

## Forward Thinking – *Fairer pricing for power* – Sydney 25 Sept 2014

Australians are paying too much for power. Since 2006 the average household power bill has risen 85 per cent: from \$890 to \$1660 a year. The prices we pay are also unfair: some people are paying too much, others too little. Electricity networks transport power from generators to our homes and businesses. Like freeways, they are built at a size to keep electricity moving at times of maximum demand – peak hour, in other words. Yet, the price we pay to use networks is the same whatever the time of day or season. It provides little incentive for us to use the network efficiently or for network companies to invest efficiently, so they have to build to meet peak demand and avoid power blackouts. The result is that we all pay more than we should. Even worse, consumers who use more electricity at peak times and less at other times pay less than they should. Other consumers subsidise them by more than \$100 a year.

In this Forward Thinking event, Tony Wood, the Energy Program Director from Grattan Institute, and Jennifer Hewett, columnist for the Australian Financial Review, discussed the recently released Grattan report that proposes specific solutions to address this problem.

**Speakers:** Tony Wood, Energy Program Director, Grattan Institute  
Jennifer Hewett, AFR

TONY WOOD: So this evening what we're going to do is discuss a report that we put out a month or two ago called *Fair Pricing for Power* and we will discuss the guts of this, but it fundamentally comes at the issue of to what extent do the current network tariffs cause some fundamental problems and how might we get out of that particular problem from a policy perspective?

Now, one way we find is very effective to explore these issues is to have someone who doesn't work inside the energy industry but has a particular perspective for a number of reasons, and we're very fortunate that Jennifer Hewett is joining me this evening. If any of you have read Jennifer's column over the last year or so you would be very much aware of her ongoing relationship with her energy retailer. I won't necessarily get Jennifer to explain right now what that story was, but it's quite a saga and so therefore, from a media perspective and someone who has been close to these issues, Jennifer's almost perfect from that perspective because she's seen first-hand the sort of issues that arise when you start having debates with your energy provider about issues to do with the way you're being charged for energy.

So, the idea is that we will explore some of the issues in this report, we may touch upon a couple of issues that are pretty current at the moment that aren't the fundamental subject of this report, and there are a couple of those; I guess some of the stuff that came out in the Energy Green Paper a couple of days ago and more recently the Renewable Energy Target Review are issues we might also touch upon because we know from the questions that were submitted before the event that a number of people are interested in those questions as well. So the idea is we'll have this conversation and Jennifer's got a list of the questions that were submitted electronically and we may delve into that, but equally we're keen to have a conversation with this group because the whole point of this is not to

give a speech, but to really have a conversation and open that up for a broader conversation about where this is going to go.

So, that's enough for me to get started and Jennifer, I guess I'd be interested to start the conversation about what were the things you found either interesting or puzzling or challenging about this report?

JENNIFER HEWETT: Now, I thought I was going to be the one asking the questions! As Tony mentioned, one of the things that got me going on this was my own power bill and I think that reflects just a general ignorance in the community about how power works, why charges are. In fact, I've written a small column this afternoon for tomorrow's paper about Smart Meters and the editor said, "Oh what, Smart Meters, dumb consumer?" I went, "Exactly". And I do think that that is an issue and so it's very useful I think for what Tony does to try and explain all of this type of stuff in English.

But one of the things that I thought is it sounds great this idea of time of use pricing and all sorts of things, but I don't know how you sell that to the public. And one of the issues obviously in that type of pricing is that you're going to get charged more if you use power at peaks times of the day. Now, that is a reasonable proposition in many ways. One, why is that necessary and, two, how do you explain that to people who when they get home naturally want to put on the air conditioner or the TV or whatever, the computer, and say, "Well that's fair, you should be charged more"?

TONY WOOD: I guess one way to start that is the day after we put this report out the headline in the article in the Herald Sun in Melbourne was "400% increase in electricity bills proposed". Now, to unwind from that becomes challenging because the point you need to be making to people is what is being proposed is that you'll be given a discount on your electricity for 355 days of the year and for ten days of the year, between the hours of two and six, you might be charged quite a bit more for your electricity. So what you're trying to do is send a much clearer pricing signal. So I think the headlines, how that can pick up the sort of issues that you're talking about.

So I guess you need to therefore come back to why would this be important and when we looked at this question of the way networks are priced we came to two conclusions. One is that the way it's priced today is simply not fair. There are people in the community today who are subsidising others for no good reason basically. Now, it used to be that most of us used to use electricity more or less the same way. Some used more than others, but the way we used it, we had the same sorts of appliances generally, our pattern of consumption largely was the same. That's all changed. Secondly, we've also just come through a period where we've almost certainly had over-expenditure in networks because demand has been falling and no-one saw it coming. Now, the generators, they're listed companies, they have shareholders, they are doing it pretty tough at the moment because they didn't see it coming either, but they are working in a competitive market and they have to wear that and they've got to think about how they adjust to it. But the network businesses don't have to do that.

So what's been happening is that the network businesses across Australia private or publically owned have been asked to build to meet peak demand, that is whatever's the greatest point of demand, whatever the sharpest half-hour across the network, they have to make sure that's met; under no circumstances, any other excuses, we don't want the lights going out, that's the story. So what's been happening is that that's what they've been doing. It's like saying we're going to have the Grand Final on the 20 whatever it is of September. The people who own the MCG have to build it to meet whatever crowd turns up and, by the way, you can only charge them \$10 a seat, right? That's how big you've got to make it. That's what we've done to this network. We've built a network which is far

bigger than we probably use when we need, and so we only get near even 5% of using all that network for between four and 20 hours per year. This is an incredibly under-utilised asset that the network businesses have built on our behalf.

So as a result, we've been seeing very bad pricing signals. We've over-built this thing and the question is how do we get it back? And one way is to give people better pricing signals so that if they are using electricity at those peak times they're given an incentive to think about using electricity differently, maybe using less electricity, maybe doing other things.

