

TRANSCRIPT

LEGISLATIVE COUNCIL ENVIRONMENT AND PLANNING COMMITTEE

Inquiry into Nuclear Prohibition

Melbourne—Friday, 14 August 2020

(via videoconference)

MEMBERS

Mr Cesar Melhem—Chair

Mr Clifford Hayes—Deputy Chair

Dr Matthew Bach

Ms Melina Bath

Mr Jeff Bourman

Mr David Limbrick

Mr Andy Meddick

Dr Samantha Ratnam

Ms Nina Taylor

Ms Sonja Terpstra

PARTICIPATING MEMBERS

Ms Georgie Crozier

Dr Catherine Cumming

Mr David Davis

Mrs Beverley McArthur

Mr Tim Quilty

WITNESSES

Dr Ben Heard, Founder, and

Mr Dayne Eckermann, General Manager, Bright New World.

The CHAIR: I declare open the Environment and Planning Committee's public hearing for the Inquiry into Nuclear Prohibition. Please ensure that all your mobile phones are turned to silent and background noise is minimised. Also, if you can have yourself muted unless you have actually been asked to speak.

I would like to welcome any members of the public who may be watching via live broadcast. I would like to acknowledge my colleagues participating today and thank those who have provided apologies: Ms Terpstra, Dr Bach, Ms Taylor, Mr Limbrick, Ms Bath and Mrs McArthur.

All evidence taken at this hearing is protected by parliamentary privilege as provided by the *Constitution Act 1975* and is further subject to the provisions of the Legislative Council standing orders. Therefore the information you provide during the hearing is protected by law. However, any comments repeated outside the hearing may not be protected. Any deliberately false evidence or misleading of the committee may be considered a contempt of Parliament. All evidence is being recorded. You will be provided with a proof version of the transcript following the hearing, and if there are any errors or omissions, please notify the secretariat and they can be corrected, as the transcript will ultimately be made public and posted on the committee's website.

We have got your submission, and we have allowed about 5 minutes or 10 minutes—or under 10 minutes—to give us an overview. Then after that we will go to questions. Who would like to lead the statement? Okay, Mr Eckermann, we are all ears.

Mr ECKERMANN: Thank you, Chair and members of the committee, for giving Bright New World the opportunity to present today. We will make a short statement and then we can go straight into Q and A. Bright New World is a not-for-profit environmental NGO that exists to promote positive solutions to complex climate and environmental problems. Our core ethos is stable climate, rich nature and a prosperous humanity. We know humanity can prosper alongside nature. We do not subscribe to the Malthusian environmentalist thinking, where the only pathway to a better environment is through reducing the quality of human life. We believe in working with people and our institutions, because it is people who can solve these challenges. Our stance must not be mistaken for any delusion of the urgency of addressing climate change and the threats to biodiversity conservation; rather, we understand a key component of meeting these challenges is access to plentiful clean energy.

One of the technology choices that satisfies this is nuclear power. It is an energy-dense, low-carbon source of power that has low resource and land inputs relative to other technologies. Countries that have decarbonised their power sectors have done so with a combination of renewables, hydro and nuclear power. We can keep using these technologies to decarbonise industry and transportation and to apply clean energy to assist with maximising resource recovery and agricultural efficiency, which are the keys to a stable climate and a rich natural world. In our submission we presented the evidence that affirms nuclear's place in the low-carbon world. We demonstrated that while there have been notable examples of harm, expense or delay, these are specific case studies and not an absolute. To the contrary, the vast weight of data attests that nuclear provides clean, reliable and affordable power on par with or exceeding renewable technologies.

Because Australia has left its run late, we can only choose the best nuclear projects based on best-practice global experiences. However, prohibitions have hamstrung any nuclear development or deep analysis in Australia. The common theme we hear when talking to vendors, analysts or economists is, 'We could, but it is prohibited.' The common theme we read from Australian analysis is, 'We can't; it's prohibited.' This is crutch for poor analysis that creates a self-fulfilling cycle that has delayed our embrace of these solutions. There is no justification for keeping the bans in place. They serve only as protection for market incumbents who wish to exploit our technological reticence for financial gain. In short, there is no interest whatsoever in prohibiting an entire class of power technology—most especially in Victoria, where dependence on coal is so high.

I will just hand it over to Ben now.

Dr HEARD: Thank you, Dayne. Thank you, Chair. I have been observing, researching, writing and consulting on elements of Australia's energy transition for nearly 15 years. I have been openly supporting a request for the inclusion of nuclear technologies in that transition for the previous 10 years. In this time I have constantly been told that these technologies take too long to matter in our transition and sometimes, pointedly, that anything that we might deliver beyond 2030 is too late.

I have heard these arguments repeated again to this committee—that because it might require multiple and well-coordinated efforts to progress the technologies to market it is not worth it and that it is a flaw of these technologies that we will need to start now to see benefit in the future because of the long lead times on major projects and because of the scale of the reform required. These points might sound like a criticism of nuclear technologies. Actually, it is virtually word for word the message from the Australian Energy Market Operator from its *2020 Integrated System Plan*. This effort will, and I quote again:

... test the boundaries of system security and current operational experience.

