



# ***STATE DEVELOPMENT, NATURAL RESOURCES AND AGRICULTURAL INDUSTRY DEVELOPMENT COMMITTEE***

**Members present:**

Mr CG Whiting MP (Chair)  
Mr DJ Batt MP  
Mr JE Madden MP  
Mr BA Mickelberg MP  
Ms JC Pugh MP  
Mr PT Weir MP

**Staff present:**

Dr J Dewar (Committee Secretary)  
Ms R Stacey (Assistant Committee Secretary)  
Ms C Furlong (Assistant Committee Secretary)

## **PUBLIC HEARING—INQUIRY INTO THE MINERAL RESOURCES (GALILEE BASIN) AMENDMENT BILL 2018**

### **TRANSCRIPT OF PROCEEDINGS**

**MONDAY, 4 MARCH 2019**

**Brisbane**

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**The committee met at 9.49 am.**

**CHAIR:** Good morning. I declare open the public hearing for the committee's inquiry into the Mineral Resources (Galilee Basin) Amendment Bill 2018. I now welcome officers from the Department of Natural Resources, Mines and Energy; Queensland Treasury; and the Department of Environment and Science.

**BARR, Mr Benn, Deputy Director-General, Policy, Department of Natural Resources, Mines and Energy**

**COOPER, Ms Claire, Acting Executive Director, Mineral and Energy Resources Policy, Department of Natural Resources, Mines and Energy**

**DENDLE, Mr Cale, Executive Director, Minerals and Energy Resources, Department of Natural Resources, Mines and Energy**

**ELLEM, Mr Drew, Acting Deputy Under Treasurer, Agency Performance and Investment, Queensland Treasury**

**LOVEDAY, Mr Chris, Director, Operational Support, Regulatory Support, Environmental Sciences and Regulation, Department of Environment and Science**

**ROBERTS, Mr Tony, Deputy Director-General, Environment Policy and Programs, Department of Environment and Science**

**CHAIR:** Who would like to make an opening statement?

**Mr Barr:** I was not going to reiterate the submission that we have sent to the committee, which you would all have in front of you; however, I thought I would take a very brief moment to introduce the area of expertise of the witnesses in front of you who will be answering your questions today. Cale Dendle is executive director of the minerals and coal assessment hub. Cale's expertise is in the day-to-day processes involved in assessing coalmining leases, mineral development licences and the current operational information of tenure holders in the Galilee Basin.

Claire Cooper is the acting executive director of Mineral and Energy Resources Policy within DNRME. She is best placed to answer questions on the legislative implications of the bill. Drew Ellem is the acting Deputy Under Treasurer in charge of agency performance and investment. He can respond on the financial implications of the bill. Tony Roberts is the deputy director-general of Environment Policy and Programs within DES. He will answer questions relating to climate change. Chris Loveday is attending as the director of operational support for the Environmental Sciences and Regulation division. Chris will be able to respond to questions about the environmental authority and assessment process.

**CHAIR:** Do you want to make any opening statements or go straight to questions?

**Mr Barr:** I thought we would go straight to questions.

**CHAIR:** Mr Ellem, as a committee obviously we have to justify to parliament the financial implications of this bill. We have been looking at the royalties from coal. We understand that we cannot quantify royalty costs into the future. Bearing in mind that every year you need to prepare such work for the budget, what modelling have you used in preparing budgetary figures for coal royalties?

**Mr Ellem:** With respect to the Galilee Basin in particular?

**CHAIR:** Yes. Let me put that broader: across the Galilee and other basins within Queensland.

**Mr Ellem:** I will speak to the Galilee Basin. There has already been a response provided on the financial impacts of the bill which the committee has been provided with.

**CHAIR:** I understand. As part of that response we were referred to a website for coal royalties. I am wanting to know what modelling you use in preparing budgets to take account of coal royalties.

**Mr Ellem:** We model projects as known going forward. With respect to this particular bill and the Galilee Basin in particular, Treasury considers there is not sufficient information available on the value of the coal or the timing of the mining developments to prepare a reliable estimate of the royalties per annum that may be associated with each of the projects. Consistent with that position, the current budget projections as at the 2018-19 midyear review—and that is what I can talk about at the moment—do not factor in any royalty revenue from those projects in the Galilee Basin.

**CHAIR:** I will return to my point on modelling. Obviously in calculating coal royalties you look at the exchange rate, the quality of the coal and the quantity of coal. Can you outline the process of how you might go through preparing your figures for the budget in regard to all of those factors?

**Mr Ellem:** Coal royalties—royalties payable for coal sold, disposed of or used in a return period—are calculated by multiplying the royalty rate by the value of the coal. The value of the coal is determined by a number of considerations such as the prevailing price of the coal, the US-Australian dollar exchange rate and available deductions. As I think you were alluding to in your question, coal prices are influenced by a range of factors including the quality of the coal relative to benchmarks, and global supply and demand conditions. All those factors are taken into account.

**CHAIR:** I will turn to the Department of Environment and Science. One of the things we have talked about in a variety of actions and strategies is getting to zero net emissions by 2050. Bearing in mind we have a green paper that is being consulted on, what pathways do we have in the current strategies and actions to reach zero net emissions by 2050?

**Mr Roberts:** The Queensland government accepts the science of climate change and supports the Paris outcomes which lead to a reduction of global emissions below two degrees and preferably 1.5 degrees. The Queensland government has set two targets: the target of zero net emissions by 2050, to coincide with the Paris outcome, and an interim target of a reduction of 30 per cent on 2005 levels by 2030. Achieving these targets requires a whole-of-economy approach from all sectors including the resources sector.

In 2017 the government released its climate change response, a strategy which includes two major documents. The first one is the Climate Transition Strategy and the second one is the Queensland Climate Adaptation Strategy. The Queensland Climate Transition Strategy is supported by a range of early actions to be taken between 2017 and 2019 to set the government on a pathway to a zero net emissions economy. Examples of early actions include additional large-scale renewable energy facilities, an electric vehicle strategy, the vegetation management framework and eight sector adaptation plans to try to get some progression in each of the individual sectors in the economy towards adaptation.

We also have a number of key programs. In association with the Local Government Association of Queensland we have the QCoast 2100 program, which is about getting coastal communities to adapt to the impacts of climate change sea level rise, and a Queensland Climate Resilient Councils initiative, which is to get all councils across the state planning for the adaptation task ahead of them. The department also has an initiative called Queensland Climate Ready program, which is about government itself preparing for the built-up climate changes in the system and the impacts on government processes. The government has signed the below50 global initiative, which is an initiative to increase the level of biofuel used globally.

