RESUMED **[3.00 pm]**

COMMISSIONER: We'll reconvene. Topic 2, National Electricity Market. I welcome Mr Mark Vincent, SA Power Networks.

MR JACOBI: Mark Vincent is a senior manager within SA Power Networks currently with overall responsibility for development implementation of its demand side, participation and future network strategies. Prior to his current role Mark has been engaged in many areas within the electrical sector, including project management at ETSA Utilities and has been involved in pricing determinations, operations management, strategic planning, leadership of various business transformation projects. We call Mark Vincent.

COMMISSIONER: Mark, in our first few days of open sessions we've heard about the enormous change going on in the electricity market, the impact of disruptive technologies. I wonder, just as a gentle opener, if you could talk about the impact that you see in SA Power Networks of those broad changes and then we'll come in and do some specific questions.

MR VINCENT: Yes, absolutely. I think the really short story – and it could be that five minutes and we're over; I'm not sure – is that we are seeing and forecasting a significant take-up in distributed technologies. So that's particularly

in terms of solar PV and storage. Generally, that trend from centralisation to decentralisation we anticipate to reduce the capacity that a network will need to support over time, and potentially over further time frames again we think that that may even enable some more remote distribution lines to be decommissioned and perhaps those areas might go off grid.

I state, however, that we think there is an amenity in the grid for the foreseeable future in that it still is a tremendous resource to enable communities to share their energy resources going forward. As distinct from perhaps thinking, going back 12 months, two years ago, that this is a rapidly evolving area, I think all the talk about people completely off the grid, that's certainly not the picture that we anticipate, at least in the mid-term.

COMMISSIONER: When we've looked at some of the estimations of what might happen even three or four years ago we rarely pick up any trends that happened actually. So can we start by looking at residential solar? Where do you think that's going? How confident are you in terms of the take-up and have we got enough experience now to be credible in our estimations for the future?

MR VINCENT: I will bring up a slide at that point, just so people can see just exactly what we have seen in terms of solar. You're probably all familiar with this story but five years ago there was virtually no solar on our network whatsoever. As a result of a number of factors – one, just simply the reducing price of systems but also, importantly, the feed-in tariffs that the government put in place – we saw a dramatic take-up. So over the last five years we've now got – I'll look at the number online – more than 600 megawatts of solar on the system. Nearly a quarter of our customers have got solar.

Now, our forecast – and I've got a further slide but I might leave that for the moment – of where that might head suggests that we might be at as many as perhaps two-thirds of our customers have solar in 20 years' time. You might say, "Well, gee, with feed-in tariffs going, surely the pace is going to drop off." Certainly it has dropped off significantly over the period since the feed-in tariffs have dropped away but the economics of the systems are still excellent and we're still seeing a continuing take-up. We don't see that dropping off any time soon.

In terms of confidence I think it remains inordinately uncertain. However, the forecast of two-thirds, I think, is nonetheless completely reasonable. There's probably forecasts you'll find that are more bullish than that. There's probably forecasts you'll find that are more conservative than that.

While I'm at it I will talk about this. I think it helps that story a little bit and apologies, the slides showing on the screens are a little bit messed up, but there's forecasts that the price of solar over the next 30 or 40 years will drop by perhaps

half over what it is now, around $1 a Watt US. When you work out the life of panels, that's energy at around 5 cents a kilowatt hour. In the grid electricity it's about 35 cents or something a kilowatt hour at the moment. That is incredibly cheap energy if you can make use of it. In Australia at the moment you can buy solar panels for about that price because of the subsidies that we have in place at the moment but even as the subsidies unwind and we near – they'll probably unwind as the price continues to come down. It will probably keep the price somewhat similar to what it is today. Again, that is incredibly cheap energy. So we think that the drive for solar will continue into the foreseeable future.

COMMISSIONER: I note you've got lithium battery costs there.

MR VINCENT: Yes. Batteries are the real game-changer for the industry. They're what we see as the significant disruptive change. At the moment the pricing of batteries, despite it having reduced significantly, is still uneconomic in the majority of instances. There are a few small cases where it stacks up today. You could say perhaps the forecast that you're seeing on the screen is a bit bullish as well, getting down to $100 a kilowatt hour, but if it gets to that level then once again that is very, very – so what that means is that you could potentially store a kilowatt hour of energy and re-use it in your battery for 5 cents. So you'll have your 5-cent solar, your 5-cent battery. 10 cents a kilowatt hour, again compared to 35 cents. It's very, very cheap energy. The but is that as much as it might be of some value for customers to make use of that and leave the network, as people predicted in the past, there's actually even more value in them staying on the network for reasons we may get to in further questions that I can try and explain.

