C O R R E C T E D V E R S I O N

ECONOMIC, EDUCATION, JOBS AND SKILLS COMMITTEE

Inquiry into community energy projects

Melbourne — 7 November 2016

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Witnesses

Mr Kieran Donoghue, General Manager, Policy and Research, and
Ms Emma Richardson, Policy Adviser, Australian Energy Council.

The CHAIR — Good afternoon and welcome. I would like to read the formal matters before we start. Welcome to the public hearing for the Economic, Education, Jobs and Skills Committee inquiry into community energy projects. All evidence taken at this hearing is protected by parliamentary privilege. Any comments you make outside the hearing are not afforded such privilege. Hansard is recording today's proceedings, and we will provide a proof version of the *Hansard* transcript so you can correct any errors.

It is your show. Please provide us with an opening statement, and then we will come back for questions. Please state your name before you start for Hansard.

Mr DONOGHUE — I am Kieran Donoghue. I am the General Manager of Policy and Research at the Australian Energy Council.

Ms RICHARDSON — I am Emma Richardson. I am Policy Adviser at the Australian Energy Council.

Mr DONOGHUE — We would like to start by thanking the Committee for giving us the opportunity to appear before you on the subject of community energy projects. The Australian Energy Council is the industry body representing 21 electricity and downstream natural gas businesses operating in the competitive wholesale and retail energy markets. These businesses collectively generate the overwhelming majority of electricity in Australia and sell gas and electricity to over 10 million homes and businesses.

Technology change and innovation have created opportunities for supplying electricity in new ways. Technologies such as solar, biomass, wind generation and battery storage often provide electricity at a smaller-scale distributor level in the interconnected grid, the National Electricity Market, or NEM, than traditional coal, gas and hydro plant. Deregulation of the retail market has also created opportunities for the demand for electricity to be met by new services.

Community energy projects are one of many new choices communities can make to support their energy needs or pursue environmental goals. Although there is a growing opportunity for diverse technologies to be engaged for community or other energy projects, many of these are currently not cost effective. The existing regulatory market structures do not generally limit community groups from establishing an energy project, although those regulatory market structures must be understood by proponents and we recommend engagement with the relevant regulatory authorities to ensure clarity. This is especially the case given that the requirements and implications of a project can vary with scale and with the position in the supply chain.

While there may be general barriers to establishing community energy projects, such as relatively high cost, long payback periods and coordination or information difficulties, these do not in themselves constitute market failures. The industry does not support intervention where a market failure is not identified and substantiated, but we recognise there may be a role for governments to assist with the provision of information. Easy access to information, tailored to communities, may make it easier for community groups to understand the challenges and benefits of a local energy project, ultimately assisting their decision. For example, the New South Wales Government provides a guide to community energy aimed at empowering communities to make decisions backed by sound information.

The CHAIR — Would you like to add anything, Emma, or are you happy?

Ms RICHARDSON — Not at this point.

The CHAIR — So we will go to questions. Thank you. Kieran, your submission states that the existing market does not prevent the development of community energy projects, but other submissions claim that barriers such as the inability to sell electricity to third parties or to engage in peer-to-peer trading exist. How do you respond to these claims?

Mr DONOGHUE — I think with some of the different ways that the groups that made those submissions are looking to sell energy, the market is designed and the regulations are designed in order to do things like protect consumers. That is why it is still a relatively heavily regulated industry, along with safety and reliability and other factors that are pertinent to electricity supply. So if those groups believe

there is a barrier to their doing something, then the question is: why would the barrier not be removed for all parties that wish to do that? So something like peer-to-peer trading, which would require relatively new technologies in terms of information technology and so on, may be a viable proposition in the future. It has not been in the past simply because we have not had the technologies and the structures to do so.

We think it is perfectly reasonable for governments to explore how peer-to-peer trading could be facilitated, noting that many of our members operate on a national scale, and we would prefer that there was a harmonised approach right across the NEM rather than simply one state at a time going it alone. But to the extent that it is being explored, it should be explored for all parties to participate in that kind of market, not solely those that designate themselves as community energy projects.

Mr CRISP — Small-scale versus large-scale projects: how sustainable is it for the Victorian Government to support smaller renewable energy projects over larger ones, which have better economies of scale?

