ECONOMICS AND INDUSTRY STANDING COMMITTEE

INQUIRY INTO MICROGRIDS AND ASSOCIATED TECHNOLOGIES IN WA

TRANSCRIPT OF EVIDENCE
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SESSION TWO

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 10.03 am

Ms AUDREY ZIBELMAN
Chief Executive Officer, Australian Energy Market Operator, examined:

Mr CAMERON PARROTTE
Executive General Manager, Western Australia, Australian Energy Market Operator, examined:

Mr MARTIN MATICKA
Group Manager, WA Markets, Australian Energy Market Operator, 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 issue of microgrids and distributed energy resources in WA. My name is Jessica Shaw and I am the Chair of 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; to my left, Deputy Chair Sean L'Estrange, member for Churchlands; Stephen Price, member for Forrestfield; and Terry Redman, member for Warren–Blackwood.

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.

Before we begin with our questions, do you have any questions about your attendance here today?

The Witnesses: No.

The CHAIR: Thank you ahead of time for sending an opening statement. It is not necessary for us to read that into the record—we can publish it—but are there any supplementary comments or any additional comments any of you would like to make before we go into questions?

Ms Zibelman: I do not want to read the statement, but first of all I want to again congratulate the committee for looking into this issue. I think it is a very critical issue for the energy sector at this time. We talk about this in the opening statement and in other testimony, but from AEMO's perspective, distributed energy resources and microgrids present a very substantial opportunity for Western Australia to be able to use these resources to help manage price, maintain system security and provide greater value to Western Australian customers. In order for that to occur, what we will need are the regulatory and market structures that allow AEMO to take advantage of these investments to drive a much more economically efficient and secure system.

We are hoping that this work and the work we are already doing in market reform will mean that we can proceed quickly, because for us the availability of using distributed energy resources can be a solution if they become part of the orchestrated management of the power system, but they remain a problem if we cannot have access to them, and then we have to manage a power system around them. So we think that this is very important work, and we are very much hoping that we can proceed with looking at some solutions in quick order for Western Australia.

The CHAIR: Thank you. I am really looking forward to our discussion today, because I think that so much of this topic boils down to market and regulatory frameworks. I am very much interested to understand AEMO's view of its role and where it sits in the market, and to understand barriers and signals.

In your opening statement you state —

> As an independent operator that includes our facilitation role in wholesale and retail markets AEMO is in a position to reduce barriers to trade …

I want to understand what you perceive those barriers to be, and what you would need to take advantage of to access the benefits that these technologies offer. That is a big question and I have probably just covered off the whole hearing.

Ms Zibelman: What I would like to do is to generally identify what we think barriers can be, and then ask Cam and Martin to add any Western Australia-specific issues that they are aware of.

Basically the issue is this: we built the power system around the idea of dispatching generation based on the visible constraints of the system and economic advantage. One of the things that we want to move toward now that we have distributed energy resources is really what we would call a multisided platform for energy trading, wherein resources that sit at consumer premises—whether solar, storage or even smart devices in the home—can be managed in order to respond to a price or dispatch signal, and then could be rewarded in much the same way as generation. Because when you think about it, AEMO's job is to balance supply and demand. What we want to do is balance supply and demand in a way that first maintains the security in the system, because the system has to work, but also use the least cost combination of devices, so that in managing that balance, you are driving the greatest efficient value to consumers.

If we are able to access, for example, significant amounts of solar and storage, or even there are companies that can aggregate pool pumps and cycle them on and off, and use those resources so that when we say, for example, that we will need additional megawatts either onto the system or off the system, those resources can be bid in directly. That gives us a very significant advantage to be able to basically identify these resources and manage demand in a more efficient way.

The other thing that we are increasingly concerned about is that because of the increase of rooftop solar, we have hours during the day on very hot sunny days when there is low demand where we worry about the voltage of the system. If we can send the right signals, those would be great hours, for example, if we have storage, to be able to charge batteries; as we are adding in electric vehicles, to be able to charge cars; because we need demand essentially in the afternoons. But we need to have the right price signals to get people to use that advantage, otherwise the concern is that we are not going to be able to absorb it all and we are affecting the security of the system.

We also need to have the ability to think about the amount of demand that comes in, in the late afternoons when the sun is setting. I believe we talked about this a little bit when you visited our control room. It comes in very quickly at a very quick rate. Again, the right incentives and the right programs—particularly around things like storage—will allow us to say: let us absorb some of that solar and then release it more gradually so that the ramping of the system is not as quick. We like to think of things as a holistic system. As an independent operator, it is not about whether we make more money or less money; what we are really trying to do is to drive value back to the consumers.