Due to the uncertainty and instability at the national level, the Queensland climate change strategy takes a two-stage approach to develop a long-term solution and pathways to address climate change. The first stage, which is currently underway, as I identified, is a range of low-risk and no-regrets actions that the Queensland government is currently facilitating and leading; and the second stage consists of a suite of substantive policy measures for the post-2020 environment and actions. Meeting the emissions reduction target of a 30 per cent reduction on 2005 levels by 2030 requires a reduction of something like 27 million megatons annually from current levels, and additional emissions in Queensland will need to be offset by additional reductions in emissions across the different sectors.

To complete the answer, at this stage, as you have mentioned, we are in the process of developing a white paper on climate change for discussion with the broader community. We intend to develop a green paper, to be released towards the middle of this year. That will identify some of the potential pathways and actions that the Queensland economy could undertake to reduce emissions. After the community input, that will be followed by a white paper process, which will introduce some modelling around what are the achievable outcomes to reach the required target. In a nutshell, that is where we are standing in the process.

**CHAIR:** You touched on some actions of the department that you need to work on in coherence with the federal departments. From the departmental point of view, you mentioned a lack of stability at the federal level in terms of policy; is that correct?

**Mr Roberts:** That is right. That is one of the factors—and also our ability to actually identify the relevant pathways for post-2020 action, and then consult on those and model them in terms of any potential outcomes from adopting those pathways. It is a matter of the time to actually do that sort of work in a methodical way and also the policy instability at the national level. We have locked into a two-stage approach—one pre 2020 and one post 2020.

**Mr WEIR:** Claire, we have heard that this legislation will mean the cancellation of leases without compensation. Has that ever happened before? Where will that put Queensland from a legal challenge perspective? What would be the effect of that action on foreign investment in Queensland?

**Ms Cooper:** It has happened before in Queensland. On three separate occasions the Queensland parliament has passed laws that had the effect of cancelling mining leases or different mining tenures. Going to those specific examples, there was an example in 2003, an example in 2004 and an example in 2008.

The 2003 example was the cancellation of mining leases at Shelburne Bay. At that time it was an amendment of the Mineral Resources Act through the Land Legislation Amendment Act. That act cancelled two mining leases situated at Shelburne Bay in the Cape York Peninsula and also provided that applications for renewal of those mining leases did not require a decision. It also provided that no compensation was payable to any person as a result of the cancellation of those mining leases.

At that time the explanatory notes noted that it was in the public interest that the land subject to the mining leases was to be protected for future generations. It was also seen to be nonsensical for the government to continue to renew those mining leases when there was no intention of actually having the land mined in the future. That was the public interest consideration as expressed in the explanatory notes, so that was the reason for no compensation there.

It happened again in 2004. That time it was about the cancellation of mining leases in Aurukun. In 2004 it was the Aurukun Associates Agreement Repeal Act, which was passed for the purpose of cancelling or repealing the Aurukun Associates Agreement Act. That was cancelling a mining lease in the Aurukun area of western Cape York. The agreement act had authorised the making of a special agreement between the state and certain mining companies to provide for the grant of a mining lease in the Aurukun area.

The mining lease was effectively held by Aluminium Pechiney Holdings Pty Ltd. Pechiney failed to comply with its obligations under that agreement, so the state commenced legal action in that case to require the surrender of that lease. The litigation was expected to take many years and it was expected to be quite costly. As a matter of policy, the decision was made to take legislative action to cancel that lease. That also had the effect of opening up Aurukun mineral resources to development and investment. The legislation provided that there was an amount of money that was payable to Pechiney for the mining lease rental. That was basically to reimburse them for that rental and interest, and also the costs that they had incurred in the court proceedings, but there was no provision for any other type of compensation in that particular instance.

The 2008 example was in relation to the Peak Downs mine. That one occurred through the Mineral Resources (Peak Downs Mine) Amendment Bill 2008, which amended the Mineral Resources Act. The purpose of that legislation was to resolve a quite longstanding tenure dispute between two private resource companies, BMA and Cherwell Creek Coal. In that instance, BMA was proposing to do quite a large expansion of the Peak Downs mine, but it was prevented from doing so because of overlapping tenure held by Cherwell Creek. Cherwell Creek had done relatively little in the 13-year period that it had to proof up that particular coal resource in that area. It was decided as a matter of policy that the most appropriate and economic use for that land would be for infrastructure to support the mining expansion. The legislation was put through. It cancelled the exploration permit for coal held by Cherwell Creek to remove that overlapping tenure, to reject two outstanding applications for mineral development licences made by Cherwell Creek over that land and to allow BMA to apply for a mining lease over the land.

In terms of compensation on that particular piece of legislation, it was expressed that there would be no compensation paid by the state. However, there was an ability in that legislation for Cherwell Creek to seek compensation from BMA through the Land Court if it so chose. That would be for the loss of opportunity to commercialise the coal resource in the area of the permit. In 2008

Cherwell Creek actually did commence proceedings in the Land Court to recover compensation against BMA, but that litigation is still ongoing. There is no final hearing date yet on that one.

In terms of the idea of what would happen before—this is going to the question of fundamental legislative principles?

**Mr WEIR:** Yes.

**Mr Barr:** While you look for that, on the implications for future investment in the state I cannot speculate other than to say that obviously proponents have invested capital into these projects. If the bill went through, they would lose that capital and they would need to look at that when they were deciding whether they would invest. Therefore, there is a direct implication if companies have invested in this area and they lose that money. They would need to take that into account.

**Ms Cooper:** In terms of fundamental legislative principles, there is a fundamental legislative principle that is about the Queensland parliament having sufficient regard to the rights of individuals. There is also specifically a fundamental legislative principle where the Queensland parliament, in passing laws, must have regard to there being the compulsory acquisition of property only with fair compensation.

In terms of the bill and the impact of the bill, it may be seen to be a property right. It is a legislative right that is given. Under legislation, it is the Department of Natural Resources, Mines and Energy, through its minister, that will give mining leases and grant them to tenure holders. By doing so, it is giving them a legislative or statutory right to be able to produce minerals and coal to which that mining lease relates. The cancellation of those mining leases may be seen to be the acquisition of a property right, but it must relate to the rights of an individual in terms of fair compensation.

Fundamental legislative principles are not mandatory. They do not have to be complied with. The Queensland parliament must look to a bill and see whether or not it has had sufficient regard to fundamental legislative principles. However, if there is a departure then the Queensland parliament needs to look at the explanatory notes to be able to see if there is a sufficient justification for any departure from the fundamental legislative principles.

**Mr MADDEN:** I notice that the explanatory notes—I am sure you have seen this—state—

It could be argued that the Bill contradicts the FLP that legislation should not interfere with property without fair compensation unless there is a good reason.

Assuming in this case that the good reason is climate change and we are limited to that good reason, is there any case law to indicate that climate change is a good reason to interfere with fundamental property rights in Queensland?

