



LEGISLATIVE ASSEMBLY OF THE NORTHERN TERRITORY

12th Assembly

Committee on the Northern Territory's Energy Future

Public Hearing Transcript

8.30 am – 9.15 am, Friday, 28 November 2014

Litchfield Room, Level 3, Parliament House

Members: Mr Gary Higgins, MLA, Chair, Member for Daly
Mr Gerry Wood, MLA, Deputy Chair, Member for Nelson
Mr Nathan Barrett, MLA, Member for Blain
Mr Gerry McCarthy, MLA, Member for Barkly

Apologies: Mr Francis Kurrupuwu, MLA, Member for Arafura

Power and Water Corporation

Witnesses: Mr Ken Clarke: Board Chairman
Mr John Baskerville: Chief Executive Officer
Ms Djuna Pollard: Senior Executive Manager Strategy, Economics and Regulation
Mr Trevor Horman: Manager Sustainable Energy
Mr Jim McKay: Senior Manager Network Development and Planning
Ms Rachel Eckermann: Acting Senior Manager Economics and Regulation
Ms Lucy Moon: Acting Manager Economic Reform

Mr CHAIR: On behalf of the committee, I welcome everyone to this public hearing into electricity pricing options. Specifically, I welcome to the table to give evidence to the committee from the Power and Water Corporation Ken Clarke, board Chairman; John Baskerville, Chief Executive Officer; Djuna Pollard, Senior Executive Manager Strategy, Economics and Regulations; Trevor Horman, Manager Sustainable Energy; Mr Jim McKay, Senior Manager Network Development and Planning; Ms Rachel Eckermann, Acting Senior Manager Economics and Regulation; and Ms Lucy Moon, Acting Manager Economic Reform.

Thank you for coming today before the committee, we appreciate you taking the time to speak to the committee and look forward to hearing from you today. As you know, this is a formal proceeding of the committee and the protection of parliamentary privilege and the obligation not to mislead the committee apply.

This is a public hearing and is being webcast through the Assembly's website. A transcript will be made for use of the committee and may be put on the committee's website.

If at any time during the hearing you are concerned what you will say should not be made public, you can ask the committee to go into a closed session and take your evidence in private. I will ask each witness to state their name for the record and the capacity in which they appear. I will then ask you to make a brief opening statement before proceeding with the committee's questions.

Could you please state your name and the capacity in which you are appearing.

Mr CLARKE: Ken Clarke, Chairman of the Power and Water Corporation.

Mr BASKERVILLE: John Baskerville, Chief Executive Officer, Power and Water Corporation.

Ms POLLARD: Djuna Pollard, Senior Executive Manager Strategy, Economics and Regulation, Power and Water Corporation.

Mr McKAY: Jim McKay, Senior Manager Network Development and Planning, Power and Water Corporation.

Mr CHAIR: If the others talk they need to state their name first. Mr Clarke, would you like to make an opening statement.

Mr CLARKE: I thank you, Mr Chair. The Power and Water Corporation welcomes this opportunity to discuss the issue of electricity pricing. This has become an important issue in our society because there is now so much diversity in how electricity is generated and used, and we need tariff structures that reflect those changes.

The nature of electricity pricing for residential customers has changed very little in 100 years. The product is still sold with a fixed price per unit, with little recognition of the way the underlying costs may have varied depending on such factors as time of day, day of the week, the season and the location.

Prior to 1 July 2014, most parts of the electricity supply chain were provided by the Power and Water Corporation but, as you know, Power and Water is only responsible for electricity network and system control services to all electricity customers, along with the electricity retail services in the Indigenous communities.

The focus of the Power and Water submission is on the services we provide, although many issues apply to retailing and generation. Power and Water considers network tariff structures should, firstly, contain pricing signals that are understood by customers. This is essential for gaining acceptance in the community for any changes and enables customers to change the way they use electricity to minimise the cost to them.

Secondly, tariff structures must be cost-reflective for all types of customers. If this can be done, the prices will be economically efficient and there will not be inequities that are embedded in the current pricing structure.

Having tariffs that are understandable is self-explanatory, albeit still difficult, but cost-reflective needs elaboration. It is important to note that consumption of electricity over time is not the main determinant of the costs. This is because system infrastructure is driven by the need to supply demand at peak times. It is the demand for electricity at times of peak demand in the system as a whole that is the main determinant of costs.