For us, what that means is we want to have access to behind the meter. That does not mean to control them, because they might be working with a retailer, they might be working with an aggregator, but we want the entities representing consumers or consumers themselves who have the ability to respond to a signal or provide services back to the grid to be able to interact directly with the power market rather than through an intermediary, because that gives us the best resources to drive the greatest value. As it sits today, the market design and the regulatory construct does not allow for that direct access, and that would be a very key thing to change.

The CHAIR: I want to take the first part of your answer and explore that for a little while, and then we will come back to, if you like, optimising through price grid operations.

Ms Zibelman: Let me just make sure, if I may: Martin and Cam, is there anything that I said that you want to add or expand on just to make sure we complete the record?

Mr Parrotte: No, I think let us get into the questions, and we will cover that in more detail then, Audrey.

Mr Maticka: Yes, that is fine.

The CHAIR: Okay. On the first concept around a multisided platform for energy trading, I am really keen to understand AEMO's role here. Ideally, there is a planning function and there is a controlling function. I want to understand where AEMO sits relative to the market and relative to pricing signals. I would like to understand your views on whether AEMO is procuring those things from the market, or whether it is essentially dealing with or could deal with separate market arrangements between, say, the network operator and service providers. There are all sorts of different ways that this could be cut, but could AEMO sit there as a single procurer of ancillary services, making the market itself, or is it a clearing house for commercial arrangements and just dispatching assets and then clearing, or is it directly procuring? What are your views on those two alternatives?

Ms Zibelman: I think, from our viewpoint, if you want, the ideal outcome is it is almost as if you are driving a car and it is best to have a single driver. AEMO sees its job to make certain that in all hours of the day we are operating a system to optimise it in its entirety. As the classic role of a market operator, when demand was considered pretty inelastic, then you really did not worry about it. The only time you thought about demand was for the industrial customers who might be able to voluntarily shed demand in high-price periods, but you did not think about demand itself as a variable that you would increase or decrease to optimise the system. Now that we are moving towards distributed energy resources, where the ability to manage demand is itself something that you can control, as a system operator—because it is an integrated system—the best thing to do would be to optimise both sides.

So an ideal outcome—but it is something that we would certainly want to work with the networks on—is that for the market-facing activity—that is, what resources might be available—I do not think we want to tie anyone's hands and say: this is your only way into the market. Because these models will evolve. You could have third parties, for example, blockchain companies, Power Ledger, who might have a number of aggregated customers and they might want to bid them into the system directly. You can have other third parties—microgrids—who also have the ability to increase or decrease and might want to respond directly. So I do not think that on a market-facing activity we want to say that there is only one way in and you have to go in this way.

That being said, however, there has to be a very close tie between AEMO and the distribution networks and all networks to make certain that we are not impacting the physical security of the system. So we would want to make sure that the networks are taking care of the physical aspects of the system, but that for the economic market making, that would be a single market. I think that the ideal for me—and this would be one of the policy objectives—is to make certain that you are setting up a regulatory and market environment that allows business models to evolve to serve consumer needs and does not constrain them into a single model.

The CHAIR: Can I just tease that out a little, because I am interested in your views on defining what it is that needs to be bought. Are we adequately defining what needs to be bought by AEMO to run—I guess I am running into problem identification, tech neutrality, service definition and valuation?

Ms Zibelman: Certainly. That is a very good question. I think as we move forward we want the markets to become more granular. One of the changes that is happening in the power system is that with the increased amount of wind and solar in our power system, the price of energy is going to continue to decrease, because the fuel is really not there; the fuel costs are zero. At the same time, you do need other system support services for frequency, inertia, voltage support, that you would pay for, so we would also want to make sure that we are separating out the energy and capacity and what we call ancillary or essential services, and that those essential services could be bought from distributed resources just as well as grid-based resources, and AEMO, because we are operating the system, will need to make sure the system remains in a secure state.

So one of the areas we would like to see developed is to see the prices on bundles so that you are actually identifying much more clearly the value that different resources can provide to the system, and that over time—which is the other important part—we are going to learn how different resources can respond. Our experience with batteries, for example—and that is the experience universally—is that batteries can follow a dispatch signal very quickly. So for things like frequency support or regulation support, they are very fast-moving and can respond to a signal much better than traditional generation, which moves more slowly. So you might want to have a market for that, because then your older generators are not being ramped, increased and decreased very quickly, which increases their operating cost and, frankly, also increases their emissions. So being able to optimise that is important.