COMMISSIONER: We might save that and just go back. Mr Jacobi.

MR JACOBI: I think perhaps we can continue on from there in terms of – I understand SA Power Networks have had some modelling done, bearing in mind the sorts of technological changes that you've identified, in terms of what they expect their customers to be likely to have at some points in the future. I'm just wondering whether you could speak to the results of that analysis.

MR VINCENT: Absolutely. I'll just wave this appropriately, we'll get there. As I mentioned before, yes, we've had some forecasts done as to where we think solar PV and storage particularly might go into the mid-term, 20 years or so, and we're predicting perhaps as many as two-thirds of our customers might have solar systems and importantly perhaps half of our customers might have storage systems. Some other things of note on the chart is also our forecast of electric vehicles. We're suggesting perhaps 10 per cent of our customers might have electric vehicles in 20 years' time. That's about 100,000 vehicles on South Australian roads which is somewhat of a countervailing factor for the increased local generation of solar PV but not nearly. It's material but it's not going to

change things dramatically from our perspective. It's just going to help offset some of the loss of energy through solar PV.

I will make mention, there's another thing shown on the chart there, micro combined heat and power. That's an example of new technologies such as fuel cells that people have got excited about briefly and then they're, "Oh, perhaps that's not actually going to be the new winning technology." I think it's important and our forecasts, indeed, are zero. So it's like, "Well, why do you even bother showing that?" The reason we show it is that there are lots of other technologies in the wings that could – all it takes is a breakthrough, five or 10 years' time, and it could be that it is a game-changing new technology that hits us just as significantly as solar and increases the level of distributed generation even further than what perhaps we're forecasting at the moment.

COMMISSIONER: Could I ask, is there anything foreseen that would change the slope of the graph, like a significant carbon cost?

MR VINCENT: Yes. Carbon would certainly increase the take up of solar and it is no mistake there that the two – the storage and the solar charts kind of track each other because storage – the key opportunity in storage is to store what I describe as your excess solar that you are generating on your rooftop and use it in house rather than exporting it to the network. So definitely if there were carbon – a stronger carbon agenda it would probably tend to drive a greater take up. Price is the other obvious factor in that if the price projections that we build in to these, if they were significantly exceeded, by which I mean further price reductions than what we might anticipate then that obviously would drive higher take up as well.

MR JACOBI: Is there a particular tariff model that is implied as underlying those particular projections?

MR VINCENT: Yes, there is. So these actually rely or are based on an assumed, what we call cost reflective tariff. This would be a demand-based tariff and the AEMC's recent decision in this regard would have us move there. So we think that is a completely sound assumption. We are required to move to cost reflective tariffs and I can go in to as much detail as you like on it.

MR JACOBI: We are interested to understand - - -

MR VINCENT: Okay.

MR JACOBI: - - - the transition pathway?

MR VINCENT: Yes.

MR JACOBI: Both – first of all, perhaps what it is and then what you think the likely transition pathway for consumers is likely to be in that respect.

MR VINCENT: Okay. Well SA Power is actually consulting on that at the moment, so I can't describe what will happen. I can describe some of the possibilities. So we are currently going through – we need to produce a tariff structure statement. That's correct gentlemen? Which will actually be released in, I think October of this year and that will describe, on the basis, on the consultation that we are undergoing at the moment, exactly how we believe – sorry, what we consider might be a best path in terms of managing the various stakeholder needs, in terms of moving to cost reflective tariffs. My understanding of the current pathway we are suggesting is perhaps over the next 10-year period we might try and transition the vast majority of our customers toward cost reflective tariffs. Cost reflective tariffs means that rather than charging customers based on how much energy they consume, which is essentially the old model when we supplied energy from centralised power stations, it is more reflective of the future amenity of the network which is really the capacity that we provide to customers, to share electricity amongst themselves, or take it from the network.

MR JACOBI: Given that customers don't have a direct relationship with the distributor, in the sense that their relationship is with a retailer, I am just interested to understand how that capacity-based relationship will work its way out in terms of customers' electricity arrangements?