JENNIFER HEWETT: There's one problem with that I think – well, a few. One is that in fact a lot of that investment has already been made. Now you may argue that it was excessive for all sorts of reasons, but the fact it is has been made so in fact peoples' power bills will not be going up. So I think it now might seem a little unfair to people to say, "Well, not only did your power bills go up extraordinarily to pay for this investment which we now say actually wasn't probably necessary, but now we're actually going to charge you in addition as well for when you want to use it at peak times".

TONY WOOD: The first thing I guess is to make it very clear that none of what we're proposing will affect the income of the network businesses. This isn't about giving them any more money. This is about saying that those people who are currently subsidising others – so I'll give you a simple example. If you put in place a typical 5kW air conditioner, for example, and you turn that on when you come home, the cost the network has to invest to meet that air conditioner is about \$1,500. That's about how much they have to spend on average. Because you only use that air conditioner, if you're someone who does what I just described, 100 hours a year, something like that, maybe less, maybe a bit more, for the benefit of getting that air conditioner you pay about \$50 a year. Guess who pays the rest of the \$1,500? Everybody else.

So even though you've got your example I think Jennifer of somebody who comes home, both working parents, kids, want to cook their meal, want to turn the air conditioner on, they are being subsidised by the people who don't have and haven't invested in an air conditioner. And our argument is that is simply not fair and it needs to be fixed and the only benefit we've got in having over-built this network is that maybe we've got a bit of time to fix it, because this isn't going to be fixed easily overnight for some of the reasons you mentioned.

JENNIFER HEWETT: Well yes, but say if you've got 6million people have got air conditioners now, that's a lot of people. I mean, maybe everybody else should just get air conditioners, that would make more sense wouldn't it?

TONY WOOD: I think one answer to that question is that not everybody uses air conditioners the same way. For example, many people on low incomes, if they've got air conditioning their load is flatter; they don't put a lot of load on the network at peak times. It's the people who do who are getting effectively a free ride on the system today and, even though we're not going to avoid the costs we're currently incurring, what we should be doing is basically saying some people are currently getting an unfair subsidy and they should no longer be getting that. And what you would find is that gradually people would start to change their behaviour and over time not only would you not have to build more - because over time we will have to expand the network in certain parts of the system even though we've overspent on average – but, secondly, as that system starts to age there'll be parts of it that we won't replace if we actually act now to change the way we use electricity at peak time.

JENNIFER HEWETT: But people have already responded to the higher cost of power in many ways and they're getting more efficient appliances, they're not wasting as much power, they're remembering to turn off the lights more or they're changing their lights. So what's the problem with that? Peoples' behaviour is already adjusting.

TONY WOOD: I think what I get from that is that price works, that people do respond to prices, as a result of higher electricity prices and, of course, because other appliances are now available, such as LCD televisions which don't use very much electricity relative to plasma televisions; you could almost heat your house with a plasma television I reckon. LED lighting for example is now affordable, people have chosen those things. So what's happening is that consumption's falling and people are getting the benefit of that, and everyone should get the benefit of that and it's a damned good idea, but you've also got things that are not evenly distributed. So the obvious example I mentioned is air conditioning. The other one is there's about 6million air conditioners, there's about a million or so PV systems in Australia.

Now, again, there are good reasons why people might want to put solar PV on their roof and I wouldn't argue with that, but in my view they should be paying for that. So what happens is if you've got a PV system on your roof and you're at work during the day the PV system is merrily sending electricity to the grid most likely, unless you've got batteries, which is another issue we might want to come back to Jennifer. But what happens is then you come home in the evening, six/seven o'clock at night, the sun's going down, that's when you want to really want to turn on your air conditioner but your PV system actually isn't producing very much. And so what's happening is you're still putting exactly the same amount of load on the network at the peak time but, as a result of wholling out the amount of electricity you're consuming during the day, you're not actually paying for the cost you're putting on that network at peak time, so you're avoiding that.

And so people who have in good faith have put in PV systems are getting a very bad pricing signal and they're also getting a free ride. That's not to say people aren't doing the right thing because they haven't been told this is a problem, so communicating what the problem is, is going to be the biggest challenge in changing the way we price these networks.

JENNIFER HEWETT: So are you saying that in a sense they're free riders on the current system? I can see the political problem with that and people will say, "Well, that's ridiculous. We were encouraged to put in PV by all sorts of things and all of a sudden you're telling us rather than reducing our bills, our bills are going to start going back up again"?

TONY WOOD: I think what happens - and to test this out I went to the Home Shows, not because I wanted to buy any I just wanted to find out what people were being told. And I found that there were providers of PV systems who were getting people to understand that they were going to save an awful lot of money as a result of putting PV in. Now yes, you will save some money, but if you think about it if you're paying \$250/MWh (megawatt hour), 25c/kWh (kilowatt hour) for your electricity and you put in a PV system, at the moment the way this is priced you avoid that entire \$250/MWh for every megawatt hour of electricity you produce. The problem is that the network hasn't gone away; the cost of reading your meters, sending you a bill, all that hasn't gone away. So the actual real cost you've avoided is only the cost of generating the electricity, which maybe of the \$250 is only about \$40 or \$50. So the rest of it is going to be paid by somebody.

So, again, unfortunately people have not been given complete information about where this could go and so if you rapidly try to do what we're talking about the people who in good faith put in PV systems are going to be mightily turned off by the whole process because they're going to say, "Well, no-one told us that". And so I think we've got to therefore start to take people on a journey to understand this because remember, other parts of our lives we are used to paying for things at peak times. If you've got to go this weekend to Melbourne you're going to pay a lot to go on an airline, you're going to be fighting with a whole lot of people wearing red colours, right? But we're used to that. We're used to the fact that if you've got to go and take a holiday at Noosa or the Gold Coast or wherever you're going to pay more at peak times, but we don't think about energy the same way.

JENNIFER HEWETT: I suppose not, but one of the things you could say about energy is that's one of those essential things and that's why the rising cost of power became such a huge issue, because in terms of cost of living it's not discretionary.