There is also work that is being done internationally to look at how you can provide voltage level support from distributed energy resources. This is a perfect example of where the distribution utility might want to buy it for local, and then there might be excess available for the grid, so we will have to have a very close relationship with them, because they should always take primacy in managing local reliability. So it is understanding that there is going to be an unbundling of services that needs to go on, but then you want to bundle them to a level that is a very efficient market.

The concern we would have is that if you unbundle it too much, one, the market becomes highly complex to operate and, secondly, it might have some products that trade very thinly, which are really then not a market. So we want to get to that right level, but we will want to procure that to manage the security of the system. So essentially AEMO is the buyer against every seller, and the seller against every buyer.

The CHAIR: I want to tease a couple of things out in that. Firstly, with respect to battery performance, the services that you have described are quite legitimately system stability and network services, but there are other ways of monetising those assets and having them perform as a load and a generator. I would like to understand the thinking, or how you draw lines in the sand and how you describe those assets. Because at least in this regulatory context, depending on whether you are a generator or a network operator, you could go to jail for doing either of those things. I would be interested in your views on that. Let us talk about that, and then we will move on to the other questions I have in my mind.

Ms Zibelman: Okay. In terms of a battery, we have just submitted some information to the AEMC, because this issue is also being debated on the East coast. Right now, what happens is that when a battery is consuming, it is treated as demand; when it is injecting, it is considered generation. It is a very complex situation to manage. Moving forward, we would expect to see battery as part of solar and wind portfolios, and then also standalone batteries. I think this is an issue we can come back to you on as we think it through, but in general I think our view is that storage should be considered a third class, and we should not try to fit it into either demand or generation, because it is really something quite different. We should treat it as a third class and develop a set of rules

around storage as a second-in-class. I believe that California has taken that approach, and I think the FERC has also looked at that. I think it is like shoeing a square peg into a round hole: it does not quite fit. I do not think anyone has written anywhere that you cannot have a third class of services, and perhaps we should move in that direction.

The CHAIR: Can I pick up this issue as well about AEMO facing the market from both a supply and demand perspective, the sort of thin markets issue, and the definition of these services. One of the things that is clearly a hot topic over on the East coast is around price volatility and particularly the rapid rising electricity cost, but I am concerned about price volatility. Particularly as we get more distributed energy resources into the market, as you identified earlier, the fixed versus variable cost profile changes quite considerably. The signals that you send in on a short-term basis do not necessarily reflect the actual costs on a fixed variable basis of these sort of distributed energy resources, and the types of services that are being provided as well do not necessarily neatly fit, as you have identified, into an energy capacity type framework.

Complexity and granularity and market participation becomes incredibly complex when you are trying to recover the cost of assets and optimise through price signals the way that you are running a network. There is a lot in that question, but I think it gets to the nut of exactly what the types of assets are that we are now installing, their different cost profiles, their different valuation and monetisation streams, and how you get those signals coming through.

Ms Zibelman: There are some fundamentals, though, that I believe we could work from to make it all make sense and rationalise it. From our parochial view, we really do look at it as a systems basis. In running the system, the most straightforward aspect of it is that we have to keep everything in balance, supply and demand, and we really should not care whether that is coming from the resource that is sitting on a transmission grid or sitting behind the meter. If they can follow a dispatch signal and can be verified and it meets the needs of the system, then it really has the same value. The question, then, is how do they have the same value? In my view, the way we need to think about things is, first off, we need to make sure we have enough capacity in the system, and capacity from an AEMO standpoint is the ability to have resources to meet the peak demand plus necessary reserves at all times, so it is knowing that the resources are made available to us. We have a capacity market in the WEM, and I think we need to continue that and think about how that might move going forward. The idea would be any resource that says it will be available and it will bid into the market can get a capacity payment, but it has to bid in. You cannot get a capacity payment if you do not want to participate.

Then the next piece is making sure that you have resources such as wind and solar, both rooftop and on the grid, who may not respond to a dispatch signal. Then the question becomes: should we create a market that requires them to schedule in, in which case then they will have to go back, and if they do not follow their schedule, they would have to pay an imbalance charge; they would basically buy energy from the market, or they would have to hedge themselves? So in some of the market designs that people are looking at—for example, PJM—they do require the wind and solar to bid in, and that might be something that we would say: if you are going to get a capacity payment, then you have to follow this schedule, and you have to bid in to the market, and pay an imbalance charge if you do not follow your schedule. That is one way. Another way to do it, which is the way the gas markets actually operate —

The CHAIR: I was going to say, pipelines and gas markets operate on exactly the same sort of principles, yes.

