ECONOMICS AND INDUSTRY STANDING COMMITTEE

INQUIRY INTO MICROGRIDS AND ASSOCIATED TECHNOLOGIES IN WA

TRANSCRIPT OF EVIDENCE
TAKEN AT PERTH
FRIDAY, 23 NOVEMBER 2018

SESSION ONE

Members

Ms J.J. Shaw (Chair)
Mr S.K. L'Estrange (Deputy Chairman)
Mr Y. Mubarakai
Mr S.J. Price
Mr D.T. Redman

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Hearing commenced at 9.02 am

Mr GUY CHALKLEY
Chief Executive Officer, Western Power, examined:

Mr SEÁN McGOLDRICK
Executive Manager, Asset Management, Western Power, examined:

Mr MICHAEL CREVOLA
Chief Financial Officer, Western Power, examined:

Mr BENJAMIN BRISTOW
Manager, Distribution Grid Strategy, Western Power, examined:

The CHAIR: On behalf of the committee, I would like to thank you for agreeing to appear today to provide evidence in relation to the committee's inquiry into microgrids and associated technologies. My name is Jessica Shaw and I am the Chair the Economics and Industry Standing Committee. I would like to introduce the other members of the committee: to my right is Yaz Mubarakai, member for Jandakot; and to my left is Stephen Price, member for Forrestfield and Terry Redman, member for Warren–Blackwood. Sean L'Estrange, member for Churchlands, could not be with us today. It is important that you understand that any deliberate misleading of this committee may be regarded as a contempt of Parliament. Your evidence is protected by parliamentary privilege. However this privilege does not apply to anything you might say outside of today's proceedings. Do you have any questions about your attendance here today?

The Witnesses: No.

The CHAIR: Would you like to make opening statements?

Mr Chalkley: No.

The CHAIR: Thank you for appearing in front of us again and for all the support that Western Power has provided to the Committee; we really appreciate it. I was actually looking through the transcripts and we have gone on such a journey over the last 12 months. It has been great. Today we are going to focus very much on regulatory barriers and market structures and the like. Previously, we have obviously spoken to you about physical operations and technology rollout. We think we have a sufficient amount of evidence on that so we would like to very much focus on regulatory barriers and markets structures. I am trying to think about the best way to go about dealing with this.

On regulatory frameworks, Western Power is at the moment involved in an access-arrangement process. It has provided some suggestions to the ERA and the ERA has come back with some responses. I would appreciate an overview or your views on how effective that process is; what the scope for innovation within that process is; and Western Power's views on how the current regulatory framework—the current access arrangement, call response, submission response—could facilitate both the rollout of distributed energy resources and their optimisation.

Mr Chalkley: I could pitch it in a couple of ways. There is regulation on one side of it in terms of the Access Arrangement and I think there is some legislation that sits to the side of it as well. In terms of emerging technology and what we have pitched and, therefore, what has been approved for the next submission, I think there is innovation in that submission. You have seen that you have got approval for the Kalbarri microgrid, as an example. There is probably an underlying expectation that technology changes and that is no different to previous access arrangements where new technology

came about and you could put the best solution to the customer that was the safest, the most reliable and the most affordable. I think it is there. Regulators across the world and certainly in Australia are grappling with "how do you accommodate that" but not from an R&D perspective in some respects, just that it is the solution that is viable for the customer at the moment.

The crux of the matter from the ones that people pick up on is the connection to the grid piece, which is sort of different to a regulatory piece. Reflecting on that, if you think about where we started, the basis for legislation and economic regulation was to provide the customer with safe, reliable and affordable electricity. It just so happened that that solution was connected to the grid. Technology has changed. I do not think that premise has changed. The actual best solution should be safe, reliable and affordable electricity, there is just a different solution.

The regulator is getting there in the sense that that economic proposition is still what should be presented, but I think we now start with needing to be connected to the grid, which was okay when there was not another solution, but I think you have been thrown a different solution that is just as viable in certain situations. That is the bit that we are grappling with. It may not be so much regulation in some respects, but it may be just as much legislation, which is pivoted on having to be connected to a grid to have safe, reliable and affordable electricity. I think we should start the other way around now because there is a different solution.

The CHAIR: Under the frameworks at the moment, it is a pretty simple way that Western Power earns a return, if you like. Your assets are valued, there is some forecast capex and forecast opex—a WACC is determined—there is then a series of services identified and a price for those services, and it is used to determine what Western Power's revenue base will be. Do you think that that model encourages Western Power? Do you think the right drivers, the right financial incentives exist under that framework to encourage distributed energy?

If you are incentivised to build more stuff, if you earn more money by building more things, if there is a solution out there that says "No, don't build anymore. You can solve the problem by a distributed energy resource, by installing a battery or—what I am trying to understand is the way that price incentives flow through to optimise capital deployment and operational decisions. That is what I am trying to understand.

