Australian Government
Productivity Commission

PRODUCTIVITY COMMISSION

PUBLIC HEARING INTO NATIONAL TRANSPORT REGULATORY REFORM

MR P LINDWALL, Presiding Commissioner
MS P BAXTER, Commissioner
MR M ROBERTS, Commissioner

TRANSCRIPT OF PROCEEDINGS

AT PRODUCTIVITY COMMISSION OFFICE
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MR LINDWALL: Well, good morning. Welcome to the public hearings of the Productivity Commission inquiry into the national transport regulation reforms. My name is Paul Lindwall, the presiding Commissioner, and I've got on my right Ken Baxter, and my left, Malcolm Roberts. I would like to mention that we acknowledge the Wurundjeri people of the Kulin nation. The inquiry started with the reference from the Australian government in April 2019. The purpose of the inquiry is to investigate the economic impacts of the 2008/9 CoAG transport reforms; examine the implementation of the national transport regulation reforms, including the development of the three national regulators, the capacity of local governments in supporting the implementation and the delivery against agreed CoAG and intergovernmental agreement objectives; and finally, to assess the scope of future reforms to national transport regulation, including areas for further harmonisation and integration of the transport sector in the remit of the regulators.

We have spoken to representatives from governments, Australian state and territory, service providers, peak bodies, unions, academics, researchers and other individuals with an interest in the issues, and we received a number of submissions prior to the draft report and after the draft report, which was released on 12 November last year. We're grateful to all of the organisations and individuals who have taken the time to write submissions, appear at hearings, meet with us and so forth. The purpose of the hearings is to provide an opportunity for interested parties to provide comments and feedback on the draft report. This is the fourth and final public hearing for this inquiry. We will then be working towards completing a final report, having considered all of the evidence presented at the hearings, in submissions and in other discussions and research that we've conducted. The final report will be submitted to the Australian government in April and anyone who's registered for the inquiry, including those who have spoken to us, will be advised of the report's release by the government, which may be up to 25 Parliamentary sitting days after completion, which just could be quite a while, depending on what the government want to do.

We like to conduct all hearings in a reasonably informal manner, but I remind you that a full transcript is being taken. For this reason, comments from the floor can't be taken, but at the end of the day's proceedings anyone who wishes to can come up and have a – make a presentation. You're not required to take an oath, but you are required under the Productivity Commission Act to be truthful in your remarks. You're welcome to comment on issues raised in submissions and by other

participants at hearings. The transcript will be made available on our website about a week after this hearing, as are the submissions, of course. For any media - and I can't see anyone and as I said yesterday, some of them could be incognito. Please let one of our good staff know that you're here and they'll explain the way in which these hearings should be presented in the media or how they should participate. You should be also aware that of course, there may be media representatives who might use the internet in some way, such as through Twitter or whatever, to make comments on your remarks.

To comply with the requirements of the Commonwealth Occupational Health and Safety Legislation, you are advised that in the unlikely event of an emergency requiring the evacuation of this building, please listen to the instructions over the PA. There will be floor wardens that will assist and if you can't use the stairwell, which of course you should advise and - the floor warden and – so if you don't use a lift, of course, you can go down the stairs, which are twelve storeys up here, so a few stairs to go down and out the front that way. I think that's about it for that. I think the toilet facilities are out that way and to the left and right. Coffee and tea is available here. We'll have a break at some stage to have nibbles, I think. So now I'd like to welcome Pacific National and invite you to each say your name and your position, and then perhaps give an opening statement as you wish.

MR HUCKEL: Andrew Huckel, director of Corporate Affairs.

MS BOYLE: Tanya Boyle, director of Access and Network.

MR MILLAR: Robert Millar, Regulatory and Policy manager.

MR LINDWALL: Please, yes.

MR HUCKEL: Commissioners, thank you very much for inviting us here today to address this incredibly important inquiry into national transport regulatory reforms. I'd like to say that your engagement with Pacific National, Australia's largest rail freight company – and we're also a member of the Freight on Rail Group of Australia. In fact, our chief executive, Dean Dalla Valle, chairs FoRG. Your engagement with us and also the rest of the sector has been excellent and I thank you for that. This has been, from what I can see, a genuine attempt to really get to the bottom of a lot of structural issues which we believe are impacting upon our sector.

Now, we've been hauling rail – freight by rail since 1855, so what we don't know about rail haulage in this country is really not worth knowing

about. We operate in every state and territory except for Tasmania. We haul all sorts of wonderful goods and commodities – coal, grain, steel, refrigerated produce, fresh produce, even waste from Sydney. It's right to say that the Australian rail freight sector is experiencing some green shoots at the moment. Obviously the $10b Melbourne to Brisbane Inland Rail project is a game-changing project for our sector, particularly on the eastern seaboard. We have put our money where our mouth is by recently opening, October last year, inland regional Australia's largest intermodal logistics terminal at Parkes, what we like to call Memphis down under - obviously Parkes hosts the Elvis Festival – and on 10 October last year, we started running double-stacked freight trains between Parkes and Perth across the Nullarbor.

Obviously, the New South Wales Fixing Country Rail program off the back of Rebuilding New South Wales is an excellent initiative. This time last week we were actually at a round table with the Victorian Freight and Ports minister, Melissa Horne, in regards to on-dock rail infrastructure at the Port of Melbourne, another excellent initiative. Running freight trains, particularly regional freight trains, into our ports is becoming increasingly challenging, and this is something that governments really need to take a very close look at. Obviously, with the growing populations of Sydney and Melbourne and Brisbane, you've got those extra passenger services, understandably so. You've got issues of an encroachment. So improving those connections from paddock to port, from plant to port, from pit to port is incredibly important. So it was very pleasing to see that initiative from the Victorian government.

Obviously, you've got the duplication of the Port Botany freight line and ARTC has put out expressions of interest for the development of that incredibly important project, and then you've got governments having a lot of thought in regards to terminal strategies.

It is incredibly important that there is a network – a series of intermodal freight hubs in the outer suburbs of our capital cities to run what I call those rapid-fire train shuttles between the port and precincts which service distribution centres and warehousing. If governments want to reduce greenhouse gas emissions, if governments want to reduce traffic congestion, if governments want to reduce road accidents and fatalities, if governments want to reduce wear and tear on roads, particularly regional roads which are owned and managed by councils, the solution is very simple: put more freight on rail. Every port and freight strategy and plan you see talks about the need to shift more freight from road to rail, and this is not a criticism of the trucking sector. Not at all. They have naturally thrived under a unique set of circumstances which are largely government sponsored. The last 30 to 40 years, tens of billions of dollars

have been spent – taxpayers' money – upgrading highways and roads, and when a road is upgraded – a highway is upgraded, well then obviously, heavy vehicle movements become more efficient. Governments have also largely geared policies to rolling out bigger and heavier trucks.

Back in August 2018 the national heavy vehicle regulator approved the use of a new truck combination called a B-quad, a prime mover with four trailers. It's over 120 feet in length and it weighs over 105 tonnes. Now, it's not hauling mineral ore up in the top end or the northwest of WA. This particular operation is hauling carrots between Victoria and Queensland. So we've got to ask ourselves the question, how much bigger do you want trucks on our roads? But without trucks, trains stop, and vice versa. A very real example of this – and how this is not sending alarm bells throughout government agencies, I really don't know. As we sit here today, less than one per cent of palletised and containerised freight is hauled by trains between Australia's two biggest cities. Less than one per cent.

Now, that equates to 700,000 B-double equivalent truck movements on the Hume Highway every year. The Hume was fully duplicated in 2013. The Pacific Highway, and rightfully and understandably so, is undergoing a massive upgrade. It will be fully duplicated within the next two to three years. When that happens, again, heavy vehicle movements will become even more efficient, and governments do feel compelled to roll out those bigger trucking combinations. A-doubles, modular B-triples, so on and so forth. We're doing some work in regards to mode share between Sydney and Brisbane and our initial analysis – it's not great when it comes to rail. By the time the inland rail is completed – and that, at the earliest, is 2025 – the Newell Highway would have undergone massive upgrades. Between about 2011 and 2016, around about $240m was spent on upgrading the Newell. There's a further half billion dollars under Rebuilding New South Wales for further upgrades, and at the recent federal election there was more money committed. Again, truck movements between Melbourne and Brisbane will become even more efficient.

We also have issues with a lack of harmonisation within our sector. Whether it be drug and alcohol policy, whether it be fatigue management, obviously New South Wales and Queensland have different rules to other jurisdictions. But guess what? Freight trains run across state borders. Funny, that. When it comes to communication and signalling systems – and Sue from ONRSR would be well aware of this – that is a problem in itself. So we're going through a process where we're starting to standardise the steel, the actual physical infrastructure, but we've got to be careful that we don't end up with a myriad of communication and

signalling systems. So Pacific National, we're a great supporter of the rollout of ARTC's Advance Train Management System. A lot of our training requirements are quite outdated and are overly prescriptive, and there needs to be more focus on a risk-based approach in terms of our operations. A freight train driver – if you want to operate a particular class of locomotive, same payload, whether it be grain or steel or what have you – but if you want to use that on a different route, you might have to undergo up to 18 months of additional training. If you want to graduate from driving a semi-trailer to a B-double, that'll take you 48 hours.

So these are the issues which are holding back our sector, and all we're asking for is a level policy playing field. Why is it that the rail freight sector pays full freight in regards to supporting the rail regulator, whereas the national heavy vehicle regulator still receives a lot of funding through governments? And both regulators were formed around about the same time. So that's another cost to our sector at a time when, if you put a survey out onto that street, the vast majority of Australians want to see more freight on rail. They want to see less big trucks on the road. All those beneficial externalities of rail freight are not properly built into land freight pricing models. That's one of the reasons why on some of these key corridors - bearing in mind, between Sydney and Melbourne it's over a thousand kilometres. In any other country rail freight competes quite comfortably. Bearing in mind that's the busiest freight corridor in terms of volume in the country, over 20m tonnes. Less than one per cent of freight. Now, there's some factors to that, but one of those issues is rail access charging, which is too high and it is making rail freight operators at a competitive disadvantage to road.

So that's our introduction. We can go into further detail in regards to any specifics that you'd like to ask us about. But the sector, it is at a crossroads. Like I said, there are some very positive signs, but there needs to be a real focus – more of an effort through government to get to the bottom of these issues - and that's why this particular inquiry is so important – and no longer just to skim the surface, because companies like Pacific National, we're here and we are willing to invest, and we have shown that.

For example, we're proposing a freight hub in the heart of western Sydney at St Marys. That will help take around about 70 to 80,000 heavy vehicle movements off the M4 motorway and the Great Western Highway. That's good for traffic congestion in Sydney, congestion which is costing billions of dollars.

So that hopefully gives you some background and some context. I think we probably should start with the issue in regards to rail access charges.

Tanya and Robert have done a lot of work in this area and pricing is very, very important when it comes to helping shift freight from road onto rail. Thank you.

MR LINDWALL: Thanks for that. Could I start by saying that yesterday, we had testimony that – from the Australian Trucking Association that in fact, trucks do pay money to the NHVR, and in fact they gave an example of, I think, a truck – prime mover in New South Wales of $912 a year. Also, I've had testimony from the ONRSR that they do collect government money. Now, I guess it comes down to how much one is against the other. But it's not purely that ONRSR is fully funded by the customers and – or the regulators and the National Heavy Vehicle Regulator is fully funded by the government. It doesn't seem to be the case. Anyway, that aside, I'd also like to say that the PC has obviously advocated road pricing on a number of occasions and our general view on this type of thing would be that if you have the cost of building the infrastructure, such as new rails, the full lifetime cost should be reflected in something. The government built the Darwin to Alice Springs railway at a cost of $1.2b, of which the government paid $400m and others paid $600m. It's now worth $300m. It's now funding the Inland Rail, as you say. So I think there is a fair bit of government money going into these type of schemes. But I guess our view is, generally speaking, that it should be neutral, and that's what we did say in our draft report.

Could I talk, though, about issues such as – we can talk a bit more about it if my colleagues want to, as well – about the fatigue and the alcohol and drug testing, and they are – and of course, we think - and as we said in our report that they should be consistent. There's no particular reason why they should have different standard across different states, and we said the same in heavy vehicles, too, that the rules should be more consistent. Obviously states have their reasons for maintaining them. What type of evidence you'd like to present here to further what you've already given to us about why the cost of having the different regimes, to you as a – as Pacific National as well as the efficacy or – are there anything that the states' governments think of why they particularly maintain those particular separate regimes?

MR HUCKEL: I think - I can read out something in regards to – particularly in regards to fatigue management and then Robert can talk about drug and alcohol.

> *Trucking and aviation sectors in Australia have shifted towards greater use of risk-based approaches to fatigue management.*

> *Rail continues to be subjected to overly prescriptive and complex rules which often produce perverse safety acumens.*

This is in regards to fatigue.

> *For example -*

- this is quite a significant issue –

> *changing over train crews when outer limits of service are reached irrespective of the location of the train on the network results in staff driving back and forth on the roads between depots and locomotives, creating needless road safety risks and added operating costs. At times, freight trains can be suddenly delayed on the network because of problems beyond the control of operators, resulting in locomotives being parked up in odd locations at odd times. Mandated hours for train drivers are inflexible, removing the ability of freight operators to deal with these unforeseen events with any degree of agility.*

So I think that hopefully explains that issue.

MR MILLAR: The ARA commissioned a report that's publically available that suggests that the conservative estimates on one (indistinct) alone could cost a company up to $836,000 a year to comply with the outer limits legislation, and obviously with drug and alcohol, too, there's similar issues there in terms of the New South Wales requirements – extra testing applied, 25 per cent, and also three-hour time limit for testing. The other issue we made reference to in the report – so we do support the recommendations about conducting a review of the derogations, which include the drug and alcohol and fatigue management. One thing I think we should extend review to is also to the additional jurisdictional, sort of, regulations and standards that remain in place. For example, the Asset Standards Authority in New South Wales, which puts additional requirements on operators which are counter to the idea of national regime.

MR LINDWALL: Would it be fair to say – and of course, technology is moving towards autonomous trains - I mean, there is an example in Rio in Western Australia as well as in Sydney - that these different regimes adding costs through fatigue and drug and alcohol testing might hasten the movement to autonomous vehicles, subject to appropriate regulations, of course? That, you know, makes - the cost differential between autonomous and non-autonomous is greater than it would otherwise be.

MR HUCKEL: Look, I'd imagine in the future that would be the case. Obviously, there would need to be quite a significant investment in technology. But yes, certainly, you've made quite a good point that in parts of the outer world, they're moving towards that system.

MS BOYLE: I think one of the issues that we want to raise isn't necessarily that yes, we've got all of these regulations. What we want to raise is that they're far more onerous than what the road industry has to bear, and I think over the last 20 years – and I do, you know, congratulate the Productivity Commission on many times, raising the issues about road – heavy vehicle road pricing and the need to get some parity. I think after 20 years – as a fresh-faced, you know, graduate, my first job in 1991 was to look at the reform of the heavy vehicle road industry, and then, you know, 20 years later I feel that what is being recommended is actually similar to what has been being said for the last 20 years. But the problem is that society has moved on, the community has moved on and the trucking industry has moved on, but the rail freight industry is stuck in, you know, a paradigm where governments tend to think of road and rail freight as being two completely separate markets, whereas over this time with the innovation of road and the types of vehicles they're driving, we're actually now in the same market, and then over that 20 years you've had a huge increase in population and the growth of the economy, and the forward projections - if you look at any of the state government's freight plans and even the Commonwealth government's freight plans, it's about a huge explosion in the national freight task.

