

# TRANSCRIPT

## LEGISLATIVE COUNCIL ENVIRONMENT AND PLANNING COMMITTEE

### **Inquiry into Renewable Energy in Victoria**

Melbourne—Wednesday, 16 March 2022

#### **MEMBERS**

Ms Sonja Terpstra—Chair

Mr Clifford Hayes—Deputy Chair

Dr Matthew Bach

Ms Melina Bath

Dr Catherine Cumming

Mr Stuart Grimley

Mr Andy Meddick

Mr Cesar Melhem

Dr Samantha Ratnam

Ms Nina Taylor

#### **PARTICIPATING MEMBERS**

Ms Cathrine Burnett-Wake

Ms Georgie Crozier

Mr David Davis

Dr Tien Kieu

Mrs Beverley McArthur

Mr Tim Quilty

Mr Gordon Rich-Phillips

**WITNESSES** (*via videoconference*)

Mr Kane Thornton, Chief Executive Officer, and

Mr Arron Wood, Director, External Affairs, Clean Energy Council.

**The CHAIR:** I declare open the Legislative Council Environment and Planning Committee's public hearing for the Inquiry into Renewable Energy in Victoria. Please ensure that mobile phones have been switched to silent and that background noise is minimised.

I would like to begin this hearing by respectfully acknowledging the Aboriginal peoples, the traditional custodians of the various lands we are gathered on today, and pay my respects to their ancestors, elders and families. I particularly welcome any elders or community members who are here today to impart their knowledge of this issue to the committee or who are watching the broadcast of these proceedings. I would also like to welcome any members of the public who may be watching these proceedings via the live broadcast.

At this point I will take the opportunity to introduce committee members to you. My name is Sonja Terpstra. I am the Chair of the Environment and Planning Committee. Joining us via Zoom we have Mr Stuart Grimley, Dr Samantha Ratnam, Mrs Bev McArthur, Dr Matthew Bach and Ms Nina Taylor. We may have Cliff Hayes, who is the Deputy Chair, joining us momentarily as well.

All evidence that is taken today is protected by parliamentary privilege as provided by the *Constitution Act 1975* and further subject to the provisions of the Legislative Council standing orders. Therefore the information you provide during the hearing is protected by law. You are protected against any action for what you say during this hearing, but if you go elsewhere and repeat the same things, those comments may not be protected by this privilege. Any deliberately false evidence or misleading of the committee may be considered a contempt of Parliament.

All evidence is being recorded, and you will be provided with a proof version of the transcript following the hearing. Transcripts will ultimately be made public and posted on the committee's website.

If I could get you both now, just for the Hansard record, to please state your names and the organisation you are appearing on behalf of. Perhaps, Kane, we can start with you.

**Mr THORNTON:** Yes, sure. My name is Kane Thornton. I am the Chief Executive of the Clean Energy Council.

**Mr WOOD:** Arron Wood, Director, External Affairs, Clean Energy Council.

**The CHAIR:** Great. Thanks very much. With that, we will hand over to you for your opening remarks. If you can just give us a brief outline of your submission, but if you can keep it to maybe 10, 15 or 20 minutes, that will allow plenty of opportunity for committee members to ask questions of you. So over to you.

**Mr THORNTON:** Great. Well, thank you, Chair. And thanks for the opportunity to present to the committee at what I think is a really exciting and opportune time for this inquiry. I will take our submission as read but maybe just make a few points of emphasis. I will keep my comments fairly brief. I find this topic in particular is wideranging subject matter, and we are really keen to have plenty of time for open questions and discussion. I think really we find ourselves with this inquiry at a pretty extraordinary moment in time for the state of Victoria. As we know, the energy system is in transition globally, around Australia and of course right here in Victoria. That presents challenges but also enormous opportunities, particularly for a state like Victoria, which is blessed with some of the world's best renewable resources. In fact there are very few other jurisdictions anywhere in the world that have the combination of wind resource, both onshore and offshore, solar resources, particularly towards the north of the state, and also hydropower resources and ocean resources, that Victoria does. And that, as I said, presents an enormous opportunity for the state.

What we have seen over the past five years or so is enormous growth in levels of investment in renewable energy in the state of Victoria. I guess, in utility-scale projects we have seen record levels of investment in things like wind farms and solar farms throughout the state of Victoria but also the growth of householders also taking the opportunity to put things like rooftop solar on their house, and now a shift towards household

batteries and that sector really starting to grow. I guess, through all of that investment and opportunity we have seen the economic and particularly the employment opportunities that are created in metropolitan Melbourne, in regional centres but also right throughout rural and regional parts of the state. If you go to communities like Portland or perhaps Ballan or Ararat, you can see the effect that scaled investment in things like wind farms and solar farms is having on those communities. The level of direct employment that is created, particularly around the construction phases of these projects, but also the flow-on economic benefits to these communities are quite significant and are very noticeable in communities and regions that are otherwise facing some headwinds.

