

ECONOMICS AND INDUSTRY STANDING COMMITTEE

HEARING WITH PUBLIC UTILITIES OFFICE, DEPARTMENT OF TREASURY



**TRANSCRIPT OF EVIDENCE
TAKEN AT PERTH
WEDNESDAY, 14 FEBRUARY 2018**

Members

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

Hearing commenced at 10.04 am

Mr ADEN EDWARD BARKER

Acting Director, Retail and Consumer Policy, examined:

Ms BROOKE EDDINGTON

Acting Project Leader, Energy Industry Development Division, examined:

The CHAIR: On behalf of the committee, I would like to thank you for agreeing to appear today and to brief the committee in relation to Western Australia's future energy infrastructure, specifically the development of microgrids and electric vehicles. 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 left, the deputy chair, Sean L'Estrange, Yaz Mubarakai, and Stephen Price; and to my right, Terry Redman. 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: Do you want to walk us through your PowerPoint presentation? Are you happy if we ask questions as we go through?

Mr BARKER: Yes, please.

The CHAIR: Great. Thank you.

Mr BARKER: The intention of the presentation is that it be somewhat conversational. I have tried not be too content-heavy on the science, because it does not work. Also, we are talking about what is sometimes quite a technical subject and I think a certain amount of explanation along the way is probably required. We have more or less designed the presentation in reference to the letter of invitation that was sent. I understand the members of this committee may have had other discussions with other parties with respect to the issue of microgrids. There are a few Rorschach blots up there. They are very much in the eye of the beholder.

What is a microgrid? It can mean many, many different things, depending on what your context is. It is ultimately a multiple network and distributed energy resource—so photovoltaic systems, small renewable energy systems, small non-renewable energy systems and battery storage configurations, with a bunch of different drivers, some of which are economic and some of which are not. The first main driver is avoiding capital investment, and that might be on the network connection side or it might be on the generation side, being the need for a generation upgrade.

The second is improved security and reliability in a particular location. The third is customer choice, because up to, I think, 25 per cent now of Western Australian households have invested in small renewable energy systems, solar photovoltaic predominantly, and having a network that supports those is important but challenging in particular places on the grid.

The fourth, which is maybe less of a driver and more of an enabler, is reductions in the cost of those small generation systems and storage control systems, so the ICT side of things, and advanced metering infrastructure—so the ability to both manage and measure electricity flows in the network.

I make the point that this is now. Microgrids and standalone energy systems have existed pretty much for as long as we have had electricity. Most people who live in the bush up until the 1970s probably would have had a standalone power system, albeit it would not have been providing the kind of power at the cost that they enjoy today. What makes today different, really, is these ICT and control developments—the ability to manage and measure the flows, and the lowered cost of storage and small generation systems, which provide us with opportunities we did not previously have.

So being mindful of there being a large number of configurations, there is no established nomenclature or naming conventions when it comes to the different types of configurations currently. So I thought I would pick three main examples; hence the Matryoshka dolls. It comes in all shapes and sizes effectively. The three main configurations we will talk about today are standalone power systems, which are probably the most easily understood and talked about; embedded networks, and we will go into what they are in a bit more detail; and large microgrids—Kalbarri being a good example of the type of large grid that is being talked about at the moment.

There has been quite a lot of media round standalone power systems as a result of the trials being run by both Western Power and Horizon Power. In terms of their configuration, they are typically a combination of solar PV, small diesel, and energy storage, usually in the form of lithium-ion batteries. They are generally a single customer. There is scope to do multiple customers if they are sited close to one another. They are relatively small-scale. They are not designed to meet the needs of a large grid, say a town. The driver is really around economic efficiency and it being an alternative to the conventional, traditional poles-and-wires network investment.

You are talking about areas at the fringe of the grid, which can sometimes be quite deep in the grid where there are very low levels of customer density, so you have long, spindly feeder lines out to a small number of customers. In many instances as well those customers are obviously very happy to be connected to the grid. I understand that historically there was a lot of fanfare when that happened back in the 1960s and 1970s. Power quality is sometimes an issue, as are issues to do with fires as a result of ageing infrastructure coming down by accident, usually climate.

Mr D.T. REDMAN: Headworks charges are also a barrier to connection where you have new connections.

Mr BARKER: In terms of new connections, that is certainly the case. My understanding is that for some years, people have been voluntarily installing standalone power systems as an alternative to network connection because that has become affordable. Depending on your needs, you could be up for \$20,000 or \$30,000, which can be quite competitive if the main line is some way away and you will have to bring it to your house, which is at the middle or the back of your property.

Ms EDDINGTON: Often where these are located, there are other issues in terms of land useability for harvesting and things, where you have got big machines going around infrastructure that goes through the middle of your paddock.

Mr BARKER: The issue of private power poles is obviously a live one as well.

Mr D.T. REDMAN: There is a little policy issue there, is there not, because as we bang out the networks into the future, the system somewhat relies on people being connected to it in terms of maintenance and unit cost and so on, and incentivising that connection in whatever policy setting is something to be deliberated over?

Mr BARKER: Certainly. In terms of standalone power systems and how they fit into the network, or energy supply more generally going forward, some of the key policy questions that need to be examined are: where they have been put in place as an alternative to replacement investment, do

those customers remain part of the network; do they keep access to the uniform tariff policy, for instance; how is the cost of those assets spread across other network users; and how do you treat customers who have not been connected to the network previously but install a standalone power system? Those are all specific questions.

Mr D.T. REDMAN: I guess there are two levels there—there is the person who is not connected and who chooses to get off the grid, and then there is an operator such as Horizon chasing a customer, which is still chasing an off-grid solution for that customer, albeit Horizon is then footing the bill for putting that stuff together. The burnt poles example in Esperance, the driver was the burnt poles. I wonder whether, if they were standalone people, they would make the same investment if they were just 25 kilometres away from where the nearest power pole was?

The CHAIR: Aden, could you maybe give a bit of an overview of the differences between the regulatory environment that Horizon Power operates in, and Western Power, and the degree to which the regulatory environment incentivises Western Power to explore these types of technologies and the degree to which Horizon Power perhaps has a bit more latitude around that?

Mr BARKER: Certainly. There is a difference between Western Power and Horizon Power in this instance. Horizon Power has an integrated regional electricity licence, so it is the generator or at least it controls a lot of the generation. It is the network and the distribution system provider and it is also the retailer. So, it has the whole customer relationship. It is effectively allowed, due to its licensing, to own and operate those systems when they are brought in, and by way of the system of economic regulation—which does not occur through the Economic Regulation Authority in this instance; it is through the Department of Treasury—certainly they could make the case that that is a better option in terms of electricity supply for their customers than rebuilding assets that have been downed as part of bushfires or some other type of accident.

