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 — 24 October 2016

Members

Mr Nazih Elasmar — Chair
Ms Dee Ryall — Deputy Chair
Mr Jeff Bourman
Mr Peter Crisp
Mrs Christine Fyffe
Mr Cesar Melhem
Mr Don Nardella

Witnesses

Mr Andrew Dillon, General Manager, Corporate Affairs, and
Mr Mark Judd, Energy Solutions Innovation Manager, AusNet Services.

The CHAIR — Welcome to the public hearing for the Economic, Education, Jobs and Skills Committee's 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 proceeding. We will provide a proof version of the Hansard transcript so that you can correct any typographical errors. I would like to invite you to make an opening statement and then the Committee members have some questions for you. Please state your name before you start for the Hansard record.

Mr DILLON — Thank you. Good afternoon, everyone. I am Andrew Dillon, and with me is Mark Judd. We are from AusNet Services. We would like to thank the Committee for the opportunity to appear today and talk about this important topic. Some quick background before I get into the slides here. AusNet Services is Victoria's largest energy network company. We own the transmission network—that is the big poles and wires right across the whole state—and the distribution electricity network in outer eastern Melbourne and the eastern half of the state and also gas distribution in the west half of the state.

We think, as I touch on there, that community energy projects are already a developing part of our system and will only grow in this space. Mark will talk in a minute about some of the work we are already doing. I am just going to touch on a couple of things first of all. We are obviously doing a lot here and could talk about this for hours. The key I guess two points we sort of boiled down to what we are keen to impress upon the Committee are first of all, for everyone's energy use the quicker we are able to transition to more cost-reflective pricing the better; and second, for these community projects if they are able to set up community retailers, that will really help them facilitate getting going and getting even more community involvement in these things.

In terms of our power pricing, most of the tariffs that most Victorians pay were set in the 60s or the 70s. They were designed for a very different time when the idea of community energy projects was not even thought about. Unfortunately how that has rolled through to now is that largely our tariffs are unfair, they are certainly not cost-reflective—no economist will tell you that—and in terms of these sorts of projects and many other things they are actually hampering development or they will lead to development in the wrong spot. What I mean by that is we largely pay on a simple cents-per-kilowatt-hour basis for most of our power bills. That averages out an awful lot of things and for a while that reasonably closely approximated to what was coming through the system anyway and it did not really matter.

Particularly with the rise of air conditioners from the start of this century through to the heavy penetration we now see of air conditioners—which is great for all our amenity but from a power system point of view it is a big headache—that has led to people with large-powered air conditioners who only use them to cool a couple of days a year not really paying for the cost they impose on the system. Similarly, now we are seeing with some of the renewable energy coming in the simple flat tariffs do not really map out in meeting some of the savings and some of the costs are misaligned with what is really imposed on the system.

I could go on for hours over this. I just highlight that Infrastructure Victoria obviously put out their draft report a few weeks ago. Their first recommendation when they looked at energy—and I will not read it out; it is on that third slide—is to mandate cost-reflective pricing.

There has been quite a lot of work done in this space. This is not news to anyone in energy. It is undoubtedly a political challenge. We have a country that understands how tariffs are done now, and the transition, which is something that is fundamentally complex, is a challenge, but we would say we have to get action on this or else we are going to see all sorts of misalignment with what happens going forward. I will hand over to Mark to talk about a couple of our projects.

The CHAIR — I am sorry the overhead is not working.

Mr JUDD — I am not going to go through all the slides…

The CHAIR — No, fair enough.

Mr DILLON — Why not?

Mr JUDD — I would like to! I might go to slide 11. My name is Mark Judd. I am the Innovation Manager of Energy Solutions. I have just actually got a new role—I am sort of community energy within AusNet Services. My role has been to work with our communities to design and build a community energy solution. The solution we are looking to design and build is basically a community microgrid. Just to give you some of the background, one of the communities we work very closely with is Yackandandah and the Totally Renewable Yackandandah group. I have put there their goal, which is a goal that gets repeated, but there is this real drive for a 100 per cent renewable energy future by 2022 or 2024. We are going to work with Yackandandah to help them achieve that outcome. That is our objective, and our plan is to build the first community minigrid—I call it a minigrid or microgrid—in Yackandandah next year. That is the goal we have set ourselves.