What I will say is that that investment has been in the state of Victoria significantly supported by the Victorian renewable energy target. This is obviously a policy that we have really welcomed and that came at a very important time for the industry. We know that particularly the federal political environment has been very difficult as far as climate and energy for quite a few years, and very clearly there is a role for state governments to step up and fill that void and provide the sort of leadership that is necessary to make sure we continue the transition and take advantage of those opportunities in front of the state of Victoria. I think credit to the Victorian government for their leadership on VRET—VRET 1 and now heading into VRET 2. These are really important policies.

What we have seen as the industry has scaled and the transition has picked up speed are some of the challenges around the electricity grid, and we talk about that in our submission. This is a challenge. It has really loomed as the most significant challenge as far as the next wave of investment in renewable energy and energy storage. Clearly there is a lot of reform required, both in terms of building out and strengthening the grid in the right way. It is clear that our existing electricity grid was designed around the 20th century: a small number of centralised power stations sending electrons to customers. But that is clearly changing rapidly, and our grid needs to change with it. So what we need is a stronger electricity transmission system accompanied by a lot of very technical reform around how the grid operates—how projects get connected to the grid and what sort of standards they need to meet to ensure we continue to have a very reliable and secure electricity grid.

I think it is clear across the country and here in Victoria in particular that that work and thinking are now underway. I think in particular the concept of renewable energy zones is certainly what we see as the key way forward into the future: identify those regions of the state that have very strong renewable resources, where there is significant opportunity, and really concentrate those investments in the grid into those regions but then also ensure that we link that up with local workforce and training opportunities, helping to engage and shift communities, making sure that communities are not left behind and that there are sensible planning policies and community engagement practices; making sure that the rules and regulations that apply to energy projects in that region are all pulling in the same direction and ultimately unlocking those future waves of investment and opportunity.

The other thing I wanted to just quickly note was I made reference to household solar and batteries, and Australia is a world leader in terms of the rate of uptake of rooftop solar. And you know what we have seen that do is really empower households to take some control of their own energy system. We are now seeing obviously the uptake of household batteries, the growth in demand for electric vehicles, and all of these things together we think are part of a really important future of empowering householders, allowing them to better manage their power bills, to generate their own power, to store it and to use it as they see fit and all of that combined actually helping to reduce the cost and support the energy system more broadly.

Again, I want to recognise the Victorian government and particularly the Solar Homes program as really a very innovative and powerful way for the Victorian government to support householders and small businesses to move towards rooftop solar and now household batteries—but also doing it in a way that is safe, is reliable and ensures quality outcomes for those householders. The Solar Homes program I think is a real leader across the nation as far as the way in which it does that.

I guess my final comment on this is really just about the pace of change and the opportunity for Victoria. We have seen across the country the rate at which our old coal-fired generation is closing down. There are very clear climate change drivers that mean those generators do need to phase out the clearly major sources of emissions, but beyond that what we know is that these generators are old, they are getting older and they are becoming less reliable and more expensive to run. So I think we need to be realistic in that the pace of retirement of these generators is only going to accelerate and we do not have time to dither. We need to make sure that we are driving the investment in that new generation now so that it is in the market in operation long

before the next wave of closure of coal-fired power but also and finally I guess recognise the enormous economic opportunity.

The globe is shifting towards a renewable energy future, and what we see is many countries, particularly in the Asian region, looking at Australia with great admiration of our renewable resources. They are clearly hungry for energy, but they are also hungry for zero-emissions energy, and that presents an enormous economic opportunity for Australia and the state of Victoria to take advantage of our strong investment base. It is a great place to invest. We have got strong relationships particularly with those big Asian economies and many of the big energy users in those economies. We have got a lot of the port infrastructure. We have got extraordinary renewable resources. And bringing all that together presents a quite extraordinary opportunity for the state to set us up for a very vibrant future for many decades and indeed centuries to come.

So, Chair, I might maybe leave it there as far as opening comments go, and I am really happy to take questions and continue the conversation on what is a fascinating topic to all of us.

**The CHAIR:** Great. Thanks so much for that. All right. Over to questions from the committee now. Dr Ratnam, a question?