TONY WOOD: And I think that is one of the things we're getting at is that one of the major drivers, in fact *the* major driver of the rising cost of electricity over the last four or five years has been the network costs. And part of the reason is because in the same way that consumers have been investing in PV, network businesses have been driven - and one would argue they were partly holding the steering wheel at the time because they were influencing maybe the regulator to give them the right return and so forth and build this stuff - but they were merrily building a lot of stuff to meet this what was supposed to be increased demand and as a result prices went up. And so what we're saying is if we start to get this right now, as the system gets to the next point of development we may be in a better position to avoid, again, a period of significant over-expenditure.

JENNIFER HEWETT: Well, maybe, but I think you can understand that people are a little sceptical about what all the experts say. I mean, the experts have been remarkably wrong about how things would develop and, for example, how demand would develop or the popularity of PV or whatever and what was going to happen. So, you might say, "Well, that seems a good idea, but why don't we just wait and see if technology, in a sense, takes care of this? If perhaps the cost of batteries comes down?" Or, for example, you might be able to really work on that system where rather than people having to watch their power at five o'clock in the afternoon when it's absolutely not convenient for them, that it could be remotely controlled so that their air conditioning could be switched off remotely for 15 minutes or so; they would not notice the difference but it would actually reduce the load on the whole system.

TONY WOOD: I think the bit I would strongly agree with what you're talking about is in relation to giving the customer, giving the consumer more control. We never think about it much. I mean, yes, someone told me the other day that on average we spend about eight minutes a year thinking about our electricity bill. Eight minutes a year and we get four a year, so this is not for most of us a high ticket item in terms of where we spend our mental bandwidth. And, again, many people, even though they know that they're seeing offers from electricity businesses all the time that they could change and save money, many people don't because for many people, fortunately, in our community it's not a big deal.

JENNIFER HEWETT: It's not that it's not a big deal, it's so complicated they just don't understand it and so the idea of giving them more control I think has a flaw which is they're actually not quite sure and they don't trust quite what they're getting into.



TONY WOOD: I think if the control meant that I'm sitting at work or whatever I'm doing and I get a text message and that's telling me that I could now arrange to turn on my dishwasher, washing machine, whatever it is because the price right now is very low, am I going to want to do that? No. I mean, there are plenty of nerds in the industry who would, but I'm not sure most people would. However, if you went to a different deal and said, "Look, we will give you a saving of \$400 or \$500 a year and in return what we'd like to do is..." what you were just talking about before.

Now, you can put a box in your house these days, very expensive right now but they'll come down in price, which will do this for you. It would basically do exactly what I just said but you wouldn't have to worry about it. So it itself would say, "Right, today, summer day, really hot, the forecast is we're going to have high electricity prices, I'm going to make sure that in this house I minimise the amount of electricity that's used between two o'clock and six o'clock in the evening" and that's done automatically. And so many people in this room may appreciate that you can turn off your air conditioner or your refrigerator for 15 minutes and no-one's ever going to notice, you're not going to notice what happened. And if you did that for every house in every street in every suburb and then cycled through you'd actually have a significant impact on the peak demand. And the evidence is where it's been done, trials in Australia and real life in other parts of the world, the actual peak demand, even on those hot days, can be reduced by 20% to 35%. That's an enormous difference when we're talking about the amount of money that's been spent on these networks.

JENNIFER HEWETT: Well, wouldn't that make more sense to actually focus on something like that, rather than create the political firestorm which I think you would get with your approach, particularly if you went to that idea of critical peak pricing where prices would really sharply shoot up?

TONY WOOD: I remember vividly when this whole concept of what they call direct load control was being discussed in South Australia and I think Mike Rand was the Premier, and it may not surprise you to think that "Big Brother" became the headline in the paper the next day, that how could we possibly even contemplate the idea that these energy companies were going to come into our house and control the way our electricity was being consumed? So each of these things I think can be blown up in ways that can sound quite scary. That's why I think the issue is not so much about the technology or the policy; the really important issue about how this works is going to be how it's communicated and we've had a very bad experience in Victoria of trying to roll out Smart Meters. No-one wants to repeat that, it's a great example of how not to do this.

So I think what has to happen is, because, interestingly, most parts of the industry recognise and even in the Energy Green Paper that was published this week by the Federal Government, this issue of tariff reform is seen to be a big deal. It's one of the things we've never fixed after the big changes of the late 1990s and now we're faced with the problems you're talking about. So thinking about how we're going to do this, communicating it is important because if we don't even with that stuff you're talking about we're not going to get on top of the problem we've got now and we could make it worse in the future.

JENNIFER HEWETT: So why did Victoria do it so badly? In terms of the lessons, because everyone's now talking about this idea, "Great idea," and they remember Victoria and think, "Oh, well, we don't want to do that". Now, what did they do so badly and you say, "Well, you've got to communicate more", but surely there's something more than just communication?

TONY WOOD: In my view, and I wasn't in the government by any means, I think there were people who had a fundamental belief. Now, fundamental beliefs are all very well if you're religious; fundamental beliefs when you're working in an industry aren't very clever in my view. They had a fundamental belief that Smart Meters were going to basically not only solve every problem in electricity, they'd probably cure all known disease as well as far as I can work out. Anyway, what they did was they said, "On a mandatory basis everyone is going to have one of these. We're going to roll it out and we're going to put it to everybody and you're going to pay for it. The network companies will do this". It was done through the networks. Not the ones who talk to the customer, the network businesses. And I can vividly remember, I was working for one of the retail business at the time and my retailer sent me an electricity bill and said, "You are now paying for a Smart Meter". I walked out, had a look at the meter, didn't look very smart to me, in fact it looked like the same damned meter that was there two months ago, and it was.

