

TRANSCRIPT OF PROCEEDINGS



Phone: 1300 502 819
Email: clientservices@sparkandcannon.com.au
Web: www.sparkandcannon.com.au

Adelaide | Brisbane | Canberra | Darwin | Hobart | Melbourne | Perth | Sydney

NUCLEAR FUEL CYCLE ROYAL COMMISSION CONSULTATION and RESPONSE AGENCY – CITIZENS' JURY

SPEAKERS:

MS VIVIENNE LAMBERT
DR LEANNA READ
MR KEITH THOMAS
MR CRAIG WILKINS
MR NIGEL McBRIDE
MS KELLY-ANNE SAFFIN
DR SIMON LONGSTAFF
MR JASON KUCHEL
ASSOCIATE PROFESSOR MICHAEL PENNIMENT
MS EMILY JENKE
MS ILKA WALKLEY

TRANSCRIPT OF PROCEEDINGS

ADELAIDE

10.01 AM, SUNDAY, 26 JUNE 2016

DAY TWO

PROCEEDINGS RECORDED BY SPARK AND CANNON

MS LAMBERT: Thank you, everyone. Could I just say thank you also for the fabulous feedback and the continuous discussions that you've been having overnight, it's wonderful. Some of the speakers that we set up for you today were also amongst the list that you talked about yesterday. So be ready with your questions. As Emily said, this is the fabulous four, part 1 of the expert eight group. This session was set up to give you a broad exposure perspectives and some strong views as well. There will be part 1 and part 2 and both sessions have four presenters. The second session will be after lunch.

5
10 The presenters are being asked to talk for a maximum - presenters - of 10 minutes to allow you plenty of time to ask some questions. I'm sure what they have to say is extremely important but we have heard your feedback that you want adequate time for questions as well. So thank you very much for that feedback. We'll have questions for about 45 minutes, provided we keep the timing. Who is doing our time-keeping? Who is letting the presenters know? Emily, thank you. So you will get the two-minute time call - Geordan is. You will give a two-minute time call Geordan and then 10 minutes. Thank you.

20 These groups were chosen very carefully to provide you with a balance of leaders, experts and people with a specific interest. The thing for both panel sessions is what's important to discuss as we consider South Australia's future and whether we should deepen our involvement in the nuclear fuel cycle. On my right I will give you a broader introduction of each speaker just before they speak but on my right is Dr Leanna Read, the chief scientist for South Australia, Keith Thomas for CEO of the South Australian Native Title Services, and Craig Wilkins, chief executive of the Conservation Council of South Australia, and Nigel McBride, the chief executive of Business SA.

25
30 Dr Leanna Read is the chief scientist. I think that's an amazing title. You'll no doubt tell us what all of that means for South Australia. Leanna chairs the South Australian Science Council. She also chairs the CRC, and for the uninitiated like me, that stands for the Cooperative Research Centre for cell therapy manufacturing, and is a member as well of the SA Economic Development Board, the Council for the University of South Australia and the Federal Biomedical Translation Fund Committee. Leanna is also a longstanding member of BioAngels, an angel investor network. Prior roles include the CEO of the CRC for tissue growth and repair and the founding managing director of biotechnology company TGR BioSciences Pty Ltd. Leanna, over to you. Thank you.

40
45 DR READ: Thank you, Vivienne. It's an honour to be invited to present to you on this very important occasion. The role of chief scientist: people have said to me, "Congratulations, you're the chief scientist. What is it?" and I can understand that. My role as chief scientist is I'm not a government employee. I am on three-year term to advise the government on matters scientific, how to

really increase the capability of science in the state, how to ensure that science gets translated to economic and social benefit and, a particular passion of mine, how to get more of our kids doing science-related subjects at school so that they'll go on to future careers.

5

I was on the advisory committee for the Royal Commission. That's not, I think, the committee you were just talking about before we started but rather a small group of people who are brought together to give a check and balance and look at the assumptions and so forth that were happening during the process of the Royal Commission. I was not a member of the Royal Commission but part of the advisory group that came together to assess where they were headed. I guess I have a fair insight into the process, and let me tell you a little bit about that.

10

15 The advisory board, besides myself, included: Barry Brook, who is an environmental scientist; John Carlson, the former head of Australian Safeguards and Non-proliferation Office; Ian Lowe, who is from the Radiation Health and Safety Advisory Council and also a former president of the Australian Conservation Foundation; and Tim Stone, who was an economic adviser to the UK government on matters nuclear. That's a pretty broad brush of people and expertise that I think was really quite balanced and certain not a group that would come inherently with a pro nuclear position.

20

What was my view on how the Royal Commission was run? You will be all of course familiar with Kevin Scarce. He's our former governor and now chancellor for the Adelaide University. Overall I was very impressed with the thoroughness and objectiveness that went into the process and the people doing the study. It certainly was not a fait accompli, which you hear a little bit about around the traps. I know it took them at least nine months or so to even come to the position vaguely where they are now. So they came to it with a very open mind and I think Kevin was a great choice as the Commissioner because he is a very fair and diplomatic person.

25

30

You may well have heard but the extent of consultation they took was extensive. 132 witnesses appeared, including 37 international experts. That was over 2000 hours of testimony. They also have a lot of first-hand experience of locations and sites around the world in the nuclear industry and had private meetings with indigenous communities. After the interim report was released they had 170 responses which they then used to inform the final report. As I said, that was a pretty extensive process. I think they really understand the issues and the opportunities and I think they offer a comprehensive view of the status of the nuclear industry worldwide and of the best practice that South Australia could adopt.

35

40

45 I'm sure you're familiar with the review findings but just summarising: they

looked at all aspects of it and while we could expand mining in South Australia, it's not a game changer. It would result I think in about an extra \$19 million to the state, which is nice but it's not massive. Although a nuclear energy generation was not excluded, it just doesn't stack up economically from first principles at this point in time, even though it's a relatively low carbon emission technology. But that doesn't mean that will change in future when carbon trading and so forth comes into more play.

The bottom line is that there is a considerable opportunity for South Australia to manage, store and dispose of international nuclear waste. That has the potential, the Commission estimates, to generate about \$6 billion per annum in additional gross state income. We also have the geographic and political attributes to safely do this. But the Commission also said all this provided there is strong social and community support, and hence the importance of what you're doing today.

What are my own conclusions? My conclusions are that the Commission's findings are sufficiently encouraging to support serious consideration of a waste disposal facility. That doesn't mean all the assumptions and calculations in the report are correct or that it ultimately would pan out. For example, we don't know the site. We assume we've got safe sites; we haven't analysed that. But the proposal, for example, there is to have an underground laboratory that can analyse that. I can't say, "Yes, it should go ahead," because I'm a scientist and I say, "Well, I've got to see all the facts." The Commission has done a lot of work that I think has paved the way for further analysis that is very much warranted.

There are risks in taking up this opportunity, clearly. But there are also risk, I always say, in doing nothing. Let me just take this a bit further by stepping back in my role as chief scientist. South Australia is a wonderful place to live, we have a great standard of living, it's safe and much as we like to criticise our politicians, we actually have a pretty good political and legal system, especially when you look at some of the other things going on in the world at the moment. But there are challenges ahead for this state.

Our traditional reliance on mining and agriculture is being eroded, people don't – pay much less for commodities for example worldwide. Unemployment is the big thing at the moment; it's reached its highest level in 14 years in May of last year, getting up around eight per cent. Thankfully it's dropped back a bit but it's still very high, highest I believe still, state in Australia. And then we had the demise of the automotive manufacturing, the Arrium challenge for the people in Whyalla and so forth. So these are challenging times for us ahead; and South Australians realise this. I looked up a recent – just in the federal election context, what voters are asking; now South Australian voters were polled very recently and said what are the most important issues to you?

Number one is employment, number two is economy, number three is health care. And interestingly, no other state put employment in their top three issues, so this is a real South Australian realisation of the challenge, I think the rest of Australia should be thinking of because our problems are not just
5 South Australian, all of those ones I mentioned; but our state recognises the issue.

So there is a recognition – a realisation that steady as she goes is not the answer for South Australia. Now that's all rather doom and gloom but I
10 believe South Australia has a really promising future. We are very resourceful people, we can and we do adapt to changing times and challenges. Our future in my view, is to build on our innovative spirit, our highly educated workforce and the great technologies that are being developed in our industry sector and in our research organisations. And that will allow us to develop new industries
15 that are very high value add with great export potential, not to get rid of mining and agriculture but to add to them. For example, high value add foods, rather than just shipping off wheat offshore for example. Defence and space technologies and I don't just mean warfare, space technologies are all in agriculture now with GPS and so forth. We have a lot of companies in
20 South Australia in this field and an international congress here next year.

Healthy aging is going to be a very, very strong initiative for industry, Economic Development Board is looking at this in future and we all have a vested interest in this of course. But really when you think about the numbers
25 of different aspects of an industry you could bring together to have a really productive focus that you could export as well, on healthy aging, productive aging, meaning that people can stay home, they can work longer and so forth. But it takes time and investment dollars to do this. As chief scientist the problem I keep running in to is a lack of investment capacity in a small state
30 like South Australia to realise these great opportunities. It's a catch 22. So the potential benefit I see in South Australia pursuing a nuclear waste disposal facility is the opportunity to generate that very significant funding. I don't know if it will work out to six billion dollars a year but that's what the current
35 projections suggest and if it's wisely directed, can ensure the economic prosperity of our future generations. So rather than, in my mind, saying if we have nuclear it's destroying our future generations' prosperity, the other side of the coin is the benefit that if we use it wisely, can really help those future generations.

40 And it's not just economic, I think it will allow us to increase – address the increasing costs of health care and aging population but also close the gap in health, education, employment and quality of living for our Aboriginal people. In this context, the suggestion of the state wealth fund that could accumulate 400 million dollars over 70 years, out of the hands of politicians, is I think a
45 wonderful opportunity to actually achieve these kinds of social benefits for the

state. So in conclusion my recommendation to you is not to dismiss the proposal for a nuclear waste storage facility but rather think about the follow up analysis you would like to see done that will test those assumptions and forecasts and allow you to make a confident and informed decision because as
5 I mentioned before, there are risks in any new venture but there are also risks in doing nothing. Thank you.

MS LAMBERT: Thank you Leanna; and thank you for sharing your wonderfully optimistic view of the state and as we know, what a great state we
10 are. I'd like to introduce you to Keith Thomas. Keith has worked as chief executive of the South Australian Native Title Services or SANTS since July 2012. SANTS is a company that provides professional and native title services to Aboriginal people in South Australia. Keith is also currently a
15 director of the Native Title – National Native Title Council. He spent 16 years working with native title and Keith continues to strive towards achieving good working relationships between Aboriginal and non- Aboriginal people that result in genuine economic, social and cultural benefits for Aboriginal people in South Australia. Welcome Keith.

20 MR THOMAS: Thank you Vivienne. Okay, before I start I'd just like to acknowledge the traditional owners of the land upon which we're meeting here today, the Kaurna peoples and pay my respects to their elders past and present. As I move forward, I suppose I'd like first of all just to say thank you to
25 everybody for having me here today to talk to you. I'm here to talk about the Aboriginal community considerations. First part I'm going to talk about is culture and country. Aboriginal people have had an inseparable relationship with country through culture, laws and customs. Aboriginal people have managed country for thousands of years and have an intimate knowledge of the ecological and environmental processes and sustainable practices to that land.
30 Health of country, health of culture and health of self, family and community are all interconnected. Dreaming or creation stories, tjukurpa in Western Desert language connect ancestors to country and in turn, in part, responsibilities on current and future generations to care for both culture and
35 country.

So recognition of rights. Since the 1960's Aboriginal people in South Australia have had recognised various rights and interests to lands and waters. This has included various parcels of lands brought under the
40 Aboriginal Lands Trust Act, the granting of statutory Aboriginal freehold title through the Anangu Pitjantjatjara Yankunytjatjara Land Rights Act and the Maralinga Tjarutja Land Rights Act and also the negotiations and agreements and settlements and determinations made under the Native Title Act. The native title determinations at this current time are probably close to – cover
45 55 per cent of South Australia. This has provided various rights including living on and accessing country to practice culture, laws and customs. It has

also provided procedural rights in relation to the developments which occur on these lands. Termed the right to negotiate under the Native Title Act.

5 Working in the – with nuclear materials and that has left a bit of a legacy. The atomic tests that were held between 1953 and 1963 were conducted a programme of nuclear atomic weapons testing at Maralinga and Emu in the far west of the state. This involved large scale atomic tests, equivalent to the size of Hiroshima bomb and smaller experiments. This programme resulted in significant radioactive and hazardous material contamination impacting lands, waters and people. The fall out or black mist was extensive with radioactivity detected across much of the continent. At the conclusion of the trials, the British in 1967 conducted a cleanup, a cleanup programme and the failings of this operation and that of the testing programme; more broadly were exposed in the Royal Commission in to British Nuclear tests held from 1984 to 1985. 10 Following the Royal Commission, a further cleanup programme was undertaken from 1996 to 2000. As Maralinga Tjarutja and Yulara community said in their submission to the Nuclear Fuel Cycle Royal Commission, the testing is the location of the most long-lasting and irresponsible environmental disaster in Australia’s history and that a nuclear clean up can never render 15 radioactive material safe. The loss, pain and suffering caused by Maralinga continues to influence Aboriginal people’s views on the nuclear industry. An intergenerational legacy exists from the tests and their impacts. The loss of land, the ill health and loss of lives, the fight for recognition, hand back and compensation, failed clean up attempts. 20

25 I apologise now, I’ve just got over a sort of flu, so I’m still a bit – the uranium industry, mining and exploration. The uranium mining and exploration has also impacted on Aboriginal people and their lands and waters. This includes the former Radium Hill operations and current Olympic Dam and Beverley and 30 Honeymoon Mines. The history of these operations and the support of associated Aboriginal groups is varied. Through the recognition of rights and the negotiation of agreements, particularly post native title, relationship and outcomes have improved, however the cultural and environmental loss is only ever partly offset by social economic gains. Whether it is in relation to mining or exploration, when uranium is targeted by companies, then community 35 concerns rise due to associated risks, responsibilities and a general preference to leave it in the ground. Resultant negotiations are often – are reluctant and troubling concession with no right of veto.

40 In terms of nuclear waste, Aboriginal people have protested against previous proposals to establish a nuclear waste facility in South Australia. The Coober Pedy women, Yankunytjatjara led from 1998 to 2004 the successful irati wanti campaign against the proposed waste site. The state ran government then enacted legislation to prevent future development of it. For many 45 Aboriginal people, uranium waste is poison or irati, meaning because there is

no Western Desert word, Aboriginal word for radioactivity in that sense, so the meaning is – they call it killing magic or deadly magic weapon and that type of thing. So it's something best left alone. The recent Royal Commission re-sparked a debate many Aboriginal people thought was behind them, opening old wounds and again raising their concerns.

So in the last year, some of the key concerns that the Aboriginal community have raised with SANTS, the South Australian Native Title Services, include having to always put the state's interest ahead of culture and country and lack of recognition by non-Aboriginal people of the impacts on Aboriginal culture. Aboriginal views and concerns should not be viewed as soft and emotional and science as hard and factual. The many local regional impacts on country, culture and health, not being able to guarantee safe storage given the time, i.e. intergenerational. Waste remains radioactive. Lack of trust in government and industry. Having appropriate, accurate and independent information. Lack of science and certainty in technology, e.g. safe storage, reprocessing and that no-one has done this. Concerns with transporting waste and associated risks. Taking on other people's or country's problems is not our responsibility. And process concerns around negotiations and benefits, you know both local, regional and state.