**Ms Cooper:** I am not aware of any such cases.

**Mr MADDEN:** Assuming that is the case and that one of the companies that has accepted one of the seven leases in the Galilee Basin chooses to take action against the Queensland government as a result of this legislation, would it be fair to assume that their statement of claim would include not only costs to date but also loss of opportunity? Would they be the fundamental statement of claim damages that would be sought by a company against the Queensland government?

**Ms Cooper:** It is difficult to say what a Queensland court would do. In terms of what someone may claim, they may claim whatever they choose. It is the right of anyone to put in a statement of claim to any Queensland court. Whether or not it would be accepted is another question altogether. In terms of the type of legal challenge, it would be challenging the validity of the law itself. That would be coming down to those issues that I have described.

**Mr MADDEN:** The fundamental legislative principles?

**Ms Cooper:** Yes. As I said before, they are not mandatory.

**Mr MADDEN:** The preferred action for governments is to settle these matters out of court, isn't it, and to avoid litigation?

**Ms Cooper:** I cannot comment on that.

**Mr MADDEN:** In 2016 there was a decision by the government of New South Wales in the Caroon coal exploration licences matter, where they chose to pay \$220 million to avoid litigation.

**Ms Cooper:** It is open, obviously, to anyone to make a decision based on—

**Mr MADDEN:** Thank you.

**Mr BATT:** Mr Roberts, you mentioned the Queensland Climate Transition Strategy, the target to reach zero emissions by 2050 and also at least a 30 per cent reduction in emissions on 2005 levels

by 2030. You also spoke about the green paper that we have mentioned as well. Does the government take into consideration in that reduction strategy these future leases that we have been talking about in the Galilee Basin? Does anything come out of there that we have to look at reducing because of that?

**CHAIR:** Just to clarify, do you mean the department and not the government?

**Mr BATT:** Yes.

**Mr Roberts:** The simple answer is that at this stage in the development of the emissions strategy for Queensland, in effect, we are at a very early phase. We are looking at all the different possibilities of pathways to meet the target across the full spectrum of the economy. In the second phase, which is the white paper phase, we will start to narrow down those pathways and understand where the relative burden might sit across the economy. At this stage we have not reached any conclusion about where the heavy lifting, so to speak, might have to be done across the Queensland economy, but it makes sense that to reach the target that we already have—that is, the 27 megatons reduction annually just to get to the 2030 target—any disproportionate emissions from any particular sector will have to be made up in another sector. It is a matter of working out where the burden might lie, but at this stage we have not factored those in and we are not able to factor those into the equation.

**Mr BATT:** Part of your strategy would be that if it made financial sense for this to go ahead you could look at finding somewhere else to take that burden from?

**Mr Roberts:** In the future we will look at the relative emissions from each of the sectors as predicted and we will look at where the emissions burden should best lie, but that is a piece of analysis that is yet to be done.

**Mr BATT:** Thank you.

**Ms PUGH:** Thank you all for taking the time to appear today. It is very much appreciated. My question is around any future proposals in a variety of sectors. Ms Cooper, earlier you touched on the rights of individuals and companies. Do you see this legislation as having impacts on the evaluation process for projects in the future? That is a question for any concerned stakeholders.

**Ms Cooper:** Thank you very much for the question. In terms of the impacts that the legislation will have on approval processes, the effect of the legislation is to prohibit any application for a mining lease in the area of the Galilee Basin as defined in the bill, so there would not be any people able to bring an application for a mining lease. Also, you have some other tenures that fall within the area of the Galilee Basin as defined in the bill such as exploration permits as well as mineral development licences. Those would effectively not be able to progress to a higher tenure to be able to produce any thermal coal, so that would be another impact that the bill would have. Other than that, the impacts are to cancel or terminate the existing mining licence that sits fully within the Galilee Basin area that is defined in the bill and also to amend any mining leases that only partially lie in that area by removing that area from the terms of their mining lease.

**Mr Barr:** Did you mean 'evaluate' by the government or by investors?

**Ms PUGH:** I meant by the scrutiny of the scientific processes that a lot of these projects would go through, so from a Public Service perspective as well.

**Mr MICKELBERG:** My question relates to the international demand for thermal coal. I note that in your response to the committee DNRME references the International Energy Agency's World Energy Outlook report.

**Mr Barr:** Yes.

**Mr MICKELBERG:** We heard comments last week from the Deputy Premier and earlier today from the member for Maiwar that the demand for thermal coal was expected to decrease, but in your submission I note that you say you expect it to remain steady. I just want to confirm that it is the department's view that it will remain steady.

**Mr Barr:** What I can do is go through them. There are a number of scenarios that policymakers look at. Overall, there are challenges for coal demand out to 2040, but the report that we rely on most by policymakers is the International Energy Agency's world outlook report. For a bit of context, though, in 2017 Standard & Poor's came out and said that overall production of thermal coal internationally is about 1.9 billion tonnes. Queensland's production of thermal coal was about 83 million tonnes per annum in 2016-17, so this is about five per cent of the total international export market, just to give some context about how significant thermal coal is from Queensland.

The IEA report has three scenarios. In terms of two of those scenarios, one is the base case scenario, where there is no action on climate change so coal demand continues. The second scenario is the new policy scenario, which is probably roughly the Paris scenario. Even under that, what it says is that new basins and new transport infrastructure will continue to be needed for some time and, while coal demand internationally is likely to decline under that policy, there is an increase in thermal coal usage projected for Asia, which Queensland is well positioned to pick up. The third scenario, though, is called the sustainable development scenario, and that has more significant uptake of climate reduction strategies. Under that I think there is a decrease in overall coal demand and in Asian coal demand. The impact of that for Queensland demand is very difficult to tell.

**Mr MICKELBERG:** Under the Paris accord and the current policy settings, we would expect thermal coal to stay steady or rise—

**Mr Barr:** Under current policy settings, yes.

**Mr MICKELBERG:** With that in mind, does the department have a view with respect to project viability generally, not specifically, in the Galilee Basin?

**CHAIR:** Just bear in mind to be careful about requesting an opinion.

**Mr MICKELBERG:** Has the department considered project viability in the Galilee Basin?

**Mr Barr:** The department does its assessment and Cale does the assessment of the tenures, but I would go back to what the Queensland government says. It is individual projects and they have to stack up financially, socially and environmentally.

**Mr MICKELBERG:** So the market should decide?

**Mr Barr:** The Queensland government relies on the market investment, yes.

**Mr MICKELBERG:** Thank you.

**Mr BERKMAN:** Before I ask the questions I had planned, I want to touch on something you said a moment ago, Mr Barr. In terms of the new policy scenario, as I understand it, in the world outlook report they have referred to the sustainable development scenario as being closer to Paris. Is that correct?