That is another direct quote which is tantamount to admitting that what passes for a plan currently is in fact an experiment. The losers in this experiment will be our climate, our environment and the workers and communities of Victoria. This plan tells us that even if an extraordinary number of measures and conditions and assumptions come to pass in a perfectly modelled fashion, we will achieve a system that in the year 2042 will still operate 8.5 gigawatts of coal, releasing around 55 million tonnes of carbon dioxide every year. That is, in over 20 years into the future we will not have a decarbonised system on the back of what we have before us—not even close.

That current plan, for anyone reading past the summary, offers Victoria an opportunity for a much-needed reckoning about energy. For too long in Australia we have deluded ourselves that this energy transition is going to be fast and easy and a certain process—so easy that in Australia we could convince ourselves that we are somehow a special case that can ignore the whole family of proven solutions. We now know from that ISP that just is not true. It is going to be long and it is going to be challenging and it is going to be difficult. That we would make it artificially harder by deliberately locking out known solutions—well, this was unwise and short-sighted in 1983; to continue that position in 2020 and beyond I think is reckless. I put it to the committee that it is hubristic in the extreme for Australian governments to make this decarbonisation process all the harder for everyone who must follow in our footsteps by stalling our proper open consideration of the most proven solutions.

The *Nuclear Activities (Prohibitions) Act* costs Victoria nothing to remove, and in doing so it opens options for benefits to the communities, the economy and the environment of Victoria and the world. Victoria has a clear and in fact massive opportunity to make a plan to transition to the inclusion of advanced nuclear technologies both to provide reliable, essential, affordable energy and to maintain the communities that have brought power to Victoria for generations. If it applies foresight, Victoria can be a seat of advanced manufacturing of these emergent technologies, not merely a customer, as it must now be for wind and solar. Victorian communities can finally have the clean air they deserve while they provide power for the state and the nation in secure, highly paid, high-quality jobs. This is a remarkably simple proposition in fact: create options for Victoria by legalising proven technologies that are deployed worldwide in the fight against climate change.

I will hand back to Dayne to conclude our opening remarks, and then we will be happy to take your questions.

Mr ECKERMANN: Thank you, committee, again for the opportunity to speak today. We represent a small but growing community of people who believe climate change is too important to hold hostage an outdated technology prejudice and who also understand that the path forward must provide plentiful clean energy for environmental and human wellbeing. We love Victoria—we cannot even pretend to be better than you at footy this year—and we are cheering for you as you manage in these difficult times. We want a bright future for Victoria, and you have a very big opportunity for that before you. We are pleased to take your questions now.

The CHAIR: Thank you. I will kick off the first question. We heard earlier from NuScale in relation to their small-scale reactors. Out of that there are two questions. I think you have addressed some of them, but I would like a bit more information and your point of view on them. How do we obtain the social licence to build a nuclear power generator? I mean, let us face it: at the end of the day you have to have social licence to do it, and there is that fear in the community about nuclear full stop. It is how you obtain that. Particularly two points: one is safety when something goes wrong. I mean Chernobyl, for example, and various others were not designed to

have accidents like that, but they do happen. So at least that is a very strong perception as part of that social licence I talked about. So that is one. The second one is the issue of what we do with nuclear waste. I understand there was a royal commission into that, and South Australia has been looked at as one of the sites the feds are considering to deposit waste materials. So if you are able to address these two points, that would be great.

Mr ECKERMANN: I will start with that. As you have mentioned before, here in Australia in 2015 we had the Nuclear Fuel Cycle Royal Commission, which undertook a very broad look at the full nuclear fuel cycle. With regard to social licence, that process as well as another process we have going on here in South Australia at the same time for the nuclear waste facility for low-level and intermediate waste—these two events—demonstrated that you can be quite open and honest about the benefits and risks of nuclear power or nuclear technologies and work with the community. You do not basically plonk in a project, announce it and then defend it from criticism and that sort of stuff. You go, ‘Look, we’re thinking of building a nuclear power plant and we need these favourable characteristics’, which is what they did with the nuclear waste facility, ‘Is there anyone out there that is interested in doing this and exploring it?’. There are gateways so you can say, ‘No, we don’t want this anymore’, and then the project proponent will have to turn around and go, ‘Okay, fair enough’. That kind of standard of community engagement that was set up in that process is a way in which a community can look at these kinds of technologies and enter in softly, understand what is being proposed and then make a decision on whether it is something that they would be happy to have. You look at communities in the United States and France that live next door to a nuclear facility, and these people enjoy their nuclear neighbour. When you look at polling research out of the United States, when they take out family members of workers and workers at these facilities, it is overwhelmingly supportive of their neighbour.

Now, you brought up the issue of safety and things like Chernobyl and that. What we presented in our submission on nuclear safety was that, yes, there are these notable incidents and they are very well defined and understood. There are detailed assessments of what went wrong in these incidents and what could be done to prevent them. You look at what happened at Fukushima in 2011, and you look at the response the nuclear industry globally had to that event. Nuclear would have to be one of the few industries globally that has learned—particularly from Three Mile Island—that when one plant has an incident, they share that experience with everyone, so everyone who has that same sort of reactor technology understands what the problem was and can do things to prevent that. When we bring this forward now to what we are talking about for Victoria, we have the opportunity now to look at all these experiences and go, ‘If we’re going to build nuclear in Victoria, we need to make sure we do not repeat the mistakes of the past’. You look at the nuclear industry globally on safety, and they have a really high safety record. The risk to the public, when you look at it over the full life cycle of nuclear, is comparable to renewable energy.

