



Australian Government
Productivity Commission

PRODUCTIVITY COMMISSION

**INQUIRY INTO ELECTRICITY NETWORK REGULATORY
FRAMEWORKS**

MR P. WEICKHARDT, Presiding Commissioner
DR W. CRAIK, Commissioner

TRANSCRIPT OF PROCEEDINGS

AT CANBERRA ON THURSDAY, 6 DECEMBER 2012, AT 9.02 AM

Continued from 3/12/12 in Sydney

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MR WEICKHARDT: Good morning. Welcome to the public hearings for the Productivity Commission inquiry into electricity network regulatory frameworks following the release of a draft report in October 2012. My name is Philip Weickhardt, I'm the presiding commissioner on this inquiry and my fellow commissioner is Dr Wendy Craik.

The purpose of this round of hearings is to facilitate public scrutiny of the commission's work and to get comment and feedback on the draft report. Following these hearings in Canberra we will be working towards completing a final report to government in April 2013, having considered all the evidence presented at the hearings - we've already had hearings in Melbourne and Sydney - and in submissions, as well as other informal discussions.

Participants in the inquiry will automatically receive a copy of the final report once released by government which may be up to 25 parliamentary sitting days after completion. We like to conduct all hearings in a reasonably informal manner but I remind participants that a full transcript is being taken. For this reason, comments from the floor cannot be taken but at the end of the proceedings for the day I will provide an opportunity for any persons wishing to do so to make a brief presentation. Participants are not required to take an oath but should be truthful in their remarks. Participants are welcome to comment on the issues raised in other submissions. A transcript will be made available to participants and will be available from the commission's web site following the hearings. Submissions are also available on the web site.

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I'd now like to welcome our first participants for the day who are Smart Grid Australia. If you could please, for the transcript, in your own voices, just give your names and the capacity in which you're appearing before hearing, that would be helpful, and then perhaps you can move on to give us a brief introduction to your remarks.

MR ECKERMANN (SGA): Thanks very much, Phillip. I'm Robin Eckermann and I'm president of Smart Grid Australia.

MS ANDERSON (SGA): I'm Judy Anderson and I'm the chair of the vision and

policy working group of Smart Grid Australia.

MR ECKERMANN (SGA): We've prepared only a very brief introductory comment that goes, I guess, to the heart of our interest in this and, firstly, we'd like to compliment on an excellent report. It promises to be a very strong step forward in industry reform. We have a couple of areas of concern. There is a very strong focus on smart meters and we support that as one of the elements that needs modernisation in the grid but there is very little attention to the broader subject of making the grid itself more intelligent by infusing it with more sensing, communications, analytics and control and we contend that that is critical to meeting the challenges that are posed by the changing nature of the electricity industry, in particular the widespread adoption of photovoltaic roof-top arrays and electric vehicles.

We also believe it's fundamental to unlocking significant benefits that will translate into efficiencies and ultimately savings for customers and many of those benefits are not attainable by smart meters alone. Making the grid more intelligent doesn't rely on a big increase in the rate of investment but rather it relies on creating the environment in which investing in smarter infrastructure becomes a natural outcome of the environment, rather than doing more of the same which will lead to more of the same price rises as we have seen in the past. That is our first key issue, I guess.

The second key issue is that we think in the longer term there needs to be contemplation that demand response will be a much more dynamic process than simply a time of day driven process or something that reacts to critical peaks that are forecastable. We believe hot spots will occur in the network in very local ways and somewhat unpredictable times and that the whole demand response thing, looking a little further out, has to shift towards more dynamic, more real time and more targeted action to keep the supply demand in balance. The techniques that support that, the smart grid technology and so on, will also allow PV arrays to provide a larger component of electricity and will help in managing the potentially heavy demand that comes from electric vehicles. So they are the two areas that we would offer comment on. Judy, did you want to - - -

MS ANDERSON (SGA): I just wanted to comment that we have put a lot of our thinking about the importance of intelligence in modernising Australia's networks into this report here and we've recently launched it with Ministers Conroy and Ferguson and called for a number of fundamental areas that we think - they are very high level recommendations and any planning and vision and regulatory changes to the network needs to have a clear vision of the importance of modernising the grid and making sure that there's a view across the whole grid so that we don't have ad hoc regulation that can cause unintended consequences. Robin referred to the high level of photovoltaics on the grid that is causing some issues on the grid in terms of network stability and voltage control so you need to be very cognisant in developing

new policies about the overall impact of those policies on the grid.

It is very important for industry to work really, really closely together, try and work collaboratively as much as possible, understanding their unique roles and responsibilities, but how they can work together to solve some of the network issues including costs and how modernising and grid intelligence can help facilitate some of the necessary and shifting cost curves as well as the other challenges. Looking at regulatory barriers for rolling out intelligence on the grid, one of the key things that we keep coming back to is intelligence is across all networks is about essentially sweating the assets a bit further and getting more value for money out of them because you have a lot of a visibility around what is going on in the network and you react more responsively rather than thinking you have to build out to solve the problem, there can be a lot more efficiencies that can be driven from those investments.

So in terms of barriers and regulatory barriers that is one way that we can help to solve some of our challenges on the grid around grid efficiencies. There is going to be a shift in network operations from classic engineering to using more ICT-related skills and the demand for those ICT skills is accelerating and supply isn't meeting demand so there would probably need to be a focus on skills within energy networks. Collaboration so that consumers are well engaged is one issue and that can help to unlock innovation at the consumer end driving competition and innovation and those kinds of factors that work together to get better outcomes for consumers.

That touches on another report we have recently launched which is a report with some research about consumers and what they're interested in and they are interested in cost but they're also interested in getting value in terms of finding any efficiencies and how it will work for them; if there are price changes how that will in their interest and serve their needs. It's important to motivate consumers and sometimes price changes aren't necessarily the only factor, there are a whole range of factors that can go into motivating consumers, having pricing plans that suit their needs, good engagement, understanding what's important to them. So I will close there and we can throw it open to questions.

MR WEICKHARDT: Thank you very much indeed. Thank you for sending us the material that you did. In terms of the distance we've got to go from where we are today to, let me call it, your utopia of a totally smart grid, across the NEM, what sort of additional investment do you think is likely to be required?

MR ECKERMANN (SGA): I would answer that by saying it's not clear that it needs so much additional investment as a shift towards infrastructure that's intelligent and more manageable and visible. Lots of studies overseas - and you are no doubt very closely tracking the Smart Grid, Smart City project and hopefully it

will deliver some Australian or some results in the Australian context - the evidence from overseas' reports is that the cost benefit is very strongly in favour of smart grid investment. I don't have the figures immediately in front of me but EPRI has conducted various projects and come out with very bullish statements about the net benefits.

So we don't see it so much as a cost as a shift away from kind of dumb infrastructure where you solve the problem by brute force and just pumping more and more iron into the grid, but rather shifting the investment progressively and not in a big bang spending way towards smarter infrastructure and smarter meters are part of that.

MR WEICKHARDT: The investment there alone across the whole NEM is not by any means trivial, as Victorians have already found out.

MR ECKERMANN (SGA): Yes.

MR WEICKHARDT: I guess I'm just trying to get a sense - you mentioned that there is much more to smart grid than simply smart meters and in terms of making the whole network intelligent, I'm not sure how much of the investment is concentrated in the distribution network, whether it pervades the transmission network as well in your mind. I'm just trying to get a sense of the degree to which over a period of time - I recognise that in practice you wouldn't do this in a big bang manner but I was just trying to say if you were to do that, what is the total quantum? The smart meter rollout across the NEM we'd be talking about multiple billions of dollars for that alone.

MR ECKERMANN (SGA): Yes. I guess we see it concentrated in the distribution network. Utilities have and the industry has generally taken SCADA technology and monitoring control down to about the zone substation. Once those electrons leave the zone substation they are largely blind and there are multiple active elements south of the zone substation that the whole operation could be streamlined if you had better visibility and control. Now, smart meters go right to the fringes and they give you some visibility after the event largely, some real-time capabilities, but a lot of it is data that's gathered after the event and at a granularity that doesn't help in second-by-second management of the grid.

So we certainly see smart meters as one element of that. We think they are the most expensive element because they're the most populous element in the grid. If you look between the meters and the zone substation the significant asset that's out there is the distribution substation and the ability to monitor those on a real-time basis would go a long way towards letting you see how the flows of energy are changing and what sort of problems are erupting.

MR WEICKHARDT: How many distribution substations would there be in the NEM, do you guess? Are we talking about hundreds?

MR ECKERMANN (SGA): Thousands. As a real crude estimate, in urban areas there tends to be one for about 50 residential meters - 50 to 70, sometimes higher - and as you get into rural areas they are smaller transformers and more frequent. But focusing on the urban areas, if you took the number of meters in urban Australia and divided it by probably a number like 75, you'd have a good estimate of the number in urban areas.

MR WEICKHARDT: As well as the smart meters there would be significant investment in each of those substations, would there?

MR ECKERMANN (SGA): Yes. We would probably speculate or foresee that 10 years from now if you bought a distribution transformer it will have an ethernet interface on it and it will be a much more intelligent device than what's sold today. But you're left with assets that have a 30-year life sitting out there in the grid and it's becoming more and more urgent to see what's happening out there. So today the intelligence tends to be a bolt-on solution which is added as the distribution transformer and it monitors things like temperatures and voltages and current flows and so on and the typical approach signals back alarm conditions but otherwise gathers data and sends it back routinely.

The importance difference is that it is doing it in real time whereas the meters, whilst you can ping one or two of them and get data in real time, you can't assemble a real-time picture of what's happening second by second. I have had personal experience of one of the problems that's largely invisible to the utilities today and that's with a largish photovoltaic array on my own roof and I was somewhat dismayed to discover voltage was regularly climbing into the 260-volt range, something that would be completely invisible to, in this case, ActewAGL, because I live here. When I look at a Google Earth map and see the number of photovoltaic arrays proliferating I would very safely guarantee that there are voltage issues that take voltages well outside the standard that are just invisible to the utilities.

They are starting to get some visibility through meters because they can record some power quality through smart meters, they can record some power quality indicators, but they feed them back at the end of the day and that doesn't help you in dealing with a critical peak. I can show you the impact here on a little chart that I think will be quite visible across the room.

MR WEICKHARDT: You had better describe it for the transcript.

MR ECKERMANN (SGA): I will. The chart shows a 36-hour time base and it shows the output of my photovoltaic array in yellow and you can see how it rises

during the course of the day. The blue line shows the voltage and you can see the very direct correlation between voltage going up and the sun coming out.

MR WEICKHARDT: What is the scale of the voltage variation there?

MR ECKERMANN (SGA): At the top here you're getting to about 260 volts.

MR WEICKHARDT: And the bottom?

MR ECKERMANN (SGA): The bottom is 240.

MR WEICKHARDT: No, where the blue line bottoms - - -

MR ECKERMANN (SGA): The blue line is sitting at about 245 volts.

MR WEICKHARDT: So 245 to 260.

MR ECKERMANN (SGA): Yes, about a 15-volt rise.

MR WEICKHARDT: Is that at your premises, is it?

MR ECKERMANN (SGA): Yes. The interesting thing with this chart is I can flick a switch and turn on a slab heater and the voltage instantly drops by 10 volts. Conversely, these were two sunny days, the clouds roll over and the voltage drops by 10 volts. I guess that's highlighting the kind of real-time environment that utilities are having to contend with these photovoltaic arrays. The demand is actually fairly stable, it doesn't change like that but the supply side has these arrays that can come and go as quickly as the clouds roll over and it has a very destabilising influence on voltages.

MR WEICKHARDT: Somebody earlier on in this inquiry, speaking a language that I barely understood, said that part of this problem with over-voltage in Australian PV cells was caused or is caused by the specification that the Australians set for the inverters in our PV units and the Germans had specified some higher level of specification which gave a phase angle shift to the power that was being fed in by the PV cells and didn't lead to over-voltage.

MR ECKERMANN (SGA): Yes, there is - and I am certainly not an expert in this - alternate inverter technology and I think coupled with micro inverters that go on a one per panel basis where - and I'm really at the limits of my technical understanding here - where you would inject by essentially a phase shift and current rather than by raising voltage. The reason - and this was kindly explained to me by SP AusNet - the voltage is rising by 10 volts, in my case, is that the inverters have to raise their voltage a little to push it in the grid. I naively thought that meant the grid is at 240,

so they can run at 241 volts and that will get the energy out. But it turns out they have to raise it sufficiently to push their energy as far out the grid as they have to go for it all to be absorbed and in my case that means pushing it some 400 metres up and then back out through the transformer onto the medium voltage lines because all of my neighbours put together haven't got the demand to soak up my output on a bright sunny, autumn-spring day.

So I guess I raise that to highlight the real-time nature of challenges in the grid and when you couple that with the potential for significant fleets of electric vehicles in the future, they can roughly add as much demand as is typically budgeted for an ordinary household. So however the grid was built originally, if the whole street got electric vehicles and they all were charging simultaneously, you're in serious trouble in terms of capacity. Fortunately, there are opportunities to manage that all with intelligence, so to stagger the charging of vehicles or to hold off during critical peaks or, conversely, when the sun is shining bright and you've got a surplus voltage and energy running on the grid to try and stimulate demand, the flip side of what we mostly think of as demand response.

But all of that needs real-time monitoring control in the grid and it doesn't all come from smart meters. Smart meters are a step there but they're not the complete solution.

DR CRAIK: When you say smart meters aren't the complete solution, do you mean smart meters and all the IT that backs up smart meters isn't the complete solution, you still need a bunch more stuff on top of that?

MR ECKERMANN (SGA): Yes, something that gives more real time that visibility and control. Smart Grid Australia fully supports smart meters but only as one element of the solution. We think that their impact in the longer term - and one of the roles of Smart Grid Australia is to try and project a vision from where the network is going. Their role in the long term is in part to change people's behaviour but we think the far more important impact is slightly over the horizon where appliance vendors start to build in increased intelligence into their appliances, so your real energy management choices are when you go to - I won't mention brand name - but a big department store and buy a new clothes dryer or dishwasher or washing machine and you find it's got some very intelligent little smarts in it that let you run your energy management rules on autopilot.

If you think about Moore's law, which has prevailed now for some 45 years, with a doubling of computing power roughly every 18 months, in the next 15 years if Moore's law continues to hold - and there is no reason to doubt that right now - we will see about a thousand-fold increase in computing of power for the same dollar price and in a world that's challenged with environmental issues, it's very hard not to see some of that computing power going into better energy management. So we

think there are tremendous opportunities for appliance vendors to build in the next generation of energy intelligence that is more dynamic, that communicates in ways with the grid and that can suppress demand when it needs to be suppressed or turn it on when it's ideal to be using energy.

DR CRAIK: Are appliance manufacturers starting to do that already?

MR ECKERMANN (SGA): It's starting in simple ways but it really requires the framework for the time-of-use pricing framework to have a full incentive to do it. Right now if you do it you can promote your goods as being good for the environment or more energy efficient but there is not an economic linkage there until you get the time-of-use pricing.

MS ANDERSON (SGA): To show some of the differences between just using metering and being able to have intelligent home area networks and intelligent appliances and the communication between the home and the grid is - with time-of-use pricing and a smart meter in the home, the chances are as soon as the off-peak time switches in people shift turning their dishwasher and washing machine on to whenever that time is, 10 o'clock at night. So that will then create another peak with the dynamic nature of having more intelligence, the appliance will automatically find the most efficient and cost-effective time to switch itself on.

DR CRAIK: So regardless of when the householder switches it on, it won't come on until 10 o'clock at night?