It follows that in an ideal world demand for electricity at peak times should be the main driver in deciding the tariff structure - at least for networks - and to a lesser extent for generation, given fuel costs vary with demand at any time.

We have this type of tariff for large users, though it is still not at full cost reflectivity. However, for the smaller network users - that is, those consuming less than 750 MW hours per annum - we have basic accumulation electricity meters that only record the amount of electricity consumed. These accumulation meters do not measure when the electricity is consumed, nor the peak demand. Therefore, while these customers have received pricing signals based on the signals relating to total consumption, there is no financial incentive for these customers to reduce their electricity consumption at peak times, which is what drives the cost. There are also inequities with this type of pricing.

Unfortunately, while the solution looks simple, the introduction of time-of-use and demand tariffs requires investment in more sophisticated metering technology, called interval meters, and systems and processes that support that. It will take some time before this type of tariff can be rolled out in the broader community.

Nevertheless, the community as a whole needs to be prepared for this change and the committee's work will help in that regard. It is now overdue that we move to cost-reflective pricing so that electricity prices are transparent and reflect the real cost of providing the service. Not only will cost reflectivity provide a better pricing model in economic efficiency and equity, it also puts capacity in the hands of the consumer to make the decision to manage their electricity usage to minimise their costs.

We will be pleased to talk in detail about these issues in this session, thank you, Mr Chair.

Mr CHAIR: Thank you, Mr Clarke. The committee understands that the proposed introduction of the inclining block network tariffs over the 2014 to 2019 period will be the first time the network tariffs structure has been changed since it was first introduced in 2000.

Given the extent to which consumption and demand characteristics have changed in recent years, why has this not occurred before?

Mr CLARKE: That is an eminently reasonable question. Djuna, can you throw any light on this?

Ms POLLARD: There are a couple of reasons why that has not occurred sooner. One of those reasons is around information availability. In any tariff restructuring exercise we need to have information or data available to us about customers' behaviours and so forth to be able to appropriately assess tariff structures and the impacts they are going to have on customers. That is the main reason.

The other reason is under the regulatory model and framework we have in the Northern Territory, we have certain constraints on just how much we can change our tariff structures within a given regulatory period, which is a five-year time frame. For example, the Utilities Commission here would set a certain percentage, which is known as a side constraint, and that applies to each of the individual tariff classes. We have restrictions around how much we can actually change tariffs within any given regulatory period.

The main reason for those constraints is associated with, of course, price shocks - any tariff restructuring should not result in price shocks to customers.

Mr CHAIR: Okay. You talked about modelling. I can remember the banks in the early 1970s did a lot of modelling on their fee structures on bank accounts, and I am sure they still do the same. Has Power and Water done any modelling yet on the impact of these fee structures?

Ms POLLARD: Yes, we have done some modelling. We have been through, as part of our network price determination process, quite a major review of not only our costs around operating and maintenance costs and capital expenditures, but also tariff structures. We have looked around the country as to what other distribution network service providers are doing.

Obviously, there is a clear incentive for customers, and for us, to move away from the declining block tariff structures. Our view is they do not provide the appropriate signals to customers. The way the tariffs are structured at the moment is that, effectively, the more you use the less you pay. That is a perverse outcome, clearly.

Over the current five-year regulatory period, we are looking to move away from the declining block tariffs more into an inclining block, but the steep of the incline has to be balanced around the various regulatory constraints we have in place.

Mr CHAIR: When we talk about inclining rates for consumption, what about the reverse where people are feeding back into the network, say private houses with solar? Have we looked at any of that?

Ms POLLARD: Not so much through the network price determination process. It is on our radar given the experience in other jurisdictions, so we are monitoring that at the moment. We have not done a lot of modelling work around having a separate tariff class specific to customers that do have roof top PV installation, but it is definitely an issue for us. It is on our radar and is something we will be looking at more closely as we move forward.

Mr CLARKE: It is a logical thing to do.

Ms MANISON: With regard to looking at those tariffs at the moment and the fee structures, you see a reverse in the way in which people are charged at the moment with regard - the more they use the less they seem to be paying and so forth. You have your network price determination at the moment and the frameworks you are working within. That is something you are reviewing again - looking at those tariff structures?