MR VINCENT: Although it's hypothetically possible that retailers may choose to structure their tariffs completely differently to ours, so again, for those that aren't aware, so essentially we charge the retailer on a certain basis. That is depending on how you look at it, may be a third to a half of the total customers' bill and then retailers decide how they want to package that up and actually provide that ultimate deal to customers. Now in the past, where we have charged, as we have been doing, for I think probably 10 or 15 years now, those sorts of tariffs, the large customers, our experience is that retailers typically passed on our pricing signals – essentially, I'll describe it as verbatim. In other words, they will pass that signal through, they will put an energy component on the top of that and so essentially the customer sees the full pricing signal that the distributor's provided to the retailer, as pass it on. I think we have got no reason to believe that they won't do the same for smaller customers, if they do anything differently, they will essentially be taking on risk. The question is whether they think that risk is worth it for perhaps other objectives they might have in terms of customer attraction or retention.

MR JACOBI: From the customer's point of view, in terms of their ability to control the amount of capacity that they in fact need - - -

MR VINCENT: Yes.

MR JACOBI: - - - as I understand it, it's calculated based on a peak load at a point in the year, or something along those lines.

MR VINCENT: Monthly peak, during a certain period during the afternoon.

MR JACOBI: Is it likely that that will require a technological change at the household level in terms of the nature of metering?

MR VINCENT: Cost reflective tariffs are reliant on smarter metering than we have today and the AEMC rule change on metering that is currently going through, we have no reason to believe that will be materially changed as it goes through to final at the end of this year. That will see mandatory transition to smarter metering as of the end of 2017, so that will actually put in place the metering that is required from the cost reflective tariffs. Look, as always, it is slightly more complicated than that but in very simple terms, particularly where we are looking at targeting applying cost reflective tariffs first, it's quite a neat alignment in that the customers we would be seeking to move first to cost reflective tariffs would be also those that would get smarter meters as part of that process.

MR JACOBI: And - - -

MR VINCENT: Sorry, I think – was the second question which I can – about technology and how customers might respond - - -

MR JACOBI: Yes.

MR VINCENT: - - - to that. It is possible that some customers will choose to change their behaviour, if they can sufficiently understand how it works and simple sort of messages to customers will be along the lines of look use as much electricity as you want but just don't turn everything on at the same time and particularly not between 4 and 9 pm on hot summers' days when we tend to get our peak demands on the network. Now I think a lot of customers just don't want to worry about that type of thing. What they – they just want that problem to go away for them and that is where technology can certainly come in to play. A battery system for example, which bearing in mind, half of our customers might have 20 years time, can be configured relatively simply to manage that for you. So for example, a battery system, you can configure say look please charge me from the sun during the day and during the mid-afternoon to evening peak discharge if my demand on the network starts getting too high, so you are pretty much flattening that off and therefore minimise my tariff. So to a large extent, if customers use those sorts of systems there is also energy management systems that are starting to emerge and such systems would also play a role in managing the use

of discretionary appliances for customers to try and manage their electricity use.

I think as much as I could imagine some saying, tell them they're dreaming, I think well how long ago was there no such thing as an iPhone. Technology moves quite quickly, we are starting to see smart appliances and I think from a consumer perspective, consumers want things simpler. If there is a box in their house or in the cloud or whatever, that is actually managing these things for them, it's seamless to them, I think that will be a very attractive offering. It achieves both ends; it reduces their cost as well as reducing demand on the network.

COMMISSIONER: Just thinking about the issue of energy efficiency, is that something to SA Power Networks is monitoring developments in that area? It would seem to me to be the first thing for us to look at?

MR VINCENT: Monitoring, yes. Our primary focus is not so much on how much energy customers use but on the peak that they drive on the network. So you have probably heard this story countless times today and you've seen load profiles and things, so the South Australian network – excuse me, I think something like the top – I get these figures wrong but the top 20 per cent of demand is only like for a few days a year type of thing, for a few hours. That is what we need to size our network for and so what we care about, particularly, is like I said how much energy customers are using, like so roughly 4 to 9 pm on very, very hot days. Now if they get more energy efficient appliances that tends to reduce their energy right across the year and that's great. The whole thing kind of rises and falls to some extent on the same tide. So they reduce everything a little bit, it's going to reduce their peak a little bit as well but we are primarily concerned in terms of reducing our costs and therefore the community's cost at how much they're using during those peaks on summer days. And we do see that battery technology, new smarter appliances, that sort of thing will actually have a material impact on those peaks in the coming years.