When we're looking at that, it's not road or rail. It's actually – both sources of mode need to be able to be viable enough to deliver those sorts of quantities of freight, and we do have conversations with the trucking industry where they want rail to be more competitive on some routes because the rural road system is so dilapidated that they actually fear, from a safety point of view, for their truck drivers running along it. So one of the issues was Kalgoorlie, you know, there's – down to Esperance, you know, they're wanting to actually build a lot more structure around the rail side of the business so that they can focus on the smaller truck movements and supporting, you know, an integrated rail and road solution to the freight needs that they have down there both ways – both to the port and back up to Kalgoorlie.

MR HUCKEL: You've seen the extraordinary situation down on the Eyre Peninsula in South Australia. I mean, that bulk grain which used to be hauled by rail is now on road. Now, that's a full trucking sector there fulfilling a critical need because the infrastructure got to such a state that you just couldn't haul it. There's a risk of that happening in branch lines

in regional New South Wales, as well. This has huge impacts on these communities.

MR LINDWALL: Why do you think – and I probably should give the question to you – why – I had another question, but that prompts this question – why do you think that the infrastructure isn't maintained if the track access charges are sufficiently high to fund the maintenance and improvements to the track? Where's the money going, otherwise?

MR HUCKEL: Tanya, you're best to - - -

MS BOYLE: Well, I'm just trying to understand the question because when you look at - - -

MR LINDWALL: Well, when I think about road access charges, why do you have road access charges? It's to finance the improvement of roads and the maintenance of roads and the building of new roads.

MS BOYLE: Correct.

MR LINDWALL: But the same should be bestowed – I mean, logically speaking, your railways should be operating at a profit and they should provide enough money to build train lines.

MS BOYLE: Well, actually, I probably disagree. I disagree totally with that assumption that the railway industry (audio silent for 11 seconds) those. None of them are delivering the government a rate of return that is actually - - -

MR LINDWALL: But nor is the Darwin to Adelaide, and nor will probably be the Inland Rail, if you look at the economics of it.

MS BOYLE: Well, the thing is that no one's actually discussed what the pricing is that's going to be set and one of the most pivotal processes still to come is actually the ARTC access undertaking where ARTC, at a time when rail volumes are decreasing and rail volumes are not increasing – so over the last 10 years, if you look at the rail freight volume on every single leg of ARTC's corridor, there's been no demonstrable increase. It's stayed relatively flat, if not somewhat declining, in particularly the shorter corridors. So if they seek to do – to take your approach and go for a rate of return that will earn them a profit, there will be no freight on rail.

MR HUCKEL: I suppose it gets to that point I made earlier. Those beneficial externalities that rail freight provides to the environment, to the community, they're not being factored into land freight pricing laws. So

to that question, if you have a situation where, say, you know, down on the Eyre Peninsula now, what's it going to cost those local governments, those regional councils? They're going to have to find more money to maintain their local and regional roads. What's the price of accidents, fatalities, not to mention more vehicle emissions? And we're getting to a point where the public want to see this stuff built into these type of pricing models.

MR LINDWALL: Yes, well, I think we've agreed that the real cost, including the cost of the track, the lifetime cost, should be counter to all of that, yes.

MR HUCKEL: That's right, and Tanya, you'll talk about the return on asset - - -

MS BOYLE: I probably disagree with that, because when you look at the road infrastructure pricing – and we've done quite a big analysis of what road – heavy vehicle road prices are and how much they've increased over time, and they've been kept at, you know, under two per cent increase over that time, whereas ours is up around 22 per cent and that's a year on year increase. When you look at what is the money that ARTC has spent in the last 10 years since the last regulatory process, we had John Fullerton, you know – and they've done a lot. I'll congratulate them on that. But all they've done – and this was out in one of John Fullerton's speeches that he gave to the Inland Rail conference last year – is to bring the national interstate network up to a standard that is actually able to deliver the freight needs of just the existing freight. So that – the infrastructure that he inherited in 2008 is acknowledged to have been sub – below engineering standards, and so that four billion that he's spent has really just been to bring it up to the existing standard.

When you ask about innovation, we've got nine network providers. So to get from Brisbane to Perth, you almost could potentially go through seven network providers. Each of those network providers have individual pricing schemes, none of which are – some – the majority in the state are not related to an asset base and then you have ARTC, who seeks to price it at the highest level possible and they've already foreshadowed the intent to actually increase prices in the future. If there's no rail at the state level, there's going to be no freight – no rail freight at the state level, there's going to be no rail freight on ARTC. They shouldn't think that they're free to price their network in any way, shape – you know, to meet their own personal needs when each of the individual networks are contributing to the price at which we deliver freight from Brisbane through to Perth.

MR HUCKEL: If you've got a – look, we talked about this before we came in. The proof is in the pudding. We'll give it a classic example: the busiest freight corridor in the country, less than one per cent. The proof is in the pudding. Look at the outcome. Now, on that – in terms of access charging on that route, what have they got to lose? What have they got to lose? We're wanting – better yet, we're wanting to invest in this sector and we are investing in this sector. We're wanting to put more volume on rail and in doing so, that will increase revenue for an Australian government business enterprise. But help us. Help us with pricing, otherwise we can't compete with road.

MS BOYLE: We're looking to invest 500 million in above-rail locos and we're wanting to actually introduce automation and technology. One of the limitations is that the track standards on each of the networks are so different that even something as simple as ECP braking – that we can run locos with ECP braking on every single state except ARC's network. So we can run a train from Brisbane through to Kalgoorlie but then we have to change trains in order to get it from Kalgoorlie to Perth, and that's because the standard of track that ARC has to maintain is actually below the standard for the sort of technology that is out today around, you know, bringing in high performance locomotives, high performance trains, being able to have the flexibility of labour – none of that exists to actually support innovation for the rail industry.

MR LINDWALL: I think we should let Malcolm and Ken have a bit of a say now.

MS BOYLE: And then when you look at road over the last 10 years, they've been able to innovate their vehicles to such a high standard that they're now running A-doubles. But the heavy vehicle road charges haven't actually kept up with even the new technology, so that an A-double incurs the same charge as a B-double in terms of, you know, the registration charges. There's been no real difference between them and – so there's – it's sort of like the road industry has actually benefited from the more hands-off, less intrusive pricing scheme than what the rail industry has, and the rail industry has for a long time sought to actually complement what you were doing and saying, "Yes, we need to increase heavy vehicle road charges". But after 20 years, we've had enough.

MR HUCKEL: It's politically unsavoury.

MS BOYLE: And it's not going to be delivered, and so therefore, if you really want more freight on rail, you need to actually reduce the barriers that are actually preventing us from moving more freight on rail.

MR LINDWALL: I think we should let Malcolm and Ken have a bit of a say first.

MR ROBERTS: Just a quick question or two. Thanks for the opening presentation, Andrew. One question here that we've talked about before – and it was raised when we had that very informative briefing in north Sydney that helped Ken and I on this – is the institutional arrangements for the different sectors and the role of the regulator in every – in each of the sectors we're looking at, and in particular, I think, you're drawing comparisons with the NHVR that point out that the NHVR does that private ticketing as well as the safety mandate. Obviously it has to juggle those two responsibilities, but it does have opportunities to look at the regulation, taking into account the productivity possibilities, and your submission suggests that ONRSR should have a productivity mandate and it should also have some governance changes to help deliver that mandate. Anything you wanted to add to that?

MR HUCKEL: This is an issue (indistinct) of Australia and it would have been in our submission to you as well. Yes, we would like to increase the mandate and vision that Sue has so that there's not just a focus on safety but also on productivity and efficiency, just like the National Heavy Vehicle Regulator. We keep coming back to this equal playing field. What is interesting, Malcolm, it actually requires a bit of an attitudinal – almost like a cultural change. I really commend you for – you've actually had a good look at some productivity issues and efficiency issues in this report – this draft report. But technically speaking, your terms of reference only relate to safety. So your terms of reference, when it comes to trucks, for this inquiry is Safety and Productivity. For trains – for rail freights, it's just Safety.

There's some really deep attitudinal issues we've got going in the freight task in this country which hopefully – you're certainly teasing them out. Tanya was talking about the – and we've talked about how we double-stack freight trains from Parkes across to Perth. The Coastal Trading Amendment Bill (Revitalising Australian Shipping) in 2017, that's essentially a relaxation in regards – particularly with foreign-flagged shipping cargo vessels. Now, with the new Cape class, they can handle 14,000 (indistinct). That goes through without proper checks and balances. That will have another significant impact in relation to the competitiveness of rail freight east-west.

But yes, back to ONRSR, we're asking for – and in fact we've gone a step further. We've actually asked that - post-this inquiry, that we would like to see a piece of work done into productivity matters in relation to the rail freight sector. I think it's long overdue.

MR BAXTER: Can I just - - -

MS BOYLE: I think – sorry. Just with ONRSR, it was set up to ensure harmonisation of safety and, sort of, red-tape regulation. What has happened is that the states have still held onto their engineering standards authorities in each individual state. So what you're actually – you're almost getting – making ONRSR a toothless tiger at the moment because it's actually the state assets, authorities and the engineering standards in each of those states that are actually dictating whether or not we can run nationally, you know, some of our train services.

MR HUCKEL: And we know that frustrates Sue and ONRSR. There's over, I think, 80 derogations.

MS BOYLE: Yes. So it's around that derogation piece. It's a national productivity and (indistinct) issue, similar to what was looked at in the Helma times, in the sense of we need ONRSR to be able to actually set those national standards and have those networks actually comply with those instead of maintaining or sweating their assets and making us not able to implement the innovations that we want to implement.

MR ROBERTS: Now, there is some work under way, as I understand it, to – in a cooperative way to try to advance harmonisation of the (indistinct) rules. You know, very hard to drive that forward unless there's cooperation at the state level. There's no institutional arrangement that naturally owns that task and there's no clear leverage or incentive for change at the state level. So I take it that would be a key task for - - -

MS BOYLE: If you look at ATMS, which we're big supporters of – and, you know, ARTC has signalled that it's implementing ATMS for at least the last five years. None of the state governments are implementing ATMS. They're implementing a different form of, you know, innovative train technology. So what – we're getting to a situation that, you know - ARC, about four months ago, told us that they're introducing something that they assure us that it will be able to be run in tandem with the ATMS. The Queensland government is rolling our something very different on QR. The New South Wales government is rolling out something very different for Sydney trains and in Victoria, you know, I'm not aware that they're actually looking at that in terms of MTM and V/Line. So what you've got is you've got a national network that's, you know, proposing technology to assist the rail industry and the state governments, all of the state authorities and the state network owners and providers within those states are actually adopting different technology.

MR BAXTER: I was just going to say, isn't this one of the areas in which raw politics clearly comes to drive what should be sensible decisions, and that, for example, if you pick up Sydney and the ports at Botany, Port Kembla and Newcastle, you've got some core infrastructure which you can upgrade to be able to keep freight trains out of the central part of Sydney, and likewise with Queensland and with Brisbane. But there's just an unwillingness to grasp metal and make that – what would be a very large piece of infrastructure to be paid for, whereas on all the roads you've got characters driving cars who jump up and down when they drive from Sydney to Newcastle or Sydney to Bathurst and they're stuck behind a semi-trailer, and the first thing they do is – well, not the first thing. But they then ring their local member and whinge very loudly about it. But there's not the same political pressure that arises within the rail system to turn around and say - well, if, for example, you could do what they've done between Port Botany and Campbelltown at the moment with that freight – I think it's only a single freight line to Sydney rather than two freight lines. They're not prepared to commit themselves to – or governments are not prepared to commit themselves to that core infrastructure, and until you resolve that problem or resolve that challenge, you're going to have this very ad hoc approach as to how they deal with it. That seems to me to be one of the core issues.

MR HUCKEL: You're spot on, Commissioner. This sector has been too timid, too silent, for too long. So you know, I think you probably would have noticed in the last, sort of, 12 to 18 months that we've been a lot more vocal about a lot of these sacred cows and it's coming from a good place where we're wanting to put more freight on rail. But you're absolutely right. There's politics involved. We actually - - -

MR BAXTER: Sorry to interrupt. If you look at what's happening on the western line at the moment and what's going ahead with the second airport in Sydney, there would be a logical transition in between the western line and the southern line without going through Sydney. Having had a look at some of the preliminary diagrams, there doesn't appear to be any suggestion of a railway move that would – or a rail line that would avoid having to put train traffic through the centre of Sydney when you could in fact have it running between St Marys and, let's say, Campbelltown. I mean, there doesn't appear to be that whole-of-business structure that's involved in it, and that's likewise if you look at the Port of Brisbane.

MR LINDWALL: I think Ken's making the (indistinct) that makes – I mean, obviously, I think they'll have to wrap it up and – for now, but we've always argued, as you know, for neutrality. I think that we want more productive roads and more productive rail. I mean, obviously more

productive roads leads to efficiencies and you're competing against them, as well, so it's good to see neutrality in terms of charging, as well. So thank you very much for appearing today and we look forward to your continued cooperation.

MR HUCKEL: No, thank you for the opportunity.

MS BOYLE: Thank you very much.

SPEAKERS EXCUSED

MR LINDWALL: I now invite the Australian Road Research Board – I think Charles Karl – is that right? Now Charles, if you just could introduce yourself and make a statement as you see fit.

MR KARL: Commissioners, thank you very much for the opportunity. It was a real pleasure to read the report last year and my first day back in January, I read it and then I said, "I think I want to make a submission", and when I started writing I was thinking a bit from a private, individual point of view. But when I raised it within our management group, they said, "You should write it under ARRB".

MR LINDWALL: Excellent.

DR KARL: My name is Charles Karl. I work at the Australian Road Research Board. I have been in this area in traffic management and ITS and things like that for over 30 years. I lead our technical work in network operations, freight and heavy vehicles. So, the Australian Road Research Board basically has three work areas. The asset side, the things that move on our network, and the safety side, so I have - I sort of cover the things that move, and over the years I have been involved in looking at improved traffic management from a road transport point of view. I've been involved in telematics - regulatory telematics with the Intelligent Access Program, fatigue box, heavy vehicle architecture, and the last four years I've become involved in our efforts looking at connected and automated vehicle.

I wanted to sort of look at the two areas that this inquiry was addressing and looking at what is happening and then looking to the future, and I probably wanted to talk more about the future environment. Having come from being involved a lot in many of the - I guess the regulatory side on our road network, and as an engineer and being from - I joined in 2003. I will stay away from the political side or the policy side, and perhaps the

best value is if I talk about it from how rapidly technology has changed; that might be beneficial, and the reason I sort of thought I'd make a comment, because you normally don't hear ARRB's voice in forums like these, because we work for - we were set up by our members who are the state road agency 60 years ago, and our voice is in advice and research and development for our members, the state road agencies, and technical assist policy and so forth.