Western Power's licence excludes it from operating generation facilities and storage facilities other than for the maintenance and supporting the operation of the network—so, maintaining frequency, for instance, in small parts of the network and network stability. Likewise, it does not have a direct customer relationship with yourselves, myself. We do not actually have a contract with Western Power. Our relationship with Western Power is mediated by Synergy in that instance, which is why, in terms of the trials, Horizon Power has been given quite a lot of latitude to undertake its trials in the Esperance–Hopetoun region, whereas Western Power has had to—Brooke may be able to fill in some of the additional detail here—seek agreement with both Horizon Power and Synergy to operate those trials.

The CHAIR: Can I just ask you one question from that because there is something that I really would like to come to, which is: aside from the role of Synergy and the role of Western Power, what is it about Western Power that means that it cannot go and—like, for example, the way that its tariffs incentivise it to look at these types of alternative energy solutions?

Mr BARKER: In a regulatory sense, if you are not connected to Western Power's network, then you are not part of Western Power's network, so that is an issue from a regulatory standpoint. In terms of other types of equipment, if you will, supporting electricity supply, those things other than poles and wires, there are issues in terms of cost recovery. So, effectively, getting a margin and having those assets being brought into Western Power's regulated asset base is difficult. Arguably, from a regulatory standpoint, it does not currently have incentives to pursue this sort of investment as an alternative to traditional poles and wires for asset replacement purposes or expansion. So, the current regulatory system does not support it as an option.

Mr D.T. REDMAN: Do the regulatory boundaries have issues right at the edge of the grid—so Western Power runs out to here; you have natural growth by osmosis and other communities and

whatever. Out the other side of Walpole it keeps going out, so when does Western Power say—you just mentioned that Western Power's rural stock when you are not connected, but there are a lot of people not connected who would love to be connected—in Perth it happens by osmosis; in regions you have got an end of it, an edge of the grid. How does that process work? Do they have obligations to pick up the people out there?

Mr BARKER: You might want to add to this, but they have an obligation to supply or an obligation to provide an offer for connection to people who, I think, are 100 metres away from the network. So, that does not mean that it is free and they will run it out to your house for no cost. They simply have an obligation to provide you with an offer.

Mr D.T. REDMAN: Is that a standard headworks charge or a commercial headworks charge?

Mr BARKER: I would have to take that on notice.

Ms EDDINGTON: I think it has to be a reasonable estimate of the cost. So, under the Electricity Industry Act, the SWIS is defined by physical connection. So as soon as you are not connected, you are not part of the SWIS. That is whether you choose to disconnect or you just happen to be a bit further away from where the grid has previously gone to and then there is this 100 metre—which seems quite small in a country context, but that is then where they have an obligation to provide you with an offer and outside that there is no obligation.

Mr D.T. REDMAN: It is a bit of a barrier to regional development, is it not?

Mr BARKER: I would say that the offer to connect, also the cost associated with that might extend beyond just running a line out. If you are connecting, say, a workshop or a new supermarket that requires there to be augmentation in the network, you may also face some of the headworks charges associated with that. However, those costs may be shared between the proponent and Western Power or whoever on the basis that there is natural load growth in that area and they would have had to invest in that at some point anyway.

The CHAIR: Can I pick that issue up around augmentation to the network? I come back to if there are deep costs associated with a new connection, particularly to support a larger facility; I would be interested in your views concerning whether Western Power's ability to consider adequately things other than poles and wires solutions. So, there is an opportunity to get a new connection. It might be 25 kilometres or you need to put in a supermarket 25 kilometres that will require an upgrade to a feeder or there is another thing that could be done, which is around the sorts of technologies that we are talking about here. I am really interested in the degree to which there are barriers to Western Power being able to come up with those sorts of solutions.

Mr BARKER: My understanding is that there are barriers and they are barriers for the reasons I just stated before. Under the Electricity Corporations Act, there are certain activities that Western Power is allowed to undertake and certain activities they are not. In addition to that, in places where the customer is presenting, say, their own solution, a supermarket, let us say, that wants to build and they say, "We will have batteries. We will have PV", in undertaking their assessment of the costs of connecting that customer, Western Power has historically taken a fairly conservative approach to costing that and in looking at the capacity required for that connection.

They will consider the possibility that that storage or generation is not present at times because of technical failure and want to ensure that the connection is sized to enable the full load to be able to take from the network in the absence of that generation. So, my understanding is that currently there are problems with realising the benefits of reduced connection sizing as a result of —

The CHAIR: Is there also an issue around the recognition of batteries as a connection capacity issue as well?

Mr BARKER: Yes, particularly as Western Power has limited visibility as to how batteries are configured and operate in practice when they are behind the connection point.

The CHAIR: That comes back, I guess, to this whole concept that you talked earlier about, about the internet of things and ICT capabilities and visibility behind the meter. Have you been undertaking any work on those specific issues and particularly on metering across the SWIS?

Mr BARKER: Western Power has proposed replacement of over 300,000 of its old meters with advanced metering, so meters that are capable of being plugged into a telecommunications network, capable of remote control, capable of remote reading and also capable of integrating with a home area network, a HAN, which has the capacity to link to individual appliances. A common example used is pool pumps and air-conditioners and the operation of those, obviously as part of an agreement with the customer under certain contract circumstances. That is certainly work that Western Power has undertaken on an ongoing basis over time.

The capabilities and potential of advanced meter infrastructure I think is quite well understood at this point. The Victorian rollout was nearly a decade ago. I understand that there were a number of problems with that rollout. It did not necessarily occur in the ideal circumstances, but I note also that their circumstances were quite different from ours. We are looking at a situation in which we are seeking to replace older infrastructure and it also being 10 years down the track and a much higher degree of penetration of renewable energy systems and we would anticipate shortly batteries as well.

Western Power is certainly undertaking that work. Horizon Power is somewhat more advanced, I would say, in this regard. They have conducted their rollout of advanced metering infrastructure. That was a win for them commercially, owing predominantly to the fact that their meter-reading costs are pretty high. In many instances, people have to travel quite a long way to read an electricity meter. Just because of the distances involved, that was costly. In addition to that, some of the meters were quite old and under-reading consumption, so there was a saving associated with that. So it made good commercial sense for them to do it just from the meter reading standpoint.

In addition to that, as we will get to shortly, they operate over 30 small electricity systems, which you could consider to be microgrids in and of themselves. Their customers want to have rooftop solar as well, so managing that expectation on the part of customers. They also want to keep a lid on generation costs. In some of these communities, they are reliant on imported diesel or trucked-in gas in some instances, neither of which are cheap. If you are able to save on having an additional unit running a spinning reserve for those times when the sun is not shining, then that is a major cost for that business. Because of the uniform tariff policy, the majority of Horizon Power customers are subsidised as well, so it is not only a saving for Horizon Power, it is a saving for customers in the rest of the state as well.