**Mr Barr:** I would need to check that. I had a look just before I came in, but I will need to check.

**Mr BERKMAN:** I would appreciate if you could take that on notice.

**Mr Barr:** Yes, I will take that on notice and check.

**Mr BERKMAN:** My understanding—and I will just put this to you—is that the three scenarios dealt with in the World Energy Outlook new policy scenarios are roughly what we are tracking at the moment in that the SDS is in fact what the WEO claims aligns with Paris.

**Mr Barr:** Okay. I will take that on notice and we will check them and get back to you.

**Mr BERKMAN:** Thank you; I would appreciate that. In addition, I tabled a document this morning that sets out two additional scenarios that parts of the International Energy Agency look at—the two degrees scenario and the below two degrees scenario. I might start with a couple of questions—

**CHAIR:** We are running out of time, member for Maiwar.

**Mr BERKMAN:** How long does this session go for?

**CHAIR:** This session goes until half past 10.

**Mr BERKMAN:** Treasury, very quickly, can I just confirm that the state government has not yet signed a deal with Adani under the so-called transparent policy framework around royalties?

**Mr Ellem:** That is correct.

**Mr BERKMAN:** Thank you. I have a lot of questions that I would like to ask around groundwater, but I am not sure who is best positioned to answer questions about groundwater management and the basin.

**Mr Barr:** Fire away and we will see what we can do.

**Mr BERKMAN:** Okay.

**Mr Barr:** We might need to take it on notice too.

**Mr BERKMAN:** Okay. Does DNRME acknowledge that the recent federal bioregional assessment that was released in November last year modelled greater impacts on water resources than assessments prepared by individual proponents?

**Mr Barr:** I would take that on notice, too. I think we did have some issues with some of the methodology in that report, but I will take it on notice and I will get back to you on that one.

**Mr BERKMAN:** Okay. Much appreciated; thank you.

**CHAIR:** Last one, member for Maiwar.

**Mr BERKMAN:** I want to ask about the recommendations that were made. Part of the bioregional assessment was the Lake Eyre Basin Springs Assessment, and there was a fairly clear recommendation in that report that further seismic testing be undertaken to ascertain the source aquifer for the Doongmabulla Springs. Has any further seismic testing been done and made available to the department in line with those recommendations?

**Mr Barr:** When did that report come out? It was late last year?

**Mr BERKMAN:** The Lake Eyre Basin Springs Assessment I think was in 2016.

**Mr Barr:** Okay. Again, I would have to take that on notice.

**Mr BERKMAN:** Okay. Thank you very much.

**CHAIR:** I have a couple of quick questions and so does the deputy chair, with mine probably to the Department of Environment and Science. We already have a current rigorous scientific assessment process which is independent as well. Would this bill inject an extra layer of ministerial designation or ministerial opportunity to get involved with this process of assessment of these applications?

**Mr Loveday:** Can you just clarify what you mean by ministerial—

**CHAIR:** Certainly. At the moment we have that independent and scientific assessment of a variety of aspects regarding mining leases. Does the department see that this bill injects an extra layer of ministerial opportunity to get involved with the assessment process?

**Mr Loveday:** I will answer this as best I can. I may have to take some of that on notice. Obviously the bill, in my understanding, would basically cease the assessment of any of the existing operations in the Galilee Basin. Some of those projects have been all the way through their environmental assessment, along with their mining lease assessment. Some of them have not. As far as providing an extra layer of ministerial interaction with it, I am going to have to take that on notice.

**Mr Barr:** I think I can try to answer that. From my reading of the bill, there is no ministerial discretion. It just extinguishes all of the current leases and does not allow any further ones.

**CHAIR:** Just to reiterate, all those processes currently going on would cease under this bill?

**Mr Barr:** Yes.

**CHAIR:** Thank you. We do not need to place that on notice.

**Mr WEIR:** We have already established that under this legislation there would be no compensation payable to any of those proponents. What about any agreements or contracts that are done with contractors that are already in place? Where would they stand? Have they any chance of getting compensation?

**Ms Cooper:** The bill is silent when it comes to any other agreement that may be in place that may rely upon the projects that are currently occurring in the Galilee Basin as defined in the bill. The bill itself does not address that and it would be an issue between the individual parties.

**Mr WEIR:** Should that be clarified in this bill or is that going to be fought out in court?

**Ms Cooper:** The bill does not address any of those other arrangements, and the compensation is merely around the cancellation or amendment of the mining tenures that are impacted.

**Mr MADDEN:** Getting back to the issue of sovereign risk that we discussed previously and the potential for litigation against the Queensland government, we are all aware that Adani is the company that has taken up one of the leases. Have any other companies taken up one of the leases and actively taken action to activate the lease?

**Mr Dendle:** No, Adani is the only company that has been granted mining leases at this stage.

**Mr MICKELBERG:** The explanatory notes outline that there are no projected cost impacts associated with the bill, but I note that the department's submission indicates that the department has a view that there are potential financial impacts. Can you outline what those financial impacts could be?

**Mr Barr:** I think we are clear that it is potential financial impacts, so there is an assumption that projects go ahead around those financial impacts on some of this, on the opportunity relating to it. However, at a high level, the impact is that, as I said before, anyone who has invested capital in these projects, whether that is exploration or capital on the ground, will lose that particular investment. There would also then be potential indirect economic impacts from the bill such as, picking up the member's point, the impact on local service providers, the impact on investor confidence and about investing in the region as well. That is at the heart of what we were putting forward in the submission.

**Mr MICKELBERG:** What about tangible financial impacts on the government itself?

**Mr Ellem:** That was probably the subject of the first question about what we have assumed in terms of royalty revenue from the projects. The answer is that there is nothing in the forward estimates relating to the royalty outcomes from Galilee Basin projects.

**Mr MICKELBERG:** Further to the question earlier with respect to compensation, the department—be that Treasury or the Department of Natural Resources, Mines and Energy—has not considered any potential legal or compensation related costs that would potentially accrue?

**Mr Ellem:** Treasury certainly has not done that.

**Mr Barr:** No.

**CHAIR:** The time allocated for this session has now expired. We have three questions on notice. One is about policy scenarios. That was the alignment of the—

**Mr Barr:** Sustainable development with Paris or the new policy. We should be able to do that pretty quickly.

**CHAIR:** The second one was around groundwater, I believe.

**Mr Barr:** There were two groundwater questions around the Commonwealth bioregional assessment.

**Mr BERKMAN:** Yes, that is right—whether any further seismic testing had been done and provided to the department in line with the recommendations of the Lake Eyre Basin Springs Assessment.

**CHAIR:** Thank you for that. We will place those two questions on notice. The committee would appreciate the answers to questions taken on notice being provided by Monday, 11 March 2019. Thank you very much.