Ms POLLARD: Yes, we are looking at moving to more of a locational-based tariff structure. Depending on what type of customer it is and where they are located on the network - either at the high voltage level or the low voltage level - this is more for our commercial customers - looking at moving to a structure that is aligned with that. However, as I said it can be quite a slow process to get there because of the constraints in place to shift towards that.

Ms MANISON: Could you talk the committee through that? Does it cost more, from a network perspective, with networks costs in different locations around the Territory, or is it generally if you are in Alice Springs the cost is much the same as in Darwin?

Mr McKAY: For the cost of running the network there are technical losses, which are much the same depending on the region, but there are additional costs around having the right skills in the right place. Some of the skills are very specialised and they reside in Darwin so we do not have travel and that kind of thing for additional costs of running the network. Technically, the cost is much the same.

Ms MANISON: A question that came to my mind after hearing the opening statement, Mr Clarke, was with the network and the fact you have to meet peak demands - that is a clearly a real challenge and we know we have lots of generation capacity to feed into the network, but you need to be able to meet the peak network demands. What is it looking like at the moment with the power networks across the Territory? How is it placed to meet those peak demands? What is the capacity like, because we know we have plenty of generation capacity? What is the network capacity like at the moment? Is there much wriggle room? Are we at the peak, or at peak demand are we still comfortable to meet that peak demand forecast for the next 10 to 20 years?

Mr CLARKE: That is a good question and I will pass it over to Jim.

Mr McKAY: The network demand at the moment - currently we are fairly well placed to meet our demand. The thing with the network is it is very locational so, for example, most obviously if we have a new development we need to provide a network into that area to meet the needs of that development. Our existing infrastructure, the growth rate I guess, which is the concern when it moves beyond our existing infrastructure, is fairly steady.

At the moment we are looking at a regional growth rate in Darwin of our 2.1%, and probably lower in the long term, and other regions are probably lower than that. Currently our networks are reasonably okay at the high level. For new developments we need to put in new infrastructure. That has a lessening effect as you move up the network. Locally you need to put a lot of infrastructure in to make that new development, and then as you move up through the network you can utilise the existing shared assets as much as you can. At the moment we are reasonably well placed with our capital plan that we currently have to meet our demand for at least the next five years.

Ms MANISON: The next five years - all good in peak demands and what you forecast, but beyond that you are going to have to look at the investment depending on how the population grows and so forth?

Mr McKAY: That is right. Basically, if we complete the works we have planned for the next five years, we will meet our peak demand. Then, beyond that, we go through our regulatory process again to make sure we can continue to meet that demand going beyond five to 10 to 15 years. We have forward plans that look that far forward on projections to see what we think we will need in that space. It is very indicative.

Ms MANISON: Worst case scenario with peak demand right now - if everybody has their air conditioners on in Darwin, Palmerston, Katherine, Tennant Creek and Alice Springs, everything is all going for the day and we are right at the peak, can the network in those locations handle it well at the moment? It is fine to handle those types of loads?

Mr McKAY: Yes. Typically, our peak is this time of year. We are fine this year.

Ms MANISON: Excellent. Back onto the opening statement; I have a few questions with regard to interval meters. Power and Water is looking towards that type of metering in the future? Is that something ...

Mr CLARKE: That is what would be needed.

Ms MANISON: Can you talk us through what interval metering is?

Mr CLARKE: I will pass that over to Mr McKay.

Mr McKAY: The typical meters that we use for most residential are what we call accumulation meters. They, basically, just count kilowatt hours as you go along. At the end of the billing period, you get a lump sum and you do not know anything about that other than they used X amount of kilowatts.

An interval meter breaks it up into smaller chunks, if you like. For us, every 15 minutes it takes a reading so you can see when and how much people are using at each individual period. It provides a much higher level of information for both the network to operate with. Also, ultimately, if you go to smart metering the customer can look at that and it provides them with the information as well to manage their own consumption.

Ms MANISON: So Power and Water is looking to rule out interval meters going forward? What is your current policy with meters and when you replace them?

Mr McKAY: At the moment, we have a pilot program planned for what we call smart meters, which is the ones that interface to the customers. We have 1000 meters as a roll-out pilot. Technically, it is pretty much comfortable in the industry that smart meters provide a lot of benefit. It is rolling them out and getting them out to the customers that is the challenge.

Our interval meters generally have the ability to reload at certain times and certain places on the network. We are rolling those out as our new meters, so we are running down our stocks of existing accumulation meters and we are starting to install those as the new standard, so it is a progressive approach to our metering.