Mr Chalkley: I think network companies work on that premise. I think the days of 'gold plating' and gaming are not really there because the regulators across Australia are pretty tight on that because at the end of the day they have to give the best solution for the customer. We generally would not get something approved if it did not meet a regulatory end fit, or if it did not meet that investment test that you have to jump that hurdle. That is something we really are pushing and not so much grappling with. If we look at standalone power systems for us, we are at the second stage of an economic asset cycle where we have had poles and wires, as an example. We are at the end of maybe a 40-year life cycle. If we look back five years ago, the only solution would have been to put in another refit of poles and wires. What we are saying is that at this point in time, what is standing out for us is that a standalone power system is economically a better solution anyway.

I think you can get a better solution for the customer. It is interesting because that is one of the benefits you have as an incumbent because you are through that cycle where you still have to provide the customer with safe, reliable and affordable power. What we are saying is that there is now an alternative solution to actually do it. That is something that comes across our investment piece. That is why we have moved from a small pilot to a larger trial, but you can see what the future could be and it stands up on its own legs economically.

The CHAIR: Let me explore that a little further then. I take your point that you made in previous evidence to us that 52% of your assets serve 3% of your customer base. On the edges of Western

Power's network, its legislated footprint, if you have a town at the end of a very skinny feeder and it needs to be replaced, if you remove that skinny feeder and that town then operates as a standalone power system, are they still yours? What I am trying to understand is you lose customers then—you lose part of your revenue base if they are disconnected and they become someone else's problem, for example, Horizon Power's. Could you explain to us how that dynamic works?

Mr Chalkley: I think that is the bit that people are actually challenging. Do you lose the customer? Is the customer the customer that is connected to the grid or is the customer in the geographical location that you actually reside? That is the dynamic that you are actually challenging. It is interesting because you are highlighting that, yes, commercially they are probably the unprofitable customers. They are, but they are no different unprofitably in terms of a microgrid or a standalone power to what they were when they were connected to the grid. I still think you have to provide a social service irrespective.

The CHAIR: I am not disputing that at all.

Mr Chalkley: It is interesting; people talk about whether you will lose it to Horizon. That is probably a separate debate because that means Horizon will probably then just get a lot of unprofitable customers and you still then have to spread that cost across a bigger base.

The CHAIR: I completely understand that, Guy. What I am trying to understand is what happens to Western Power? Do they go away from you? If you started optimising these little systems at the end of skinny feeders and decided that it was more economic to disconnect them and have them become Horizon Power's problem—if you do that, are they yours, or as soon as they disconnect, are they lost to Western Power?

Mr Chalkley: I believe they should be ours to start with, but that does not mean you have options going forward in terms of the commercial and the marketability of who that customer could be. It is a nuance that comes out, but as far as I am concerned, I have responsibility, as I say, to serve the community and the customer, not necessarily the responsibility to connect them to the grid.

Mr D.T. REDMAN: So maintain the geographic footprint as the driver of who owns the customer?

Mr Chalkley: Yes, but you can still therefore allow commerciality and competitiveness into that in that respect, whereas, you actually close that by having the grid connection as the monopoly. I think you have a social responsibility to the community and you therefore have to provide them the best asset investment decision, which previously was only one option. Now there are different options, so you should be able to economically benchmark what the best solution is and that should be the solution you have, and not say straightaway that the solution has to be connected to the grid.

Mr D.T. REDMAN: You are saying that the economics are starting to drive those decisions and the easy part of that to understand is on the fringe of grid. How far back in more towards the mesh part of the network are you seeing the economics driving those alternative options as distinct from a poles and wires solution?

Mr Chalkley: I will pass that over to Seán in a minute but, yes, it is not just edge of grid. What you are saying is that there is not just one solution that fits all. The solution is dependent on the geography and the demographics et cetera. We are not just looking at it that it is edge of grid is where it is or edge of grid where it is unprofitable. It is more a case of what service does that customer get and can you give them a better solution. Edge of grid is interesting because with edge of grid, a new solution gives a customer probably a reliability factor that is as good as metro; that is a fantastic proposition to give somebody. The economics for us just happen to stand up today because we are in an investment cycle that requires reinvestment. We live in this perpetual reinvestment of poles and wires, but you have this other solution that is sort of staring you in the

face. Seán could probably hand out numbers. It is a big number that is out there in terms of the change.

Mr McGoldrick: If we were, for example, just to look at our demonstration project that is currently out in the marketplace where we are looking at 58 standalone power systems and their spread over a good deal of the South West Interconnected System. In the northern part of our service territory up around the City of Greater Geraldton there are several. Down in the Great Southern we have a bunch around the Shire of Broomehill–Tambellup but then closer into the mesh network you have Kojonup, Manjimup and Plantagenet and places like that. It is really driven by the age of the assets and the performance of the assets.

We think of this as just a different delivery mechanism to serve our customers. It is one that is safer because it presents less bushfire risk. It is one that is more reliable, giving metro-level quality of reliability, as Guy said, out in the country, which they have not enjoyed heretofore, and it is more affordable. For us it meets all of those. Does it mean we want to dump those customers? Absolutely not. We believe they should be served. I believe passionately they are best served by Western Power but there may be other mechanisms.