Mr DONOGHUE — I think that goes to the risk of government picking winners if it decides to support particular types of projects. I guess, to reiterate our statement, it is not clear why, beyond the scope of providing access to information, any particular projects should be supported, as you put it. And to the extent that the Government does offer support—so we understand the Government, for example, intends to offer contracts for difference for renewable energy projects in order to meet a target of 40 per cent renewable energy by 2025—that kind of support, whether it is a good idea or not, should be available to all types of projects, to commercial, community or any other form of ownership. Again, we are not clear that there needs to be a differentiation between community or other energy projects. If the policy is a good one, it should be equally applicable.

In terms of specifically large scale versus small scale, the advantage of having a market is that the market sends signals, and so investors, anyone from a household up to a large company that sees value in pursuing a project—whether it is anything from rooftop solar up to a utility-scale project at the end of a transmission line—will do so based on the costs and revenues that come out of the market. We believe that is the way to get the optimal system; the most efficient and fairest system is to let the price signals do the work.

Mrs FYFFE — You mention in your submission that consumers who are off the grid are not protected. Can you explain a bit more about that? Also, should there be any changes to the protection framework to protect those off-the-grid consumers?

Mr DONOGHUE — The current set of protections are based on the paradigm of large businesses. Originally of course it was the State Energy Commission supplying bulk power to a whole range of customers and the protections were based, I guess, on a perceived inequality of the relationship between that large organisation and small customers in particular. People who are off the grid essentially have to provide their own energy, so it is a different type of relationship, which is reflected in the different level of protections.

Going forward we expect there to be eventually more opportunities for consumers of whatever sort to choose to stay on the grid, to go off the grid or to potentially connect to the grid, and for businesses and communities to organise microgrid-scale projects. So as that develops it may become more important to have more comparable levels of protections because that will be a key driver of the costs of different options. Again, if we want to make sure that we are delivering electricity to all Victorians at the lowest possible cost, then a level regulatory playing field is the best way to do that.

Mr NARDELLA — Your organisation opposed the carbon tax, didn't it?

Mr DONOGHUE — No. We were and have been for many years in favour of a well-designed emissions trading scheme, which is what the carbon tax was going to morph into. We were very interested in getting what we thought were the right design details, but we were not opposed in principle to applying a price on carbon.

Mr NARDELLA — So when you talk about the level playing field, there is really no recognition there that your industry is the polluting industry and other forms of clean energy are really the way of the future, is that not right? I mean, you do not talk about the 40 per cent VRET being what it is, and that is to reduce carbon; you talk about it in economic terms. So really you are still against reducing carbon, are you not?

Mr DONOGHUE — No. I think for clarity I should point out that our members own most of the hydro and renewables as well as most of the coal or gas. Because we represent the majority of generation, we represent all types of generation, and increasingly our members are also selling rooftop PV and they are looking for opportunities to sell batteries as well to households and businesses.

So essentially we are invested in all forms of energy and we do not have or seek a particular advantage to one form of energy over the other. We recognise that it is important for Australia to decarbonise over time. We think that the best policies to do this are, firstly, national policies because we are looking to meet a national emissions reduction target as agreed to in Paris, and also that the most effective policies are the ones that are technology neutral and seek to recognise the carbon externality to the widest extent, whereas renewables really only target a subset of the potential decarbonisation solution. For example, it does not send any signal to favour, at least for the time being, gas over coal even though gas is significantly lower in terms of emissions than coal; nor, for example, does it give any hope, if you like, to the potential for carbon capture and storage projects, which are more expensive than conventional fossil fuels and the economics are only worse.

Mr NARDELLA — But they do not work. We put in $200 million before 2010 into carbon storage and capture and we might as well have had a party, quite seriously. I do not know where any of that $200 million has actually gone. So that stuff is just rubbish. Where does carbon capture and storage actually work on a big scale? I mean, you actually need to decarbonise the world.

Mr DONOGHUE — There are a number of carbon capture and storage projects operating around the world, including the Gorgon project in Western Australia. What has proved more challenging has been to economically link carbon capture and storage with electricity generation. So probably the most significant development is a Canadian plant in Saskatchewan which was retrofitted with carbon capture and storage and has been operating successfully for around two years. I would be the first to admit it has not proved as promising as was hoped several years ago when the Victorian and Federal Governments invested a lot of money into supporting it.

Mr NARDELLA — I would say 'wasted'.

Mr DONOGHUE — However, the underlying economics, in the absence of pricing the carbon, will always create headwinds for CCS.