Ms MANISON: Is there any desire with regard to replacement of existing meters? What is the arrangement around that? Once you get through your accumulation meters, you are going to be able to be installing these interval meters as the new standard meter for any housing across the Territory? With existing meters, how are you going to handle that going forward?

Mr McKAY: At the moment, if we go with the pilot of the smart meter and that is a successful trial, that could become the basis for replacement of existing meters. But any replacement we would do would be on a program basis. At the moment, it really is when a meter fails or a new installation has these meters. That is the extent of our existing process. But going forward, if we were to roll it out it would be on a structured process and it would take a number of years to replace.

Mr BARRETT: Once you have this information around assessing at what times people are using what loads, how are you going to integrate a pricing structure into that, and what will that look like?

Mr CLARKE: Djuna.

Ms POLLARD: There are a couple of elements to that. We have talked about ...

Mr BARRETT: There are a lot of elements in that – we live ...

Ms POLLARD: Exactly right. The main thing too is around having the systems and processes to capture the data that is coming back in from those interval and smart meters. We have a body of work on our program, through this current regulatory period, to implement - our meter data management system - to position ourselves for that as well.

Once we have it in place, then that gives us the information we need to work through the tariff structures some more. We look at the costs associated with different locations or points on the network and so forth around operational maintenance, capital expenditure and those sorts of things. Effectively, that gives us a guide as to how we would structure our tariffs. A number of objectives also go into what we are trying to achieve out of pricing as well around having equities between different tariff classes, pricing stability, understandability for customers and having the appropriate signals that encourage them to want to reduce the demand they are having on the network.

Ultimately what we are trying to achieve is deferral in the capital investment associated with meeting the requirements of the peak demand. Quite a few elements go into that, but the data is the key to getting that right. In some cases some of those objectives can be conflicting as well, so we look at experiences in other jurisdictions or with other utilities and so forth. We look at lessons learnt there to then inform us what we might apply in the Territory context.

Mr CLARKE: The data we get does not necessarily mean that is what people will be charged. The data is quite useful for us to manage the network. If an area is getting close to peak demand Jim and his crew would then say, 'Hang on, this is an area close to peak demand, what are our options to solve that?' and mid-demand management strategies can be implemented.

Mr BARRETT: That is where my head was going with this, Ken. I was wondering what is your variable cost to fixed cost input on any kilowatt hour? I imagine a network would not have such a diverse link between a fixed cost/variable cost like generation would.

If you had a series of generators and you could switch them on one at a time to get up to load and then back them down; the amount of fuel inputs and things like that change quite widely. I can imagine smart meters charging on generation could work better because at least there is a variable input to make a price differential on. However, with the network, I look at it like a pipeline and I think it does not matter. The whole issue with peak demand seems to be you need this in place whether people are using it or not.

That price, in order to be cost-reflective, has to break down to some kind of equitable and fair price determination between each individual user, how much they use and where they are on the network. I can see how smart meters would give you lots of fun information, I can see how smart meters could be used to create a variable at the generation end, but I struggle to see, unless you are breaking down to area, how you can create a differential just in the network sector.

In regard to different ways of doing it and using smart meters, will we end up in a situation where network has to charge the same amount anyway so the real difference in the tariffs will be at the generation end anyway? Am I making sense?

Mr CLARKE: It is not an easy thing.

Mr BARRETT: No, particularly your end because you are a very fixed kind of ...

Mr CLARKE: Exactly, and our system is made up of lots of small systems. There are all these subsystems where Jim has to understand what the capacities are for those and makes sure he is able to meet the peak demand for all of them.

In theory, there is a different cost structure for every little subsystem. If you go to a situation where pricing is based on the cost in every subsystem you would have quite a very complicated pricing mix. It is very unlikely that would happen.

What would be done is there would be classes of customers or particular sorts of customers. It does not matter which part of the network they are on, as long as they are similar customers you would expect to be some averaging of the costs in relation to that network. That would be how the price would be worked out for that group of customers. This grouping of customers will be quite an important characteristic in a future pricing strategy.

Mr BARRETT: Could we see a scenario where someone, Nathan Barrett, gets a power bill and there is a sub-bill from Jacana. This would be a bill for the network which is just an average for my type of customer in my area, and then a generation bill which might be subject to some kind of price differential on-peak/not peak?