**BRAGG, Ms Jo-Anne, Chief Executive Officer and Solicitor, Environmental Defenders Office**

**DEAN, Dr Annika, Senior Researcher, Climate Council of Australia (via teleconference)**

**RYAN, Mr Sean, Principal Solicitor, Environmental Defenders Office**

**SCHINDLER, Dr Lissa, Great Barrier Reef Campaign Manager, Australian Marine Conservation Society**

**CHAIR:** Welcome. Would someone on the panel like to make an opening statement, after which we will have questions from members of the committee?

**Ms Bragg:** Chair, we were not sure how you preferred to proceed, but Dr Schindler has prepared a brief statement and EDO Queensland has prepared a brief statement.

**CHAIR:** That would be fine. Dr Schindler will go first.

**Dr Schindler:** Thank you for the opportunity to speak at this hearing. The Australian Marine Conservation Society strongly supports the bill and the intent to not allow mining in the Galilee Basin. We believe that, given the climate emergency, it should go further and not allow any more new thermal coal mines in the state of Queensland.

Our support for the bill is based on our profound concern about the impacts of climate change on Australia's oceans, in particular the Great Barrier Reef. Climate change is the biggest environmental threat that we are facing, and the impacts are already being felt around Queensland. The Premier's speech two weeks ago, where she made the link between climate change and the extreme weather events, is a perfect example of the impacts that we are having already.

Climate change is also putting our iconic species and places under threat. Nowhere is this more evident than in the Great Barrier Reef. The year 2016 was the hottest year on record and it was also the year that a marine heatwave swept through the waters of the Great Barrier Reef. Over 90 per cent of corals in the Great Barrier Reef were impacted by bleaching. In some areas, the temperatures were so extreme that corals did not even bleach; they died straightaway. This was the first time that such rapid coral death had been documented on such a wide scale. It was a massacre.

From the 2016 bleaching event we lost 30 per cent of shallow water corals in the Great Barrier Reef. This was devastating for the reef but, unfortunately, it was not the end, because in 2017 the reef was hit with another major bleaching event. At that bleaching event we lost 20 per cent—so a further 20 per cent—of shallow water corals. I do not know if I can pass these around—

**CHAIR:** Just pass that along here and we will have a look at it before we table it.

**Dr Schindler:** That is from the 2016 bleaching event at Lizard Island. In 2017, back to back with 2016, that was the first back-to-back major bleaching event that has hit the reef. In total, 50 per cent of corals in the Great Barrier Reef were lost. That is 50 per cent in just two years. Although we lost 50 per cent of the corals over those two years, 50 per cent remains. We still have plenty of good coral cover in the Great Barrier Reef and we still have a vibrant \$6 billion industry that is still doing well with that current coral coverage. We still have a Great Barrier Reef and I want people to remember that. That is worth protecting. That is worth fighting for and doing everything we can to make sure that reef has a future.

We are really running out of time. We need to act quickly, because global temperatures are rapidly approaching 1.5 degrees. The IPCC report that was released last year tells us that at 1.5 degrees we lose 70 per cent to 90 per cent of coral reefs around the world. If we let global temperatures hit two degrees Celsius we lose 99 per cent of coral reefs, including our Great Barrier Reef.

Human activity has already caused one degree of global warming. Warming is likely to reach 1.5 degrees in as little as 11 years. By 2030 we could see 1.5-degree temperatures. In order to keep warming to 1.5 degrees, we need to have a massive reduction—and I emphasise that word 'reduction'—in thermal coal. If we are talking about having a future for the Great Barrier Reef, there is no room for discussion around the opening up of new coal basins and new thermal coal mines. The IPCC report states that we need to reduce thermal coal by 78 per cent by 2030. It feels like this discussion about whether the Galilee Basin should open should have happened a long time in the past. We have gone beyond that point.

Protecting the Great Barrier Reef is listed as one of the state's six priority areas for advancing the state of Queensland. If we want to have a future for the Great Barrier Reef and if the government is serious about protecting the Great Barrier Reef, it needs to lead by example and do all it can to limit warming to 1.5 degrees. We are really at a crossroads. The state can no longer continue with business as usual. If we want a future for the Great Barrier Reef and if we want a future for the \$6 billion tourism industry, the state can no longer consciously support the development of new coalmines, especially the huge coal basin in Galilee.

I will finish by saying that the Great Barrier Reef is a global icon. People around the world love it, and we are very lucky as Queenslanders to have it in our state. If its intrinsic value does not motivate, let the economic benefits of the reef motivate you. It is a \$6 billion asset to the state. It brings in \$6 billion every year. It supports 64,000 tourism jobs. As I have outlined today, it is already showing the impacts of climate change. The 2016 and 2017 bleaching events were alarm bells of the reef going off. If we ignore this alarm and continue with business as usual, we will find that the Great Barrier Reef will be one of the first huge casualties of climate change.

**Ms Bragg:** For those committee members who are not aware of the Environmental Defenders Office Queensland, we are a non-profit community legal centre, like the Women's Legal Centre and the Caxton Legal Centre, but we work in the area of public interest environmental planning and resource law. We provide legal advice to members of the community from Bundaberg to the Gold Coast, to the cape and out west. Our clients include farmers, graziers, landholders, like the Acland landholders, conservation groups and community groups.

As part of our work, we have had a lot to do with major mines and examining their impacts in the Land Court over things like groundwater impacts, impacts on agriculture, the economics, the reef and climate change. To make the point that we are a non-profit centre, we really care what happens to Queensland and Queenslanders. Our environment is just so precious, and it is important that climate change is in fact addressed. I will pass to Mr Sean Ryan, our principal solicitor. He has

conducted these court cases on behalf of various clients and has quite specific points to make about this bill.

**Mr Ryan:** I thank the chair and the committee for the opportunity to speak today. The Environmental Defenders Office strongly supports this bill; however, it says that it does not go far enough. This bill is a necessary but not sufficient step to save the last 10 per cent to 30 per cent of the Great Barrier Reef. Happily, this bill would not be acting alone, as the world has agreed to phase out coal. We need only to take the members to two lines of one document to make good this proposition. Do you have a copy of the global warming of 1.5 degrees—

**CHAIR:** Yes, the member for Maiwar tabled that.

**Mr Ryan:** We have colour copies if anyone would like one.

**CHAIR:** All the better.

**Mr Ryan:** I could take you to it or I could just give you the references and read so that you do not have to fumble with documents. On page 10 at section B.4.2, the report says—

Coral reefs, for example, are projected to decline by a further 70–90% at 1.5°C (high confidence) with larger losses (>99%) at 2°C (very high confidence).