**Dr RATNAM:** Thank you, Chair. Thank you so much, Kane and Arron, for presenting today and to the Clean Energy Council for all of the really powerful work that you are doing in the sector. It is very refreshing to hear your evidence this afternoon. I want to pick up a couple of points that you raised in your submission and in your evidence here today. In terms of this next stage of the challenge, as you have framed it, we have made some really good progress, which we should be proud of, and now it is about accelerating our ambition, given the nature of the challenge that we are faced with. You highlight in your submission some of the challenges in this next stage and talk about infrastructure—for example, the renewable energy providers connecting to the network—and you have gone into some detail, which I really appreciate. But I wondered if you could expand on that, particularly given that we have privatised so much of our electricity generation and distribution system and some of the problems we seem to be encountering now are a product of these different systems talking to each other—or different providers—and needing to coordinate with each other. And you outline in your submission that it then falls on the renewable energy provider to come up with those costs—which are significant when you take the total project costs—which can be a real barrier. I think you said with renewables it was like 15 per cent of your project costs could be these transmission network infrastructures we have to build in. Can you talk to us about what you think the solutions are? To get to the next stage is it going to take government investment in that infrastructure, or what are the ways? I do not know what the answer is. I am genuinely interested in hearing what the solutions are to this barrier that is now in front of renewable energy providers.

**Mr THORNTON:** Look, it is a really great question, and I think it is a very astute one. It is clear we are in a state of transition, as I said, from an old paradigm around the grid to the new. It is worth noting a couple of things, and one is that the technologies that we are building, whether it is your household solar system or a large wind farm, are highly sophisticated pieces of technology. If you have ever visited a solar farm or a wind farm, it becomes very obvious in contrast to some of our old coal-fired generators that were built many decades ago. I guess the way we think about it is we have got some very sophisticated kit, essentially, now being installed across the state. What we have not done a very good job of is planning the grid and preparing the grid. Unfortunately I think we have wasted a fair bit of the last decade as a nation having some pretty silly debates about whether climate change was real or not rather than getting ready for the inevitable transition. What that means is that when we are building a wind farm or a solar farm, it is often rubbing up against some of these fairly antiquated rules or regulations, or in some cases physical equipment that is just not prepared and has not been modernised. We have been through a period where what that has meant is that renewable energy projects have had to install a particular piece of kit to be able to essentially massage its interaction with the grid, to be frank, in a pretty antiquated kind of way.

Now, there are quite a number of changes going on here. I should say the Clean Energy Council is working very, very closely with the Australian Energy Market Operator, who have a lot of responsibility in this space. They are doing some really important work at the moment. I think it is fair to say they are playing catch-up, but they are now really focused, working very closely with industry and the network businesses, on how to make sure that the grid is up to speed, how it is operated and managed, the processes that they go through and the way they analyse the grid. This is all incredibly complicated technical stuff, but there is now an enormous amount of

focus on those issues so that we have got a much better view as to how the grid will operate and a much smarter view on what sorts of characteristics and settings we want to see in wind farms and solar farms and with the batteries that are being connected. I guess what that means is that some of the costs that are being incurred on renewable projects are starting to ease off because we have got a more sophisticated view. And there are also some real changes that are now going through that mean that instead of a particular project having to install a particular piece of kit, that will actually be done on a system-wide basis and on the network. It will be a shared cost and will ultimately operate more effectively and more efficiently because it is for the whole system rather than just being forced on one particular project.

The final thing I will note is that I think the Victorian government through VicGrid have identified some particular investments that need to be made in the grid, and we are really pleased to see them leaning into those and making those a priority and helping to support those investments, because they are very targeted pieces of investment in the grid that are going to unlock more and more renewables.

**Dr RATNAM:** Great. I have one quick follow-up question on that. You talked also about planning approvals and the other systems—there are infrastructure systems that need to be systematised but then also the regulatory environment and planning approvals. Are you seeing any movement there, or do you feel like that is still a piece of work to be done so that the providers can have some more certainty about the timeliness of their projects being approved?

**Mr THORNTON:** We certainly have seen some real improvements over the years. I think it is fair to say that projects like wind farms are pretty complex projects, so if you are a local government, coming to terms with the complexity in terms of the planning process around a wind farm, for example, can be pretty complicated. So we have been pleased to see a wide range of reforms put in place—for example, the Victorian EPA are now playing a much more active role around wind farms—and some really clear improvements to that extent. We do have a concern at the moment just around some of the legal processes and activities that have been undertaken. I should say we are not averse to scrutiny and the judicial system playing a role in essentially adjudicating and making sure there is consistency and honesty and all of those practices around the way in which projects are developed and where and how and how they are approved, but we do have a concern about how some of those processes are being used now to essentially just attempt to continually delay projects rather than address any genuine issues that might have been present. I think that is a topic for further reflection and insight, without, as I said, undermining the proper democratic and judicial processes that are the strength of this country and certainly this state.

**Dr RATNAM:** Thank you. I appreciate that.

**The CHAIR:** Great. Thanks. Dr Bach.

**Dr BACH:** Thanks, Chair, and thank you both for being here. I enjoyed both reading your written submission and hearing from you today about the exciting opportunities as we move forward. Nonetheless, Chair, I do not have any further specific questions.