The biggest change in road transport, others have said, is the smart phone in the last 20 - I think 2008 was when the smart phone came along, and if we believe everything that is being said about connected and automated vehicles and mobility as a service and so on, then - and we see the cars being presented on our roads now that have more advanced driver assistance capabilities, we have to say and think what would transport be like 20 years or 30 years from now, and in becoming ready for that then have the appropriate regulatory and operational frameworks. It's almost a case of when, you know, if you can imagine me operating with horses and carriages down Bourke Street, and I see the first cars starting to appear, and really I've got no idea about how to water the cars, you know, because they - how to get rid of the emissions and stuff like that, because I know how to get rid of the emissions of the horses and carriages, but nevertheless - - -

MR LINDWALL: They were generally left on the road, if I'm not mistaken, if you see photos from New York City of the time.

DR KARL: But nevertheless, within the span of 20 or 30 years we sort of flipped, and you can look at every city and so forth and we flip, and that's been in the lifetime of one traffic engineer, and I say to the young people in our teams that, you know, in your lifetime we will flip again, but what would that concept of operation be like? So, we still have horses and carriages going down Bourke Street sometimes, and I think if we have an idea of where that will be, and there's no question that we have got some clues. We think about 5G, we think about cloud and so on, so we do have some clues, and in the earlier discussion there was talking about a more risk-based approach, so there are some clues there, and to me those clues are the - are sort of the key or the core elements in a future concept of operation, and if you have, you know, a risk-based approach as that approach, then it can accommodate that ecosystem that we have today and will evolve for in the future.

And so I prepared that submission, and I give you one more illustration, if I may, and the illustration is two years ago we had a visit from the Greater Jakarta Transportation Agency, so the head of this transportation agency has to be - is concerned with the movement of 30 million people within

his jurisdiction, and the first question he asked me was to say "You know, I'm thinking of getting our PT trips from 60 to 70 per cent. What is the situation in Melbourne?" and you know, it is really wonderful when you are the system manager for one jurisdiction and you are looking at all the journeys or all the trips in your network and then you decide, and based on the land corridors that you have and the vehicles that you have and so on.

So, the way Australia is run and so forth - so I won't get into the politics of it, but what I'm saying is that the technology is changing. So for example, in 2006 Lindsay Fox drove a Mercedes with a European tackle box, a fatigue measuring - monitoring device to the transport ministers, and they said - in Broome, and they said "We should have this for fatigue in Australia", and then I led a project to look at how we could bring the box over here, and the company that had that box was saying "Well, in Europe the rest breaks are defined by which country you had your rest break in, and over here in Australia the rest breaks you have to actually - even you can't even go down to postcode level; you have to be much more specific".

So they said "We don't think that we can sell this product in Australia because really what you need is a GPS sort of device, and if we brought our box down we'll be the laughing stock because it can't be used here". So, we developed specifications for an in-vehicle unit in about 2007, and as I mentioned, in 2008 along comes the smart phone and GPS and apps and so forth, so by the time you get the regulatory reform in place the technology has already moved on, because I remember in 2006 the Productivity Commission was talking about incremental pricing trials for heavy vehicles, and we still haven't - we're still trying to do something, and now it's 2020, and the Europeans are talking about a charging solution that doesn't need to have a box anywhere.

So, when we get down to the bottom line it's about safety, yes, it's definitely about productivity, and this future ecosystem, if you can imagine with me, would be an environment where we have the current regulatory environment. Say for roads it would be road rules, driver licensing, vehicle registration, state by state basis but operating nationally, and we would have an ecosystem of other safe systems. It could be the Tesla vehicle or the Uber vehicle that one day does ride share, does executive service, carries a bit of freight and so on and so forth. So, in that sort of environment where we have the current regulatory environment and all of these sort of systems operating under a so-called safe system approach, what is our regulatory framework and what is our operational framework, because all of them, have to interact with each other.

If I'm driving an autonomous vehicle on the motorway, how am I going to signal that I want to overtake or merge, and how am I going to give way to an emergency vehicle if I cannot communicate and that vehicle has no steering wheel and so on and so forth? So, architecture - logical architecture is important. What we have today is we are rolling out, in addition to physical infrastructure, digital infrastructure, connectivity with 4G and 5G. We have all these concepts. Different states, different local governments have got ideas about how they want to operate their urban precincts or their curb-side parking and so forth, and that is their prerogative. So, you've got the concepts and you've got all this infrastructure, but we haven't got this logical connection about - it's almost like I'm going to build a three bedroom house today and because I can possibly Airbnb it every bedroom is going to have, you know, probably an ensuite as well, which gives me that flexibility and so forth, you see?

So, we're still building the same infrastructure but with the technology we can actually be more productive, make more money, and so on and so forth. So, it is within that context that I wrote this very short submission, because I think the thing that I felt was missing in the report is when you look at a - future regulations, future operating environment, it's very good to have, I guess, a more common understanding about where we are heading and how the current regulatory reforms that we've put in place are going to be, you know - how they're going to accommodate, how are they going to survive in those future environments.

MR LINDWALL: Well, thank you very much, Charles, and thank you for the submission because I think it's a refreshing way to look at it. I'd like to explore a few things going beyond that, since you highlight technology a lot, and I used to talk about 5G and a few other things. I mean, I'd like to explore with you what actually is the difference between road and rail. We've had discussion about the competition between the two of them in the last session. Now in Sydney they've built the light rail on George Street, which was rather costly. They said the next stage of it is likely to be trackless trains, which looks like a bus to me, I would have thought, and when you think about it, what is transportation along the surface?

We're not talking about air transport or space transport, but surface transport here, on land. It ultimately is moving a mass, whether it be human beings or freight, from point A to point B over a distance, at the least friction with the energy source to back the propulsion most efficiency. You know, there are optimal ways of doing that, and I posited, and I've been thinking, that perhaps the evolution is that there won't be and difference between road and rail, and that they effectively will merge to a similar type of technology. I don't know. What do you think of that?

DR KARL: Well, that in my submission I drew some parallels with communications. So about 10 years ago ACMA, the Communications and Media Authority, was looking at the future regulatory environment in communications. So we had the TSDN, the wire network, and then we had the beginnings of the - I guess the digital (indistinct), and they came up with a way of looking at - through the layers which is in terms of, you know, IP and connectivity and so on. Translated to the road transport sector, or even the land transport sector, we have all these silos, right? You mentioned road, but you know, for me roads are - there's private vehicles, you know, public transport vehicles. There's many variants of silos in roads. Then there's rail.

So we do have those silos, but the thing that we really need to look across is, in terms of safety, in terms of productivity, you could argue to some extent it's agnostic of those silos. It's delivering a freight journey or delivering a journey. So if you look at our cities, if you look at our states, right, every day in Melbourne there's probably about 15 million to 20 million journeys, whether they be PT or private journeys or whatever, even a journey to the gym, whether you take a bicycle or you walk or whatever, there's that many journeys a day. So, you start to monetise that and you see where, then, Google and all these people are talking about mobility as a service. So it's not beyond your imagination to have a big company go to the government and say "I will handle, you know, 60 per cent of your journeys and this is the price", you see, and so on.

Anyway, what that - put another way, what will not change? What will not change will be our land corridors. So, Bourke Street will always be Bourke Street, and that rail corridor will always be a rail corridor or basically a corridor for transport, whether it's rail, light rail, heavy rail, double stacked trains, whatever. What will change, however, is because we have the technology it could carry some passengers, it could carry this, it could carry that, it could carry different vehicles and so forth, and the earlier presenters were talking about the need for more flexibility and so on, and that is the case with road transport as well.

So, when you look at the land corridor, the road corridor down Bourke Street, or the corridor down one of our waterways, and you say "If what I hear on YouTube or see on YouTube and believe it's true, and there's going to be a lot more occupancy in the vehicles, then what does that mean for how we're going to operate that corridor?", and it may be that in 20 years' time that corridor would be - half of that corridor could be filled with vehicles and the other half could be filled with cyclists and people on e-scooters, and pedestrians, and light shuttles, and so on, that travel at less than 20 kilometres an hour - something like that.

So these are new concepts of operations based on the same land corridors that we have. I think they will develop, you know, in different precincts, in different trials and so forth over the next 10 to 20 years before we flip, but the most important thing for regulations and for operations is to prepare ourselves so that we can accommodate these new innovations as they come and present themselves on the network. The way it is happening now is a proponent will propose, "Okay look, I want to do an automated heavy vehicles from the port to this DC", and then you'll say "You know, okay, give me your safety case, give me your traffic management plan, and oh, by the way, you can only do it from, you know, midnight to 3 am in the morning as a start". How do they get the - that's - so they get approval like that and it will be on a case by case approach, but can you see that it will become more and more and more (indistinct) as these innovations are developed to a stage where they can be commercially deployed?

MR LINDWALL: A lot of innovations now seem to be inside the vehicle rather than deployed upon the network, you know, and that must make it more efficient to us the network in different ways and more flexibly than it would have been in the past.

DR KARL: So, there are four parts to the puzzle. There is the network, there are the vehicles, there are the humans, and then there are the regulations and the operational framework, okay. So, in the old days and up to now I would deal with, I guess, the supply side, because I only control the infrastructure (indistinct).

MR LINDWALL: Yes.

DR KARL: And the innovation with the likes of Uber and so forth is basically on the vehicle side, and the technology that's appearing is on the vehicle side, and the business models that are being developed is on the vehicle side. The restriction, then, is on the infrastructure side and operational (indistinct), and also on the driver's side you see, because who is the driver? Do they need more training or less training, or whatever? So, to get that system to work, it's not the vehicles presenting themselves in Australia and saying "We can do all these things". No. We need to be ready on the infrastructure side, on the driver's side, and on the regulatory and operational frameworks. How do we give a driver's licence to this system and so forth?

MR LINDWALL: Malcolm.

MR ROBERTS: Charles, thanks for your submission and for coming along today. You started with a story about the difficulty of transferring sort of global innovation to Australia, and so that leads me to think a little bit about Australian Design Rules, and we've been talking about some of the issues that might face heavy vehicles in particular, but it would also apply to other segments of the transport industry. Do you have any experience with ADRs? Do you have any thoughts about whether the process for ADRs is too long on consultation or about right? Is it an impediment to adopting innovation? What's your practical experience, if you have some, with ADRs?

DR KARL: Yes I do. I am also, and have been, a delegate to ISO/TC 204, which is the committee for ITS standardisation across (indistinct). Basically Australia has vehicles from Europe, from the US, and other parts of the world, and if you look at our trucking fleet you'd be fair to say it'd be about 30 - one-third, one-third, one-third, depending on whether they are light or heavy or multi-combination vehicles. So, there is a huge opportunity in Australia because if it works here it's going to work in the rest of the world outside those regions, okay.

So, the ADRs in the early days was an attempt to harmonise or normalise so that what we had was consistent, but increasingly the world market has become a very consistent market as well, so there is less of a need for ADRs, and the trick is - to make it more cost effective is to have it into an international regulation or an international standard, because in order to meet that international standard, which includes Australian requirements, if they are not already part of that standard, then it will meet that new (indistinct). So, I think in response to that there has been a lot of thinking within the Commonwealth as well in terms of reshaping the office and what it wants to do, and the big driving force is really with the ADA Systems that are appearing in our vehicles, as you've raised.

With my standards knowledge - so if you look at, say - increasingly the safety or the efficacy, or the success of an ADA System or higher level ADA System or what we already have at level 2 or, you know, these things that can do lane keeping assist and so on, but you still have to put your hand on the wheel and then now it can do it lane keeping assist but you can actually, you know, read your text messages or something like that, these are higher level - - -

MR LINDWALL: Are you sure the police wouldn't stop you there? Anyway, go on.

DR KARL: The designers and the technical people are saying that we can't just say this system works. It doesn't, because it will work only in a

system which pays attention to the infrastructure that's around that environment.

MR LINDWALL: Yes.

DR KARL: The actual road itself, so what it's got and so on, right, and the driver training. So, there is a challenge there, and I think we all, in all modes of transport we are familiar with the safe system approach, and where the NHVR is going with their risk base or safety, and where the NTC is going with those sorts of things are all steps in the right direction. It's just that for road practitioners like myself, we've got no idea what a safe system is, a safe system for a traffic control system, whereas there is a lot of experience in aviation, for example, about what a safe system is and how do we differentiate between a Qantas and a Scoot, or a, you know, Tiger or something like that, that all use the same airspace. So, it will take some time for the safety people, the people within that organisation, to build up their expertise.

Otherwise - so initially it might be a bit of overkill because you bring people in from aviation and they've got these very high standards and, you know, roads are a bit different and, you know, so there is that - getting up that learning curve, and to me the sooner we do that the better, and the opportunity to build our expertise with managing safe systems in the new deployments that are presenting themselves on our network is to build that Australian expertise so that, as they advance, then we have the capabilities to assess whether that is the - a safe system (indistinct).

MR ROBERTS: Just one other question. When I was reading your submission I was intrigued by your statement that 30 to 40 per cent of heavy vehicles run empty on the Hume Highway. I had sort of mistakenly assumed that it was in everyone's interest for a round trip to be fully loaded in both directions, you know, that there would be - - -

MR LINDWALL: Could I just add to that point, because I had a thought myself on that, and that's Australia is a - after chatting to John about this actually - the - Australia is a large net importer of containers, so you know, we bring in a lot of produce from overseas in full containers and we have an excess of empty containers, and by definition our ships go out with lots of empty containers, so I was wondering if it was that type of - - -

MR ROBERTS: That's our problem, yes.

DR KARL: Yes. I think the points - there are two points to my answer. The first one is that we don't have much on the back haul, and in other

parts of the world, like in Europe, you can have policies and strategies where you can encourage triangulations so that out of 100 per cent of their runtime they go up to 60 or 70, or 80 per cent. I mean, if you are moving bulk, you know, grain for example, from A to B, you're not going to take back washing machines or something like that. So, it's just that's our environment. I think the second point that is raising the question marks, "Charles said 30 to 40 per cent. What evidence has he got to support that assertion", you see, and I think that is the big problem.

We do not have that visibility on supply chain data and what's happening, and what the loading is and so forth, and there was a big piece of work done with the national freight supply chain, and the (indistinct) project that looked at freight data. So there's a fair bit of information there, but until we have that visibility, you know, we're sort of guessing just from anecdotal evidence and statements like this.

MR LINDWALL: So we would know by international movements because obviously you have to register through customs and so forth, or even in the container and vice-versa and, well, within domestic (indistinct).

DR KARL: Yes. I mean more specifically on the domestic side, and when you start going down to the rigids and the light commercial we've got zero visibility at all. So, without understanding that problem and the sort of movements that are happening on our network, we are making decisions. So, then the question is how do we get that data?

MR LINDWALL: Yes.

DR KARL: It's not our data. Unless we mandate some data collection device in the vehicle that's owned by a regulator, it's all private sector data, and the big challenge that was written in that report is about trust and aggregation of that data, and accessibility.

MR ROBERTS: But Charles, if I could ask, I mean, that - I'm not trying to determine whether it's 34 per cent or 41 per cent or whatever it might. I'm just wondering, if there's anecdotal evidence that there's a substantial level of travel without a commercial load, and (indistinct), what's the anecdotal explanations that you've heard for that? Because it does strike one as - in terms of efficiency, a very inefficient way to run our land transport, putting aside that obviously these are commercial decisions being made by the parties, but I'm just wondering why it might be like this, whether there's any anecdotal explanations.

DR KARL: There have been some service providers who have been trying to get different operators to share the data and in that sense then try to get more loads for them on the back haul, not too successfully. In certain specialist areas like moving, say, equipment around or farm machinery or something like that there's more traction, but not for general freight.

MR ROBERTS: So there might be an information deficit for operators.

DR KARL: Correct.