That means that if we are to preserve the last 10 per cent to 30 per cent of coral reefs, including the Great Barrier Reef, we need to limit warming to 1.5 degrees. I do not think it is trite to say as shorthand that in order to save the reef we need to limit warming to 1.5 degrees. That is the first line that I want to take you to.

The second in that report is at page 16. There the IPCC modelled four different scenarios of how to keep warming below 1.5 degrees. In those scenarios they modelled the relative percentage of coal power relative to 2010 levels. They do that under scenarios where they make different assumptions about the effectiveness of carbon capture and storage, for example, in particular our ability to burn biofuels in the future and store that carbon underground so that we can get to negative emissions by 2070, as we need to do. Under all of those scenarios, coal power is reduced by more than 60 per cent by 2030 relative to 2010 levels. If we are to not give optimistic projections to carbon capture and storage, we would be reducing coal power by 78 per cent on 2010 levels by 2030.

As I read it, thermal coal production in Queensland in 2010 was about 50 million tonnes. That means we would need to reduce coal supply to about 20 million tonnes in the next 10 years consistent with 1.5 degrees, saving the last 10 to 30 per cent of the reef. In order to save the reef, we need to be reducing coal production. It is clearly inconsistent with keeping it under 1.5 degrees—saving the reef—to increase coal production by 60 million tonnes, in the case of Adani, or over 100 million tonnes a year, in the case of opening up the whole Galilee Basin. It is certainly necessary to not open up the Galilee Basin in order to avoid 1.5 degrees and save the last of the reef, but it is not nearly enough. We say there should be a moratorium on all new thermal coal in Queensland.

Happily, Queensland would not be acting alone because that same logic applies to every other signatory of the Paris Agreement. There were 195 signatories ratified by 185 countries in the world including Australia. They agreed to pursue efforts to keep warming below 1.5 degrees. There is no credible pathway to staying below 1.5 degrees that includes expanding coal—quite the opposite; it includes phasing out coal. That is why Queensland has signed the Under2 MOU, which includes 40 per cent of the world's economy, in which it agrees to achieve net zero emissions by 2050. That cannot be achieved by increasing coal as a source of primary energy.

More to the point, 30 national governments around the world, including the UK and Canada, and 22 subnational governments around the world, including ACT, City of Melbourne and City of Sydney, have signed the 'powering past coal' agreement in which they agreed to phase out coal. This bill is consistent as a first step with staying below 1.5 degrees. It would need to go further and, indeed, the rest of the world would go further, as they have agreed to do under Paris.

To deal with some of the points that are raised against us, it is said that the bill focuses on coal rather than emissions. That is a distinction without a difference. Burning coal results in emissions unless you have carbon capture in storage, which we all know is pretty hopelessly non-viable at present. I think even the IEA is acknowledging that. It is said against us that prohibiting coal is unlikely to affect demand. However, there are a number of problems with that argument, the first of which is primary economics. Price is determined by supply and demand. If we restrict supply, the price goes up. If price goes up, consumption goes down. If consumption goes down, emissions go down. Restricting the Galilee Basin reduces emissions and increases prices, which means more revenue and more royalties for every other coalmine in Queensland.

**CHAIR:** I might just get you to skip to the end. We still have Dr Dean here.

**Mr Ryan:** I am happy to leave it at that to allow more time for the other speakers.

**CHAIR:** Thank you. Dr Dean, could you perhaps give us a brief statement before we start asking questions?

**Dr Dean:** I would first like to thank the committee for giving me the opportunity to present on behalf of the Climate Council. The Climate Council supports this bill for the following reasons. First and foremost, the stabilisation of the climate system depends on the rapid decarbonisation of global energy systems, the rapid phase-out of fossil fuels and, crucially, no new coal deposits being exploited. Climate change poses real and serious risks for human health, our economy and the environment both in Australia and globally. The risks of climate change rise rapidly in line with the increase in the global average surface temperature. If emissions continue to rise at current rates we are on track to see a global average temperature rise of three to four degrees by 2100. A four-degree temperature rise would likely lead to a world that would be hardly recognisable today. To put it simply, it would put billions of lives at risk.

In recognition of the fact that the risks of unmitigated climate change are too high to accept, governments around the world signed and ratified the Paris accord, agreeing on the need to limit temperature rise to well below two degrees and to pursue efforts to limit temperature rise to 1.5 degrees Celsius. Australia signed and ratified the Paris accord and Queensland also supports the accord.

In thinking about appropriate emissions reduction trajectories to limit warming to this target, the carbon budget approach is useful. The carbon budget is a scientifically based method for determining how much carbon humanity can 'spend' to limit climate change to a specific temperature target. The carbon budget approach clearly shows that for a 66 per cent chance of limiting the global average surface temperature increase to no more than two degrees, the amount of carbon that can be emitted is about 205 billion tonnes of carbon emitted as CO<sub>2</sub>, carbon dioxide. This means that, going forward, once 205 billion tonnes of carbon have been burned, global carbon dioxide emissions must be net zero to prevent warming from exceeding two degrees.

The carbon budget has strong implications for the emissions reduction trajectory going forward, and it clearly shows that the more we delay the peaking and driving down of emissions the steeper the emission reductions will need to be in the future. Delaying the peaking of emissions by even a few years would likely result in an emissions reduction trajectory that would be extremely steep and very difficult to follow. It is critical for global emissions to peak no later than 2020 and to decline steadily thereafter. The longer we delay action, the costlier it will become in terms of climate change impacts and also in terms of disruption to the economy from a very steep transition.

It is very clear by looking at the carbon budget that the combustion of fossil fuels—coal, oil and gas—must be phased out rapidly. The exploitation and burning of fossil fuels leads to an increase in CO<sub>2</sub> emissions when what is needed is a deep and rapid decrease in CO<sub>2</sub> emissions. To meet the Paris climate target, existing fossil fuels need to be phased out. It is obvious that no new fossil fuel developments should be allowed.

The second key reason that we support the bill is that Queensland is on the front line of climate change and stands to benefit from being a leader in effective mitigation and phasing out of coalmining. Climate change is driving an increase in the frequency and/or severity of extreme weather events, especially heatwaves, intense rainfall, extreme bushfire weather and sea level rise. Queensland is particularly exposed to extreme weather, having borne 60 per cent of the cost to Australia of extreme weather in recent decades. Queensland has just experienced a summer of extremes, from drought to heatwaves to bushfires and flooding. The series of events that occurred is illustrative of how, as extreme weather events increase in frequency and/or severity, they are occurring more often in coincidence or in close succession, with significant implications for coping capacity.

Queensland's 2018-19 summer of disasters has cost the state government an estimated \$1.5 billion. The latest figures from AgForce suggest that half a million cattle were killed in North-West Queensland during the floods, costing farmers about \$500 million. The floods resulted in at least \$887 million in insured losses as at the latest estimate, so this figure may rise.