MS ANDERSON (SGA): Yes, exactly. So whether it's 5 o'clock in the morning or midnight or whatever. That's also increasingly important with electric vehicles because of the huge draw on power.

MR ECKERMANN (SGA): In fact, to that point, with a different hat on I've been privy to some monitoring in South Australia, and there's a huge spike, I think it's 11 pm, when you go into off-peak pricing and all the hot water systems clunk in, so you can watch the curve and it just goes like that. So, as Judy says, as we introduce time-of-use pricing a static scheme isn't necessarily the ultimate answer because you're going to shift demand around and that's why we believe - again longer term, this is not overnight - but the future lies in much more real-time and dynamic demand-supply balancing.

MS ANDERSON (SGA): Some of the cost benefits in putting intelligence on the grid are as basic as being able to predict where outages could occur in networks, therefore, automatically call out teams to go to a specific part of the network rather than waiting for a customer to call and say, "I've got a blackout," and then the team having to go out and literally hunt and find where the breakage is in the network. So there will be constant communication about the state of the grid and how effectively

it's performing and then they can forecast when maintenance and repair or replacement of assets is needed and plug them in at suitable times.

MR WEICKHARDT: Given the smart meter is a very critical enabler in making some of this happen and you have talked about the rate at which computing power is changing and the innovations that are going on all the time, the specification of the smart meters that are installed would seem to me to be a fairly critical issue. Now, I know this has been debated a lot and the recent Power of Choice report, final report, the AEMC appear to have moved their position in terms of recommending a higher specification than they had been previously alluding to. Do you think that the specification they have arrived at is going to be suitable, if you like, future proofed to cater for the sorts of evolutions in smart grids that are going to occur over the next 25 years? They say the average life of a meter is 25 years, so whatever we invest today is going to be around for quite some time.

MR ECKERMANN (SGA): Firstly, I would have to confess I'm not right up to date on the latest specification but speaking more generally I've had some concerns about the, I guess, rushing into smart meters without looking at the bigger picture. One of the critical elements is what communications fabric you put in and communication, whichever way you cut it and however you look at it is one of the very critical foundations of a more intelligent real-time grid. It remains to be seen whether the communication technologies that are optimum for reading meters and fairly simple requirements will really stand the test of time and serve potentially more real-time dynamic needs in the future.

It doesn't need NBN or other speeds, it may need more than some of the very low-end technologies that have been deployed in some jurisdictions. The other critical element, talking more generally, is that it's very hard to look into the future with any clarity beyond a few years but the ability to upgrade the software and the functionality would appear to be the other critical element that really needs attention.

DR CRAIK: Have you looked at the Victorian system for the IT?

MR ECKERMANN (SGA): I did some time ago. Four of the five utilities or two of the three, depending on how you count them, have deployed a meshed radio communications fabric and one of them has deployed WiMax. I believe the one that's deployed WiMax has incurred some criticism for over-engineering. Quite possibly that will prove to be a very wise decision going forward.

DR CRAIK: One of the issues that has obviously been debated a fair bit and is an issue of the Power of Choice is whether smart meters need to be rolled out mandatorily or they're opt in - I'm particularly talking about residential, I guess, at the moment - and the AMC seems to have come out on the side of opt in and our view was that you needed to do it regionally by mandatory rollout otherwise you just

didn't get the economies of the scale and there wasn't much point in having one person here and one person there and one person here and all the peaky people, why would they opt in, they would just have to pay more.

MR WEICKHARDT: Or, going to your point, having a whole lot of smart technology that enables you to see a bit of the picture but not the whole grid.

DR CRAIK: And the poor distribution company has to put all this backup software in for three people or half a dozen people, or that's our view anyway. We would be interested in your view about this mandatory issue.

MR ECKERMANN (SGA): I couldn't claim to speak on behalf of all of our members, we're a not-for-profit association. My personal view is that a ubiquitous rollout has major advantages but towards some of the comments Judy made earlier, the Victorian experience wasn't a particularly happy one from consumer reports and it is borne out in some of the statistics we've collated in this report.

DR CRAIK: Some of the differences between Victoria and other states in these reports are quite striking on some of those questions.

MR ECKERMANN (SGA): Yes. By the way, we have brought four copies to at least give you some colour. I think the challenge is to educate the consumers that this is not an evil conspiracy or something to fry your brains or burn your house down but rather it's a foundation that will help minimise future price rises and allow a whole lot of other things that people instinctively like, like green energy, allow them to reach their full potential.

DR CRAIK: Are there any regulatory barriers to the Smart Grid rollout?

MR ECKERMANN (SGA): In compiling this report we had significant input from one of the utilities and they would be placed to speak than myself or Judy but they did highlight various things that are a disincentive to investment. One that I can recall is the fact that they have 30-year assets out there and if you bring radical change in that strands those assets that's a very serious problem to them. So regulation needs to be sensitive to the pace of change and dealing with the reality that utilities in good faith have invested down a certain direction and if the direction changes it is a heavy penalty on them if they have to write off all that investment abruptly.

MS ANDERSON (SGA): One of the challenges, and it's one of the reasons why the government decided to invest in Smart Grid, Smart City is because some of this technology is new and a lot of it hasn't been tested in the Australian environment. There are various trials going on around the country which is welcomed, however, the challenge has been in a highly regulated environment where every cost has to be

justified and every investment decision needs to be well thought through because of the regulatory issues, locking down and tying down all the costs and benefits of rolling out the technology is not easy and so that in itself can act as a disincentive because they have to justify everything and it's hard to do that.

DR CRAIK: Has that all been documented in the Smart Grid, Smart City project?

MS ANDERSON (SGA): Yes, they are most definitely. My understanding is it was intended to prove the business case for smart grids and that is welcomed. However, that is taking some time naturally. But there are a lot of distribution network providers who have decided to do their own trials and demonstrations so that they prove the technology on their network which is welcome. But I guess in terms of regulatory barriers is some level of recognition that there are going to be new things that are tried on the network that aren't going to be easy to cost justify and if there are regulatory mechanisms to enable, that is welcomed.

MR WEICKHARDT: How do you suggest that you have a regulator who is supposed to be looking after the long-term interests of consumers who say, "I can't see any benefit here, what do I do?" act on words of good will and faith? Trials are one thing but if you're going to have a wider rollout, surely the regulator has to have some sense of some future pay back to society.

MS ANDERSON (SGA): That's right. It's not necessarily doing the big rollout first up, it's trying before you buy and testing it as is going on at the moment but enabling, in terms of cost justification, for the information that comes out of those trials to be fed into the regulatory rate cases.

MR WEICKHARDT: In that regard I would be interested in your feedback about the Smart Grid, Smart City trial. Some people have said to us that some of the evidence about consumer responses to some of these trials and direct load control and things of that sort need to be taken with a grain of salt because the trials have been based around recruiting volunteers who tend to be people who are motivated and passionate and don't necessarily represent broader views in the community. In the Smart Grid, Smart City trial, has that been right throughout Newcastle or has it been a sample of people who said, "I want to be involved."

MR ECKERMANN (SGA): My understanding is it's a fairly big sample but the early take up was from people who particularly wanted to be involved. There is - I have also seen but couldn't cite the reference immediately - some overseas work that suggests the behaviour change of people once you introduce time-of-pricing tends to be a phenomena that fades away unless you have a very significant price difference between peak and off-peak pricing. So I guess that's why we see the longer-term solution really relying more automating a lot of this stuff and seeing the appliance industry play its part in building in appliances that - - -

DR CRAIK: So you don't have to rely on them?

MR ECKERMANN (SGA): You don't have to think about it, you just set your rules and forget. That comes back though to that earlier discussion about communications; there are lots of different ways to skin the cat but in any sort of real-time scenario, communication becomes a very critical element of the solution.

DR CRAIK: It's interesting though you say that the behaviour fades away because people still queue up for hours or surprisingly long periods of time at petrol stations to save two cents a litre.

MR ECKERMANN (SGA): Yes, it's not necessarily rational.

MR WEICKHARDT: Or Boxing Day to buy stuff they didn't know they needed.

MR ECKERMANN (SGA): Yes, that's right.

DR CRAIK: That behaviour doesn't seem to have faded over time.

MR ECKERMANN (SGA): No.

DR CRAIK: It's really quite interesting.

MR ECKERMANN (SGA): The biggest risks I would see in rushing an accelerated rollout of smart meters are, firstly, consumer related, getting consumers to understand and not repeating the kind of backlash that was seen in Victoria and, secondly, finding that right balance that makes sure they were a foundation towards a smarter future and not a dead-end path. The worst outcome would be that you have, for example, the communications hard wired into the meter and five years from now you find that the communications choice that seemed logical at the time for metering purposes doesn't serve the emerging new needs and you have to replace the meters yet again or be roadblocked in your progress towards a truly smart grid.

DR CRAIK: I suppose if IT progresses the way it has with phones - I mean, the cost of phones has gone down and now we just throw them away and get a new one.

MR ECKERMANN (SGA): Yes. If the communications is a modular plug-in that you can do exactly that, replace one for another, then you have a measure of protection. You at least don't have to roll a truck to replace the meter.

DR CRAIK: Interesting.

MR WEICKHARDT: Yes, this is a thorny dilemma, in that you say there are

some pluses of moving in this direction which would suggest we should not dilly-dally; on the other hand, if you say you have to be all wise and predict everything that's going to occur in the future to make sure you don't get a technological dead-end - - -

DR CRAIK: You know you'll fail - - -

MR ECKERMANN (SGA): Yes, it's a fine balance.

DR CRAIK: That's right.

MR ECKERMANN (SGA): The overwhelming opinion though around the world from the sort of smart grid community is that communications is a huge part of it.

MR WEICKHARDT: When you say "communication", is that to the consumer or - - -

MR ECKERMANN (SGA): No, I'm thinking the network, the data communications and networking side rather than the consumer. Of course the consumer side is another important part.

MR WEICKHARDT: Data is communicated to the consumer themselves as well as back to the retailer and the distributor, I guess, but you're talking about data communications in both directions, are you?

MR ECKERMANN (SGA): Yes, not — often machine-to-machine communications.

MR WEICKHARDT: Okay.

MR ECKERMANN (SGA): If you take that example of photovoltaics and the voltage rise problem, that's something that my own system will drop to one-twentieth of its output in a matter of 10 seconds if a heavy cloud rolls over, that's going to impact on the whole local cell in which my home sits, and the sort of future solution to that might be monitoring at the transformer that sees we've just got the voltage surging because the sun is out, so let's encourage vehicle charging and let's encourage all the full pumps to run and washing machines, whatever.

DR CRAIK: But does it mean things keep going on and off if the clouds roll over and - - -

MR ECKERMANN (SGA): You would certainly have to stabilise it and take a slightly longer-term view, but you may have a problem in that cell that you need to deal with but nowhere else in the grid. So the sort of solution could be that you want

to target just those 50 meters or even the 20 that are on the phase that's affected, to do something there to offload a little demand to protect your transformer from overloading. You can imagine the chitchat that goes on there to sense that you've got a problem, and then to communicate to those meters and different sorts of communication happening in different parts of the grid at the same time, it's a picture of rich communication flows and monitoring and so forth. That demands a moderate capacity in the communication's fabric.

So your point, Philip, about the difficulty of foreseeing unknown future requirements is a very real one. Whilst you can't predict very accurately, I think in some cases you can see the direction of those requirements very clearly and any consideration of smart meters should contemplate the potential need for a reasonable level of communications in the future and if you go for a thin level now, then you're going to have a replaceable module.

DR CRAIK: Is any city in the world doing this yet?

MR ECKERMANN (SGA): It's typically the sort of thing that's done in the Smart Grid, Smart City trial. There's been other significant trials in other jurisdictions; Boulder, Colorado, is one. But it is very much at the leading edge of where energy networks are going. The parallel I like to draw - and it probably reflects my background more in the telecommunications industry - is if you go back 15 years, we needed some things to happen in the network, in particular the introduction of ADSL and various broadband technologies. That unlocked a revolution but the revolution was not about the hardware and the wires, it was the way people are now using broadband and the way it's transformed living, working, playing. The new applications, Telehealth, all those sort of things, are unfolding.

In the same way, I think we're at a point where there needs to be some investment in the grid to unlock what will be a 30-year transformation in the way energy is stored, used and generated. So it's not the exciting bit, but it's the foundation that paves the way for the future.

MR WEICKHARDT: From what you've said, an issue that occurs to me is that if we're talking about machine-to-machine communication and your dishwasher or your pool pump being switched on or air conditioner on and off, Australia doesn't make many of these products and therefore having our own unique communication systems which may not be compatible with those developed elsewhere around the world may not actually leave us in a very good place because - - -

MR ECKERMANN (SGA): Yes, absolutely.

MR WEICKHARDT: - - - they won't be internationally recognised and we may have a Betamax system rather than a VHS system.

MR ECKERMANN (SGA): I think the key is to abstract the communications layer. At the end of the day, bits are bits and there are different technologies for moving them around. Where that cuts more heavily is in the protocols and the standards that we use. We have to be finely tuned to international thinking and standard development because you're absolutely right, we wouldn't want to be an island. That also says this won't happen overnight. Even if we rolled out smart meters, we're not a big-enough market to I guess command the Samsungs and the appliance vendors of the world - - -

DR CRAIK: To change their standards for Australia.

MR ECKERMANN (SGA): - - - to change their standards for Australia. So some parts of our progress are going to be constrained by global developments.

MS ANDERSON (SGA): And there is a lot of work happening globally on the standards for the communications across the grid. There's activities by NIST in the US and also in Europe. The expectation is that Australia will input into those decisions. Standards Australia has got some activities around those standards happening here but generally we will input to those standards but adopt the standards that have basically come out from those global forums. We'll have to bring those standards back to Australia and then there probably will need to be some site modification because we've got slightly different networks, but generally those standards will be applicable to our networks.

DR CRAIK: You don't think we'll decide we need our own personal standard?

MS ANDERSON (SGA): No.

DR CRAIK: Like, we have a habit of doing things - - -

MS ANDERSON (SGA): Yes, we'd be cutting off our nose to spite our face - - -

DR CRAIK: It's not always sort of terribly - - -

MS ANDERSON (SGA): Yes. I mean, it's follow the leader in what's happening in telecommunications where we've sort of taken the global standards and applied them here; that's very relevant.

DR CRAIK: Do you have views about how the consumer engagement issue should be best addressed?

MS ANDERSON (SGA): Definitely. There's a lot of views in our consumer values report and I think consumer engagement goes to the heart of whether metering

is mandated or whether it's voluntary. There needs to be consumer engagement. Indeed, you would probably argue if it's a mandated rollout, you would need more intensive consumer engagement because people would need to understand why it's happening to them and they don't have a choice.

I think the important learning from what happened in Victoria is there needs to be education from all parties; that's from government, from the retailers and the distribution companies. They all have a role to play. The roles are slightly different because of their responsibilities in terms of the network, and providing energy is different. So in each jurisdiction, working together across the various different parties, the various different stakeholders working together so that no stone is unturned and there's no gap in terms of educating consumers, and then bringing consumers along on the journey and helping them to understand what smart technologies they're going to face in the home and across the network and what that will mean.

Consumers clearly are very cost conscious but there is also a lot of information, and fear in the community about what those meters mean, are they going to face higher costs and all those sorts of things. There needs to be a lot of information about what it will really mean because what it will give them is some control over their energy use.

MR WEICKHARDT: Given the sort of reaction to the Victorian experience, and it seems to have created deep scar tissue elsewhere in the country, you've mentioned the potential advantages and we highlighted those in our report too, of some sort of mass rollout. On the other hand, I think the governments around the country, including Victoria, now having been burnt by the experience in Victoria, seem to be mightily attract to letting people, if you like, vote themselves individually and elect to have these things installed because they're sold with the benefits of them. The retailers themselves appear to be mightily attracted by that prospect. Your report, interestingly but not surprisingly, confirms that most people don't have very much brand loyalty to the retailer that they're buying from at all. All they're doing is buying electricity and price is price is price is price.