MR BAXTER: You could do it by weighing them. I mean, presumably weighbridges would have some sense of where they - well, I mean you would know from a truck and its combination what its gross weight is likely to be, and - - -

DR KARL: I think the other thing, if you compare, you know, the entry of, I guess, commercial services, like the Ubers of the world, the possibility of that occurring with the freight sector, like Uber freight - - -

MR LINDWALL: Yes, yes.

DR KARL: It's not as easy because of the - sort of the regulatory environment that we have for the drivers and stuff like that as well.

MR LINDWALL: That makes sense, yes. Ken, do you want to - - -

MR BAXTER: One of the things that interests me is, on the basis of the work you've done so far, and if you look ahead the next 10 or 15 years, (indistinct) see in particular the smaller (indistinct) that have got to be distributed around cities which have got narrow streets in them or offloading facilities. In the course of another inquiry we saw Woolworths and Coles and they raised this question of having to bring big semis in, but having a depot out on the edge of whether it was Melbourne or Sydney.

DR KARL: Sure.

MR BAXTER: Where do you see that over the next 15 or 20 years, and what actions do planning authorities, which go from councils to local governments, have to take to ensure that you're going to be able to get that goods, or are we going to go sort of looking at the future and having drones that will pick them up and fly and take it and drop it and that sort of stuff? Where do you go, and how does the planner, who works for whether it's Melbourne City Council or one of the regional councils, turn around and say "This is what we're going to" - or "This is what we should

be doing if we're going to distribute the freight that needs to be put into, you know, shops and depots and other places"?

DR KARL: Sure. I think the advent of technology and applications, and as we discussed just one - earlier, enables, I guess, all our road users to potentially better sweat their assets, their assets being the vehicles, and what's holding it back in terms of freight, beyond humans - there's nothing holding it back for humans because the door has been opened already, but for freight I think they are the regulatory and the operational frameworks because, for example, you can put your car in a loading zone or something like that (indistinct). So, for light commercials and for rigids I think it would only be a matter of time before there will be more cases of commercial services which are - sweat the Ute or the truck to its maximum for urban freight, and that's happening more and more as we speak.

MR LINDWALL: I might just finish on one question, unless you've got one.

MR ROBERTS: No, go ahead.

MR LINDWALL: You know, one of the greatest, and some have said that the greatest productivity gain in the 20th Century was the introduction of the standardised container, and the data on that's pretty clear actually, by Malcolm McLean, if I'm not mistaken, was his name, in the 1950s. That of course, the standard 40 foot container is possibly, on the road, two of them on an A-double would be a tremendous productivity gain, one would argue, compared to the A - B-doubles where you have a 40 foot and a 20 foot. Would that make a significant difference to you in your estimation, since it's again a multiple - you know, even multiples of those - the large containers?

DR KARL: So, the geometry of our network and the fact that there are other road users on our network imposes a ceiling on how far you can go down multi-combination and axle loads and stuff like that.

MR LINDWALL: Of course, yes.

DR KARL: So we do have those natural ceilings, but when we start looking at our urban environments, you know, that's - the - look, if 30 years ago, when we had the single semitrailers and we had technology, would we go for a mechanical coupling? We wouldn't.

MR LINDWALL: No.

DR KARL: We would have gone for an electronic - electrical - electronic coupling. So, at that time, when we introduced the mechanical couplings for multi-combination vehicles, and we drove that productivity up with B-doubles, we sort of hit as much as we can.

MR LINDWALL: Yes.

DR KARL: I mean, you're not going to do triples or quads around here, and you have other problems about dividing it up and so on at the start - at the end of the journey. So, with electronic technology now, it is very possible to envisage these truck and follower combinations where the following could be three or four small, so a completely different concept of operations, and whether or not it occurs, then from a regulatory and operational framework I think my point is to say "What do we have in place so that we are ready to assess that and it's possible?", otherwise, you know, we're not going to fully - benefit fully from the technology that presents itself. Yes, I think that's - - -

MR LINDWALL: Yes. No, no, that's very good. Well thank you very much for your testimony today, Charles.

MR ROBERTS: Thanks for your submission. Thank you.

MR LINDWALL: All right, I'd now like to invite Grain Trade Australia, I think Tim Ross. If you could just introduce yourself and then go through it as you see fit.

MR ROSS: Yes, thank you. Well, I will keep this brief. We put a brief submission in to follow up a number of other submissions we'd put in.

MR LINDWALL: Thank you very much for that, yes.

MR ROSS: Some of the national freight requirements as well. My name is Tim Ross. I work for Grain Trade Australia. Just a very brief overview of Grain Trade Australia. Grain Trade Australia is an association that works within the grain industry obviously, and we represent 280 commercial entities within the grain industry. Our role is to provide frameworks for the industry and to support our members and the industry with structures and training, et cetera, to facilitate trade. We put in a - sorry, a little bit about my background. I've been in the grain industry for - an in the supply chain component of the grain industry for over 40 years, working in a number of different roles both at the national level. I've worked with the road and rail component of the grain industry as well as shipping and containers - the container segment.

Probably the key things that - and the key messages I just want to get across today is that obviously the grain industry, it's quite the critical agricultural sector within Australia. It supports a lot of rural communities. It supports a lot of people within capital cities and regional cities as well with employment and opportunities. It's an industry that's open to a lot of competitive forces from the global level. We're very much, these days, a commodity market, and commodity markets operate through trade at a global level, and we're subject to pressures and costs - and cost structures from obviously global players, and it's a challenging market that we work in, and it's also an evolving market, especially in the supply chain component of it.

Obviously with anyone who's been in the grain industry as long as I have - I started when the industry was very much a regulatory industry both at a state level, with state statutory bulk handling companies and rail companies, both above rail and below rail, and a different world to what it is now. Road industry was basically shut out of the rail sector, or the grain industry, through regulations. Now that's all changed, and obviously we have a different world, and it's a world driven by the market, and it's a complex world. It's not as simple as people see the grain industry anymore. It's very much a commodity market enterprise and, for example, if you were to be involved in loading a - say a 60,000 ton vessel through the Port of Geelong and you were the trading entity that was coordinating that sale, and had that sale contract in place, it would not be your task to coordinate and manage the whole 60,000 ton of your own cargo. You'd be buying (indistinct) from a number of different other parties within the trade and supply chain.

So you're basically aggregating through other parties as well as doing a component yourself. Now, that raises lots of complexities because all those other trading entities also will be backing off their positions with other traders. So what you end up having is you have a very disaggregated string sale process within a physical sale. What that means from a supply chain perspective is complexity. It means that one decision has to be passed through a number of different bodies and it creates churn, it creates disorder and it creates a lot of pain. It makes aggregated movements of grain such as rail movements quite challenging and quite difficult as compared to what the market used to be like. In South Australia and WA, the supply chain has been protected by processes that major bulk AMS have put in place where they've basically maintained an aggregated supply chain.

So that's the sort of – that's the market that we're operating in now, and it is complex. It's different in each sector. It's different in each court zone. It's different in each aggregation area, and it – the complexity needs to be

understood as we move forward with planning processes, both at the state level, council level and the federal government level, and I think our submission really is just saying, look, the critical thing with planning and the reform process is to make sure that plan is effective, make sure there is a lot of engagement, not just with associations such as Grain Train Australia because we don't represent the industry. We represent one sector of it. It needs to be across all sectors and across all localities, as well. There needs to be a lot of local representation and that takes time. It's a little bit like, you know, Chain of Responsibility. Chain of Responsibility, I think, came in 1983. It's still working its way through the rural supply chain. It's getting there. It's improved a lot and it's done a lot of value for the food supply chain. But it is still being rolled through the food supply chain.

That's probably all I've got to say, really. It's just that our answer is definitely a lot more complex than a lot of people see it and the planning process needs to be considered on a – from our perspective. Yes. We need to look at engaging people. We need to have some commonality of how we analyse different sectors, how we actually work out cost structures between road and rail. We've heard from the rail industry today. I hear their issues. It's been like that for a long time. It's – road and rail are just completely separate, always have been. Always have been from a cost structure perspective. I've been involved in a number of rail negotiations. I actually did negotiate a contract once for the rail contract on the Eyre Peninsula and I can understand why it's no longer operating, you know. There are certain challenges associated with rail with volumes and consistent volumes that are difficult to work through.

It's not impossible, though. There's certainly - we believe, with some proper planning processes in place across industry – and that's a number of industries – it's possible to get road and rail to work in an intermodal basis. Not everywhere, but certainly in specific corridors. The Inland Rail may present opportunities for that. Unfortunately, there hasn't been a great deal of discussion yet as to how that can happen. We've put a submission in to the Inland Rail review and we hope to work with them in the future to - potentially hope to look at some intermodal opportunities associated with that. That's probably all I've got to say in regards to this.

MR LINDWALL: Thank you very much for that, Tim. Could I ask, what do you think that's made you drive a – moving from the aggregation approach, as you say, to the more disaggregated market? Or is that an international development, I suppose?

MR ROSS: It's basically removal of the regulation – single district regulations around – or the state-based regulations around barley, oats, et

cetera. So you'd become – ended up with a pure market, and as the market has become more global it's become more of a – unfortunately, it's become more commoditised and as a result, the trading environment, the ownership and the risk profiles create that disaggregated market. Like, at the moment, Australia produces 45 million tonnage of grain on average, and currently – the latest estimate I've heard is that there's 17 million tonnes of farm storage and there's probably another 40 million tonnes of commercial storage and in-use storage. So we're over capacity on storage, but the market is driving those signals for growers to put in farm storage because it has a number of benefits for them from both a farm logistics and also from a marketing perspective. So that's driven farm-based storages. Farm-based storages mean the grain doesn't go to those – to what used to be 900 aggregation points at harvest time. It now holds back at potentially 15,000 aggregation points.

MR LINDWALL: And how has that affected the – so you take away the cost of production of the grain itself. If you look at just the transportation side of it, has it driven down the cost at all, or much, or how would you say - - -

MR ROSS: It's a very difficult question. If you had a – if you had the old single-desk Fat Controller system where everything goes through on negotiator who negotiates the transport contracts - we're probably all paying a lot more for freight than we did when the single desks were around. But from an individual perspective, the individual is probably getting freight for less than what they would have paid in those days.

MR LINDWALL: Otherwise they would have been doing this voluntarily, any of that. They've got no obligations.

MR ROSS: Yes, and it's out of a choice and they look at the opportunity. Sometimes they'll pay more for freight because the market – if you sell the grain into – if you're based in central New South Wales and the market you're selling to is southern Queensland, you may determine, look, I'm prepared to spend another 10, $15 on freight because I'll pick up 60 in price.

MR LINDWALL: Sorry, Ken. You were saying?

MR BAXTER: Are your people selling on a CIF or an FoB basis?

MR ROSS: Both.

MR BAXTER: So when they're selling on the CIF basis, who determines the actual freight shipment? I presume this goes from somewhere in the farm area into inner Sydney or - - -

MR ROSS: This tends to be the trader, who puts the trade in with the – on the international basis. So international traders will tentative CIF through to – or CMS through to their counterparties, so the – wherever that location is - that destination is.

MR BAXTER: And are you aware of that or you just - - -

MR ROSS: No, that's really – that's trade for trade. There's obviously market analysis as to what the costs are. The actual costs associated with each separate trade and delivery is between the two counterparties.

MR LINDWALL: Could you talk a bit about the increased use of containers for grain, which seem – I didn't realise this was happening. It doesn't seem intuitive.

MR ROSS: Yes, there's certainly been a marketing correction probably in the last – I'd say probably 15 years to 20 years, container use has started to evolve and started to increase. There's a number of reasons. A lot of it is risk price reasons from both the buyer and obviously also the seller. Containers, obviously, allow you to sell in smaller lots to a foreign customer and it means that, you know, anyone can step into the market, for example, and sell 300 tonnes on delivered basis into a foreign country, whereas if you're looking at an FoB sale into a bulk vessel, you've got to deal with the risks associated and then find the capital to deal with, say, 40,000 tonne of grain.

MR LINDWALL: So these modified containers that are closed and they have a little hole at the top and you pour it in or something, is that how it works?

MR ROSS: No, they've got a few of those around. But effectively, most of our trade goes in 20-foot containers, which unfortunately are starting to – there's a bit of a removal of those out of production, so we'll have to work out a way of how to use forklifts. But it's really the sum of a bulkhead. So one of the doors is closed. The false bulkhead goes in. There's a gap at the top and the grain is basically thrown into the container. The containers aren't completely filled because of the – they'll pick up weight regulations.

MR ROBERTS: Fascinating. I'm glad you mentioned the Eyre Peninsula because it gets raised from time to time, and I assume there's a

few factors at work there – possibly the condition of the assets, the investment required to maintain and upgrade them, maybe the production on the Peninsula itself and how that cycle has changed. Is there any practice – well, first of all, what would you say drove that change, or was there a CSA that disappeared and suddenly became - - -

MR ROSS: If you look at the events there, it's basically – it was a pioneer track, and I can recall we used to describe the wagons on the Eyre Peninsula as having wooden spokes in their wheels. That was the era of the wagons that were over there. They were very small. They were very – not very efficient. But they were built for purpose way back in the start of the last century, and there were some upgrades over time, but the costs of maintaining a pioneer-style track were extremely high. You need high volumes. There were volumes on the – the volumes on the Eyre Peninsula haven't dropped, but market forces have changed. There's now a new sea port terminal competing with Viterra on the Eyre Peninsula, and that's a road-based facility working further up the – basically working further up around the coast and what they've got is a slight – potentially a slight freight advantage from a road delivered into that point compared to road and rail delivered down into Port Lincoln, which is the most southern point of the Peninsula.

MR ROBERTS: That's very helpful, Tim, thanks.

MR ROSS: That's all right.

MR BAXTER: So just – are most of the people you deal with buying on FoB or a CIF basis? You earlier said you were buying from or selling to – buying the grain on a CIF basis?

MR LINDWALL: You asked that.

MR ROBERTS: I think you asked that.

MR ROSS: Yes, mainly – look, I haven't been involved on the sales side for a few years. The predominance of it used to be – certainly in bulk was on a FoB basis.

MR LINDWALL: Could I ask about access to the road network and your commentary around about the National Heavy Vehicle Regulator and access to roads by different, say, performance-based vehicles and so on?

MR ROSS: Yes, it's – certainly, I know that the F submission covers some of the issues associated with access quite well. We didn't give a great deal of detail about that one. Effectively, we do have a – we don't

have enough uniformity as to – and we don't have enough people who actually process things, essentially. The largest issue is - as far as difficulties there is access to certain routes and the – just the different councils, different states. It just makes – it makes it difficult to go across borders. It makes it difficult in a drought, especially, to move grain some – yes. Basically to move grain on routes that don't normally carry grain. So grain moving from South Australia, for example, up into central New South Wales by road. Grain in central Victoria is just about precluded from going up into northern New South Wales and Queensland, just because of the difficulties associated with moving grain by road compared to the cost of moving grain from South Australia by rail or vessels from WA.

MR ROBERTS: That's a cost rather than a regulatory hurdle?

MR ROSS: It's cost, yes, and obviously it's also, in these times – because grain – road movements normally try to work on three legs. You move one long journey and then hopefully one short journey with grain, and then hopefully fertiliser or something to get you back home. But those types of moves through the drought – for drought reasons, there's nothing to come home with. So as a result you're coming empty-handed a long way.