Ms Zibelman: Great. Then the third piece is the purchase of essential services, which, again, we could run markets, and they could go from milliseconds to hours, where we maintain sufficient

reserves, and here again we are paying for resources to be made available. The point is that if we open up the market to resources that are set up on the supply and the demand, it is kind of interesting, because customers of course are interested in reducing prices. The ability of a customer to say at a certain price point, "I would rather use my battery, or I am willing for you to rotate my pool pump", creates a discipline on the market in terms of generators who are charging high-on prices, because they will know that at a certain price point, demand will react, and therefore the demand will levelise the prices.

So we think very much globally; we have given the same advice on the East coast that one of the areas that we can do to moderate prices and price volatility is to give demand direct access to the market, because they will tell suppliers in real time exactly what they value and when they do not value it. The issue is: how do we aggregate this to a level so it is a meaningful impact on price.

The CHAIR: Can I explore for a moment recognition of the services that existing thermal assets provide for free, and monetisation of those sorts of things, like VAR support, voltage support, flexibility in dispatch; the stuff that just happens from thermal plant that we have always taken for granted but that in this changing market now has a real value that is—certainly I know from the network operator's perspective—one that they lie awake at night worrying about being able to access and realise. Recognising this is not just about facilitating new technology; this is about recognising the value of what old technology does as well and making sure that we retain the ability to keep those types of things on the system, because if there is no signal retaining them, they will go away. So I would appreciate your views on that aspect.

Ms Zibelman: Yes, you are absolutely right. One of the areas that we have to develop is the ability to discretely value dispatchability, flexibility, reserves, and other services. I think that the fact is that they were never really free, because they were always bundled into the energy price, but because everybody provided the same services, essentially, your resources were homogenous, it did not make any sense to unbundle them, because you got it when you bought the energy. Now that some resources can provide those services and others cannot, if you do not value them separately, then there is a bit of free-ridership, and so it is much better to do that.

The CHAIR: Plus we are hearing about gas turbines needing to be turned on and turned off and assets being used differently, and it is costing operators more, and they are not able to realise or recover those costs.

Ms Zibelman: Right. One of the things we want to do: we want to retain existing resources, as long as they are economically viable, but we want to pay for better value. The way that I would articulate this is I would say AEMO's role as a system operator identified the services that we need to manage the system, because if we are not keeping the system secure then it does not matter what the market does. The system has to happen. We should unbundle those services. We should have the right kind of market design to value those, and we should value them accurately to avoid cross-subsidisation or uneconomic signals. When we are not doing that, then the risk is you have some units that retire prematurely, and then we end up having to go out and buy these services because we need them to run the system at a higher price than we would have paid had we paid the resources fairly from the origin. So one of the elements that we want to do in the WEM and in the NEM is to make sure that we are setting this fair price.

The other piece that I think is going to be very important as the system transitions is to have plans for orderly exit, because we do not want the price volatility and uncertainty surrounding that. There will be a time where older plant becomes less economic, but you want to make sure that you have an ability to plan their exit so that you have other resources that are planning to come in. That will

also help with the volatility. Here, again, having a capacity market in the WEM is a significant advantage to help smooth those changes.

The CHAIR: What do you think about the degree to which there is vertical integration as well within markets, the ability to have a clear line of sight from point of electron production through to consumption?

Ms Zibelman: Well, I am not sure of the nature of your question. If it is a policy question, it would probably be inappropriate for AEMO to answer. If it is a question of situational awareness, we can work with disaggregated as well as integrated.

The CHAIR: I am just thinking in terms of Horizon Power in particular. They have been able to trial a whole different form of products and customer responses and asset planning and asset installation, because they can see from the point of generation right the way through to consumption, and they have the ability to construct different retail offerings. I just wondered about your views on that sort of vertical integration as an enabler for distributed energy resource rollout?

Ms Zibelman: I think that my experience with this—you know, we are all the product of our experiences, I guess. I worked at both a vertically integrated utility and then cross-operated markets, and in New York we had market liberalisation very much the same year as here. I think it is really a question of the regulatory incentives and regulatory design. For example, if we were to make a determination in WA that we are going to take an approach that we want the distributed energy utility to maximise the amount of distributed energy resources that can be used to manage the efficiency of the system, and that there were incentives to use these resources to basically help them run a more efficient system, which was the model that we adopted in New York, that can have those same outcomes as vertical integration.