The CHAIR: Do you want to continue flipping this through?

Mr BARKER: Yes. Embedded networks are a little bit more complex than standalone power systems. As with most microgrid configurations, they will include distributed energy resources—typically PV and storage. The main difference between this and the standalone power system is it is generally multiple customers behind a single connection point. When I say connection point, I mean the point at which Western Power or Horizon Power's network ends and the customer's distribution network begins. A relatable example of this might be a retirement village or an apartment building where you have multiple individual customers residing behind a single point.

Mr D.T. REDMAN: Strata titles.

Mr BARKER: Yes, strata is a good example of that. Embedded networks are covered by a range of exemptions to licence requirements that apply to the likes of Western Power or any other licensed retailer such as Synergy. So if there is, say, a strata company or corporation, for instance, they have the capacity to on-sell that electricity under certain circumstances to the customers within that network. It also creates the potential for peer-to-peer trading, again using ICT control systems and advanced metering, even technologies such as blockchain. The main driver for that is customers in a situation in which they are sharing a connection point wanting to save on electricity costs; the same types of drivers that individual households face when they install rooftop solar or, down the track, batteries as well—similar sorts of drivers. As I said before, currently, I would question the ability for embedded networks to save on connection costs for the reason that the approach to the connection is necessarily conservative.

Western Power does not have control over those assets. There is a view that their longer term future is maybe less predictable than the load at the site. For that reason, connections are sized so that the full load can be taken from the network should those PV or other assets not be available. Peel Business Park, which is down there as an example at the end, I will talk a little bit about further on because it is a little bit different. Whereas in the majority of the cases we are talking about, embedded networks are strata, this, potentially, is a situation in which there is green title as well, which makes it more complicated.

Mr D.T. REDMAN: I thought green title would make it easier. I thought there were some management issues around strata arrangements and there needed to be more technical solutions to manage who gets benefit and who is paying. I thought strata was one of the bigger barriers, but you are saying that green titles are harder still.

Mr BARKER: Green title is, in a sense, more challenging because you are talking about individual customers who have control over that land and additional stipulations being in place that are effectively caveats associated with the sale or lease of the land that would provide a microgrid manager with certain powers, say, to have control over roof space or a portion of the green title land for battery and other systems.

The CHAIR: Did you guys have any feed in to the proposed amendments that were announced last year around the creation of community title to specifically facilitate these types of assets? Were you consulted? Could you take notice if the PUO—because it was, I remember, in the media release. The community title and Strata Titles Act reform was announced as one of the things that could facilitate this.

Mr BARKER: I will take that on notice.

The CHAIR: If you could, that would be great. Thank you.

Mr BARKER: Finally, large microgrids: Kalbarri and Bremer Bay are both good examples of this where you have a location, a community, an industrial estate that is on the end of a longer feeder that may experience environmental problems. Again, Kalbarri is a good example of that. Multiple customers, they are somewhat conventional in type because they have their own individual connection points to the network—relatively conventional. The connection to the broader network may be interruptible.

I suppose one of the benefits is for those communities—those microgrids—to continue to operate normally under circumstances where, typically, they would cease to have access to power. In terms of the drivers for that, obviously security and reliability is very important but there are flow-on effects for economic development. So, in the case of Kalbarri, I am talking about the tourism

industry, which is challenging in the absence of reliable energy. For a town like Perenjori as well, it is very important.

Mr D.T. REDMAN: Just going back to Kalbarri for a second, how much did that test Western Power's regulatory environment? Was that really pushing the fringes? You talked about that they are allowed to venture into the reliability space or augmentation; did that really test their systems in terms of meeting their needs, or would you have to get special ministerial approval?

The CHAIR: It was a trial.

Ms EDDINGTON: It was a trial.

Mr D.T. REDMAN: Okay, so it actually probably went outside the bounds.

Ms EDDINGTON: No. There are two conditions under which Western Power has the ability to operate equipment for the purposes of maintaining network reliability. Because this is not a permanent disconnection and because it only occurs in the case where there is a fault with the network that therefore would mean the network reliability is gone, their ability to operate the battery in that particular circumstance fits within that part of the regulatory environment, but if you were to take the feeder away permanently, which has not necessarily been contemplated, the feeder is the risk factor.

Mr D.T. REDMAN: Then move outside of the remit.

Ms EDDINGTON: That is right because then it becomes disconnected from the SWIS and therefore they cannot do stuff. So in Kalbarri, Synergy owns the wind generation capacity that is there and Western Power will own the battery as the network support component, if you will. Then the other part of the renewable capacity within Kalbarri is mostly that which already exists on customer or business rooftops.

Mr BARKER: So the ownership question is quite important there and obviously, in that case it is owned by Synergy. The service that Western Power provides in that instance is classed as a network control service, which they are allowed to do. I think it being a trial is probably quite important as well because you might ask the question as to whether or not it is something that they would have done in the absence of it being a trial and wanting to both trial the regulatory environment and trial the technical and other aspects of it. I think that that is probably something that needs looking further into as to whether or not there are those regulatory incentives for them to undertake those sorts of investments.

Reliability of long rural feeders is something that is reported on to the Economic Regulation Authority. However, the reporting is on a pretty aggregated level, so they do use things like averages. So it is quite possible for Western Power to be assessed as having an acceptable level of reliability with one feeder that is terrible and another feeder that is very good.

The CHAIR: Like the Perth Hills.

Mr BARKER: Yes.

The CHAIR: Whenever the reliability figures come out for our part of the world, I cannot believe it!

Mr BARKER: It is a similar case with Perenjori. There was a \$4.5million cost associated with the batteries that we put in place. Obviously, that has had a pretty material effect for the residents of that community in terms of avoided outages—four-fifths of them will effectively be gone as a result of that battery being there. Obviously, there has also been enhanced communication between Western Power and the community as a result of that trial proactively around outages and when they will occur. That I would say is important to the sizing of the battery as well—being able to communicate with customers and tell them when the battery is in so that they do not all turn their

air conditioners on at the same time. A larger battery would be more expensive, but I question as to whether or not that is an investment that would have taken place outside the context of the trials.

Mr D.T. REDMAN: Can I ask another question? I am sure the Chair will rule me out of order if I push the bounds. Western Power operates on a regulated asset base and behaves commercially. As you know, the politics of the game has been about whether Western Power is an asset of the private sector, which might be an issue. The private sector and/or Western Power have got a commercial objective. How constraining is that commercial objective to innovation on the fringe of grid, given the rules it has? I guess globally what I am saying is if you were to sell it to the private sector, it would want to lock down its return on investment and therefore you might not get the innovation on the fringe of grid that you might otherwise be seeking.