MR LINDWALL: Well, what about – sorry, I shouldn't - - -

MR ROBERTS: No, no.

MR LINDWALL: What about the issue of shipping – coastal shipping and access from the ports? I think you've said there are 18 ports used for grains?

MR ROSS: Yes, 18 ports used. Coastal shipping, it has been used and is still being used from – for drought reasons, and similarly, there's all seven (indistinct) movements of grain to the east coast of Australia to meet some specific demand. It – in a normal, average year, which – we've never had any of those – grain shipments, extremely rare from a coastal position to another. There is grain that goes down into Tasmania from Victoria.

MR LINDWALL: Is that because of the cost to – I believe because of our cabotage rules?

MR ROSS: It's basically most of the – normally, on an average year, all the states in Australia are always holding grain because they know it's always just an Australian export, so there's no real reason for it to go around. There's no real specific quality parameters that will demand a

specific grain out of South Australia, for example, to come up into Queensland.

MR LINDWALL: What about the intermodal side with - as you said, years ago it was just rail. It's now moved to – a lot more to road. How's the combination working, or is rail just being crowded out these days?

MR ROSS: Rail is still working where you've got an aggregator such as Cooperative Bulk Handling in WA and Viterra in South Australia who offer a bundle service, and they take on the risk associated with the rail contract. In the eastern states where it's more of a – there's more competition from bulk handlers and from ports. As a result, it's very difficult for a bulk handler to try and provide the same bundle service because of the risk associated with it. GrainCorp has tried and they've – obviously if you're paying fixed costs or rail assets and you're in a drought, that's obviously a cost you don't really want to assume. So it's – rail is difficult. It's a difficult beast. We need to, as an industry, discuss how rail can be best used in, I say, Queensland, New South Wales and Victoria because I'm sure – look, there's definitely some answers. If you're looking at – purely at a costs perspective – say you look at northern New South Wales where you've got a rail infrastructure that's built for mining. We should be running massive trains on that track, aggregating at Murray Road into a point and loading massive trains. That's obviously the cheapest option.

MR LINDWALL: Yes. Do you have any comment, then, on part IIIA of the Competition and Consumer Act in terms of – and respective access to private railways?

MR ROSS: No, not off the top of my head.

MR LINDWALL: No, that's all right.

MR ROBERTS: Very wise.

MR LINDWALL: What about transparency of permit applications? You know that, of course, the trucking business is applying for a permit from a road manager, a local council generally, to go from A to B to C and so on and the permit process takes a bit of time, but the permits themselves are generally not transparent. Is that something you would advocate?

MR ROSS: Are you talking from a perspective of information and data? I certainly agree that we don't have enough good interpretable data within the transport industry. It should be an objective that we should have and

also, I think we put in our report that from an analytical perspective, we've got everyone using different methods of valuing road and valuing rail and doing comparisons. So we need to find at least some standard or a benchmark that they can be applied against or to, to get a general understanding of how it can – how one report compares to a report from 10 years ago, for example.

MR LINDWALL: Did you have any more points?

MR ROBERTS: No, but it's been very interesting.

MR LINDWALL: We have a bit more time if you want to ask – all right. I think we've probably exhausted our questions, Tim. Did you have any final points you want to make?

MR ROSS: No. Just thank you.

MR LINDWALL: Thank you very much. Appreciate your contribution, and given that we've got a few more minutes, we might – how about a little cup of tea if someone wants to grab one?

SPEAKER EXCUSED

ADJOURNED

[1427]

RESUMED **[1445]**

MR LINDWALL: Okay, David. Yes.

MR JOCHINKE: Good day. So my name is David Jochinke. I'm here representing the Victorian Farmers Federation with regards to our submission around both harmonisation of road rules as well as the impact it has on agriculture and a few other topics revolving around both safety messaging and where we could see some bureaucracy that could create greater efficiencies if we go about it the right way. So from our perspective, the Victorian Farmers Federation isn't supportive of harmonisation for harmonisation's sake, but we are very supportive of

adopting rules and regulations that create the greatest opportunity for productivity.

Now, what we do see is a lot of cross-border issues that are created by having different regulations for different classifications of vehicles and also dimensions and weights, and we saw that quite obviously with the road train access to Victoria over the drought – movement of hay. But then also, we have different regulations for farm machinery widths - dimensions being different as well as beads as well for when we tow that equipment, let alone then having some clear messaging of what infrastructure is required to open up these opportunities. So we note that harmonisation is a noble piece and we do support good legislation coming out of it, but once again, not for harmonisation's sake.

We talk about, then, messaging of road rules. We find that agriculture especially isn't forefront of mind when people are either game licencing or when people are on country roads. When we see the vast majority of population – obviously, we're centred around cities and urban areas, especially along coastlines. But when you get out to rural areas, there's obviously different road conditions and then also the size of equipment. Now, quite frankly, I'm a farmer north of Horsham. I've got a harvester that's about six and a half metres wide. It can be, with the comb attached, about 23, 22 metres long. I've got a flashing light on the top of that and two red flags hanging out the side. Quite frankly, if you can't see that machine before you start the flashing light or the red flags, you have failed your driver's licence as far as I'm concerned, and the other part of that, too, there's a lot of people with licences that we probably would have to describe don't know how to drive in those conditions. Not for a moment are we suggesting that these people shouldn't be allowed to drive. But it's the general awareness of what is a piece of equipment, what is their obligation to slow down and safely manoeuvre around it, and as a part of that initiative, too, the Victorian Farmers Federation, in conjunction with a few other road authorities, have - - -

MR LINDWALL: Yes.

MR JOCHINKE: Beautiful, yes. We've produced some publications just purely for people to understand that a) you're not stuck behind the piece of equipment. When you've got clear path to pass, you can, and we've just found that that lack of driving skill and knowledge on country roads does contribute to both nuisances of people not understanding the machinery, but then also, when we've got effect of moving livestock, can also be a little bit dangerous as well. So contributing factors, just, sort of, skill-based, and I guess, finally – I touched on it a little bit earlier – it's that intergovernmental bureaucracy that we find also quite challenging

when we are either trying to get support for a regulation on a temporary basis - such as caught in the drought and accordingly trying to shift fodder and livestock, weights, measurements, in that case – but then also laws or hindrances that we have within local government - so access to B-double routes, especially at the local government level, the clarity of making sure that's a priority but yet still trying to make sure we've got efficiency in transportation – and then also weights and measures of just general farm machinery. We can purchase farm machinery of different dimensions and sizes. There is no obligation of the manufacturer to make sure that they're compliant across the board between different states purely because there is no coordination between the states.

So once again, we're definitely supportive of common-sense practical laws, but not for going – rushing to the bottom to get harmonisation just because that's the easiest way to adopt - or police a situation, and I have – just to finalise – finally say that sometimes, in our search for simplicity, the uniqueness of either the machinery or the adaptation of that can get lost. So sometimes we have to be a little bit complex in how we actually think about the solution and just - quite frankly, being simplistic in our views does actually disadvantage agriculture.

MR LINDWALL: Well, I think you're well said, and I mean, we would never say that you should harmonise for its own sake. It's got to be a productivity game there, and - otherwise you'd adopt the United Nations rules for everything, wouldn't you? Anyway, what I'd like to start with, I guess, is you've mentioned hay a few times. Could you just elaborate on your hay movement during the drought and what were the particular causes of concern? I take it this is moving it from Victoria into, what, NSW or something?

MR JOCHINKE: Well for anyone who's playing at home and for anyone doesn't understand, Victoria's basically going to be the plodder source, the hay and grain and straw source for basically all the east coast. And between different jurisdictions there are different rules on widths especially but then also some weights. And then also additionally lengths when we talk about road trains. So to get the maximum efficiency out of a trailer, out of a hay trailer, you've got to tip, usually, the bottom three bales of a flat deck on the side which means that you're over width by roughly ten centimetres. Now with those ten centimetres there's a significant fine. People had been in the past navigating their way through that and trying to maximise their pay load because ultimately productivity is what makes our product affordable.

And when we've got either a legislation or an interstate agreement that doesn't allow that productivity, everyone's going to try to go the least route of resistance and they'll – one state they'll run the gauntlet and the other one they know they're safe in. So quite frankly it – it was a common sense move to say let's allow that additional width, once again a mere ten centimetres. Makes all the difference and it's something that we're quite thankful that common sense was seen, it's not over the whole load it's only on the bottom loads. However, though once again having to make sure that it's got the additional five centimetres of reflective tagging on either side to make that allowable goes against some of the common sense principle but is understandable if that's what we have to do to make – get the allowance for that.

MR LINDWALL: So that extra ten centimetre allowance, was that a temporary adjustment for the drought or has that become a permanent change?

MR JOCHINKE: That is temporary, to my knowledge. However, both, like the road train initiative and the additional width – we are suggesting if this is a successful trial, that it then should become more permanent. Obviously, as it becomes more permanent the messaging has to be that – if you do not comply, if you're outside of those dimensions, you will be fined and accordingly dealt with, so we're more than comfortable with that messaging, if we can achieve that as a base, but, once again, productivity, the cost efficiencies, as well as the acknowledgement that the amount of product that's being moved out of Victoria, especially this year above any other year, is unprecedented, and if anyone has travelled north, the amount of trucks on the road is immense. So in some ways it's quite well needed for our industry.

MR LINDWALL: In previous testimony from others it was spoken about, the Australian Design Rules, which some people have said have led to removing safety equipment because of the width limitations, so it sounds a very similar issue.

MR JOCHINKE: Yes. And, once again, this is where the pragmatic part of me comes to the front. At the end of the day, we've got to look back and see what we're actually trying to achieve here. Are we trying to police to the letter of the law, or are we trying to shift something efficiently and effectively? And, unfortunately, I think the former defeats the latter when you're trying to deal with somebody who hasn't necessarily driven a truck, who hasn't necessarily had to feed livestock, hasn't necessarily even loaded a vehicle, even to the extent where once you've loaded hay as a product, and especially straw which can move around a bit on the truck, if you're getting a dogmatic law enforcement

officer, that can be both an irritation to both parties when you have the disagreement on the side of the road on a 40 degree day.

MR LINDWALL: That's correct. I can understand the campaign to educate road users to be aware of what they should do around larger agricultural vehicles. How do you judge whether it has been successful or not? Is it difficult to do, I guess?

MR JOCHINKE: The measure of success is usually in the eye of the one holding the ruler, but I would say for an example when you and your VicRoads licensing handbook – agriculture has traditionally only had one page in that handbook, and yet if you look at the road network, we have the dominant amount of kilometres to be travelled in this state. So when I went for my licence in Horsham, I had to know how to do a hook turn and be able to manoeuvre that quite effectively. However, anyone in Hawthorn who had to make their way through a mob of sheep, which was significantly worth more than the vehicle I was driving at the time, would not have that same skill applied to them.

So I think there's a bit of disparity between what we have to teach and how we teach it, let alone then correct signage and also enforcement for people who don't follow that signage. Once again, a flag on the side of my header will not make my header any more visible to anyone who can see. However, if I don't have that flag on my header, I can be up for a fine. So the realities of, once again, what we're trying to achieve and the restrictions that were put into place or the well-intended bureaucratic way of viewing the role – the reality is completely different when you actually get into the scenario and situations that is real life.

MR LINDWALL: I look forward to seeing your header doing a hook turn on Collins Street.

MR JOCHINKE: If I was allowed to demonstrate that to my driving skills, I would more than happily – and they gave me the ability to drive anywhere, I would be more than happy to take on that challenge.

MR LINDWALL: On a serious question, though, your permit applications by people in Victoria – obviously, you're Victorian Farmers Federation – how have you found the process since the introduction of the Heavy Vehicle Regulator? And, obviously, oversize, overmass type of vehicles, sometimes you need to get a permit application to the road manager, the local council – how would you describe the process, and what could be done to make it better, I guess?

MR JOCHINKE: It has been very mixed, and can I say frustration and annoyance would be two words that I commonly hear underneath that scenario. Not only is it for the actual road use permits, we've also got railway crossing issues as well. I would like to just put that on the record that that is another annoyance, especially for farmers that had been living on those railway tracks for generational situations, and I must say farming in itself is a generational occupation. There's not too many people that come and go into the industry at a whim. It is a career, a lifetime career in many ways. So understanding that, yes, there must be skill involved, but to continually have to apply for permits, to continually have to apply for access is, quite frankly, bureaucratic and doesn't actually rely on any real world application in my eyes – in our eyes, I should say.

So the process of application at the start when permits were first required to go through the National Heavy Vehicle Regulator – poor would be generous. Can I just underline that. It was an absolute shemozzle, and that has probably led to a fair bit of distrust in the whole process from the very start, and we at the time cautioned that we would prefer to see an operational system than a system that was met by the forecasted date, and, unfortunately, once again, the latter prevailed. So, yes, there is frustration because of the method that the permits requested of the local government network, and then also the requirement of local governments to actually be progressive in their thinking within their networks as well.

I must emphasise in that comment, though, we have to take some responsibility to the cost of upgrading and maintaining that network and how that responsibility relies on, especially rural councils that do not have the capacity, yet they're the ones that probably the greatest efficiencies and productivity can be gained from. So it should be noted that those – any programs or any state government initiatives should be aimed at assisting to open up the actual area or application of access, and we've got numerous councils in the southwest of Victoria and in the north central part of Victoria where, quite frankly, it is suboptimal the amount of high productive vehicles, let alone B-double access there actually is.

MR LINDWALL: Do they – well, (a), obviously, the approval processes vary by quite a lot by council depending upon their capacity and a few other things and amenity around and maybe complaints by locals about heavy vehicles and so forth and oversize and overmass vehicles, but is it also variable where – are you aware of cases where a council has approved something for a particular type of vehicle and later has rejected another application for exactly the same type of vehicle?

MR JOCHINKE: I know where they have downgraded a road and culverts. I don't know of two applications that have gone through the same process that have been rejected. I have to say, personally or in our organisation, I don't think we've got that knowledge. One of the greatest frustrations is planning and engineering capacities within remote councils, and not suggesting at all Victoria is a backwater state, but to attract talent, maintain talent and then also make it a priority that they focus on those issues is a challenge, once again, for councils that are under-resourced. Even though it is a great frustration we still acknowledge that they've got capacity issues. However, we have got to come to a solution of how do we unlock that lack of productivity purely because a council doesn't (a) want to assess the road, but then (b) the maintenance, how do they actually get that maintenance on that road and assistance for that to occur.

MR LINDWALL: Would you see a merit in sort of more transparency over permits such that, you know, council A here has approved this type of vehicle that you've got illustrated here, a header, and that's then publicised or it's available that that has been approved on such and such a date, and, therefore, any applications subsequent for the same council, for the same type of vehicle would basically go through a streamlined approach?

MR JOCHINKE: Once again, depends who's holding that ruler to measure the efficiency of that process, but I would suggest any waiting time over when we talk weeks is unacceptable. I don't care which process you use. It should be within days. It should be understood what the road network is, and, quite frankly, the other part that I really find amazing in this whole discussion is we don't actually have a clear view of the whole entire network, road network, over the state, conditions, standards and then projected upgrades or maintenance to get it to that standard.

And one of our things that we've really seen over probably the last three to four years is that – especially with regards to a truck blitz that occurred three years ago within the cropping area – that they were very heavy on making sure that we had roadworthy trucks, making sure that we had all of our logbooks correct, all of our paperwork in order, and yet the roads we were driving down would, I would suggest, be dangerous and quite the opposite if I was to give the same measure of competency to what is an acceptable standard.