The CHAIR — Can you give us your view on battery storage and how batteries could assist with electricity market operations in the future?

Mr DONOGHUE — It is worth remembering that the electricity system can be assisted by a range of different types of storage. We already have some large-scale storage in terms of dams that are connected to hydro systems, and they are extremely useful, but they are limited by the geology. There has been some research carried out by Melbourne University into modular ones where you build an artificial lake at the top and bottom of a slope, and those would be potentially applicable in a wider area, but they have not proved cost effective to date. Similarly we have storage in the form of electric hot-water load, which we run by allowing the distribution companies the right to turn it on at night rather than during the day. In the longer run that resource, if we get more and more solar into the system, may actually be more usefully used in the middle of the day to soak up the solar power than at night, when there has been traditionally low demand.

So while batteries are certainly a potentially exciting opportunity for the electricity industry, in most potential-use cases they are still not cost effective. If we are going to think about storage, it would be good to think about it in the widest context and include other forms of storage that can be used to shift demand or supply around as well.

Mrs FYFFE — What other forms apart from batteries are there?

Mr DONOGHUE — Electricity hot water, as I just mentioned, and hydro storage, wherever there may be scope to increase the use of that. There is a project, admittedly up in Queensland, that is looking to redevelop an old goldmine as a pumped hydro storage project. Another potential one is to run air conditioners, effectively, to chill water or other materials—again, off peak or at the most useful times of day—and then to run the air conditioner when the cooling is needed. Anything that separates the time of use of energy from when the electricity is used counts as storage and is potentially useful in the future.

Mrs FYFFE — The mind boggles. Using the old goldmine or whatever mine it was—does this mean that they are going to pump the hot water down there and then pump it out when they need it? I am sorry to be so simplistic. I have no idea.

Mr DONOGHUE — This is not hot water per se. No, I understand. I guess I used water in two different contexts. The electric hot water is in people's homes, and it is just choosing when to run that…

Mrs FYFFE — Stored in the tank with insulation and everything else.

Mr DONOGHUE — It is storing it as hot water with insulation so that it is still hot when you want to have a shower. But large-scale hydro storage is not about heat; it is simply about using gravity. You have to pump the water up to the top. You would do that when the wholesale price is low, because you would use up electricity then. Then you would run the hydro using gravity, effectively, when wholesale price is high—that is, when there is a high demand for energy. In the round trip you use energy—it is not energy generating, and that is the case with all storage—but it is about moving the time of use around in order to make a more efficient system overall.

Again because that is what it is about and because there are so many different options, it is important to allow price signals to determine that. It would be very difficult for any government to decide what was the most cost-effective option out of those, where the batteries should go and how they should be used. We caution against trying to redirect the use of those against the market.

Mr CRISP — What challenges does the transition to renewable energy pose for the wholesale and retail energy markets?

Mr DONOGHUE — For the wholesale energy market there are a number of challenges. There are other parts of the world where the renewable energy resources that they have are, apart from being renewable, very similar from a system perspective to the coal and gas that we have run most of our system on for the last 40 or 50 years. Hydro is an obvious one. We already have some of that. Geothermal is one that they have in places like Iceland and New Zealand. We do not have the same kind of geothermal resources. We tried tapping into some South Australian resources. They were about 4 kilometres underground, and it just did not prove economically viable. There is also biomass, which again we have particularly in places where there are paper mills or sugarcane processing, but you usually only want to do that when you have got a residue from some other activity, so again the scope to just grow that very large is limited.

What we get left with are two very different types of resource, which are solar and wind, and obviously they have the advantage of being emissions free. They have the advantage of being renewable, but they have the disadvantage, given that we design our supply system to meet demand, whatever it is, of being intermittent. So we cannot dispatch them when we want them. We just have to take them when they are available.

The other challenge that we face with them is that we have designed the system around these large spinning turbines that we get in coal, gas, hydro, biomass and geothermal, and they just physically have inherent inertia, which means that their speed can be varied—tweaked to the second or millisecond level—to balance out the frequency of the system and keep it stable. Because solar and wind do not work in the same way—they use what is known as power electronics—they are not able to provide the same services to the system.