**The CHAIR:** Thanks, Dr Bach. Ms Taylor.

**Ms TAYLOR:** Thanks. It has actually been a really uplifting discussion. I have really enjoyed it. But anyway, we are not here for enjoyment; I am just reflecting. You were talking about the Victorian renewable energy target 1 and then 2. I get really excited about this as well, but perhaps for a lay person it could seem like just a big acronym. It would be really nice to translate specifically what that means. As far as I see it, it is a way of driving investment in renewables and also helping to drive down emissions, but are you able to perhaps unpack that more specifically? What does it really mean for the market and the broader community?

**Mr THORNTON:** Yes, for sure. It is a great question. I am glad we have provided a source of optimism. This is a topic that can sometimes be a bit heavy and depressing, but there is a lot to be excited about. Look, the VRET program, as I said, has been absolutely crucial to providing certainty for investors in the state of Victoria. I guess ultimately what we are talking about are big projects; they cost often many hundreds of millions of dollars. What we know is that investors are very enthusiastic to build and develop these projects. We know that they are the lowest cost form of new generation to build, so they are cheaper than any of the alternatives, but nevertheless, in part because of the uncertainty at a federal policy level—‘Do we have a price on carbon or do we not?’, ‘Will the federal government be building new generation or not?’—policies chop and

change. All of that means that investors have been hesitant to make these big investments. That is where the state governments do play and have played a very important role.

VRET is the Victorian renewable energy target, which is basically a mechanism that has been designed to provide some certainty to those investors. It means essentially offering a contract for the output of the project. These projects get built, and as I said they are quite capital intensive. They will then operate for 20, 25, 30 years, and investors need some level of certainty about the revenue they will get by selling the energy. In difficult times, as we have seen over the last five years, having the Victorian government essentially as an offtake partner prepared to enter into a contract that gives that investor some certainty about the revenue they will receive allows the investor to go ahead and essentially make a commitment to the project, construct the project and have it come into operation. Noting what we have seen is that this comes at very little cost to the Victorian government and taxpayer because ultimately the Victorian government is purchasing that electricity on a contract but essentially then gets to utilise or sell off that electricity at very little cost. In some cases we have actually seen those contracts being quite profitable for the taxpayers of Victoria because of the nature of them. But from an industry perspective they provide some of that assurance and confidence to be able to go ahead with the projects.

It is a model that we have seen taken up both elsewhere in Australia by the ACT government and now the New South Wales government with a scheme that is similar—all of them have slight nuances in terms of the specifics and details about how the contracts work—but it is also a model we have seen really right around the world. We have seen hundreds of jurisdictional governments and national governments put in place similar schemes as a really low-cost way to deliver competitively priced renewable energy and to give investors the sort of certainty they are looking for. Hence we are big supporters obviously of the original VRET and now obviously really supportive of the next phase.

**Ms TAYLOR:** Thank you. I think that is really helpful.

**The CHAIR:** Great. Question, Mr Grimley?

**Mr GRIMLEY:** Thanks, Chair. Thanks, Kane and Arron, for your submissions, both verbal and written. My question is in relation to the part of your submission where you mention that Victoria can achieve over 90 per cent renewable within a decade, and that is with reference to some evidence there through the CSIRO et cetera, with the small amount of gas power remaining. What amount of renewable generators would we need to build and what kind of transmission infrastructure is needed for that to happen?

**Mr THORNTON:** I guess firstly in terms of the transmission infrastructure, look, we really rely heavily on the Australian Energy Market Operator. They are really the experts in both managing the grid but also forecasting what the future energy system should look like. The integrated system plan that they prepare and now publish every two years I think really is the oracle as far as what the electricity grid should look like into the future. It is not for me or, to be frank, anyone else to really critique that. They go through a very, very rigorous process, extensive consultation and analysis that informs that, and I think that ISP really gives us a very strong view around what the transmission system should look like. Clearly it means a stronger backbone throughout Victoria, and we know that there are a number of projects now starting to proceed across the state of Victoria, and also stronger interconnection into other regions.

In terms of the energy mix, look, I have been in the energy sector for about 20 years now, and I can tell you it is a mug's game trying to forecast exactly which technologies will take up what share into the future. But what we do know is that the energy system of the future is going to be dominated by wind and solar as far as the sources of generation go, and then complemented by energy storage, both in the form of traditional hydropower and pumped hydropower and now also batteries at all scales—everything from residential-scale batteries through community-scale and utility-scale batteries. I think this is the area from a technology perspective that has moved the quickest in the last couple of years. The pace of development of batteries has been extraordinary. We have seen enormous cost reductions, to the point that these projects are now going ahead around the country free of any subsidy, just based on the commercial market reality.