The question for me is understanding that the barriers to technological innovation are not technology: they are regulatory and market design. The concern that I have—and I have that about AEMO as well as any other institution—is the ability to take advantage of innovation to the maximum extent. For example, at AEMO, we are trying to adopt a program where rather than us thinking in a room, how do we solve a problem, we take the problem out to the market and have the market help us decide it. If you think about it, it is crowdsourcing solutions. The one issue about vertical integration is: are you going to get the best solutions, or can you—if you open it up to the market and describe the problem. For example, my experience in New York, where we ran into a problem where we had to build a new substation, when I went to the utility and said to the utility, "I would really like you to look at how you can solve this problem using distributed energy resources rather than building a substation," because a substation was going to be $2 billion as it was sitting in the middle of Brooklyn. They said no; they did not think they could. I said, well, just go out and ask the market what they could do. They came back and they were able to get everything they needed at a fraction of the price of building the substation.

So I think the role of good government in these instances is to provide the utilities the right opportunity and the right incentives to go into the market. The way I look at it, I think we want our utilities to become very smart and very aggressive about adopting innovation, so we need to have the regulatory construct to reward them for innovation. We cannot punish them for being innovative. But we also want them to be innovative in a modern way; in other words, not just try to solve the problems themselves, but to actually learn to collaborate with the market. That is why I like the idea of platform companies whose job it is really to reduce friction and allow very smart people—like we have in Australia, like we have in Western Australia—to get access and to get to scale and have both our existing companies and new companies be able to partner together in new ways.

So the worry I have about anything that is vertically integrated, is that it is simpler in many ways, but the issue is whether you are going to be able to drive the most innovative solutions, and I think that should be our objective. It should always be around the consumer.

Mr D.T. REDMAN: Can I take the question just a little bit further. You have articulated very well the notion of having market signals that get responses from those participants in the whole supply chain, which I would have thought in the Eastern states works very well, with a system with a lot of operators going across a lot of jurisdictions, and indeed in the US and the examples that we saw over there. In Western Australia we have a bit of a unique arrangement. One, we are standalone; a lot of government-owned utilities have an operating arena that are pretty limited.

At some point in time this committee is going to get to the point of making some recommendations to government about what should change. I would have thought that there are some pretty significant structural constraints to allowing participants, as you have suggested, to enter into the market and be able to provide innovative solutions. You said before that maybe in the policy space you might not want to make a comment, but it is nevertheless going to be important to this committee to be able to put recommendations to government. I am interested in whether you and all of your other people here in WA have a view about structural constraints to bringing that innovation on board? If you do, what changes might well be made in Western Australia, particularly with the government-owned utilities, to unlock that potential?

Ms Zibelman: Thank you for the question. I think that, from my perspective, there is a huge opportunity in Western Australia, and we would welcome the opportunity, in fact, to have discussions with the state-owned companies on how to facilitate this, to open up the market for demand-based resources, because to me, the issue around competition any more—I mean, generators can learn to operate more efficiently, and the markets have certainly demonstrated, when generators are not owned by a single entity but have to compete, people will get smarter and operate them more efficiently. But in terms of competition for consumer, the wallet share of consumers, I think the opportunity to look at innovation behind the meter and driving innovation there and opening up the market for that would be a really good value at this point.

I think the experience around retail competition, or retail supply, the challenge is going to be the size of the market, and when you have a number of retailers coming in, each of whom having to pay for a sales force and marketing, you have to wonder how much value you are going to get out of that and how much innovation, versus the ability for people to compete behind the meter. I think that would be an area that I would explore for Western Australia: the new innovation is happening really at the home, and how do we maximise that? That does not really require a structural change; it may just require a change in regulatory incentives.

Mr D.T. REDMAN: Just to take that a little further, I represent a lot of areas in regional Western Australia, and our South West interconnected system—over 50% of the network—services three per cent of the customers. We currently have Western Power setting themselves up to be a provider of innovative solutions but needing the regulatory change to do it. We also have Horizon saying that they have the horsepower and indeed the vertical integration to bring a lot more innovation to the table. Surely there are structural barriers in that, particularly where innovation—in my view and I am sure yours—can emerge in some of those much more challenging parts of the state, not so much the mesh network, as the end of the distribution lines and the fringe-of-grid areas. Structural bids must be a factor in play that constrains those opportunities?