As we go through the transition and as we are effectively displacing the dispatch of all synchronous generation with what appears to be the only game in town in terms of new renewables or even new zero-emissions technology, given CCS has not worked out so well, we are bringing in very different types of technology from a system management perspective. I am confident that with time and experience we can learn to better integrate progressively higher levels of those, but it will take time and it will take experience, and there is a risk that some of the experiences will have consequences for users, as we have seen in South Australia this year.

Mr NARDELLA — When the pylons went down? Is that the experience you are talking about? It had absolutely nothing to do with the spinning of turbines.

Mr DONOGHUE — There is still a lot of work to be done to understand the implications of that. No-one is questioning the cause of the particular incident on 28 September.

Mr NARDELLA — You were talking about something to do with South Australia, so…

Mr DONOGHUE — To clarify, I was talking about a series of events and outcomes in South Australia, including loss of supply and including higher prices, that are in general a consequence of the changeover of the system that has made it less resilient to unexpected events, including weather events. It was not caused by weather events, but it has made the system less resilient because we are working with new technologies and we are dealing with them in a new way. We will learn from those experiences. But we have made changes to the system, and it is important to understand the implications of that as we progressively decarbonise.

We quite often look to Europe as being the champions of renewable energy. Many European countries have driven it as much for security of supply reasons as the decarbonisation, but in many European countries they have a number of rules that do not get talked about. Even though they are driving renewable energy, they sometimes put a hard limit on the amount of asynchronous generation — that is, the types of generation that run off power electronics. There are also some of the interconnectors. In Ireland, for example, that limit can never go above 50 per cent. Maybe in a decade's time they will be confident to move it to 55 or 60 or something like that. I am not saying that is a hard and fast rule, but for Ireland at this moment in time that is what they need, even though they have been encouraging a lot of wind generation.

Certainly a number of countries require wind farms to provide their own balancing requirements, which means they require wind farms to take account more of the fact that they are providing intermittent sources of energy. I do not know that that would be the most efficient way to do it here. We have a different type of market to them, but those are just examples of the kinds of factors that have been taken into account in other countries. It is very important that we examine those in Australia and apply them where appropriate here.

Mrs FYFFE — I want to talk about virtual net metering, which is something I am learning about today. Many submissions have recommended that it should be enabled in Victoria. What are your thoughts or your association's thoughts on virtual net metering?

Mr DONOGHUE — As I understand it, when you talk about virtual net metering, you are talking about a situation where a community or a business or some organisation would have, say, some generation in one part of the network and some load in another part of the network.

Mrs FYFFE — I think that is what I am talking about.

Mr DONOGHUE — So what they want to do is net those off and effectively only pay for, or get paid for, the difference. The challenge with that in the current structure we have is that whenever you move energy through the network, the network charge gets stapled to it. So, for example, when people are frustrated with their retailer charging them, say, 20 cents per kilowatt hour but only paying 6 for their solar export, most of that difference is made up by the network charge that the retailer is obliged to incur and has to pass on to be viable.

So what it comes down to is whether it is reasonable to let the organisations in that situation avoid that bit of the network charge. I mean, it is quite clear that they are using the network. They might make the case that they are using less of the network than someone who is just flicking the switch, and notionally the power is coming from the Latrobe Valley somewhere 100 or more kilometres away. The challenge with that is if you want to get into much more locational pricing for networks, which is arguably more economically appropriate, firstly you do not actually save money overall in the short term, so the network revenues get recovered from other customers who now have to pay more. But also if you are going to do it, you would want to do it more thoroughly rather than let particular situations cherrypick the opportunity to do that. That would have quite a lot of implications, particularly for some regional customers who may be located much further than urban customers from the source of their electricity.

So we have not really gone very far down the road of locational pricing. There is pricing by the different distribution networks, so there are some differences, but within the network and going to a greater level of detail, whilst it would be worthwhile looking at, I think you have to look at it as a whole rather than simply allowing, say, one particular situation to benefit from that, because all you are doing then is passing those costs on to other customers of the network.

The CHAIR — Talking about the power purchase agreements, community energy groups have mentioned that it is difficult for them to negotiate power purchase agreements with energy retailers. Can you explain why this may be the case?

Mr DONOGHUE — I cannot comment on individual commercial negotiations. That would be a matter for individual retailers. Retailers procure the energy that they ultimately supply their customers in a wide variety of ways. They may own some of their own generation, although many of them are what is called 'long retail', so they will still always need to purchase more energy than they get from their own generators. They will enter into long-term contracts with some generators. They will also trade on the financial markets for hedging contracts, which basically convert the volatile spot market into an average price for a period of a quarter or a year, say. They may even allow themselves to be slightly exposed to the spot market, which can vary from minus $1000 to plus $14 000 per megawatt hour.