So that is a great source of frustration, and any process that we can establish a standard, deliver that standard and making sure that we're efficient in delivering it – and I note roads like the Sea Lake – sorry – Manangatang-Swan Hill Road as being a case in point. C class road, got knocked down to 80 Ks just before harvest. To me that is completely

unacceptable, and that should be a core road. We're not even talking a feeder road in that case. So the state of repair of our major infrastructure, let alone our minor infrastructure, and how we measure that and actually get access to it is a huge area that needs work.

MR LINDWALL: Now, you mentioned railway crossings, and we have the Rail Safety Regulator here, so maybe you would like to elaborate on what the issue there was.

MR JOCHINKE: We've got farmers that will move pieces of equipment over a railway line several times a day, and to get both a permit for each type of machine and the size of machinery and note that we have got a slight increase in the width of that machinery that we can get access over the railway lines is still not quite applicable to the current farm machinery. Back in the '80s it might have been adequate exemptions for the widths, but now we have a lot larger – especially air seaters and harvest equipment that goes over.

So to get a permit to go over a certain route where farms might have six to even seven different crossings that they would utilise, depending on where they're located and, obviously, which branches they're on, makes it quite difficult for them to comply. And, ultimately, we want people to comply with everything. We don't want there to be any outliers, but we hear plenty of stories where people aren't either willing or capable of handling the amount of compliance that they believe is there.

MR LINDWALL: Do you want to speak about that later?

UNIDENTIFIED SPEAKER: Where does that permit come from? Is that (indistinct)?

MR JOCHINKE: To get a railway crossing - - -

MR LINDWALL: Yes. So, for the record, the question is how do you go – yes.

MR JOCHINKE: Where's the permit – sorry. Where does the permit actually get lodged to gain access or to be permitted to cross a railway crossing? I didn't think it was the local government. Sorry. I will just refer to my colleague, Annabelle. She's actually - - -

MR LINDWALL: Well, could you come up, Annabelle, then?

UNIDENTIFIED SPEAKER: It's from the Department of Transport, so that means when you're moving machinery that you can then literally

have to apply to three different government departments to – sorry – VicRoads being merged into the Department of Transport, you had the NHVR, VicRoads and the Department of Transport which could just be to move a piece of equipment, you know, 500 metres down the road.

MR LINDWALL: So I don't know if you want to repeat that. I'm not sure – did that get on the transcript at all? That won't be on the transcript.

MR ROBERTS: Maybe it's something we can take as on notice, if you like.

MR LINDWALL: We can take that on notice.

MR ROBERTS: That information. So if you wouldn't mind just dropping us a note.

MR LINDWALL: That might be the better thing.

MR JOCHINKE: Absolutely. Once again, as a side issue to this one in many ways of the main focus, it is a real contentious one, and, to be quite honest, the amount of non-compliance that occurs out there is suboptimal. So whatever we can do to increase the efficiencies, be it a blanket application for a section of crossings and then also a greater length of time would also greatly improve the people who are applying (indistinct)

MR BAXTER: Out of interest, have there been many serious accidents on any of these crossings, say, the last four or five years?

MR JOCHINKE: So, to my knowledge, there has been almost zero accidents with farm machinery and railway crossings. A lot due to just intrinsic knowledge of people living on that line and people understanding how the trains work on that line, let alone then the skill of the operator.

MR LINDWALL: I do want to mention there that previous testimony from the Office of the National Rail Safety Regulator – and I can understand this – is that people often don't – I live near Canberra. You will see one train a day, say, and then you will assume that's always the case, and occasionally sometimes a second train might pop on behind, and that's when an accident really happens. So sometimes complacency can lead to assuming things are happening all the same way.

MR JOCHINKE: Yes. Whatever part of life you would like to refer that to, railway crossings would definitely fall underneath that scenario, I would agree, but the reality is the - - -

MR LINDWALL: So I just hope they are very careful checking before they cross, yes.

MR JOCHINKE: Yes. Like when you're driving a B-double, you know you've got absolute metres behind you, and you need to make sure you can get over clearly. I don't think anyone treats it with any disrespect. As far as I'm concerned, everyone understands the intrinsic risk of getting caught short when they're crossing a crossing, but I would suggest our track record demonstrates that as well though. And even to the extent where we've got our – there's only a few lines that are National Rail that actually have multiple movements of any speed at numerous crossings, and so usually it's the older ones that have multiple crossings in shorter amount of spacing, and generally those are more freight routes than any other and not national freight routes when you look at the whole network within Victoria. But, coming back to the main point, yes, more than happy for there to be a level of skill. It's the amount of application of that and the amount of times to apply for it is the (indistinct).

MR LINDWALL: Well, I would appreciate if that could be given perhaps (indistinct) separately.

MR JOCHINKE: Well, when you've only got to apply for your driver's licence once until you're 70 and yet we've got to do this every couple of years at every railway crossing, I believe there's an anomaly there that can be easily remedied.

MR LINDWALL: We did write some of this in our Regulation of Agriculture report – Malcolm, you wanted to say something.

MR ROBERTS: No, no. You've asked most of the questions I wanted to. The submission is very, very clear. So I didn't have any questions further than what was already asked.

MR LINDWALL: Do you want to go on.

MR BAXTER: Can I just come back to the hay transit and being at the receiving end of some of what's coming from Victoria. What has been the experience with the police, particularly along the Hume Highway?

MR JOCHINKE: Particularly along the Hume Highway. I think - - -

MR BAXTER: I asked the reason because I know several people in the area that I am in, there have been complaints the police have – have been fairly difficult about the loads.

MR JOCHINKE: I think that, once again, pragmatic policing is – the best way forward for – especially the hay situation, there are some people who – with regards to restraint, with regards to actually dimensions, don't necessarily know what they're allowed to do. Unlike a (indistinct) trailer where you've got a fixed size, some people aren't sure on the appropriate way of stacking and maintaining a load. I'd definitely be in favour of a strike or a warning for somebody who needs to be picked up. But we've heard of people or the load shifting just by a little bit and a piece of straw sticking out doesn't mean the whole bale is sticking out but yet that's what they measure because that is the outside of the vehicle and that to me is nonsense.

So once again, let's get back to the real intent of the legislation. Let's get back to what we're trying to achieve here. Safe movement of product, if it's properly restrained, if there's been an absolute attempt to lock it down and try to get it in with width, yes you can mention to them that, 'You are over and can you please have another crack again.' But I don't know how many people have loaded a truck of hay in their life but every bale is a little bit different, I can guarantee you that.

So I think that there has been a few – a few people who have had a bit more time on their hands and gone through vehicles a little bit more than what they should in the spirit or the intent of what's actually occurring. I would even extend that out to the inconsistencies when we talk about roadworthiness of vehicles. So once again we refer to a blitz that we had in grain trucks only a few years ago. Quite a classic story in our area, a truck driver was pulled up two days apart, the first he was given the clear bill of health, second day he was told his truck was un-roadworthy.

Now we understand there's got to be discretion, we understand there's got to be the ability for law enforcement officers to be able to make calls on the side of a road on a hot day. But that in our eyes, makes it very hard for us to comply.

MR BAXTER: Malcolm?

MR ROBERTS: Well, only about whether you had any thoughts about how chain of responsibilities are operating. We've heard from other witnesses to the inquiry a concern that contractors are being asked to meet the multiple operating systems by their - - -

MR JOCHINKE: I think - - -

MR ROBERTS: - - - partners.

MR JOCHINKE: So we talk about chain of responsibility. If you break it down to its raw core essence, it hasn't actually – the obligation hasn't changed a great deal of what we should be looking for, you know, the operational health and wellbeing of the operator and then also providing a safe working environment.

When you break it down to those elements, it's not a scary piece of legislation. I think that it's become a part of our language, it isn't quite part of our DNA yet. It took a long time for weights and measures to become a part of our DNA, I think that the chain of responsibility has still got a little bit further to go. I say that mainly the myth part of it too. For somebody who's got a truck driver who rocks up onto their property, I've got no idea how many hours they've burnt. I've got no idea about the maintenance of that vehicle. I've got no idea what the status of the kingpins are on their truck. I've got no idea what their recreational use of anything is and where does my obligation start? And theirs is earning a licence, let alone then the road that it sits on, whose obligations starts when and where.

That's where the myth of chain of responsibility has probably done more damage than not, purely because we can't get clear answers over which jurisdiction takes which responsibility and you have to show due course that you've done what you can to prevent something from occurring. But when we break it down to making sure that the drivers are in a safe place and that you're providing safe equipment to operate in, if that's the pure intent of the legislation, I think that we're very comfortable with those elements. But once again, not having a clear answer on what, where and how our extent of our duty is – is very concerning that that's not been clarified throughout the whole chain.

MR BAXTER: Just out of interest, are the people – particularly in the current situation with a lot of the (indistinct) in New South Wales and Queensland, are the guys who turn up at your place or one of your colleagues' places, owner drivers or are they subcontractors and people who are doing it as part of general contract work.

MR JOCHINKE: I reckon we've actually seen an increase in the owner drivers. Generally there'd be a lot more contracting and there is plenty of contractors too, don't get me wrong, but I think we're seeing a lot more people coming down and owner drivers being on the road purely from the fact they're trying to make every dollar stretch as far as they can and they are in desperate times.

Yes, and it's a real mix. That's a really hard one to give a generalisation - -

MR BAXTER: I'm just trying to get a rough idea.

MR JOCHINKE: But in our circumstance, in our area, in my experience, the owner driver has increased and the amount of vehicles on the road has absolutely increased. It can be purely because you can't get a hold of the contractor as much as you having access to your own equipment and trying to (indistinct).

MR BAXTER: Is there anything you'd like to comment about from the VFF perspective about fatigue laws for drivers in particular by carrying livestock, for example?

MR JOCHINKE: So yes, once again, livestock would be the one that really concerns us and I dare say if you haven't heard it yet. The overriding animal welfare requirements versus the burning of a log book time is a real dilemma for us. When you've got either a road issue or a loading issue or even a heat issue and you're trying to move livestock in a welfare manner, it can be extremely difficult to meet all the requirements.

If there was any ability to borrow time from the next day or use time from the previous day to help the situation or even to the extent – I've heard of the odd case where the police officer's actually given the person a bit of a check over and gone, 'Right mate, you know, just I can help you get there but, you know, it's not quite the way we should be doing things.'

The practicality is that you've got to get that livestock to its destination, on water, in shade, and out of the heat.

MR BAXTER: Exactly.

MR JOCHINKE: And having some allowance to accommodate some areas that are outside of the driver's control and there are numerous examples of that, road blockages, loading times, yes. Road maintenance, there's numerous things that can burn your hours.

If you've got a reasonable – I wouldn't call it an excuse but a reasonable reason of why you need to extend for a very small amount of time and not talking half a day or anything crazy like that but just an additional hour or two to get the job done, because once again, you're counting or we're counting the loading times work which goes directly onto your diary as well. That makes it very difficult to meet – in certain circumstances to meet the letter of the law.

MR BAXTER: Yes.

MR JOCHINKE: So some ability to, not necessarily extend the amount of working hours over the seven day period but to be able to manoeuvre that to accommodate for those exceptional – I have to emphasise that, exceptional conditions.

MR BAXTER: And to be clear then, if you have to stop and take the livestock out and then reload them a bit later, that has a welfare impact upon the livestock.

MR JOCHINKE: If you're not dropping them off at water, if you're not dropping them off at the destination, the actual welfare implications or travelling that little bit further, will be more detrimental on that animal than not. That's where we have people who are concerned, they know and even in the situation that we currently see ourselves is 2018/19, where we've had quite hard conditions and moving livestock out of areas, the animal welfare is of the utmost concern and versus the managing the driver appropriately as well. There's a balance there but the realisation that this isn't like the shopping you take out of your car and put into the fridge for five minutes and then pull back out and keep going again. It's a fairly big operation to unload a four deck B-double.

MR LINDWALL: Yes.

MR JOCHINKE: And where are you going to put them, how are you going to manage that, it's actually quite extreme when you're only trying to get an extra hour and a half down - - -

MR LINDWALL: How long does it take to load a B-double?

MR JOCHINKE: Talking lambs or wethers or how old are these animals?

MR LINDWALL: Well let's talk about wethers.

MR JOCHINKE: A four year old wether that might've been on a truck before is usually not too bad, they're a little bit bigger so you don't quite get as many on, versus a lamb that's never been on a truck before, that's generally smaller, you get a greater number of them and quite frankly, they're designed to frustrate to you. The head's always attached to the wrong end.

But yes, it varies and then you've got cattle on top of that if it's – if it's an older animal that's been on and off a truck a few times, it's not too bad. If it's a bull it can be extremely dangerous as well. Quite frankly a driver by

itself should never handle these animals by themselves, you need to have other people there. Let alone where you put them.

MR LINDWALL: Well I think we've – unless you've – thank you very much then, David, and - - -

MR JOCHINKE: No worries, (indistinct).

SPEAKER EXCUSED

MR LINDWALL: Well do we have the Australian Academy of Technology and Engineering here by – no, not at the moment. They weren't due here quite yet so I think we might have to wait here a little bit longer. So does anyone else want to say something while you're here?

MS MCCARREY: Yes.

MR LINDWALL: Usual thing of giving an introduction?

MS MCCARREY: Sue McCarrey, I'm the National Rail Safety Regulator for those who I haven't met. Look, I just thought for point of clarification on a couple of issues that came up and point of support too (indistinct).

Look I probably agree with a number of things that Pacific National brought forward and certainly that frustration in the industry. We feel that frustration because it's often seen as these are regulations that's actually causing the different rules on the networks and the different standards on the networks whereas actually it's not.

It is actually the rules that are set and they're not State based either. This is actually about six or seven key rail infrastructure managers of which they are not necessarily jurisdictional or State based. So we certainly share their frustrations.

There are a number of projects underway but part of the problem is those projects at the moment rely on those rail infrastructure managers agreeing to a consistent set of rules and then taking them back to their organisations and driving that change in their organisation.

My concern is if they're not mandated that therefore it might just cause more frustration further down the track. If there is a role for the National Rail Safety Regulator to play in that sort of mandating, particularly rules and standards and systems where there is a productivity benefit as

opposed to it just being an open thing, more than happy to have a conversation about that.

Mention was made about all the States having standards, authorities - not all States do. To my knowledge the main one is in New South Wales, they have an Australian Standards Authority which does actually set standards in a number of areas. There's also standards often set by major projects and construction projects around rail et cetera. One of the issues around, I think it was talked about ATMS which ARTC are looking at putting on their system and I think it is actually a – it's a good system that increases safety across the freight network.

It is, at this stage, being looked at in terms of the freight system to suggest that it would also be used for Sydney trains, Melbourne Metro et cetera. Certainly the requirements of the two systems are very different. Passenger operators are after a much high level standard of train control system and communication system so that they can move many people over a short period of time and therefore they're wanting the sort of train control system that will actually allow their trains to have closer headways. So to run much closer together, safely, so that you don't have train to train collisions.

So you tend to have quite a different requirement and by insisting on it, actually all being the same across passenger and freight you are likely to end up with a higher standard system that is actually needed on the freight and therefore a higher cost. So my word of warning on that one but I think certainly a standard system across the freight network in Australia would be a huge step forward.