Mr D.T. REDMAN: To take a simplistic economic approach is fine and I am in agreeance with that. I think there are a whole heap of opportunities in those areas where we just simply say, "Right, there's an alternative that's much better than a poles and wires solution." Fast forward a couple of decades and try to appreciate—I have been trying to understand what the network will be doing for us. Clearly, we are going to have much more sophisticated pricing arrangements. There will be opportunities for organisations like yourself to have DER as a solution as distinct from a capital investment.

Keeping people connected has some value not only to a customer that might want to have feed-in tariffs but also to the network that might want to defer capital investment opportunities. Are those factors considered in a simple solution of going to poles and wires versus a standalone power system?

Mr McGoldrick: Yes, they absolutely are, but let us put this in context. The standalone power systems at the very most would represent about 10,000 customers over the next 30 years.

Mr D.T. REDMAN: Over how many customers?

Mr Chalkley: Over a million.

Mr McGoldrick: That is about 0.5 per cent. So over a million customers, it is 0.5 per cent of our customer base.

Mr D.T. REDMAN: Over the next decade?

Mr McGoldrick: Well, if you take a 30-year look, but certainly over the next decade there is a bulk of those of the order of 10,000.

Mr D.T. REDMAN: It is still pretty small.

Mr McGoldrick: It is pretty small. It is very expensive and they are poorly served at the moment but it is pretty small. The Distributed Energy Resource and the opportunity that represents is predominantly in the mesh network because the mesh network needs to be developed and renewed and it will be an enduring network, but it does not have to be one that is just more and more poles and wires. By smartly controlling the energy resource that is now on every rooftop practically in Perth, that presents a significant opportunity for us as a network operator to make sure that we have a fit-for-purpose grid and we do not over-engineer it.

I believe that it will drive it in a particular direction in terms of development. That direction would be—the mental model I have is one where you have advanced meters using a distributed energy resource, where we have a greater amount of the meshed network, particularly in metro areas, underground, which unleashes capacity also for electric vehicles, and it is that resource in the meshed network that we would seek to control and optimise so that we do not overbuild and wind up with stranded assets.

Mr Chalkley: Just picking up that metro point again, it is small scale, it is new technology, but the PowerBank that they put into Meadow Springs is an example of that. Meadow Springs for us was an investment decision five years ago—you could look at the maps and you could see the growth between Rockingham and Mandurah. You could see the fill that was coming. Basically, it was just becoming part of the metro area. It was going to be a fill of people all the way to Mandurah. For us, that would have been a traditional substation. That would have been a big investment. That would have had you cater for all these new suburbs.

As a little taster to look at what else is out there, we are saying, "But you have 40% solar on people's roofs out there. You are not utilising it properly. Could you actually do the demand management in a different way that actually utilises what is currently there as opposed to a traditional method?" As a small pilot, is a really good way of seeing how can you actually change people's behaviour in some respects to defer an asset, which is not dissimilar to a Water Corp–type of example. If you can get people to use things wisely then you probably do not need a desal plant.

Finally, I think power utilities have those types of options that are out there from the traditional big investment to cater for the growth in the population or the change in the shifts in the demographics. Alternatives are starting to appear.

Mr D.T. REDMAN: When you start looking at these standalone power systems and some modified arrangements—it is going to emerge first on the fringe of grid areas in those little regional communities—can you give me some idea as to the level of communication and consultation that would occur with those groups? It is a bit of a signal that has come into the committee. I think it is a good point to ask about.

Mr Chalkley: It is difficult to call it yourself, because you probably want to ask the community rather than me. I think we went through a big learning curve and a big bit of engagement. Interestingly, the Kalbarri project is up for an award, not from a technology point of view but from a customer engagement point of view, which is a better way of looking at it. Kalbarri took a long time to get off the ground, but in a good way because it went through a really big community engagement perspective to their buy-in to what they wanted. That meant that they were an eco-tourist town. They did not want a diesel generator. They did want to enhance and utilise what rooftop solar they had.

That took a lot of time getting that across the line. Like every community engagement, not everyone agrees. But you have to listen to them and you have to make the effort to keep going up there. We consciously invested in that early, and invested probably long in terms of time to actually get that across. Again, if I then play that out to the pilot we did in Ravensthorpe for standalone power, that made the 60 for the next much easier because people had heard about that. People were coming to us for the next lot. We actually did not need to do anywhere near the engagement we had to do for the six because they had seen the success of the six and effectively the customer sold the six for us, not us. So the 60, we were oversubscribed from that perspective.

The CHAIR: We are time limited and so many things have cropped up in this inquiry. To my mind, these regulatory and market issues are the fundamental things that are going to make this possible or not. I want to bring us back, particularly in the comments you made previously about standalone

power system options as opposed to grid-connected solutions and even within the mesh parts of the network, rolling out distributed energy resources. The *Electricity Corporations Act* says that Western Power can only do a certain range of things and it can only operate in a certain space. I would really like to discuss with you, if you are going to be disconnecting people from the network, they have no local generation. You have been providing a service previously where you are transporting electrons from a centralised system out for consumption in these little towns that are now standalone power systems that would have to have their own generation sitting there, and you have come up with a different solution.