Dr HEARD: Can I come in there for a moment?

Mr ECKERMANN: Yes, go for it.

Dr HEARD: Just to sum up here, I think a lot of these threads come together, Chair. I mean, you mentioned NuScale Power, and if you deal with any of the advanced nuclear vendors, something that they are all making clear is they do not intend to go anywhere that they are not wanted. And I think we are seeing very strongly already in Australia and particularly from the experience of the NRWMF, that facility, that bottom-up processes are very, very powerful. And in the event that this legislation were to be removed, which I think would be wonderful, a process like that can actually happen in good faith where a community might have a reasonable prospect of hosting a new facility that they want. Under those kinds of conditions and circumstances, those communities can have the sorts of long-term conversations that they need to have to understand what they are being offered, how it compares to what might have existed in the past and how they can understand its context.

I am personally extremely confident that many communities would go through a process like that and go, ‘This is actually a really, really exciting opportunity for us and we are confident, because it matters most to us that we have sat down for as many meetings as it takes until we get there and we understand it’. That becomes really, really very powerful. It would be wonderful if Victoria at least had the option to go through one of those processes, which currently we do not have.

Briefly, on waste, which was a question you raised and I would like to be able to address, we are not having any kind of energy system in Australia that does not entail waste. We need to choose what sort and how we manage it. There are very deep and distinct environmental sustainability and health and safety advantages to nuclear power in terms of waste—namely, that it is all exactly where we put it. So the distinction that I like to draw is that thank goodness we are talking about waste—it is not pollution. Currently what we have in Victoria is a massive volume of pollution all day long, every day, which is actually very, very harmful. The list of pollutants in Victoria from the electricity-producing sector, which you can read in the national pollutant inventory, is long and ugly. These are real environmental and human health impacts that are being experienced in the sector right now.

My personal preference for addressing waste of the type of a NuScale reactor? I think dry cask storage is an excellent mature technology that allows us to have safe, simple and very low-cost custodianship of the material. This is my technical point of view. I would prefer to keep it in that situation and condition and proceed in future to full closed-loop recycling of that material. That is one pathway. The industry standard pathway is the development of deep geological repositories for disposal, which is safe, proven and established, but it is not my technical preference. Either of those pathways in terms of a waste, safety and pollution point of view would be the most dramatic step up for Victoria compared to the way your energy system is currently running, where there is no control of management of the waste from brown coal in Victoria at all. It is put out into the air, into the environment and onto the communities.

So I agree: these are very important questions to consider. Their context, however, is absolutely vital, Chair. We need to think about the system we actually have in front of us right now and what it is doing and what sort of improved system we can bring ourselves in future. I believe—well, I do not believe; I know—nuclear technology stacks up extremely well in that regard, and particularly if that were taken to the community in a bottom-up process, with time and resources I think it could be very much embraced in Victoria.

The CHAIR: Thank you very much. Ms Taylor?

Ms TAYLOR: Thank you for your contributions. So, yes, a few questions: the AEMO ISP report, the latest one, shows that we can get to 96 per cent renewables by 2042, ultimately beating France's low electricity sector emissions. Doesn't this show nuclear is not needed, noting that even to build one reactor, if we had the social licence, would be a battle in that time frame? So that is the first lot of questioning.

Now, CSIRO's GenCost report suggests there is no hard data—that is, public cost data—from completed projects to be found on nuclear SMR. CSIRO relies on estimates, as do all SMR costings, suggesting that:

Past experience has indicated that vendor-based estimates are often initially too low.

Is the CSIRO wrong? The International Energy Agency said in *Nuclear Power in a Clean Energy System*, 2019, that none of the SMR designs under development have yet reached commercial maturity. Is the IEA wrong?

Dr HEARD: Thanks, Ms Taylor. Dayne, I think I had better take the lead on those ones.

Mr ECKERMANN: Yes.

Dr HEARD: Thanks. On the first question, in regard to the 2020 ISP, respectfully, Ms Taylor, no, it does not say that Australia will have 96 per cent renewables by 2042. It might have instantaneous penetration in a half-hour period of a very large amount of renewables. I have read the report thoroughly. I have reviewed the spreadsheets of the scenarios thoroughly, and I quoted the figure in my opening remarks. If the very extensive transmission build-out and the very, very extensive amount of renewable energy build-out proposed in that ISP, which is described as testing the system to its limits, is implemented, there is still 8.5 gigawatts of coal in 2041–2042. It is in the spreadsheet, against brown coal and black coal, with its emissions bill, and that is assuming full success.

So, thank you, I think that the AEMO ISP is a very important piece of work. What I would encourage the committee to take as quite high certainty from the ISP would be that the construction of the Marinus Link transmissions lines is probably a very important piece of infrastructure—as well as the western New South Wales to Victoria interconnector. It is probably also a very good value piece of infrastructure for the national electricity market overall.