Whilst I work from the technical perspective, I also work from the customer engagement perspective. One thing we know is—and we all know it—that there is a large drive for renewable energy. We see ourselves, AusNet, as playing a significant role in that because we are the distribution company. How do we see that? On the slide here is one of the things. If you want to be 90 per cent off the grid, today you will spend—and this is the thing with batteries and solar, the price is coming down quickly—about $20 000 on a solar battery system to be 90 per cent off. That 90 per cent is an average over the whole year—in the summertime you will be generating more, in the wintertime you will probably need about 30 per cent from the grid, but generally it is about 10 per cent. If you want to be off grid, the reality is that you are going to spend somewhere between two to four times that.

Mrs FYFFE — To be totally sufficient on…

Mr JUDD — Yes. Not 100 per cent, but pretty much, so the economics of that does not play out particularly well. You can see where the grid actually brings some economic sense to this whole thing. But we know from our own studies and European studies that if you group houses together in a group of 30 houses and if you can get the group of 30 houses to share their power—that has got social implications in it, but if they all wanted to share in a very equitable way—the reality is you only need half the infrastructure in terms of solar and batteries at each house. The concept of the grid then becomes the mechanism that allows the sharing. That is just fact. What we want to do is work with the communities to create a community minigrid that allows us to put in a very economic amount of infrastructure and then work with them to develop the sharing governance, if you like, and from that we can create the community minigrid.

How does this actually work? From a technical perspective it is quite straightforward. From a retail perspective it is actually quite complex within the current regulatory framework, because to effectively get sharing from a non-technical perspective, from a retail perspective, you really need the whole community to actually not only buy a community energy system, but you need them to…

Mrs FYFFE — You need them to invest.

Mr JUDD — You need them to invest in the systems, but then you need them to all belong to a single retailer so the concept of the sharing can actually work. So physically we can make it work, but in the retail concepts we have got to buy and sell the power between all the houses. The retail—to make that work you really need to create a single retailer for that community, if you like, or have a single retailer for that community. We believe that as part of that solution there is an opportunity to create a community retailer, because we can bring the system—the technology in terms of the solar and the battery and the control systems and all those sorts of things—but you need the retail part of it to allow all the sharing to happen.

Mrs FYFFE — So there would still be metering?

Mr JUDD — Absolutely.

Mrs FYFFE — Because some people would use far more than others?

Mr JUDD — Yes, and then there is the governance around the equity of that sharing and all that sort of stuff.

Mr MELHEM — And they will be using 100 per cent power generated from a renewable source instead of taking from the grid…

Mr JUDD — Almost—90 per cent.

Mrs FYFFE — But there is maintenance and everything else.

Mr MELHEM — What I was asking is: they will be able to use 100 per cent of the power they have generated themselves from whatever they have got, whether it is solar, wind or whatever?

Mr JUDD — Yes. I will actually just take you to another slide. I can answer that just to say, 'What is a minigrid?' Go back to slide 10. A minigrid in our concept is effectively a solar system, a battery system to store the energy and then a home control box that then controls and optimises the energy flows at the house level—for example, it knows when the person comes and goes. It can manage the battery charging and discharging and all that to optimise that household. So there is a control system that lives at that level. It goes to the reliability thing—for example, if the grid drops out, there is the opportunity for that house to isolate itself. It has got its own little control system, its own energy system, and it can look after itself while it is off grid for a period of time. At some time it might run out of power and have to shut down.

Mrs FYFFE — Providing the batteries have still got storage.