They also talked about the training requirements, particularly in relation to their drivers. Again, that's not actually necessarily a regulator setting those specific training requirements. Again, it's the training that is associated with the different network rules and standards that are actually set. What we do have a responsibility sure is to say, are they getting the training that they need to run the system safely within the context that they're operating.

You raised the issue around, sort of, the network different sort of systems actually perhaps moving rail companies more quickly to a driverless type operation. Look, we will get there but we need to not confuse the driverless type operation or the autonomous that Rio Tinto uses and the driverless at Metro Trains Sydney. They tend to be – particularly Metro Trains Sydney, where you've got a passenger operation as they do in Singapore and on a couple of lines in Hong Kong and elsewhere. They're a completely segregated system, it's not a driverless train put on an old

track that has level crossings everywhere, all sorts of interfaces. You'll notice the driverless it'll tend to be tunnels or it's completely segregated from the rest.

MR LINDWALL: With the barriers on the - - -

MS MCCARREY: Correct, with the barriers on the screen. So to actually step from one to the other is actually not quite as easy as it sounds. Rio Tinto obviously is an open network but of course it's in a much more remote part and they do have some pretty amazing technology that works on the level crossings et cetera.

One of the advantages of the Rail Safety National Law at the moment and referring to some discussion around not allowing regulation to stifle new technology and that would be that balance of where you mandate rules and standards you'd need to make sure there's a real productivity game because at the moment the Rail Safety National Law by not being very prescriptive, it does leave it open to new technologies. Now, they still have to step out their safety case and show us that they've identified the risk and they're managing the risk but there's not a prescriptive set of rules which technology will overtake in a hurry.

Just a little one that might help in the discussion around lines too and part of this is just my own knowledge in dealing with the economics of grain lines and it was referred to the access charges and if the access charges are what they are shouldn't that pay for the upkeep of the lines. What you tend to find in these grain type networks, they're low use lines, they're seasonal lines, although they're not as seasonal as they used to be in the modern movement of grain. But these lines a lot of them too will be quite old networks and so the access charges tend to fund the maintenance upkeep to keep it at a basic level. A lot of these lines are now getting to an age, some of them are the early 1900 railway lines which is the old 60 pound rail and they're actually in need of a capital upgrade in order for them to continue and then it's who pays for that capital.

If you actually recoup the cost of the capital upgrade through the access charges, you'll price it out of the market completely. So therefore it's often governments are looked to, to actually to do the investing of that capital and that might not always be a priority. So they were just a couple of issues which I just wanted to - - -

MR LINDWALL: Very much appreciate that Sue, unless you've got any questions - - -

MR BAXTER: If you took, for example, the route between say Enfield right through to Adelaide, how many changes - - -

MS MCCARREY: Remind me Enfield?

MR BAXTER: Enfield in Sydney, it's the main (indistinct). It made good (indistinct).

MS MCCARREY: Yes.

MR BAXTER: If you land a train from there to say Adelaide, how many separate systems does it go through?

MS MCCARREY: Look, potentially I think around – I'd have to look at the maps again but about three. Depending on if you're just coming in from the ARTC, coming into Adelaide on the freight so he'd stay on an ARTC not come on to the Adelaide system. So you've got regional network in New South Wales, you've got ARTC, so potentially three but again I'd need to look at the maps to give you a firm answer.

MR BAXTER: Okay.

MR LINDWALL: All right. Thanks very much, Sue. Does anyone else want to say anything including people off our team? Up the back there, no? We'll just have to wait a few more minutes for - - -

MS MCCARREY: Thanks very much.

MR LINDWALL: Thank you, Sue. We may as well have another tea break, I think. They're not due here until 3.50

ADJOURNED

[1530]

RESUMED

[1535]

MR LINDWALL: So Matt, if you just introduce yourself and give a presentation and then we'll get to it.

DR WENHAM: Great. Thank you very much, and thanks very much for the opportunity to speak with you today. So my name is Matt Wenham. I'm the executive director of policy with the Australian Academy of Technology and Engineering, or ATSE for short. In terms of who we are and our role, we're one of the five learned academies in Australia, as we humbly title ourselves, chasing essentially – or linked, in history at least, to the Royal Society of London as a body of expert fellows in different fields. So there are five academies in Australia. We obviously cover the applied science technology and engineering aspect of things. One of the roles of a learned academy is the recognition of excellence through an elected fellowship. So we have about – almost 900 fellows of the Academy who are elected based on their career achievement in applied science technology and engineering.

MR LINDWALL: So it goes back to, like, Isaac Newton being a fellow of the Royal Society.

DR WENHAM: Exactly, yes. So the thing that distinguishes ATSE from the other academies in Australia is that our fellowship is drawn in a mixed way from the academia and research sector - a large number of our fellows come out of the universities and CSIRO and the like – but we also have a large number of fellows from industry and the private sector - so they're people involved in, sort of, technology and engineering, heavy businesses in the energy sector and infrastructure and construction and engineering and the like - and then a small number in government and those positions. So the chief scientist, Alan Finkel, is a fellow, a former president, who was in fact the president until he went and got a better job offer to become a chief scientist. The CEOs and the heads of most of the government research agencies – ANSTO, the CSIRO, Defence Science and Technology – their heads tend to be fellows of the Academy, plus vice-chancellors and deans and research leaders. So we've got quite a body of expertise to draw on.

MR LINDWALL: No, very good. We've used the learned academies on a number of inquiries, most recently, I remember particularly, for the immigration inquiry. Glenn Withers, for example, was on – helped us on that.

DR WENHAM: From the social sciences, that's right. Yes, and we've had - ATSE's certainly had interaction with the Commission a number of times on various inquiries that you've run.

MR LINDWALL: Yes, and infrastructure, (indistinct).

DR WENHAM: That's right. So other than the fellowship, we also exist to be a body of advice, I suppose, to the government - or governments and the nation on policy issues that are impacted by science, technology and engineering, such as this one. So that's, sort of, the context of who we are. The connection to this inquiry is through a large research program we're running on industry technology readiness. So we've been looking at it – we've been running the program now for about two years. It's a three-year program funded by a grant from the Australian Research Council to look at the question of – largely around emerging technologies and the technologies that we might predict are going to impact and disrupt different sectors of the economy over the next 10 years or so, largely in the digital realm. But a number of other technologies, depending on the sector. So what we're interested in doing is identifying ways that Australian industry sectors and companies and governments can be best prepared to adopt, adapt or develop those new technologies themselves and – with a view to recommendations or advice to government on what government can do from a policy and regulatory sense to help industry be best prepared.

So we started the project in late 2017, I think. We've got a steering committee of fellows of the academy. It's co-chaired by Drew Clarke, previously of secretarial roles in the Commonwealth, and Kathryn Fagg, who's the chair of Boral - - -

MR LINDWALL: Yes, I've met her too. Yes.

DR WENHAM: Yes. She's just joined the NAB board, I think, so it has a diverse director career, both fellows of the academy. Looking at that question of technology and readiness, and the first – what we chose to do was look at a few specifics - rather than, kind of, address that very broad question of making the economy technology-ready, address some specific industry sectors, and we chose transport as the first sector to look at for, I suppose, three main reasons, one being it's a sector that is ripe for technology disruption and it is being disrupted at the moment thanks to technology. It's a sector that cuts across the economy in that it impacts on every other sector of the economy, so it's very important from a macro level in the Australian economy. And third, that there is a role – a strong role for government or policy or regulation to play in the way we handle this disruption and the introduction of new technologies.

So we set about assessing the technology - readiness of the technology sector. We had, I think – you'll see in our submission there's a very colourful sort of box diagram that was the framework we used to interrogate this. Coming off the, sort of, starting point of the linked challenges and outcomes for transport in Australia around sustainability

and climate change and the need to reduce emissions, the productivity gains or barriers that arise from issues in transport and aiming towards more efficient movement of people and freight, and also the health impacts of the transport sector and the objective of reducing deaths and injuries from transport-related - - -

MR LINDWALL: Safety, yes.

DR WENHAM: Safety. Yes. We then did a bunch of work looking at the enabling technologies or the emerging technologies that might play a role, and I won't go through all of them in great detail. But they're grouped into three areas, one being data and digital, which is around things like the application of artificial intelligence and machine learning in the transport sector, block chain and implications of cybersecurity technologies; a large chunk on communications, sensing and spatial technologies – so these are the things that you've picked up in your draft report around dedicated short-range communications (DSRC), 5G, the whole suite of sensor technologies that are emerging now, radar, Lada and the like, and as I said, 5G and the internet are things – and how they interact; and then new energy technologies and how are we applying battery technology in electric vehicles, it's the role of hydrogen, other things like super-capacitors that play a role. And we then took all those technologies and sort of sat them on different platforms or solutions, and they were the focus of the study.

So there were four platforms we looked at - low- and zero-emission vehicles, electric and hydrogen, connected autonomous vehicles, intelligent transport systems and high-frequency mass transit – and with those four solutions or potential platforms, we then looked across a suite of readiness indicators, which are: infrastructure readiness; skills availability and workforce readiness; social readiness and social licence to operate; economic and commercial feasibility; and policy and regulatory readiness, and sort of assessed those against each of the platforms, and there was obviously a detail in the submission and the report that came out of this to each of those. I'm happy to go into more detail. But the sort of – the overall picture was that on a broad perspective, looking out to 2030, Australia's not doing too badly in terms of preparing for some of these new technologies. Particular areas of concern across the board were in infrastructure and how ready our infrastructure is for new technology, and also on the skill side, how ready we are both from the – both in terms of preparing a future workforce to handle these new technologies that we might see in 10 years' time, but also how well we're prepared to transition the current workforce as these new technologies start to emerge, particularly around automation and autonomous vehicles and the like.

So that sort of then led to a set of recommendations we – for a learned academy, a fairly short set of recommendations – we tried to limit ourselves on this one – around driving a shift to low-emission vehicles and some things that could be done then. Perhaps of most interest for this inquiry, developing a framework – a national framework for regulating new transport technologies - and that's something that COAG – the COAG Transport and Infrastructure Council has been working on already, the need to develop and adapt transport technologies to an Australian setting and some of the – not necessarily unique settings, but particular environmental or geographical conditions in Australia - and then one around the workforce and preparing for a transition in those areas. So there's a number of recommendations in there.

So I suppose in the context of this inquiry in your draft report, we were – the Academy was very pleased to see the focus on emerging technology and that, as a context for what you're looking at – obviously you've got a very, sort of, here and now assessment of – in terms of the economic assessment. But I think the fact that there's a forward view to the way that the sector's going to change in the next five or 10 years is important - - -

MR LINDWALL: It is.

DR WENHAM: - - - because we think there are going to be some large changes to what's needed in terms of regulation. Certainly pricing and access models is going to be disrupted by some of these technologies, or should be, and there's a real need to make sure that the systems we have in place and the regulation we've got is fit for purpose or adaptable to what the future might look like. I think all of the – most – probably all of the technologies that we looked at in the report are mentioned in some way in your draft report, which is great. I think that perhaps a greater emphasis on the low- and zero-emissions vehicles is something to be thought about. It's often raised in the context of road pricing and fuel excise, and I know that that's – the road pricing is outside of the terms of reference. But I think, given that's going to have an impact on the pricing structure around freight movement in particular, it's something that's important to consider, and in addition, the focus in the draft report on data privacy, cybersecurity and that, they were themes that came through very strongly in the work that we did, particularly with an impact on the social licence to operate for some of these technologies – or many of these technologies, that - the public, freight users and otherwise, won't adopt these technologies unless they've got quite a high level of confidence around privacy and cybersecurity in particular - - -

MR LINDWALL: Indeed.

DR WENHAM: - - - were the big issues. So that's sort of a very brief outline of, I think, where our report might be useful to your inquiry. But I'm happy to try and address any questions that you might have.

MR LINDWALL: Well, could I – thanks very much, Matt. Could we talk about the energy side first, then? You've mentioned electric and batteries, obviously, and it's hydrogen. Could I start on the latter? You know, from my high school days of using electrolysis to break water into hydrogen and oxygen and then using platinum to recombine them and create energy, how – could you explain, in layman's terms, I guess, how the hydrogen cells work differently to that? And given that my knowledge is – you know, it's a very common element, but you need a lot of it, it would have to be compressed, and it has to be a very low temperature, and that's quite bulky and expensive, I guess, to keep it the low temperature in a liquid form, I guess.

DR WENHAM: That's right. So there's not a – in terms of the basic chemistry, there's not a – well, there's two main routes being explored for large-scale hydrogen generation and both are not new technology, although there's new technologies that are helping improve the efficiency. One is around the splitting of water through electrolysis, and there are becoming more efficient ways of doing that. But essentially it is around splitting water molecules. That does require a lot of energy, the – what we call the round-trip efficiency of that technology is not particularly high. So any sort of system that's built on that is sort of predicated on having access to large amounts of cheap electricity or energy in some other form. I think a lot of the excitement and – I think it's a bit more than hype, because I think there is some underlying truth to it – that in terms of Australia's potential in – for a hydrogen economy is heightened because we have a lot of particularly renewable energy potential. But it would require – the scales that are being talked about would require quite a large-scale increase in renewable energy infrastructure.

MR LINDWALL: So effectively, hydrogen, in that sense, is a battery.

DR WENHAM: Yes. So it depends on – there's potential for, sort of, local generation of hydrogen, you know, electrolyses at the pump-type systems with – connected to solar panels or whatever, or fed in electricity from somewhere else. The issues around storage are interesting from an export potential, because obviously there's a lot of interest in hydrogen being an export opportunity for Australia. It is, again, quite energy-intensive to compress and cool hydrogen for transport, although that's being looked at. I think the Japanese, or it might be the Koreans, have just launched their first liquid hydrogen tanker.

MR LINDWALL: Using ammonia, if I read correctly, is it?

DR WENHAM: So the other – the alternative is using ammonia as a transport vehicle. Again, there's energy loss there, but Australia's actually quite leading in the world through CSIRO, in particular in looking at technologies to generate ammonia from renewable hydrogen and then crack the ammonia back into hydrogen or in some cases, use the hydrogen directly – sorry, the ammonia directly as a fuel. So that seems to offer promise, that ammonia is pretty well-known – the transport of ammonia is pretty well-established in, you know, explosives and - - -

MR ROBERTS: Fertilisers.

DR WENHAM: - - - other industries. It can be handled in a similar was to compressed LNG, for example. So I think there's a lot of focus in that area. There's also, I think, the earlier steps in that – looking at hydrogen that could be injected into the gas network – the natural gas network, and I think the, sort of, most thought is that that might be up to levels of, sort of, 10 per cent hydrogen. So using the existing natural gas infrastructure but reducing the carbon intensity of that network because of the pumping integration.

MR LINDWALL: What - would the hydrogen-powered vehicles then be electrically powered with a separate source, like a diesel-electric engine, or would they be direct, like an internal combustion engine?

DR WENHAM: So most of the – in talking about hydrogen vehicles, most of them are hydrogen fuel cell vehicles. So they're using hydrogen as a fuel. It's used in a fuel cell which generates electricity. So in some ways all of these vehicles are electric vehicles because there's an electric motor that drives them. There's not an internal combustion and it's not a burning pipe.

MR LINDWALL: Which is simplified, isn't it? Yes.

DR WENHAM: Yes. So – and I think particularly hydrogen shows a lot of promise in the long distance transport sector because batteries obviously have a limitation in terms of energy density and how many batteries you can stick on a heavy hauler, whereas hydrogen has a lower intensity.