There is relatively short-term certainty about what will be best, and beyond that, the ISP, in the body of the report, is extremely clear that it is a gated process with a great deal of uncertainty. So I would encourage Victoria to maybe concentrate on having that Marinus Link project succeed. There is nothing easy about building two 750 kV subsea cables from Tasmania to Victoria and into the mainland. That alone is a large challenge. There is nothing at all in the AEMO ISP that makes ruling out technologies on a legal basis beneficial for Victoria.

On CSIRO GenCost: are they wrong? Yes, they are wrong. I have written a long and detailed report that they are wrong. They quoted a figure of \$16 500 per kilowatt installed for SMR nuclear technologies. The figure had no reference. I searched every published study for SMR nuclear technologies worldwide. The highest figure approached around about \$9000. Under questioning in committee, they were not able to provide a reference for the technology. The findings the previous committee found were that that was unverifiable, and, 12 to 18 months later, no-one has been able to find a reference for that figure. So, yes, and this is in fact the point that Mr Eckermann made in his opening remarks. The existence of these prohibitions means that the analytical work put into nuclear technologies in Australia always falls very, very far short on quality, because there is really no-one paying very close attention to whether or not it gets done well. Will vendor estimates be too low? Yes, I think that is a reasonable point, and I would encourage the committee to apply a degree of measured scepticism to vendor estimates and to maintain attention to the evidence as it comes through, because it is true, we do need the project proof evidence in the long term. That should not stop us from being at least able to move in good time to adopt technologies in the event that they are proving to be very fit for purpose for Victoria.

I hope the vendors are right. They may not be. I hope AEMO is right. It may not be. The amount of uncertainty that is built into the existing ISP is also high, and this is the point that I am trying to emphasise here. We do not have a sure and certain pathway to a decarbonised grid in Australia—not even close—and we are one of the most fossil-fuel-intensive electricity grids in the world. So the idea of leveraging uncertainty to rule out entire families of technologies from consideration—it is not consistent with serious action on climate change.

The CHAIR: Thank you. If you are able to sort of just focus on the answer to the question, because we are a bit conscious of time. Ms Taylor, have you got any further questions?

Ms TAYLOR: Yes. So there is no business case for nuclear power in Australia. The cost of power from nuclear is considerably higher than the average cost of power in the national energy market. We have not seen any financial submissions supporting the economic case for nuclear in Australia, so I preface that. Have you prepared a basic business case—not a multimillion-dollar sort of study but just a one-pager—showing that nuclear makes financial sense in an Australian context? That was a question, sorry.

Dr HEARD: There will be some work released, that I am the lead author of, in the near future that does illustrate these figures, yes. No, we have not prepared that for this committee. We are a lightly funded NGO.

Ms TAYLOR: Oh, who funds your NGO?

Dr HEARD: People.

Ms TAYLOR: What percentage of top 10 funders, would you say? For your annual income, that is all I am saying.

Mr ECKERMANN: Yes, the majority come—

Dr HEARD: Well, there are a few people, donors.

Ms TAYLOR: There are a number of donors—okay.

Mr ECKERMANN: Yes, it is individual people supporting our organisation.

Ms TAYLOR: Individual.

Mr ECKERMANN: We have a very open donations policy on our website if you would like to look at that, and we do have things where accommodation or something like that has been paid for for an event. We do disclose all that.

Ms TAYLOR: Okay, and meanwhile—

Dr HEARD: No, as a matter of fact, Ms Taylor, I would like to finish answering the question—

Ms TAYLOR: Sorry.

Dr HEARD: rather than being diverted from your question to our funding sources.

Ms TAYLOR: Sure, yes.

Dr HEARD: Thank you very much. What you have reinforced here is precisely the point that we are trying to make. We cannot have serious business cases developed for these technologies in Australia. We have these conversations with companies and they say, ‘We have a global market to serve. We cannot go and invest the serious time and money that is required to develop a business case in jurisdictions that make it clear in law that we are not welcome and that our technology is not welcome’. And this again goes to the point that Dayne made in his opening remarks: it is a self-fulfilling situation where Australia remains ignorant and closed on options. Yes, nuclear technologies at the better end of global cost—not at the worst end, at the better end of global cost—will have a very strong role in a lowest overall cost zero-carbon economy. And, I might add, that goes beyond power. We need to provide industrial heat, we need to make synthetic fuels, we need to make a very great amount of hydrogen to make fertilisers to do steel reduction and we need to do that and achieve that. This is not a finish line that we cross through; it is a state of affairs that the Australian economy will need to achieve and sustain in perpetuity. This is not a race to 2040 and it all gets done; we need the technologies on the table. The prohibition serves no purpose, and it should be removed.

Ms TAYLOR: So if there is no business case, how do we know it is viable? If there is no business case, it is not viable. Maybe you could show me a business case from a liberal democracy with a competitive energy market—a detailed business case from the US. We are global citizens. You are saying Australia is ignorant to nuclear, that we do not have access to international information. That is a little bit shocking to me—that our scientists here are all ignorant. That is a bit of a grand statement, and I take a bit of offence at that.