I guess the retailers appear to see the concept of being able to sell somebody a bright new sparkling smart meter with a fancy set of differentiated packages that might give them some form of lock-in to the customer, but against all that, you've got this problem that you will end up with a very slow progression to the whole grid becoming smart. How do you suggest we think about trading these things off?

MR ECKERMANN (SGA): They are difficult trade-offs and I probably lean a little towards leaving the meter as part of the grid infrastructure. That's not the model in telecommunications. The equivalent of the meter is your modem and that's a user-purchased and user-controlled and user-managed device. In this whole debate

between retailers versus distributor owning the meter, an interesting third point is potentially the user owning the meter quite independently of the retailers. The ultimate in choice would potentially be to have a user-owned meter where, if you don't like your electricity supplier, you can change them on the fly through the meter.

MS ANDERSON (SGA): That does happen in Texas. You can say, "I'm going away. I want to go to the lowest tariff available because I'm not going to be using electricity," so you can switch for two months or whatever period of time you're aware. You literally switch on the fly. You can do it just logging on to a portal.

DR CRAIK: It's interesting, you raising the issue of modems. Nobody ever really made a big fuss about the cost of modems but everybody makes a fuss about the cost so smart meters.

MR WEICKHARDT: Mind you, the modem doesn't actually - - -

MS ANDERSON (SGA): Broadband came with it, so you were getting this huge benefit for the investment.

DR CRAIK: Yes, that's right.

MR ECKERMANN (SGA): In terms of engaging consumers, there's an interesting parallel going on at the moment with the National Broadband Network and it's not universally welcomed, doesn't have the same issues to get over. It's broadly popular but not universally. There's scepticism about costs and so on, particularly in regional Australia where I've been involved in looking at needs there. But the approach that the government is taking, it will be very interesting to see the impact of that with its promotion of the benefits that lie in Telehealth and better education and removing the need to travel.

Possibly that provides a model for educating consumers on the electricity side en masse of the cost savings that can be achieved with smart technologies. I don't think it's well understood. It's been well highlighted. It's highlighted in the draft Productivity Commission report that 25 per cent of the bill was attributed to 40 hours of peak demand. Getting those messages better understood may improve the receptivity of the community to a meter rollout.

I think there's other stakeholders that can usefully be engaged and in this report, we really have five directions which represent our advocacy position towards a smart grid future. One of them is that all of the stakeholders be, importantly, consumers and really centre-stage consumers, but I monitor one or two discussion groups on the Web and around privacy, for example, it's very easy for paranoia to set in there and for people to think that Big Brother is going to spy on you and all sorts of things.

DR CRAIK: Australia Card all over again.

MR ECKERMANN (SGA): Yes. So I think parties like that need to be roped into the discussion and it needs a broad base of stakeholder participation in planning the way forward.

DR CRAIK: Do you think our proposals for consumer engagement would be helpful, useful?

MR ECKERMANN (SGA): I didn't focus on those in my reading of it. Judy, did you - - -

MS ANDERSON (SGA): In the reading of - sorry?

DR CRAIK: Our report where we proposed establishing a consumer reference group.

MS ANDERSON (SGA): Most definitely. It's important to engage with a wide range of consumers. There has been some discussion in the public domain about, you know, you only need one representative on various bodies and you're done, but no, there is a wide range of consumer representatives with different voices. Indeed, the work that I've been involved in in Victoria and the Metering Advisory Council down there, they all bring to the table very interesting and relevant views which need to be looked at. Consumer groups are fairly educated on energy, they're a lot more educated than you would expect and they are very tuned in to what their membership are telling them. They are very sensitive to the less advantaged, the more disadvantaged consumers, but having said that, they are aware of the broader consumer group and they're not just pushing a particular barrow for a particular group of consumers, so yes, most definitely, if it can have a range of voices in there, that would be great.

DR CRAIK: Most of the representations we've had from consumers are either at the big end or the disadvantaged end, not much in the middle.

MR ECKERMANN (SGA): A sort of silent majority.

DR CRAIK: Yes, more in the small business - - -

MS ANDERSON (SGA): Yes.

MR WEICKHARDT: Given the advantages that you have referred to for the distribution businesses of helping manage their own grid, understand the maintenance issues, isolate those and even out voltages and do things like that, or

indeed for the retailers, the advantages of being able to bill on actual usage at intervals and settle those in the wholesale market at those intervals rather than on the broad profile of the distribution feeder that they're working from. Is there some argument that says the consumer shouldn't have to pay anything for a smart meter to be installed, the distribution networks and the retailers have got a positive cost benefit analysis that suggests they should just stick these in and not even involve the consumer. If somebody comes along and says, "We're putting a new meter in, by the way it won't cost you anything," maybe some of the heat would disappear from this whole debate.

MR ECKERMANN (SGA): That is an interesting proposition. I think it's more true of the grid-side investment that it needn't specifically cost the consumer, rather to the contrary, they should expect reductions over time. To give you a little anecdotal evidence of some figures that were recited by Essential Energy to me at one stage, when they weighed up the full cost of a vehicle and a crew that deals with repairs in rural areas it worked out something like \$45 a kilometre, that's the running cost, the staff costs and so on. So when you're blind and someone rings up - blind in terms of insight into the network - and says, "I haven't got power," and you send a truck a hundred kilometres out only to find that it's a trivial fault or you've got the wrong parts and you've got to make a second trip, you can see how costs mount up dramatically.

Arguably the first step in better visibility and control in the grid is to push intelligence out from the centre and go to those distribution transformers, so you can instantly assemble a picture of where you've got outages, of the quality of power that's being delivered et cetera and there are some quite significant savings there just in instant fault identification. It's something that falls out of meters, not quite as precisely but if meters go off line you can assemble a view of where the fault is but you actually don't need the meters to do that functionality.

DR CRAIK: So the question is why aren't networks doing that?

MR ECKERMANN (SGA): I guess all of this technology has only come onto the radar in the last few years and it really almost postdates the Victorian mandate. Smart grids was almost not a concept talked about five years ago when Victoria started, so they've had the disadvantage of having to frame a meter rollout with this huge wave that's coming of transforming the whole grid and it's been difficult for them to take that into consideration. I don't think the other states face the same disadvantage because in that five-year period every utility is experimenting and trialling things in the smart grid space and it's not just Smart Grid, Smart City, other utilities are doing different trials with different technologies or different objectives. So all of them are thinking much more actively about the requirements of the smart grid.

Ausgrid, for example, in some of the presentations discount the communications fabric that have been deployed across much of Victoria as being simply unsuited for the purpose of just setting them aside, so they won't go down that same path. That is largely because they have a different view of the requirements.

MR WEICKHARDT: Those are the communication back to the system, this WiMax versus meshed - - -

MR ECKERMANN (SGA): Yes, mesh radio.

MR WEICKHARDT: Thank you.

MR ECKERMANN (SGA): So they've just ruled the mesh radio out and said it's not suited to the purpose. So I think utilities moving into smart meter rollouts today have a much better base of knowledge and expectation and visibility of the future on which to frame their decisions about communications but you can't see too far into the future.

MR WEICKHARDT: As the Americans say, "You can always tell the pioneers, they're the guys with the arrows in their head." We're out of time. Thank you very much indeed for appearing, it has been very, very interesting and very helpful. We're going to adjourn now and we'll resume at 10.30.

MR ECKERMANN (SGA): Thank you.

MR WEICKHARDT: The hearings are resuming and our next participant are the Department of Primary Industries in Victoria. If you could each in your own voices give your names and the capacities in which you're appearing, please.

MR SARCICH (DPIV): My name is Raif Sarcich, I'm the acting director retail energy development in the energy sector development division of the Department of Primary Industries Victoria.

MS SIMOJOKI (DPIV): My name is Ralli Simojoki, I'm a policy officer in retail market development of the energy sector division as well.

MR SARCICH (DPIV): I have to deliver apologies from Mark Feather, our executive director, who was called away this morning on urgent business.

MR WEICKHARDT: Thank you. Thank you very much indeed for your submission which we greatly appreciate and the attachment of a submission to the AEMC Transmission Framework Review. You should assume that we have read both those documents and we have quite a few questions, but if you want to make some overall introductory remarks, that's fine, but please leave lots of time for discussion.

MR SARCICH (DPIV): Yes, I will do so. By way of introductory remarks I just note and thank the commission for the many positive things that it had to say about the initiatives that Victoria has taken over the years. Victoria does like to consider that it has a history of leadership in energy market reforms and that really extends right back to the late 80s when internal markets, internal reforms were taken in the SECV through privatisation of the industry, the establishment of wholesale markets, vertical and horizontal disaggregation of the industry, the introduction of independent regulation of networks, the establishment of the NEM with New South Wales and South Australia, full retail contestability in the early 2000s, the improvement in consumer redress and representation through creation of EWAV and funding of the Consumer Utilities Advocacy Commission, national frameworks that were created in the mid-2000s to reform the former system of electricity and gas codes, the rollout of smart meters undertaken in the late 2000s and continuing through the present and coming up soon we have the introduction of the flexible or time-of-use pricing in Victoria to realise the benefits of having undertaken all the former reforms.

So Victoria's market is a highly competitive one in the competitive sector and in the regulated sectors we consider that the framework to date has delivered pretty good outcomes and network prices have been pretty moderate in their rises in Victoria compared to elsewhere and that reflects, as the commission noted, the extent to which the incentive regulatory regime has set the right incentives for investment

and so forth in Victoria. Nevertheless, we have some discontent and some issues with the current regime in how it's working largely to do with either deficiencies that we perceive in the way that the current framework is working compared to what it was intended to be or steps that are yet to be taken to further improve those frameworks and those are what I'll talk to now.

Possibly the most contentious one at the moment is in terms of the governance of the National Energy Market institutions, in particular the hybrid framework that we have for the national regulator at the moment. You would be aware that the national regulator was intended to be a substantive institution that combined the expertise of the extant jurisdictional regulators and elevated regulatory best practice to the national level when it was introduced. The Parer review in 2001 simply recommended that there be a national energy regulator. The hybrid structure of an AER board attached to the ACCC emerged later in debate between the jurisdictions, particularly Victoria and the Commonwealth, about what that body should actually be.

We consider that the governance structure for the AER doesn't properly reflect the weight of the importance of the AER functions. The AER suffers from significant limitations in the way it performs its duties due to its dependence on the ACCC for staff, for physical resources, financial resources and also elements of regulatory policy development. If you compare the way the AER works to the way that some significant national regulators overseas work, it is not a favourable comparison. In the UK Ofgem is a completely separate institution, it has a completely independent board, a \$62 million budget, the board consists of 12 members, six full-time and six part-time, 545 staff and it also has significant regulatory policy and market development functions. In the USA the FERC too is a stand-alone entity. It's directly accountable to Congress, has a six-member board, \$298 million budget, over 1400 staff and it too has significant market development and regulatory policy functions.

The AER has a three member board, two of those members are part-time on the AER board. One of those members is also a board member of its parent organisation and thus has some responsibilities to both boards which might possibly give rise to conflict. It has no staff of its own. Staff are seconded ACCC employees. It's notionally accountable to the SCER through the processes set out in the Energy Market Agreement but those mechanisms of its accountability are quite unclear. It is almost entirely dependent on the ACCC general regulatory development branch and also the AEMC for regulatory policy development and it doesn't publish its own budget and it doesn't have its own annual report, it doesn't have key performance indicators et cetera et cetera. So really by comparison to national regulators in other jurisdictions it's not a very favourable comparison.

We consider that given all the observations the commission has made about the

outcomes, the way that the AER has performed, the questions over the governance structure that this structure hasn't performed well enough to persist with. There is a face value case to make the AER a fully separate institution, perhaps add two members to its board to bring greater diversity to the skills of that board and establish proper formal reporting requirements for the AER. For the time being we don't support combining the AER with the AEMC, although we have done in the past. That arrangement seems to be maturing but certainly the AER-ACCC join up we don't consider to be a satisfactory situation.

Moving on to the next issue, the regulatory rules that we have today. I just note that really the rules that we had up until the AEMC's determination of new regulatory rules the other day, as far as I understand it, is not really what was envisaged in 2004 when the rules were established. What happened at that time was that MCE transferred development of the transmission rules to the AEMC as it didn't have the expertise to do that task itself and the AEMC made chapter 6A of NER quite restrictive in terms of regulatory policy, responding to the pressures of the day essentially.

MR WEICKHARDT: Responding to the pressures of?

MR SARCICH (DPIV): Of the day which were for - investment certainty was a bit of a mantra at the time. That was supported by some governance, the industry obviously and some board members of the AEMC were all very keen to have a very strict set of rules around what the regulator could and couldn't do at that time. The MCE then effectively replicated that task in the chapter 6 rules for distribution and they were rewritten in 2007.

Regulatory rule making, when the regulator needs to try and estimate efficient costs of a business that it does not operate itself and suffers from a significant informational asymmetry, are a pretty dynamic space and regulated industries will tend to find ways of playing any immobile rule set to their advantage and we consider that a regulator is always going to need significant discretion in developing an approach that is appropriate in the time of its determinations to best estimate efficient costs and engage in a regulatory bargain with the industry in order to obtain best results for consumers and we don't think that the rule set that we've had to date delivered that, but the new rules that the AEMC have made are a significant improvement.

In terms of them limited merits review, we've considered that the merits review framework was a compounding factor in moving the framework away from a focus on the best interests of consumers. The review framework administered by the tribunal was interacted with the rigidities of the rules to some extent. That gave many grounds for the industry to allege error on the part of the regulator and then the grounds for appeal were so limited as to allow industry to only appeal matters that

they had a substantial chance of winning on and did not really permit any countervailing chance of revisions being made in the opposite direction. So Victoria supports the findings of the limited merits review panel and we hope to see other significant improvements made in that space.

Part of the commission's focus has been on reliability standards. In Victoria, as you know, in the transmission sector the reliability and planning outcomes are determined by AEMO according to probabilistic planning criteria. There's no incentive on AEMO as the non-profit body to gold plate, and we consider that the framework to date has delivered efficient outcomes for Victoria. The extent of build-out in the network, even when you take into consideration the lower rate of growth in energy demand in Victoria, has been very modest and has been clearly focused on maximising the benefits to the community. When I come to transmission planning, I'll expand on that further.

In distribution, Victoria has traditionally relied almost exclusively on the setting of economic incentives for reliability outcomes, rather than prescribing standards, especially not engineering standards. The ESC, in its determinations, and the AER, in its determinations, have set out the S-factor schemes and the guaranteed service levels which are intended to be set at the level that efficiently incentivises distributors to deliver reliability outcomes that the community wants, noting that the AER didn't have control over the GSLs in the last determination. Nevertheless our policy position has always been that those matters ought to be determined as a part of the overall regulatory bargain that the regulator strikes with the industry in the five-year determinations.

MR WEICKHARDT: What did you say they didn't have any control over?

MR SARCICH (DPIV): For reasons that weren't quite intended, the guaranteed service level component of the incentive scheme remains set by the Essential Services Commission in Victoria. There was an intention that that actually be set by the AER along with the S-factor and everything else. I won't go into detail because it's probably not salient, but the general position is that the right incentives for distributors for reliability outcomes delivered to customers should deliver the reliability you need and you shouldn't need to be prescribing highly detailed standards.