So there's an example of how not to do something: you say you're going to give people this benefit and then you completely stuff it up in the way it was done, and they made it mandatory. I mean, Victoria had people literally basically barricading their house against people coming in and changing their meters over. That's not a clever way to do it and therefore you'll get resistance. So I think there's a great example. And as a consequence, in Australia states like New South Wales and Queensland are very apprehensive about introducing Smart Meters, although about a third of consumers in New South Wales already have interval meters which have some of the smarts we're talking about. In the UK they are continuing to roll out Smart Meters on a mandatory basis and they've estimated savings in the orders of billions of pounds a year if they do it. Now, I'm not suggesting that we necessarily should do what the UK does, but we can learn from our mistakes.

JENNIFER HEWETT: Right. And you said it wasn't a good idea for people in government necessarily to have fundamental beliefs – I can't remember the exact wording – but you'd have to say that a fundamental belief, for example, in renewable energy is there at the moment. Do you think it's inevitable that we will get a lot more renewable energy and what do you think of the government's handling of the Renewable Energy Target thus far, or non-handling of it?

TONY WOOD: I've got to get my logic right here, because this is not meant to be a rant against renewable energy and I need to put that in perspective. But a bit like what we've been talking about just now, if you put in place a subsidy and then you try and encourage the take-up of technologies and you disconnect that policy from the market in which these technologies are going to be deployed, you're setting yourself up for a problem. So what happened with the Renewable Energy Target, and I suspect people in the room may be aware of some of this, is that back when it started it seemed like a good idea, we're going to have 20% of our electricity from renewable energy. Well, that's not very certain is it? What might that be? Well, we'll calculate it. There's a forecast, 41,000GwH (gigawatt hours) of electricity, that's what 20% will be but that gives everybody certainty.

Now, since then we've had anything but certainty because every two years we've had a review and the whole thing gets changed periodically and everyone goes crazy, not surprisingly. But the problem was that forecast turned out to be very badly wrong and, as we've been discussing, demand has been falling. And so now we've got a situation in which if we stuck to that target the current forecast suggests it would be 25/26/27%. Now, if you're a supporter of renewable energy that might not be a bad idea, but it's having some serious consequences right through the industry which haven't been thought through properly. And so the idea of having this Renewable Energy Target which was based upon a forecast was a really bad idea, in the same way that the previous Labor government when

they introduced their carbon price said, "Let's make it \$23 a tonne" because that was what the forecast was of what the price would be in Europe by the time we got to 2015/16. Guess what? The actual price is less than \$10.

So forecasts are really useful I suppose. Someone once said that all forecasts are wrong and some of them are useful and, of course, the point is that you'll never get it precisely right as soon as you do a forecast or a model or whatever it is, the results of economic modelling. So what you want to do is understand what the possible scenarios might be, but then tying your forecast onto an assumption or forecast is really nasty because it will be wrong and the only question will be how wrong could it be? And in this case the answer is a lot and so as a result what's happened is you've got people who are screaming very loudly that one of the consequences of the current Renewable Energy Target has been to make the oversupply in the market worse than it otherwise would have been. Companies that were supportive of this target, who thought that the pie is getting bigger, having a part of that growing pie and sharing some of that growing pie wouldn't be a bad idea. What's actually happened is the pie's getting smaller and no-one like sharing a pie that's getting smaller with other people, and that's where I think a lot of the tension that's been emerging around the Renewable Energy Target has emerged.

And, of course, the other point about the Renewable Energy Target because initially it was a long way off, the cliff face of the 20% or the 41,000GWh in 2020 was a long way off. Like all cliff faces, as we get closer we get really worried about that and now we're getting close and people are starting to panic about, "Oh my God, what are we going to do? The prices are going to be too high. We'll never be able to build all the wind farms" and all that stuff. So I think it was a very poorly designed policy and that's not to say that we shouldn't find ways of supporting low-emission technologies, but this was not a very good way to do it.

JENNIFER HEWETT: So given where we are now, what should the government do?

TONY WOOD: About the Renewable Energy Target?

JENNIFER HEWETT: Yes.

TONY WOOD: Well, if you take the view that the science of climate change is sufficiently compelling that we should be doing something about this - I'm keeping away from the word "belief", I believe in climate science, I accept what most scientists seem to have concluded - then what we should be doing is getting that right first. Because if you think renewable energy is part of the response to climate change then the first thing you should do is get your climate change policy right. We have got this very, very frustrating tail wagging a very, very large dog at the moment and the dog isn't even being paid attention to; everyone's worried about the tail. We're arguing vigorously about the Renewable Energy Target and yet that's only the small part of the issue. Yes, it's important, renewable energy should be part of the solution.

So I would say if we have to do something about the Renewable Energy Target, which I think we do, you do need to find a way of protecting companies who've invested in renewable energy in good faith because otherwise you're going to raise real problems of what's called sovereign risk and that wouldn't be a good idea. So having put in place a policy which I don't think was particularly clever, that's what we should definitely do, put that to one side and now focus on what we have to do and we only have to look at what's going on in New York at the moment to think about how is all this



wonderful rhetoric that's coming out of New York going to be translated into real policy on the ground by the countries who are there represented by their senior people, let alone Australia?

So I think the Renewable Energy Target has become a very, very disturbing distraction from the whole process.

JENNIFER HEWETT: Okay. Now, I could of course go on and chat, but I'm aware of the fact that some people might want to ask questions and I've got some questions here as well. Is anybody interested in asking a question?

AUDIENCE: I'm from Victoria and I found it interesting that you said the Smart Meter rollout was a disaster. If it's so bad, why is electricity in Victoria about 20% cheaper than New South Wales? It's not actually a disaster in that regard.

TONY WOOD: No. Well, interestingly, one of the consequences of the Smart Meter rollout was that when the current government was elected they were so concerned about it they basically said, "We'll continue rolling them out, but we won't know when to use them". Now there's a dumb idea, right? We've spent all the money and we're not going to get any of the benefit, that's why I think it was a disaster. The other side of your question however is we've got the situation where electricity in Victoria is arguably cheaper for a range of reasons and one of them is a very simple one, that is ownership. I was always of a view that if these industries which are regulated monopolies were well-regulated it shouldn't matter who owns them. It shouldn't matter whether they're a regulated government-owned monopoly or a regulated privately-owned monopoly.