Mr JUDD — Yes, providing the batteries have got storage. If you then group the houses into 30 houses or so, then you have got the opportunity. What you need then is a minigrid controller. Typically a transformer has 1 to 60 houses on it, so that is the perfect size. You make each minigrid controller per transformer on the distribution network, and that minigrid controller optimises the energy flows and usages at that house level. There is a technical optimisation, but there is also optimisation around the preferences of the people. The people might like to share for environmental reasons or social reasons—you talked about low-income people. This might be an opportunity for people to say, 'I am happy to share with the community to support the community'. We believe that there is an opportunity not only from a technical perspective but from a community governance perspective and a community goodwill perspective—so social and environment—to engage and allow the community to choose their preferences around that. That is where we get back once again to this concept of having the community involved in the retail process. The way we look at it from our community solution, which goes from technical to governance, is that the existing retailers still have a role to play in terms of wholesaling, hedging, compliance and that sort of stuff, but we believe there is a real opportunity to create a community retailer that then can take on a role in this retail process that manages the community minigrid or microgrid.

Mrs FYFFE — So a retirement village should be the perfect environment.

Mr JUDD — Yes, and what we would bring is the opportunity for them to set their retail prices, for them to be involved in acquiring customers, for them to provide local support—that really then brings local employment but a local dividend as well. It brings the local government an opportunity to govern how they use their renewable energy, how it is shared and all that sort of stuff. Signing up customers, looking after customers that cannot pay their bills, collecting the moneys and that sort of stuff—we believe there is an opportunity for the community to take that role with a regulated retailer sitting behind. We are having conversations with retailers around creating that sort of model. We do not want to be the retailer, we want to be the microgrid supplier and operator.

Mr CRISP — You put the technology on the transformer?

Mr JUDD — Yes, and at the house. That actually controls the system. One of the things you have got to understand about distribution networks: if you put 100 per cent solar on community houses on one transformer or in a community, that would cause some significant issues to the distribution network, because the reality is that if it is a hot, sunny day, an uncontrolled large-scale renewable energy system will

push the voltage so high that it will cause problems. So when we move to this renewable energy future, we are going to have to put control systems at the houses so that the distributor can say to the new generators, 'We need to turn you down a little bit, because if we do not turn you down, we are going to cause quality issues on the network, and that will cause problems'. That also creates then the opportunity for management and then managing that sharing power as a community and all those sorts of things.

The control systems: you have got your house control system, you have got your minigrid control system and at the highest layer you have got the network control system, where the network has got to be able to say to the minigrid, 'We need to turn down a little bit, there is just too much power coming onto the grid. We have all got a responsibility to maintain the quality of the power, so we all have to turn down a little bit'. That is how you get the reliability into the system. You can build the reliability into the system, but you are going to have to build control systems into it that can act at house level, community level and network level.

Ms RYALL — Mark, I am interested in what you are saying. Obviously control components are vital to stability across the board.

Mr JUDD — Yes.

Ms RYALL — There are a whole lot of different groups that popped up, are now popping up and will continue to pop up from a community perspective. How do we ensure that all of this is managed in a controlled way so that we do not end up with problems both locally and across the network?

Mr JUDD — From my perspective, from the retail perspective, I think there is a real opportunity for the government to take a role to help communities develop this community retail concept properly within the current regulatory framework, and then looking at it beyond that as well. I think there is a real role, because I think there is real value in community retail around giving the community control of their power in a governance perspective and from a community-sharing perspective. I am really keen that that is one of the things that I think the government can bring some coordination to.

Mr DILLON — Degrees of interaction between the various levels are going to be absolutely critical.

Ms RYALL — Absolutely.

Mr DILLON — There is how the distribution network—like AusNet, for example—interacts with the local minigrid operator, at what stages are we asking for things, when is it appropriate to actually demand they turn off or turn on and, again, who pays for what as part of that arrangement. That is going to be critical to making sure that it is stable.

Ms RYALL — Yes. I think one of the risks that needs to be managed and planned for up-front as opposed to just all these things popping up and then working out is, 'Hang on a minute! We've got problems here'. How do you suggest the way forward might be?