So in seeking social consent, the jury and wider consultative processes will need to give due consideration to the South Australian Aboriginal Community relationships and responsibilities to country, the long history with nuclear – with the nuclear industry and their associated views and concerns with establishing a waste facility. So in closing, I will just repeat those main areas that I looked at, the key points are one culture and country are inseparable and linked to well being in mind, body and spirit. Secondly, the atomic tests were a violation of human and environmental rights has left a legacy. Third, Aboriginal people's rights have been recognised over the last 30 years, giving a voice in development. Four, Aboriginal people's participation in nuclear industry is often a reluctant and troubling concession. Five, Aboriginal people successfully protested against a waste dump in 1998, 2004 and six, the recent Royal Commission has brought up old wounds and concerns, including culture, country, safety, future generations, health, knowledge and trust. Thank you very much.

MS LAMBERT: Keith, thank you very much. That is a very heartfelt and absolutely jam packed factual coverage of the history and I think it – the clap show the people really appreciate getting that. Thank you. I'd like to introduce you to Craig Wilkins, who is the Chief Executive of the state's peak environmental body, the Conservation Council of South Australia. Craig's worked in the areas of public health, social services, environmental change and politics for the last 25 years in a variety of not for profit and government organisations as well as in Parliament House. Craig's a passionate believer in

collective altruism, the act of people generously working together on behalf of others and on behalf of the planet that we call home. Please welcome Craig Wilkins.

5 MR WILKINS: Thank you very much and thank you for the opportunity. I too would like to acknowledge the Kaurna people whose lands we meet on today. As you probably gathered by now, the issue of nuclear is deeply dividing and polarising. There are zealots on both sides. Hardly anyone is neutral and that includes members of the Royal Commission. And much of the
10 Royal Commission's report has been deeply contested by experts, so I'd like to suggest that that report is one view, but not the complete story. I must admit, I wasn't sure how I felt about nuclear when the Royal Commission was announced. I had a range of feelings and I – so I deliberately went out and spoke to prominent environmentalists in South Australia who supported
15 nuclear power to find out more. And what I learnt after those conversations and lots and lots of other work and research over the last 18 months, I'm not – it hasn't convinced me that this is the path for our future prosperity. I believe it lies elsewhere.

20 So let's drill down in to your role as members of the Citizen's Jury and thank you so much for taking on this important task. I can tell you certainly what it's not about. It's not about a debate around the merits of nuclear power in South Australia. This will never happen because of the amazing growth of renewable energy, even with carbon pricing. We are a world leader in
25 renewable energy, that will only increase and nuclear power will never be a natural fit for that. So you can leave that to one side. Secondly, this is not about the safe storage of waste from medical purposes or the importance of x-rays or how lovely x-rays are and I mean I've benefited from them, I like them too. This is not about that and about how important they are because
30 there is a separate, specific federal government process to deal with that low-level radioactive waste. What you are being asked to consider and what really is in contest is a very specific proposal to make money by importing high-level nuclear waste in a part of the world that doesn't actually have it and by doing so, turn South Australia into the world's largest nuclear waste site.
35 The devils are very much in the detail. I think most people think that this is about burying waste deep under ground in the outback somewhere out of sight, out of mind. But there is a lot more to it than that.

40 Even before that, the waste has to come in on ships about once every three to four weeks, every 24 to 30 days, for 70 years. That's the volumes we're talking about. Those ships will be coming through our waters, through our prawn fisheries and our tuna fisheries and our other aquaculture for 70 years. The waste will be unloaded onto a specific purpose-built port somewhere on the South Australian coast. They don't say where. It could be south of Whyalla,
45 somewhere like that.

Somewhere on the South Australian coast on our beautiful coastline there will be a purpose-built port, then the waste is transferred to a separate facility around five kilometres, 10 kilometres from the coastline where it will stay there for decades. They are talking about up to 60,000 tonnes of high level nuclear waste sitting above ground for around 80 years. This is not out of sight, out of mind. This is a very prominent feature of our landscape which we are taking on.

5
10 Greg Ward from the Royal Commission was very candid yesterday when he said that we're taking on about 50,000 tonnes of high level nuclear waste over the first 17 years of this project, even before the underground facility is built. Why? Why would we take on that risk first? Surely you want to make sure it works first before you actually start importing the waste. The reason is the
15 business case collapses unless they do that level of risk transference first.

So let's talk about the economics. There is no market currently for international high level nuclear waste. It's never been transferred from one country to another with all its risks. So to work out what price a country will pay is essentially guesswork. It's assumptions and modelling. It is quite remarkable that the Royal Commission has chosen just one source of information for that modelling; one consultancy firm to come up with such an important part of this whole conversation. Because if the business case doesn't stack up then why are we doing this? They've used one consultancy firm with
20 known ties to the nuclear industry with some perhaps some vested interests involved as well.

So I really would like to question some of that economic modelling behind the choices we're making. Then on the cost side, this is an industry which has a remarkable history of cost overruns. That's a picture of the Clinton nuclear power plant in the US. That went 10 times over budget, 1000 per cent over. Two to three time cost overruns are very common in the nuclear industry, including in Finland and Europe and other places. This is part of the whole economics of nuclear all around the world. I mean economists don't even
30 know what interest rates will be in three months' time, let alone what the price for nuclear waste will be in 70 years. There's so much guesswork involved, so lots of blowouts.

Then there's the issue of competition. There's an assumption in economic modelling that somehow we make a motza but no-one else jumps in and actually makes the motza as well and tries to compete with us and lower the price. There's an assumption we have a premium price that goes on forever for the next 50 to 70 years.

45 What about insurance? No insurance company will take this on. The risk will

be taken on by you and me and if you doubt that, go home and check out your household insurance policy and there is actually a specific disclaimer around nuclear. That's just standard because no insurance company ever takes this on.

5 It feels to me like there is this kind of narrative that we get sucked into in South Australia of somehow this magic economic miracle which comes from overseas. Does anyone remember the Multifunction Polis? A similar sort of kind of energy around that? If it's such a good deal, if we are going to make such an amount of money that people are talking about, then why haven't other
10 countries done it or why aren't they rushing to do it? Something just doesn't add up. Either the revenue just isn't there, or the costs and risks and safety issues are so much greater.

15 So let me jump into those. The safety issues - I'm not sure about you but I'm horrified about the idea of turning parts of our coastline into essentially a sacrificed zone for that amount of time. The truth is no-one knows if we can do this safely. Not one country has worked out how to store high level nuclear waste safely the length of time it remains dangerous to humans. You often hear about the Finland site. They are still building it. It won't take waste until
20 the next decade. Yet even before it's complete, we're talking about taking on 20 times the volume that the Fins are planning to take without even checking to see if it works first.

25 The only real life experience of deep underground waste facility for nuclear waste anywhere in the world is the waste isolation pilot plant in New Mexico in the US. This was supposed to be the best, the safest, the most advanced in the world. In 2014, after just 15 years of operation, there was a fire, unrelated rupture of a barrel, systems failures, workers being exposed. It was closed. It's still closed and they reckon the cost will be about half a billion dollars to clean
30 that up. That's the only real life experience.

35 So quickly just because I'm down to my last two minutes, but quickly with the ethics. You've often heard the argument about somehow because we export the uranium we are duty-bound to then import high level nuclear waste. The international law is very clear: the responsibility lies in the countries that produce the waste and equally I think a bigger responsibility lies with the companies that have actually profited from this industry for many, many years, the Members of the World Nuclear Association, and they take on a cradle to grave management of this stuff. Why don't they turn some of their profits into
40 finding a real waste solution rather than putting the responsibility back on us, on you and me.

45 We're not the only country with the right geology. There are lots of others. Can I please put to bed this crazy argument that somehow we will have this stable political space. In terms of the length of time, if they talk about it being

just for the last sort of 80 years or a hundred years of democracy, let's go back in Australia beginning with Captain Cook in terms of white Australia and go further, the Magna Carta, back to 70 years ago. If we go further back to primitive 4000 years, mammoth 10,000 years, back to Neanderthal era. That's
5 the kind of length of time we're talking in terms of whole of life cycle responsibility that we are taking on on behalf of ourselves and on behalf of future generations.

Let me just finish. There are probably three things I'd really like you to
10 remember in terms of those principles of what you should consider. Firstly, there's a real fatal flaw in this whole issue of economics versus safety because we could have the rolled gold standard safe option around this but it's going to come at a cost. So we can either have that real safe option or we can make profits. We can't have both. That's the first point. I'd really ask you to
15 question deeply the economics behind this.

Secondly, which part of our South Australian coastline has got to be the sacrifice zone for this. We need to know the location before we proceed because all the environmental issues around water and community concerns
20 will only be known once we actually find the location.

Then lastly, about why the rush? Like this stuff lasts for generations. We've been given a few months to decide. And ultimately I think we can do better. So I would actually encourage you to consider actually rather than going
25 through the gate, actually pausing, stopping and closing the gate for a while. The waste will still be here in 10 years' time. Let's perhaps consider it then but not now. Thank you.

MS LAMBERT: Craig, thank you very much for your passionate and
30 well-researched discussion and I'm sure that people will have lots of questions for you. Our last speaker is Nigel McBride. Nigel is the chief executive of Business Saturday, which is the state's peak business and employer group. Nigel's past and present board memberships and chairmanships include Advantage Adelaide, Return to Work SA, and he's a state councillor for the
35 Committee for Economic Development, CEDA, an immediate past chief executive and managing partner of Minter Ellison for 12 years. Nigel has operated at top levels of business and government and often provides input to other CEOs on key strategic issues. He is a sought after speaker on business strategy, leadership and risk management. Over to you Nigel. Are you going
40 to cover - - -

MR McBRIDE: Thanks very much. Yes. I'm sought after, mainly because I'm free; I just want to point that out. Well, first of all ladies and gentlemen,
45 can I just thank you for giving a damn. For taking the time to be here today because there is so many armchair commentators, so many sideline referees

and lounge chair critics. You have taken the time to come out, get involved in what is a – really quite a complex argument, series of arguments and frankly it's refreshing for me as someone who does – deals with policy all the time and you know, how difficult a 30 minute time change is for example, to actually
5 have a subtle nuance informed discussion and debate. And I underline, informed. The problem with this debate isn't going to be various views, it's going to be how informed those views are and it's really, really important that we understand that. So I've got a few words of warning.

10 First of all there are going to be some people in this debate who are so ideologically and emotive and implacably opposed. If you gave them something that was white, they'd call it black; they just can't do anything else. They should be heard, but they're not going to really be informed in their approach. There are other people, who at the other end are going, yippee rock
15 and roll, let's go and make some money. This is really simple. Let's just dig a hole in the ground, when can we start. And of course that's completely uninformed as well, it's pointless and both of those sets of arguments are really, really pointless and shallow and you know, they want to be heard but they have no right to be heard because those aren't informed arguments. Then
20 there's the people who run agendas and I just want to put this to you because I've even seen it here this morning. Where it's a bit more subtle than that, they'll scour the world for an example, or an issue, or something in history and then they'll link it to another thing in your mind.

25 Let me give you an example. Somebody might say to me, look Nigel in the late 1920s we had a deep recession, deep economic recession in Australia. What happened? And I could say, well you know what, one thing we do know is we gave women the vote about that time. It's outrageous isn't it? Absolutely outrageous, completely dishonest but I've just connected the
30 women's right to vote in Australia with the recession that occurred immediately afterwards. They're both facts. But I've just linked them in your mind. And if you don't get an informed response to the rest of that, you're going to go wow, women voting and recession, they go hand in hand. What we've heard today in a debate and a discussion about taking used nuclear waste
35 in to our state, probably in to remote – possibly through Darwin, who knows, we don't – we've heard about ports and I haven't heard the (indistinct) anywhere. We've heard about Maralinga atomic experiments and we've linked that to this discussion. British atomic tests are not linked to this discussion; they've got nothing to do with it, except I understand the tragedy of how
40 people felt. I feel that tragedy, my father stood as a serviceman, as a guinea pig in the Christmas Island British atomic tests. I believe he died early of cancer because he stood in front of that atomic test.

45 We are not talking about atomic tests ladies and gentlemen and what we've done is cleverly link that to this thing. We are not talking about Fukushima, a

dodgy old generation nuclear power plant that was sat on – in a tsunami ridden zone on a fault line. That’s got nothing to do with our discussion and yet, because again and again, very subtle way of linking two completely unrelated issues to bring fear and emotion. So the first two are easy to spot, they’re
5 extreme. The second – the third one’s very, very difficult because the nuances of ships – and I’m not sure whether that’s a ship that’s actually licensed to take materials, Craig, I’m not sure where you got the shock from and – well, actually it’s not – okay, no I’ll come back to you. We’ll have a panel session. Fine, yes. Okay, so at the end of the day, I just wanted to talk about some
10 misconceptions that I’ve heard, because we’ve been on this.

First of all we’re rushing it. We’re rushing this whole debate. This weekend is the beginning of probably what will be 20 years worth of consultation. If you go by what we learnt in northern Europe and western Europe is that
15 consultation never ends. This is the very beginning of a process that if it the European model is right, it will go on for 30 years, if we proceed. If we get to a point in the first five years, and this is the first weekend of the first five years and the first 10 years, why is it never going to end? Because you’re here today, as I understand it, and over this weekend, to get that first sense of whether we
20 should proceed to the next step. We’ll then talk about regulatory models. We’ll then talk about site selection opportunities. We’ll then talk about community vetos and the one thing we learned in Europe was you don’t proceed unless the community can veto and one of our guests has brought that up today. One of the problems of the indigenous people, they felt that they had
25 no control. Well, that’s not an acceptable model going forward.

So there’s all kinds of things we are going to consult on. The Finns have being doing this for 40 years; they’re still consulting right up to the point of the final building of this deep repository. So we’re not rushing it, we can’t rush it. This
30 is the very beginning and congratulations on being here. Why isn’t any other country doing it? If it’s so good, why are we putting up our hand for? Well, that’s another misinformation; Russia’s doing it every day. Russia will take nuclear waste from all over the world, they are. They are making money out of it and sadly for the rest of the world, they’re weaponising the plutonium they
35 get out of it. One of the reasons we’d like it here, ultimately is we take that stockpile of potential weaponry away from the world that might use it. But Namibia is setting up to do this. Two European consortia are setting up to do it. It’s a massive future market. It’s a 100 year market. Right now Japan, right now today, has 35 billion dollars, Australian dollars equivalent; ready to help
40 get somebody to help them deal with their waste. Japan, Taiwan, Korea, the Netherlands don’t have an issue. They don’t have an opportunity to get rid of the waste. Just a grab for money, we’ve got no moral obligation. I’d love you to ask me that on the panel. I think we’ve got a huge moral obligation and I’d like to talk about that given time.
45

We are citizens of this planet, we're facing huge climate change issues, we know that nuclear, along with renewable, is the only answer in the next 50 years for us to avoid the carbon driven climate change that we're all fearing. You know, we can't sit here and say not in my backyard, not when we mine it, not when we know it's going to go to support nuclear power, to stop us having a climate change meltdown, we have a responsibility. Happy to talk about that. The economics don't stack up. We heard that today. The problem with the economics and you know, is what economics? We don't – we haven't got a market, tradeable market. You know we're – I heard it today, we don't. What we do know is that there are countries sitting there with 50 years worth of fuel and they can't deal with it themselves. The price is going to be what they need it to be for it to happen and there are all kinds of reasons why international treaties won't let them send it to Namibia, thank heavens, or Russia, thank heavens, or any other dodgy country who might do something silly with it.