MR JACOBI: We have talked about the implications of the technologies for pricing structures and I'm just interested to understand where you think that they are going to go in terms of customer's relationships with the network? You have mentioned people going off grid and do you see a range of models, I think we have got a slide that might reflect where you are going with this.

MR VINCENT: So I think this is a slight tangent but it's certainly relevant to the discussion we had before. So I think a conclusion that might be drawn is that well, gee if we have got all of this solar and storage and stuff and it's going to be so cheap, well, does that mean that we're going to have this massive exodus from the network and all these customers are going to go stand-alone, and what we believe is there's no question in our minds that there is a moving away from this centralised model of generation. I think you've heard quite a bit of that today.

And it wasn't all that long ago that there was talk about every customer moving off grid.

Look, I think in the very, very long term that's eminently possible. If technology gets cheap enough there's just not enough value in putting the poles and lines between people's houses, but at least in the mid term - I mean, mid term might be 50 to 100 years - at least in the mid term it's very, very expensive for customers to build an off-grid system, and I think the most important factor is that the sort of size of a system they need to build to go off grid - because they have to get through winter, you know, low solar irradiation, cloudy days. That means you need a lot of generation capacity and/or a lot of storage. It's a very expensive system.

In summer that very same system is generating masses more energy than what you can make use of. If you don't retain a grid connection there's absolutely nothing you can do with that excess energy, if you like. It's just wasted. So that's why we think in the mid term at least that it's much more likely to evolve to what we call two-way flows, customers sharing their distributed resources and, as I said a few times, it's more of a change of amenity of the network of enabling a sharing of customer resources rather than the old top-down model of centralised generation flowing through to customers.

And as you rightly pointed out, our pricing at the moment doesn't reflect environment. It doesn't make sense to charge per kilowatt hour when you're not actually supplying so much kilowatt hours anymore. You're supplying connectivity. It's also got some other technical aspects like, you know, low voltage network, but it's a far less material issue. If you like, I'm happy to go through the example on the next page as well to try and explain sort of how that works.

MR JACOBI: Yes. No, I was interested to understand an explanation of the rationalisation for why you don't perceive off grid as being of value.

MR VINCENT: Yes. It's kind of like people kind of get that at a conceptual level, but it's like, "Yes, but is that right. Does it really work that way?" So I've just come up with a very simple case study, and let's call it the year 2030, and it's year when battery prices have dropped dramatically. They might be a $200 a kilowatt hour or so. So if I've got my typical customer and I've just rounded out some numbers. So this customer consumes about 5,000 kilowatt hours per annum, about 40 cents or something in kilowatt hours, so they've got a $2,000 annual bill, just to keep the numbers really, really simple.

So, well, okay. Let's say that customers buys a large solar system, a large battery system, and in this future it's quite cheap, $15,000, and you do the sums on that in

terms of, you know, let's say they've borrowed against their home loan and the life of the system and so forth, and they could actually install that something and have an annualised cost of about $1500, cost of capital and depreciation and all that sort of stuff. Where that lands is that that's cost about $1500 rather than 2,000 and so they save $500 a year. You say, well, gosh, they're saving money, aren't they? So they can go off grid, right. Why wouldn't you if you could save $500?

Well, yeah, that's all true, however they could actually save even more money by staying on the network, and it's fairly simple to sort of demonstrate that. So rather than buying a very, very large system to enable them to be self-sufficient the whole year round, what if they bought a smaller system that enabled them to mostly generate and use their own electricity, but still use the grid for backup, you know, when they get a few cloudy days, perhaps when they get very, very hot days in summer. So they could buy a system less than half the size, maybe generate about 80% of their electricity, and the cost of that system - so DER cost, meaning distributed energy resource cost - costs about $650 per annum.

And let's say they manage to reduce their grid cost to a third, $650, and as I mentioned before, importantly though, the value they get from generating into the network, they actually get a credit for that. So that's energy they're selling, if you like, to other customers and/or companies like ourselves might actually be willing to pay them some sort of payment in terms of the grid support they might provide at peak times. You add that up and they're actually only paying $1,000 instead of $1500. The simple message is I can stay on grid, I can save more than actually going off grid. Does that make sense?

MR JACOBI: It does. The scenario you described depends, does it not, on the value of the grid cost that one calculates - - -

MR VINCENT: Yes.