Mr DILLON — One of the key ones is to trial it. The previous witnesses were talking about a trial out at Mooroolbark. That is our minigrid trial. It is an existing street—14 homes. We have just finished putting in solar and battery to them and testing how house X and house Y would work if they were islanded from the grid for a period of time, how might a couple of combinations of the houses—and indeed the entire street—work, and then what sorts of exceptions? As we go through summer, for example, we are starting to see where they are generating too much on a sunny day that is not too hot, or they are short on a day that is really hot and they have all got their air conditioners on, and how we might learn both in terms of operating the minigrid as an operator but again that interface with the broader grid.

Ms RYALL — As different social enterprises pop up, different community networks pop up or groups pop up—or even existing ones—is there a way to make sure that they engage with network providers to manage this? Or are you aware of any that are just doing it on their own and saying, 'Okay, someone else will take care of these components'.

Mr JUDD — We are being more and more involved. There is a lot of work in that. We work closely with Yackandandah, because they are a very mature renewable community. One of the things they are struggling with is the fact that we are talking to them openly about this and getting their feedback, but they struggle to get the support they need to allow them to make the decisions. I agree with Andrew. If you did a trial with a community like that and gave them the support to participate more actively with us…

Mr NARDELLA — What do you mean by support? What are you talking about?

Mr JUDD — They just do not have the resources to put into it.

Mr DILLON — Or the expertise in some things.

Mr JUDD — Or the expertise. They need to have expertise on their side of the fence, because ultimately they are the ones that will become the community retailer. We can facilitate support. I think it is a really important part, because the community retailer is part of this renewable energy future and because it brings this local governance, local dividend, local employment.

Mr NARDELLA — But, again, what are you talking about in terms of support?

Mr JUDD — Giving them the resources.

Mr NARDELLA — Yes, but what does that mean? I could give them a book; that is a resource. What are you talking about?

Mr JUDD — To be blunt, give them some money that allows them to employ the people that they need to help them make the proper decisions around this and work with us, and on top of that allow them to employ themselves a little bit to talk to their own community more. At the moment all these community groups run on social goodwill and environmental goodwill, but that only goes so far before they just run out of…

Mrs FYFFE — Is economy of scale not going to stop a lot of these things happening? Because if they are going to have to look after it themselves, then they are going to have to employ expertise.

Mr JUDD — I think it is the journey. I think once we set up a community retail and a community microgrid and we have it running for six months, then there will be a recipe that is created that can be duplicated across the nation, if you like. But it is the first person that is going to put in all the work and understand: what risk can a community take in this space that it is not too much for us? That is still a question and answer that we need to explore. You need to explore that with experts in the field to say, 'The community can take on this level of risk in this role and they can take on this level of governance, and this will allow them to employ this amount of people, whether it is a part-time person', but they can then realistically take it on.

Ms RYALL — You have that trial, but in the meantime you have got other solar, wind, community projects which perhaps are either reinventing the wheel or may make errors. In my mind I am thinking: how do you put in some controls to ensure that there is cross-fertilisation of understanding and ideas on what needs to happen rather than a whole lot of people with perhaps similar mindsets in some ways, but not the expertise and understanding in others, to ensure that as this industry grows and grows you have got the requirements that are being met and the controls in place to manage it appropriately?

Mr JUDD — Reinventing the wheel is okay because people have got to learn, and that is the way you learn a little bit, so I think in the early stages that is okay. As you get along you really want to get efficient. From my experience working with the community energy groups, they are very good at sharing information and all that sort of stuff—especially the Yackandandahs and the Morelands and those sorts of guys.

Ms RYALL — They are the ones you are working with. Are there any others around that you not working with, or someone is not working with, from a network distribution perspective?

Mr DILLON — If you wanted to do it without getting involved in a network company or an existing retailer, it is almost impossible. Some of this is about removing current barriers to that. As long as we are studying things and doing trials, as we progressively work our way through that, it can certainly be managed. What would be dangerous is to have open slather on a retailer, for example, and suddenly you have a community retailer that is up for $12 500 a megawatt hour for this energy they have to import, and they were not hedged for it or any of that sort of thing. It is about progressively doing those things.