Mr BARKER: I will maybe answer that question in a more general sense. Obviously Western Power is a state-owned government trading enterprise. The majority of the electricity networks in the national electricity market are privatised—in private ownership—and they do undertake activities that are not dissimilar, albeit our context is a bit different in that Western Power is a very spread out network with a diffuse customer base. If you look at activities being undertaken in, say, Queensland and rural New South Wales, they do undertake innovation activities in relation to microgrids. There is a lot of regulatory activity being undertaken there through the COAG Energy Council as well, specifically about the potential for microgrids in rural communities.

The CHAIR: But that is more a function of regulation than ownership.

Mr BARKER: Yes, but I suppose the point I would make is that those privately-owned network service providers are quite active in that space in seeking changes to regulation to facilitate those alternative business models.

Mr D.T. REDMAN: Is this because there are commercial reasons in doing so?

Mr BARKER: Commercial reasons for doing so, yes.

The CHAIR: So they are keen to maximise the value of their assets, presumably, whereas there may be disincentives. We will continue.

Mr BARKER: And I would say that across the country there is a substantial amount of pressure, and also concerns around gold-plating the electricity networks, unnecessary network investment, and pressure on electricity prices, of which the network component is a substantial amount.

Ms EDDINGTON: There are also concerns, similarly, around bushfire risk. Victoria in particular has dealt with a lot of wash-up from bushfire and electricity networks and where they are going and that kind of thing.

Mr BARKER: Bremer Bay in a sense is in a similar situation to Kalbarri. Interestingly, though, the smart automatic switching from 2017, that 600 kilowatts of wind and low-load diesel has been in place for about a decade. It was only last year that they were able to automatically switch over to that. Previously they required somebody to drive into Albany to press the button, effectively.

Mr D.T. REDMAN: They had all sorts of hassles earlier on with that, did they not, in managing their competing wind versus diesel, but technology has picked that up?

Ms EDDINGTON: That wind–low-load diesel combination that was initially kind of rolled out by Verve Energy at the time basically is what we have in Kalbarri, Bremer, Denham and Hopetoun, and over the period in which those systems were rolled out, that technology was developed to a much better stage. Whether it is what we would use now, I do not know.

Mr BARKER: I understand in that instance as well the wind is operated by Synergy. Is that correct?

Ms EDDINGTON: Yes. Synergy owns the wind and diesel.

Mr BARKER: Horizon Power, as I said before, has 32 isolated power systems, with a mix of generation sources—gas, diesel and small-scale PV, and larger-scale PV in the past. Midwest towns—I do not know whether you want to talk to that. Cost savings have been achieved by integrating solar.

Ms EDDINGTON: Horizon Power has an independent power provider in six midwest towns that run either diesel or gas-based power systems, and under the terms of the contract that was signed in 2015, the IPP has the ability to install additional resources.

The CHAIR: Just to clarify, so Horizon Power has tendered that out to the private sector and retains ownership of the broader assets? How does that work?

Ms EDDINGTON: No. It is an independent power provider, so they own everything, and they provide the power to Horizon Power through contracts.

[10.40 am]

The CHAIR: Right. What assets, though?

Ms EDDINGTON: The gas or diesel generation.

The CHAIR: The generation, but Horizon Power retains ownership of the network?

Ms EDDINGTON: Yes, and Horizon is the retailer.

The CHAIR: Did it conduct tender processes for the provision of the power solution?

Ms EDDINGTON: Yes. This was all done a couple of years ago. The terms of the contracts allow for the IPP to invest in renewable energy at that scale—the town supply scale. They have put in 450 kilowatts of solar in Meekatharra so far. That is paid for by the IPP, and obviously that decreases the overall cost of supply.

The CHAIR: Can we just tease that out a little? In the contracts that went out to tender, were they just looking for a reliable source of supply and then it is open to the IPP to determine how it provides that? As long as Horizon Power customers are getting the electricity they need, they are indifferent to how the IPP provides that, or is there some other framework that determines that?

Ms EDDINGTON: I am not aware of the level of detail.

Mr BARKER: My understanding is that that was the objective in this particular instance. Specifically, an opportunity was envisaged to reduce operating costs through having PV in place. The vast majority of Horizon Power's generation is IPPs. They are not owned by Horizon Power and they are effectively not operated by Horizon Power. Many of those contracts are fairly longstanding, and they sort of renegotiate those contracts as they come up from time to time and build in greater flexibility regarding, say, fuel costs. But where you have already got a generator in situ, obviously that is being maintained.

Mr D.T. REDMAN: Is that a take-or-pay type contract in some ways?

Mr BARKER: They vary depending on the location. My understanding is that some are and some are not. But they have been moving towards greater flexibility because of changes in load profiles and customer demand over time as a result of changes to economic conditions; customers' installation of PV, which reduces their take from the network; and improved energy efficiency, which has likewise reduced growth.

Mr D.T. REDMAN: What is the driver for Horizon to be efficient in that pricing, because effectively the gap gets picked up by subsidy? I can understand them maybe loading themselves up on

reliability or whatever it might be to get a gold-plated supply. What is the driver that keeps the level of efficiency on that pricing?

Mr BARKER: They are required to report to the Economic Regulation Authority in relation to their integrated regional electricity licence, so they have oversight with respect to their on-the-ground performance for things like security, reliability and customer outcomes. In terms of their investments, unlike Western Power, which is provided oversight through the access arrangement process by the Economic Regulation Authority, they are overseen by the WA state government, effectively through the Public Utilities Office and the Department of Treasury. That is the pen that is run over the figures.

A similar sort of approach which the Economic Regulation Authority takes is the investment efficient going forward, and there are a number of considerations that are brought to bear on that. I will talk to the issue of the economic regulation of Horizon Power in a bit more detail going forward, because there are other options that might provide more incentives, I suppose, to save costs.

So, Horizon Power service area—midwest towns we have spoken about. Advanced metering infrastructure now installed throughout and the control systems associated with that, so there has been a substantial amount of investment on the part of Horizon Power in developing the ICT systems to measure those bidirectional energy flows. Preceding that, as well, they had instituted caps on the installation of small-scale renewable energy systems in a number of their system's core hosting capacity. A condition of installation for some of those for non-residential customers would be that you install systems that would limit the feed-in from the PV systems to the grid under certain circumstances or, alternatively, install a battery of relatively modest scale that would assist the system in spinning up an additional generator when required.