But by making the decision to cut the power, what is Western Power's role then around energy supply? Who is supplying the energy? What assets are you operating? Are they network assets? Are they generation load assets? Equally, when we come back into the meshed parts of the network as we roll out distributed energy resources, and particularly potentially grid-scale batteries, they can provide network services but they also have a separate load generation potential function, a storage function. These are not traditional network services. What is Western Power doing? The thing that keeps coming up over and over again is that everybody is doing pilots and a lot of the pilots look, smell and feel the same. The reason they are pilots is that nobody actually knows whether they are network services, whether they are generation services. The Electricity Corporations Act tells everyone to stick to their knitting. I am trying to understand what the barriers are in that context and how we could work through those. To me, that is a huge part of this whole debate and I would really be interested in Western Power's view on it.

Mr Chalkley: A view, for me—again, probably there are two issues for me. I think they are pilots for a good reason. They are pilots because they are new technology, so you are early in the innovation chain. You have had this tried-and-tested method for 50 years. You are putting in something that is new. I think it is therefore sensible to say that you probably need two years to make sure that works.

The CHAIR: I think to give the regulator confidence when they are approving it that it is going to be okay.

Mr Chalkley: I think that is where you are with the regulator. You have a bit of time to play that one out. The second point is that we are not disconnecting them from the grid. That is the other point at the moment. You can see what could happen, but again that is probably the purpose of a pilot—to actually see where you could go. What we are getting approved from a regulatory point of view is the fact that they are generally approving it from a reliability perspective. By putting these things in, while still connected to the grid, they still stand up on their own legs because that is a better way of doing it. People then talk about the line being in care and maintenance. Whilst we have put that standalone power system in, while your pilot is in there, you probably have limited need to do much work on the grid.

The CHAIR: Understood. Let us park the physical configuration of the assets just for a minute. I accept that you can retain a connection there. I want to talk about the distributed energy assets that are installed—about who is operating them, what they are categorised as and whether Western Power is legitimately the operator of those or whether it is someone else. I accept that some people will stay connected and others will not, but I am really trying to tease out what the legislation governing you tells you that you can and cannot do and where those assets sit in this mix.

Mr Chalkley: For us, therefore, that is currently our asset; it is just a different investment solution while they are still connected to the grid. That is why you have a bit of time to resolve that issue. For us, the investment decisions we are taking today are on an investment cycle of something that needs reinvestment; therefore, we can see that having a standalone power while still connected to the grid still stands up on its merits.

The CHAIR: So generation assets that are sitting there, and batteries?

Mr Chalkley: That is a debate whether a battery generates or whether it does not.

The CHAIR: I would like your views on that.

Mr Chalkley: That is the bit that obviously—for us, it is our asset. Clearly for a regulator, they are challenging to say, "Is that therefore something that you are going to take in your regulatory asset base?" They have not defined that. In some respects, they are probably going to take time to define that because they want to see whether the solution works.

The CHAIR: What do you think?

Mr Chalkley: I think it should do. As far as I am concerned, it is just a different investment solution to what you previously had. I do not think the legislation has caught up with the new technology and I think that is the debate you have. I go back to my first statement. I think we get too fixated: our remit was to keep people connected to the grid. I think our remit was to make sure that customers had safe, reliable and affordable electricity. It is just that at the time the only way to get that was to be connected to the grid. I think we somehow have to get that in line with what the customer wants. You have the classic situation that the customer is in front of you. The customer knows what they could get. It does not change the fact that you should always add that social responsibility to provide the customer with safe, reliable and affordable electricity. I believe it is my asset.

The CHAIR: I agree with you around the customer focus of it, but I really want to explore who is Western Power's customer. Your customers are not the mums and dads of Western Australia. The mums and dads of Western Australia are Synergy's customers, not yours. They are recipients of the service that you offer, but they are not your customer. Your customer is Synergy, and for the contestable customers, the retailers that are playing in the contestable space. So your customers are your retailers; your users are small businesses and households. What I am trying to understand is: when you are installing distributed energy resources at the end of a skinny feeder and you are operating them and they are potentially generating their loads, they are providing ancillary services, what is Synergy doing in this space?

They are also wanting to roll out their own batteries and their own distributed energy resources. They are the ones with the direct relationship with the customers—the retail relationship. You could both potentially pay in this space. What I am concerned about is duplication, overlap, and confusion about who does what. We have had some evidence to us that there is potentially quite a bit of inefficiency and waste because all three of the GTEs seems to be doing some absolutely innovative, fantastic work in the same space.

Mr Chalkley: I think we are working quite well with Synergy. The PowerBank in Meadow Springs is a good example. I am cognisant that they are the retailer and, therefore, it is just a different solution. The Synergy–Western Power one is slightly different. Synergy do not want to be in, say, grid-scale battery, but they might want to be in behind-the-meter battery. That is a challenge from a network to a retailer. That is a different type of challenge. Behind-the-metre battery probably devalues the network, but you could probably keep the same value if you went to grid-scale battery. Again, our position is, grid-scale battery is probably a bigger way forward. Does everybody want a battery in their own house when a network provider could actually provide that for you and utilise the storage that you could get off their solar panels? That is a technology one that is playing out. That is one that I think with Synergy we work quite well with, but fundamentally there is a model issue in terms of behind the meter or grid scale.