The CHAIR — Community minigrids rely on battery storage. How reliable is the current battery technology for supporting the network during peak demand or outage?

Mr JUDD — At the moment batteries are basically too expensive, so we really have to wait a little bit. But the reality is you can build a minigrid or microgrid with solar only. There are good advantages in doing solar only and then allowing the battery to come, which will be in the next year or two or four, depending on what you believe. Once you get a critical mass of batteries into a community, you are then in a very good position to create a very reliable network. In terms of at the house level, if you have it off grid, you can isolate the house at a microgrid level where you could isolate a transformer and operate the whole minigrid as 30 houses. You can really build a very reliable system once the batteries come in.

Mr CRISP — We are very much at the front end of this. Is there anywhere else where this is up and running so we can see what it looks like as it matures? Is there anywhere else in the world or anywhere else in Australia where we have got a minigrid that has been running for some time so that we could ask questions about how it is going, because these things change from front end to operation?

Mr JUDD — That is a hard question for me to answer. We do look at what others are doing, and there are lots of minigrid trials and all those sorts of things, and peer-to-peer sharing and all that sort of thing. I think we look overseas a little bit in that regard—New York and those sorts of places. A lot of the minigrids and a lot of the battery offerings are very much about the house. They talk about fleet management. It is really just the individual houses being able to manage—there is a group of individual houses—whereas we are talking much more about an integrated solution. It is the house, yes, but it is also the group of houses that allows you to share from a retail and a technical perspective, and then it is a network solution, so we are building that big a solution. We are not seeing a lot of that happening. There is a lot of conversation around that, so we are driving really hard to do the Mooroolbark trial, which is a first certainly in Victoria and possibly in Australia. That microgrid is very much about the house—the grid and off grid as well—which is not particularly realistic, but it is a good test. So I think in a way Victoria is leading the way a little bit in this space.

Mr DILLON — I think a lot of the focus has changed. There has certainly been a desire by many of the environmental groups to figure out ways to get off grid because I think there has been more of a realisation that the biggest and best battery there is is the grid, so it is about some of these projects: how do they manage to use a lot of their own energy but then get a cost-effective reliance on the grid to be able to manage them all the way through, often even using existing infrastructure between houses, and that sort of thing?

Ms RYALL — Would they have almost like a body corporate, if you like, but for the energy side of it? Then when you have got people moving in and out, selling their houses and so on…

Mr JUDD — That is a legal contract concept, which will work okay. There are good models for that now. One of the models is that you just take the risk that the person will actually buy into the system when they come in, so we are looking to do that. That is one of the things the community can do in terms of when someone moves houses or changes houses—they are there as that local support so residents are not calling a line which is somewhere else.

Mr MELHEM — Can you give me a practical example? You are talking about minigrids—30 houses that produce 100 000 kilowatts. House A produces 4000, house B, 3000, and their consumption might vary as well—how in practical terms would that work? Would everything go into AusNet as the retailer and then you would distribute that back the houses?

Mr JUDD — No, we are not a retailer. We are the distribution company.

Mr MELHEM — Sorry, distribution, yes. How would that work in real life?

Mr JUDD — There is enough diversity in 30 houses to have about half the infrastructure, but realistically how it works is that someone will have sharing preferences. Let's say everyone is just happy to share. If we have a house on the grid that has run out of battery power because they are a big user, then they need more power, but we know that the people in another house are on holidays, and we have got the control system. We can actually put the power into the grid and effectively move it to that house. That is a retail concept as well as a technical concept. We can actually tell the battery at the house to export more power than the house is using. If that happens—and let us say the house over there needs 2 kilowatts, we can tell the battery at this house to put 2 kilowatts extra on the grid than it is using, so that will flow back into the grid and then we can allocate that 2 kilowatts to the house that needs it.