Say, for instance, with a lot of these communities being relatively small, a large amount of cloud cover comes through, PV generation drops off, demand from the network obviously increases, giving a couple of minutes of breathing time to get that second generator up and running to maintain network security and reliability. This has been an evolution for Horizon Power in terms of the development of those systems and they have really become more sophisticated with the advent of AML. Carnarvon battery system: Carnarvon is a community that has very high penetration of renewable energy systems. It has been very popular in that community.

The CHAIR: When you say very high, what sort of proportion are we talking about?

Mr BARKER: I would have to take that on notice.

The CHAIR: Would you? That would be interesting.

Mr BARKER: Yes, regarding the specific number or the percentage of generation in that community.

The CHAIR: Yes, I think it would be interesting. I do recall from a past life that at some point some of the systems had so much PV that it was becoming very difficult, so I would just be interested to understand what sorts of penetration levels we are seeing in the different areas.

Mr BARKER: I would say that the amount of PV in a particular system that will cause a problem will differ system by system.

The CHAIR: Of course.

Mr BARKER: Obviously, customers have different needs, different load factors; residential customers may be more likely to export from their system than a commercial customer that is pulling a lot of load during the day. In the instance of Carnarvon, I understand that it was a problem and that there is an effective cap on the installation. People are not currently able to install. That is why a battery system has been put in place, in the first instance, to act as spinning reserve. It

produces substantial savings in fuel for conventional generation that would otherwise need to be in place, should that cloud cover come over and the generation drop out, also shifting around peak consumption because you have that inclination when the sun goes away and the evening load comes on as well.

Certainly in that instance, there is the potential over time to consider the ability for batteries to facilitate more customer investment in renewable energy. Onslow, slightly different situation, but a new power station was required in that instance. I think with the one-megawatt hour battery and the solar, that is to be determined as part of an additional phase of investment by Horizon Power, and the request for quotes are currently out now.

Mr D.T. REDMAN: Is part of the solution driven by the deal with Chevron?

Mr BARKER: My understanding —

Mr D.T. REDMAN: Chevron has a responsibility to pay a certain amount in, so is that competing with the efficiency decisions of what Onslow's future needs are?

Mr BARKER: My understanding is that that situation provides an opportunity as opposed to competing.

Mr D.T. REDMAN: Good choice of words!

Ms EDDINGTON: The gas plant which is due for commissioning about now, though, they have already installed a small battery because they saw it as a useful component in addressing some of that spinning reserve requirement, which again was a commercial decision by the independent power provider. It was not something that was driven by Horizon Power. But stage 2 was always intended to be a utility-scale solar and battery installation that supported the gas plant and potentially would defer some of the growth required in the gas plant until a bit later out. Then it also is intended that those control systems and advance metering that Aden has been talking about would allow for greater rooftop solar penetration within Onslow as well.

Mr BARKER: So this goes to the issue of economic regulation. I just wanted to raise with the committee that there are other approaches that we currently do not have in Western Australia. Horizon Power, as I said, is regulated directly by government as opposed to the Economic Regulation Authority and there would be the potential for a shadow alternative economic regulation —

Mr D.T. REDMAN: But you said that Horizon reports to ERA on reliability.

Mr BARKER: Correct.

Mr D.T. REDMAN: So there is a reporting process, but they are not regulated by —

The CHAIR: There is a difference between licensing for performance and economic regulation. I think that is an important point to make.

Mr BARKER: I make the distinction between those two. Operators in the electricity market are required to be licensed for the purposes of generation, distribution and transmission and retailing of electricity. All of them, unless they have an exemption, are required to report on those licences, so how well they are operating, how many customer disconnections they have, what their security and reliability are like. When I refer to economic regulation, I am talking about when particularly Horizon Power and Western Power want to undertake investment into the future and there is pricing associated with that.

In the case of Western Power, it is their network tariffs that they pass on to other customers and Synergy. In the instance of Western Power, those are regulated by the ERA, so the ERA looks at Western Power's plans for the next period. Currently, they are concerned with the fourth access

arrangement. They run a pen over it, they look at as to whether or not those assumptions regarding growth, for instance, are likely to be correct, as to whether or not Western Power's approach to meeting that forecast growth is likely to be an efficient approach and they make a call with respect to the allowable revenue and, as an outworking of that, what their network tariffs can be. So the ERA does that for Western Power; the government does something pretty similar for Horizon Power.

The way it has operated historically is a focus, I suppose, almost exclusively on investment on the part of the business and, like you were saying, member Redman, the assets that they hold and the value of those assets. Alternatives to the current framework could include benchmarking future performance based on the knowledge that batteries and PV exist and it has the potential to make the operation of the electricity system more efficient or lower cost over time, and enabling the regulated business to, for instance, provide incentives for customers to install a PV or batteries configured in a particular way that would reduce the need for investment and being able to share the benefits of that.

Currently, when a customer installs PV—so a household, for instance—in Western Power's network, you get pretty much 100 per cent of the benefit associated with that system. You are offsetting electricity that you would otherwise need to purchase from Synergy. Regulation requires Synergy to buy any access that you have, whereas a system such as this where there is an incentive provided might enable Horizon Power to keep a certain portion of those benefits in terms of the reduced cost through an increase in its price on what it otherwise would be and, also, those benefits being partially capped by the customer who is also likewise undertaking an investment as well.

The CHAIR: Can I just tease out this issue about a regulatory trial? My understanding is under the regulatory framework at the moment, it is kind of like a call-response. So Western Power could put forward an alternative type in its access arrangement submissions, they could suggest a whole heap of different ways of doing things, and the ERA responds to whatever is put in front of it by Western Power. It is theoretically possible for a regulatory trial to exist within the current regulatory framework if Western Power frames its access arrangement submission accordingly.

Mr BARKER: I cannot answer on behalf of the Economic Regulation Authority as to what their approach to that would be, only to say that Western Power, regardless of whether or not a trial would still be bound by the requirements of its governing legislation, so the things it is allowed to do and the things it is not allowed to do, the things that it is allowed to recover costs on and the things that it cannot and the things that it can roll into its asset base and the things they cannot, so effectively the things they can get a profit on. Where there may be additional flexibility for Horizon Power is the ability to I suppose do BAU, but to the extent that the business was able to bear some of the costs associated with it, run the counter-factual alongside to see how a different system could operate. I will hasten to say that no decision has been made to do that.

The CHAIR: Yes!

Mr BARKER: So, finally in terms of what is being done currently, LandCorp—I spoke about the Peel business park. There is a tender process that just closed last Friday for a proponent to come in, effectively, to be the developer and microgrid operator.

The CHAIR: Did LandCorp run that tender?