MR JACOBI: - - - on the right-hand side and that depends, as I understand it, on a bit of an unknown stance at present in terms of the way that grid costs will be shared between customers?

MR VINCENT: Yes and no. So they've reduced most of their energy costs. So that's just kind of gone, and the grid cost might only be, you know, 30 to 50% of that total cost. That's still got 30% of the cost there, and I think that there's an opportunity to actually make the grid much more efficient in this new world in any case, because it will need to be a grid with less capacity than we've got today.

MR JACOBI: That was where I was going, I guess, in the sense that the fixed costs that are associated with operating the network would need to be reduced in that model. I'm just interested in understanding about how you develop a

transition pathway and what a transition pathway might look like in terms of reducing the overall fixed costs within a distribution network.

MR VINCENT: Yes. We don't know the answer to that question. I'll put that straight up. So our industry is putting a lot of energy, dare I say, into that question today. I think what we foresee are a few possibilities. So one is, generally speaking, we think through battery technology and so forth that the general capacity of network will be able to come down, and that means that we'll be able to have smaller conductors, smaller transformers. The question is how you get there. So in a brand new subdivision 10 that's easy. You just put in smaller conductors and smaller transformers and it costs the customers less and everyone is happy.

For existing network that's much, much more challenging. You don't save a whole lot of money simply by restringing a powerline with slightly smaller conductors. In fact, it would cost you money to do that. But there could be opportunities sort of in the shadowland in between in terms of when assets come up for replacement. You could perhaps replace them with smaller assets, perhaps decommission some of those assets. So I think there are definitely opportunities to reduce cost, but we have quite a significant journey to go to actually work out how specifically to enact that.

I think I've referenced in some of the information I provided you some work that's being done by the Network Transformation Roadmap project for the Energy Networks Association and SIRA are working on at the moment, and I think that process will run out over the next year or so, and I think by the end of that we'll have a much stronger consensus as an industry as to what some of the most efficient pathways to that future might be.

MR JACOBI: I think you referred to in terms of the "network thinning", and I'm just interested in understanding given that the poles and wires can't be restrung. Are the sorts of transitions you're talking about at the substation level and at the slightly higher level than that?

MR VINCENT: It can be both. So some simple examples I like to give are Hawker in the State's sort of mid north, expensive powerlines, very long stringy lines going up to supply Hawker. So in the mid term it could be that there's enough distributed generation storage in Hawker that that town is actually self-sustaining most of the time, perhaps as a backup generator or something that goes in there. And would we do that today? Absolutely not, because again, you don't save money by just turning off a powerline. That costs has already been sunk. But if that powerline needed to be significantly rebuilt because it was getting toward end of life, then rather than rebuilding it you might say, "Okay. Now is the time that we'll decommission that and set up the town so that they can be stand-alone." And, look, again, ten-year time frame, it's not going to happen, but you start

talking 50-year time frames, then, yes, that's actually quite plausible over those sorts of time periods.

In the metropolitan area we have a lot of street transformers. Again, it could be that they are simply scaled down in terms of their capacity, which would translate directly to cost. It could be that every second transformer can be decommissioned or something. So it's not just substation level. There are elements of a high voltage network that might be able to be reduced in length or coverage perhaps.

MR JACOBI: Do you see there being any particular transition pathway to a community making a decision that it wants to develop that microgrid sort of concept? I can see it in the context of a housing development but how do you conceive it working in terms of a community that's part of a legacy system?

MR VINCENT: There's certainly cases in the eastern cases – I was just reading about one this morning – of communities that are looking to – but I'd describe it as almost island themselves from the grids between they've done the same sums and they've said, "Look, actually, we want to move to almost 100 per cent renewables but kind of that last 10 or 20 per cent is really, really expensive. So we're actually going to retain our network connection," be mostly reliant on renewables but kind of leave the network as a back-up and, again, to get through winter. I think it's probably a little way off.

I think there's countless impediments if communities would decide they wanted to go off grid, some of which I'm absolutely not qualified to talk about but, simplistically, even consumer protections – you know, there has been a lot of protections put in place to make sure that customers connected to the National Electricity Market aren't disadvantaged or taken advantage of. So what if a council were to take over a grid again and supply electricity to their local constituents. What would that look like? Would those protections still be in place? What's to stop them being price gouged by their own council?