The customer one—I take your point totally. If you asked us five years ago who the customer was, somebody said we had one customer, and it was Synergy. But we have 1.2 million contacts. Our customer is the one that also sits below, and it is not necessarily the one who pays the bill. We know that Synergy pays our bill, but we also know that what sits behind it is over a million customers. That is also something that the regulator grapples with Synergy as well. Synergy might ask for a new reference service, but it is them asking for the service. They have not actually market tested whether the customer wants it in the first place. There will be a push back to Synergy to a regulator. They might see that the only customer is Synergy, but in reality everyone knows that we are the customers. We are the ones who want the source of supply. You can work it. You have got to agree what model you want. I do believe that battery in the network is a better option going forward. Again, that does not discount that sometimes you will have behind the battery.

Mr D.T. REDMAN: What is your basis for 'battery in the network' being better?

Mr Chalkley: It is more reliable, cheaper. If every customer has to put a battery in their own house, that is far more expensive from a customer solution to put in large scale in the grid. I think you are going to get better reliability.

Mr D.T. REDMAN: But presumably they are buying it rather than the taxpayer buying it.

Mr Chalkley: Again, that is debatable because to get that, you are going to have to subsidise it in the first place, so you end up with a solar situation again. We want batteries in certain parts of our network because it is a good solution for reliability and a good solution for deferring capital in the future. I think the paying bit equates quite well for us because it is a better solution for us going forward as well.

The CHAIR: Can I pick up this grid scale versus behind-the-meter battery issue? I am interested in your views from a system optimisation perspective. Batteries can provide a whole range of ancillary services, network support services, in addition to allowing customers to have a bit of energy cost arbitrage. Do you think that the right signals are coming through to incentivise or value the assets for those functions that they can perform? We have heard a lot of evidence—particularly when we were in the states, a lot of evidence was presented to us about whether ancillary services are being correctly defined.

When we are talking about things like inertia, flexibility, VAR support and voltage control, and a whole range of network support services that are required that are not necessarily defined, valued and remunerated, that these assets can offer, and indeed traditional assets perform now but do not have a revenue stream. One of the things we are thinking about is whether the right signals are coming through to reflect these other things that those assets can perform that behind the meter little batteries could never dream of doing. I am interested in your views on that.

Mr Chalkley: I will probably kick off and I reckon we will get a view from both for this one. I always felt that fundamentally we have not got the right price signals anyway. What we have at the moment is just a postage stamp tariff going across the whole of every customer. We have not got a price signal anyway at the moment; we have just got a method of trying to recover costs of network generation and retail. I think all of that then just plays out even more when you put new technology in.

I think the new technology gives you a great option to start putting in a better structure in terms of what signals you do want to send to the market, how best to utilise the energy that is being generated and the way it is being distributed. I think it is a great opportunity to do it because I do not think we have done it full stop. We have just ended up with this flat structure that is fair for some, not fair for others. It is not the right one anyway. Some of the technology things prove that

you could save on investment in the future if you did better demand management. Just because you go on to time-of-use tariffs, everyone says that will be more expensive. That is not necessarily the case. That is just utilising it in a better way for the people who want to use it at the right time. Michael, do you want to have a go on tariffs?

Mr Crevola: Yes, you are quite correct. The ancillary services have been free, for want of a better word, by virtue of the construction of, basically, fossil fuel generation capability. I think what we are seeing, especially with our battery in Perenjori, is that we can actually evaluate each of the stack of the service that we actually provide. Then what we would need is some sort of contracting ability to be able to provide that to—the equivalent of AEMO or someone who needs that sort of service. That is really where the market will need to develop next in ancillary service. I think it needs to be much more carefully defined, but the structure of the electricity tariff, or the electricity generation cost anyway, will break down into obviously energy, but also the other ancillary services as well.

Mr McGoldrick: What I would add is that the new equipment, including batteries, that we have out there, can provide a range of different services and quite often it is just how you specify the battery management system. As Michael mentioned, in Perenjori we have a battery energy storage system that is connected to the grid in the town and it is just providing and stepping in when the grid fails in the town. It has operated successfully 41 times since it was finally commissioned in July this year. Of those 41 operations, seven of them were for system reasons and it stepped in and supported the overall frequency in a small way, but in a very verifiable way, during a fault in WA. Currently, we are not remunerated for that.

There is consideration of this at the moment through the regulatory reform process and examination of new market rules, but it is going to have to be structured very differently. Those ancillary services are going to have to be remunerated because we are going to need more of them in a distributed energy future. Across the world systems grapple with this. I think we are inevitably going to be in a situation in which such services are measured, valued and remunerated and that will ensure that we have a stable power system into the future.