The reason why it would come here, is simply that we have the international respect to deal with it properly and to do it in a way that's responsible. Finally, as we go – the other few things that I've heard around the tracks and I thought I'd raise them, it's too risky. And that's the first thing, when I went up there, I thought well no cheque is big enough. If my kids, if my grandkids are going to be at risk, you can't write a cheque that's big enough for me to take this on. And of course, we have to take risk in context. So risk in context is the following. So 58 people died falling out of bed in 2013 in Australia. I'm glad you made it today but you know, what I'm saying is you don't live a risk free life. None of us do. Let me talk about what's really going to – 60,000 people work directly in the UK nuclear industry and in 60 years there has not been one fatality. Neither has there been a fatality in Canada, France, Germany, India and even the US where the – where it's probably got the worst track record, the US is shocking. I'm not surprised Craig's put up the US, it's a – we'd never go with the US model; they have stuffed it up regularly.

Even when Japan has had eight deaths, six of those were industrial deaths with steam, two nuclear. I'm not happy about nuclear deaths of any kind or industrial deaths but in an industry that's been going for 60 years, we've had a handful of deaths. But let's talk about the Australian workplace, we kill about 200 people a year in our workplace that's got nothing to do with nuclear. Over 1,000 people die on our roads. Five and a half thousand people we understand die from some level of obesity yet we don't ban sugar and sugary drinks. Thousands more are left injured with industrial disease.

When you say is this risky, well compared to everything we do in everyday life and the risks that we apparently accept, we're not happy about them, it's incredibly low risk. And so the concept of this ghoul of the kind of the Simpsons leaky drums and the three eyed fish cartoon approach, if you – I'm really hoping we can elevate this in to actual facts, actual information and

actually have an informed debate. Ladies and gentlemen, I leave you with this thought. Facts over fear; truth over hyperbole; education over hysteria; transparency over entrenched agendas and some intellectual honesty please, of calculated misinformation. Thank you.

5

MS LAMBERT: Thank you very much Nigel. Well, it's our job as the facilitators to make sure that you get the whole range of views and that's really what this Expert Eight process is about, so I think no-one could argue that you haven't heard a wide range of views and you will this afternoon as well. I am going to take questions and you will have about 45 minutes but I will just give Craig the opportunity to just answer that question about the ship and the photo.

10

MR WILKINS: Yes, that photograph was taken at Port Kembla, that was the ship used to re-import waste that was sent over from Lucas Heights to France for reprocessing and came back to Australia. So that's the reason why I used that example because it has been used.

15

MS LAMBERT: Okay.

MR McBRIDE: So ladies and gentlemen that's the high level nuclear waste that's sitting in a Sydney suburb right now and encapsulated in 21st century encapsulation that's sitting right beside in the middle of one of our highest population areas, like everything else that's been done for years, that's sitting right now in a Sydney suburb. Not out in the outback, high level waste sitting there encapsulated by the French using their technology.

25

MS LAMBERT: Okay, thank you. Now it is turning in to a debate but it's actually about the jurors having the opportunity to – perhaps we shouldn't have sat them next to each other. It is about giving the jurors the opportunity to ask questions of our speakers. There's only one little protocol and that is if you could put your hand up if you want to ask a question and wait for the microphone, so when I gesture to you that you can speak, you'll have the microphone in your hand and then we'll be able to capture all of the questions. Do we have a question?

30

35

JUROR: We'll just – I'm just trying to work out when you talk about Lucas Heights, is that high level there? I thought it was low level?

MR WILKINS: Yes. It's actually intermediate - - -

40

JUROR: It's low level.

MR WILKINS: - - - level.

45 JUROR: Okay.

SPEAKER: (indistinct) level waste.

MR WILKINS: Yes.

5

JUROR: Because where the proposal through this Royal Commission report was intermediate to high level, so I think even some of your examples are not relevant, or relevant but not necessarily apples and apples either.

10 SPEAKER: (indistinct)

JUROR: When you were talking about what happens in Russia for example. We haven't had a lot of information about that but to say - - -

15 MR McBRIDE: Are you talking about the reprocessing in Russia or the storage?

JUROR: Both I think. If this hasn't been the model here is what he says, the model here hasn't been done anywhere else then how can we compare – we can learn from those lessons surely something and - - -

20

MR McBRIDE: Sure. Sorry, perhaps I should clarify that, I wasn't holding up Russia as a great example. I was holding it up as the worst possible example.

25 JUROR: Yes.

MR McBRIDE: Russia will take anybody's waste.

JUROR: Yes.

30

MR McBRIDE: They are indiscriminate about how they deal with it and how – where they put it. They reprocess it for money and for plutonium which they will then use for various things. I'm holding Russia up as the worst possible case scenario. When I listed those other industries, those are industries who have stored for 40 or 50 years, low medium and high level waste, successfully without one death for 50 or 60 years in all of those countries. I'm not holding up Russia at all as a great example, quite the opposite.

35

JUROR: Okay. Thank you.

40

MS LAMBERT: Okay. Thank you. Now you can still hear me, now that we've swapped the technology? Yes. So we've got a question at the back.

JUROR: Could I just ask the four panellists, perhaps just by a show of hands, how many of you have actually read the report, the Royal Commission report?

45

Good, thank you.

MS LAMBERT: Okay. Do we have one in here? Yes.

5 JUROR: I just had a question for Nigel but the panel can – I'd love to hear from the whole panel. Personally I think we have an ethical responsibility to manage the waste that comes from the uranium that we're mining here. And I just wondered – yes, I'd like to hear Nigel's – Nigel mentioned he wanted to speak on that and I'd like to hear the opinions from the rest of the panel.

10

MR McBRIDE: Yes, look thanks and I'll try and make this as brief as possible. There's two moral arguments in my understanding. One is we dig it up, we send it, we know they're going to enrich it, we know they're going to use it for nuclear power and there's a strong argument that we should take it back. That's the view of the Finns, the Swedish and the Swiss. We – we use uranium for nuclear power for our benefit; we should deal with the waste, so that's their view. The other one is that we've got about a billion people without power in the world right now. Getting power means a rise in health because you get a fridge. We're going to see an exponential rise in the need for power right across this world. We take it for granted here but a billion people don't have consistent power.

25 In places like China, biggest power producer in the world, 80 per cent of their power is now produced with coal fired. Now it won't surprise you, I think, that 1.6 million Chinese die a year from lung related pollution. They are desperately trying to change that by throwing more money in to nuclear and in to renewable, you'll be happy to hear, to change that. But there is a strong position around the world, including in a lot of the green movement, that if we don't allow nuclear for the next 50 years we are not going to meet our carbon targets, these are legal targets for most countries around the world and as the highest polluters – one of the highest polluters per head of population in the world, Australians we're terrible. We have a huge carbon footprint, thank heavens we're not Australian – sorry, Chinese or Indian. I believe we've got a moral responsibility, like Brazilians. And I will give you this quick metaphor -

30
35 - -

MS LAMBERT: This is your quick answer?

40 MR McBRIDE: This is my quick answer. Sorry. Nothing about this is particularly quick though and that's the problem. We would condemn Brazilians for burning the rainforest because 20 per cent of the world's carbon is sucked out of our atmosphere by rainforest but they're saying well not in my backyard, we're burning it, it's our economic thing, we don't care. We don't have a moral responsibility. We'd condemn that. What's the condemnation

45 for us, the people who mine the uranium are going to be the beneficiaries of

avoiding a climate change, you know perhaps meltdown, when we have the geology, when we are in a position to help, when we can take the stockpiles away from people who would weaponise them. What's our moral responsibility? I don't think it's irrelevant. I think it's something we should consider.

MS LAMBERT: Thank you Nigel, if you could pass it over.

MR WILKINS: Thank you. So just the second one for us around nuclear power and I think that maybe even five years ago there was perhaps a live debate around nuclear and coal and renewable but the game has changed so markedly in the last few years, there is a genuine revolution going on in terms of demand and supply of energy and our grid is at the centre of that change.

JUROR: (indistinct)

MR WILKINS: Sorry, just explaining what Nigel was saying about the moral responsibility.

JUROR: (indistinct) my question thanks.

MR WILKINS: Sure. But the – in terms of the responsibility question, there's a range of different ways I can respond to this. The first question is, is who are we talking about when we say "we"? Is it all Australians, is it all South Australians? Is it people north of Port Augusta? Is it traditional owners, in terms of you know, we have a responsibility? But there's a huge question around in terms of we're looking to actually potentially place a facility on Aboriginal land when they didn't actually want it dug up in the first place. That's the first point. The second point around the whole issue of responsibility is that this is a proposal where we actually don't produce nuclear power. We don't actually – apart from the one reactor at Lucas Heights, we don't have a dominant industry with a major waste problem. There are countries around the world that do have this waste problem and Finland has been mentioned, Sweden and others and they are dealing with their own waste, that's responsible. We are talking about a specific business case to import high level nuclear waste to make money. So it's a different proposition altogether.

And I mean I really always when I answer this, it's always about let's look at perhaps the example of the US. The USA has waste; they've got a real issue there and then they need to deal with it. They've got the geology. They've often got political support in terms of localities that are willing to take it on. They've got entrepreneurs who can make mega bucks, the Bill Gates and the Elon Musks and the (indistinct) if there was money to be made, they'd be jumping in to this and they have a real responsibility to look after their own waste but they're not doing it. So this is the question about something doesn't

add up. I agree, we are all world citizens and we are all responsible in terms of a response to climate change but this is perhaps not our best response and there are other countries which also share responsibility. I'm amazed that this pressure is coming back on us as South Australians to somehow fix something that other countries have a greater responsibility for and other companies in the nuclear industry have a greater responsibility for.

MS LAMBERT: I believe Keith is happy to answer.

MR THOMAS: I'll be very brief. As I said in my presentation, as it currently stands Aboriginal people are of the view that, "It's not our waste and it shouldn't be our problem, that those countries that have that should look after it." But Aboriginal people are still willing to sit down and hear what's being said, what's changed over time and that type of thing, to get that information so Aboriginal people can still make informed decisions about where to go into the future.

MS LAMBERT: Leanna.

DR READ: Very quickly, I mean your question is about the burial aspects, not the energy. I believe we have a level of moral responsibility, firstly, because I think the world is global now. We can't just say, "What's Australia going to do?" We're not isolated any more and I think we have to think of the whole planet as part of that.

The other aspect is that if we have a storage facility it gives us the opportunity - we do produce about a third of the world's exports in uranium - to actually rent it. That's one of the proposals possibly to be considered. We can't do that unless we have a burial site. But if we can rent it, then we have that opportunity to stop proliferation and so forth because basically we say, "You can use it. Use it for nuclear power. Then you've got to bring it back to us and we'll store it." So I think those aspects are important in the moral considerations.

MS LAMBERT: Thank you.

JUROR: I'd just like to say that South Australia has a fabulous brand as far as food goes and we export a lot of our food to China. Does that mean we have a moral obligation to bring back their by-product?

MS LAMBERT: Sorry, I was distracted but the question was to the whole panel?

DR READ: I think we have a moral obligation to encourage China to deal with their waste effectively and that probably in the case of food things it's a

ludicrous suggestion to say you're going to ship it back across the world when they could actually use it effectively at home. But I think part of our global obligation is to say they've got to get rid of some of their pollution and all the rest of it, and part of that sort of thing is dealing with waste. But I think the moral obligation people are going to be very biased or have different views on that. I don't think it's the kind of thing that ought to drive the discussion, really. I'd say it's one of those side issues as opposed to the major one.

5
10 MS LAMBERT: That question was just to Leanna?

JUROR: No, everyone.

15 MS LAMBERT: To the whole panel? Right, a comment. Okay. We have a question down the front, thank you.

JUROR: Thank you. Nigel, I'd just like to respond to some of the comments that you made. You've mentioned that Maralinga and Fukushima aren't relevant to this topic and my comment is the Commission have dedicated a sole chapter on the accidents in Fukushima. If they weren't relevant, why were they explored in the report? Actually, I'd also like to Keith why you chose to talk about Maralinga today and why was that an important topic for you in response to Nigel's comments.

25 MR McBRIDE: Thank you for letting me clarify what I was trying to say. Was Maralinga a really important issue for this state and for Aboriginal people? Of course. Horrific, awful. My father was exposed to it. British atomic tests were immoral and appalling. Fukushima was a disaster. It should have never happened. It was incredibly poor management. Craig is right, we're seeing that kind of poor management right across the US. The US is not a pin-up child for nuclear anything; they're terrible. We do have other countries that are.

30
35 What I was trying to say, and as you come to make a decision about this, social licence is really important, the whole community concern. That's why we have to recognise what Keith is saying, that indigenous people have - it's really raw and we need to understand that. But in terms of things like risk, in terms of deaths, in terms of I mean thousands of years of people hours and years of dealing with this stuff, we're not talking about having atomic deaths here again. We're not putting in nuclear power, and certainly not old generation. I just think we need to keep going back to the things that this jury is being asked to consider.

40
45 Certainly consider that in terms of letting people be educated and understand what we're doing but to put a British atomic test in the same category as what you're talking about today, I don't think anybody in this room would ever say

we ever want to see that stuff happen anywhere in the world again, but that's not what you're being asked to talk about and consider. You're being asked to consider something that's a very, very small part of an overall nuclear cycle and it's that bit that ultimately you need to be educated about while
5 understanding that social licence, particularly obviously because of that history, needs to be dealt with very sensitively.

MS LAMBERT: You also asked that question of Keith.

10 MR THOMAS: Aboriginal people, their law and culture has stemmed from generation to generation to generation from since the beginning of time. So for Aboriginal people the past really does shape the present and the future. Significant events like happened at Maralinga very much become a part of that. For Aboriginal people that's the reality, that's the experience, and that's what
15 the people have felt. As I said, it's not an emotional fact, it's a fact of Aboriginal life that this has happened and that. So it becomes a part of that life experience and that's affected people all the way to the present as there's people dying young, which shouldn't be happening, and that type of thing. That is a real experience and that comes through for Aboriginal people. That's the
20 message: that that experience is what they've had and in essence they're saying, "We don't want that stuff here because we've seen what it does to people."

MS LAMBERT: And Craig wanted to answer and also Leanna wants to
25 answer that as well.

MR WILKINS: Just quickly, where it does become relevant in terms of Maralinga is around the issue of community consent. This whole issue of developing a new nuclear waste facility on what is likely to be Aboriginal land
30 has really been like shoving a thumb into a raw wound because the healing around what happened at Maralinga has not been complete yet. So in terms of how we actually can have this conversation when a big chunk of our population in South Australia are still raw and dealing with that multigenerational impact, as Keith talked about.
35

DR READ: Just quickly, the Commission of course was taking into account the whole nuclear cycle, so nuclear energy is very much part of that. So Fukushima comes into it particularly there more than that. But I think the Aboriginal side too is, as I read through not just reading the report but the
40 transcripts that were probably from your submissions and so forth, and the Maralinga stuff was pretty horrible to read.