Dr HEARD: Well, Ms Taylor, you are placing the burden of proof on us to prove something in order for a prohibition to be kept. We did not ban solar thermal with storage technologies; they just are not commercially competitive. We have not banned hot dry rock geothermal energy technologies; they are just not commercially competitive. We have not banned ocean-going power—tidal power—in Australia; they are just not commercially competitive. They have all been tested with business cases and projects in Australia. Unfortunately they have not succeeded. But we are not going to get every bit of evidence that we want while there is a ban in place. It serves no purpose, and it should be removed.

The CHAIR: Thank you. Can I move now to Mr Limbrick? Are you ready to go with any questions?

Mr LIMBRICK: Thank you, Chair, and thank you, Dr Heard and Mr Eckermann, for appearing today and for your testimony. I would like to follow on with a couple of issues, firstly related to what Ms Taylor has been saying. There is a lot of talk about whether things stack up economically or whether we have a business case. Are you saying that lifting prohibition would ultimately resolve this question? You gave a good example that solar-concentrated energy is not banned but we do not use it because it is not economically viable. Do you think that there would be international players who would invest in developing these business cases and proposals if we lifted prohibition?

Dr HEARD: Dayne?

Mr ECKERMANN: Yes, absolutely. The question that I normally ask when we bump into vendors and talk to them is: if Australia removed the prohibitions, would you come here? And every vendor has said yes. They look at Australia. We are a mature country. We have a very well experienced engineering and scientific workforce here. We are well regarded in nuclear science and technologies globally—ANSTO is one of our shining lights. The world looks at us and what we do and goes, ‘Australia has got it’. Our civil infrastructure workforce here is good as well. When vendors look at Australia they go, ‘This is a country where nuclear could work, and we would be happy to come and invest time and money to demonstrate its benefits’. But it all falls down when they go, ‘But we can’t because it is prohibited, and I can’t justify to my management or my board

to spend the time to come to Australia, spend the money, do all the work, do that community consultation process', because no management or board will approve that, because it is prohibited.

Mr LIMBRICK: Thank you. One further question. We have talked a lot about social licence and that revolves around communities, as you said, like some sort of bottom-up process. But it also requires broader community support. I would be interested in your opinions on how you see the attitude to nuclear energy, how that has changed in recent times and what are the factors that you think have changed opinions on this, if you believe they have in fact been changing?

Mr ECKERMANN: Yes, so in our submission towards the back—I think it starts around page 34—we present a range of different community consultations and polling results that have occurred both in Australia and globally. The trend we are seeing, particularly here in Australia, is that more people are supportive of nuclear power than they have been. People are more open to the idea of nuclear power in Australia and the old adage of 'Everyone's opposed to it' is not true anymore.

With a previous employer we did extensive work on community attitudes to the nuclear fuel cycle, and one of the questions that we asked was—and this was done through phone polling with a reputable institution—'What's your personal opinion of nuclear power? Support? Oppose?', and those sorts of things. And then we asked them, 'What do you think the community's attitude is towards nuclear power?'. What we found was that there was majority support for nuclear power, but those people then turned around and said, 'Everyone else is opposed'. So you have that situation where if you take a barbecue and you have five people standing around and nuclear comes up, they will all look at each other going, 'Everyone else is opposed. I won't talk positively about it', when in actual case privately the majority of them are in support. That is what we found with those attitudes a few years ago. Recent polling by Roy Morgan has shown that across Australia there is support.

Dr HEARD: If I can just talk as to why some of these things are changing. I think an important factor has been the disorganised energy transition that we have experienced in Australia to date, which has not really yielded a lot of benefit. Australia's first wind turbine was put in in about 2003—so we have been at this now for almost 20 years—we have achieved a pretty modest improvement to be honest in the environmental outcomes that we are trying to achieve. So we have a bit of a cleaner system, but we have incurred substantial difficulty in the electricity and power network itself.

So the sorts of messages that I was promised and that I actually adhered to and probably researched and was an advocate of for many years in terms of the sorts of systems that we were going to have—we have now had a good long run looking at that and it is not actually working all that well. So I think we look ahead to what is lying in the future, where we have had a system that has had degrading reliability and rising prices, and we have actually got a pipeline of generators that need to close down. I think it is bringing Australians to look maybe a little more calmly at the question of what our technology options are, and neither Australia nor the world in the 30 years since the IPCC started have effectively addressed climate change. So in the decades in which renewable energy has been booming, and booming very hard, we are still not winning. So I do think that particularly among younger people there is a much more pragmatic sense of: we have challenges and we have technology options to implement them, and there is generally a sense of greater openness to it.

But I would emphasise again—returning just quickly to an earlier question—I think these matters will come down to very local situations. The people who are going to pay the most attention and care the most would be potential host communities. I think most citizens of Melbourne would live a life much like they live now. They do not really concern themselves with the environmental impacts in the Latrobe Valley because it is not their community. And I think that many Australians actually just want reliable, affordable power and would be prepared to get on board with plans for using good technology in supportive local communities.

Mr LIMBRICK: Thank you.

The CHAIR: Thank you. Can I now ask Dr Bach and then Ms Terpstra after that?