I am not trying to evade your question but to say that I think very clearly the future energy mix is going to be really a combination of wind and solar—solar in terms of rooftop. I do not think Victorian households are going to slow down in the medium and long term in their take-up of rooftop solar. It will ebb and flow a little

bit over time, but we are just going to see more and more houses, I think, until we are pretty well saturated with rooftop solar. We are going to see more large solar projects, particularly towards the north of the state. We are going to see more wind farms, particularly onshore in the coming decade, and then I think the opportunity around offshore wind is real. It is not immediate. It is going to take time to develop, but I think we will see offshore wind playing a role alongside batteries. I think some targeted, more hydro projects. Obviously we have got Snowy 2.0 on its way to the north, and then to the south obviously the Battery of the Nation and the Tasmanian scheme, which can play an important complementary role.

Hopefully that gives you a bit of a sense of the different mix of solutions. Exactly what percentage each will play I think is a bit of a mug's game. I think the market will largely determine that based on how the energy system evolves, how each of those technologies' costs continue to evolve over time.

**Mr GRIMLEY:** Thanks. It was a very, very good answer. I suppose the next question sort of leads on to further constraints to renewable energy development. It is in relation to the skills shortage that you mentioned before. What advice can you give to the committee as to what recommendations we can make back to the government about how we can address the skills shortage to ensure that long-term sustainability of employment?

**Mr WOOD:** I might jump in on that one, Stuart. Having spent a bit of time in the TAFE sector recently, what we have got to do is continue to close that link between our TAFE sector and those skills gaps that we are seeing. I think if you look at the electric vehicle sector—a huge, yawning skills gap there. One of the companies alone, the AAAA, does a lot of after-sales retrofitting of vehicles—4000 workshops across the nation, 40 000 technicians. All of those will have to go undergo electrical safety training just to work on vehicles into the future. So that is just one example of the sort of yawning skills gap you have got just in EVs. A similar sort of thing in renewable energy as well—so I think where we want to see JobTrainer and free TAFE lining up to those particular skills areas. The other thing too is looking at things like essentially double qualifications, where you are getting a mechanical and electrical apprenticeship, which is currently being looked into at the moment by ASQA and a lot of the regulatory authorities in the TAFE sector as well.

So I think what we want to do is we want to demonstrate that these pathways lead to good jobs. We want to continually reinforce the sheer magnitude of the transition that is underway with our transition to 100 per cent renewables and what that means onshore but also I think the depth of the supply chain that we are talking about and all the skills shortages across all those categories as well. So when you talk about our ability to export our renewable energy around the world, whether that is ammonia or hydrogen or whichever medium we choose, you are talking about shipping, you are talking about ports, you are talking about major infrastructure constructions. So absolutely we need to supercharge the education sector, largely through the TAFE sector, but the other thing is I think, just like any industry at the moment, we need to open up that skilled migration and get that firing as soon as we can. The opportunity is great, but I think you have just touched on it: the yawning skills gap is also going to play a significant role. And I think Kane will probably allude to the fact that our members are indicating that some of those skills shortages are adding to project costs currently. And when you combine that with materials costs, things start to become a little bit more difficult.

**Mr GRIMLEY:** Thanks, Arron. Thanks, Chair.

**The CHAIR:** Mr Hayes, question?

**Mr HAYES:** Yes. It has been pretty well covered. Thank you very much guys—very interesting. Just to follow up on Mr Grimley's questions we have just heard, because I was thinking of asking very much the same thing: in regard to the sort of transmission infrastructure that you have been talking about, where do you think the government can go in taking the lead on this, or do we really just have to leave it up to competing market forces to sort out the systems? Should the government take the lead in backing some sort of preferential system? And the same thing to do with developing a local workforce—you know, TAFE is very important, as you say, but is there anything that could get young people started right away, like apprenticeships in the area or on-the-job sort of training? I do not know if this is your field to even answer on that, but I would not mind an opinion on it anyway. Thank you.

**Mr WOOD:** I might answer the transmission one, and Arron can pick up on the skills training question. Look, we certainly do think there is a role for government around transmission and the grid, and I think it is

clear that the Victorian government in establishing VicGrid, and the commitments they have made, are responding to that. I mean, I think what we need to recognise is that the entirety of the transmission grid here in Victoria and around the country was actually built by governments. Indeed it was owned and operated by governments for many years. Now, we do know that private investors obviously have stepped in to own and operate these assets, obviously clearly here in Victoria and elsewhere around the nation, and they are prepared to do that. There is, I think, strong recognition from investors that transmission is important but also a strong appetite to own and operate those assets. But they are complex. They are very long lived. There is a lot of regulatory uncertainty. We have been advocating strongly for reform around things like the regulatory environment, particularly the regulatory investment test that is a national test that applies, including here in Victoria. There is certainly reform required there, and the Victorian government, I know, have been championing that reform and working through those processes. But in the meantime there clearly is a role for the state government. As I said, VicGrid, I think, has been established, and I think we have now had some commitments from the Victorian government to make some of those investments to underpin them and to look to accelerate them. VicGrid is a relatively recent initiative, and we hope over the coming months and year or so that its role is really clarified, it starts to build some momentum and we see these transmission and grid issues start to really be addressed. We are certainly pointing in the right direction here in Victoria for sure. Arron, did you want to—