I mean one of the aspects about that is broken promises. People were promised all sorts of things in Maralinga and they never happened. So Aboriginal people
45 have a very good case to say, "You're going to make all these promises to me

about burial of waste. Why do I believe that's going to happen?" It's one of the things I think that we really have to develop - if we go ahead - some robust processes so that the Aboriginal people can have confidence. They may still never like it but if it does go ahead, that they have confidence that at least what's been said would be done, would be done.

MS LAMBERT: We have a question down the front.

JUROR: My question is to the entire panel and it is in two parts. The first part is around moral obligation that we have spoken about. But isn't the first level of moral obligation towards the people who have got so many concerns, and especially those communities which are going to be broadly in lot closer vicinity as compared to us who are going to be definitely a lot further away from that? So shouldn't we be doing a lot more to make sure that those concerns and those fears that are there in the mind of the people are taken care of before we embark on a journey? Isn't it somewhere that we have probably - I agree that the Royal Commission is just the first step probably and I do not foresee that as something where a decision has been made. But I do believe that a lot more in terms of community engagement and probably taking a lot of those people to those actual places so that they understand and there is a lot more awareness needs to be done.

MS LAMBERT: Your question was around the moral obligation for - - -

JUROR: Especially first to those communities.

MS LAMBERT: - - - and especially into the future.

JUROR: For all the people in that community, yes.

DR READ: I mean, as I said, I think the moral issue in terms of should we do this for moral reasons for the world is not the main issue because we're not going to go and do something because we feel we're morally obliged to the rest of the world. That should not be the consideration. You're right, there's the people here who we should be concerned with. I mean that's what this process is. The Royal Commission, although you would assume it's making recommendations, is actually not making recommendations. It's listing a series of findings that are there for consideration by ultimately governments because the government has to take responsibility at times. But I think the government is really taking enormous steps to get community input and is taking very seriously the recommendations of the Commission.

From their findings overseas, where it works, it works because the community - the community being the local, and the social being the broader - have come along with it. Where it hasn't got that approval, it really has not worked well

and I think the general feeling would be it should not go ahead. I think the government has put in place a pretty consultative process for the very reasons that you say.

5 MR THOMAS: I'd certainly agree with what's just been said and I think it is really important to have that community engagement and give people the opportunity to have a better understanding of what is being proposed and what is happening moving forward and that type of thing. I think I mentioned that in my last response, that it is really important to get that information out there so
10 people can make informed decisions about where they stand on this matter.

MR WILKINS: Great question. It raises the issue of location, about making it real. Which part of our coastline? What part of South Australia will it be located in? Until we know those things, we can't actually do that consultation
15 with the local community and so I would really encourage you all, as part of your recommendations, to say, "We can't progress further until we know exactly what we're talking about, otherwise it's just a theoretical discussion around some imaginary place in South Australia." The problem is, though, that kind of investigation takes time and money. I mean in the last week or so to
20 actually do that site specific location work will cost around a hundred million dollars, so it's the next step and then the next step and the next step to try and work through this.

My big thing is around what's the opportunity costs for that? What could we
25 be doing in terms of our other great industries: building things and becoming the world leader around renewable energy and focusing on our clean and green food and working out how to actually grow food in a drying climate and all the other things we really need to focus on? There's an opportunity cost if we spend time, energy and resources from the government and private sector and
30 the community, such as you, exploring something which ultimately I think is not going to stack up. We actually need to make a choice at some stage to just cut our losses and stop and think about the stuff that we can do well.

MR McBRIDE: It is the point that you guys should be considering today.
35 The absolute bedrock of all of the successful models in northern and western Europe are community veto. They made it absolutely clear. If the local community where it's going to be sited doesn't want it, it doesn't proceed. To me, that's got to be a bedrock of this process as well.

40 Interesting though in Canada and in northern Europe, western Europe, with education, what they're saying is that communities bid for the projects. When they get it, they bid for them. Greenpeace turned up in western Finland - and Aromaa - where they bid for this deep repository and they were told by the local community to go, "You don't represent us. You don't speak for us. You
45 have no role here," and the community supported it. That's the community

that's the closest of every Finnish community to the nuclear power stations. That's the most positive community in Finland. So, yes, absolutely, but the flip side is the Fins told us and the others told us that if you really get community consultation right and you get education instead of fear, communities - and this is happening with indigenous communities in Canada, it's happening in Finland and other places - people want it because they can see it.

The other moral responsibility, you're right, that we've got to each other is generations of unemployed. Generations of young South Australians haven't got a future at the moment: 160,000 people in this state at the moment who are either under-employed or unemployed; the lowest exports in the country. We're facing generational unemployment and yet we have the ability to embrace technology. We've proven that.

The thing is, today why you're paying enormous power bills is we've become a poster child for renewables before - that's one of the reasons - you look at the - no, talk to the regulator - it's one of the reasons why. I mean, yes, I'd like to believe that we could fix all of the world's energy problems with renewables. We haven't done it. It hasn't happened. I hope in 50 years it will. But it might take 10, 20, 30, 40 - I just don't know.

In the meantime we know we're going to hit carbon disaster and climate change disaster. These are world truths. I'm not saying it; this happened out of Paris. We've got a real planetary problem that's going to hit long before renewables is the answer. So that is a moral issue. I'm putting it on the table. I'm just not saying this is purely economic.

MS LAMBERT: Thank you. Yes, I think you did have a second question but if we may we will ask someone up the back to ask a question.

JUROR: It's a question to Nigel. You've mentioned and Greg mentioned yesterday that - and Dr Read said that the revenue per year will be around 6 billion and that would be for over 70 years and the whole amount I think would be 445 billion as a revenue. Everybody here would love to live a prosperous life but what are the guarantees like that there will not be cost blowout? Like Greg said yesterday he's going to take that money and start building the facilities.

I just Googled quickly the Royal Adelaide Hospital here some are saying the cost blowout could have paid for whatever - "Government defends rising Royal Adelaide Hospital - new Royal Adelaide Hospital delayed by seven months will cost additional 3.2 billion." So what are the guarantees that this will not become an economic burden on South Australia? Like we are not sure. Like the desalination plant is another example. Like they build the desalination plant and all of a sudden we found that the water bills are higher because they

need to cover the cost of building and running the facility. So what are the guarantees?

5 We live in a very economic instability at the moment - inflation prices are rising exponentially. That's a term you said: they are rising exponentially. What are the guarantees? I know we don't live in a risk-free life, as you said. But just as an ordinary South Australian, I'd like to hear more about it. Thank you.

10 MS LAMBERT: You wanted an answer from Nigel and from Dr Read?

JUROR: Yes, please.

15 MR McBRIDE: Just a quick one: there are no guarantees at all. The fact is I'm not even sure whether there will be a market there by the time we're finished. I think other countries are catching up very quickly. I think there are other alternatives. I think people are looking - there's a huge reprocessing industry out there. So for those of you who don't know that, we would take the straightforward rods unreprocessed. It's a very simple process. It's the finished
20 process. We'd encapsulate them in about that much copper and stuff and we'd put them way down into the ground. It's a very relatively simple process. There are all kinds of other very, very cost-driven, price-driven processes all over the world.

25 I think from our point of view we would be crazy to proceed on this unless we had agreements in principle in place with people like Japan, Taiwan, Korea, whoever it might be, that said, "We will set a price. We will commit to that price. We will help fund it." So I can't tell you today how much we're going to make; the Royal Commission can't. They can only speculate. They make
30 findings. I mean they've taken what they had as a suggestion; they just didn't put a wet finger in the air.

But the truth is, we won't know the market until we're ready to get into the market. We're not going to be ready to get into the market for a while. I think
35 we will have to look at that in parallel: is there a market; what's it worth; how will that - and even if we get social licence, it may well be that the market is not there. It's a great question but it's one that I don't think anybody can simply pull those answers out of the air but we will have a process that will make sure we understand that before we begin.

40 DR READ: Yes, I'd agree with that. I think there are cost blowouts and there will be cost blowouts but I think there have been some sensitivity analysis built into that. I would say one suggestion is that you recommend that we have some additional financial analysis. People have said, "It was only one
45 company." It seemed pretty robust stuff that they did, but let's have some other

views of that to get a bit more surety.

5 The other aspect is, there's a few safeguards built into the proposal which is why it is the way it is. One is to actually get guarantee of a customer before proceeding to even start building. We do know that there are some countries like Korea who have examined opportunity for their high level waste and they cannot do it at home, so they have to do something. So if we can get their guarantee that they will actually take on a - and that we will sell our services to them and they will guarantee to accept that at some guaranteed price which is yet to be negotiated. But I think the Commission's views from visiting there is that it's not that they wouldn't pay anything but they're pretty desperate to get rid of the waste. So there are some opportunities and some safeguards in there to sort of say, "Well, if we haven't got that guarantee, we won't go ahead."

15 The other aspect is building - part of that is why we have the interim storage - part of it's heat generation and other things too - but an interim storage which is relatively cheap. Why? That helps to fund the very expensive, deep - you know, 500 metres down storage, so that there's some things built in there. So we're not going to go out and just suddenly build this massive underground storage and then say, gee I hope someone comes. That would be totally irresponsible. So you know, I think putting in place and asking for further assurances and that there will be certain, I guess go, no go decisions along the way that will ensure that this is not going to happen as you seem to suggest it might do.

25 MS LAMBERT: Now Craig is keen to answer that question too.

MR WILKINS: Just quickly - - -

30 MS LAMBERT: You okay with that?

MR WILKINS: There is this idea of somehow sort of getting some pre-contracts. I'm sure it's quite possible and we actually could start this whole endeavour with some sort of contracts in place but the timeframes we're talking about, it is this sort of next 70 to 80 years and so - and those sort of magic figures of how much mass revenue at the end, are dependent on a whole lot of assumptions around that, including future interest rates, including future demand for nuclear power. There's all these assumptions built in that gradually if you pick away at them, one by one, it's a bit of a house of cards and they all collapse and there's a potential we actually could lose money out of this. We actually could do all this work and in the end, end up with a great big white elephant. That is a real scenario and it gets to the question of what's called discount rating in economics. A dollar today is not worth the same as a dollar; sorry a dollar today is worth more than a dollar in 20 years time or in 45 70 years time. And people, economists like Professor Dick Blandy have - as I

said, have been very scathing about the kind of dismissal of these – of this future cost and risks about such a long term project.

5 MS LAMBERT: We have a question down the front and then one up the back and we have about 10 minutes left. So your question is to?

JUROR: Mainly for Craig. We heard from Craig, who said words to the effect that we're all citizens of the world and I think Nigel might have suggested this or even said that but anyway, do you think South Australians think of themselves like that?
10

MR McBRIDE: Is that to me or to Craig?

JUROR: Craig. That we think of ourselves as citizens of the world, isn't it how does it affect me and how much is it going to cost?
15

MR WILKINS: Goodness, I'd like to think human nature is more positive than that. I think we can – there's probably an element of what's in it for me but there's also an element of that bigger stuff. And the thing is that in terms of you know, what's our best contribution to climate change, what's our best contribution to world peace and we're actually a world leader in renewable energy and if we actually crack that, if we get it right technically and socially and economically, we can export that model to the world and that's the kind of really positive exciting genuine give that we can talk about and actually be that world citizen.
20
25

MS LAMBERT: Okay. A question up the back and I think we've got four lined – two. Okay. Three lined up. Thank you, go ahead.

JUROR: To Nigel, okay I've lived in the Woomera area on a sheep station where we had to have like an igloo to climb in to when the things went up and I personally lost members of family. You're talking about putting this what 50 tonnes before we're underground then – I'm more worried about mistakes. What about Radium Hill, that had to be cleaned up as well and that's on – I personally know the people who own that sheep station. I'm worried about where this money's coming to do – from if we have to have a clean up like Woomera. And where does all that go? Where does all the contamination go? Where did all Woomera's contamination go? And where are we going to store this stuff safely on ground until we dig a hole?
30
35
40

MR McBRIDE: Okay. I mean those are all very legitimate concerns. Once again, let's just focus down on what we're proposing. So the US is a terrible example but right now all over the US is about 65 above ground storage facilities and they're like a slab of concrete and you've got these canisters standing up like soldiers maybe 30, 40, 50, 100 with a bit of cyclone fence
45

around it. That's how sophisticated their storage is, so as I said, US isn't a role model. Not one incident in above ground storage in the US and it's not – it's not a pin up for above ground storage. All over the world, in responsible nuclear power plants, we have thousands and thousands of pools with spent fuel rods sitting in them. They sit there for 10 to 40 years. When people walk around them, they just walk around them in overalls and I said, "Wow, that's a bit strange." And they said, "Two metres of water over these spent fuel rods, these are the ones we'll be taking if we decide to fully encapsulated is a complete barrier to radiation." But they've put in five metres of water just in case. The technology that they're doing with encapsulation isn't some leaky barrel. You know, it's that much copper, it's steel, it's all kinds of technology. These things are prepared to last for ten thousand years, even above ground. So what I'm saying is that if we relate to – back to every single disaster – and that's the first thing we emotionally do, we think of Maralinga and we think of all of the things that have gone wrong, what we don't look at is that in comparison to a massive industry that's been going for 60 years where mostly, especially in storage, it's gone right. And all I'm simply saying is yes of course those things need to be answered in the process. If they're not answered we won't be proceeding but what I saw and what they've been dealing with 40 years, gives me absolute confidence about the way this will go forward and the fact that all over the world, right now, without any incident at all, we've literally thousands of high tech containers that they drive trains in to and do all sorts of tests on, that have been absolutely never lost their integrity. And that's exactly the technology we'll be looking to use, and use the examples that have been proven elsewhere for many decades now.

MS LAMBERT: Thank you. We have a question in the middle here.

JUROR: Yes. My question stems from - - -

MS LAMBERT: Your question is to?

JUROR: Kind of – I'll explain that in a moment. My question stems from how community perception is influenced by how an energy resource is marketed. So Craig you brought up the problem of space quite a lot, whereas I thought we as a jury are more so looking at do we look at the possibility of nuclear, not so much what location are we going to put it because that to me comes next in the timeline of events. We have space for a lot of other renewable resources, like wind and solar and the likes. So what's the issue with nuclear taking up space? Because we've got to take up space to produce energy in the future and you know, we have to negotiate that, regardless of what path we take for energy.

MR WILKINS: Yes. Thank you for that question. The main reason why it's not an option and will never be an option is because nuclear is actually a really

poor match to renewable energy. Because what you have got is the wind and solar are jumping in to the grid and it is an average of production of electricity that needs to be filled by – by gaps of what’s called dispatchable power. So when the wind’s not blowing or the sun’s not shining, you need to jump in with short run options for energy to actually fill those gaps. As we get higher and higher percentages of wind and solar which are happening then those needs are actually getting more and more specific and shorter term. And the problem with nuclear is it’s an old style inflexible constantly running kind of option which doesn’t match at all the – the grid and the need for those kind of dispatchable options and that’s the reason why we’ve had a closure of the coal fired power station at Port Augusta is that it just simply could not compete in terms of that old fashioned style of constant supply of power with the new grid which is about the opportunities around renewable and so you actually can’t have nuclear and renewables because the business case doesn’t stack up.

15

JUROR: That’s not my question. My question was - - -

MR WILKINS: Sorry.