Mr MELHEM — One last question, and you can take it on notice if you like: in relation to maintaining the balance between a baseload supply and renewable energy as far as community-based—you are not a retailer, you are a distributor, so how do you maintain the balance between the two so one is not compromising the other?

Mr JUDD — This is the governance question for me, and this is where the concept of a community minigrid is really important for me. If it is about community, then I believe the governance of it should be with the community. Then they can manage their grid power usage, if you like, and their renewable energy power and how they sell it by all those sorts of things. They could choose to buy renewable energy and pay the extra 3 cents per kilowatt hour, so when they have all run out of batteries, the energy they would then be getting is renewable as well—hydro or other sun—that is being put into the network. Does that answer your question?

Mr MELHEM — Yes.

Mr CRISP — You are going to offer a high-level service to move this energy around? You are going to charge for that?

Mr JUDD — Yes.

Mr CRISP — There will be a service charge for that. When you are looking at the costings and benefits, when you are trying to go to this model—I saw the economics of 0.5, but then you are going to erode some of that with your costings, as you have to, because you are installing equipment and you are operating the equipment.

Mr JUDD — Yes, and I can do that…

Mr BOURMAN — Actually can I interrupt, because I have got something along similar lines. With one whole grid, you have got an economy of scale. With a whole lot of little grids, you are not going to have the economy of scale. So what is going to be in it for everyone—for AusNet and for the end users? Because where you can defray the costs over a whole grid, you will not be able to in a minigrid situation.

Mr JUDD — So, yes, the answer is that there is a scale issue with it.

Mrs FYFFE — Economies of scale, yes.

Mr JUDD — So in the first parts of it we would likely have to bear some of the cost until we get to the scale, because that is the model that you have got to work through. And then here is the model, and what do we need? One hundred thousand houses before this works. But that is the future and that is what we have to do because that is what our communities want.

There are two reasons we need to control systems as well. One is that if we put 100 per cent renewables into a town, the network needs to have some control of that to allow everyone to work properly, so there has got to be a control system at that level. And then at the other level, it is the sharing of the governance

and managing the renewable energy use and grid power usage, and sharing to meet the community expectations as well.

Mr CRISP — And there will be a charge?

Mr JUDD — Yes.

Mr CRISP — What sort of charge structures are you considering in this?

Mr JUDD — If you look at a subscription, it would be a fixed price per house per month. So it is not a scalable thing; it is just a fixed price. That then creates the opportunity for retailers to really come in at a fixed price per month as well, and then you allow the community to set the tariffs and all that sort of stuff. It is not my job to do that, but that is the sort of model that you would have.

Mr CRISP — And that would be considerably more than the daily fixed charge that we have for connecting to the grid now, which is a retail set that flows back to you guys?

Mr DILLON — Part of it, yes.

Mr JUDD — We can bring efficiencies. So we optimise the energy use in the house because if we know how the house uses power, we then optimise that to make sure we use as much renewable energy. So whilst there is a cost, we can also bring significant savings to the table as well.

Mr DILLON — Part of the challenge behind all this is making sure, as I touched on at the start, that our pricing is fair, because the challenge we have is if one community is taking advantage of challenges in the current system where effectively everyone else is cross-subsidising them, then we are all going to lose going down the track. We already have this challenge with our power prices and the quicker we are able to get to better pricing that—if a community chooses to do something, that is fine, because that is not imposing a cost on other parts of the state or wherever to do that.

Mrs FYFFE — First of all before my question, I would just like to thank AusNet for their work during the recent storms. I have got an area where a lot of people were without power for five days, and it was very tough. I just appreciated particularly the linesmen who were out there in the rain and everything else doing the repairs. I do not know how they did it. The damage was immense.

One thing has come into my mind. The previous submissions, and I am not sure if you were here for them, were talking about the local government's involvement, and the bells were ringing. About 20-odd years ago before council amalgamations, what was then Doncaster Council and, I think, Box Hill both had their own power companies. I suppose they were what you would call retailers. I am not sure if they were responsible for the actual infrastructure.