**Mr THORNTON:** Yes. Look, I think it is really a key question, and again it is not limited to the renewable energy industry or to any industry at the moment. I think right across the board there is that skills shortage that has been exacerbated by COVID and that has been coming for quite some time. With that TAFE sector investment, absolutely a bulk of that is in apprenticeships and on-the-job training, so workplace delivery and all these sorts of things can occur where you have got your student effectively in the workplace delivering a return on investment, getting those skills and getting that mentoring in some of these quite technical trades. I know a lot of the companies involved too are only too happy to then add their own flavour to that technical training. Whether it be blade engineers or whether it is the straight-up-and-down installing of rooftop solar, it really does hit so many of our trades. I think there is a big focus federally on how we get a resurgence in our TAFE sector. Obviously there has been significant investment with the free TAFE program and JobTrainer. What we need to do is look at the data and look at that skills gaps and then tailor those incentive programs accordingly, because they are quite significant incentives in terms of the fact that you can undertake your apprenticeship basically for free as a student. Then the employer also gets quite a significant incentive for taking on those apprentices as well, and that includes things like for each year that an apprentice is employed there is financial reward for having that apprentice on board.

I do think that we are in a situation though where the current skills gap is not going to be solved by TAFE or trades education alone. Skilled migration is going to be absolutely critical in terms of bringing in particularly some of these more specialised trades as well. I think for any government expenditure like Victoria's Big Build, that is where you really want to build in the ability to ensure that we are driving that next crop of young people that are going to come through and be able to work on a lot of these projects as well. I guess one small caveat is the industry has been pretty strong in asking, when it comes to any kind of mandatory requirements around onshore skills or local materials or anything like that, that we look at that through a realistic prism, because if we have not got the skills or the materials onshore then it is very difficult to meet mandatory targets or targets that are set in stone. As an industry, the renewable energy industry is really ready to supercharge that next generation of skills coming through—supercharge it with renewable energy, I should say.

**Mr HAYES:** That is all very good news, guys. It is an exciting future ahead, I think.

**Mr THORNTON:** If I can just make one addition to Arron's comments, which is there is also a gendered element to this. The energy sector is significantly male dominated, and that clearly means that half of our community and workforce, I think it is fair to say, feel less comfortable entering into and remaining in the energy sector. The clean energy part of the sector is a little bit more gender diverse, but we still feel like there is a lot of work to do to make sure that we are taking advantage of the entire community, irrespective of gender, and the Clean Energy Council has got a very proactive Women in Renewables initiative that includes everything from scholarships for emerging leaders through to mentoring programs. We certainly welcome the Victorian government's announcement just in the last week or so to support a female apprenticeship program. So we think there is a lot more to do there to really make sure we are attracting women into the sector and making sure that the sector is a great place for them to work and addressing the many challenges that come with any industry that has historically been male dominated.



**The CHAIR:** Great. Thanks. I might just ask a question following on from that discussion around skill shortages and employment and the like. What do you think is perhaps a barrier for people coming in to work in your sector? You have mentioned skills gaps, but are there other things? Is it insecure employment? Is it just a lack of entry points into working in that sector? What do you see as some of the barriers?

**Mr THORNTON:** Yes, I can share a couple of perspectives on that. Arron might add to it. One area that we do know is: there is a relatively high level of complexity for some parts of the industry. Installation of solar panels is one example. I think the average person probably thinks it is just climbing up a ladder and bolting a few panels onto the roof of the house, but actually it is a complex task. There are many rules and regulations between both state and federal bodies. There are international and Australian standards. There are workplace safety requirements. There are a lot of regulatory and compliance measures that all need to be understood and followed. Do not misinterpret: we are not suggesting that any of those corners should be cut, but it does mean that there is a level of complexity involved in understanding and complying with those requirements.

I think some of the other concerns that we have had historically have been some of the training pathways and the extent to which some of the previous material has been contemporary. Take the installation of batteries, for example: this is relatively new technology. In fact until recently the Australian standard applied to lead-acid batteries rather than the lithium ion batteries that are now being installed at great numbers. I think also the way in which the training content has been evolved and material has been evolved to make sure that people have the right skills at the right point in time. And then, finally, one of the biggest challenges I think that the industry has faced historically was the chopping and changing of policy, particularly federally. That has meant unfortunately we have been through boom-and-bust cycles—you cannot see my hand movement there—over the years. To be honest, nothing undermines the confidence either of employers or individuals who are thinking of moving into the industry more, in my view, than real ups and downs—so someone making an investment in themselves or their workforce to retrain or skill them up in a particular area, only to find the policy settings shift and the demand for that skill set drop away. That has been unfortunately a real challenge for our sector over the last decade or more.