Dr BACH: Thank you both, gentlemen, for being with us today. We appreciate it very much. At earlier hearings that we held as a committee, there was some discussion about the health and wellbeing of workers—workers actually in nuclear plants. I wonder: is this a topic that you have any expertise in? I wonder if it is your view that there are, in fact, negative health implications for workers in nuclear power plants, and also whether you have any evidence to back up your views.

Dr HEARD: I am sorry. I do not mean to chuckle. Really? You must visit one. They are as clean as a whistle. I mean, I watched some of Michael Shellenberger's testimony earlier this morning. I would like to reiterate that point: nothing is being combusted. There is no soot, there is no ash, there is no fire, there are fewer turning machines. The health and safety is excellent. And, look, I cannot cite the studies off the top of my head, but I have got them. Yes, there are enormous studies of the health of cohorts of nuclear workers in nations, and their health is above average, which is unsurprising because they are in good, well-paid jobs in the long term, in a very clean environment and with an extremely strong safety culture. The safety culture in the nuclear industry is one of the most highly developed safety cultures—arguably the most highly developed safety culture—in any industry; it is right up there with aviation, even though it achieves better outcomes than aviation. Again, particularly if you were to take any other energy option on the table for a generally skilled power worker and say, 'Where are you going to get a good health and safety result if this is where you're going to spend your career?'—absolutely, a nuclear power station, no question. And I will provide references to the committee after the event, but thank you for the question.

Dr BACH: No, that is great. Thank you for that comprehensive answer. I appreciate it. And, Chair, I will cede the rest of my time to other members.

The CHAIR: Thank you. Ms Terpstra.

Ms TERPSTRA: Thank you, Chair, and thank you, Ben and Dayne, for your contributions this morning. I was listening to your earlier contribution. I will follow up a question from Ms Taylor where she asked about your organisation and what donors you have, and I think one of you answered that they are on your website. I have just gone to your website to try and have a look to see where those donors are listed, and they are not there.

Mr ECKERMANN: I—

Ms TERPSTRA: Sorry, if I can just finish my question, what I would ask you to do is: could you please provide a list of those? I will put that to you on notice—if you could provide a list of those to the committee, that would be much appreciated. And the second part of my question is: just in terms of your annual budget, could you just tell us how much of that is funded by your top 10 donors? Is it 100 per cent, lesser per cent? Could you just provide that answer for us? Thanks.

Mr ECKERMANN: I will just correct: before I said our donations policy was on our website, not our donors. So that is what you have probably seen there, the policy. Our donors are—

Ms TERPSTRA: Yes, but Ms Taylor's question was specifically about donors. I just wanted to clarify that.

Mr ECKERMANN: Yes, I know. I understand that. I am just saying that what I said before was our donations policy is on the website there for people to see. It is quite open and transparent in that aspect.

In terms of our donors, the majority of our membership are individual donors, ordinary people. I am going to have to check with the requirements are, but I do not think is appropriate for us to release every single individual donor that has supported us through a monthly pledge. I will have to double-check the legal requirements about that, but there would be privacy issues regarding releasing the names of every single supporter that we have. Because the majority of our support comes from them.

Dr HEARD: I completely endorse that, and I might point out that our funding sources are well outside the terms of reference of your inquiry. But if the answer you are looking for is, 'Is there a list of large, recurrent donors to our organisation?', no, there is not.

Ms TERPSTRA: No, that was not the question I asked. No. Sorry, Ben, it was not the question I asked. I just asked who your donors were. And as I will put it to you again, the question was framed around an earlier question that was put. So I just wanted to clarify that, so we are just going to make it very clear. I am not going to debate with you about the legalities around disclosure. I have asked a question of your organisation to provide it. If you would like to provide in writing to us as to whether you can provide it or you cannot, that is what I would really appreciate you doing.

And then just following up with my second part of the question, if you could the answer that: how many of your donors, in terms of your annual budget, fund your organisation? Is it the top 10 or less? How does it work? If you could just provide that answer. If you do not want to answer, that is up to you, but I am asking the question.

Dr HEARD: No, I do want to answer, actually. And I would continue answering actually. Thank you. We have donors up to \$100 per month. We do not have recurrent large donors, like a top one, two, three that provide a budget. I work full time. I draw no money from our organisation. To give you some idea of the scale, Friends of the Earth Australia is one of Australia's smaller environmental NGOs in budget; our budget is smaller. We have small donors, just people who sign up and give us money. We do not have a list of recurrent corporate donors. There is not going to be a list. So I am happy to speak about this now actually and get it on record, because it seems to be a question that goes to our integrity, it seems to be a question goes to our independence.

Ms TERPSTRA: Sorry, Ben, if I can stop you there. I just want to redirect you back to the question I asked you, not the answer you want to provide. The question was about your top 10 donors and how much they fund of your budget. If I could get you to stick to that question, thanks.

Dr HEARD: We cannot give you names of individual people, but we do not have a list of large donors that form large portions of our budget. We are made up of individual citizens who provide us with small amounts of money. Is that clear?

Ms TERPSTRA: Thank you. That is crystal clear, thank you.