Mr BARKER: Correct. There is flexibility within that for the microgrid operator to either be a licensed party or alternatively to seek a licence exemption from the government. In instances where a party is exempted—when I say “exempted” I mean that it have to have a licence from the Economic Regulation Authority and abide by all the reporting requirements and the costs associated with that—they are provided with an exemption, so you do not need a whole licence. That is an order of

Exco, and generally the advice on providing the order would be provided by the Public Utilities Office through the Minister for Energy. There are often conditions attached to licence exemptions; however, I would say that in the main there is very little in the way of reporting frameworks or resourcing for oversight of exemptions.

That may be okay when you can deal with complaints by exception, for instance, residential onselling—the situation we were talking about before with strata-titled properties, apartment buildings—in all those instances they are covered by a licence exemption. Complaints in relation to those arrangements are usually pretty low and usually managed by the department—where is consumer protection now, DMIRS?

The CHAIR: Yes, DMIRS.

Mr BARKER: Yes, within DMIRS. They are sometimes addressed directly to the Minister for Energy; however, a development like Peel business park certainly has potential to be somewhat more complex in terms of the commercial arrangements that are put in place to facilitate, say, the siting of shared renewable energy assets, how the shares of those are managed by peer-to-peer trading or some other system of accountancy, the siting of it on land, access to roof space, access of the green title parties to energy from the grid and how that is facilitated by the microgrid manager. It is an order of magnitude more complex than the majority of the licence exemptions that are currently out there and so would require quite careful consideration if they were wanting to go down and exemption pathway. Alternatively, they could be licensed as a retailer, subject to the same requirements that other retailers are subject to.

The CHAIR: There is a supplier-of-last-resort framework in place now, is there not?

Mr BARKER: I would have to take that on notice.

The CHAIR: It just popped into my head that in these sorts of arrangements how that supplier-of-last-resort framework would work around exemptions and licensing as well would be something that you would have to presumably have a think about.

Mr BARKER: I think it is fair to say that it is assumed that Synergy would be the supplier of last resort. I would have to take the question on notice in terms of the formality of current arrangements. They are different, I know, in electricity and gas. Noting where the market is currently at in terms of competition, I would have to take that question on notice.

The CHAIR: Sure.

Mr BARKER: The Public Utilities Office and the Department of Treasury will be working with LandCorp to understand the detail of the proponents as they present themselves—their preferred pathway forward and the implications of that both from a licensing and regulation standpoint and in terms of customer economic outcomes as well.

White Gum Valley: there has been quite a lot of media around this development. I assume it is relatively well known. So, that is developed by LandCorp with a range of different strata-titled apartments and single dwellings behind single connection points. They are effectively covered by those existing licence exemptions that apply to residential onselling. There would have to be strata companies or corporations involved. Shared PV and battery capacity managed through peer-to-peer trading, so, effectively, you get the share of the battery's output.

If somebody else is using your share because you are not home, you will get paid for that by the peer-to-peer trading system. We are talking about 80 dwellings. It is a good trial from a technical standpoint, and understanding what it actually means for customers in practice, the limitation being

that peer-to-peer trading across the network is somewhat more complex, and we will go into that in a second.

Barriers: it is apparent that there are a few and it depends on the type of configuration that you are after and why you are wanting to have a microgrid. Some of them are already apparent. We spoke a bit about the Electricity Corporations Act 2005 and stipulations regarding the roles of electricity government trading enterprises, so the things they can do and things they cannot do.

Customer rights to network connection: member, you were talking about that in respect of standalone power systems, how that is likely to operate in the future. What if you have a feeder that has now gone, the standalone power system is there and you have got a new customer who wants to connect, do they receive a standalone power system operated by the GTEs and access to the uniform tariff? Alternatively, are they on their own, as you would be today if you installed a standalone power system as an alternative to network connection?

Economic regulation: microgrid options we have spoken about before. The wholesale electricity market is quite an important consideration when it comes to things like peer-to-peer trading. It is very easy to do behind a connection point, so say in an apartment building or retirement village; it is far more complex to do if you want to do it across the network. A lot of that relates to making sure that we know in the wholesale electricity market who is supposed to be paying for the energy. How do you net off the energy consumed via a peer-to-peer trading relationship from the other relationship that you might have with an electricity retailer such as Synergy?

There would need to be quite a lot of work done to the wholesale electricity market to fix that problem, I would say, also, to facilitate things such as the aggregation of small-scale PV and seeking capacity credits in the wholesale electricity market, currently something we would say the market design does not really cater for.

The CHAIR: But there are aggregators of things like DSM—distributed energy resource: the possibility is there to aggregate through the virtual grid model. They are obviously not like for like, but there are other ways that you can skin a cat.

Mr BARKER: Conceptually, absolutely. I think I make the point here that the majority of the barriers are of a regulatory and policy nature, as opposed to a technological nature.

The CHAIR: Exactly.

Mr BARKER: We have the technology. Advanced metering infrastructure has been around for quite a while. However it is configured, it is pretty stable now in terms of people's expectations about what it can do. The control systems are getting smarter and smarter and more and more automated over time. Technology such as blockchain—which is not the only way of doing peer-to-peer trading, I would add as well—also means that those customer relationships can be managed in a far more automated and sophisticated fashion. We do need to understand the commercial implications of the technology, but it is primarily not a technological question.

The CHAIR: I will just ask this, and we can come back to it, but you have said there are policy and regulatory barriers. I just want to you to have a think about it, and we can come back to it, about what other jurisdictions are perhaps in this regulatory policy and that area—what other jurisdictions have been innovating in that area? I will park that, if you like, and I will throw over to Terry.

Mr D.T. REDMAN: That is actually where my question is going. How are we compared to the eastern states where you have got multiple generators and a slightly more complex system where I am assuming you have got a bunch of groups, including some commercial imperatives, pushing the fringes of that and maybe moving that regulatory environment along a bit. How are we faring over here by comparison?

Ms EDDINGTON: The Australian Energy Market Commission undertook a rule change proposal process, which was started by Western Power submitting a rule change proposal, as is the ability of any particular person, and similar, with our wholesale electricity market, a rule change proposal is made and then there is a process of assessing it. The AEMC basically came to a decision that no rule change would be made—no rule would be made—but it raised a whole lot of issues that needed to be investigated, and it referred it to the COAG Energy Council. So that is being worked on in the context —

Mr D.T. REDMAN: Stuck in the too-hard basket.

Ms EDDINGTON: It is definitely being worked on in the context of the NEM through the AEMC and through the COAG Energy Council but because we are not party to the NEM and we have our own regulatory system, we are focusing on what we need to do here because that is our priority.

Mr D.T. REDMAN: Rightly so.