It turns out it does matter because when you look at the numbers you find exactly what you just mentioned. In Queensland and New South Wales where the governments own the businesses, for all sorts of anecdotal reasons, the businesses that are owned by governments spend more money on building the asset and maintaining the asset than the privately-owned businesses in Victoria and South Australia do. Therefore, the answer should be to privatise, which is what I think the Queensland and New South Wales governments are currently grappling with. I'm not sure there was a particular connection to Smart Meters in the way this was worked, although there are some savings because Smart Meters don't have to be manually read but, again, that's necessary to pay for the cost of the Smart Meters themselves.

AUDIENCE: Which goes back to your earlier point about strategy because clearly, if the government had a strategy of trying to lower the energy price that a consumer pays, there are two parts to it. One is the cost of electricity.

I work in the electricity industry, in fact, I've a company that specialises in reducing network costs down in Victoria and we're just opening up a business here in Sydney. There are two parts: there's the cost of electricity and there's the cost of network charges. The cost of electricity is going down today. We go out to market every day, buy it wholesale and it's going down and it's going to continue to go down. But your cost is going to go up because network costs are going to go up and whether you put solar on the roof or look at a lot of other alternatives, they don't do a thing about network costs, they really don't. They do a little bit on the edge, but by and large they don't.

And so when you get that information across to a consumer, and so with our customers we deal with the small/medium business market, you show them that. I actually breakdown their costs, so whether

it's a peak or an off-peak or a standard rate, you actually say, "Well, here's your electricity". Sometimes you can buy that electricity for 15c, 12c, I mean, it's ridiculous and for the big companies, Woolworths, things like that and that represents 75% of the market, they're only paying single cent, so 4c, 5c, 6c for electricity, but their network costs is the challenge. And if you can introduce technology into that you can really, really affect that.

TONY WOOD: There aren't many industries in the world that you can think of where as a result of consuming less we end up paying more. Most markets would suggest that's the wrong way around, but it is the consequence of a combination of these two things: one is that they are regulated monopolies and the argument is that they in good faith invested in these assets and have a right to get a return on them, which I think in itself is a good argument and that was fine when demand was growing. So growing demand would forgive lots of sins, but when demand is falling you get exactly what you were talking about. And so there's an interesting consequence of that because if you look at the generator side of the business where, as you say, prices are low the shareholders in those businesses are doing it tough at the moment, and that almost certainly applies to renewable energy as well as it does to fossil fuel energy. But these businesses are not.

So at the moment the consumer is paying for these assets even if they're using them less and less and less. Is that sustainable? I would suggest no, the question is what do you do about it? And that raises some really challenging issues such as does someone have to basically pay for the write down of the assets? Should it be the shareholders in the network businesses which the businesses will, not surprisingly, pushback on as certainly I would if I was in those businesses, I'd say, "That wasn't part of the deal, I wasn't supposed to take that sort of risk"; or should it be the government? But you can't just have a situation in which we use less and less and we keep paying more and more. That's going to become unsustainable and what they happens is what's euphemistically called this death spiral idea, which I don't think is going to happen as quickly as some, but you could get a situation in which those people who can afford it effectively disconnect from the network and that would create a really interesting challenge for all of us.

So now's the time to be fundamental in saying what are we going to do about that? And the answer, whatever it is, is not easy because someone's going to have to take a bath on the assets that have been built and at the moment it's the consumers. I suggest that's not politically sustainable.

AUDIENCE: You mentioned that we got it wrong in estimating demand. Isn't it also true we're about to get it wrong in misunderstanding the impact of batteries? That if we have batteries it's absolutely possible with the technology - Smart Meters and Smart Networks - to charge just like we pay for petrol and petrol is determined by supply and demand and bananas is determined by supply and demand? So why can't we simply pay for electricity what the current spot price is in our homes and if we have solar plus battery we can exploit that to export when the price is high and import when the price is low? Why aren't we preparing a network to do that?

TONY WOOD: Part of what we're suggesting in relation to pricing is absolutely in that direction so, as you said, you could take action when the price is high or low. So, for example, if you've got a PV system on your roof today, rather than just have the electricity going back into the grid in the middle of the day when you may not be home, the better answer is to put it in a battery so when you do come home later in the day you can then draw it out of your battery and then, when the price is really high, you could actually save that money, right? That's where the Smarts come in. So giving people the opportunity to do those things and I don't think you should force this on anybody. What you do want to

do is make sure that the policy and the regulatory structure we have in place don't stop people or don't give people impediments to taking up those sorts of alternatives that are becoming available.

And I think that's where the challenge is going to be in developing policy and regulation because we don't sometimes think about it, but there was always these inherent assumptions we make and one of them was demand is continuing to grow. Well, as that changes we are struggling as an industry and as government and as regulators to work out what the new model has to be, but it can't be one which precludes people from doing the sort of things you mentioned. And I think that would be a very different world. What it might look like who knows, I mean, anyone who makes forecasts of anything in this industry is insane. I mentioned before that the government released a Green Paper on Tuesday. It's an interesting exercise to get a copy of the 2004 – ten years ago only government put out an Energy White Paper and have a look at the forecast of electricity demand for what they thought was going to be in place today and just see how wrong you can be.

So, I wouldn't attempt to forecast. What I'd be saying is try and make sure that policy and regulation is there to make sure that we're not screwed and making sure that things are properly regulated, but try and make sure they don't get in the way of people making choices of the sort you were just talking about.

JENNIFER HEWETT: And Tony, in terms of the battery issue, which I think is really significant. At the moment is it just not feasible to do that on a household basis because they're too expensive or because the technology is not there?