There's quite a few issues, I think, that need to be worked through there. Again, I think that is part of the transformation roadmap that we need to work through to say, well, if that sort of thing might become more common, whether it's driven by utilities, by communities or combinations thereof, how are some of the protections managed as we follow that path?

MR JACOBI: I think you have a conceptualisation of what we've just discussed. I think probably the next slide.

MR VINCENT: Yes. Again, this is trying to make the complex simple. This is a perspective as to how we see the industry might play out over the next X period, carefully labelled axes of present and future. If you do look at the current day

what we have is a situation where virtually all of our community is grid-connected. However, even today in the most remote areas we have many customers that aren't grid-connected. That could be an isolated farmhouse, simply because they're too far away from main supply. It could be Aboriginal communities. If you're a long, long way from the grid it's more cost effective even today to be nongrid-connected.

As the price of these sorts of systems gradually reduces over time it seems that it's inevitable that that boundary will change. So more and more it will become efficient for individual customers to actually establish their own off-grid systems, particularly if they're brand new sites. Again, it's much more difficult if there's existing infrastructure or it's much less beneficial but a brand new subdivision, a brand new township, it's going to start stacking up for them to go off grid.

If you look, however – again, I like to paint the extremes. If you look at a CBD network – it could be Adelaide CBD. I like to use the example of Hong Kong. They're always going to be connected to the network. So that's the other extreme of the spectrum because you've got very, very high energy and customer density. There's no space to put distributed resources. So the question is simply where the boundary is.

However, just to add a tiny bit more complexity to it, it doesn't actually make sense for every individual customer to disconnect from the network. That would be very, very expensive. We think that more and more we'll see the emergence – we've kind of touched on this a bit as we've gone – of local grids or thin grids. What that really refers to is a local community or group of houses actually remaining interconnected. So it could just be that rather than connected to the main grid they've got 50 or 100 houses that are interconnected, perhaps just with a low-voltage network. It could be they still retain a connection to the main grid but they try and minimise their use of that. We think that could be very, very cost effective in a number of circumstances in the future.

Nonetheless, again as we talked through, we think there will come a point in time when such systems, whether they be unique customers, islanded off the grid or whole communities, that that will become sufficiently competitive with grid electricity, that there will deregulation come into play. If there's true competition why would you want to have regulation in place? The question is simply when that might occur.

Again, just to make that real, the example I like to give to people is that example I gave on the previous page where that customer might be able to spend only $15,000 on a standalone system. What if you were building a new house and the builder said to you, "What would you like? A grid connection or a $15,000 standalone system and never have to pay a bill again?" It's like, "Wow, never a

bill again. That sounds pretty attractive."

The but is that our customers have become very, very accustomed to turning on a light switch and it just works. There's no question that off-grid systems, they're actually a bit trickier than that because you have a few cloudy days in a row and these customers actually have to start thinking, "Well, I better ration for a bit because I'm not sure if I'm going to get through to tomorrow. I want to make sure I can watch TV at 6 o'clock," or whatever, "or charge my iPhone." So there will be some customers that simply want it to be easy and want to retain an easy grid connection but for others – again, what if the price was $5000 for an off-grid system? That's pretty interesting.

MR JACOBI: Perhaps to finish up, we talked about the last 10 or 20 per cent and you described it as, really, the price of connectivity. I'm just interested in understanding what sort of tariff structure you might be looking at then. Would a capacity-based charge be sufficient for that or would you need some different form of tariff yet again to appropriately reflect the fixed costs that are associated with it?

MR VINCENT: I think we've kind of tested our tariff models against some of that evolution and we think it does actually make a lot of sense still, even in that future. So a customer, for example, that can manage their peak on the network to be very, very low, they require a very skinny, meaning inexpensive, network connection and we're very happy to charge them a very low cost for that. Customers that want to be able to use their three-phase, whole of house air-conditioner and they don't have a battery or anything in a house and they put a massive demand on the network, they will pay a lot more for that. We think the model works. It's sturdy, I guess, even to some of that future and that's exactly why we've been promoting it. We think it's quite robust into the medium term at least.

COMMISSIONER: Mark, thank you very much. Friday afternoon, we'll adjourn. We will recommence Tuesday next week at 0900 for geology and hydrogeology at level 5, 50 Grenfell Street. Thank you.

MATTER ADJOURNED AT 3.37 PM UNTIL
TUESDAY, 22 SEPTEMBER 2015