The CHAIR: I think it is right to say that Western Power probably threw the cat amongst the pigeons when it made that rule change request and if you have a look at what they proposed, it was actually really quite innovative in Australia. I think the east coast maybe is not as advanced as us in terms of Western Australia being awesome. I guess my question is, there are other models in other jurisdictions that really are looking into how to break through these barriers. I really do not think the national electricity market is a good thing for us to look at, but I guess I am really interested to think about where else could we look where the thought leadership is being demonstrated and the technology is being utilised.

Mr BARKER: I would have to take that question on notice but I think, particularly in New Zealand, quite a lot of work has been undertaken by the likes of Vector, for instance. When it comes to co-investment in small renewable energy systems and battery storage to improve security and reliability at the fringe of their grid or places that are more remote, and also trials to do with peer-to-peer trading, although I would have to say I am not overly familiar with the New Zealand electricity market and how that operates.

Further to what you were saying about the NEM, I think the response to the Western Power rule change was a recognition that the issues that it raises are pretty complex and do need to be nussed through over time. As to whether or not that is the appropriate process for doing that, I will say —

Mr D.T. REDMAN: That change was to cater for Kalbarri, was it?

The CHAIR: They put a proposal through that really asked the AEMC to have a real look at the way they were remunerated and recognising these technologies, so it was quite a big deal at the time. We can ask, at some point, Western Power to come in and give us a bit more of a comprehensive overview, but quite some time ago I spoke to the CEO of AEMO who mentioned Western Power's submission and the fact that, you know, these were issues that have really come up and, in more time, do need to be addressed. Yes, it was kind of interesting.

Mr BARKER: It really goes to that ownership issue and what you can roll into your regulated asset base and the approach of the regulator in terms of what the regulator needs to be an efficient investment. But it makes sense for them to approach them at that particular time because they had foreseen that they maybe would fall under the national regulator in the future based on plans with the previous government. I think what maybe separates Western Power from others nationally is that it has got an increasingly sophisticated idea of the potential, particularly at the fringe of grid, and Horizon Power as well.

In terms of barriers, dumb-electricity metering, you really do need smart meters that are capable of communicating over the air or through other means with the network operator if you are going to

do this stuff. Having a 60-year-old electromechanical spin meter does not provide the level of sophistication required to optimise investment in these smaller networks and take advantage of the new technologies.

Multiple customer relationships: I note that this was an issue raised by the WA Independent Power Association in their paper last year. There are stipulations in Western Power's third access arrangement, which limit the relationships that you can have with a retailer to one at a single connection point. My understanding is that Western Power has proposed, as part of AA4, to alter that to enable there to be multiple customer relationships, such as those where you have a retailer relationship for your bulk energy from the grid; you have got another retailer relationship for, say, peer-to-peer trading; and you have got another one for control services of your battery behind the connection point.

The CHAIR: I think the light-handed framework proposal that is being debated in the Pilbara as well also accommodates the multiple suppliers at a particular NMI as well and on the Dampier to Bunbury pipeline, it has been business as usual for years. Obviously, there is a different operational context in gas versus electricity, but a bit of work has gone on in WA in electricity in this space as well.

Mr BARKER: Consumer protection: we have spoken a bit about Peel Business Park. Things have the potential to get complex for customers, albeit those are customers of a commercial nature who would be expected to have a bit of nous. But for residential customers, increasingly over time where you have effective microgrids behind a single connection point, people living in apartments or retirement villages in the situation of standalone power systems, to what extent does the consumer protection framework need to be amended to account for all the changes in supply type?

Efficient sizing of network connections: I have noted previously that the approach currently, which is very understandable, is to size network connections in a certain way when there is PV and battery storage behind the connection point. There are all of those barriers, but I would say one of the barriers we currently have is that we do not know what all the barriers are.

In terms of current activity on behalf of the government and PUO, PUO will be putting out an issues paper in relation to standalone power systems relatively shortly with the intention to advise government by the end of this year. There will be public consultation, hopefully at least two rounds, as part of that, so talking to communities about what it means for them and understanding the opportunity there. In the meantime, Western Power and Horizon Power will continue with their existing trials, which, from my understanding, have been quite successful. The purpose of those trials being to understand the economics of standalone power systems, how you size them efficiently so that they do not cost the earth, and also how customers interact with them and the relationship that customers need to have with the network operator in those sorts of environments.

The Peel Business Park project I have spoken about before in terms of our involvement directly around licence exemptions and such will depend on the model that is taken on by the proponent. However, we will be involved on an ongoing basis understanding how that is working rolling out. It is, in a sense, a trial of something new and further scoping as part of business as usual in watching briefs on these issues.

Mr D.T. REDMAN: One of the drivers for this community to have a look at in this microgrid space—we were having discussions about that—was the fact that technology is rolling fast, there is a lot of stuff happening around the world, we are an isolated system here in WA, a bit different from a lot of others. The GTEs have their particular drivers based on their legislative bounds and their regulatory bounds. Within government, is it the PUO that has the highest order brief to look at the

global issue? This is one piece that you are doing an issues paper on; there are a lot of pieces to this. Is it you that is keeping a bit of an eye or a weather eye on all the competing issues here?

Mr BARKER: Yes. I would say that has been consistent with the historical role of the PUO as being the premier agency for providing energy policy advice to the Minister for Energy.

Mr D.T. REDMAN: That independence is fundamental to this stuff because there are so many competing interests here, and self-interest will drive not necessarily an efficient outcome.

Mr BARKER: I think that is where people do look to government to have a view.

Electric vehicles: just finally, is one of the topics that I understand the committee was interested in. It is one of the few areas, apart from natural load growth, that have been identified that are likely to drive growth to a significant extent going forward in terms of organic growth. The question is: when? Historically, Australia has had a pretty low rate of vehicle turnover. I think, on average, the fleet turns over 95 per cent over a 20-year period.

In previous examinations of the economics of taking on smart meters have thought what part of that picture EVs form, I have seen estimates of take-up of five per cent by 2019 that are obviously not going to come to fruition, as exemplified by the fact that there are only 200 EVs currently in WA, as reported, which is pretty low. Having said that, there are a number of parties that are thinking about the potential going forward. RAC's much-publicised electric highway project with 10 regional fast-charging stations located throughout the south west with the idea of communicating to customers that they can actually operate electric vehicles beyond the Perth metropolitan area and have extended range; and Synergy's rollout of 50 charging points—I understand some of those are purchased as well—are now offering an EV tariff. That is for your home having a special tariff for people with electric vehicles that provides a discounted off-peak rate. That is to encourage people to use energy when it is at its cheapest. I suppose that is one of the major —

Mr D.T. REDMAN: So, it is not a 24-hour off-peak rate? They have to use it off peak?