20 JUROR: - - - about you say we’ve got issues - - -

MS LAMBERT: Sorry. Could we just get the microphone over to you? Thank you.

25 JUROR: Sorry. My question was that you say we don’t have – we’ve got issues regarding land space, well we’re already taking up land space with energy.

MR WILKINS: Sure.

30

JUROR: I don’t – you know, we’ve got – you know, we’ve got to have a port but we’re talking about wave energy which will take up coast space. So the land space that shouldn’t necessarily be a hurdle that stops us - - -

35 MR WILKINS: Mm.

JUROR: - - - in nuclear energy. That’s what I’m trying to say.

40 MR WILKINS: Yes, I agree. The actual land space isn’t the hurdle, it’s just is it the kind of thing we want on our coastline?

MR McBRIDE: Could I just respond - - -

45 MS LAMBERT: Nigel wants to - - -

MR McBRIDE: - - - just very, very quickly to Craig's point that somehow this terrible nuclear thing that just gives consistent power is a problem. We have a base load power problem in this state, yet alone around the world. If we didn't have nuclear in China, India and across Europe who have high levels of
5 renewables, they would have massive blackouts, people would die of the cold. Nuclear will replace base load coal and gas, it's incredibly efficient in terms of output and in terms of carbon production, that's why most of Europe, India, Asia and even the Middle East are embracing it.

10 We do need a base load consistent supply because, sadly, and you've noticed this in South Australia, the sun don't shine when you need it to and the wind don't blow, and if we didn't have base load power we would have massive blackouts. Now, that power has been driven by coal fire stations, and, sure, we want to get rid of them. You've got to replace them with something. We're a
15 small population. What happens when you've got 1.4 billion people in India and 1.4 billion people in China and millions of people in Asia?

They don't have the luxury of saying, "Let's just look at the wind farm and hope it works for us." It won't work for them and they know it work for them.
20 They're facing decades of a need for nuclear. It's not a question of speculation, it's absolute fact. There are 440 nuclear power stations, they're building another 60 as we speak across 13 countries, there's another 200 on the way. I talked about inexorable growth of the need for power to bring people out of poverty all over the world that we take for granted.

25 MS LAMBERT: I'm going to give Craig 30 seconds to answer that.

MR WILKINS: There were 443 nuclear power stations around the world in 2005, there are now 437 in 2015. The actual net result year on year is a slow
30 decline in nuclear around the world that they're renewing, but they're actually closing down more than they're renewing, so we're actually getting a net reduction in terms of nuclear power plants around the world.

35 MS LAMBERT: Okay, thank you. We're getting perilously close to running out of time, and we have a question down in the centre.

JUROR: Dr Leanna, if South Australia did decide to take this waste on would we not be enabling the rest of the world to ignore clean options? If we don't take it, we'll be forcing their hand to create new ideas.
40

DR READ: That's assuming that by the fact that they've got somewhere to disclose of waste is going to be a huge increase in nuclear power plants. It doesn't make economic sense in our country, for example, so it won't make economic sense in others, so there are other considerations. I gather the
45 amount of waste that's there now to be disposed of, if you could use it all for

fuel, which of course you can't, it could power the world for 500 years, so it seems to me there's a fair task we have to do right now without worrying about what happens in the future.

5 We were talking about this uncertainty about where the future energy will be met. We assume it will be clean, we certainly hope it's renewables. You know, I'm a great supporter of that growing. The general view that came through in the Commission and I think elsewhere is that in the next 30 years they're not going to do that base load side, we're going to have to have
10 something, but I think the world is moving towards a whole range of technologies, and that's the wonder of science.

You know, we come up with all sorts of solutions, so I think we'll have some wonderful solutions and they will be renewable in future. It may well be we
15 don't get many more plants built, but we've sure got a disposal problem already.

MS LAMBERT: Okay, so you've been given a bit of extra time, but the question down here and then one over this side.

20

JUROR: Sorry to Craig and Nigel. We are not here to make a decision, we are here to make kind of a booklet, like a small little report from this report, then you don't have to convince me yes or not. Sorry, the question is specifically to Keith. My concern is I don't want to make the same mistakes
25 that we did in the past because we need to learn from the past. We're going to prepare this booklet, it's going to be a small report, a little thing. I want to go to the lands and I like to deliver the information.

My question to you, sorry, and to ask you directly, is: how do I make the
30 mistake of printing thousands of little booklets and I put it in everybody's houses, or how do I approach to deliver this information to the indigenous community?

MR THOMAS: Well, it's very important because if you're talking about the
35 lands, for example, English is a second language, and for many people not even a second language, it's just Pitjantjartjara Yunkunytjatjara, so people talk Aboriginal languages and that type of thing. It's either important to get something done which is putting information into Aboriginal languages that people are able to understand, whether that be, you know, maybe from plain
40 English, don't use the technical terms and that kind of thing.

As I said earlier, there's no Aboriginal word for radioactivity and that type of thing, so you've got to break things down to be understood to give people that understanding about what's being said and that type of thing, so it's really
45 important to have that engagement so people can have that information and, as

I said earlier, make informed decisions.

MS LAMBERT: Was there anything else?

5 MR THOMAS: Indeed, and that's right. It's very important how that is
communicated and that type of thing. If you're talking, as my colleague just
said here, you've got to have interpreters and you've got to be clear too, though,
that what you're actually saying is what people are understanding, because you
might ask a question and people will say yes, but what are they saying yes to,
10 so you've got to keep things short and particular, that it's not long sort have
sentences because you might have mentioned three or four things in there and
people will just say yes at the end, so you will be saying to yourself, "What are
people saying yes to?" and that type of thing, so it needs to be clear, articulated
well and you have to use all of those sorts of avenues open to you, like, using
15 diagrams and that type of things as well and getting messages across and using
interpreters and that.

MS LAMBERT: A good question, and thanks for the answer, Keith. I think
for people doing the consultation do have advisors about doing that, but it's
20 lovely to hear it from you too, thank you.

JUROR: Thank you. My question is to Dr Read, and excuse me ignorance, I
clearly haven't done enough research on this. With the cooling pools for the
interim used fuel, does that need to be refresh water or can that be salt water or
25 fresh water, and has consideration been given to where the volume of water
required for that above ground storage been worked out, given that we live in
one of the driest states in the country?

DR READ: Good question. The Commission was specifically told not to
30 address location, so they haven't done that. I'm not sure, to be honest. I think it
could be either, but I'm not sure on whether it could be salt or fresh. I guess we
can pipe water reasonable distances. I think some of the stuff that's coming out
of desalination now, solar thermal, for example, if it has to be fresh water.
Clearly, you need fresh water for facilities, but I don't know if any of you have
35 paid attention to Sundrop Farms up near Port Augusta. They're fantastic, you
know, it's all hydroponics, it doesn't even need soil, the water is entirely - - -

MS LAMBERT: To grow tomatoes.

40 DR READ: Yes, to grow tomatoes. So, you know, the things that we can do
in places which we didn't expect to do them before I think we can do. It's an
important issue to be address, and I don't think it will be one of the deal
breakers.

45 JUROR: Thank you.

MR McBRIDE: I think there's a bit of misinformation there. We're not bringing the fuel rods raw to put in ponds, we think that cooling will happen over ten to 14 years, then they will be encapsulated and it's only then we will bring them across. Just to let you know, when you bring the hot rods out of nuclear it's all under water, they move it underwater into under water ponds. It's left there for ten to 14 years before being containerised or encapsulated.

We wouldn't dream, I wouldn't have thought, of taking those rods without full encapsulation onto a boat and then a train to go anywhere. By the way, they just recycle the water, it can be fresh or salt, but I don't think that's going to be part of our proposition. I don't think anybody is going to take rods on a boat without full encapsulation after ten to 14 years of cooling.

MS LAMBERT: Okay, thank you. Did you have a supplementary question?

JUROR: Maybe a comment. It just all sounds very energy intensive to store the waste, and you made, Nigel, comments with regards to the safety of the storage, it being stored in both copper and steel - - -

MR McBRIDE: Encapsulation, yes.

JUROR: Encapsulation. That, to me, you know, raises concerns about the necessity to use finite resources, and I misunderstood maybe what was presented by one of the Commission panel members yesterday. I understood that we would actually be needing to cool it in those cooling pools once it arrives on our shoreline.

MR McBRIDE: I would be surprised. We would have to encapsulate it, then open it up and then put it in a pool. Look, there's lots of models out there. On your use of materials, the things are over engineered and over engineered because they have a 200,000 year timeframe, so they don't take any chances, that's the approach we would take, but I would be amazed. There's no shipping that's licensed to take containers around the world unless the containers can fall off that ship and survive. You just would never do it.

MS LAMBERT: Okay, sorry, I do need to call it to a halt. I know that Craig is burning to answer something, but perhaps you could catch up with people as they're leaving. Thank you very much, everyone, for your questions, and thank you to the panel for your insightful and passionate answers and for your passionate views about it. Thank you, Dr Leanna Read, Keith Thomas, Craig Wilkins and Nigel McBride. Could you please show your appreciation?

ADJOURNED

[11.41 AM]

45

MS WALKLEY: Okay. Hello again, everyone. Welcome back and welcome to our panel members. We had a fairly exciting panel earlier, and I'm hoping very much that we can keep up the momentum as we go through here. I'd like to introduce to you the first panel member; we have with us Kelly-Anne Saffin. Now, Kelly grew up in Mt Gambier. She is based during the week in Clare and she has a vineyard with her partner in the Barossa, which is where she spends her weekends; she tells me working very hard, but I'm not entirely sure about that. She's the chief executive officer of Yorke and Mid North Region for Regional Development Australia. Their role at Regional Development Australia is to stimulate economic growth and infrastructure, and tourism in regions. She's got a background in the legal industry and also in regional development. I think, with that, we can welcome Kelly-Anne. Thank you.

MS SAFFIN: Thanks, Ilka. If you don't mind, I'm going to step down here because (1) I'm not very tall and my legs won't fit the stool; and (2) I'm much better at having a conversation with you as part of that process. So thanks, Ilka, for introducing me. In 10 minutes, I think, when Emily rang up and said, "Would you have a talk about the type of issues?" and my brief today is to talk about the issues that we are hearing in regions, some of which are resolved in the nuclear recommendations and some of which will require some further investigation. So I take it, really, that I'm just going to share with you those things that you might want to think about as you set the agenda, and those things that we have as part of that process.

Just to give you a little bit more background, obviously, as you go through having a look at the evaluation, feasibility and essentially with the desirability of the recommendations, I have had interest including part of this, so Regional Development does look at the 11 councils for Yorke and Mid North in my area, which means that my particular area I work in has 78,000 people from right up in Yunta to right across to the foothills of Port Augusta and some of Flinders, all down the Yorke Peninsula and also down to Balaklava and Owen. I don't pretend to know every single one of those 78,000 people and nor would they, nor to represent exactly all of their views, but just to give you a little bit more clarity on the type of work that we do, I am the liaison point with South Australian Tourism Commission for Clare Valley Tourism and the publication and information of brochures, as well as being the treasurer for Southern Flinders Regional Tourism Authority, and I'm also the treasurer of the Upper Spencer Gulf Common Purpose Group, which is the three cities of the Upper Spencer Gulf: Port Pirie, Port Augusta and Whyalla, and looking at their economic positions.

I have the board of management. That board is drawn from local community and business people as part of that process, and that also means that we have

the unique position of being funded as a not for profit by Commonwealth, State and local government. I often talk about that as being 13 different funding partners and a bit like having 13 different boyfriends, and I was never that good at dating to start with. So, yes, it is part of our remit that we deal with complicated issues in which there isn't a single answer as part of that process. Essentially in some ways, this is like multiple land use concerns.

So, for us, just some of those topical things to talk about have been wind farms, for instance. So in our 11 councils, we have 64 per cent of the installed wind farm capacity with further under construction, so we are actually the renewable hub of regions when people talk about South Australia. We're also the communities that have had to grapple with the issues about having wind farms on your hill if you happen to be the newest neighbour and not having the economic benefit. From that perspective, I have been part of the Central Local Government Region Wind Farm liaison when we talked about the principles in community development.

I've also had the opportunity to work through a number of community development and community consultations that have not gone well, some of which we've done badly, some of which other people have done badly. So it's really good, I think, to look at those things that have been done well, but also those things that could have been done better as part of that process.

So from my brief today, and my board would tell you that I am tasked, to be really honest about this, tasked to stimulate economic activity, but that their mantra is that must be sustainable economic activity. So it's not development at any cost and I don't want anybody to think about it in that way. So I'm just going to talk about some of the economic issues that have been brought up in region and just really transmit to you as you think through what you would like to hear from more experts on and those type of activities.

Some of the things that we see. So it would be remiss of me not to talk about the agricultural and tourism sectors and the concerns that are expressed both actual and perceived about what a high level, in particular, high level waste facility might bring, but also because Ilka, while not in the council areas in which I work, is closely related to Southern Flinders Tourism, some of those questions that are currently being raised as the federal government look at those aspects. I think to put that time into perspective, really important to us that it's a debate which doesn't say things like, "In the Limestone Coast, your lamb will be contaminated if we have a high level nuclear waste in the far north," if that's not what the science says.

In fact, most concerns are about the perception of what might happen to our markets in both the agricultural and tourism perspective if this debate is not handled well and if the science is not well understood. I think nobody who

gives a simplistic answer is a friend of those activities. The second part for us is that discussion about why actually it is important, because we are the trade centre, we are the areas which bring in wealth from outside the State which allows it to continue in the domestic areas, we are the exporters, if you can put
5 it that way, both in the mining and other sectors as part of that process, so our international and global reputation really matters, whether it be the global or agricultural sense.

The other thing is we see now across Port Pirie and the Upper Spencers is talk
10 about some of the effects of the - it's really interesting for me, the State wealth fund and for us about that is how important it is that is, if the choice is to go ahead with the high level waste facility, is how that is managed. So there's a really important case study and people with far more technical economic
15 background will talk to you about this, but there's what's called the Dutch disease when, you know, crowding out occurs, when we haven't actually preserved the money when we make from other industries to look at what happens when that cycle finishes. So it affects and means that wages get higher, it's harder for our local manufacturers to hold their apprentices. Then at
20 the end of a mining exploration, Broome and otherwise, it's harder for us to maintain. In some ways, South Australia is experiencing that now and there's plenty of economic literature about that.

What is interesting about this is the discussion that talks about a State wealth fund and understanding exactly what that's for, particularly because in Norway,
25 which is often talked about as an example, where it's done differently, as part of that process, they have actually preserved the benefits for future generations and for other sectors. So from my perspective, the discussions we have is: what does that actually mean and where does the benefit happen as part of that process? Somebody is going to give me a two-minute warning because I'm
30 much more of a conversationalist.

So I think that's kind of the general discussion, some specific issues that I think from a regional perspective we're talking about, that we're having those
35 discussions. I've had the opportunity to go to Lucas Heights and just a general observation - personal only - it really helped me to understand the spatial context, to understand how close Lucas Heights was - different kind of facility and low level - to understand the geographical area and to have some context in my mind about what that is because I think that for everything you can see, understanding that really gives you a better perception. So in my head, if
40 you're thinking about it, how you think about yourself in that to understand what that means in terms of outlooks.