Ms Zibelman: In terms of the structural bids, is it an issue right now of access to consumers?

The CHAIR: I think it is about the definition of operational footprint.

Mr D.T. REDMAN: Yes, it is partly footprint, and I agree with you, government will want to set up an environment where the beneficiary is the consumer at the end of the day, so there is an efficient process of delivering services. It might be that you sort of separate out all the regional components of the network and have one operator managing that; it might be that you have the brief of all that regional network including the south west part of the state being vertically integrated. There are a whole range of potential solutions or potential opportunities. I am just a little fearful that a lot of our discussion is going into the granular sense—you mentioned that word a little while ago—where we can actually overcook a solution. Governments are about making stuff work and work well, and the consumer being the beneficiary. When there is a big bunch of players that have a particular view about how that should work, and necessarily asking those people what their solution will be, they will be looking at it from their parochial sense, as distinct from the consumer as a beneficiary.

Ms Zibelman: From my experience—not knowing the particulars of the question—I think in general I would say: when in doubt, support competitive alternatives, because I think we all benefit when we know we have to compete; we all get a little sharper in our thinking. Not knowing what the particular structural concerns are, so, again, just calling on my experience on this, when we allow competition, even among transmission, when you have, for example, a need to build a new transmission line and you allow competition among various players for who gets to build it, you end up with a lower price when you have competition than if you just go to the incumbent. It is just human experience. I think we all go to work thinking we are doing the best job possible, but I think we all get a little better when we know we are competing with someone else.

It is the same for companies. Certainly, we can come back to it, and maybe my colleagues can speak more to it, but if there are structural limitations, the issue is where they might lie. In terms of things like distribution plant, it would be very expensive, frankly, to have competition on building distribution, but if it is transmission, there could be advantage; if it is services, certainly there can be an advantage. I would look to see if there are structural barriers that would prevent people from coming in. But I could not particularly or specifically respond, because I really do not know the particular circumstances.

Mr D.T. REDMAN: This question may be slightly out of the regulatory sense, but in one of our earlier meetings in Perth here you talked about the components of the cost stack that contribute to, as I understand it, the benefits for the customer, and you were concerned that the examples of the front end, the generation side, competition in that space not delivering the outcomes that it was anticipated to, and the efforts at the other end of the supply chain were where our efforts should go. Is that inconsistent with what you just said?

Ms Zibelman: No, I think it is consistent. My concern is this: I think having competition among generators makes a lot of sense. The challenge that I think people are seeing coming in to the markets is when you have a small market and you have retailers trying to come in and compete with each other, the question is going to be around the cost that they incur in trying to take a customer, where those costs ultimately end up in the price. The question is: is anyone going to be able to optimise the generators any more than we could do in operating the power system? If you assume that we are dispatching the generators at the most economically optimum price, and it is a small market, then the question I think we have to ask ourselves is: are we adding cost to the market unnecessarily, which will end up creating higher prices? The question really is: where is the value-add?

That is why I have posited that I think there is value-add in opening up for more competition behind the meter, but not necessarily for more competition among retailers. But certainly competition among generators, if you were to break it up that way, and I think that is part of the issue that has

happened in the NEM about the gentailers. Where the generator and retailer are vertically integrated, have they created a better competitive environment or have they actually harmed competition is really what is being debated.

Mr Parrotte: I think too, an extension of that, I understand your question is also this issue of standalone power systems, so then you need to look at it from a customer perspective as well. Even if we had the most efficient wholesale market, generation dispatch, ancillary services et cetera, if the cost to provide that through a mass system is larger than a standalone or a microgrid, well, that is where you have to start drawing a line of actually who gets to make that call; and, then, who looks after it, in my view, is a subsidiary question in terms of how do we protect the interests of the consumer in that circumstance? If the decision is made, well, standalone is a better way go, in my view, you want to let the party that sees that cost to be able to make that call. Then it is a government decision in terms of who takes the ownership.

So in a Western Power versus Horizon example, my view is: let Western Power identify where the cost to serve is greater than through the grid, and then who actually supplies that and provides the best outcome for consumers is another issue. Potentially you could open it up to a third party; potentially Horizon does it. Let Western Power do it in those distinct circumstances.

Mr D.T. REDMAN: Force them into making a test.