Although detailed attribution studies have not yet been conducted on these extreme weather events, we know that all extreme weather events are occurring in a climate that has more energy in it than 50 years ago and that there has been a long-term trend in increasing extreme weather globally over recent decades. For these reasons, the Climate Council supports the banning of coalmining in the Galilee Basin and supports this bill.

**CHAIR:** We will now go to some questions. Dr Schindler, you have stated that to save the reef we need to limit warming and implement the Paris Agreement at the national level. We are seeing a lack of coordinated action across all levels of government, led by the federal government. Is that how you see it?

**Dr Schindler:** Yes, of course. I do not think that should deter the state. We have seen in the US what happens when leadership fails at the national level: the states have taken over and are achieving great climate outcomes. The fact of the matter is that Queensland has a lot to lose, and it is not just the Great Barrier Reef. As Dr Dean said, it is these extreme weather events—it is everything. The government needs to be doing everything it can, and it can be a subnational leader on this issue.

**CHAIR:** Dr Dean, you have talked about the climate budget methodology. Is there a jurisdiction in Australia or around the world that has adopted that to be part of their official policy response?

**Dr Dean:** I am not aware of any official adoptions. However, I do understand that the ACT has used the carbon budget approach to inform its renewable energy targets and its net zero emissions target. I do believe that the Victorian government has an interim emissions reduction inquiry going on at the moment and I do believe that it is considering the carbon budget approach in determining what Victoria's emissions reductions should be.

**CHAIR:** Is that something we could ask as a question on notice, to see if we can confirm those particular actions according to a climate budget?

**Dr Dean:** Yes, that would be useful.

**Mr WEIR:** My question is about consultation, and it is was remiss of me not to ask the department earlier; I meant to. Of the three organisations here, were you consulted by the member for Maiwar in the drafting of this legislation?

**Ms Bragg:** The Environmental Defenders Office Queensland was not consulted.

**Dr Schindler:** No, we were not either.

**CHAIR:** Dr Dean, the question was about whether you were consulted in the drafting of this private member's bill.

**Dr Dean:** The Climate Council was not consulted, as far as I am aware.

**Mr WEIR:** A number of submissions talk about changing to renewables around the globe and a declining demand for coal. Would the market not drive the whole coal and coal-fired power debate as opposed to renewables without government intervention?

**Dr Schindler:** Are you saying the market will take care of itself?

**Mr WEIR:** Yes.

**Dr Schindler:** It has to a degree. Despite the lack of federal initiative, we have seen that it is still going ahead in terms of renewables. As I said in my opening statement, we have 11 years; we do not have time for the market to be letting it thin. Governments need to start taking initiative on this and acting to make sure we are not exceeding 1.5 degrees Celsius. A lot of us are talking about two degrees, but I am here telling you that with two degrees we lose the Great Barrier Reef.

**Mr WEIR:** If we do not proceed with the Galilee Basin, that will alleviate the situation?

**Dr Schindler:** As Mr Ryan said, it is a global effort. However, Queensland cannot expect to be talking about protecting the reef in its future and at the same time opening up massive coal basins. They are not compatible anymore. If we really want to have a future with the Great Barrier Reef and the tourism industry, it needs to make a choice.

**Mr Ryan:** Markets make great servants but poor masters. It is clear that in order to preserve the reef we need to restrict coal from the Galilee Basin. That is a decision we should make—or, more accurately, you should make as elected representatives of Queensland and not abrogate that duty to the markets. It is not for them to decide; it is for us to decide.

**Dr Dean:** I do believe that the transition to renewables so far is largely being driven by market forces. Just to give a few examples, according to the Institute for Energy Economics and Financial Analysis, from whom I believe you will be hearing later in the day, the solar auction price in India is now cheaper than the auction price for thermal coal. Renewable power capacity additions since 2016 have been larger than capacity additions of coal in India. Also between 2010 and 2018, 578 coal plants were approved but were either cancelled or shelved in India. There is a rapid shift occurring towards renewable energy. I think companies and countries that fail to realise the pace of this transition to renewables and continue to invest in coal not only risk investments becoming stranded

assets but also suffer the opportunity cost of being the last ones at the table to invest in this clean energy economy. Even as it is happening so rapidly, it is still not quite happening fast enough. We still do need policy support to support the transition and to ensure it is a smooth transition.

**Mr MADDEN:** Dr Dean, I am very pleased that you introduced the term ‘fossil fuels’ into the discussion today. We use the word ‘coal’, but we forget that there are two other fossil fuels that are of great importance with regard to climate change in the world—that is, gas and petroleum. Dr Schindler, I am very pleased that you raised the point that this is a global issue and that coal is a contributor with regard to exporting coal and producing CO<sub>2</sub>. My question is really for the Environmental Defenders Office and is about an issue raised in the explanatory notes. I note that you have not dealt with this in your submission, but I would like you to comment on it. The explanatory notes state—

It could be argued that the Bill contradicts the FLP that legislation should not interfere with property—the word ‘rights’ is missing—

without fair compensation unless there is a good reason.

We are talking about potential litigation against the Queensland government where, if this bill was passed, we could take away property rights and we would have to argue that there was good reason. Can the Environmental Defenders Office direct me to any case law where climate change has been recognised as a good reason to withdraw property rights?

**Mr Ryan:** I would like to take that on notice to give a more accurate response. I am aware of one case in the United States, WildEarth Guardians, where the federal government in the US restricted the leasing of federal lands for coal due to climate change concerns. It was challenged by a coal company, to the best of my recollection unsuccessfully. There are increasing precedents around the world where climate change is used to support policy responses. I would be happy to prepare a list of them for you.

**Mr MADDEN:** I would be pleased to receive that, thank you.

**Mr BATT:** Dr Schindler, you mentioned that following the events of 2016-17 half of the Great Barrier Reef is now destroyed; is that correct?

**Dr Schindler:** Half of shallow water corals in the Great Barrier Reef.

**Mr BATT:** What sort of percentage is that of the whole 2,300 kilometres of the reef?

**Dr Schindler:** The majority of the shallow water corals are in the northern section, which was previously supposed to be the healthy portion of the reef. The Great Barrier Reef has a huge number of pressures on it. Not only do we have climate change; we have pollution entering the reef and crown-of-thorns starfish as well. The southern sections are also impacted by crown-of-thorns starfish and other things. Then we had the cyclone that hit the Whitsundays in the Great Barrier Reef back in 2017.