The CHAIR: Great. I want to pick up on a point that Michael made. We had AEMO before us on Wednesday. We were talking to them about the procurement of these things and AEMO's role, and about valuation and sending market signals through. One of the things that was suggested to us was that AEMO would sit in the middle and procure and sell these types of services to and from the market. Western Power would presumably be a seller of certain types of system services, and others could be too. I would be interested in your views on market mechanisms to encourage these technologies in and who is doing it. If AEMO is the one sending price signals out and procuring and selling, is Western Power a participant or is Western Power doing the whole box and dice to AEMO and just charging for a network service but then itself running procurement processes to encourage the roll-out of these technologies at different parts of the network? What are your views on the most efficient way of us bringing these services and assets into the market? Who is doing the buying and selling and how is that working?

Mr McGoldrick: AEMO has two roles: it is a market operator and a system operator. It is important to distinguish between these two.

The CHAIR: I am not talking about their current role; I am talking about what they said they might like to do, so let me be clear about that. We are "spitballing" ideas.

Mr McGoldrick: We are very definitely in the market operation end of that remit that they currently have and, of course, that they will like to develop. They are best placed to set up a remuneration scheme centrally for various different ancillary services. Some ancillary services are very amenable to a market structure; others are more of a bilateral contractual nature and it is just physically

because of where they might be. That is pretty well understood. Implementing a remuneration scheme is notoriously difficult. I would view Western Power's future role as being a service provider, so we are a network service provider. As part of that, we will have equipment available to us. We will be using it for network reasons, but it could also supply—and part of its valuation might be—ancillary services on a broader remuneration platform.

We would be delighted to participate in that. I think it has to be structured in the right way. Of course, we would then be procuring, through our supply chain from private industry, the bits and pieces that we would need for our network reasons that we could also, by a small change in specification, usually of software, facilitate the production of ancillary services and get remunerated in that way as well.

Mr D.T. REDMAN: You used a little bit of my thunder there! One of the points that Audrey Zibelman made on Wednesday was that batteries right now do not fit into a class of generation and/or network. She suggested that they may be in a third class, another class all of their own, because it is unique. You were talking about grid-scale batteries being strategically located in parts of the network to defer other investments and to get good value. I am assuming from that last question from the Chair that Western Power would see it as the owner of the battery assets, strategically located, and therefore being, as you said, a potential participant in ancillary services and/or arguably generation services, if that was demanded of it. What regulatory arrangements would there be to flow through to the customer—a benefit and a strategic advantage in the pricing of that?

Mr Crevola: I think the concept of battery as a generator is a little bit flawed; it does not actually generate energy but collects it from wherever it is being generated and effectively stores it for later release. What we are sort of seeing, particularly in jurisdictions like Japan, is they are seeing most of the value in the network as a shared asset to provide network services and reliability for all these sorts of services. That is how we are sort of seeing it in the SWIS as well. To then take it to the next—how, for the benefit of the customer, it really becomes almost a retail sort of arrangement between, you know, a retail operator, their customer base and us as a network battery provider.

In our contractual arrangements we would still be providing, you know, access to the battery for a fee. The retailer would then take that contract, similar as they would with a generation contract—a network services contract today—bundle that up and then on-charge that to the customers that they are providing that service for. I think that is how you would see the benefit flowing back in through to the customers.

Mr D.T. REDMAN: Just to pick up—so you have got a grid-scale battery sitting in a part of the network. If that is providing ancillary services as well storing up, there would be a relationship between the householder who has got surplus generation going into that, at a particular time of the day, so there is remuneration going back to the householder, I am assuming via the retailer. But you have also got what AEMO used to procure, which is network services for balancing ancillary services from the generators, and a relationship that Western Power sits in the middle of there.

It is getting awfully complex now, is it not, as to who is doing what and how you price the most efficient way of delivering that? I am assuming we are going to put a recommendation down at some stage about how this is achieved. Fast toward to that point: what does the recommendation say that allows, you know, participants to say, "Well, this is the best solution to roll out what is starting to become a pretty complex set of arrangements and relationships"?

Mr McGoldrick: I would think, first of all from a technical point of view, it is actually quite simple. You size a battery for particular purposes and the incremental cost for sizing it slightly bigger tends not to be that large. Then all you need to do is look at the battery and go: this much of it, I will configure my software appropriately; this much is here to provide a benefit for network, in that it is

avoiding other expenditure on their part; this much here is for general use by the community that a retailer has sold and communities can store their energy from their solar power, rather than having a battery on the wall of their garage; and this much is now playing in the ancillary services market, or getting remunerated for providing badly needed system services, ancillary services.

The CHAIR: Is it really that simple?

Mr McGoldrick: Yes.

The CHAIR: Some of it you can recover through your RAB, some of it is just monetised in a different way?

Mr McGoldrick: Correct. And once you make a decision at your design stage about what you are pursuing, is this all of these things, this particular investment, or is it only part of those things?

The CHAIR: What if usage changes over time though?

Mr D.T. REDMAN: Yes, that is going to be dynamic, is it not?