Mr CLARKE: Would you like to answer that, Djuna?

Ms POLLARD: As the network provider we charge or bill retailers and then it is the retailers such as Jacana that then include that into their pricing and present it on the invoices that go to customers. That has been, and continues to be, a challenge for us as well. What we would like to see going forward is better alignment, particularly if we are doing work around restructuring our tariff structures. More work is required around aligning the network tariff structures with the retail tariffs charged to end use customers.

Unless retailers are understanding what is going into our tariff design and what the drivers are from a networks perspective, those pricing signals can get lost in translation to the customer. We are very keen to continue to work with retailers, and more broadly government, about getting better alignment between the network price-setting

processes and the regulated retail tariff-setting processes in particular, because at the moment we have the pricing order arrangements in place for our small to medium electricity customers.

Mr CHAIR: I go back to the meters. You mentioned interval or smart meters.

Mr CLARKE: Interval or accumulation are the two different sorts of meters.

Mr CHAIR: Okay. When we talk about the smart meters these are the digital ones we are already installing? Are people aware how to use these? Before you answer that, I will say no they are not. I am not. I am not game to touch any of the buttons, I just have to stand there for 10 minutes and it flashes through all these things. Should we be letting people know that if they have one of these, this is how they work, this is what you can monitor, so they have a better understanding before you try to sell some new fee structure? Have you looked at that?

Mr McKAY: Education is paramount and is probably the most fundamental change if we need to change people's behaviours to reduce maximum demand. It is the only way it is going to work. With the meters we have at the moment, there is a slight difference between what we call a smart meter and an interval meter. The interval meter gives us all the data, the smart meter, basically, provides a lot of interface as well as a few other bits and pieces. It is that interface with the customer that is part of the main driver for that.

We have had some experience with that in Alice Springs Solar City, where we have seen changes in customer behaviour through that interaction with their meter. It is something that requires, as you say, the education and training. For most people, particularly in the Darwin region, it will be completely like you say, a little box in the corner that lights flash on. That is part of the process of educating people that this is something you want to learn. Obviously, if we put in pricing signals that help that encouragement of education, there is a benefit for everybody in achieving that.

At this stage, no, but when we roll out that program of 1000 smart meters, that will be accompanied with some education about how that works and how you can benefit from interacting with the meter.

Mr CHAIR: What about the meters that are already there now, like mine?

Mr McKAY: You would like to have some instruction on what it means? Is that ...

Mr CHAIR: Well, it would be handy. There are probably a lot of people like me around. I have spoken to a few and said, 'I have one of these meters, do you know how they work?', and they say, 'No, no'.

Mr CLARKE: Do you know whether it is a smart meter, an interval meter or an accumulation meter?

Mr CHAIR: I have no idea. That is what I mean.

Mr CLARKE: That is what you want to know.

Mr CHAIR: That is what I would like to know. It looks different. I reckon I am being ripped off. I like to see the wheels spinning.

Mr CLARKE: I am sure you are not.

Mr McKAY: Yes, okay.

Mr BASKERVILLE: We would not do that to you, Gary.

Mr McKAY: It is a little different from the wheel spinning, but the education on what your meter does and where it is, is probably something that is worth doing, particularly with a smart metering. People are much more interested in how it works.

Mr CLARKE: But it is an interesting point. A material part of tariff reform is keeping the public informed. We might well put out a campaign which says, 'These currently are the different sort of meters. If you have one of these, this is an old one that is going to be replaced in umpteen years' time or a few years' time. This one is an interval meter, this is what this does. This is the smart meter where we are all going. This is what it will do and this is how you will be able to use it'. That is a really good point actually, that we ought to have a bit of a campaign.

Mr CHAIR: I have only just come across it because we have solar. I have a meter in the box at the house, then I got to the front of the block and there is another meter there. I can assure you that all three do not line up,

because I have one that measures the solar as well. Someone like me who has a place like that, it is handy if you know what they are doing and how much you are using, when and why.

Mr CLARKE: Good point. I reckon we can do that. Sue? The lady at the back does that.

Mr WOOD: I have a smart phone and I cannot use that. I will have no hope with a meter.