Second of all, often talked to us about is what is going to be the impact - and I alluded to it before - in terms of agriculture and tourism? We're already
45 thinking about how is it that Champagne deals with its reputation when it has a

nuclear reactor in the province as part of that process. From my perspective, that's the type of thing that we'd be looking for more information for, and I suspect it's the best used example in this space. There are obviously, outside of my knowledge, better examples, I'm sure.

5

The second thing is, what will be the impact upon the Upper Spencer Gulf in terms of transport as part of that process? Where will that be? What are the safety concerns? How will that be managed with existing industries, particularly fishing in the Upper Spencer Gulf, but also the existing manufacturing and other issues?

10

Thirdly, something that's really important specifically is the benefit to the regions. I think most people would say in regional areas that they want to know that there is a sort of real and tangible benefit to them if there's going to be either an actual and/or a perceived disadvantage to their industry. They want to know that the security or the department that is involved is actually domiciled in the region; it has some local understanding and knowledge. It's a little bit like positioning, it's a little bit difficult as part of that process but I think they would want to see that there was a real answer and expectation in those areas, particularly around the Upper Spencer Gulf and far north.

15

20

Finally, I just want to, as I finish that - because I've got some handouts, I've got lists of all the questions that have come up as part of that process but I figure you're going to hear a lot. So you're going to hear from people who are far more qualified in specific areas than myself today about that type of activity. But the really important part about it is the communication. I've seen so many things in community consultation go badly and go well. I'll use wind farms without talking about specific ones. I've seen some wind farms that have had complete community consent because their consultation has been done so well, and others that haven't. What it leaves is division in the community and that is actually the stuff that affects us long-term economically.

25

30

It's really important that we don't have a simplistic look about it, that we not be worried about the complexity. I personally am invigorated by the idea that we're going to have this debate and have it in a way where people actually get all that information. But if I can leave you with those messages, that understanding what the economic benefit would be, how that actually relates to industry and what it means for - and how people have dealt with it in agricultural/tourism sectors in places that we know and respect would be really important to the region as part of that process. Thank you.

35

40

MS WALKLEY: Thank you very much Kelly-Anne. I'd now like to introduce Dr Simon Longstaff. Simon is the first generation in his family to live outside of South Australia. He's married with two children. He also has kinship ties with the indigenous people of Groote Island. He is the executive

45

director of the Ethics Centre, which is an independent organisation which helps people to navigate complexity, uncertainty and difficult issues. I don't know if that rings a bell for anyone in the room here. Just to mention something that was quite interesting for me in researching the Ethics Centre, is they have a
5 hotline. Ethicore, I believe is the name of the line where people can call if they've got any ethics questions. So that might be of interest to jurors here in the room as well. We can get hold of that number for you. I will pass you over to Simon.

10 DR LONGSTAFF: Thank you. Good afternoon, everybody. Is it all right if I speak from here? So the work of the Ethics Centre is not so much to tell people what to think but to try and aid them so that they are able better to think for themselves and make informed decisions.

15 What I thought I'd do today is just talk about some basic frameworks which you might want to draw upon as part of your deliberations. It starts with some things which are so obvious that we don't really notice them, and that is the first thing in ethics is that everything other than the laws of nature themselves that we see around us are a product of human choice. The architecture we
20 employ, the institutions we develop, the clothes we wear, the way we decorate our bodies, all of these things could be different. Even the pyramids might have been giant stone cubes in Egypt rather than the pyramid shape if someone had just made a different choice. So the choices we make have huge implications because they effectively are what make the world, other than, as I
25 say, bound by those laws of nature.

The second thing is that except when we are under duress when someone puts a gun at our head or where somebody physically takes our arm and directs it one way or another, every time we make a choice we do so on the basis of what we
30 claim for ourselves to be good. We always choose the thing which we think is good or better. We did it at lunch today where there was a selection of food. Some people chose vegan, some people chose vegetarian, some people chose meat. Depending on what you think is good, you will choose accordingly. If we think, for example, if you live in Sydney that it's good to go to Melbourne,
35 then you come to the Hume Highway and it's a binary choice and you head south.

The list of things that we say are good are what we call values. It's not enough to have just values. You also need to have principles because you need
40 something that regulates the means by which you secure the things that are good. So to go back to that fanciful analogy about going to Melbourne, yes, I may have decided it's good to go to Melbourne but how do I get there. Do I go as fast as I can without being pulled over by the cops? Do I obey the speed limit? Do I have a break along the way? As I say, they're defined by
45 principles.

I mention those two little bits of the kind of universal grammar of ethics because as you deliberate as a group, one of the things that you might want to do is to consider are there certain core values and principles which you share together and which you make explicit as the basis for how you might eventually start to frame the challenges that South Australia faces in this area. I understand yesterday morning the Premier mentioned two values. He mentioned the value of safety and he mentioned the value about some kind of justice in relation to the distribution of the benefits and the costs of this.

10

Have you embraced those as a group? Are there other things that you might want to put there? Because unless you can collectively determine what is good on the one hand, the values, and what is right on the other from some principles - and I'm going to suggest some to think about - you won't be really be able to frame this in a way which has a coherence for those who want to draw upon it. I don't want to add to the work but it's another thing to be discussed as you think about this.

The other thing about ethics in general is that its greatest and most potent enemy is unthinking custom and practice. If anybody ever utters in your hearing, "Well, this is what we should do because everybody does it this way," or, "because that's just the way things are done around here," then you must say, "No, that's not the basis on which we'll decide." That kind of convention or practice, as attractive as it sometimes is as a way of getting through, that's just a matter of habit. Ethics itself is fundamentally about challenging that. It's about an examined life. So again, just watch for - it can so easily - "Why are we doing this? What happens?" "That's the way everybody does it, whether it's overseas or here." That can't be the standard against what we should debate. This kind is grounded in ethics. It has to go back, as I say, to those core values and principles.

If you think about this particular topic, one of the issues that I think is always running underneath the current is that good people typically don't want inadvertently to become complicit in wrongdoing. Nobody wants to be inadvertently drawn into a situation where they are either commissioning some wrongdoing, causing it to happen or even inadvertently benefiting from it. So people typically, when you get to these complex issues, say, "Well, how do we think about this? What's the various lenses through which we do this?" I'm going to propose a few lenses for thinking about it.

40

The first of these is that if you get any 100 Australians, typically, if you ask, "Well, what should we do?" - this practical question of ethics - about 50 per cent of people will say, "Well, tell me what's going to happen?" They will be attracted to the consequences of a particular course of action. They'll talk about the kind of cost benefit or you'll hear discussion about maximising

45

the greatest good for the greatest number. But this kind of language of consequences is only one of three basic languages that dominate ethical discussion in our country; slightly different in different places.

- 5 When I was sitting in this session earlier on this morning, towards the end of it, another kind of language was already being spoken in this group. People were asking questions about duties. What obligations have we had? What promises were made? And in this particular case it was to do with indigenous people had been promised and promised and promised but had never actually had
- 10 those promises met. That's a different kind of language, that's the language of duty or obligation. Either duties or obligations that grow out of things we do ourselves, like when we make promises or which might be more general in nature. But there's a third dominant language that you hear and that's the language of virtue. People will ask questions about if we do this thing, what
- 15 kind of people will we become? How will this choice shape our identity either as individuals or collectively? This is a notion that we are like wax and that every decision we make leaves an imprint and we progressively become these things.
- 20 Then there's a fourth tradition which is not as well spoken of, which is called the ethics of care, which looks at – well, what's the caring thing to do? What's the relationship? But it can be made as a subset of others. Now when you frame your document, the one thing I would say you should consider doing is, can we speak about this issue with all three or four of those languages? Can
- 25 we resist the temptation to just think about it or talk about it as a matter of consequences? You know, these are the economic implications, this is the financial benefits of things, can we also take into account concurrently, issues to do with duty and character and care. Because, if you can do that, then you'll be speaking in the language that the community collectively understands. If
- 30 you're only - if I only ever talk to you about consequences and I never recognise those other languages, some of you might say this guy doesn't even understand what ethics is about, there's no legitimacy. He doesn't get that it's ultimately about this or that. So that's one lens to look through.
- 35 The second big question in ethics is well who counts? Who should be given relevant consideration to this? Do I just look after myself as an individual, or do I take account of my family, my community? And there are some traditions, particularly in the indigenous community in Australia that gives ethical relevance to everything that exists; animate and inanimate is invested
- 40 with a significance. And you have to think about how you draw the boundaries when you are thinking of these issues as to whether or not you are going to take a radically egalitarian view in relation to all humans. Whether other forms of life are going to be taken in to account, or whether or not you're going to have a narrower view? One way to do this is to employ a tool called the veil of
- 45 ignorance which was developed by a man called John Rawls for a different

purpose. The veil of ignorance is where you try to look in to the future, where you cannot know who you will be born to be. You might be the wealthiest most powerful person, you might come from an affluent community but you may also be born in the most marginal condition. You could be born
5 indigenous or non-indigenous. When you look through the veil of ignorance what would you choose to do in that case, just as one tool?

Then you have got to think about a thing called the principle of double effect. That is there are some things you might do for good reasons which might have
10 bad outcomes and it's okay to do that, providing that the very means you employ are not themselves ethically illicit. So ask yourself, is there anything intrinsically wrong with mining, selling or reprocessing, or using, or making safe uranium? Or are the evils you seek to prevent outside of that? It's a bit like gambling, there's nothing wrong with taking risk for reward intrinsically,
15 it's the evils of addiction and it's the evils or organised crime that are outside the practice. So could you say that mining and use and the generation of electricity itself is not intrinsically a problem but you're actually trying to deal with these other unintended adverse things and how might you do that? And you need to be involved in some sense to be able to control that.

20 Because of shortage of time, I might come back to that if we can with questions. I will finish with one last principle that ought implies can. When people talk to you about having a moral obligation to do something, it's only an obligation if it is possible to do it. If you said to me, I have a moral
25 obligation to fly around the room, I said I can't do it; it's ridiculous I don't accept the obligation. So what are the practical limitations that people in South Australia might have imposed upon them by limitations in terms of resources, time, money, or opportunity actually to fix these things so it's something that could be done because if it can't be done safely, if it cannot be
30 done with justice, if that's not possible, then the ought falls away, however it's been constructed.

MS WALKLEY: Thank you very much Simon. I would now like to introduce
35 Jason Kuchel. Jason is born and bred in the Adelaide hills, he's the father of three boys, which he tells me makes him very popular in China. He's active in his local community and in his church. He's a chief executive of the South Australian Chamber of Mines and Energy since 2007 but in his early career at 24, the City of Prospect, he was the youngest city engineer in
40 Australia. So he has graduate and post-graduate degrees in engineering and he has board and advisory responsibilities here in Australia and also overseas. Hand over to you Jason. Thank you.

MR KUCHEL: Thank you for that introduction. I'm going to stand down here
45 probably for a few reasons but one of those is those chairs are really uncomfortable. So good afternoon everybody and thank you for the

opportunity to talk to you today. Just want to acknowledge that we meet on the land of the Kaurna people and I want to do that because our industry does see our relationship with Aboriginal people as very important as part of the way in which we operate and anyway, I won't elaborate on that further at this point. I took the opportunity during the break to put some bananas and some chocolates on the tables. I can see that the chocolates are much more popular than the bananas. There is a point to that, it's not a bribe but you will get to see the point of that as we go through.

10 JUROR: (indistinct)

MR KUCHEL: Sorry?

15 JUROR: (indistinct)

MR KUCHEL: Okay, very good. So anyway, you will get to see the point of those as we progress through. So – and I can see a lot of those Lindt chocolates have already gone on some of those tables. So the – just thought I'd start of by saying the South Australian Chamber of Mines and Energy represents companies with interests in mining and energy in this state. Now members do include uranium miners and explorers and there's been a lot of public and media interest in the past about uranium mining and the uses of uranium. I have been fortunate enough to visit nuclear power stations and uranium enrichment facilities in France and Canada, along with the UK's Sellafield site which is quite an extensive facility, which includes waste reprocessing and storage and at that site they employ over 10,000 people.

The Chamber of Mines and Energy has had a large role to play in calling for what we've termed a mature debate on the nuclear fuel cycle, however our interests are in uranium enrichment and in the use of small modular reactors to power remote mine sites and regional communities that are off the electricity grid, just as much – which is – I should just add is much cheaper than the diesel generation that we use presently. We wanted this Royal Commission with a view to amending legislation to allow for both of these possibilities and they have recommended doing just that, although that's not the purpose of what we're talking about here today. So when it does come to waste, which is what we're talking about here, our members have not proposed this for consideration because it is quite frankly not their business. In fact quite the contrary, they have not really been keen to participate in talking about nuclear waste as it is highly emotive compared to simply uranium mining. Although I should point out that back in the 1980s and 1990s when a lot of uranium was proposed, it was very emotive back then.

So a critical piece of the puzzle for us in getting politicians to even be prepared to talk about the nuclear fuel cycle was some polling that we did and I've

managed to jump through the slide. There we go, back to that one. Okay, so we did some polling which showed that whilst most people think that around two thirds of South Australians are against nuclear power, the reality is that less than one third of people oppose nuclear power. The support for uranium is much higher still and we shouldn't be surprised by that as we have been safely mining uranium for decades in South Australia. And what that means, that if you're at a barbecue of three people is that you probably think that you're in the minority if you support nuclear power but in actual fact you would be in the majority.

10

Support for uranium enrichment, nuclear power, waste treatment, reprocessing it and even disposal goes up dramatically the closer that people live to such a facility. This shouldn't come as any surprise as those people have learnt there is nothing to fear and that the risk can be successfully managed.

15

As a way of compensating residents for negatively affecting their house prices when nuclear power plants were built in France, the French government reduced property taxes within a certain radius of all the nuclear facilities that were proposed. Now that people are no longer worried about the potential impacts, people will actually pay a premium to live next to a nuclear power plant because they get the lower taxes. These pictures that you see on the screen are from the USA, Belgium, Switzerland and France and show just how close to nuclear facilities some of these communities live.

20

I've also heard the suggestion, and it's been said today as well, that a waste repository will affect our clean green image with respect to the food and wine we produce. These images that you see on the screen are taken in France where nuclear power is right in amongst some of the world's most famous wine regions, and the reality is that the world keeps buying French wines and cheeses, so these actually represent a number of those cheese and wine regions.

30

In fact, the one down in the bottom left-hand corner that you will see up on the screen - sorry, I'm pointing towards the back because there's a screen up there that I can look at, but the one that you can see, I think it's in the bottom left-hand corner is the one where there is the high level radioactive waste laboratory which will be turned into a waste repository. The Lindt Chocolate Factory - okay, you've all got the connection, good - is just down the road from the Goesgen Nuclear Power Plant.

35

My goodness, we've jumped a long way ahead. It's a very sensitive little thing. Just a little further down the river is the Swiss interim spent fuel storage facility. Let's take a step back for a moment. On June 27 1954, the world's first nuclear power station to generate electricity for a power grid started operations at the Soviet city of Obninsk. The words "first full-scale power station", Calder Hall, in England, opened on October 17 1956.

45

5 In Australia, however, to people growing up in the late 1950s through to the turn of the century, nuclear was just as much about nuclear weapons as it was about nuclear power. British tests at Maralinga occurred between 1956 and 1963 and has been talked about today. In 1958, Australian opened its first and only nuclear reactor at Lucas Heights, a southern suburb of Sydney. I'm just going to play you a very short video.