Within all of that, whether they are interested in buying the PPA at any particular point in time really just depends on where they are in their procurement and what price is being offered. I am sure there is always a price at which you could get a deal done. It may be not be a price that works for the community energy proponents because obviously they need to cover their costs, so it may simply be a reflection that their project is not really cost competitive. As I say, I do not know about the individual situations.

The other fact is that if you are a retailer, you are trying to cover your load as a whole. You do not actually get told by your customers when they are going to use electricity. You have a reasonable idea, particularly in aggregate, but that is what you are trying to match. So they will tend to put more value on two types of contracts: one is a firm contract where you are getting a set amount of electricity hour in, hour out across a quarter or a year; the second is a capped contract, which is what, for example, a peaking gas generator might offer, or potentially a battery down the line, which basically caps out the exposure to spot prices usually at $300 per megawatt hour.

If a community energy project is trying to get up, say, a wind turbine or some solar panels, they are probably not going to be in a position to offer those types of contracts because that is not the energy profile of their project. So it may be that what they are offering, which is 'Take my power whenever it happens to be available', is not actually particularly valuable to the retailers, particularly seeing as the retailers have already had to do a lot of that in order to get enough certificates to meet their renewable energy target obligations and because they obviously have to pay for any rooftop PV that their customers export.

Mr CRISP — To build on that a little bit now, which is that community corporate partnership area, what are the challenges of such partnerships as those, given what you have just said about those small amounts of energy not being particularly valuable in the system?

Mr DONOGHUE — If you are talking about a corporate partnership, what you may get is greater economies of scale, which may assist in negotiations. Again there are transaction costs, so it may be that some projects do not get very far because of the amount of energy. As I say, it is probably usually as much about the profile as anything, and aggregating where you can.

I believe the ACCC has recently allowed a group of corporate and government consumers to get together to underpin a renewable energy project themselves. They are just likely to benefit from being on a bigger scale and getting economies of scale. That may be an option for community energy projects if they try to band together and aggregate up as well.

Mr NARDELLA — You talked about, before, how some of your members are looking at increasing renewable energy generation. How are they doing that?

Mr DONOGHUE — They are doing that in a number of ways. As I say, historically they have often written PPAs with renewable energy providers. The nature of those PPAs was that the retailers ended up effectively with most of the risk, and a retailer's balance sheet could only take so much of that. There seems to have been an evolution—although again it is up to each individual retailer what kinds of contracts it feels are appropriate—to contracts that involve more risk sharing.

As an example I can talk about, because they have put it on the public record, AGL have announced that they are investing in a vehicle. They are looking for co-investors, and that will write, I think, a sort of five-year, fairly fixed contract, then for another tranche of five years of more variable and another tranche of five years of still more variable. So they will take some of the up-front risk, and then the renewables developer will have to take more risk later on in the project. That is one example.

As I say, they will all pay for export from customers' rooftops as well currently at the going market rate. In the past several of them invested heavily in the geothermal projects I mentioned and lost their shirts, frankly, but that is life. I mean, that is what happens when you leave it to the market. It is the market and private investment that take the risks. When they succeed, great, but when they fail, at least it is not the public purse that is wearing it, which I think was your concern with the money that previous governments have put into CCS.

Mr CRISP — Energy efficiency: how important do you think it is to combine energy efficiency with community energy projects?

Mr DONOGHUE — I think it would be a matter for any given project what mix they wanted to put together of energy efficiency and renewable energy. I would have thought that if I was in that situation, I might be looking more for energy flexibility rather than energy efficiency because I think the trick would be to be able to better match the load with the supply. That comes back to the kinds of storage technologies I mentioned earlier and potentially other forms of demand response as well.

I guess I would add, though, that energy efficiency is generally its own reward. It has always been a mystery to economists why there is not more energy efficiency activity, because when there are cost-effective options it does pay back quite well.

Mr NARDELLA — Mr Donoghue, it is an ideological position, and that is part of the problem.

The CHAIR — If there are no further questions, on behalf of the Committee, Kieran and Emma, I would like to thank you for your time and your contributions.

Mr DONOGHUE — Thank you very much, we appreciate your time today.

Witnesses withdrew.