In relation to the smart meters, in practice how does it make a difference? We have not had them in the Territory but I know they do down south. People talk about how you can judge the best time to use electricity in your home. At night most people run air conditioners. What difference will a smart meter make in practical terms? Do you say, 'Don't put your toaster on at that time. You will have to wait until 10 am for breakfast.' How does it work in reality? How do these improvement improve the system? How do they make it cheaper?

Mr CLARKE: There are two answers. One is it improves the information we have so we can better manage the network and therefore reduce costs overall, but for the individual it enables them to know when they are consuming higher amounts of power. If we go to what I would determine nirvana in a pricing system, and that is probably a long way off, where the price depends on your peak demand at the time of everyone else's peak demand. If they know they are getting into that mode they may well run some of their air conditioner on air for 10 minutes every hour or something like that. It will give them some information to enable them to reduce their costs. If they do not have the information they will keep it running but they might be being charged 20c an

Mr WOOD: That cannot happen at the moment in the Territory, is that correct?

Mr CLARKE: With the smart meter you mean?

Mr WOOD: Yes. You put a smart meter in a house, and it sounds good, and it gives you information, but in reality right now does it make any difference to when people turn their air conditioner on, their pool pump or whatever?

Mr McKAY: The smart meter is only one component of the whole system. At the moment we have a few of those arrangements in Alice Springs from the solar city, but smart meters provide information and that information can then be used to provide the consumer with an option to reduce their power at the right time. The smart meter has to be accompanied with tariff changes and those things.

Mr WOOD: We do not have that system in place?

Mr CLARKE: No.

Mr WOOD: The bottom line is even though everyone is talking about smart meters, for the consumer it does not make any difference now except it gives you more information?

Mr CLARKE: Not at this time, but we need to move to tariffs that are cost-reflective and smart meters will be a key part of that process.

Mr WOOD: Maybe this is jumping the gun, but if you go down that path and it is 29 degrees minimum temperature in Darwin will it really make any difference? People will still turn air conditioners on then. Will it make a big difference to consumption or load on the network? You will spend a lot of money on these new bits of equipment so it would be nice to know whether there is a real advantage for the customer.

Mr CLARKE: I think there will be because they are getting pricing signals. That is the whole thing about tariffs. In anything you want a tariff that reflects costs, and this will enable them to see how their cost is moving. It will be different for different people for sure. Some people will not care less and will just run the air conditioner all the time, but others may be concerned about it.

Mr BASKERVILLE: Shall we bring Trevor up? Trevor has expertise in this area.

Mr HORMAN: I have just come back from a smart utilities conference in Melbourne where this was the big subject. As you know, in Victoria they have had a mandatory roll-out of smart meters and they have tariffs to reflect them. A smart meter does nothing by itself; you need a price signal running through it to make any difference to behaviour. As we mentioned, solar cities was the trial we ran through for five years. We put pricing signals in with it. We did not know if people would have enough capacity to change their behaviour, particularly in a hot climate, but we found 70% of Alice Springs participants changed their behaviour. It came at a time when technology was changing and you could buy washing machines that could start at midnight and a lot of programmable equipment that made it possible to shift load without changing lifestyle. That was a good trial for us and showed the customer is prepared to change if there is a signal that hits them in their pocket.

Mr WOOD: In Alice Springs, is there a different pricing structure?

Mr HORMAN: There was for the duration of the trial. The trial is now finished, but we got the information out of that trial to show that customers are prepared to change. The change of technology is actually flowing on now with heat pumps and new technology that is programmable.

Mr WOOD: Okay.

Ms MANISON: Did you publish that information, Mr Horman?

Mr HORMAN: Yes, at great effort, it is on the website, yes.

Ms MANISON: Oh, fantastic.

Mr BARRETT: I go back to the fixed cost/variable cross problem we have here. In order to create a price like peak/off-peak with different tariff rates at different times, there needs to be some kind of variable that changes with peak and off-peak. Given the original Power and Water Corporation has now been broken up, what role do networks play in the issues you face around pricing? How are you going to have input into that differential in prices between peak and off-peak?

Ms POLLARD: I guess most of it comes through consultation and making sure we are engaging with relevant stakeholders about this. That is really the key for us. We can do a lot of work modelling, a lot of effort can go into making sure we are delivering under an efficient and prudent basis, but at the end of the day if those tariffs are not getting passed through to the end-use customer, that is a key challenge for us.