Mr Parrotte: Yes. But I think, overall, when you look at DER and that integration, we expect that the network will continue to play a key role. But you are right: 50% of that network is used for a very small part of the population. We expect that to change going forward. But if the microgrid is big enough, you can still get some competition. You can still be a market within a microgrid. A standalone power system is different, but a microgrid: is there opportunities in that? And coming back to the initial question in terms of what is the best approach of wholesale versus individual or integrated versus disaggregated, if there is room for competition and you can set the prices right and you can get some decent competition that will always produce the better outcome.

It is where you end up in circumstances where there is not sufficient competition or you do not get the pricing right that possibly an integrated entity providing that with some sort of government regulation overview may produce a better outcome. I think that is the key thing that we as an industry need to work through: where are those tipping points; what is the best outcome for consumers; which consumers will be better served by which model?

The CHAIR: Can I add something into that, and it comes back to the point that Audrey was making before about the ability to take advantage of innovation, and it comes down to the regulatory framework as well.

Mr Parrotte: Yes.

Mr Maticka: Yes.

The CHAIR: One of the things that I am interested in conceptually is around whether the structures themselves are the problem. In a call-response framework, Western Power basically says: “Dear ERA, here is what I think my assets are worth, here is what I say they do, here is how I want to recover the value for that, and I want to do all sorts of things, like I want to install smart meters and I want to be able to do that.” ENAC is quite open. It basically says: here is the process by which.

It does not actually say: here are the things you can do. It says: here is the process by which. So there is this innovation. You could put forward all sorts of ways of saying: here is how I want the price signal to flow through; here is how I want to be incentivised around asset deployment; here is how I want to buy and from whom. But if, when you put that in, the regulator says “no”, computer says “no”.

Mr Parrotte: That is where it fails.

Mr Maticka: Yes.

The CHAIR: I want to understand the role of market signals, innovation and whether this is a regulatory problem or if it is a cultural problem. It really is about how we get these right. It is as much about mind shift. I guess I am interested in your thoughts on those issues.

Ms Zibelman: My initial reaction on this, just generally, is I think you start off with a general proposition that any regulatory design is an incentive design. It is just a question of what behaviour you are trying to incent. So when we were trying to incent efficient deployment of capital, the major regulatory construct was a return on capital at an efficient level, because that was the way the regulator was able to modulate how much capital was spent, and you try to make it an efficient level. Now that we are headed into an environment that we can start looking at how to use distributed energy resources or technology better, then the regulatory outcomes should be that the successful utility is the one that drives towards those outcomes, meaning that then you have to start thinking about, you know, driving down operating expense, as well as driving down capital, to receive the outcome.

So if you are selling to the distribution company, the utility, then your job is not to just create enough capacity on your system to deliver energy, but your job is to use resources at the customer location whenever possible, and maybe offer other services such as firming services, so we can make better use of our solar. Then that would drive them in a direction and say: okay, this is the way I can make money. What you want to do—and this is where I think a regulatory construct is so critical—if you want their value proposition to be linked to the customer's value proposition, you want their economic value to increase by taking actions that allows them to reduce prices.

For example, if they are more efficient at being able to offer a firming service to rooftop solar that allows them to take better advantage of the rooftop solar, then the question is: why would we not want them to do it? If they have a cheap cost of capital that allows them to accommodate it better and will let them not think of the solar as a threat to their future but actually a future they want to go to, then everybody wins. That is where I think in New York we really focused on the regulatory outcomes and driving the business model.

The CHAIR: But the problem, Audrey, is the rules do not prescribe that level of granular detail. So Western Power could put all of those things forward in its Access Arrangement submission and say: here is how we want to be paid; the state government could sit there and say to Western Power: your job now is to develop a customer-centric business model, and that is how I want you to go and conduct yourselves. I want you to innovate. I want you to do all this wonderful stuff.

At the moment there is nothing in the Electricity Networks Access Code or the Access Arrangement process that says they cannot do that. They can do that. They could absolutely put forward a completely different way of valuing assets, achieving a return and incentivising these technologies to roll out. But if the regulator then sits there and says: I do not like that because I am used to a model where you work out what your RAB is, you add your WACC, you forecast your capex and your opex, and your services are this, and they are what I say they are, and this is the only way you are going to be able to earn a buck. If the regulator says, "No, no, these are the rules," how can we ever move forward?

Ms Zibelman: And I think that is where—again, I am not sure about the path, but there has to be alignment on that is the outcome we want to go to. I would state that the next step would have to be clarity as to the way they can process, the regulatory process to adhere to the policy outcomes. I am not sure quite how we do that —

The CHAIR: Neither are we.