TONY WOOD: I've got a small place outside in country Victoria which is off-grid and I've got batteries and I've got solar PV and so forth, but I just happen to have a diesel generator as well and so there are times when that generator comes on. Now the good news is for me – and I'm a bit of a nerd – so I can sit here and if I'm going up to my farm on the weekend I can actually via my mobile phone check the battery level and turn the generator on from here.

Now, I don't think anybody necessarily wants to do it quite as weird as that, but I think that the battery challenge is a really interesting one. I've got no idea how quickly battery costs are going to come down. I'm not sure that it's true to be able to say that PV costs came down quickly, so will batteries, but I am sure that as other parts of the world seriously start to adopt battery technologies in things like electric vehicles – I mean, look at what China are doing with electric vehicles and how technology can change. I was in Beijing only a couple of weeks ago and there was a taxi driver and it took me a while to realise that this was an electric taxi. And the guy I was with who was Chinese, I asked him about this technology and it turned out this guy was one of a fleet of 700 electric taxis, one company, and he explained to me, through the guy I was with, that he had a system in his taxi that told him not only how much electricity he had left and how far he could travel, but where the nearest station he could go to was where he could swap out the battery and get a new one. Now, some of you may have heard of the company called Better Place. That model failed badly, but the Chinese are doing it already today.

So that just tells me that battery costs could come down rapidly. I certainly am a bit more sceptical than most, but that would obviously be a fundamental change. And energy storage is the biggest issue we have in relation to intermittent supply, whether it's wind or solar or whatever, because if we could solve that problem and cost effectively it would make an enormous difference.

JENNIFER HEWETT: And that would of course not help the networks in some ways either because their customers -

TONY WOOD: Well, what is the role of the network? You've got to ask yourself does the network have any role at all and, if so, what is it? Is it to provide a connection to something, in which case it might still have a role, but I think the winner will be the network businesses who work out what their future role is, rather than those who I would suggest in the past who thought their main job was to pull the wool over the eyes of the regulator.

AUDIENCE: I wanted to ask you, Tony, about the Energy Green Paper, and you might have a comment too Jennifer. As you mention, it did come out earlier in the week and it's a pretty important document. I just wondered what you like about the Energy Green Paper and what you don't like?

TONY WOOD: It's a fascinating term isn't it, the "Energy Green Paper" because those of you who read the issues paper would have noticed that the words "climate change" weren't mentioned at all.

So starting with the things I didn't like. For something that's trying to set out for the next couple of decades where we might be going with energy policy not to have a view about the way the government is going to be thinking beyond 2020 – it almost beggars belief how you could have an energy policy that purports to be an energy policy that does that. Fascinatingly, inside that very document it talks about having to develop a 20 year view for networks, but it's got a six year view for generation and climate change. It just doesn't make any sense. Now, I understand the politics are really challenging. So as an Energy Green Paper it's either a fail or "did not bother to turn the last page of the exam paper and didn't answer the question" is almost the way you'd interpret it.

On the other hand, I think compared with the last White Paper we had on energy which was in 2012, which was a fascinating read but said nothing about policy, this document actually does a reasonable job of addressing some of the key policy issues. So, for example, I think most of what it says about the gas industry is pretty spot on. I think there are some challenges for Australia in relation to gas, both enormous opportunities but some serious challenges and how we grapple with that. And I think this Green Paper actually gets most of that pretty well right. I think on electricity, this network tariff issue, if they can put that at the top of the agenda and address the issues that we've been talking about tonight in a way that can bring the community with it then that would be a significant move forward.

On the other hand, I think there are some interesting questions about the extent to which – the paper mentions that right now we've got enormous oversupply in the generation marketing; it leaves hanging what you might do about it. Now okay, you could just sit back and watch which might be as good a policy as any actually, but there's also the debate that maybe we should have an orderly withdrawal from the market. Now, that could mean either regulation to say that after a period of time we need to withdraw certain fossil fuel power stations or we could be returning to the days when people said they should be paid to withdraw their capacity. I'd rather have a disorderly withdrawal thank you very much than an orderly withdrawal we've got to pay for, but I think that's where it's still weak and it'll be interesting to see if that issue was addressed in the White Paper.

And finally I thought the section on transport energy was very severely underdone. I mean, I think one of the challenges that we have in this country is coming to grips with how we think about that. Again, I'm not suggesting government should wade in, but we are in breach of our international obligations

under strategic reserves of transport fuels. We are shutting down refineries for good commercial reasons, is that something we should be concerned about? The paper explores that, but not in any particular depth. So I think I gave it a C- overall.

JENNIFER HEWETT: I must say, I thought that it laid out some of the issues, but it didn't give me any real sense of direction about what the options were about how you could then proceed from that and some of the hard choices that needed to be made. And I also thought it was complicated because although I agree with Tony in some ways that the whole argument we've now switched off the Carbon Tax, we're now all about the Renewable Energy Target as the thing that's dominating conversation and it's the tail wagging dog in some senses. I think to have an energy paper that kind of says, "Look, the other review was doing that and we're not quite sure how that mixes together with where we are", to me, I came out of it thinking, where's the bottom line here? Actually, I'm still trying to find it.

TONY WOOD: It reminded me of two other sentences, each of which were particularly interesting in the paper. One is it says that Australia has more than enough gas for both domestic and exports. Now that is a really important statement because there are many people who are seriously concerned that we don't have enough gas and are worried about that and are taking action and are getting concerned politically. So if that's true then that's a very strong statement because what follows from it is quite different from what would have followed if we thought we didn't have enough gas. But the other side it also says something like coal will underpin our energy supply for decades to come.

Now, if you've got the argument that coal is going to underpin our electricity supply for decades to come and we agree that the world should constrain the global increase in temperatures to two degrees, those statements are fundamentally inconsistent. The paper says nothing about how you resolve that conundrum and my own view is I think that the coal industry is starting to come to grips with that. And the gas industry will have to eventually, but the coal industry particularly. And I'm not sure that China is going to turn away from coal as quickly as some people do, but I also think they're going to certainly not be growing at the same rate and we're going to see some changes in that. So I think those sort of issues need to be resolved and I think there will be some in industry, particularly in the coal industry, who are starting to think about how they join that. They can no longer keep these two statements alive which are fundamentally inconsistent.