Mr CLARKE: I was going to say that we will pass on our costs to retail, but it is retail who bills the customer. What Djuna is saying is if retail has a different configuration, because they could do, they might choose to bill the customers in a different way. But if they do not bill them in a way that matches our cost structure, then that signal will not be passed on.

That is why we need to have quite close consultation with the retailers to make sure that the tariffs they charge are, in fact, cost-reflective not only for us, but also for generation. Otherwise, you will not get the appropriate change in behaviour.

Mr CHAIR: I move us to solar because we have about 10 minutes, and I know that there are some issues around that as well. I would like to find out what the main challenges are for network and system control operations with the solar panels. Has any consideration been given to changing the one-to-one ratio?

Mr CLARKE: I will ask Jim to answer the first part of that question.

Mr McKAY: From our point of view, managing the solar and the network is about the technical impact, injecting power into the network has. As you know, traditionally our systems are designed with a centralised, or a number of, centralised generation units that transmit through a transmission system and is distributed through a distribution system down the roads and into people's houses.

The change we are seeing now is solar injects power at the bottom end of the network, if you like. For us, we have a number of technical challenges. Many of them are around very localised impacts. We are looking at low voltage network. When you inject power it lifts the voltage up and we have statutory requirements to make sure we maintain a voltage within a band. What happens is, the more people are trying to push power onto that the higher it goes, and it gets to the point where we cannot allow it anymore. That is a big driver for us.

There are a number of ways we can deal with that. One of the ways is through policy which is, obviously, very cost-effective to be able to control what is going on with the network. Then, once we get through, hit that limit, we start to look at operational costs and, ultimately, spending money and rebuilding the network in the lower area of the network particularly.

Mr CHAIR: When you look at those one-to-one costs, if you are paying 25c a unit to bring it in, you rebate 25c to feed it back out. If it is within your usage, that is fine. Where you have excess, the thing I am after is, are we going to continue to rebate or have we looked at altering the rebate you get or the amount you pay for your excess usage? That is the first question.

The second one then is: what about seasonal impacts on that? There must be an impact, not just with solar but with a lot of things on the cost of electricity, depending on the season. One thing to think of there is the solar, I

presume - and Trevor will tell me if I am wrong - would be producing less power during the Wet Season up here than it does during the Dry Season because of cloudy days. There are two questions there.

Mr CLARKE: I will address the one for one. Obviously we are the only jurisdiction that now has one for one but we have not made the mistake of other jurisdictions like New South Wales. It had a feed-in tariff of 60c. The policy problem was they let it run for so long that it became a huge budget burden.

Queensland had a similar situation; they made their feed-in tariff 44c, but they also let it run until 2028. Again, that was a huge budget problem. It has achieved all the objectives of making solar almost business as usual, which is really what we all want. However, there are costs associated with it and in the Northern Territory ours is the one for one. It is around whatever the charge is at the moment – 27c or of that order.

It is something the government will have to look at at some stage. We are not in the same situation as the other jurisdictions because the take up of solar has been quite a lot less.

Mr CHAIR: Would the smart meters be able to monitor when you are feeding back in and be able to work out what you have actually produced? If you produce 100 units through solar and you use 80 units you would be paying for the 20.

Mr CLARKE: That is known as the net system.

Mr CHAIR: Yes, so are these smart meters capable of working that out? Do we have to go to a fixed rate? In other words, do you have a variable rate for solar depending on whether it is under your annual usage or over?

Mr CLARKE: The smart meter will certainly be able to do that.

Mr CHAIR: Have we looked at pricing based on seasonal because there must be a varying cost between the seasons of the year in producing electricity? One of the examples I used was solar will produce more, presumably, during the Dry Season in the Top End than it does in the Wet Season.

Power and Water, if it took that into account, would have to account for that in its maximum ...

Mr HORMAN: I think you have probably all seen this graph before. This is a typical profile for solar production. The good news is this is July. If you look at February, it is very intermittent.

The other work we have just had done more aligned to your question is the impact on seasonal. This is in December. It is very hard to see but this is a week and the blue line is the daily load on the system. If you get 10% solar contribution it reduces that day time peak load. It does not do anything about the peak at dinner time. Once you get past 10% you have no impact. In the Wet Season it is intermittency that really plays up with the power system.

Mr McCARTHY: I am interested in Power and Water Corporation's engagement with the government's policy about developing northern Australia. We are very aware of the macro element of gas pipelines. Are electricity pricing options being discussed in the government's policy for developing the north?