Ms Zibelman: — whether it is a change in law or a change in direction. But I do think that the regulatory models and the market models have to align with the desired outcomes, and right now, from a lot of places, from our perspective, it is being able to price for value services for the system and being able to go bidirectional. On regulatory, I guess that would be an issue to take up with the PUO to see what could change there to drive those kind of changes.

Mr Parrotte: I think the key point is the regulations were set up for a one-way flow of energy, large scale. That is what it was designed to do and it did a good job, here and in the NEM and in other markets around the world, but that has now changed, and now you are getting the computer saying no more and more often. We are having to call on the powers and the rules that were probably there as a standalone, but we are now having to call on them more and more, which means there is increasing cost to consumers. So all of that needs a relook. The WEM reform is having a strong hard look at that.

We are also working with the PUO on things like what are the ancillary services that we need, and do we expect that unbundling to occur through that. But it is quite a complex regulatory arrangement that we have in WA, which now unfortunately means that one regulation might say "yes" and then the other one says "no". Then the lawyers get involved and say, well, the computer says no. There is a lot to be done.

One thing I would like to suggest to the committee, if I can be so bold, is I think not trying to fix everything but deciding what is important and getting those changes done first. This is a journey we are going to be on for the next five, 10, 20 years. We know that it needs to change. We could chuck the whole thing out, but then that is going to take many, many years, and, to be honest, we will not get it right today anyhow, because there will be some new technology tomorrow that means we have to think something different.

Mr D.T. REDMAN: Can that hierarchy of priority you just talked about be ranked in consumer benefit?

Ms Zibelman: I think so.

Mr Parrotte: We can give it a go.

Ms Zibelman: I mean, I think that if we start with the demand side, quite honestly, we can get the biggest bang for the buck in terms of driving down cost to consumers. But I believe that if the committee were to come up and say, look, we need to move in this direction, one of the things that I—you know, we always talk about years. I don't think we have that much time left to figure these things out, because the changes are so rapid that we could put ourselves in a really bad position where you start saying: well, we cannot accommodate any more solar; we are not going to allow any electric vehicles into Western Australia because we have not figured out how to get this right. So I think we have to get on with it and agree where we want to be in the next three to five years, and what steps we need to take to move, because the technology is moving there quickly.

The CHAIR: Is energy efficiency a big part of that mix as well? Behind the meter, it seems to be one of those areas as well that is so often overlooked.

Mr Parrotte: I think in general behind the meter is being forgotten. I have been in the industry in WA for 25 years, and through the 1970s and 1980s it was all about new appliances, and so we just built and built and built; then the air conditioners came in the 1990s and the noughties, and we built and built and built. Now we are finding there is other stuff happening. So you have a choice in terms of do we just let consumers do whatever they want to do behind the meter, and we will suck it up, but then ultimately everyone pays a higher cost to serve; or now that we really have devices that

consumers can use or let an aggregator use on their behalf and actually produce a better outcome for them and the ultimate supply chain—that is where we are at. That is what I think really needs to be the focus, and we cannot afford to miss this opportunity again.

Ms Zibelman: I would say one thing on a very highly positive note. The conversations I have had with our colleagues in Western Australia, Synergy, Western Power, Horizon, everybody wants to move forward. The industry itself is just anxious to get going. I think, given the right enabler saying "Come up with a program to make certain that we are driving this around consumers and tell us what needs to happen," I think we could do that very quickly. One advantage that Western Australia has over the NEM is the fact that you have state-owned utilities; they are very public minded. Everyone understands that we need to change and we do not have so many different players that it is a difficult negotiation. Of course, the way the markets have been designed, it will be easier to move that to the next generation. I think that in talking to everyone that I have talked to there, there is just a great deal of desire to move forward and move forward quickly.

Mr Y. MUBARAKAI: Audrey, sorry, I just have a quick question on that. Has there been any studies about connecting the SWIS with Horizon's North West system?

Ms Zibelman: I am not aware of any. Cam, are you?

Mr Parrotte: Back at Western Power before the disaggregation there was discussion and they did look at a DC link, but just the cost was not economic.

Mr Y. MUBARAKAI: Sure. I just wondered for the record.

The CHAIR: But there are regulatory parallels, so physical disconnection, perhaps not, but regulatory, there could be similar structures put in place.

We are going to have to leave it at that. I could go on all day. Thank you so much for that. That was such an interesting discussion. 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 by 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.

Hearing concluded at 11.01 am

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