So just in that space, there's a lot happening in this space and the Commonwealth and other parties are trying to get other jurisdictions to move towards a more economically based planning framework. It's probably worth noting that what's really required more than AEMC reviews and development of national frameworks, given that Victoria has already gotten to this point, is there needs to be a political will to move towards this kind of framework. There is no real deficiency in the national rules already that would preclude especially the distribution just moving

to an incentive based regime. The AER always has had those powers; it's more the jurisdictions per the AEMA annexure 2 have availed themselves of the ability to set prescriptive standards and effectively override the incentives set by the regulator.

In terms of transmission planning, which has been a big part of the review, we attached our submission to the transmission frameworks review essentially because that represents pretty fully our views in this space. We're keeping an open mind. We see distinct advantages from introducing transmission rights in some form. We have questions about the model that the AEMC has adopted and note that other jurisdictions internationally have tended to settle for nodal pricing models rather than this optional firm access model, so we'd like to see more justification for why Australia ought to go down the AEMC's path, but we're definitely keeping an open mind there.

In terms of the transmission planning function, we are more reserved, because of the fairly good outcomes that have been delivered to date by the AEMO Victorian transmission planning model. Victoria has more to lose by going to a framework if that framework is not quite right and the minister has made very clear that we won't go there simply for the sake of national consistency. We're aware that the AEMC's proposed model does raise questions about the appropriate incentives on various parties when you've got transmission rights in the mix - whether AEMO can or cannot effectively offer those kinds of commercial products as a not-for-profit body - but we note equally that the right incentives have to be on a monopoly TNSP as well to offer those rights at an efficient price. We have a lot of questions for the AEMC about how incentivised are networks' TNSPs to offer those products.

Similarly, in terms of the connections process part of the AEMC's review, we have significant concerns about moving away from the competitive tendering process that AEMO administers. Again, TNSPs have to be under the right incentives if they're to offer this monopoly service at the right price and we're not quite convinced that those incentives are there.

The final thing that I'll just touch on is benchmarking which is a big part of the commission's review. Victoria's most significant contribution to date has been its development of a potential TFP based regulatory regime. That really arose from the challenge that TXU mounted in the early 2000s to the ESC's determination, and questioned whether that actually delivered, as the tariff order in Victoria required an incentive based regulatory regime. So the current national model is really a hybrid between rate of return and cost of service regulation, with the building blocks determinations placing a lot of emphasis on the regulation of an asset base and an incentive regime with the fixed period CPI minus X price caps allowing for additional efficiencies to be captured by the distributors, and their shareholders incentivising them to make greater efficiencies, but that's very significantly constrained by having another full building blocks determination again in another

five years. It really does significantly constrain the incentive power of the framework.

The argument put forward in our submission is really, if you want to address the problem that the commission has identified in its review, these determinations are incredibly complex and deterministic, then you have to move away from a framework that is obsessively detailed over the setting of efficient, firm, specific costs in building block determinations every five years. The Australian model was a very good model to adopt in the 1990s. It was an appropriate model given the significant changes that the industry was undergoing at that time, but we don't consider that that means that it will always be the best model and certainly the ability to move from a firm-specific approach to an approach where the change in prices over time is set by reference to industry productivity trends would significantly move the framework to a much more powerful incentive based framework and incentivise distributors and transmission companies potentially - but mainly talking about distributors here - to undertake much more adventurous and less poles and wires based approaches to network management in the future, noting the conversation in the previous discussion about smart grids.

Given that smart grids are essentially a tool of network management, it's a bit worrying that we talk about the possibility that there might be some sort of national government mandated move towards smart grid rollouts in future, when really network management is the bread and butter of a commercial distribution company. The incentives really ought to be built into the regime for them to roll out whatever technology is necessary and efficient for them in managing their network, whether it be smart or not. The repeated policy initiatives that we've seen, whereby the government mandates this or that outcome is to some extent reflective of a regime where that's really the only way these things get done - certainly the only way that a smart meter rollout in Victoria could happen in the mid-2000s - but whether that should be the case in future is the question.

Moreover, I will just draw the commission's attention to the modelling work that was undertaken by economic insights in the AEMC's TFP review which I've only got a little paper graph here - - -

MR WEICKHARDT: Just describe it briefly.

MR SARCICH (DPIV): It's modelling of the excess returns to businesses under building blocks versus TFP based regulation. It quite clearly shows that under building blocks, we have a situation effectively of industry solidarity, that the returns to all businesses, whether they be the leader or the laggard in productivity terms are very similar and they suffer the same risk of the regulator over or underestimating the efficient costs together. Under TFP you get a very strongly differentiated outcome for the leader and the laggard and that's reflective of a true incentive regime

and one that's much closer to a competitive market.

DR CRAIK: What was that graph?

MR SARCICH (DPIV): That was in a modelling exercise undertaken by Economic Insights for I think the preliminary findings stage of the AEMC's total factor productivity review. You will find it on their web site. I think it demonstrates in fairly stark terms the difference in the overall nature of regimes, of the current regime versus a potential TFP based regime.

MR WEICKHARDT: Okay. Thank you very much indeed for those comments. They're helpful as background. Can I go back to the issue about your comments on the regulator. In our draft report we have suggested one of the things that might be helpful was to have an external review of the regulator's performance and that that might include some people with international experience of international regulatory environments. Does the Victorian DPI support that sort of concept?

MR SARCICH (DPIV): Yes. DPI supports having a review. It has to be a thoroughgoing review and it has to review structural issues in respect of the AER and it needs to happen more or less immediately, we consider. A review which is only about the level of resourcing, the staffing levels et cetera, the AER component of the ACCC doesn't in our view reflect the real issue here. Issues with the level of resourcing of the AER are symptomatic of it being just a wing of the ACCC, where there is probably a bit too much synergy, in that things get moved in and out of the AER with regularity as being part of that organisation. There needs to be an organisation we think with more solidity and more permanence in terms of its staff, its policies, its resources, and any review ought to look at that.

MR WEICKHARDT: I hear what you say. However, I suspect that that old adage "structure follows strategy" - I suspect that a review of the performance of the organisation might highlight some of the issues that you've raised and then one would sit down and say, "Do I solve this by changing things in its current structure or do I change the structure?" But I think the issues you raise are important ones in terms of the performance of the organisation and I thank you for that input.

DR CRAIK: What is DPI's view, comparing the Victorian energy regulator or Victorian ESC with the AER, how would you - - -

MR SARCICH (DPIV): The ESC and the Office of the Regulator General that preceded it, it was a body that was always engaged with industry in terms of being a body engaged in a regulatory bargain with the industry. It was trying to get the best outcomes it could from the privatised industry for Victorians and we think that the AER/ACCC has a different culture. It's the culture of the competition regulator, a consumer law enforcement body. It's the culture of taking, in some instances, an

adversarial approach to the industry and in some instances of adopting the stance of a neutral arbitrator between the industry on one side and consumer interests on the other, which brings us to a discussion that's in your report about what the appropriate role of the regulator is.

You suggest bringing in consumers and introducing some form of a negotiated settlement regime. We have significant concerns about that kind of framework. It certainly doesn't reflect the traditional concept of the regulations in Victorian practice and we have real questions about how does whoever is appointed to the consumer side been in that regulatory bargain gain legitimacy to actually negotiate on behalf of consumers, whereas we have a regulator which is under statute required to perform its functions in the long-term interest of consumers, and that really reflects, philosophically I think, that the regulator ought to be engaged in a regulatory bargain, not just a neutral arbitrator between factions.

MR WEICKHARDT: I guess you're painting a picture that wasn't perhaps exactly the one we had in mind of the regulator sitting passively while the consumer group and the network company sort of negotiated, but we did see bringing a consumer voice and informed consumer voice that represented all consumers to the table was an important attribute, and I assume you philosophically agree with that.

MR SARCICH (DPIV): Absolutely. In order for the regulator to perform its functions against that objective, it needs to be well informed about what consumer preferences actually are and that arguably is a shortcoming at the moment as well, with fairly ad hoc advocacy and funding arrangements for the consumer and, as has been observed, a bit of a gap in terms of the gap between representation of customers in hardship and disadvantages situations and large industrial consumers.

MR WEICKHARDT: We, in Sydney, heard a fair bit of debate from some consumer groups suggesting that they didn't like the model that we had put forward. One might say this is because it's suggested that they were further displaced from the sort of direct action by the group that we had proposed. They were advocating "let a thousand voices be heard" and the regulator listen to each of them and then act on behalf of that sort of multitude of consumer voices. Somebody has to at some stage homogenise those and end up with an outcome that the regulator agrees to. Do you have a view as to whether or not having a better resourced consumer group that was able to interact with each of the other consumer groups that are out there, but that had some continuity and resource and expertise, whether that sort of intermediary group would be helpful to the regulator in order to synthesise the voice of the consumer?

MR SARCICH (DPIV): I have to be fairly circumspect in anticipation of COAG tomorrow, so I can't expand at length. Generally the answer is yes - - -

MR WEICKHARDT: Yes to what?

MR SARCICH (DPIV): Yes, that such a group would be helpful, again on the basis that I said, that for the regulator to perform its functions effectively, it needs to be well informed about what consumer preferences are. I think the multitude of voices approach probably works better in terms of input to AEMC processes, given that that's their kind of more their policy and broad market structure related things, with various different segments of the community having quite different views. In terms of the AER's functions, it's very much a forensic accounting exercise. It's a numbers game. Whichever body is informing the AER about what consumers want in that, they need to be able to follow the whole process through and keep track of where the numbers are going with the distributors' proposals and TNSPs' proposals. So a more permanent and professional body has attractions in that regard.

DR CRAIK: Do you have a view - and given your previous comment about circumspection, you may not - about this consumer challenge panel in the AER?

MR SARCICH (DPIV): I had better not go there. I think everyone knows it's not - - -

DR CRAIK: If the DPI has views after Friday, we'd be interested, based on the outcome on Friday in relation to - - -

MR SARCICH (DPIV): Yes.

MR WEICKHARDT: Can I move to the issue of transmission planning.

MR SARCICH (DPIV): Yes.

MR WEICKHARDT: You mentioned that chapter 6A was drafted in an environment where there were concerns about investment adequacy. We now have a situation which shows quite divergent behaviour of transmission businesses in Victoria compared to those particularly in New South Wales and Queensland. The reasons for this are highly contested and I'm sure the next session will get into this issue too, history and growth being issues. It's somewhat ironic that incentive regulation was feared in transmission to cause the risk of under-investment. In Victoria we had SP AusNet at our hearings suggesting, if anything, their concern that AEMO have caused their network to be stretched a bit too far for comfort, and if they were left to their own devices, would prefer more investment. We have a situation in New South Wales and Queensland where most measures suggest that there has been excess investment, providing levels of reliability more than consumers would really choose. Given all that, and the Victorian experience with AEMO, what do you believe is the right national outcome?

MR SARCICH (DPIV): I think it has to be looked at as being a process at the

time. We have a situation in Victoria which I think has worked very well throughout the late 90s and 2000s when the configuration of the grid stayed pretty the same, plus some wind farms really, and the rate of growth in demand was fairly moderate in Victoria compared to the rest of the country. But even after taking those into account, the outcomes have been favourable in Victoria compared to anywhere else.

However, that doesn't mean that it's the best framework for the future, particularly if there is a significant reconfiguration of the grid as the generation changes, response to carbon pricing and other signals and technological change. That would necessarily call for more or different investments in what grid and what grid technologies are used. In that respect, the relative visibility, I guess, of generator interests or valuing generator connection, except by doing the regulatory test as AEMO does, becomes more of a problem because AEMO can't have perfect foresight and certainly the generators that would want to connect have better ideas about what they want to do and what level of firmness they would want to have looking forward.

So moving towards a framework where there is a revenue stream from generation opens up the possibility of having TNSPs that are incentivised by the generation side of the industry rather than just the regulatory test assessment to make the right investments, but getting there is going to be quite a challenge. In Victoria it will be quite a challenge to get there without losing the benefits that the AEMO planning function has had in terms of constraining the over-investment incentives and the benefits it brings in terms of coordinating planning for the demand side of the investment, so the terminal stations, the lines closer to the demand centres.

MR WEICKHARDT: Do you have any explanation for why it is that outside Victoria everyone seems to disregard the Victorian experience, dislike AEMO? What is it that has given rise to this sort of bifurcation of attitudes?

MR SARCICH (DPIV): I can't say I do actually. I could only speculate, just histories of this is the way things are done. But the privatisation process and the disaggregation process that the Victorian government undertook it has to be said is very forward looking compared to just about anywhere else in the world that's undertaken a similar process and it's a tribute, I think, to the foresight of those undertaking the privatisations that they saw the exercise of market power and inability at that time to put in place proper incentives on a TNSP to invest appropriately were strong enough reasons to institute a central planning function in spite of the privatisation that was going on.

MR WEICKHARDT: The issues that are raised about liability, others point to the fact that you have this not-for-profit entity involved which is doing the planning and if it's a failure, who's responsible? To your knowledge in the last 20 years or so that these arrangements have been in place in Victoria, has there ever been a

circumstance where that issue of liability between SP AusNet and AEMO has led to acute problems?

MR SARCICH (DPIV): Not to my knowledge. Do you mean liability purely from our terms?

DR CRAIK: Where there has been a problem. Yes, where a problem has arisen, assigning liability.

MR SARCICH (DPIV): Yes.

MR WEICKHARDT: People say, "Who would sue and how can we sue AEMO?"

MR SARCICH (DPIV): Not to my knowledge.

DR CRAIK: On the general issue about AEMO, one of the issues that is raised by business in other states is the issue of transaction costs when AEMO is involved in those arrangements, that it adds significantly to transaction costs and time. Do you have any views of that relative to what you would see as the benefits and are they avoidable in the long run?

MR SARCICH (DPIV): I think for the most part they're pretty small. Of course they exist having two organisations rather than one. I think where it becomes most an issue is in the connection process for generators because prospective generators then need to negotiate both with SP AusNet and AEMO, whereas in other states they only have one point of contact. We have heard that that does create issues with connecting generators and that's regrettable. It's something that we encourage the industry to develop MOUs and try and manage those issues as best they can.

MR WEICKHARDT: Would you be comfortable with AEMO stepping back from that arrangement?

MR SARCICH (DPIV): It would then go to are there appropriate incentives in place on SP AusNet to offer connection services as a monopoly service at an efficient price.

DR CRAIK: Do you think they are there with the rules that are - - -

MR SARCICH (DPIV): I'm not confident that they are there at the moment.

MR WEICKHARDT: Is that based on some evidence because you could hypothetically have an arrangement where you just let the two parties, the new generator and the transmission company, deal directly but if there is some relief valve - they can appeal to an umpire - if there's a problem, whereas at the moment

you've got the third party and there is a default.

MR SARCICH (DPIV): I'd ask the question, what at the moment do TNSPs get out of connecting a generator per se or the use of system charges coming from consumers, the consumer end at the moment? They will get possibly capital contributions for the actual building of necessary connection assets but what's the incentive to price those at a reasonable level. I think the only one that is there is the AEMO tendering process at the moment.

MR WEICKHARDT: One theory, I guess, if a new generator helps relieve some sort of constraint on their network and they're profit motivated they would be happy to have a generator connect and avoid them having to build some infrastructure, wouldn't they?

MR SARCICH (DPIV): Yes. I don't think that necessarily accounts for the reasons for most generators turning up seeking to connect, particularly with wind farms having to go where the wind is, yes, I'm sure that's a factor in there but there has to be confidence to move away from the status quo.

MR WEICKHARDT: We had AGL who were speaking with their hat on as a generator in this regard at the Sydney hearing saying they'd prefer AEMO just got out of it. Now, it may be that they're of sufficient size and clout that they can deal with themselves where XYZ Wind Farm Pty Ltd can't. I don't know whether you think that's the issue.