10 VIDEO PLAYED

10 MR KUCHEL: I think that last little bit was the music from Psycho or one of those movies, but it shouldn't be of any surprise that we were all scared when they used that sort of music whenever talking about anything to do with nuclear. The nuclear arms race was also a competition for supremacy in
15 nuclear warfare between the United States and the Soviet Union and their respective allies during the Cold War. School children were also taught to duck and cover, and for those of my age there were all manner of movies predicting the end of the world as we know it thanks to nuclear.

20 It is no wonder that most people my age and a little older are either fearful or at least conditioned to be anti-nuclear and in-turn anti all aspects of the fuel cycle. However, the reality is quite different. As I mentioned before, I've had the opportunity to visit a number of facilities, and this is a photo of me at Sellafield next to a block of concrete containing nuclear waste from a decommissioned
25 reactor. It was quite safe with no radiation, and all of the transporting of fuel that we're talking about today will actually be handled by people that are dressed in normal overalls and normal work gear because they won't actually have to worry about any radiation contamination when dealing with it.

30 To put radiation into context for a minute, we all get some radiation every year with typical background radiation being around 2600 millisieverts per year, and you can add to this by getting an x-ray, flying in a plane or even eating a banana. At the Onkalo waste repository in Finland, the worst case radiation
35 dose if someone were to stand on top of the facility for a whole year and there was a defective package, the equivalent radiation would be equal to eating one bite of a banana.

I wish you could all visit a number of nuclear facilities like the
40 Royal Commission or myself as it is easy to come to the conclusion that we an adequately engineer our way to safely manage spent fuel. So why have so few attempted to build a waste repository before? There are three reasons. Firstly, spent fuel rods need to be stored under several metres of water for a few decades as the best method of cooling and also a safe way to shield people from the radiation, because at this point it is lethal.

45

As you can see from the graph on the left, you can see that it would be lethal if you look at the far left graph, the far left column on the graph. Spent fuel can then be placed in large containers and stored above ground, which you can see in the picture on the right, and be cooled using the air. I think somebody asked
5 a question in the earlier session about, "Is this energy intensive?" The short answer is: no, it's passive, it's either passively cooled from the water or passively cooled just from the air.

Only after they cool sufficiently can you put the spent fuel into deep storage.
10 In most cases, a lot of the fuel hasn't even been around long enough to actually do that. Secondly, engineers and scientists have had to figure out how to safely store waste for thousands of years. Facilities in France and Finland are designed to withstand two ice ages. We will all be dead from the ice age, but the spent fuel will be safe. Thirdly, governments need to obtain a social
15 licence from the community, which is now happening in Finland and France, or I should say has happened in Finland and is being virtually there in France as well.

Why then do we even need to build a facility? Firstly, we have our own waste
20 from Lucas Heights. Secondly, many countries don't have suitable stable geology, they may be on small islands or on top of high seismic activity so they can't practically do it themselves. Thirdly, there is a strong business case for establishing a fund which would benefit South Australians forever if invested wisely, and, last but not least, we can actually do more for reducing global
25 carbon emissions by taking spent fuel from those countries that can't store their own in the long term.

This gives South Australians the ability to do more for climate change than if we parked up all of our cars and turned off all the lights in Australia forever.
30

MS WALKLEY: Excuse me, Jason. You did say that I could be very firm with you, remember, earlier?

MR KUCHEL: I'm at the ten?
35

MS WALKLEY: You've had 11 minutes, just so that we're fair to the time of the other panelists. Could you hold the rest for when it comes to questions? Did you want to finish on this note?

40 MR KUCHEL: Can I just finish on that slide?

MR WALKLEY: I'll let you have this last slide. Shall we have the last slide? Yes, okay.

45 MR KUCHEL: When you consider going on a roller coaster, a few of you

think it's going to be great, some of you will be unsure and some will perhaps be freaking out. Ultimately, we only get on the roller coaster because logic overcomes our fears. We may not know how they design the roller coaster, but we trust the engineers who designed it, the contractors who built it, the
5 government who regulate it and the safety experts who inspect it.

Any spent fuel storage facility will not be just a hole in the ground but rather it will be a well engineered high-tech facility with first-class regulations and safety checks, and due to its timeframe will be passive and rely on physics
10 rather than people to keep the material out of harms way. Thank you.

MS WALKLEY: Thank you very much, Jason. The last of our panelists, Professor Michael Penniment. Michael is born in Adelaide, has spent much of his career here in South Australia, although, has spent some time working
15 overseas. He's got three children, I think he was quite pleased about the soccer this morning, am I right, on a very cold morning?

ASSOC PROF PENNIMENT: They're playing really well.

20 MS WALKLEY: You missed a good game. He's the director of radiation oncology at the Royal Adelaide Hospital, so he's in charge of radiation therapy for patients, but also for the health and safety of members of his team who work with radiation therapy and gives advice on the citing of radiation therapy facilities, especially with our new RAH. I can hand over to you now, Michael.
25 Thank you very much.

ASSOC PROF PENNIMENT: Thanks very much. Actually, I'm starting to feel - thanks to Jason for that last slide, because I actually know what you're going through because I've worked in radiotherapy and radiation for 30 or so
30 years and have no fear about radiation when it's done in an appropriate way, and we'll talk about that, but I don't like rollercoasters. So, I can appreciate, yes, that you can do things right, but - you can have fixed false beliefs.

Normally when I start a talk, I would say, "Thanks for inviting me," and I mean
35 it, but I really mean it today, because I think for quite a long time I've been watching this debate and I felt, as per my colleagues, we're doctors that are trained in the safe use of radiation and the applications to cure cancers and to do a number of diagnostic tests, and yet I don't feel like we've had any voice to actually explain some of the things we do in a fairly impassioned
40 straightforward way.

The other point that Jason made was he obviously went to a lot of fabulous places around the world to look at radiation facilities, but I know you guys are going to have a lot of questions of us, and so I thought I would start off maybe
45 throwing one back to you. I don't know if anybody knows where that is and

what it could be. It's on your sheet. Well, thanks very much. Yes, but one extra thing, it is indeed in the basement of the Royal Adelaide Hospital, and that's just down the road, my office is actually directly above that, so I've been sitting. I mean, I do walk around the hospital a bit, but I spend a lot of time sitting in my office just above that over the last many, many years, and I'll get the technology right. It is tricky, isn't it?

In that room, as you can see, in essence, it is a low to medium activity radiation waste dump, and inside that room you can see that it's very well controlled. You might be able to see, probably not up the back, that it's got a very, very important sign saying, "Danger: radioactive." It's got some locks there. Now, that's pretty typical of what we do with our low level nuclear waste at the moment, and such that - I'm not quite sure where to point this. There you go. So that's, as you can see, we're in the SAMREI building, it's pretty much in the centre of that. The new Royal Adelaide Hospital is off to one side. The new medical school is off to the other side. And in the middle is a building that I'm particularly interested in, which was sort of over there, that hasn't been built yet, which hopefully will be the site of the only proton therapy facility in the southern hemisphere, which is an amazing opportunity for us to take our treatment of cancers, in particular, and paediatric cancers to be really the leading cancer centre in the southern hemisphere.

Amongst that, yes, there are some - did everybody see that? Sorry. There you go. That's just a bit of an insight into where I know there's some low level and medium level waste dumps. We're building one in the Royal Adelaide, the new Royal Adelaide. There's one in the cyclotron below us. We will certainly build one next door when we do the proton therapy. The new med school will definitely have it. Most medical facilities, most universities will have a storage facility for low and medium level waste. Our facilities at the old Royal Adelaide, when we look to waste and looked at what we had, we had plutonium legacy sources, we had cesium rods from blood irradiators. Some of those things fall well above low level waste in terms that they have long half lives, they emit gamma rays, and they have to be cared for very, very carefully. Indeed, when we're moving, some of those isotopes will be, in fact, sent to Germany. It will cost a lot of money for a very small box; about 150,000 to send a small box of waste away.

So I think that we are very used to dealing with these radioactive sources and how we deal with them is something that is well into my remit. What isn't in my remit is being able to make this work well. That's the new Royal Adelaide, the hot lab, which is where we'll store and use radioactive sources, radio isotopes, also iridium seeds for inserting into cancers. Prostate therapy is one where we'll use radioactive seeds. All those things will come through the hot lab, which probably most of you will think looks like a room, and that's because that's really what it is. It has special ventilation and a few things, but

it's really just a room in the new Royal Adelaide.

5 The other point I wanted to make is that there are obviously ways that we will use radiation for the community's benefits, but we are actually already exposed to radiation just sitting here, and that there are radioactive sources in terms of cosmic rays and radon gas, and a few things we'll talk about, which you cannot avoid. And it may be that you may not want to avoid them anyway.

10 In terms of radiation risks, well, what are some of the things you can do to avoid what's naturally occurring? You would say this rover is at risk here; he's at risk for a couple of reasons. Actually, I remember there was a Far Side cartoon that said, "Rover was aware that he was an old dog and this was a new trick." So the main reason Rover is at risk, or maybe not, is that certainly the higher you get to the sun, and the same thing happens with aircraft carrying, 15 the closer you get to the sun the increased exposure to cosmic rays, and so you increase your exposure to natural radiation. Similarly, in earth, clays, there's radioactive sources.

20 I got the banana association straight up. I didn't get the lint one; I didn't see that coming. But certainly there's some radioactive potassium, there's certainly radon gas that's in soils. You don't have to read this. In essence, what the ANSTO website, in terms of nuclear facts, says, that, yes, there is an average exposure that everybody gets from living, and it's from being exposed in the bricks of their houses, et cetera. You can decrease your risk by doing a few 25 things: you can live in a wooden house, that will take 10 per cent house; if you live in a tent, that will take 20 per cent off; if you live in the open, that will take 50 per cent off, but this is really sort of Simon's point on risk and reward, that, okay, so you've reduced your exposure in terms of radiation, but you've actually opened yourself up to other things, so it's pros and cons. Again, 30 making the point the closer you get to the sun, the more your natural radiation exposure and cosmic rays.

35 The area that obviously I walk in a lot is, okay, so I think that we are aware that we have a natural radiation exposure just by living. I use radiation and I use radioactive isotopes in ways that actually cure people and help us to do better treatment. This is one of the things. This is a very, very rough schematic diagram of somebody that has a lung cancer. The little green lines is what they've marked as the tumour from a CAT scan. Then when they have applied a PET scan, they can see that actually what they would have treated in the old 40 days, before PET scans, would have actually missed some of the tumour. The little dot that's off to the side of the figure 8 is probably hiding under a big pulmonary vessel and you wouldn't have seen it. So that patient, because of the use of radio isotope, has a chance of cure.

45 Similarly, the other areas, there's certain diseases; thyroid cancer is a good one,

- that just the use of a radio isotope cures certainly very close to a hundred per cent of patients with early stage thyroid cancer with really no side effects, essentially, and that means that they produce waste when they come into hospital, what they get in contact with produces waste that has to be handled.
- 5 That's got a fairly short half life, so it's something that we can use in terms of a low level waste. But then there are other things in terms of, as I say, blood irradiators and things that produce gamma rays where the sources are a little bit more - need to be handled properly.
- 10 We can handle them properly in a couple of ways. I think, for me, one of the good things about this debate is certainly we need to get into the complexities of the whole nuclear fuel cycle, all those things, but the other thing, as a community person, that I've been wanting to see is the current way we handle nuclear waste is really whoever has got it. So, you know, we have very strict
- 15 ways of dealing with it at Royal Adelaide, but there's other facilities that deal with their own waste, however, and it would be very nice to have a more organised way that we deal with our waste. As I say, we're sending stuff overseas as it is, we're paying very large amounts of money to do that. I think it's just a good debate as to how we could tidy all of this up, and that's the
- 20 Royal Adelaide, because the other way we could do it is use really good cyclone fencing and a sign that says "Keep locked at all times." At Royal Adelaide, you know, we do that because we're really good, really responsible. Thanks.
- 25 MS WALKLEY: Thank you very much, Michael, and thank you to all of our panelists. I saw some very interested faces, lots of note taking, so I feel confident we're going to have lots of very good questions. What I don't feel so confident in is me meeting my number one task of understanding what the time is now and what time we're finishing, so I'm going to look to Emily to let me
- 30 know the time now and how long we've got, and I'm going to give her a moment to do that.
- MS JENKE: We have until 10 to 2.
- 35 MS WALKLEY: Until 10 to 2?
- MS JENKE: Yes, or maybe quarter to.
- MS WALKLEY: And the time now?
- 40 MS JENKE: Half past 1.
- MS WALKLEY: Okay, great, so we've got 20 minutes for questions. Just a reminder to everyone, when you're ready with a question just to give an
- 45 indication so someone can come over with a mic and give us some to pass the

mic along to whoever it is that you would like to hear from.

JUROR: Hi, my question is to Kelly-Anne. What can we take as a tangible example of successful communication in this citizen's jury that you mentioned?

5

MS SAFFIN: One of the things about this process is it's not a science, so it would be lovely and easy for us to say that, "Why is it tricky?" because people are tricky and complex as part of that process. Where the tangible community consultations that have been done well and have that spirit of better together and all those things that state government talk about, and given that the previous one that was done by industry, and the real difference here is that state government do it, is that there is an opportunity for those with complex views to be heard.

10

15

I think that to say that everybody has to be favour of whatever the recommendations are is always the way in which it goes into the future. The second thing, this is not a tangible thing, and I'll come to some of the ways in which we reach that, is how defensive I see people who are trying to defend a position, be it as part of that process, so if we could genuinely have people crossing the road tangibly shaking hands at the end of this I think that was a great community concept to have.

20

I say that because it hasn't happened always, because there have been communities where we no longer have families that talk to each other because on their other side, and I use the wind farm debate not to pick on that industry, because that's not fair, there are many industries that's part of that process, but because those are the long-term complex discussions at the end. I can't give you a number or figure, that's why it's complex.

25

30

MS LAMBERT: Thank you, Kelly-Anne. Other questions?

JUROR: My question is directed to Jason, and my question is that: for a moment, if you think that government does decide to go ahead and do this, how do you see this as an execution model? Is it owed by government, executed by government and managed by government across the period that it will have, or do you see that as owned by government, managed and executed by the private players, and if that is so how do we trust the private players? I can quote an unrelated example where BP has faced so many oil spillages across the world and had to do so much of cover up, right, so how do we trust those business that they will not be a profit making machine rather than taking care of the community, and what is the (indistinct) role in ensuring that it does not happen?

35

40

45

MR KUCHEL: It's not my place to say how it would be managed, but I would say that from - - -

JUROR: Just from your personal perspective would be good.

5 MR KUCHEL: I think at this point in time, from what I understand, the government would be looking to do that because the government would be looking to take the profits from it and put it into some sort of sovereign wealth fund and then use the proceeds of the investment, not the money they got initially, other than what you had to do to build the facilities, but to use the money, as I said, to invest it and then use some of the profits from that to go
10 back into the community so that you actually have a sovereign wealth fund that does actually last for not just decades or not just hundreds of years but actually can last for thousands of years, because you're only using a part of the money that comes from the profit of investing the dollars. So I would think that they would be the ones.