Dr HEARD: Wonderful. Thank you very much.

The CHAIR: Mr Meddick?

Mr MEDDICK: Thank you, Chair. I am just following on from that—what I heard.

The CHAIR: Welcome back.

Mr MEDDICK: I am interested then in not so much recurrent donors, the people would give you a donation once a month of \$100 or \$50 or \$10, whatever that might be. I am interested to know ones that might have given a singular donation that is large and are not recurring and those sorts of things. And I guess my question then to the secretariat is: does this committee have the power to compel you to provide that list of names under parliamentary privilege?

Dr HEARD: Goodness gracious me. I am extremely surprised at the direction that these questions have taken. And I wonder whether these questions were put to the ACF. I wonder whether these questions were put to the WWF. Our donations policy is clear. It is consistent with sector standard. It is published on our website. And it changes nothing about the work that we do.

Mr MEDDICK: Dr Heard, I would ask exactly the same questions of any witness that came here that is accepting donations from anywhere regardless of whether they are an environmental organisation or whether they are someone that represents the nuclear industry. Whatever side of the debate you fall on, if you are receiving money, then I think that the general public—and particularly if you have received even an individual lump sum donation from one particular donor who does not donate the next year or the year after or the year after that, that still represents a view that the general public would like to know. Not necessarily even the public, but this committee. That speaks to the issue of transparency to this committee, and that is why I am asking the question of the secretariat: do we have the power to compel you to provide a list of those types of donors if they have occurred?

The CHAIR: Thank you, Mr Meddick. I think I can be an assistant on this issue. The committee can summons and ask for this information. Having said that, I think the questions have been asked and I think that they have been answered, and I do not think we need to engage in a long debate. I think Dr Heard has answered the question, and if members want to have specific information to be asked or be requested, I suggest maybe we can do that in writing and send that to both Dr Heard and Mr Eckermann on this issue. Any other matters members would like to ask? I think Ms Bath? Sorry, Mr Meddick, you have concluded? Thank you. Ms Bath?

Ms BATH: Thank you, Chair, and thank you, gentlemen. I would like to thank you for the very professional way that you are responding and your commentary today. I notice in Bright New World's recommendations one recommendation goes to requesting that the committee recommends that the Victorian government looks into nuclear power in terms of the suitability for the energy market, and my question asks: if you had the opportunity to write the terms of reference for that, so put the parameters around that, what would be some of the key parameters around the suitability for the energy market?

Dr HEARD: I am just going to need a quick moment to think about that because it is an awfully clever question. Could you perhaps just repeat and sum up for me once more so I can write that down, please? Terms of reference for and parameters, if you would not mind?

The CHAIR: Melina, you need to unmute yourself again.

Ms BATH: Thank you. I am interested in that because it very much goes to a direction that government would need to look at: the suitability for the energy market. So what would be some of the things really that you would like to be assessed in terms of the suitability for the energy market?

Dr HEARD: Suitability for the energy market, okay. Dayne, I might start talking and you can keep thinking, because I am sure something is going to come up in there.

Ms BATH: Ben, if I could mention, you are welcome to take this on notice, part answer and then finish off, you know, by written response, if you would prefer.

Dr HEARD: Okay, thank you. That helps. I think I can probably provide a summary answer and say that the issue of system costs is very, very important. We have an energy-only market that exists in the national electricity market where planning is extremely driven by the price that you can sell your electricity for in every half hour. But that really does not go to the overall prices of running the system. So I think to be able to take a value-stack approach of what are all of the elements of value that different technologies can bring to providing a reliable, affordable and clean system would be an important parameter.

The question of finance is an important parameter. If we are looking at assets such as Victoria has enjoyed to date that are sort of multigenerational power generation assets, these are very large capital expenditure assets and so their value in the market is going to be substantially determined by the cost of finance at the very beginning of the process. It is surprising how influential a few percentage points on the cost of finance are for the overall cost of the project, so I think some policy considerations about what appropriate cost of finance mechanisms should be available to all technologies would be important because nuclear technologies are quite sensitive to the cost of finance given that they have very low running costs but very large upfront capital costs.

I would also think that it would need a broad contextual consideration of taking advantage of existing in situ assets like transmission lines, like switchyards so as to ease and lower the cost of that transition. I think that that is important. And also taking account of a social context in terms of what are the type of jobs, what sorts of community can be supported by that and what is the quality of the work and the longevity of the work. So I would probably build a lot of context around that. That does go to sometimes what the gap can be between things like an integrated system plan and what is actually tractable in a local setting or in a state setting in terms of what is best for people overall. I think I will stop rambling there and take the remainder of the question on notice, but that is an intriguing question, thank you.

The CHAIR: Thank you for that. Can I ask, Mrs McArthur, have you got any questions? And then I will go to Mr Limbrick, and I think that should conclude this session.

Mrs McARTHUR: Thank you, Chair, and I would just like to thank Dayne and Ben for your contribution under some sort of difficulty really, and I would say, Chair, that if we are going to ask one organisation for their donors, then everybody needs to be asked to have any sort of form of transparency in the committee's operations.

Dr Bach: Hear, hear.

A member: No argument here.