MR SARCICH (DPIV): It could be an issue. Just to put my adviser to the government hat on, to recommend that we move away from an existing system of accountability for the TNSP whereby there's an open tender process for these works which we can point to to justify the cost that any connecting party has to bear. Just saying that the TNSP might have an incentive to facilitate their entry to reduce constraints I don't think that's going to be a convincing case.

DR CRAIK: A lot of people say to us, "Well, there's only been about 14 projects that have been tendered out and only two of them have gone to someone different from SP AusNet," so what's the value? It's often put to us this issue of contestability.

MR SARCICH (DPIV): An incentive incentivises the tenderer, including SP AusNet to tender at a reasonable price. It can't be a perfect competitive field in that process obviously. SP AusNet has knowledge of its network that improves its ability to tender or should do in any case.

DR CRAIK: Do you think the market would get much deeper if this was a national - because that is often another criticism that putting this contestability across the whole network the market is too thin to make - - -

MR SARCICH (DPIV): I would have to have some idea about - I don't really have the information to make that judgment I have to say. In policy terms one method of accountability ought to be balanced by another method of accountability that is equally robust if it's to be moved away from.

DR CRAIK: Can I just ask, while we're on this issue of transmission planning, if we move to something like optional firm access, what role would there be for a national planner?

MR SARCICH (DPIV): There is inter-regional planning and there's planning for the needs which arise from growing demand more so than changing generation and obviously they meet in the middle and it becomes very difficult to separate out which is which. At the extremes you can say that the need to upgrade a given terminal station at a given point feeding the distribution networks clearly led by demand and need to build a substation somewhere in the Latrobe Valley for a generator to connect is attributable to generation. The firm access rights would certainly add manifestly to the incentives to build efficient infrastructure to the service generation input into the system, they probably wouldn't do so much to incentivise the right demand side investments to be made.

MR WEICKHARDT: What sort of time scale do you see the possible move to optional firm access being? You have raised a whole lot of issues about OFA and international experience and other models but lots of other people have said it's incredibly complicated. How quickly do you think we could move to this sort of model and in the meantime what the hell do we do to overcome some of the problems that OFA are supposed to overcome?

MR SARCICH (DPIV): Other jurisdictions could adopt Victorian framework is - - -

MR WEICKHARDT: That doesn't stop disorderly bidding necessarily.

DR CRAIK: We haven't seen much enthusiasm for that.

MR SARCICH (DPIV): No, we haven't. It is incredibly complicated, so they're long-life assets and it is still a fairly slow moving industry. Governments can do things pretty quickly when they make it a priority and tend to take almost forever if they don't. I've been involved in the National Energy Customer Framework on the opposite end of the industry and that took more or less seven years to do, not because it was actually all that hard but because there were other priorities. If governments commit to implement access rights, create the right governance structure, and that's really important to create the right project governance structure to guide it to successful implementation, that tends to mean you need to have fairly formal project

boards with proper expertise on them leading an implementation process and having the imprimatur from governments to do what is necessary to do that. It could happen in a few years, I guess.

If it is to be approached in the way that a lot of reviews are approached by the SCER, that is, that it will come back to the SCER and officials will convene working groups to try and go through AEMC recommendations and figure out what they can agree to and then send the rule changes back to the AEMC and then in some way the industry will have to run and catch up and start implementing all this stuff because it's becoming rules, that process will take a long time because there are so many pitfalls along that path when you just approach it by the ping pong process that is set up between the AEMC and the SCER officials whereby reports bounce back and forth. You really need to institute a proper project government structure.

MR WEICKHARDT: You have said at the end of your submission that you didn't really have a view about our proposal to try and, in some areas of high priority, short-cut the ping pong between the AEMC and SCER. Do you think that the suggestion that we have, at some stage if SCER sign off on a change that they think has been properly considered by some form of review or process that there ought to be some way of fast tracking these things that still have some safety checks in it?

MR SARCICH (DPIV): I think it's certainly possible. It's not without precedent. Whether it happens depends on - I think it depends to a large extent on proceedings tomorrow, so I won't attempt to pre-empt those.

MR WEICKHARDT: Okay. You made a number of interesting comments about demand management and you have suggested that Victoria has given considerable thought to mandating time-of-use tariffs but has, I guess in the horse analogy, shied away from that fence, and you're now looking at a voluntary basis. I would be interested in your comments here, you say this should maintain the interests of consumers as its first priority. Our concern was, thinking about this, that the very consumers that are getting the most benefit out of flat tariff structures, those who have multiple air conditioners hung off their walls and who were getting effectively a hidden cross-subsidy from the people who aren't using those products, why do you think this flexible move - politically I understand the desirability of that, but why do you think this is going to be in the interests of all consumers?

MR SARCICH (DPIV): Firstly, because I believe our smart meters' project teams have done the empirical research on whether consumers would benefit from and, therefore, would switch to a flexible tariff and found that there are considerable numbers who would.

DR CRAIK: Does that degree of movement relate to the peakiness of the tariff, the differentials between the - - -

MR SARCICH (DPIV): Unfortunately, this isn't really my area so I give a full explanation of what the research has shown but I'm sure we could refer our people to you if you wanted to ask them questions.

DR CRAIK: That would be useful.

MR SARCICH (DPIV): But in any case, if consumers who will benefit from a flexible tariff start moving to that in order for distributors to recover their revenue requirement under the weighted average price cap, year on year there will have to be an adjustment of the flat tariff as well to recover the revenue requirement and as the higher cost customers remain on flat tariffs, over time that will rise to reflect the cost of serving the customers on that tariff. It's fairly logical and it will unwind the cross subsidy over time.

DR CRAIK: Do you have an idea of what that time period is?

MR SARCICH (DPIV): No, it really depends on customer uptake of flexible pricing. But the outcome of that is efficient enough, the government considers, to warrant sticking with a voluntary uptake approach to flexible pricing. The angst that was unleashed when distributors, I think, three years ago first gazetted time of use prices which were going to be applied mandatorily was ferocious and it informed policy ever since that, you know, it's not - - -

MR WEICKHARDT: How aggressive were those time-of-use tariffs that were gazetted in terms of differentials?

MR SARCICH (DPIV): One distributor's was particular aggressive. I can't remember what the peak was but the off-peak was down to eight cents or something. Yes, they were aggressive tariffs but, more to the point, they were going to be applied mandatorily and that lacked legitimacy with the community I guess is what you could say, so we're not going down that path.

DR CRAIK: Does Victoria now have views about the relative volume of a mandatory versus optional take up of the actual smart meter itself?

MR SARCICH (DPIV): We've always been very clear that the mandatory nature of the rollout was intended to capture economies of scale and make sure that the full range of benefits were able to be realised and that that makes them the platform for consumer choice as well as allowing networks to make efficiency improvements by having better information, better management, encouraging the cutting of peak demand et cetera.

DR CRAIK: Given your earlier comment about if there is value in these things for

networks, why don't they do it themselves, what are or what aren't the incentives that are - you know, why aren't they doing it?

MR SARCICH (DPIV): I guess in the future it's conceivable that maybe it would make sense for a network to fund the up-front cost itself to capture future gains. The time that the Victorian government was considering a rollout, that just wasn't considered to be feasible. The up-front investment in a statewide rollout required up-front charges to customers and they obviously also elicited a strong response. The more that these kinds of rollouts can be financed by businesses themselves, the better, and the smoother will be the rollout.

MR WEICKHARDT: Can I briefly talk about weighted average price caps versus revenue caps. The AER seemed to have real concerns about weighted average price caps. Victoria has operated with them for a while. We recommended them in terms of a means of moving to a regime where you could have things like critical peak pricing in place. But the AER said as recently as I think Monday of this week that they still had reservations about them. Can you understand that and what do you feel is the reason for it?

MR SARCICH (DPIV): There is a transitional issue with a weighted price cap as you introduce a voluntary tariff take-up to make sure that the actual revenues don't diverge too much from the revenue requirement. But it's never been a policy issue really in Victoria to my knowledge. It's been a regulatory judgment. It was the approach adopted by the ESC and it has never really reared its head as being an issue at the policy level. I could only speculate. The AER to a large extent was formed from the transmission and regulation arm of the ACCC where they have great familiarity with revenue cap regulation. It may simply be that they're more comfortable with that form.

DR CRAIK: Benchmarking issues, about TFP and the long-term regulation of the electricity market, is there anywhere in the world that you would see as a good example of using TFP regulation?

MR SARCICH (DPIV): Again it's a process more than an attainable final end goal. You want to be moving closer to a purely incentive based regime as time goes on. I'm aware that something close to the sort of vision of a rolling TFP price cap with off ramps applies in US rail regulation but I think some of the ways that TFP has been applied in practice in other jurisdictions which are well short of that kind of ideal point to its utility in any event of actually having an industry TFP index available to the regulators. For instance, I think Massachusetts set a price path based on a number of things, including a TFP component to the X factor, some sort of component reflecting past benefits that the businesses had received et cetera. It was a component of a broader regulatory judgment and bargain with the industry about what kind of efficiency can be obtained in the price path period. But conceptually

that's still a lot better having regard to some component which embodies industry trends rather than firm-specific trends; it still helps to reinforce the incentive nature of the regime versus a pure Australian-style building blocks plus CPI minus X framework, where X is merely a smoothing factor for the business-specific costs over time.

MR WEICKHARDT: All right. Thank you very much indeed for appearing and thank you for your submission. It's much appreciated.

DR CRAIK: Yes, thank you.

MR SARCICH (DPIV): Thank you.

MR WEICKHARDT: We will now move to the next participant, Grid Australia. If you could each individually give your names and the capacity in which you are appearing today, please.

MR McINTYRE (GA): Peter McIntyre, chairman, Grid Australia.

MR KORTE (GA): Rainer Korte. I'm chairman of the regulatory managers' group in Grid Australia.

MR GALL (GA): Phil Gall, general manager, corporate and regulatory strategy from TransGrid and a participant in the Grid Australia regulatory managers group. I've been involved with the development of the submission.

MR WEICKHARDT: So you're here on behalf of Grid Australia?

MR GALL (GA): Absolutely, yes.

MR WEICKHARDT: All right, thank you. We have received your submission. Thank you for that. You should assume that we have read all that with considerable interest and the reports that you've attached too. We have a lot of questions, so if you want to make some introductory remarks, if you can keep those reasonably brief, so we leave as much time for questions as possible, please.

MR McINTYRE (GA): I will. I would like to make some introductory remarks; after that, Rainer shall have a short session on planning arrangements, and during the questions, Rainer and I will be doing most of the responses to the questions.

Our membership includes all those transmission businesses whose assets form the transmission grid servicing the NEM; that's Powerlink, TransGrid, SP AusNet, ElectraNet and Transend. We truly appreciate the opportunity to speak with you today and hope the submission we made last week has been helpful. We look forward to answering your questions on our submission and any other issues that you raise.

Our primary focus today is on recommendations for the future of transmission arrangements in the national electricity market. Grid Australia agrees with the Productivity Commission that transmission planning arrangements must deliver efficient outcomes for consumers, that the transmission network must be planned to capture national efficiencies. Grid Australia also endorses the commission's finding that there is no evidence of under-investment in interconnection.

We note that the Productivity Commission has a strong preference for transmission augmentation investment decisions to be based on economic

considerations, including the value of transmission reliability to customers and the cost of all that reliability. Grid Australia and the Productivity Commission are closely aligned on this point. As Mr Korte will be pleased to explain later, we think that decision-making transparency and accountability can be improved by way of this proposal being implemented.

However, there is one essential point of difference between Grid Australia and the Productivity Commission. As we understand it, the commission is proposing that the Australian Energy Market Operator, AEMO, becomes the transmission investment decision-maker for the shared transmission network. Like the AEMC, we do not consider this to be the most efficient allocation of transmission-related responsibilities. We maintain that electricity consumers are better served by adopting a nationally consistent arrangement involving transmission asset owners retaining responsibility for augmentation investment decisions in the shared transmission network.

Our model is set out in detail in our submission and proposes some enhancements to the model proposed by the AEMC in their second interim report on transmission frameworks review. We refer to our model as an enhanced AEMC model. A key element of both the AEMC's original model and the enhanced AEMC model developed by Grid Australia is the allocation and responsibility for shared transmission augmentation to transmission asset owners. In support of this position, I'll talk briefly about the benefits that we deliver. Firstly, better integration of the functions required to deliver transmission service outcomes; secondly, enabling commercial incentives to help drive efficient outcomes; thirdly, better integration of transmission arrangements with the wider market design and, fourthly, enhanced independent expert oversight of transmission investment decisions.

On the first point, Grid Australia's view is that better integration of transmission functions is achieved if transmission asset owners have responsibility for augmentation investment decisions. Service outcome is delivered by transmission infrastructure, dependent on the interaction of augmentation investment decisions, network support contracts, replacement investment decisions, asset refurbishment decisions and asset operation and maintenance decisions. There are also interactions between transmission augmentation decisions, distribution investment decisions, the outcome of connection negotiations with generators and large consumers.

As the AEMC found in its Power of Choice review, there is great scope to improve the efficiency investment decisions at the distribution level which will have ramifications for planning transmission networks. Grid Australia's November submission showed there was reduced integration of transmission service functions under the commission's proposal. We provide copies of these diagrams today, again to assist you with your deliberations. Having these closely integrated functions

managed on a regional basis by the local transmission asset owner enables optimisations across these interacting processes, across the whole asset life cycle as a feature of these asset management practices. This is reinforced when coupled with service incentive schemes that encourage efficient outcomes. The potential synergies are material.

One example from New South Wales involving between one and two billion dollars of investments over the next 10 years is in underground transmission cables illustrates this point. The distribution network service provider, Ausgrid, and transmission network service provider, TransGrid, estimated savings of possibly hundreds of millions of dollars can be achieved through successful joint planning and careful integration of augmentation and replacement programs. This is largely the result of augmentation investments in TransGrid's 330-kV cable network, avoiding the need for replacement of much of Ausgrid's ageing 132-kV network.

Capturing the synergies available from integrating transmission investment decision-making into delivering the transmission service functions such as joint planning with distributors and asset management does not and will not preclude those bodies from also delivering efficient planning for NEM-wide outcomes. Already transmission network service providers collaborate to identify and deliver nationally efficient investment options. This process is aided by AEMO in its role as the national transmission planner.

On our second point, Grid Australia also believes that an enhanced AEMC transmission planning model enhances the potential for commercial incentives to drive efficient outcomes. We agree with the commission when it says that profit-motivated businesses with appropriate financial incentives are more likely to identify efficient options for a given constraint than a not-for-profit body. It is therefore surprising to us that the commission effectively takes this offer off the table in relation to augmentation investment decision-making. This is even more surprising given the potential synergies to be obtained between this and other transmission functions just discussed.

The commission appears to be concerned that the current synergies on transmission augmentation investment are not optimal. However, Grid Australia has advocated for specific and feasible improvements to the current arrangements. We also envisage a continuation of administrative arrangements to complement regulatory incentives.

We do not accept that the incentive design challenge is insurmountable. In our submission, we outline one possible approach to help illustrate this. Further options will be expected to emerge as the AER develops its guidelines in response to the AEMC's Economic Regulation of Network Service Providers rule change. If the commission's preferred approach of making a not-for-profit entity such as AEMO

responsible for augmentation investment decision-making, this would effectively close down the ability of the AER to use commercial incentives. All that would be left would be administrative arrangements. Grid Australia strongly questions this proposal to move away from best-practice regulation.

