are a whole lot of reasons, because you can just unplug them —

Mr LEANE — Safety reasons.

Mr WASHINGTON — Safety reasons, water ingress, stuff like that. The reason why Tesla has dominated this space is because they recognise the need to install charging stations so they can sell cars and they recognise that without the charging stations they cannot sell cars. They are not doing it out of the goodness of their heart. It is not like a pro bono kind of thing. It is, ‘We will sell more cars if there are more dots on the map for chargers’. What we want to do is encourage having it open to everyone, so that is why you cannot have proprietary systems. Everything has to be open.

Mr LEANE — So standards deem one form of charger?

Mr WASHINGTON — We now have a universal approach to charging. We have universal charging stations, so that problem has been solved at the federal level by businesses. The only exception to that is Tesla, so everyone else is okay.

The CHAIR — Mr Washington, I ask you to set your mind forward about 30 or 40 years. We are in Melbourne. Every car space and car park has something to plug the car into, a duct to charge the car. Who pays for that electricity? Will there be meters for each —

Mr WASHINGTON — Yes.

The CHAIR — There will be meters.

Mr WASHINGTON — So, for example, right now if you use our app when you activate the session, you have a credit card linked to it and it debits your credit card automatically. Charging will be like parking. Charging is not special. I say this a lot, but charging is not special. It is just another transaction, just like parking, and once people get used to paying for charging they will see it just as paying for parking. In fact in the future there will be no difference between paying for parking and paying for charging; it will all be automatic. The user pays for the electricity, the money goes into companies like ours or the site owner and then the site owner just has it as part of their regular electricity bill.

Mr LEANE — I am the master of asking dumb questions. At the moment if I use one of your public chargers and plug it in, what does it cost me to charge my Tesla?

Mr WASHINGTON — There is a short-term and a medium-term answer to that. The short-term answer is that it costs nothing, because the amount of electricity is insignificant given how few electric vehicles there are. In the medium term it will cost you less than what it costs you to charge at home because big property owners have lower costs for electricity than you do at home. So that will probably be somewhere in the vicinity of \$0.20

to \$0.25 per kilowatt hour. I will break that down for you. If you were to go from empty to full in your car, it would cost you somewhere in the vicinity of \$12.

Mr LEANE — And what period of time would it take to fully charge the vehicle?

Mr WASHINGTON — If you are going somewhere specifically to charge, the aim is to charge a car in 15 to 20 minutes. If your aim is to basically park your car and then go and do something else, it is a few hours. So we specify the charging station according to need. Public chargers in petrol stations will be able to charge your car in 15 minutes.

Mr LEANE — For about \$12?

Mr WASHINGTON — No, sorry. In those public areas it will cost a bit more because it will be like fuel infrastructure. So if you go to a petrol station to charge, for example, we expect that a full charge will probably cost you \$30 to \$35, but the reality of that is that you get 500 kilometres in range from that if you compare that to petrol. That is why I say it is an inevitability, because we are not really talking about environmental issues anymore. When it aligns with people's hip pockets they will naturally go to electric. That is going to happen in Europe in 2020, and it is going to happen in Australia in 2022. Fleets will change to electric vehicles because they have no emotional attachment to cars, and fleets make up 50 per cent of our car sales here in Australia. It is 600 000 vehicles to fleets.

When the total cost of ownership hits parity, which will happen in 2022, the question is: is there going to be the infrastructure there to support them to do that? There will be a natural economic incentive for them to do that, but if they do not have the infrastructure, then they will not move. My biggest fear is that there will not be enough infrastructure to support that natural economic transition. At the end of the day, right now you can charge your car for \$1 a day. Some retail operators have dollar-a-day charging so that your total fuel cost for the entire year is \$365. It is incredible. I will not go into all of that on the electric vehicle side, but on the charging side of things it is a natural economic argument. Our power bills are going up, but it will still always be cheaper than petrol or diesel.

The CHAIR — Thank you very much indeed. This is proving to be a very —

Ms HARTLAND — Fascinating.

The CHAIR — fascinating morning indeed. You will receive a transcript in the next week or two, perhaps three — the *Hansard* transcript. If you could just have a look at that for any misspellings or to do a bit of proofreading anyway, that would be a marvellous thing. Thank you very much, and thank you particularly for coming in today.

Mr WASHINGTON — Thank you very much.

Witness withdrew.