Mr BARKER: That is correct. One of the major concerns with electric vehicles—I mean, it is a positive; you want increased utilisation of the assets that are already there. We have a network. The south west interconnected system is probably the peakiest electricity system in Australia. That means there is the greatest difference between the peak load and the low load. Particularly, we do not have a massive amount of network connected industry and manufacturing that operates overnight, so the load can be quite low. Using that unused network infrastructure is a way of minimising costs.

If people, in the absence of a signal to do otherwise, elect to charge their electric vehicles when they get home from work, let us say, 6.30 at night, it is likely that over time we have the potential to increase the peak and the need for more investment in infrastructure to meet that peak. Pricing is actually a major part of this picture and possibly that should have been on the barrier slide as well.

We have a pretty unsophisticated approach to pricing in Western Australia. We are not alone. Most places have got flat tariffs. There is definitely a customer preference for tariffs that do not change depending on the time of day or how much power they are using during a peak period. However, the problem with the tariffs that we have currently is they just do not provide a price signal that would shift consumption to a time when it uses that unused network and generation capacity. That is something to think about going forward.

Horizon Power are undertaking pricing trials. I understand they have got about 300 to 400 customers taking it up for—I think it is called, "MyPower"—in a couple of locations in the north west. It is not a time-of-use tariff, so it is not a tariff where the rate changes depending on when you are using it; it is a tariff that changes depending on your peak consumption over time. They characterise it as a telco plan, similar to a mobile phone: you can use a certain amount up to a cap

per month. If you use more than that then you pay a bit extra. In this instance, you have got various cap plans for energy consumption with opportunities to move up if you breach that cap and also bonus payments or a rebate, if you will, at the end of the hot season should you keep to your plan and remain beneath a certain amount.

That has been quite a successful trial, to date, albeit, it has really just only commenced, but I suppose it raises the question about where to from here? Because if it is just a trial, why do you do a trial? You do it because potentially you might change something going forward. There are implications to think about and understand around the uniform tariff policy, what the future of that is, what we want to do going forward with pricing to better utilise the assets that we already have and to reduce the need for future investment if we can.

The CHAIR: With electric vehicles, again, are you and the agency leading in the policy space for this, or is it transport? Who is doing the thinking in government at the moment around EV?

Mr BARKER: I would say we have not done a great deal of active thinking.

The CHAIR: You personally?

Mr BARKER: Not me personally—I lie awake thinking about it at night! But the electricity portfolio, it is another source of demand effectively, to the extent that it changes things from a transport perspective that certainly would be within the Department of Transport's purview. We are thinking about it purely from a load perspective and the implications of that for Western Power and Synergy and others in the electricity market and implications for pricing which I have already spoken about. That is where I think the Public Utilities Office would come in. In terms of its impact on transport and transport economics, that would be for the Department of Transport.

Mr D.T. REDMAN: It was put to me by someone that we are all talking about batteries in our walls of our house and therefore that is a scope to have that sort of storage out there in the MicroRidge system, but the minute you plug a car into that, an EV, you have got another battery connected to the system, which in a very sophisticated market arrangement could have them sucking power into your car at a premium. Is that where tech is going? Is that valid, that discussion that was put to us?

Mr BARKER: My understanding of the technology, how it has progressed, interactions with advanced metering infrastructure and the vehicles that are currently out there is that they have the potential to allow for some dispatchability in terms of the charging of the vehicle, but this bidirectional flow is far more complex from a tech perspective. I think the potential is there, obviously via contractual arrangements with customers, to time the charging or have it charge in a particular way by agreement with either the network operator or an electricity retailer, that is something that is being thought about.

In terms of bidirectional flows, it goes to that question of aggregation and how you manage that. For the most part, because of their cost, batteries are always going to be worth way more to you than they are to anybody else in the network. The greatest value that a customer currently derives from having either a PV system or a battery, is the offset. It is the purchases that you avoid making from Synergy, basically, as opposed to what you might sell that energy for in the market.

The CHAIR: Again, I do not know whether you are the right agency to direct this question to, but the upstream and downstream opportunities associated with the development of these technologies—there is obviously a whole heap of mineral resources that can go into the production of a lot of these technologies, there is IP that has been generated purely by the sorts of trials that Horizon Power and Western Power are undertaking, there are manufacturing opportunities—are you the agency that is looking into that? Are you aware that those things have been looked into elsewhere?

Mr BARKER: My view is that that would not be the province of the Public Utilities Office. That is more of a question around economic development and I think that the focus of the Public Utilities Office would be more around ensuring that economic development opportunities have access to cheap affordable, reliable secure supply of energy and that is where the focus of the Public Utilities Office is at. Energy in itself is often not the economic development opportunity, it is a facilitator; it is an enabler.

Going back to the Kalbarri example, you have got an economic development opportunity there by way of tourism, in particular. Energy there is not the driver. That is not where the jobs are. The jobs are not in installing the PV panels or configuring the battery, the jobs are in the additional tourism that having a secure energy supply allows.

The CHAIR: I would go there just to see the battery. Thank you for giving us a real overview of the trials that are out there. There is obviously quite a bit going on. What would you go and look at if you wanted to see what is really exciting and innovative in Western Australia?

Mr BARKER: In terms of me physically visiting?

The CHAIR: Yes.

Mr BARKER: I think Kalbarri would be interesting to see. I think once it is down to the line, and it could be some time, once it is further progressed, the LandCorp project in the Peel business park also would be very, very interesting to see how that operates.

Mr D.T. REDMAN: This sort of New Zealand example, where there is a bit of innovation coming into public policy, their drivers for generation are quite different from ours. We have obviously a different resource here—a lot of hydro and other options. Is that too far removed from some of our circumstances or do you think there are some geographic similarities—isolated et cetera—that would make us able to consider that?

Mr BARKER: Same—same, but different, in a sense. Yes, the topography is very, very different. You are dealing with a lot of mountains, the energy resources themselves are very different, but you are dealing with a country, a big part of which is rural, in nature, in which you have got rural economic activity taking place and similar economic activities. In many instances the customer base is quite spread out and diffuse. The land is environmentally difficult and challenging in terms of the ups and downs and the weather can be bad for the assets as well. Some of those drivers, for wanting to make changes to the regulatory environment and policy environment and adopt that technology, would be the same.

The CHAIR: Maybe you could think about other jurisdictions as well, because I think there is quite a bit going on elsewhere, and it would just be good for us to get an understanding of where the innovation is happening so we can have a bit of a read around and see what is going on.

Mr BARKER: I will take that on notice.

The CHAIR: Thank you, both of you, for coming in today. I will proceed to close today's hearing and thank you for your evidence before the committee. 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 add 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.

Hearing concluded at 11.26 am