AUDIENCE: I'd like to take you back to the topic of your paper and what you were talking about initially and particularly the role of the price signal for domestic consumers. I'm wondering if you've had much thought – and sorry, I haven't had a chance to read the paper yet – about the way in which that price signal is transmitted to the human ear as such? I see in this space so often almost as though the price signal is at some sort of dog whistle pitch that you don't actually perceive it in the same way that we might perceive a visual price signal. And I've been reflecting on this because I've just come back from a conference on the effectiveness of energy efficiency policy interventions and the way in which in the US they've tried a lot of different methods for communicating time of use pricing and almost all of them haven't done very well.

So I'm really interested in your thoughts about transferring that price signal into real behavioural change and real action?

TONY WOOD: The classic case why it will not work is that at the moment my thing about the eight minutes a year is that we get our electricity or gas bill, we look at it, we get really cross and then we pay it, then three months later we get another and we get really cross and we pay that one. And, to be



fair, we have changed our behaviour, we have done things. That blunt price signal has caused a reaction. I mean, price does work because, like most things, there is an elasticity of demand for the stuff, so people do pay more attention when they go out and buy appliances, they do look at the star rating and so forth.

Now, the issue of how you then do what we've been talking about is really interesting and I think you end up getting into the whole area of behavioural economics as opposed to classical economics, because just telling somebody, for example, that you'll save \$20 if you don't turn your air conditioner on this afternoon is just ridiculous. Of course people aren't going to pay any attention to that. But if, as I said before, you sign people on and say, "We're going to give you a discount of \$500 if you sign up to this deal" which ends up having the same impact, you might get a very different behaviour. The one that people have talked about is what's called the red, white and blue structure in one of the utilities in France and the idea of that was again to say, "There's going to be ten red days a year. What we'll do is on the weather forecast the night before one of these days we will tell you this is coming". So there's the weather forecast and, by the way, tomorrow is a white day, it's all fine, don't worry about it. On the other hand, tomorrow is one of these ten red days; everyone knows that means that you need to think about what you do tomorrow.

Now, when they introduced this some while ago they didn't have the technologies we've been talking about so that, for example, rather than being told right now you can do something, being told the day before you can do something. Because you've got to give people the opportunity to do something. There's no point telling them three months after the event they've used a lot of electricity; you've got to tell them the day before that this is one of those times and you can do something. And it turns out that where this has been trialled you do get a significant shift, but it's got to be done in a way that's sensitive to the way people do behave as opposed to some theoretical economics. So that whole issue of communicating it is just as important as to what you're communicating, in a sense.

AUDIENCE: Tony, my question follows on from that one and goes back to the issue of the fundamental fairness or unfairness of the retail tariff structure, and I suppose that's the commercial tariff structure as well. One thing the Green Paper did highlight is that very issue of the cross-subsidy between different classes of consumers because we charge on energy uses rather than a connection fee, which gives you the backup of having the network connected for when you need it, and for those people who use less energy because they have PV or something, some other use, or because they manage their usage more effectively than others will pay less and therefore that cost has to be carried by the rest of the consumers.

I have a dilemma about that though because you've used your example of your country farm where you have a diesel generator and batteries, so there's capital cost involved in all of that to make the benefit of your PV. But are you also connected to the main network, because a lot of country people wouldn't be because of the excessive cost of that network charge of getting you connected. So you've avoided one set of capital costs and incurred another, whereas people in most situations don't incur any capital cost but use the network costs for a lower than economic price.

So won't it be the case that if batteries become more efficient and more people with PV on their roofs put them into their homes, they will further reduce their energy price thus exacerbating the cross-subsidy about which you spoke? And similarly, those people who have Smart Meters, if it's not universal, and therefore manage remotely through their \$500 savings a year program will also exacerbate the problem that's been highlighted by the Green Paper and I think by yourself. Really, I

think putting a real sense of urgency about getting a more rational and fair tariff structure in place through regulation.

My other comment in relation to that is that a lot of the debate seems to go a purist structure where it is going to be 400 times more on 40 hours of the year or 20 hours of the year, whereas surely the realistic way of trying to get a tariff change of this kind in place politically would be to start off with a much more modest connection fee, just like we have with fixed line telephone, and a much lower than full economic cost peak time and then, over time, adjust those as we see how the network develops.

TONY WOOD: Let me look at the first question first. We call this report *Fair Pricing for Power*, we almost called it "Stop Digging" because for us the issue is let's make sure we try and do something before this gets any worse. So in many ways what you're talking about and what Jennifer was talking about before is there are things that have already been done, we're already in the hole, why don't we stop digging and then we can think about how we're going to get ourselves out of it? So one of the issues is to start to price things differently so people change their behaviour now.

In my case, the example I use was that it would have cost me a whole lot more to connect to the grid than it did for what I actually ended up doing. And one of the reasons why we are a little fortunate in Australia right now, in some ways having overbuilt what we've done we've got a little bit of time to think about what we're going to do next. What is the role of the grid? Because, as you said, there's going to be a whole range of things. Well, what do people want? My suspicion is that they want something more like you get with your mobile phone thing. I want a connection. Now maybe eventually people won't want a connection at all, but I find that less credible in a sense. But what do I want? I want a connection and I want to be able to get a certain amount of bandwidth from my electricity supply and that may be what I'm prepared to pay for, right? Not the way it's used today which basically whenever I turn the light on I get whatever I want, any time of day, any time of the week, any time of the year. That is something that's going to have to change and I think that's going to be where understanding the way we use electricity is going to be important.