Mr CLARKE: Not pricing other than in very broad terms - safe, reliable, at least cost is our mantra. It is more to do with capacity - to make sure we have the capacity. It has not been explicit but Jim and crew have been briefing the government to convince the government they have the understandings about the requirements of the system.

Jim discussed it a bit this morning, saying for five years we know that - answering your question, Ms Manison about - that we have capacity to meet peak demand for the next five years. They have quite sophisticated planning processes.

As far as I am aware, that is the extent of the processes we have. They want to be certain we are providing safe reliable electricity at least cost.

Mr McCARTHY: In technology and innovation, are we looking at other jurisdictions? Are there jurisdictional leaders like north Queensland, for instance?

Mr HORMAN: We have a close liaison with Energex and Horizon Power from northern Western Australia. Even last week we had consultations with them in Melbourne across the table. We are learning from their technologies. One interesting example was the high feed-in tariffs that Mr Clarke mentioned. It is hurting them so badly that they have innovative methods now to buy it out, which will cost them a lot of money. In technology, load

management, demand management to deal with these peak load drivers, the area the most attention is being given to, if you go to Harvey Norman now you will see air conditioners on the wall that not only have the five-star energy rating, they have a demand response rating as well. We are working with our colleagues in these other utilities to handle that.

Perhaps, member for Blain, I will mention our energy supply association has estimated that for every kilowatt of air conditioning that is added to the network, \$2500 investment cost in the network is required. So that is the driver for us to try to deal with that peak demand day.

Mr BARRETT: That is where I am concerned about you guys as a network. You operational expenditure (OPEX), capital expenditure (CAPEX) and R&M bill does not change because the peak load may shift here and there a little around the edges with this new information. When I sit and look at it, particularly at solar, putting solar power into the network eliminates people paying for the network they are putting power into. I look at this and I cannot escape when I have my economic brain on, to say the network needs to price separately to retail and generation. Given that cost reflectivity is what we are trying to achieve anyway so it is not a drain on everybody and is equitable, if we were to do that people would get an annual bill saying, 'This is your network bill'.

Feed in and out and whatever can be worked out in the generation space - you pay for what you use or generation pays you back for what you feed in. But the network does not change. Is there scope to be able to break down, become efficient, use your smart meters to be really good at what you guys do, then bill people and say, 'This is your network bill'?

Mr CLARKE: Yes, at the moment the policy is not that. I guess it will require a change of policy.

Mr BARRETT: So, then, are we moving towards a situation where you guys are going to be in trouble with cost reflectivity if we start doing all these other things which means your job becomes harder and harder to cost-reflectively price networks?

Mr CLARKE: It is only a real problem, as Djuna said, if the retailers do not reflect our costs in their prices. If they change the way they present their prices, then it will not reflect the cost structure. We will get our revenue, do not get me wrong. They will have to pay us our revenue so we will cover our costs. But we also want behaviour change. We want our costs to be reflected in the bills.

Mr McCARTHY: Do you see a good lever for developing the north would be a big concentration on electricity pricing options?

Mr CLARKE: That is definitely a part of what should happen, yes.

Mr CHAIR: Okay, before we finish, is there anything else you guys and ladies would like to say that you have not been able to say?

Mr CLARKE: Mr Chair, just one thing on Trevor's comment with the air conditioning - this will be interesting for you, Mr Wood. The technology with smart meters and air conditioners the way they are made now, the distributor has the capacity - I presume obviously with the householder's agreement - that in a suburb, if they get to the peak demand, they can flick a switch or press a button and all air conditioners in that area will run on fan for 10 minutes. That might bring the peak down sufficiently so you did not have to spend umpteen million dollars to upgrade the system. I just wanted to mention that as being one of the advantages of the new technology.

Mr WOOD: I run on fan all night.

Mr CHAIR: Last quick questions, if we could get an answer on this very briefly. When is the 1000 meter trial to be started? How long will it go for? Will the results of that then feed into any new pricing structure? What is the time frame for all of that?

Mr CLARKE: Who knows the answer to that?

Mr CHAIR: That is pretty good. Maybe you could take that one on notice and get that back to us, if you could.

Mr CLARKE: Okay, we will submit it back to you.

Mr CHAIR: Thanks for that.

Mr CLARKE: Thank you very much.