Mr Chalkley: It is modular, so you can cope with the changes. Where we are at the moment, it is to Michael's point. Batteries store, it does not generate. The point we are making is that currently generation would have, you know, done your peaks and troughs. You would have had to have work the market to see what you needed at certain times, and so what we are saying is that yes, there might be now times in the future where we have got a battery that has got storage that you could use as an alternative to the current generation model, but it clearly is not a generator, it is just something that stores.

Where we are at the moment, to the two points: a battery that we put in at the moment is for our network, it is actually sized for our network; it is not sized for additional storage, it is not sized for ancillary services. Yes, you could do, but I think that is your future of how you want to size it going forward. But at the moment that is not what we are using it for. We are using the battery to store, to give better reliability for our current customers, and that is how it is sized. Could it be sized bigger in the future? Certainly it could.

The CHAIR: Can I explore this just a little bit further? Say you were a retailer or a generator, say Synergy, and you want to put a battery in there. I am coming back to what is the most efficient, because presumably the larger the thing is that you install the more efficient it can become and the better its performance. Western Power could presumably buy from that. Instead of installing, owning and operating it yourself, you could just buy a portion of a battery to provide you with the network support services you require. And the cost of that would be equally as recoverable through your access arrangement. It is an operating expenditure in that context rather than a capital expenditure item, right?

Mr Chalkley: Yes. We have definitely looked at that through modelling as well. We have said virtual power, virtual battery banks; that is certainly one that we have looked at. But we are trying to resolve something different at the moment. We are trying to resolve some reliability issues, some demand management issues, so it has not really got us there, but we definitely know, and it is a bit like building a microgrid, at the moment it is connected, but you know if it goes really well, your real future is it could be disconnected.

Batteries is a similar one for us, it is just another example. Why has it occurred? It has occurred for two reasons. It has occurred because you have got 40% penetration on people's roofs, that you are actually losing, so that is why it is there. And the only solution there is: How did you store that? How did you capture it in a different way? The other issue that you have got is that your generation is changing. Your generation mix is moving from, you know, completely constant coal to intermittent

renewables, which, again, how do you actually capture what you might not use at certain times? The battery, is it a third leg? I am not sure. I think you can find a solution that sits in within the two, because it is just pure storage; it is a solution for the future that you have not been able to utilise currently.

Mr D.T. REDMAN: The benefit comes from less generation at a higher cost at particular points in time. That is the benefit that has to eventually flow through the system once you have this established.

Mr McGoldrick: Correct. If I could just also put on the record, I mean, we do cooperate strongly with Synergy on matters like that, evidently, and looking appropriately at what is best overall for the system. I should also point out that Synergy is very much cooperating with our standalone power system trial and demonstration projects. They are the retailer; they are billing those customers on a meter, even though they are not being supplied necessarily through the network. They have been fully part of the trial and we absolutely welcome their help and support in this. We could not have implemented the demonstration project and the trial we have without their cooperation and support. I think it is better for them too in that they are not having to provide as an expensive bill to us or revenue to us because the delivery mechanism is simpler.

The CHAIR: It is better for both your owners, too.

Mr Y. MUBARAKAI: Can I just go back to one point earlier Guy was saying, and for me this is quite important to understand, really. We talk about batteries behind the meters, we talk about EVs and then we talk about battery solutions as a grid-support system as well. In particular for anyone to get a clear line of sight with regard to demand and supply, would smart meters not be the way of providing that ability to stabilise the distribution? I just want to know from your perspective—I know your recent application has been rejected by ERA. I would like to hear from you guys as to how it has affected your future rollout plans in terms of getting the stability and reliability, and how smart meters could assist your overall framework in terms of cost reduction—being one of them.

Secondly, on the supplementary side you have also mentioned about your engagements with the Public Utilities Office and AEMO on the electricity network reform program. Could you also touch a bit on that as to where it is at and what is being discussed in that space, please?

Mr Chalkley: I will go with smart meters to start with. Smart meters, you truly believe you need for the future. You cannot see a future where you are going to replace a mechanical meter with a mechanical reader where you get a manual read every two months. What a smart meter gives you is data and what data gives you is better investment decisions, it gives you better customer decisions going forward, it gives you better safety outcomes. I do not think you would do one without the other. I am just cognisant that, yes, we are obviously awaiting the decision from the ERA. But let us be honest, any regulatory decision that we have had in the past, there is still a decision to take on what you actually invest in. That is still our call.

At the end of the day, I think we have got a very good regulatory decision in terms of the quantum of the dollars. I think that gave us a really good capital and opex envelope to actually make sure that our customers get a good service going forward. Our choice is, then, do we actually want to, within that program, that larger envelope they gave us, do advance metering? Probably yes, because actually the cost of the comms of smart metering is not a lot within our overall investment envelope. Interestingly, the cost of actually a smart meter—as in the physical meter compared to a mechanical meter—is negligible. That is irrelevant. It is just really do you want to pay for the comms to actually do it? I think you can do that within your envelope. I think that has always been something you have done on any regulatory decision in the past. You make your calls on what you think is best for the customer going forward and that is what you will make.