**Mr WOOD:** I absolutely agree about the policy uncertainty and that sort of boom-or-bust feel. Again, sort of drawing an analogy with the hospitality sector at the moment, there are lots of incentives for people to go and do hospitality training. It is very, very difficult to fill any class at the moment because young people are looking at that sector and saying, ‘What sort of certainty have I got?’, particularly around what has happened with COVID. So we cannot emphasise enough that role that certainty plays, not only for investment but for the growth and sort of sophistication and embedding of the industry in people’s psyche as much as anything.

I think there are a couple of other points. The Federation Uni made an announcement just recently about developing a research centre for renewable energy. I know that several TAFEs are looking at renewable energy centres of excellence, including Bendigo. I think one of the good things about a lot of these projects is that they are actually based in regional Victoria, regional Australia. I think we need to also do more work on those pathways for local young people to remain in their community if they wish to do so—to be educated at a local TAFE, to go into an apprenticeship with a local electrician or whatever it might be and to go into a significant pipeline of renewable energy projects because of that policy certainty. I think each of you have touched on this theme about what role government plays or what role policy or certainty plays, and again, we cannot overemphasise enough that this will not just happen. It will happen, but it may be chaotic and it may not lead to good outcomes if we do not have that long-term vision. But just as important is that, yes, we need 2050 targets, but it is very much all about 2030. There is going to be so much that happens over the next five to eight years which is going to be critical in setting up the system and the grid and the market and the industry for success, and that really is a strong role for government and good government policy and the right sorts of incentives to ensure that we get a very efficient, staged and accelerated transition but also something that is going to deliver great benefits as opposed to something that happens a bit more organically. I think the electricity system and the renewable energy input into that is not something that you want to happen organically in any way, shape or form.

**The CHAIR:** Sure. Just one final question from me. I am just wondering, because obviously you want to target young people—I think one of the jobs that people can do in your sector is to be an electrician, but you are talking about how there is a skills gap and you are talking about apprenticeships and those sorts of things—does your industry have much of an engagement with local learning employment networks? Because that is where you can really access young school leavers. I am just wondering: have you been able to engage with those sorts

of networks at all, or has that been problematic for you? And if it has been, what are the barriers that you felt you might have faced in engaging with those sorts of local networks?

**Mr THORNTON:** I think there certainly has been engagement. I think probably one is just a level of limited resources in the industry and the extent to which that engagement has occurred, but certainly there has been some level of engagement. And I know particularly in some of those regions where there is a critical mass of projects and industry many of those companies have done a really good job in working with some of the local institutions in different ways. I do not know if you wanted to add to that.

**Mr WOOD:** I think absolutely that ability for a project-based approach in working with the local LLENs has seen some success. I think what we are probably looking to now is a more overarching strategy of how the skills gap aligns with the growth trajectory over the next five to 10 years or 20 years—what that looks like. I must admit coming back into the renewable energy sector after doing a few other things, just the magnitude of change that is required for the grid for generation is immense in scale. So that skills gap is only going to grow if we do not have a very targeted, aligned plan which is multifaceted. It will not be any one solution, but I do think that the TAFE sector and the trades sector will play a strong role. And I know that our members will coalesce around any kind of leadership that the government is willing to provide on things like addressing that skills gap over a staged period of time as well.

**The CHAIR:** Great. Thanks very much for that. Mrs McArthur.

**Mrs McARTHUR:** Thank you very much, Chair. And thank you, gentlemen, for your submission. I apologise; I missed some of your earlier presentation—I had to leave the hearing. You thought that the consultation process et cetera was heading in the right direction. And I am pleased you also mentioned regional Victoria, because it is all very well suggesting that we will have 90 per cent renewables by whatever your figure is, but how do we get that energy from A to B? The issue for rural and regional Victorians is major. The environmental, social and agricultural impacts of transmitting that energy are significant, and their concerns are clearly not being taken into account in this rush to have renewables everywhere. I do not think you have got any plans to put them in the City of Port Phillip or the City of Yarra at the moment, have you? But, you know, 30 transmission projects are in the offing out in rural and regional Victoria, so how do you marry the interests of rural and regional Victorians who will have to endure a sort of spider web of above-ground transmission lines if nobody is interested in actually looking at new technology for how we transmit energy into the future?