Mrs McARTHUR: I would just like to go to the point that we have now demonstrated how difficult it is to have a fact-based argument about the types of power that could be on offer to provide a reliable, affordable and available source of energy, especially base load energy, in this state, having lost 25 per cent in Ms Bath's electorate in the Latrobe Valley due to an ageing power station and dramatically increased royalties which made it unviable. I wonder sometimes if those in the urban areas who continue to prosecute the idea that we can have wind towers everywhere in particular and they do not want, you know, HELE coal-fired power stations, they do not want nuclear energy, they do not want even natural gas anywhere, let alone nuclear power, give any thought to the social cost of the enormous investment that is needing to take place in the form of transmission lines and the switchyards, as you say, which do have a massive environmental impact and add considerably to the cost of providing this alternate source of power. I am not opposed to renewable power in any way, but I think all the costs, whether they are environmental or economic, have to be included. So how do we go about engaging the public and ensuring that we have a bottom-up approach to understanding what is required to get to a better energy source in this country when people misrepresent facts and do not use facts to produce what can only be described as an ideological argument?

Mr ECKERMANN: I think you raise a really good point around this community interaction with developing energy sources in our communities. As Ben noted, with the ISP there is a lot of transmission infrastructure to be built to connect all the various renewable energy zones to make sure we meet the standards of reliable and secure energy. I will just make a side note on that: when we talk about reliability that has a clear definition with AEMO, but we also talk about another thing called system security, which is your voltage and frequency controls. They are two very separate things but we just want to put that on record. But with this community engagement, when we look at nuclear technologies in relation to that is when you build a nuclear plant it is a single point of development. It can be a large bulk power source that does provide that 24/7 power whenever we want it. But what it also does is it reduces the amount of renewables and transmission and interconnection that we have to build to maintain a system that is reliable, secure, affordable.

So when we look at nuclear technologies in this context, we see them as something that is very complementary to the development of renewables, because there is a real risk at the moment with the scale of renewable energy development that is needed to get to that 96 per cent that there will be communities that will put their foot down and say, 'No, I don't want a transmission tower across my farm' or, 'No, I don't want a wind turbine farm on the hillside that I've been looking at for decades'. There are people that live in these communities and they do not want it. We have seen recently that the Bob Brown Foundation came out against the Marinus Link between Victoria and Tasmania. Now, these are big problems and they are going to crop up every single time, and nuclear is not immune to that either.

Dr HEARD: Yes. Sorry, I will just pick up there. This is a real risk that Victoria and other states are facing, particularly with linear assets. If we talk about a bottom-up process maybe for a plant that Tom Mundy and colleagues would like to build, you might be talking about one or a handful of communities, but when you have linear assets spanning hundreds of kilometres you are talking about dozens of communities dozens of times, and we have to be very careful about what we sow because we will reap it. They are actually not popular. Almost nowhere in the world, never, are transmission lines a popular piece of linear infrastructure. They do have environmental impacts, they do have land use impacts. I would point out that they are also a substantial ignition risk for fire, and these are all very real issues and challenges that are all too easy to overlook in the process of mapping and modelling. But when it gets to the hard work of getting it done, it is really very challenging. I am sorry I interrupted you there.

Mrs McARTHUR: Sorry. I was just going say that they are quite welcome in the urban area.

The CHAIR: We are just running out of time. Mr Limbrick just came back. Do you want to ask one last question, and then we need to adjourn.

Mr LIMBRICK: One final big question: why do you prioritise this issue over all of the possible issues that you could be focusing on? Like, if you care about the environment, there are lots of things that you could be focusing on. Why this issue?

Dr HEARD: It all comes back to energy ultimately. We would really like to do more work in conservation and recycling, which are probably the two other big-pillar issues that Dayne and myself and the rest of us at Bright New World really, really care about. This is probably the biggest unaddressed thing that we have in

Australia in terms of how we can do better, faster at big scale for the environment and for conservation, and even if we want to do more recycling, we will need more energy. If we want to close resource loops, we will need more energy. If we want to do better agriculture, we will need more energy. If we want full-scale electric vehicle fleets, including trucks and trains, we will need more power. If we want to decarbonise steel production by moving to clean hydrogen and away from metallurgical coal, we will need more power. So much of everything else that we might achieve in environmental sustainability is propped up on the availability of plentiful, clean, reliable power and heat, and we have overlooked this enormous component of that which is proven to work. So as a lightly funded, small and new NGO we must prioritise where we think we can achieve the greatest good against our mission, and today in the Australian context that priority lies in having us change our approach to nuclear technologies. Dayne, would you add anything to that?

Mr ECKERMANN: No, that is basically it. That is perfect.

Dr HEARD: Good, got it in one.

The CHAIR: Thank you. On that note, Dr Heard and Mr Eckermann, thank you for your contribution. I believe you do have a question or two on notice to respond to later on when you have time. A copy of the transcript will be emailed to you in the next few days, and if any omissions or changes need to be made, please make them, as that will be published on our website. We will adjourn the hearing and resume at 1.00 pm. On that basis, all broadcast and Hansard equipment must be now turned off. Thank you.

Dr HEARD: Thank you, Chair.

Witnesses withdrew.