The CHAIR: It is disappointing, though, that the regulator is not encouraging the innovation by allowing you to recover it as a course of ordinary business.

Mr Chalkley: Again, I could wear both hats. At the end of the day, we think that will meet economic fit, in terms of going forward. Therefore, if we do it, we have got to prove that it does. If we do it and prove that it does, it would be then, going forward, allowed. Sometimes you get allowed; sometimes you do not. People have their own decisions. I think there is really good advice from consultants that said, "That is a really good thing to do going forward." People still make their own decisions.

The CHAIR: I think it is great Western Power is doing it; I really do. We need these types of innovations. If we are going to move the industry forward, that needs to be recognised as a very necessary function, that you innovate and facilitate and are given the breathing space to roll these technologies out.

Mr Chalkley: To be fair to the ERA, I was not unhappy with the overall dollars. I would probably be having a different debate if I got very small dollars and I did not get advanced metering—that is a different issue. I do not think I have got that position. We have got a very large program. Could we actually still do advanced metering? Probably. That is probably where I would be on that.

Mr McGoldrick: Yes, but also to say that a distributed energy future, which I believe is the future here in Western Australia, if anywhere, that distributed energy future without AMI is unimaginable. Without advanced metering, it is unimaginable. We have to be able to control our resource. That will result in better economic decisions, as Guy said. There is very significant reform needed in the industry. The Public Utilities Office and AEMO in their role as holder of the market rules, Western Power in its role as holder of the technical rules, are all cooperating to try and advance an agenda of reform. That is very broad. You have things like constrained access, which is hugely important, and there is significant reform needed to deal with that.

There are things like the distributed energy future and what are the various roles in our industry in making sure that we sensibly explore that future. Then there are wider policy issues of making sure that the consumer or customer benefits at the end of the day to the maximum extent. How is all of that regulated and controlled? This is part of a wider national debate too. We have made various submissions to the AEMC—on batteries, for example. It is all part and parcel of the whole industry, nationally, worldwide and locally here, moving forward. The right people are talking to each other, the right issues are being discussed, but it is probably slower than many of us would like, but these are complex issues.

The CHAIR: How immediate is the problem and how immediately do you need some sort of direction from government and regulatory change? Do we have time to wait?

Mr McGoldrick: You do not have time to wait, but you have time to make sensible decisions. The practical reality is we are seeing a lot of distributed energy out there now having an influence on the performance of our network. Some days I am concerned about that; some days I am less concerned about it. But you have to trust this: that good network service providers, good market operators, and good system operators in particular, have their finger on the pulse of this and are making decisions to control the situation wisely.

One of the key reforms that we would need in this space, for example, is that we have to make sure that there is a procedure in place to appropriately dispatch generation to have it properly remunerated in a fashion that will allow us to control the distributed energy, so provision of those ancillary services we talked about from existing generators and making sure they are properly remunerated. At the moment, they are more remunerated for energy than ancillary services. My

belief into the future is that will flip and we will value them more for the provision of ancillary services than we will for energy. It is making sure that there is a fair remuneration through the existing structures in the market that we can secure the future. Those are the debates that are happening.

Also, very detailed debates about setting technical rules that will facilitate the appropriate connection of PV in the right way so that it does not force us to make expenditure when a setting changed differently on a connection process; we would have a better solution. There is a lot of discussion in the industry. We are working both nationally and locally to set appropriate standards in this regard. There is great cooperation among the Western Australian utilities, Horizon Power and Western Power in particular, on the national stage, making sure that they do not set something for the east coast that would drive inappropriate behaviour and expenditure here. These are things like voltage ranges and voltage limits. Ben is deeply involved in a national process at the moment run by the Electricity Networks Association, making sure that we get the best deal from a WA point of view. Maybe I will ask Ben to —

The CHAIR: We have got probably about 30 seconds before David starts throwing me dirty looks! We are going to have to wrap it up there, but, as always, we welcome any additional things that you think we have not covered here, by way of supplementary submission. Over the next little while, we may also write to you with some additional questions on notice. But I do want to take this opportunity to thank you again for being so engaged with us through the process of the course of this inquiry. We really do appreciate the effort that has been put in—your engagement with this committee. I think, and I hope my colleagues think, you are doing some really exciting and innovative work and it is just great to see so much creative thought going on here in WA. The challenge for us is to work out how we all can benefit from it. Thank you very much.

Mr Chalkley: Thanks for the opportunity.

The CHAIR: No worries.

I will proceed to close today's hearing. Thank you for your evidence before the committee today. A transcript of this hearing will be emailed to you for correction of minor errors. Any such corrections must be made and the transcript returned within seven days of the date of the letter attached to the transcript. If the transcript is not returned within this period, it will be deemed to be correct. New material cannot be added via these corrections and the sense of your evidence cannot be altered. Should you wish to provide additional information or elaborate on particular points, please include a supplementary submission for the committee's consideration when you return your corrected transcript of evidence. Thank you very much.

Hearing concluded at 10.00 am

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