MR LINDWALL: Well, that explains it. I just want to say your future of energy, in that sense, is that in short haul within cities, mainly electric, purely, with traditional batteries, obviously – hopefully - to improve a lot

in terms of efficiency. But in longer haul, based upon the hydrogen as you just articulated - - -

DR WENHAM: I think that's what - most of the scenarios and predictions are moving into that – along that line, yes, that short distances would largely be battery-electric and longer distances – different in trains, perhaps. Railways might be electrified.

MR LINDWALL: But the capacity of these engines is, well, very large, I presume. They could be a very long train, I guess, powered that way.

DR WENHAM: Yes, that's right. There are – and I believe there are a few hydrogen-powered trains operating already around the world, and it's really just limited by the size of the tank that you put on the train.

MR LINDWALL: Exciting new energy sources. Do you have any more comment on that type of energy?

MR ROBERTS: It just brings back memories of my past job, and you'll find that Leeds has done quite a program on the use of hydrogen and gas networks, so that's quite – and Adelaide, now. So there's good work being done in Australia around that.

DR WENHAM: The other side of that which I didn't mention which is relevant, particularly in Victoria, is the other way of generating hydrogen is either from ammonia or from fossil fuel sources, which is what the project in the La Trobe Valley with Mitsubishi Heavy Industries is looking at.

MR ROBERTS: Yes. The (indistinct) has got to be useful for something. Sorry.

DR WENHAM: I mean, again, that's a – does have a lot of potential in terms of Australia has a lot of feedstock in the form of coal and gas. The critical question there in terms of emissions is obviously whether that's linked to carbon capture and storage and whether that can be done efficiently.

MR ROBERTS: In the U.S. at the moment, most – as I understand it, in the U.S. at the moment, most of the hydrogen that's being produced is being done from methane. So – but as Matt's pointed out, that clearly has got environmental complications that make it an inferior outcome if we can get the technology right.

DR WENHAM: Yes, and I think, given the way the world is moving in terms of the Paris Agreement and - certainly countries like Japan and Korea which are likely to be big export markets for Australia in hydrogen, their desire to move to renewable sources will mean that those blue hydrogen or green or brown hydrogen, depending on whose terminology you want to use - - -

MR ROBERTS: Blue and green.

DR WENHAM: - - - will require linkage to CCS in some form to be acceptable to those markets.

MR ROBERTS: I think the National Hydrogen Strategy – at least, Professor Finkel's discussions sort of talk about the possibility of a billion dollars in hydrogen exports by 2030. Just to show I haven't completely left a previous job behind, I'd say that's about two per cent of what our LNG exports are likely to be worth. But it's still a – it's a very exciting field. It's great stuff.

DR WENHAM: Yes, and it's a – surprisingly enough, in the energy policy area, it's something everyone seems to agree on. Everyone can get behind it. Pardon?

MR LINDWALL: I said good God, what's wrong with it?

MR ROBERTS: Well, it's because it's blue sky, to some degree, you know. It's a really exciting potential.

MR LINDWALL: I think hydrogen's good. I mean, you know, when I first thought about hydrogen it was more like nuclear fusion, I guess, which ultimately will be the solution, I guess, in 100 years' time.

MR ROBERTS: That's another interesting conversation.

MR LINDWALL: That's another interesting – but I think that's off the topic there.

MR ROBERTS: Possibly.

MR LINDWALL: Perhaps we should talk about regulatory issues, and you know that our – what we're looking at are the three safety regulators, and I don't know if you'd like to articulate about what you think are – how they're structured and are they, you know, ready for these types of technological and other changes that may be needed and are likely to come in the future?

DR WENHAM: I mean, I think it's sort of a general truism to say that technology moves faster than – quicker than the regulation in a lot of areas, and that's difficult for regulators to handle. There's certainly a lot of attention, particularly around the area of autonomous vehicles, I think. In Australia, the National Transport Commission is doing a lot of work in this area, the COAG TIC has been thinking about this in the federal department and standing up their new Office for Future Transport Technologies. So there is a lot of thought going into this area. As I say, it's a tricky area for them to deal with. In some ways, what the NTC is doing in looking at the road rules is the easy bit. They've been looking at, you know, definitions of what is a driver and, you know, who's required to have a licence, those sort of things, to make sure that the road rules might adapt to these new technologies. There's a whole bunch of other areas of regulation, I think, largely in those areas around data privacy, cybersecurity and data retention in terms of what's needed for forensic examination. Insurance and liability is obviously a big concern, again, particularly relating to driverless vehicles. So there's a lot of questions for regulators to deal with in an area where the technology is moving fast, but we still don't have a great fix on what it's going to look like when it comes into play.

MR LINDWALL: Yes. So do you think that if you take, for example, aviation, where you can have aircraft with auto-land systems but they still have a pilot in command, legally speaking. They haven't quite gone – well, there are drones, obviously, but no passenger ones, to my knowledge, at this stage. That leap from – going from a pilot in command who can override the automation and take control to one that's purely – with no qualified driver, that must be quite a challenge.

DR WENHAM: It would be, and that's the – I think the report talks about the five levels of automation in terms of autonomous vehicles that the Society for Automotive Engineers use. That step up to level 4 and then 5, which is, sort of, full automation in all circumstances, that's likely to take a long time. We're already seeing the lower levels of automation being included in vehicles now, so we've got some level of understanding with dealing with that. But as soon as you get into those higher levels and the – as the driver becomes less and less - - -

MR LINDWALL: Connected.

DR WENHAM: - - - connected, in some ways, once the pedals and the steering wheel are removed, it becomes a bit clearer in a, sort of, liability sense, because obviously there's – the driver has no input. It's – the danger is in that transition. Where a driver is able to take control or may

be required to take control, then there's some grey area about how that would be dealt with, I think.

MR LINDWALL: Indeed, yes. Yes, yes. What about – do you have any thoughts on the Australian Design Rules which previous people have testified to us that being an inhibitor to getting new technologies and particular safety technologies into this country.

DR WENHAM: We heard a similar – I don't have particular expertise relating to the design rules but we did hear similar views when we did the evidence gallery and the consultation from our report that Australia was viewed by people in the – by some people in the industry as lagging behind international best practice to the extent that some vehicle manufacturers were essentially switching off safety features in Australia because the Australian regulatory system hadn't sort of kept up with that. That's obviously not a good thing because we'd like Australians to have access to the newest technology.

I think it's complicated slightly by Australia being a relatively small market globally for vehicles and being a right hand drive market as opposed to most of the rest of the world. Although, as was commented by some of the people we talk to, once you get to the point of removing the steering wheel it really - - -

MR LINDWALL: Doesn't really matter, does it, because if we're all the passengers then - - -

DR WENHAM: Yes, so again that transition period when you've still got driving, you know, you've still got steering wheels and vehicles then Australia will be a limited market.

MR ROBERTS: Just a couple of quick things on that, obviously the Government and other parties are going through two year design process for a freight data hub that will hopefully provide a lot more quality information and more accessible information for people. Any thoughts about how that is best managed and how it might be used?

DR WENHAM: In terms of the consumer data rights or - - -

MR ROBERTS: No, in the sense that they're looking at designing over the next two years, essentially an accessible place where data transport movements are stored and accessible to – about this point a lot is still to be decided, but accessible to open end users. So that you can do some strategic planning around infrastructure and investment but also commercial parties would presumably be able to make some decisions

around their own operations and possibly their own investments as well. So, the idea is a little bit in the making if you like but when you look at that information and uses for this study, did anything come through about best practice about data we might collect through telematics or other technologies, how it might be made, you know, a valuable commercial tool?

DR WENHAM: Yes, there's an interesting – it links in to a lot of those different readiness parameters again around the social licence and the level of confidence that the public feels in what data is being generated, who owns that data, who has access to that data, where is it being stored, what are the privacy protections around it. We're seeing interesting parallels so that the second industry sector that we've been looking at as part of this bigger project is in health, which - - -

MR ROBERTS: Even more sensitive.

DR WENHAM: We though transport was complicated but health even more so and particularly around that issue of data and information and what people are comfortable – I think there's a general sense that the public, broadly put, can see the benefit in access to data sets be it in transport or health, genomic data is a good example at a population level. That can have some real benefits in terms of technology in the way that transport or medicine is delivered. But when you get down to the individual level and say but now we're talking about your data and tracking where you've been and what you've used your car for, or which means you've travelled on then you start getting into some - - -

MR ROBERTS: Well there's a risk that it may be used by, let's say, insurance company to change – I mean clearly we've got some legislative arrangements in place around community rating in insurance products.

DR WENHAM: Yes.

MR ROBERTS: But I can see there'll be concerns around (indistinct) access to medical care or the cost of medical care to you. Yes but - - -

DR WENHAM: Yes and it is fraught. So I think there's a willingness from what we saw, there's a general willingness from most people that there's a benefit to these – to this data and these technologies but they've got to have confidence that the right structures exist around that to protect privacy and that's difficult because again as we've seen in the health setting anonymisation is often used as – or de-identifying data is often used as a way of sorting grouping that and protecting it but we know that

that's – that could be got around sometimes depending on the data that's available.

MR ROBERTS: And in a transport case, might be something like the Intelligence Access Program which gives you some regulatory concessions but it's contingent upon a greater line of sight for the regulator and your behaviour.

DR WENHAM: Yes.

MR ROBERTS: So even in those cases where there might be an immediate benefit to the party participating there's still concern about how it may be useful for regulatory or other purposes.

DR WENHAM: That's right, yes.

MR ROBERTS: The other thing is, in the report, the draft report we made some recommendations – draft recommendations, I should say about liability and (indistinct) and the extent to which it might be held by the party that's developed the software for (indistinct) systems. Any lessons from your research around (indistinct) innovation and you don't want to discourage the (indistinct). But liability becomes a pretty important issue when there's uncertainly around risk.

MR LINDWALL: And especially if you watched 2001 and had (indistinct).

MR ROBERTS: He had to make a decision, didn't he, about the mission.

DR WENHAM: I think it's likely that the manufacturers and the developers and there's a question about – between those two thinking of vehicles is that the vehicle manufacturer is at the software developer that goes into that and the OEM's that are doing that work so the detail would have to be worked. But I think there's a move towards as – as the vehicles become more automated, more of the liability will fall to the manufacturers. Ultimately, that – I mean the manufacturers may have a different view but ultimately that should be a good thing overall because a lot of the intent of these technologies is to reduce accidents, reduce injuries - - -

MR ROBERTS: Yes.

MR LINDWALL: And they should.

DR WENHAM: So if that – if that comes to pass as we think it will then, you know, that will lower the risk pool overall in terms of the number of insurance payouts that might need to happen.

MR ROBERTS: It's mainly the division of liability, I suppose, and whether, you know, the manufacturer might say, 'I've built the physical product.' But to the extent they may wish to then say how that product operates is governed by the software developed by another party.

DR WENHAM: Yes.

MR ROBERTS: So, I can see (indistinct) benefit from some of these disputes.

DR WENHAM: I'm sure they will.

MR LINDWALL: Is there anything wrong with that?

MR ROBERTS: Well lawyers have to eat too, I suppose. You know what Shakespeare said, 'First thing we do is we kill all the lawyers.'

MR LINDWALL: (Indistinct) do you have anything pending? Two more questions from me. One, do you have any views on how important a role, no faults investigation such as the Australian Transport Safety Bureau undertakes its works into say, heavy vehicles and others we did explore that in our draft report.

DR WENHAM: Again, not something the academy is particularly expert in but we did sort of deal with that to a certain extent, I think, particularly in the period as these new technologies are being rolled out, that approach will even more important because it will be important to understand, you know, as we hope that the number of accidents and incidents will reduce, those that do occur will want to understand better why that's happened.

MR LINDWALL: Exactly. Yes.

DR WENHAM: Because, I suppose, there's a – because we'll then be dealing with system level faults potentially or faults that might affect a large number of vehicles as opposed – as opposed to individual personal error. It will be important to understand that quickly so that we can make sure that it doesn't become a more widespread problem.

MR LINDWALL: The other question is, do you think there's a greater trend – I think there is, from a lot of navigation and safety equipment was originally on the actual infrastructure, say it's on rail lines, it's on the

roadways, airports and more and more has been taken on board the vehicle, the truck, the train, the plane. Less and less has to be actually on the infrastructure. Is that a trend that you – would you agree with that assessment?

DR WENHAM: Yes, to a certain extent. It's an interesting question in general around the sensing and communications networks. Particularly for a country like Australia, if you're talking about rural and regional. So a lot of these technologies, again thinking about driverless vehicles, will be first introduced presumably and are being largely tested in urban areas. The initial thinking was that, yes, most of that – or a lot of that infrastructure would be in the environment and the vehicle would communicate with that. Whereas more and more, I think, the developers of these technologies are putting that technology on the vehicle. That's important in Australia because in an urban environment you have a fairly well defined, well mapped, you know, you know where the street is, you can – you know what the tolerances are.

MR LINDWALL: Yes.

DE WENHAM: Whereas if you start talking about regional roads, dirt roads, you know, changing weather conditions, you can't rely on accurate mapping necessarily. Having said that, there's a lot of work that's going on with Geoscience Australia looking at remote sensing and mapping of geospatial mapping, essentially which is going to be important. But then you're talking about different tolerances whether, you know, being accurate within 10 centimetres is enough or do you need to be one or two centimetres.

MR LINDWALL: Yes.

DR WENHAM: That also links to the communications networks and whether you rely on a 5G network to allow the vehicle to communicate to know where it is or the GPS signals or the like. Or whether it can do that based on its own sensing technology that sits on the vehicle.

MR LINDWALL: On 5G, which of course has the benefit of very low latency and quite high speed, broadband width. What's your understanding of how much of your old – how large the footprint will be in Australia over the next number of years?

DR WENHAM: I think we'll see pretty high penetration in urban areas and that's already starting with the major Telcos.

MR LINDWALL: Yes.

DR WENHAM: It has some technical challenges in that the communication distance is quite short so you need a lot of towers and it can be blocked by buildings and the like. But you can handle that in an urban area because you can just put in lots of them.

MR LINDWALL: Yes.

DR WENHAM: The key question, again for Australia will be in the urban fringe, rural, regional, remote areas where that's unlikely to go in. So if you saw, you know, vehicles that were coming overseas that were reliant on 5G technology that you couldn't take to the back of Bourke because there's no 5G, then it's a question of well, what else can that vehicle use to drive itself.

MR LINDWALL: Yes. It was one of our previous studies on the NBN and the telecommunications USO. So, I mean, technology just changes so rapidly, that was only a few years ago.

DR WENHAM: That's right. I mean, when we were doing it – probably when we started it, the talk was all about DSRC and how you would install that in urban areas and make sure you had the right sensors and communication networks because that was what was going to drive things. And within, you know, 12 to 18 months, 5G sort of developed and deployed and everyone, sort of, shifted away from – it's still relevant but it's now largely a question of well will that be driven by 5G.

MR LINDWALL: That's what I thought. Well, thank you very much for coming today.

DR WENHAM: Thank you very much. Good luck with the report.

SPEAKER EXCUSED

MR LINDWALL: To finish this off I think I have to say something like - there's no one else here so that's fine. I adjourn the proceedings and this concludes the Commission's public hearings for the National Transport Regulatory Reform Inquiry for today and for the Inquiry. Thank you.

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