On the third point, Grid Australia believes that better integration of transmission arrangements with the wider NEM design is achieved if transmission asset owners have responsibility for augmentation investment decisions. Our enhanced AEMC model integrates more successfully with the wider market design in significant ways. The recently published AEMC rule change on regulation of networks assumes that augmentation investment decisions will be undertaken by a for-profit entity. It provides guidance to the AER on how it should go about the task of improving incentive schemes that it should apply.

The commission is no doubt aware of the concerns raised by many market participants of pressures in connection applications from generators in Victoria. I think you heard the Victorian DPI concede that this morning. Connecting parties must form an agreement from both the augmentation investment decision-maker, AEMO, and transmission network owners such as SP AusNet which leads to additional complexity, uncertainty and a dispute about allocation of risk and liability. The National Generators Forum singled this problem out for attention in its very first submission to the AEMC's transmission frameworks review which represented a wide cross-section of market generators.

The commission's proposal to give AEMO augmentation investment responsibilities in all jurisdictions will spread the structural issues across the rest of the NEM. A similar complexity would arise if optional firm access proposals are ultimately implemented. Every arrangement would seem to require the involvement of both AEMO and at least one transmission owner. We attempted to show the easy integration of an enhanced AEMC model into broader market arrangements in our submission. We today provided updated versions of these diagrams to address some minor errors in the original diagrams. Notwithstanding the changes, it is clear that the commission's proposed reallocation of responsibilities significantly complicates the transmission arrangements within the NEM.

On our fourth point, Grid Australia believes an independent expert oversight of transmission investment decisions is enhanced if transmission network owners have responsibility for augmentation investment decisions. Concerns have been raised by a number of parties, including Grid Australia, about the ability of the AER to effectively regulate energy networks and carry out its critical rules, compliance and enforcement function. Our experience suggests that the absence of sufficient technical skills is one issue that needs to be addressed. Furthermore, we are not aware of a single compliance review of AEMO by the AER in the last two years, despite the vital role of the review considering that AEMO's focus is as a market and

system operator.

The Energy Networks Association estimates its members have sunk investment of over \$60 billion, all of which is now regulated by the AER. This does not include new investment requirements for tens of billions of dollars in the coming decade. To date, it has been difficult to assess the resources available to the AER because of its deep integration with the ACCC. We consider an objective assessment of the adequacy of the AER's capability is required in conjunction with any further oversight responsibilities. Our enhanced AEMC model for transmission, planning and investment addresses this problem by providing AEMO with the ability to assist the AER in assessing transmission augmentation proposals. This is only possible where AEMO itself is not responsible for transmission augmentation investment decisions. Importantly, AEMO is able to have an expanded role in bringing a degree of independent expert technical skill to that decision-making process which at present the AER does not have.

Conversely, the commission's proposal only adds to the difficulty the AER already has in ensuring AEMO's compliance with the National Electricity Rules. The commission's proposal appears to be that commercially motivated transmission owners assist the AER in this role. At face value, this is a strange approach to achieving compliance and enforcement.

Before closing, I would like to note the commission's recommendation that may be influenced by data and information from sources, and Grid Australia does not necessarily agree on how it's been applied. The first is the claimed success of Victorian transmission planning arrangements in delivering better price outcomes. However, much of the analysis in support of this claim is flawed. For example, the most recent work on carbon markets for the Energy Users Association fails to provide for the different levels of unused capacity in each jurisdiction at the start of the relevant study period. In its submission, Grid Australia has provided evidence to this respect.

The second is the commission's interest in considering the North American planning framework as justification for contestable provision of share transmission assets. I'm aware that the different contexts of the two countries have been misunderstood. In fact the separation of transmission planning, investment decision-making and ownership in some North American cases can be attributed to a high degree of common ownership in North America between transmission and other sectors, including generation and electricity retailing. Grid Australia has provided independent expert analysis on this topic to the commission.

With these points in mind I ask the commission to reconsider its deferred transmission planning and investment model. As set out in our submission the assessment of alternative models needs to be expanded to include additional factors,

some which I have discussed today. In addition I genuinely ask the commission to consider whether there is sufficient robust evidence in existence to justify the change in investment decision-making responsibility which you have proposed. I'm concerned that the case is not being made for such a change, either in your draft report or elsewhere.

Grid Australia feels confident that through consideration of the available evidence as well as your own assessment criteria the commission will be persuaded that interests of consumers are better served if the enhanced AEMC model is adopted. Thank you.

MR WEICKHARDT: Thank you.

MR KORTE (GA): I just have a brief submission and then we will get straight into the questions no doubt. As part of Grid Australia's submission made to the commission last week Grid Australia set out a proposed economic planning standard that will deliver economically efficient levels of reliability under the enhanced AEMC model. At the same time the standard provides improved transparency and accountability over the planning framework that currently applies in Victoria and in other states. I would add Grid Australia has sought to collaborate with AEMO on the development of that proposed approach and we have had some success and had some fruitful discussions and agreement on basic principles.

Grid Australia's economic planning standard that we set out in our submission is based on six key principles which I will just quickly refer to: it can be applied consistently across the NEM; it incorporates consumer and stakeholder engagement, particularly on balancing the value of customer reliability against cost; it bases standards on the cost benefit analysis with appropriate allowance for the risk of high-impact, low probability events occurring to ensure we don't expose consumers to excessive risk; it facilitates equal consideration of network and non-network solutions; it's independent or it is set through a transparent process by a body independent of the body that applies the standard and it entails less administrative burden than the pure probabilistic approach applied in Victoria. This is achieved by reviewing the standard for each connection point regularly, the independent body doing that and then setting appropriate criteria for triggering when reassessments should occur within a five-year regulatory period.

So while on that topic, just a couple of other things to note quickly. I note with some concern the commission has referred to, as part of justification for moving to a Victorian planning model, an estimated savings of two to three billion dollars across the NEM that could be realised in moving towards a central planning approach with probabilistic planning. However, these figures have been derived by assuming application of the strict planning standards that apply currently in some regions of the NEM and I think it's important to note that at this point no stakeholder is advocating

for a retention of the status quo. In fact the SCER, the AEMC, the other stakeholders, Grid Australia amongst them, are advocating for the adoption of economic planning standards throughout the NEM.

So what I'm referring there specifically to is that the AEMC did conduct a few years ago a national review for a development of national reliability standards which recommended to the SCER the adoption of an economic basis for setting standards and that has actually been accepted by SCER and put back to the AEMC for rules development and that process is currently under way as I understand it. So I think it's important just to qualify that two to three billion and perhaps not comparing between models there that are being proposed but comparing with the status quo.

MR WEICKHARDT: I always say in rejoinder to that, it's a hell of a pity that that move hadn't occurred before the two to three billion dollars has been spent because consumers are now paying for that. Can I start off just asking you around the issue of your model, you talk about the independent body setting standards to international best practice and a probabilistic manner and you have a footnote saying, "The independent body may or may not be AEMO." Can you explain why it wouldn't be AEMO?

MR KORTE (GA): I think what we have in mind there is it could conceivably be AEMO on the proviso that AEMO was not actually involved in investment decision-making directly as it currently is in Victoria. So if we went to a national approach where, with reference to the earlier conversation, SP AusNet became the decision-maker in Victoria and AEMO simply continued on with its current national transmission planning role and in fact strengthened the role, as the AEMC has proposed, then it would not be inappropriate for AEMO to take that role.

Now, we're not advocating that it should be AEMO, it could be the AEMC, it could be any independent body but conceivably be AEMO, even though we're not directly involved in investment decision-making.

MR WEICKHARDT: Why do you guys hate AEMO as much as you appear to? It seems that they're an incredibly competent body, they've got the resources, they've got the experience. Why on earth would you start with another body?

MR KORTE (GA): First of all, just speaking for myself here for a moment, I don't think I hate AEMO. I don't think Grid Australia hates AEMO. I think we actually see that they have a very important role to play as the national transmission planner and I think in previously discussions I've shared some direct insights from our experience at Electronet in terms of the value that comes from the current engagement that we have as a TNSP with AEMO in its role as the national transmission planner. It adds value and I think the AEMC has it right that that role should continue and should be strengthened, so that's my first response.

MR WEICKHARDT: So why do you even raise the possibility that you would start with another body?

MR KORTE (GA): How do you mean? In terms of setting the standards?

MR WEICKHARDT: Yes, as a national planner.

MR KORTE (GA): I think the key point here is that if you have, as we're advocating, profit-motivated companies making investment decisions, then clearly you need to have the standards and how they're applied set independently and that's the key point that we're making.

MR McINTYRE (GA): Can I just make the point Grid Australia doesn't have a formal position on every possible question. What we do have a position on is that the standard should be set independent of a for-profit TNSP and that could point to a government role or it could point to the AEMC, it could point to the AEMO. Our point is it should not be with us, it should be independent of the person making investment decision. Frankly, where it sits is actually a decision of somebody else and we don't actually have a view, so that's not being negative of AEMO.

I would reinforce Rainer's point operationally we work very, very well and very strongly with AEMO. There are points on strategic direction and policy where we have fundamentally different views on some areas and they are clearly different views, so we will articulate them. But that's not to say we have any problem with the company or any problem with the relationship with them.

DR CRAIK: I have to say there is a very strong underlying treatment in the sort of messages we've got and it has surprised us. The role of AEMO you say who would make the augmentation decisions and then you say you it would be the transmission businesses with oversight from AEMO and the AER, to what extent would you be obliged to take AEMO's advice?

MR KORTE (GA): My response to that would be that, you know, there are very strong drivers for us to take seriously AEMO's advice, not least of which being that in the end, especially with the new rules that have just come into effect for economic regulation networks, the AER has been given additional responsibilities to look back at our investments in an ex post sense and also on a regular basis to actually report on actual investment outcomes and the efficiencies of those investments and clearly the regulator even apart from those new provisions in setting our ex ante revenue determinations takes large regard to what AEMO - what their views are. In fact they specifically seek out their views in those processes and so we would very foolish from just that point alone to disregard their advice.

It is not to say you could conceive a situation where we would necessarily always follow AEMO's advice, if there were good reasons to vary from it. But if there weren't, you know, that would be very transparent and visible to people and there would be no advantage to us in doing something different.

DR CRAIK: If you and AEMO had a different view, how would that be resolved? If the transmission company and AEMO had a different view, the transmission company would make a decision based on its view of the world rather than AEMO's?

MR KORTE (GA): How that could play out, if we're talking about a specific investment process under the current framework, the regulatory investment test is applied and - - -

DR CRAIK: By the transmission company?

MR KORTE (GA): By the transmission company and AEMO has a specific role to be engaged in that process and if there was a different view, we would assume that they would make that different view known and the regulator and the AER in the end, it can exercise its power in relation to compliance with the RIT-T or, as I mentioned earlier - - -

DR CRAIK: Its role is pretty much process oriented.

MR KORTE (GA): No, but as I mentioned earlier, with these new provisions that would also play out in terms of the views they express in relation to the prudence of the investment and looking back.

MR WEICKHARDT: Can I take you back to the fundamental underpinning that you refer to on a multitude of occasions about the advantages of incentive regulation and profit motivated entities making efficient decisions. Do you accept that transmission augmentation and transmission reliability is fundamentally different from distribution augmentation reliability?

MR KORTE (GA): It's different in the sense that transmission network and distribution networks - the key difference between them is the transmission network for one has much wider impact. Distribution networks are more localised and if things go wrong they generally impact on less people and the impact is less, whereas if something goes wrong in a transmission network it can have much wider implications and much more serious implications, so that's one first key point of difference. I did have another one in mind but it escapes me.

MR McINTYRE (GA): Just following on from that, that's one very good reason why in the proposed revised reliability of a tender's approach to where, working with AEMO, we specifically identify low risk, high consequence events as a contributor

you've got to look at because power systems totally collapse every 40, 50 years around the world. With every sort of power system, it doesn't run for ever. If you look at large chunks of America we've had Sweden, we've had India recently, six or seven million people blacked out. They do fail. So you do need to be very conscious that there are low probability events that have dramatic consequences on countries and societies and that's why we do exercise caution and people actually definitely demand a slightly higher level of reliability for transmission because of the profound impact it can have on society if it goes wrong.

MR KORTE (GA): Yes.

MR McINTYRE (GA): That doesn't happen with distribution. You can live three streets away without impact.

MR WEICKHARDT: Thank you. I'm pleased to hear you raise those points because the traditional concern about transmission reliability and incentive regulation with profit motivated entities around the world, it's not just Productivity Commission, it's not just the Victorians, internationally there has been a concern that a profit-motivated entity with incentive regulation runs a risk of under-investment in transmission networks because it takes some time for that under-investment to necessarily be revealed. If you look at that risk, if you look at the fact that there are inter-regional issues and impacts of transmission networks you raise the issue yourself.

Ironically, under a heading on page 20 you're taking advantage of synergies through a single profit-entity you raise the synergies that may occur by a transmission entity working very closely with a distribution entity. So transmission is complicated. You've got inter-regional effects, you've got effects of distribution networks, you've got the risks of under-investment and you've got very large, lumpy investments which don't allow the regulator to really with confidence set incentive regulations that they're confident about. In fact, the AER themselves on Monday said they have real concerns about incentive regulation and the incentive schemes in transmission working effectively.

Given all those impacts, I accept the fact that your proposed regime and the AEMC's regime is a better regime than the current status quo but given all those concerns, do you not see that some of the moves people have made internationally to involve not for profit planners have some value in the Australian environment where ironically is the NERA report that you attach seems to indicate that it's not just the Victorians who, for all the reasons I have already mentioned, have used not-for-profit planners and the world hasn't ended, the risks of who's at fault doesn't seem to have pre-occupied the North Americans or the others who have done this. You're sort of painting this a black and white picture that it just cannot work when you've got a not-for-profit planner in place and yet internationally that experience seems relevant.

You have discovered and you say, "Well, the situation in North America is quite different because there's common ownership of generation and transmission." I put to you in New South Wales and Queensland there is common ownership of generation and transmission and indeed, in Tasmania there is common ownership of everything.

MR GALL (GA): Peter has asked me to come in on this one. One of the issues in the international regime is you need to understand that the United States is cost of service regulation by history. It doesn't come out in the NERA report but that's the nature of the history of the United States regulation. They actually don't really have a place in their history or their culture for incentive regulation. You have raised the issue about internationally and incentive regulation in the UK which is where it evolved, as far as I'm aware, there is not an issue with under-investment in transmission in the UK as a result of that. You might know something more than I do.

But the key point here is that the model that has been chosen to decide on whether you should or shouldn't have incentive regulation already had cost of service regulation built into it, there is no place in the American market for all models that were in that report, that's the basis. So it's a very difficult one to draw a conclusion. You can't draw a conclusion because there's under-investment in the US or that because they're doing something differently that incentive regulation doesn't work. Incentive regulation is just not applied there.

MR WEICKHARDT: The Victorian submission we've just spoken to would say that actually the regulation that we've moved to in Australia with building block regulation is far closer to the cost of service regulation than to incentive regulation, so in practice we're there. But transmission is different. They themselves were for distribution they're entirely happy to move away from any standard setting and to allow incentive regulation to work its own place but transmission is different.

MR GALL (GA): I think we would concede that. We can see that it's different. In the submission that was put by Grid Australia I think that we conceded that it was difficult. I think the difficulty that we had is why would you take it off the table? Why would you take that lever completely off the table and take it away?

MR WEICKHARDT: We haven't suggested it be taken off the table in relation to operational expenditure and - - -

MR GALL (GA): Sorry, in relation to augmentation expenditure. It might be difficult to do with augmentation expenditure but why would you take it completely off the table by giving it to a not-for-profit body when in fact it may be an issue of incentive design.

MR WEICKHARDT: Yes.