Mr DILLON — Yes, some of them were networks back at that stage.

Mrs FYFFE — Yes. They made a reasonable amount of money from it, and then they sold them and made a lot more and did that. But there were difficulties then, and I look at this and having all these individual little ones as someone living in an area where there are often things that happen. You are not going to have so many powerlines coming down with trees, but someone has got to be responsible for safety. So does that mean that you are going to be the one ultimately responsible for the safety and for making sure that everything is done to the nth degree? You cannot just have a lot of just people like me. I am still working out how the power gets from my switch to my light so, you know, you cannot have people like me doing…

Mr JUDD — We have a responsibility around that from a network perspective, but if we were deploying minigrids and running them and all that sort of stuff, that is one of the roles of these systems—to make sure that the system is run safely and all those sorts of things.

Mrs FYFFE — So public liability will still remain with you?

Mr JUDD — Well, that is one of the big questions in this whole space…

Mr DILLON — The network's part in this is certainly a big issue. It depends who is owning, who is installing —

Mr JUDD — Who is running.

Mr DILLON — who is running. It is a bit like, is Coles responsible for the truck drivers? While it depends on the arrangements…

Mrs FYFFE — We could be creating a bit of a nightmare, could we not?

Mr JUDD — Yes, it has to be stepped through very carefully because I think also the add-on for me to that is from a social perspective. Because people want to share and put these minigrids in, they are going to be working together as a community. If the sharing behaviours in the community do not work very well either, then we could get ourselves into trouble with that.

Mrs FYFFE — Absolutely. Oh, God—neighbourhood disputes. They would be knocking on our doors.

Mr JUDD — Yes, so we are doing some research with Deakin University around what we need from a governance-sharing perspective to make sure that it works and the right behaviours are set within these microgrids.

Mrs FYFFE — So we need to hasten slowly with this sort of thing.

Mr JUDD — Yes, so that we do not actually start off with all this nice goodwill and then find out we have actually set in place the wrong behaviours. We are doing some work in that area as well.

Mrs FYFFE — Okay, good.

Ms RYALL — In our terms of reference, we have to look at best practice models around Australia and also internationally. It sounds like perhaps best practice has not been reached yet or it is still in process to a degree because, as you said, there are so many layers. You are owning. Obviously, the community get the goodwill, you get the buy-in and then you have got your ownership, your installation, your running and so forth. Internationally there may be different ways as opposed to the way we run here, so I am just thinking, is there anywhere else in Australia that is as advanced as you are in terms of, say, Mooroolbark or Yackandandah and so forth in looking at the whole as opposed to just the idea and the concept or to just creating the energy?

Mr JUDD — There is, and I could supply a little list, like the Byron Bay guys and all that sort of stuff. So if I went back to my colleagues, I could get a little list of them.

Ms RYALL — That would be good.

Mr JUDD — So in terms of councils and all that sort of stuff, the European councils often play a retail role.

Mrs FYFFE — But like Box Hill and Doncaster did.

Mr JUDD — Yes, and then there is a real opportunity. We are working more closely with the water authority as well because there is an opportunity as part of the control system that looks after the imaging. We can also monitor and look after your water flows and all that sort of stuff and give you good visibility with that.

Ms RYALL — It is all this complexity that would make up a best practice model —

Mr JUDD — Yes.

Ms RYALL — and I just think as part of our terms of reference we need to explore what constitutes that and what examples you might have.

Mr JUDD — I can come back with a list.

Mr CRISP — Can you hang for 5 minutes so we can talk about microgrid synchronisation—not here, but offline?

Mr JUDD — Yes, I can talk about microgrid synchronisation.

The CHAIR — Okay. I think that is a good way to end.

Mr JUDD — It is a really interesting topic if you want to stay!

The CHAIR — On behalf of the Committee, I would like to thank you for providing the evidence in your contribution. Thank you very much.

Witnesses withdrew.