**Mr THORNTON:** Look, it is obviously a really important issue, and I think it is one we come at from the perspective of it being absolutely critical that we take the community with us and we respond to the genuine concerns of the community. I think it is fair to say quite a few years ago we saw some of the practices of the wind industry here in Victoria not up to the standard that community and, to be honest, we as the peak body and I suspect governments expected, and we saw quite a bit of reform and change come with that. If you think about what that involved, it was about education and cultural change in the businesses that were developing these projects, it was about changes in the way they engage and interact with local communities, it was about refinement and development of models for sharing the benefits of the projects with those local communities and it was about reform of things like the planning and regulatory processes that related to those projects. And I think it is fair to say that we now see in Victoria much stronger and broader community support for wind projects.

I think we are probably at a stage of similar consideration for transmission, and I think it is fair to acknowledge that we have not built transmission projects in Australia or indeed in Victoria to any sort of scale in many, many years. I suspect that when they were last developed and built there were some similar concerns. We acknowledge that for some members of the community they will not like these projects in their vicinity. I think we accept that, but I think what we need to do is then reflect on, well, what is the process we go through, and how can we build and design these projects in a way that minimises the impact on community? How do we make sure that the planning and regulatory processes allow open consultation, a lot of transparency and responsiveness to the community where that can be catered for? And I think that also needs to include reflection on the way in which community members might be compensated and any impacts recognised.

So I think there is work to do in terms of how we plan and develop these projects, again accepting that I think there is the reality that we do need and will see more transmission across the state and actually developing. Well, the counterfactual is that by not developing that transmission infrastructure we will ultimately see much

higher power prices and major threats to energy security and reliability, because the reality is the old system is going to leave us. We need to build a new system, and that ultimately is going to involve more transmission investment.

**Mrs McARTHUR:** Yes. So can you accept that we should be doing it in a way that is actually acceptable for the next hundred years, not for the next renewable energy target, which might be a few years down the track, because rural and regional Victoria are very cognisant of the effects on the environment of large-scale transmission lines crisscrossing their electorates, the environment, their agricultural areas, their towns and their housing areas, the loss of amenity, the loss of agricultural production and the loss of environmental use by this sort of old-fashioned technology that is not being adopted with new projects like Marinus or Star of the South or whatever? Surely your industry needs to take a lead in making sure that the transmission of your energy needs to be acceptable for the next 100 years, not the next target date.

**Mr THORNTON:** Yes. Look, we totally share the perspective on the importance of setting ourselves up for the next century rather than just the next decade. Again, this transition is going to play out for many years to come. Hopefully I alluded to some of the things that need to be really carefully considered. I think there are probably some lessons to be learned from how transmission projects have been handled over the past years, and I think it is really important to reflect on those. I alluded to some of the changes in practices and consultation that needs to occur to make sure that there is a balance. I mean, again we accept that ultimately not everyone is going to enjoy having a transmission project in their vicinity, and I guess it is about finding a balance between addressing as many of the genuine concerns that might exist around that and ultimately the need for a robust transmission system.

**Mrs McARTHUR:** But the question is: should rural and regional Victorians pay the price for people in metropolitan areas to have cheaper power when the transmission is the issue for them? They have no worry about having renewables; they are fully supportive of having renewables. It is just how you move that power. Shouldn't everybody pay the price if it is slightly more expensive to go underground—and that is questionable because the real costings have never really been done—so that everybody has a win-win? It is no good producing green energy with brown technology. Don't you agree?

**Mr THORNTON:** Look, I think you are right in terms of we should be looking at the latest technology. I mean, clearly there is a significant cost differential between overhead and underground transmission, and that is obviously something that ultimately needs to be considered and judgements made. There are other bodies, such as the Australian Energy Regulator, who ultimately has a regulatory assessment and makes judgements in the best interests of consumers. I mean, at the end of the day, there are enormous benefits—

**Mrs McARTHUR:** But not those that bear the price of transmission. They are not interested in their concerns.

**Mr THORNTON:** Well, at the end of the day there are enormous benefits from the transition to renewable energy. As Arron alluded to, many of these are in rural and regional parts of the community. There are enormous job opportunities. There are enormous flow-on benefits that come out to these rural and regional parts of the area. It does also present them an opportunity to take advantage of the low cost and reliable electricity that is generated within their region. I mean, ultimately these are judgements for others to make as to the balance of costs and benefits and how they are shared, but the opportunity and the benefits, I think, cannot be ignored, and they are enormous if we manage this transition carefully.

**Mrs McARTHUR:** You try and tell that to the people, that you are going to put a powerline over their land and they cannot use it.

**The CHAIR:** All right. That is a statement. Thanks for that. We are out of time, so I would like to thank you both, Kane and Arron, for giving your submissions to this inquiry and also the evidence that you have provided today. It has been a really interesting discussion. I would like to thank you both for that.

**Committee adjourned.**