MR GALL (GA): We put an example or two in our submission to say, "Well, look, based on the lessons that we've got, based on the fact that we've got contingent projects as part of the transmission regime which takes the most and largest and most uncertain projects out of the incentive regime, there is scope," and we provide an example for dealing with some of the issues in incentive regulation and we've got confidence that there is a place for it. We're not saying it's the only thing you use, but we are saying it's an important tool or lever which is part of the package.

MR WEICKHARDT: We would say we haven't taken incentive regulation entirely off the table at all, in that the model we've put up would provide strong incentives for transmission companies not to overspend, to competitively tender out their work. At the moment, an ex ante revenue allowance with forecasts of expenditure five years down the track gives all sorts of risks of not necessarily managing expenditure tightly and there are all sorts of unknowns in terms of the cost of the goods, the exchange rate that will influence the capital cost of projects. The regulator has got great difficulty in approving a sensible level of ex ante expenditure for a transmission company, as indeed I suspect the transmission company have.

The concerns we've got are you say, "Well, okay, if the regulator perceives that the RIT-T process is not working properly under the new system, they have got the ability to come back and to do an ex post review," that only works and it's only a sanction if the transmission company overspends the original capital estimate.

MR KORTE (GA): I guess if I could just say a couple of things in response to what you're saying. First of all, if I can just clarify, I think what I've heard you say, Philip, is that the distribution - you know, we're more comfortable in moving towards an arrangement where you don't set explicit standards, you just measure the outcome performance and you put the right incentives in place and that will work. But we can't do that for transmission because of the different nature between the distribution transmission networks which we talked about before. So I think it doesn't necessarily follow that there is no place for incentives in relation to network augmentation.

DR CRAIK: I don't think we would disagree with that comment.

MR KORTE (GA): No, okay. But I think your proposals are actually removing incentives for network augmentation. So what we talk about in our submission is commensurate incentives are always preferred but they are not perfect. Even in competitive markets they're not perfect and other measures are required to complement financial incentives, often referred to as administrative measures. So to me, that's what it means for transmission; you may need additional administrative

measures which we do have in place and then you have to ask yourself - - -

MR WEICKHARDT: Have you examples of what sort of things you've got in mind?

MR KORTE (GA): Well, the sort of things that exist now. In particular, we have licensing obligations. You do have the regulatory investment test; contingent projects is another measure in the transmission framework that supplements the incentive arrangements. Then you've got to ask yourself before you throw out the whole idea of incentives that if there's a percentage things aren't working as well as they might, what can we do to improve the incentives? That's got to be a better way to go than immediately jumping and throwing them out.

MR McINTYRE (GA): Could I make an additional point. One thing we put on the table and the AER doesn't seem to in practice respond to that well is the increased use of contingent projects. I know a number of member companies from their submissions - I think it's fairly common the AER takes a very narrow and hardened view to try to eliminate those projects from being included and I struggle to understand the logic or rationale for that.

MR WEICKHARDT: Sorry, eliminate what?

MR McINTYRE (GA): The access to those projects in revenue determination, a contingent project.

MR WEICKHARDT: A contingent project?

DR CRAIK: Demand goes up or something and then they come back - - -

MR WEICKHARDT: The regulator is probably concerned that there's a complete asymmetry, that every time things work in favour of the transmission company, they pocket the profit, and if they work against them, they race off to the regulator and say, "Give me more money."

MR KORTE (GA): That's exactly the sort of issue that that mechanism is intended to address. So if you don't have that mechanism in the current framework, you then have to take a punt on whether a project or an investment need that may not have a high degree of certainty is likely to occur and to allow some money for that in your ex ante capital allowance. If that doesn't occur - let's assume a hundred million dollar project, we've rated it as 50 per cent likely of occurring in the next five years, so you might end up with \$50 million in your ex ante capital allowance - if the thing occurs, it's difficult for us to front up to our board and say, "We've got this investment. We've only got half the money for it." Conversely, if it doesn't occur, we've earned revenue on \$50 million that wasn't needed. So it's exactly that kind of

issue that the contingent project mechanism is there to address, so I wouldn't call it a mechanism that's asymmetric or that favours transmission companies in any way.

MR WEICKHARDT: It's asymmetric if it's misused.

MR KORTE (GA): Sorry, how can it be misused?

MR WEICKHARDT: As I was saying, if the only time that people appear for a contingent project is if they have overspent their original capital and they then want more - - -

MR KORTE (GA): That's not actually how they work.

MR WEICKHARDT: The point we were making was really, for large projects, they should all become contingent.

MR KORTE (GA): Yes, that's correct, we've heard your view on that.

DR CRAIK: Why do you object to that?

MR WEICKHARDT: If you like it for some projects, why don't you like it for all?

MR KORTE (GA): I think the philosophical position we have is that it does remove the incentive properties of the regime and it does then remove that drive to efficiency - - -

DR CRAIK: So the incentive for the regime is to put a project in your revenue determination and then not have to do it and pocket the 50 million.

MR GALL (GA): I think there's some misunderstanding on how contingent projects work in this discussion.

MR KORTE (GA): Yes.

MR GALL (GA): I think that probably is worth expanding on, Rainer, on how it actually works. I'll let you do it because you know it as well as I do.

MR KORTE (GA): Yes, that's fine. Just so we are all clear on how they work - and we're going through this process at the moment. In fact I had a very lengthy conversation with the AER chairman just two days ago on the topic of contingent projects. It's not like it provides a mechanism, as you're alluding to, that when we're out of money or we need some more money, we just go to the regulator and we get topped up. The contingent projects have to be contemplated at the time of your regulatory determination, your revenue proposal in the first instance, and they need

to be very specific, a specific driver for that potential investment and very specific triggers defined that the regulator would then assess the need against before you ever get to sort of make the application.

This isn't a free for all. It's intended to look for specific things. Now, as an example, on the Eyre Peninsula of South Australia at the moment, we have a very thin limited capacity in the transmission network. It's almost out of capacity, but we can keep it going for many years through generation support at the bottom end of that network or through demand response measures, to deal with incremental growth. But we have two mining loads on the Eyre Peninsula who have made connection inquiries to our network and they are talking about needing hundreds of megawatts of demand, well beyond the scope of our network. If one of those commence, we're going to have to build some new network. We're going to have to reinforce the shared network. The likelihood of that occurring is very hard to assess right now five years out. It's highly likely something will happen but you just don't know exactly when. So that's what the contingent project mechanism is intended to address. There's a specific driver. We can define some specific triggers, and it's intended to capture that eventuality. It's in the interests of consumers that that's a contingent project and the AER doesn't allow half or 40 per cent of a big number in our revenue determination and it's in our interests.

MR GALL (GA): I think it's important when that gets triggered, it's not a free for all, it's a mini revenue cap review with all the steps that occur in a mini revenue cap review - - -

MR KORTE (GA): Including public consultation.

MR GALL (GA): - - - including, by the way, setting at the time an ex ante cap and providing the company with an incentive on that particular project to beat it. So it's not a free for all.

MR WEICKHARDT: So again if you see that that works - you know, with an ex ante cap being set on a contingent project - why wouldn't you do that for every project rather than have the risk of making ex ante assessments - - -

MR GALL (GA): Let's accept that proposition because it's a legitimate proposition to talk about. If the augmentation investment remained with the transmission company, you could apply an incentive arrangement around each project as they do now with contingent projects. If you move the augmentation decision process to the AEMO, then there is no place for commercial incentives.

DR CRAIK: This started off when Phil said if you liked the contingent project mechanism, why wouldn't you make all - - -

MR GALL (GA): That's a different question. I think what I'm seeing here is a discussion about incentive design. It's a discussion you can only have if there is a place for incentives in augmentation investment.

DR CRAIK: I don't think we've ever said there aren't.

MR GALL (GA): Sorry, I think what's missing here is that if you make a not-for-profit body responsible for the investment decisions for large shared network augmentations, you are by default taking that lever of commercial incentives off the table.

MR WEICKHARDT: I think in all our discussions, there are shades of grey here and I don't think you're suggesting that a national planner, independent or AEMO - let's call it AEMO - is irrelevant in this whole process. You're not suggesting they shouldn't have input. You're not suggesting the regulator shouldn't have input and nor are we. The question of should the transmission company and AEMO work extraordinarily closely together because both of them have got something to contribute - the national planner has an impact or a view of inter-regional effects that the local transmission company can't see - so there's no argument about that.

What we're trying to find is some sort of sweet spot where you get the best possible impact. Is it the transmission company who finally makes the investment decision or is it AEMO? In an ideal world, you would have complete unanimity on these sorts of things because both would work closely together and say, "That's the obvious thing to do." But the question I was asking you is given the difficulty of predicting exactly when investments will come, the lead times in transmission and all the difficulties of developing incentive regulation for projects that are out in the future, why wouldn't you make projects above a certain threshold - all projects above a certain threshold - effectively contingent projects?

MR KORTE (GA): I think as Phil said, it's a question of incentive design. I think if you were just proposing to introduce that model on top of what exists now, conceptually we probably wouldn't have a problem with that. I just was going to add one other idea because as Phil rightly highlighted, I think, this is all just a question of getting the incentives right. There was one other idea we proposed in our submission just as a conceptual idea that has been used in some other context. I refer you to box 1 on pages 18 and 19 of the submission. We don't need to take time to go through the detail of it but my understanding is that one of the concerns that's driving the commission is the current climate where we've seen a sharp fall-off of demand and you have an ex ante capital allowance that's set on the basis of the best demand forecasts at the time but then later on we find that there's significant variation from that. What this idea proposes is an approach where you can actually remove from the incentive arrangement the variability due to demand.

DR CRAIK: I guess my response to that box was instead of waiting for the AER to do it after the event and look at the change in demand and adjust the revenue accordingly, why wouldn't the transmission company or AEMO or someone do a review of the demand before they actually invested in the project, so do it beforehand rather than after - - -

MR KORTE (GA): I think that's not contradictory to what we're saying.

DR CRAIK: What contradicts seems to be this - - -

MR KORTE (GA): Let me try to clarify. I think what we're saying is of course you would do that and you wouldn't go ahead with the investment if demand had dropped.

DR CRAIK: If you could see the demand going down, yes.

MR KORTE (GA): Yes, so of course we wouldn't do that, but you are then left with a potential concern that we've received revenue for a demand-driven investment that we weren't entitled to. So that's what this box is about, how you deal with that.

DR CRAIK: Okay. So it's not that you've actually spent it, it's just that - - -

MR KORTE (GA): No, we haven't spent it but we've got this money, and if people were concerned about that, then this sort of arrangement would address that.

DR CRAIK: Can I go back to this issue of assessing; just before you do the project, you do another review to see whether the project is actually needed and when you're putting in your application for revenue, you identify a project and before you do - that's according to reliability standards. Then if certain criteria have changed, then there's another reassessment of whether the project is needed. I guess the question is who would do that assessment and why would you limit it to whether some criteria have changed, rather than actually saying, "Well, before we do the investment, we would review whether it's needed anyway," because if it's three or four years down the track, even if the criteria you've identified haven't changed, something else might have changed and it would seem a prudent position to actually do this review.

MR KORTE (GA): Yes. In the model - and I'm referring to the diagram now, figure 5A which I guess you've seen - what we're saying here, I think it's a balance between - to answer your question, I think what we're seeing here is there's a balance. In the first instance, there are good benefits for expressing standards deterministically, even though they are economically derived. So the way I sort of look at it is that - - -

MR WEICKHARDT: Can you just say what those benefits really are in practice?

MR KORTE (GA): Yes. In the first instance, if you just look at this diagram, you do actually need a basis for forward planning for others to understand and do their own planning as well. Currently, even in Victoria, AEMO - and this sort of came out of our conversations with AEMO around this sort of framework - they use a deterministic standard for planning purposes, for doing their forward planning that's published in their annual planning report. I mean, they don't go and do a probabilistic assessment for every future eventuality to figure out what might happen in the future. That's the first important point.

The same sort of deterministic discretionary standard is generally applied for those forward projects when you're developing a revenue proposal to the AER. It would be very complex, difficult and costly to finesse that further. Obviously at the time of - - -

DR CRAIK: Is that because that's the way you've always done it or is it - - -

MR KORTE (GA): No, even in our discussions with AEMO, that wasn't a contested point. In fact that model we've set out there, I've got to say, was largely agreed with AEMO and we were sort of looking at, "Well, how does that work if Victoria stays different? Can it work in both scenarios?" et cetera. So there were no major disagreements of principle there at all.

MR WEICKHARDT: In that box where it says, "Will the regulatory impact test be applied?" why wouldn't it be applied?

MR KORTE (GA): If it's a small-dollar value project that's below a threshold, that's the main reason.

MR McINTYRE (GA): I'll make one point on the same thing. I think an important point is you can be misled to believe that the projects that are done are all big-dollar projects. In TransGrid for example, we have over 100 active projects, far more works over Queensland, and you have to get this concept of proportionality also in balance, and the question you asked, Wendy, was why not retest every parameter and every option every time?

DR CRAIK: I didn't mean - - -

MR McINTYRE (GA): For all projects, it becomes silly, so I think the criteria which you set out perhaps on the threshold of a dollar impact or anything else, which criteria you would test - - -

DR CRAIK: No, that makes sense.

MR McINTYRE (GA): - - - and a half a billion dollar project would obviously have a far more thorough, broader retesting.

DR CRAIK: Sure, that's what I'm saying - - -

MR McINTYRE (GA): And you may just look at some reality tests on a small project and say, "Look, they've satisfied this. Has this changed?" "No, no, these things happen." But you already moved, therefore - - -

DR CRAIK: No, that's all perfectly logical.

MR McINTYRE (GA): So that's all it is - - -

DR CRAIK: With the threshold, why wouldn't you just evaluate whether it was needed or - - -

MR KORTE (GA): I think in practice - there's a couple of things I just wanted to add to fill out the conversation - and that is if the independent body, independent decision-maker, has reviewed the standard at each connection point, using the customer reliability, using the probabilistic assessment, so it's an economic cost-benefit basis and they have decided, "Okay, yes, this is a valid economic standard and we'll express it this way," then at that point in time, planning to that standard, even though you're planning to a deterministic express standard, you can be assured an effective cost-benefit assessment has been made in any investments that flow out of all that.

MR WEICKHARDT: As long as it's reasonably contemporary.

MR KORTE (GA): Yes, that's my point. So then what we're suggesting here is if we are a few years down the track, then these criteria, which we have not defined in detail at this point, then certainly if there's been any significant changes to input assumptions - for example, the capital costs on a particular project has changed - then you should reconsider and that's what we're proposing.

DR CRAIK: My question is: if it is three years down the track, if it's above a certain threshold, why wouldn't you just do it anyway?

MR KORTE (GA): I think we would for any material project.

DR CRAIK: That's right.

MR WEICKHARDT: Can you give me an idea, just a guess, what would you consider would be a threshold for that sort of materiality?

MR KORTE (GA): A dollar threshold?

MR WEICKHARDT: Yes. Are we talking about five million, 10 million, 50 million?

DR CRAIK: A hundred million?

MR KORTE (GA): I'd be talking 50 million, something of that order.

DR CRAIK: Who would do the test? That would be the transmission - - -

MR KORTE (GA): Yes.

DR CRAIK: Would that be under your model?

MR KORTE (GA): We would apply that probabilistic assessment then at that time and that may lead to, "Okay, that project can actually be deferred a number of years," because things have changed or it might be that it's actually justified to bring it forward. Similar to the recent assessments that AEMO has published that looked at comparing probabilistic assessment with standards that apply currently in the various jurisdictions.