What that means is that you're right, I don't see any issue about taking a transition through this but you don't want to get stuck halfway. I mentioned before that just about everyone in Victoria has got Smart Meters and some of them are starting to use it now because the moratorium was lifted. We were able to get access to the detailed data for about 1,000 customers across Victoria about what they were doing with their electricity consumption, and we also knew did they have PV, did they have air conditioning, were they one of the 6million, or did they have both or neither? And then we looked at what would happen if we changed these tariff structures, and you can do this theoretically. So under the current tariff structure how does it reflect the actual behaviour of consumers? If we went to the sort of thing we're talking about and if you went halfway, which is what's called a peak/off-peak shoulder tariff which is a much simpler version in a sense, what you find is that you get partway with the time of use, but you don't get very far really in terms of where you want to get to.

So what you'd like to be able to do I think is start to move peoples' thinking towards being aware of the way we use electricity and the way they use electricity and give them the opportunity to think about it. By the way, this is never about saying, "You are an evil person, you should be using less electricity". This is about saying two things: firstly, you should pay for what you're consuming and, secondly, you should have the choice of how you consume. So if you want to put in your 5kW air conditioning system and use it at the peak absolutely, go for your life, but pay for what cost you impose on everybody else. So I think you've got to take these in steps. What you don't want to do, in

my view, is get stuck because I don't think we've got that much time to start to get on top of this. So I'd be saying that putting this at the top of the agenda in the Green Paper, which is what they've done, is really important. Driving that through is going to be equally important.

Now the Australian Energy Market Commission has put out a paper recently asking for input on this question of tariff review. That's a very important document and they will announce their recommendations on this mid-November I think it is. I think it's really important that our political leaders stay in the driving seat. I'm not saying there isn't a role for the regulatory agencies, but they have their job to do and they tend to look at things in silos, where I think this requires the political arms of government, that is the Federal and State Energy Ministers, to be committed to this. I think they are but, for the reasons Jennifer was describing, it won't be easy and so I think they've got to get on this and they've got to drive it. I mean, a step is fine, but a step that doesn't take you anywhere is not so fine.

So I think it's a challenge to articulate exactly what they're going to do and I guess the question will be can you actually get there in small steps, or we've got to find a way of taking some bigger steps faster?

AUDIENCE: I've recently spent some time in Eastern Europe and I was absolutely staggered and surprised by the amount of windmills. Thousands and thousands of acres are covered by windmills. Now, they're not stupid people over there. I suppose they've worked out that they've got the wind and perhaps we haven't got so much wind, but you've talked about everything except wind.

TONY WOOD: I guess it would be inappropriate to say whether you found them offensive or not? There are parts of the world where I've been where I actually think they look bloody ugly, that happened to be in Australia by the way, but where there are lots and lots of windmills and, in my view, they look just as bad as a coal-fired power station does.

There are lots of technologies: wind, solar, geothermal, tidal, wave, etc. etc. The challenge really is to try and say in some ways we don't really care which technology wins; what you want to do is make sure that your policy settings don't inappropriately support one technology or another. Now, there's an important issue - and it came out in the last couple of days - about subsidies, that people are worried about the subsidies to the renewable energy industry, such as the wind, because, as you may know, most of the wind farms that have been built in Australia were because of the Renewable Energy Target. The problem is that they're missing the biggest subsidy. Right now we are subsidising fossil fuel power stations because they don't have to pay for the environmental damage of their greenhouse gas emissions. It's a bit like building a nuclear power station and saying, "Well, don't you bother about containing your waste". You'd never do that and yet we do that with our fossil fuel power stations because we've never thought about it this way.

So my view about wind farms, there are certain situations I think they look fantastic, other places I've seen and I'm not too sure I'd put that many wind farms there, but the real issue is how do you make sure that your policies are creating the incentives to address fundamentally what we want, which I would suggest is reliable, affordable and sustainable electricity? And remember, I said it in that sequence because reliability, in the minds of most people, will always be more important than affordability and affordability will always be more important than sustainability.

AUDIENCE: I was wondering if you could address distributed energy generation and its impact on the way the grid works and, also, if we have the policy settings right to encourage distributed generation, especially I'm thinking of the challenges in the city of Sydney and delivering tri-generation?

TONY WOOD: There are some cases where we demonstrably don't and particularly even distributed generation to the extent if you want to build a wind farm, the way you pay for the transmission connection to get your wind power into the grid isn't particularly well-regulated at the moment and that's something that needs to be addressed.

I think the answer is no, not yet. The system was fundamentally designed to send electricity out from centralised facilities out to all of us through transmission lines and then through smaller and smaller pieces of wire. That's not what we're trying to do now and turning it upside down is not a trivial challenge. And the issues that the network companies put forward about their concerns about having, for example, a lot of PV generating electricity in the grid is there are certain parts of the networks in Australia where we're producing so much PV that it's actually more than is required and it's actually destabilising the electricity grid. Now, you've got to be a bit careful about taking that too far, but there are issues with that.

Tri-generation and co-generation are challenging at the moment partly because I think the price of gas is going to make most of those projects really hard. In that particular case, not because of the embedded generation, but because just the cost of gas is making it hard to justify those sorts of projects. And, by the way, these are projects where you can use more than one form of energy from your basic generator and there's lots of great examples in Australia where it's been done. I think that's more of a challenge at the moment rather than the network, but I do agree that implicit in your question is that we don't yet have the mechanisms for dealing with distributed generation and I think having that conversation. I mean, for those of you who haven't seen it, CSIRO put out a document called *Future Grid* and it explores some of the scenarios under which we might have a lot more distributor generation and intermittent generation and how do we design a system to cope with both of those?

I don't think we've got it right yet, but those two – and they're not necessarily the same thing, but they cause similar problems – the challenges of absorbing a lot of distributor and intermittent generation are probably the issues that we're going to have to grapple with, particularly from a network perspective, and we haven't grappled with it yet properly.

JENNIFER HEWETT: Okay, I think unfortunately it's time to wrap-up now. So I wonder if you'd join with me in thanking Tony for all his thoughts.

TONY WOOD: And equally, could you also please thank Jennifer because she'll probably go and write about this in the Financial Review one day.

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