15 I'm sure they would use private contractors, as contractors turn in to build it. Actually, in the first session somebody asked a question about the costs of it. I think the Royal Commission has actually been very, very conservative with their figures. In fact, we've actually even been a bit, particularly on some of
20 the other aspects that we've been interested in, we've actually been concerned that they've been too conservative. I think this is a case where they've actually been very conservative about the costs associated with it, and actually very conservative about the money that you can get for the waste.

25 Perhaps if I can take some latitude, picking up on a point about, you know, "What if we don't get the money? What if we don't get the money in 70 years?" The reality is the Royal Commission has identified, I think, a minimum of 15,000 tonnes required to justify the facility, and the reality is those countries that we would be taking the waste from would actually pay up
30 front for that, so they're not worried about whether they're still paying the bill in 30, 40 or 50 or a hundred years' time, they would pay up front for that. That's the model, so you know you have the money in advance, you don't have to worry about, "Does the world change down the track?"

35 MS WALKLEY: Thanks very much, Jason. Do you want to wait for a microphone for a second? Thank you.

JUROR: Just a very small comment, probably. I mean, I'm happy to have
40 your views. I would believe it hard to digest to the (indistinct) cost of capital the Royal Commission has used to come up to the (indistinct) side of the things because the industry spectrum is much, much different, and I would be really struggling to understand how many business in the world would be using (indistinct) as the cost of capital to calculate.

45 MR KUCHEL: I'm not sure that they use that for the cost of capital, but if the

government is doing it's actually less than that, it's actually quite a lot less than that, their cost of capital at the present time.

5 MS WALKLEY: Thank you. Are we okay to move to another question?

JUROR: This is for Jason. This is a question, a very important question. If I go in the dark tonight, because I've had a couple of these chocolates, what do I do?

10 MS JENKE: You glow.

MR KUCHEL: I don't think I really need to answer that, do I?

15 JUROR: Just a quick question which I asked of the previous four panelists. How many of you people have actually read the Royal Commission report?

MR KUCHEL: Some of it, but not all.

20 JUROR: Some of it?

MR KUCHEL: I won't say I've read every single page, but we've gone through it very extensively because we've put in lots of submissions to it as well.

25 JUROR: Fine, thank you.

MS WALKLEY: Thank you. Other questions?

30 JUROR: Yes, this is a question for Jason as well. You mentioned that the perceived support for nuclear in the community is quite low, even though that may not necessarily be the case. Do you have a reason why there is such a gap between actual support and perceived support?

35 MR KUCHEL: I think it was as I was showing before, that how we grew up, you know, nuclear was all bad, it was the nuclear weapons, you know, the way we were all conditioned, if you like, about it. I mean, I honestly grew up, and I'm a little bit older than you are, but I grew up thinking literally that the world was going to come to an end because of everybody throwing nuclear weapons at each other. Best case scenario was that you might live through a nuclear
40 winter or something.

I mean, that's really what we all thought. Another ten years older than I am, and there's some people in the room that are in that age, they actually practiced - or maybe 20 years older than I am - they actually practiced the duck and
45 cover in school on a regular basis, and so the fear that, that generated, it

became a taboo subject and no-one talked about it, and that's why the assumption that everyone was against it even though community attitudes have changed over decades.

5 JUROR: My question is for Michael. None of us that I know of have too many worries about intermediate and low level nuclear waste because we have had experience with that, but I think more of us would be worried about the higher level waste, yes, and just wonder about that. What are the differences between the two, between intermediate and high level?

10

ASSOC PROF PENNIMENT: My understanding is it's really just threshold based on a number of risk factors, and one is that what the source generates. So gamma rays are something that will pass through quite significant shielding, and so you need lead, you need concrete shielding. Other sorts of waste can be stopped - alpha particles, can be stopped by a sheet of paper. So that's one aspect. And then how long the source lasts for. So uranium obviously decays over billions of years, whereas other radio isotopes decay over a period of a week. So certainly when you have something like the blood irradiator that we have to ship to Germany, that's something that has a very significant half life and produces gamma rays. Similarly, Lucas Heights has got a nuclear reactor and they have fuel rods and high level sources. So we have to apply fairly well-stated rules in terms of how we manage the waste that we generate already in Australia, and so I think that those rules are very important.

15

25 Similarly, we know that we have those transfers and we have to have ways of transferring waste already. The other aspect is that I think it's a very good point, I think, that most of the community are quite rightly not worried about low level waste. Although, one of the people on the radio on Friday was saying the same point about low versus not low level waste, and I went home and read The Advertiser on Friday afternoon, and it said Sarah Hanson-Young was saying that we must stop the government's plan for a low level waste facility in South Australia, that there's significant fear about low level waste and that this should be stopped as we don't want to be the international dumping ground.

30

35

Now, I'm going to take it that was a misquote, but it's the classic misquote that I see time and time again that this is good because this is getting clarity around the fact that there's some levels of nuclear waste that we just need to be tidy in how we do it, and I don't think we're tidy enough yet because, as I say, I think there's little ways of handling it all around Adelaide. I think there's opportunities in terms of if we have a very well organised scheme to deal with waste, it doesn't stop at low, medium, high; it's basically what are the rules, the international regulations about the transit and handling of all waste, and that I'm not particularly - as I say, I didn't appreciate that we've got a plutonium source at the Royal Adelaide. We've also got a cesium source. We've got

45

cobalt machines. We've got things that are not concerning, and I sort of thought, "Do I say these things?" Because there's such a level of fear. But on the other hand, every day when I drive behind a tanker with liquid ammonia or something, I know there's a waste that I'm worried about there, too. So I think it's just having a number of experts that know how to deal with whatever it is that it's producing and how long it's going to be producing it.

JUROR: My question is also for Michael and it follows on from that one. You're clearly very comfortable with how we're dealing with intermediate and low level waste, and even the proposals for the dealing with the high level waste. What, if anything, would cause you to become concerned with human safety around any of this process?

ASSOC PROF PENNIMENT: Some of the questions are, and I think the first question we had, which was, you know, who owns it and what are the rules, because I think that just dealing with waste, so taking out nuclear waste and saying chemical waste or other forms of waste, and indeed the oil industry and all those things, I think, you know, who's setting up the rules and what are the penalties and what's the plan to deal with waste. I would love to have radiation sort of in the same discussion, that it has different concerns and different ways that we have to handle it. Obviously, I'm hopefully reasonably knowledgeable in radiation and I have no idea about BP and oil. So we've got people that can add to that debate.

So I think that who owns the facility and also how we do transit that waste, what are the risks in that regard, but also I think that this - I don't feel like I've got an answer in terms - even with the new Royal Adelaide, when we worked out how we were going to set up our department there, I was obviously very involved with that, but my team of physicists, there was about probably 15 or 20 people that I would say are international experts in our community, that we put a lot of time into that. So I think it's the same thing. I think it's getting as many people with a knowledge of these issues to work it out, but without the fear. What I don't like is the, "I don't want any radiation. I just think we shouldn't have it all." Because I think everybody in this room is on the journey to seeing that can't happen, so it's how do we deal with each incremental risk.

MS WALKLEY: Thank you, Michael. Can I just check, Jason, so just a quick addition to that, and then I think we've got a question on behalf of a juror that Emily is going to ask.

MR KUCHEL: Sure. Just quickly, you did hear a little bit, I think, in the earlier session, but there is really extensive testing of the containers that would actually hold this. I mean, they literally put rocket-powered trucks into them, they try and blow them up, incredible levels of fire and all sorts, and the containers that they actually use don't actually have any - have never

experienced any breach of those containers. Dropping them from six stories high and all these other sorts of things. By the way, to the same container, not just do that one to one and that one to another one; they actually do it all to the same container. So I think in terms of those risks to people who are handling it, dealing with it, whether it's at a port, on rail, on boats, all the way through the process, we actually do have really good rigorous processes and we can pick from the best world-class standards in terms of dealing with that.

MS JENKE: Okay, I'll just go while your microphone speeds up. So a question from a juror who doesn't want to be photographed, and maybe I'm going to start with Simon, and slightly change the words. The question was, "Who will make these rules, the rules around how we store the waste?" And maybe the little snip or the change in the question is, "Who should make the rules?"

DR LONGSTAFF: Well, I think ultimately wherever the facility is located, the government that is responsible for that area will be required to set the rules. In a sense, it's setting a precondition under which anybody can gain access to or make use of a facility if it was there. So that's the outward facing rule setting for the world, if you like, that might want to come in and use this. How they then set those rules will be determined by the mandate that the communities provide them and they would be necessarily taking into account, in particular, the interests and views of those who are closest to the area where that needs to be done.

Now, there's always a tension between this, between the collective good of a state or polity and the particular interests of individuals, but I would think that this is one of those areas where permission from the community is so vitally important. You find this just in mining at the moment, lots of things with natural resources, if the community doesn't want it, if you don't have a social licence to operate, then it becomes a futile process, ultimately, and that's one of the big lessons that the mining industry has learnt over the years. So I would say set by governments for the conditions under which it becomes, but with a strong attentive ear to those whose interests are most closely affected by where it's located.

MS WALKLEY: Thank you, Simon. So am I right, reading my colleague's watch upside down, we have about another 10 minutes?

MS: Yes, seven.

MS WALKLEY: How many other questions do we have?

JUROR: Hello, my question is mainly for Michael as well. We've had some discussions here about the relevance of the legacy, especially in Aboriginal

communities, but I think also broadly for our State, of the nuclear bomb testing at Maralinga. Partly for me, what I think the relevance of that is, not just about the engagement process, but also about the long running health effects from that exposure. Do you think that we have any lessons to learn from that
5 experience about people's exposure to radiation and those long, and the contamination still today that I know people live with as well? And, similar to the previous question over here as well, is that a real risk? Is that?

ASSOC PROF PENNIMENT: Yes. Well, look, I think that not setting up
10 very clear rules about how we handle nuclear waste, I mean, there are clear rules about how we handle waste, but having a consistent view and a place to put nuclear waste that is stable, that's away from the water table, that's the right spot for it, I think is an important thing to consider. When I was just looking up some things for this debate, I saw an article by one of my colleagues who
15 was the director of radiation oncology, David Webb, when I was a student, and it was actually - he passed away only a year or so ago, but in the follow-up to Chernobyl he made the point that there were 28 deaths, and those were the radiation workers that were sent in to clean up the initial spill, so they were the minute men that were always going to die and that was horrendous that you
20 wouldn't have rules to deal with that. And then there was something of the order of 1500 people that died from suicide because of their concerns about radiation, which he described as really the fallacy of radiation, that those people were so worried, and beyond that nobody has died from that incident.

25 There's even data that suggests, and it's reassuring to me, there was data from the British Radiology Association a number of years ago that low level exposure that's above what we've set as the community limit actually may have an improvement in health in terms of what's called radiation hormesis. The study of radiation workers in the 50s and 60s where controls aren't as tight as
30 they are now suggests that it may actually have a very low level exposure to radiation but above what we would deem safe might actually have an improvement in health.

35 Now, that's really hotly debated in terms of is there a threshold where radiation causes harm versus not, and that's not answered, but it at least throws into debate that there's a lot of things we don't know but it certainly gets down to that. Obviously, I don't know too much about the testing at Maralinga, but there must have been a heck of a lot of lessons we can learn from that in terms of something that was just imposed on the community that clearly there was
40 some pretty horrible decisions in terms of there isn't a community there, maybe, or where is the wind going to blow, what are we actually using, and they're the things that we certainly need to consider, but, you know, I think now we've got plenty of good evidence that we can consider them.

45 MS WALKLEY: Thanks very much, Michael. So we only have a few

minutes left. We have one question here. Yes, thank you.

JUROR: My question is for Michael again. You're popular today. Firstly, a very short question. The sort of basement storage, if I can call it that, that you describe for Royal Adelaide and other small facilities, would that sort of situation be replicated across Australia?

ASSOC PROF PENNIMENT: Yes.

JUROR: Yes, okay. In your experience, knowledge, view, have there been incidents of mishandling of that waste?

ASSOC PROF PENNIMENT: No, I think, is the short answer. I stand corrected, certainly not in our department in my time, which is 30 years, no.

JUROR: Thanks.

MS WALKLEY: Michael, you're the rock star today. Just following on from that question, it was quite a small box, it looked like, underground with that medical waste, and if that's replicated around Australia what size facility if it was just for medical waste would you see?

ASSOC PROF PENNIMENT: Look, to be honest, I don't know. I think that room, indeed, what we're defining at the Royal Adelaide is more defined on sort have occupational work safety, what's the size of an office, so even the actual size of the waste we're dealing with is really quite small. If there was some sort have central repository, we would still deal with the transit waste, and so if I give somebody that has thyroid cancer radioactive iodine then the sheets and the things they came into contact with, we would store them for the few days while the half-life and that they became safe, so that would exist, but in terms of the actual sources, the sources for, like, brachytherapy and other things are absolutely minute. So I'd be guessing. It wouldn't be big.

MS WALKLEY: Thank you. I just know that Jason, as our resident engineer, would like to add something about the size of the box, and then we are done, unless there is one last huge burning question in which to end on.

MR KUCHEL: I just wanted to take your question but apply it to the high level waste. My understanding from the Royal Commission's report is you're talking about a facility about the size of Adelaide Oval, which I did a calculation the other day, I think it's about 146 millionth of South Australia, so it's a very, very small area, really, when you think about it, but that would take a substantial amount of waste. There is this view that there's huge amounts of waste being generated from nuclear facilities. It's about, I think, if my figures are right, and I might send this information in, I think it's about six and a half

tonnes per year of waste from a typical nuclear facility. And we're not talking about taking all of the world's waste. The Americans don't want to give their stuff to us; they want to keep it for reprocessing at some stage down the track. The Russians, the French, the Finnish, there's lots of countries that aren't.

5 We're actually only talking about a relatively small amount of the world's nuclear waste that we would actually take, about 15,000 tonnes, at least in the first instance.

MS WALKLEY: Thanks very much, Jason. Now for our final question.

10

JUROR: This is for Simon. I sit on the advisory board to the premier, along with three other members in the room here, but my question is really about the ethics. You talked about three principles. How do we build those three principles into this discussion so that we can think about the shared views, the shared values, the shared direction for the future? If we don't have a basis to work from, then we're looking at it from a way the questions are being said here from different perspectives, and we've had eight panel members this morning, plus yourself, talking. So how do we go back to the fundamental, and that is what are the ethics and the principles behind the ethics that we have to consider?

20

DR LONGSTAFF: I should say the principles I mentioned were things here to consider, they're not necessarily the ones you must have got. I think you've just got to go back to that basic question and ask from the level of the premier through to this group, are there core values? And, as I say, two were nominated earlier on, but are there other things there which we're prepared to accept and then articulate as part of the framing of this issue? Because, otherwise, every single person will have a conversation about this, and they'll seem to be in agreement, but perhaps for very opposite reasons and not even know it. We've all seen this where people walk away, they thought they agreed to something, and then they do something different and they say, "You didn't do it." And they say, "No, I actually did, but you meant something different." So I think it's a process issue that has to be baked into what you're doing under this thing.

25

30

35

MS WALKLEY: Thank you so much, Simon, and I think that everyone is going to get an opportunity to start to look from that perspective in our next discussion, which Emily will lead. So I think it's a great place to say thank you to all of our panelists in the traditional manner. Thank you.

40

MS JENKE: Thank you, Ilka. Well done.

**MATTER ADJOURNED AT 1.57 PM UNTIL
SATURDAY, 9 JULY 2016**