MR McINTYRE (GA): Can I make one observation that the PC may not have fully appreciated. When you talk of very large projects, we're talking hundreds of millions of dollars type project that's outlaid reinforcement and the building of 500 kV lines somewhere, you are not going to have a circumstance where you have a project highly uncertain at the start of the regulatory control period, and spent within that period. The reality is, either you would have actually done - but you would normally require a reg test. On this model you have to regulatory test, your input assumptions. Every project of significance will involve community consultation, it involves permission, it might even involve significant environmental approvals. Those projects will take three to four, up to seven or eight years. So the prospect that you're concerned about, that mid-period we start this thing and then we rush in and spend all the dollars in two years, you're not going to spend money on the project until you've been through those tests which are both this assessment, the reg test, probably environmental or planning approvals and the like.

So more likely than anything else you would be partway through that process and going back to the regulator and saying, "Here is where we are," and we've actually passed these hurdles and demonstrated a few reg tests and just against the criteria and the environmental planning that you can actually build the thing, and then you're actually seeking the funding to actually build it. In practical terms, you will have cycles probably as long or sometimes longer than the regulatory control period. So I think you need to consider that too in terms of how it might work.

MR GALL (GA): I wouldn't mind giving state based planning approvals to somebody else by the way.

MR WEICKHARDT: Sorry?

MR GALL (GA): I wouldn't mind giving state based planning approvals for these projects to somebody else. You tend to get more - - -

MR McINTYRE (GA): Is that called green tape?

MR GALL (GA): Yes, something like that, but that's another question.

MR WEICKHARDT: Okay. I note that but we won't go there for the moment.

MR GALL (GA): I think we're stuck with it.

MR WEICKHARDT: Talking about the RIT-T, we've heard from the AER that they believe that in the past, the reg tests have not worked well, that they have been concerned about a number of reg test proposals, the precursor to the RIT-T, coming to them but they have no effective sort of sanctions. The new rules may give them some more scope. But at the end of the day, unless you've got a clear ability for the regulator to interact and sort of sign off and agree to the reg test and you've maybe got the whole thing transparent to the independent planner who is able to express their point of view - and the other stakeholders, generators or whatever - you've got a real risk of the transmission company just going through the process, saying, "Yes, we've done it. Here you are, Mr Regulator," but even if the regulator or the generator or AEMO aren't happy, the transmission company can just proceed as before. Do you have any concern if the regulation test actually had to be signed off by the regulator before the investment could be made?

MR GALL (GA): It sounds like a contingent project.

MR KORTE (GA): I do have a thought on that. There is a current mechanism in the rules where we can ask the regulator to sign off on a RIT-T process.

DR CRAIK: Do you?

MR KORTE (GA): We haven't to date but again just remember that the RIT-T is quite new so there has never really been a project. But there is one that I'm thinking we probably will get signed off and it's actually one that AEMO is directly involved in as well and that's the upgrade of the Heywood interconnector between South Australia and Victoria. So I think we have to recognise the different nature of different capital investments. If you've got a major investment like an interconnector

upgrade which is the one I'm talking about, all those who have an interest will be in there and they are, so generators, the state government, different people who have made submissions to our process and they are actively engaged with us and they are trying to, I suppose, influence the outcome.

We actually fully expect - because we're due to publish our final report, ElectraNet and AEMO that is, by the end of the year or possibly in January - I shouldn't put this on the record but we think there is a reasonable risk that that will be disputed, the outcome, simply because there are stakeholders that are interested in augmenting the interconnector, it's in their interest to defer that investment for as long as possible. We're hoping that won't be the case but I fully expect that before we go ahead and make this investment that we will actually get the AER to sign off on it because of the level of interest and different competing interests that exist.

DR CRAIK: When you say "sign off" you agree they would - - -

MR KORTE (GA): Through the formal rule process which would get them to actually review the process we've been through and we've been taking them along the journey because we understand the risks here and they would then formally sign off and say, "Okay, we agree this passed the RIT-T," and then there would be no risk to us in making the investment, that they would later say, "Well, that wasn't a prudent investment." That's appropriate for those kinds of projects but if we're doing a little transformer upgrade somewhere in the back blocks of South Australia, we struggle to actually get anyone interested, you know, to actually comment on our public consultations.

MR WEICKHARDT: Is there a threshold for you having to do a RIT-T at all?

MR KORTE (GA): There is a dollar threshold.

MR WEICKHARDT: What is that?

MR KORTE (GA): It's five million. It's quite small.

MR WEICKHARDT: Is that appropriate in your view or is it too low?

MR KORTE (GA): I think we would say it's too low. You can't do too much for \$5 million in transmission.

MR McINTYRE (GA): I think I'd just like to make the point, it comes back to proportionality. It's appropriate to look at more real control at the top end above some threshold, it's probably also appropriate to look at freeing up the bottom end to make it efficient overall.

MR WEICKHARDT: Sure.

MR McINTYRE (GA): I will just also make a point on the AER, if the AER has expressed concerns a now obsolete version of the reg test, I'm not too sure why that's relevant given we've moved on, and on the RIT-T itself if the AER believes it should have a greater role or there should be changes to it, like anybody else, it's open to put a rule change in to actually say on the RIT-T, the current version, it thinks that it should have these additional steps. I'm not aware of them actually commencing, so I think they've got the capacity to do a rule change and demonstrate why it's better to have them involved more on, say, a large project. That's up to them to take those steps if they think it's - - -

MR KORTE (GA): The AER even has a lot of discretion beyond changing the rules. They published the guidelines so the RIT-T is applied et cetera.

MR WEICKHARDT: If you were to propose a new threshold where the RIT-T should be done or shouldn't be done, what would you suggest it should be?

MR McINTYRE (GA): 50 mill.

MR KORTE (GA): Yes, we'll say 50. About the level I was talking about before.

DR CRAIK: Should it be indexed or something or other because you don't want to have to do this every - - -

MR McINTYRE (GA): Coming back to that point we just made, it's within our remit to go back and run that case with the AER and - - -

MR WEICKHARDT: Inside each of your organisations, you keep on saying you're profit-motivated organisations, wouldn't your board for something that was - let me pick a figure of \$10 million, north of \$10 million, require a pretty thorough review which was almost akin to a RIT-T?

MR KORTE (GA): Yes, definitely. We don't go spending that sort of money without a good business case.

MR WEICKHARDT: I would be pretty surprised at any profit-motivated business where capital was scarce would do. Jumping from five to 50 - there are two different thresholds we have talked about, one is what projects should become contingent and where should a reg test be done. Jumping from five to 50 for where a reg test should be done strikes me as being quite a big jump.

MR GALL (GA): Can I come in there because it's a very important point when we're talking about the regulatory investment test. It is both an assessment test

which you run for your board but it's also a consultation process which you would go to your board, run them through it in a couple of sessions, depending on how enthusiastic they are about the project but the regulatory investment test process was designed to ensure that the people Rainer was talking about who are interested parties get a look at it again and again and again and other alternatives are that it comes forward. So you're actually talking about running a consultation process like you guys are running here today on a number of issues for every one of those projects.

MR WEICKHARDT: Believe it or not those interested parties are often the people paying for the investment. In a normal competitive market those customers have a choice. In your market they don't.

MR KORTE (GA): I'm not disputing that the regulatory investment test is not necessary or the question of how big it is, I'm just saying - coming back to your point about the board - an internal sign-off is a very different kind of process to a public consultation process.

MR WEICKHARDT: It is except boards normally require a lot of comfort that customers are going to buy products that the company is going to manufacture. The consultation in your case is supposed to try and give some of that sort of comfort.

MR McINTYRE (GA): Fair comment.

MR KORTE (GA): I don't think there is any dispute there needs to be public consultation on major investments. What we're talking about here is what is an appropriate threshold and I don't think the Grid Australia companies have actually discussed this in recent times and said 50 million. I refer in the past - so is it somewhere between five and 50, what's the right number?

MR WEICKHARDT: Okay.

MR KORTE (GA): In the past we've talked about 30 to 40 million.

MR WEICKHARDT: Can I move to optional firm access. Two questions, one is, how long do you think it would take to move from where we are today to optional firm access being in place? The second question is, once it is in place, how much planning will be left that a transmission planner actually has to be involved with?

MR KORTE (GA): I'm happy to have a go at that one - sorry, do you want to do that?

MR McINTYRE (GA): At the Transmission Framework's Consultative Committee I think the numbers have been thrown around, off the top of the head, you know, four

or five years' time.

DR CRAIK: To bring it in?

MR McINTYRE (GA): To further develop the model, to go through the consultation with the government, the project cleaning, probably paper trial, running it in some sort of non-harming way in case it's got problems and then the transition assessment across to running live, I think that's the sort of thing they're actually talking about. It's certainly 12, 18 months and it's certainly not a decade. It's in that sort of period that they've foreshadowed. But I don't think, until you work through the exact model and you know there's consultation on the government backing it in can you really have a firm timetable. But it's that intermediate, medium term.

MR KORTE (GA): I think we would say that's a realistic assessment by the AEMC.

MR WEICKHARDT: So once it's in place, how much planning is still left?

MR KORTE (GA): I think that's an interesting question and I've heard different views about that. My own view would be that I think at times perhaps expectations aren't realistic in terms of - I've heard some views that say the bulk of transmission investment would then be driven through generators, through their location here or there or wherever and that it would very much minimise the investment required for customer reliability. I don't think personally - I don't know what these gentlemen think on this - that it's going to swing that far. I just don't think that's realistic. But it's very hard to tell until you know the details of how this is - - -

MR GALL (GA): There is a parallel process in the United States which is built around the nodal pricing arrangements and the United States still give primacy to reliability augmentations and they have what is called a reliability plan which comes first and the generators that want to seek firm access under the nodal pricing arrangements are allowed to pay for the increment over and above what was required for a liability. Now, coming back to Rainer's point, there's different answers to it. It probably depends a little bit on the form of the framework, it could be at one end or the other, but based on that model, it could be at the other end too.

MR McINTYRE (GA): I've been around for a long time, I've got no idea.

DR CRAIK: We understand some have claimed there is a risk the hybrid model might lead to investments on reliability grounds alone, so would that undermine - - -

MR KORTE (GA): Sorry, I missed your point there.

DR CRAIK: Some have claimed that there is a risk that the hybrid model might

lead to investments on reliability grounds, that's really interaction between OFA and the hybrid planning rules.

MR WEICKHARDT: Would there be anything left that the generators would want to purchase after your reliability model had been in place?

MR KORTE (GA): I don't actually quite understand that point.

MR GALL (GA): The generators in the Latrobe Valley would be very keen, notwithstanding that the reliability standards appear to be being met in Victoria - I'll choose my words very carefully because it's not all that visible. They would be very, very keen to be able to buy some kind of generator firm access between the Latrobe Valley and Victoria, notwithstanding that apparently it's a reliable system.

DR CRAIK: Okay.

MR WEICKHARDT: You talk about the fact that there is a fair degree of synergy whenever you're looking at replacement of old assets between maintenance and between augmentation that there's an overlap which I totally can understand. In rough terms, in your capex projects, what would the ratios of capital be in terms of replacement of old assets, maintenance capex or capex that's driven by maintenance, you know, for maintenance reasons and augmentation capital?

MR KORTE (GA): It varies over time.

MR WEICKHARDT: Of course. I'm not trying to pin you to the wall, I'm just trying to get a feel for it.

MR KORTE (GA): Right now with lower demand forecasts in the immediate future and therefore a reduction in demand-driven capex in South Australia and the replacement refurbishment capital component of our current ex ante capex forecasts is the larger component, so it's about 50 per cent, of that order and by the time we get to the end of our revenue determination process maybe a higher percentage because we are shifting to the lower - we are accepting the lower forecasts going forward.

MR GALL (GA): We've got one major project that flips from being an augmentation project to a replacement project and because you would have had to have augmented it and upgraded it or put in a new cable because of growth in the Sydney area, growth's gone out but the cable network that sits underneath it is still in very, very bad shape and it goes from being an ordinary investment to a replacement investment not too far down the track. That's, I think, an example - most (indistinct) are expensive, as Peter alluded to, that goes to the very material interaction at times. At a lower level, transformer augmentations are a classic. You frequently get a situation where a transformer hits an ageing limit and at the same time it's been there

for a while, low growth in that particular area is often - so there is a very close interchange between replacement investment at the low level and at the high level right throughout the process.

DR CRAIK: So if you have an AEMO style model, is that more challenging to deal with?

MR KORTE (GA): It is and that's one of the key points we're making that - - -

DR CRAIK: We're trying to get a feel of how important that issue is.

MR KORTE (GA): I think it's certainly more important now and in the immediate future than it has been historically because just to add to what Phil said, if I go back five, 10 years in the industry the replacement component or refurbishment component of our capital program would have been a much smaller percentage because we have had the higher demand growth, the assets weren't where they are now in their life cycle and, as is common with infrastructure in Australia, we see asset populations age and there's more of them now, to look at how you efficiently deal with that ageing asset problem. So I think that's more of an issue now than in the next five 10 years than it has been in the last 10.

MR GALL (GA): The other thing that interacts there is network support. If you have a fall-off in load growth, a chunk of network support, you know, buying some demand reduction buys you a lot more time in terms of deferment of an augmentation project than if you've got a fast load growth. You might be able to go and contract for one year's load growth when it's 3 per cent a year but if it's only 1 per cent a year, the same amount of contracted demand reduction gives you three years, so there is a very important interaction there as well. I think the point we were trying to make in the submissions was that those interactions, if you overlay incentive frameworks across those interactions, we're in a position to optimise the outcomes.

MR WEICKHARDT: Yes, albeit that non-augmentation solutions, generation solutions or an out of region solution, a demand response solution, you're not actually incentivised to find - - -

MR GALL (GA): That's not actually not correct (indistinct) we've executed in the last few weeks a 40-megawatt network support agreement for the summer in Sydney. We engaged the largest non-network solution in the NEM 350-megawatts in 2008-09, that included generation and it included a large industrial load and it included about 50, 55 megawatts of aggregated small loads.

MR WEICKHARDT: I'm not suggesting you don't do it but I'm just saying the incentive regulation, how does that motivate you to do that?

MR McINTYRE (GA): Good question. The incentive regulation motivates me because if I have an ex ante allowance and I go to my board and say, "We can contract or find a strategic alignment with somebody who is willing to go around and find people who will turn off at times of high load," and it's commercially more attractive, then I'll pursue it, not commercially motivated and we have done it.

MR WEICKHARDT: All right.

MR GALL (GA): You can design the incentive regime better than it is today to do it better, if you've got the levers.

MR KORTE (GA): Essentially if I've got a \$10 million capex project in my ex ante forecast and I'm earning the return on that in the revenue allowance, if I can take the annualised the revenue of that and find something less than that, I can pay someone for, that money is the bottom line. That's a strong financial incentive.

MR WEICKHARDT: Okay. In your scheme who would do the demand forecasting?

MR KORTE (GA): In our scheme - and I'm referring to these diagrams. Do you like our diagrams?

MR WEICKHARDT: As with all things electric, they're complicated.

MR KORTE (GA): The message is simple though. In our amended AEMC model we see AEMO doing the shared network, the global demand forecast, as they do now I think for New South Wales and South Australia and in other jurisdictions.

MR WEICKHARDT: Thank you very much indeed for your time. It is complicated. We are all wrestling with how to make it better. It has certainly not been perfect in the past, I think we would all concede that, but thank you for your input.

DR CRAIK: Thank you for the new model. It has given us plenty to think about.

MR WEICKHARDT: We will now adjourn these hearings. For the record, is there anyone else who wants to speak before the hearings today? No, thank you. I therefore adjourn these proceedings and the commission will resume in Canberra on 10 December.

AT 12.54 PM THE INQUIRY WAS ADJOURNED UNTIL
MONDAY, 10 DECEMBER 2012