**Mr BATT:** Do you have any approximation of how much of the whole reef is affected? When you say 50 per cent of shallow water corals, is that—

**Dr Schindler:** That is across the whole reef: 50 per cent.

**Mr BATT:** Compared to the whole reef, are shallow water corals five per cent, 10 per cent, 50 per cent?

**Dr Schindler:** I will take that on notice.

**Ms PUGH:** My question is for anybody who would like to comment on the Paris agreement. Our current Prime Minister says that we are going to meet our obligations in a canter, which indicates to me that the federal government does not really think we need to change what we are doing to address climate change. Lissa, picking up on your earlier point around state governments taking leadership, can you expand in practical terms on what that actually looks like, in light of the fact that we do have a federal government that appears largely uninterested in addressing or acknowledging climate change at all.

**CHAIR:** Before we go on, I caution members from straying into political commentary. I think you get the central point.

**Dr Schindler:** The Queensland government has signed on to the Under2 MOU. It can be at the global stage, calling for people to take action on climate. Like I said, we have seen in the United States that where the federal government has not taken action on climate change the states are taking the lead on this. As the custodian of the Great Barrier Reef, the government needs to be doing

everything it can. It cannot expect other countries that are not as developed to be also leading on this if Queensland, for example, is going to continue opening up thermal coal when we know what the impacts of that are and when we know what we need to be doing. As a state we can be taking a leadership role in this.

**Mr Ryan:** One thing we need to be clear about with the Paris agreement is that the world agreed to keep warming below two degrees and pursue efforts to 1.5 degrees. It then provides a mechanism by which countries can voluntarily nominate policies to head in that direction. They are called the Nationally Determined Contributions. Australia nominated a nationally determined contribution of 26 per cent to 28 per cent reduction on 2005 levels. If all the world followed that commitment, we would be heading towards three degrees—not two degrees, not 1.5 degrees and certainly not saving the Great Barrier Reef. Meeting the nationally determined contribution, which is what our federal government is talking about, even if that were true at a canter, is nowhere near enough to save the Great Barrier Reef. We are talking about commitments to save the Great Barrier Reef and many subnational governments have taken commitments. I referred you earlier to the Powering Past Coal Alliance and the Under2 MOU, so I will not go into detail, but certainly they can and should take actions consistent with saving the reef beyond what the federal government might do.

**Mr MICKELBERG:** How do you reconcile the comments we heard earlier with regard to thermal coal demand either remaining steady or increasing and the fact that Queensland thermal coals, including those in the Galilee Basin, have generally higher energy values than our international competitors and superior environmental outcomes as well, in terms of those deleterious trace elements?

**Mr Ryan:** I would like to have the first crack at that, if you do not mind. In relation to the comment from the department that the new policy scenario under the International Energy Agency is consistent with Paris, they were wrong. I think when they check their facts they will realise that what they meant to say is that the sustainable development scenario is consistent with Paris. In the sustainable development scenario, demand for coal plummets to about zero by 2050. Even in that scenario, they factor in a high reliance on carbon capture and storage. I think it is 2,000 million tonnes per annum. Currently all the projects in the world add up to about 30 million tonnes per annum, as the QRC noted in its submission. It is well short.

In relation to the quality of coal, the quality of coal from the Galilee Basin is poor. It varies from 4,000 to I think 5,800 kcal per kilogram. For example, the Adani Carmichael mine is 4,900 kcal per kilogram, which is well below the 6,000 kcal benchmark of Newcastle coal. It is low-quality coal compared to other Australian coal.

Even if it was high-quality coal, that means you might at best produce 20 per cent more electricity per tonne of coal burnt in a supercritical high-efficiency low-emission power station—that is, a 20 per cent reduction in emissions. Let us say those power stations last for 30 years. Over 30 years you get a 20 per cent reduction in emissions. What we need is a 100 per cent reduction in emissions by 2050. Even if it were true, it is nowhere near enough.

**Mr MICKELBERG:** Isn't that a pipedream? If we have established that new coal-fired power stations are being built in Asia, as we heard earlier, they are going to consume coal. The alternative is that they consume coal that is of a lower quality, say from Indonesia, which will have more environmental damage, as opposed to what might come out of the Galilee Basin. I accept that your position is that we should have no coal being burnt in the longer term. That is fine, if that is your position.

**Mr BERKMAN:** It is the position of the sustainable development scenario, correct.

**Mr MICKELBERG:** I am asking the questions, thank you, not you.

**CHAIR:** One at a time. Let the member for Buderim ask the question.

**Mr MICKELBERG:** If that is your position, so be it. However, how do you reconcile the fact that that product will still be substituted with inferior product from elsewhere in the meantime?

**Mr Ryan:** Your best case scenario is that, as coal-fired power stations are retired—and 80 per cent of the world's coal-fired power stations are subcritical or the lower efficiency power stations—they are replaced by these high-efficiency power stations. Over that 30-year period, assuming that they do not burn Indonesian coal but they burn all Australian coal, you get a reduction. That is better than the alternative, absolutely. I am saying that that is not enough. It is not consistent with 1.5 degrees and it is not consistent with preserving the reef, so it is not enough to rely on that.

I take issue with the fundamental assumption that if they are not burning Australian coal it will just come from somewhere else. As I said earlier, if we do not supply the coal it will increase the price, which would reduce consumption. You are also making the assumption that some coalmine in Indonesia or elsewhere will spring into life if we refuse the Galilee Basin. That is a highly uncertain assumption. You are replacing then an uncertain assumption that it will come from somewhere else with a certain commitment that they will burn Queensland coal. I think there is undeniably a moral component to this. You are saying, 'We accept that burning the coal will lead to the destruction'—

**Mr MICKELBERG:** No, you are saying that, not me.

**Mr Ryan:** If you use burnt Indonesian coal or coal from somewhere else in the world, and under every scenario that would result in higher than 1.5 degrees warming and, therefore, the loss of the Great Barrier Reef, you are just saying that that is going to happen anyway so it might as well be our coal. That is what you seem to be saying, that it is going to happen anyway.

**Mr MICKELBERG:** I am saying that Queensland thermal coal constitutes five per cent of supply across the world. By taking a course of action that extinguishes property rights in one small part of Queensland, that will have arguably no effect on the burning of coal elsewhere, because it will be substituted from other sources. To me that is perverse logic.

**CHAIR:** There is a bit of to-and-fro there. Could you address the question? That would be great. Please put comments through the chair.

**Mr Ryan:** If you accept that the impact is unacceptable, if burning less coal resulting in collectively the death of the Great Barrier Reef is an unacceptable outcome, it is not okay to then say, 'Well, that is an outcome that we do not want, but we think our neighbours will breach the Paris agreement and not agree to limit their coal supply and consumption below the trajectory necessary for 1.5 or two degrees, so we will breach our obligation to keep warming below 1.5 and two degrees.' I think the safer assumption is to assume the world does what it said it is going to do when 195 countries signed to keep warming below two degrees and pursue efforts to keep it below 1.5 degrees, which means the world phasing out coal.

**Mr BERKMAN:** Dr Dean, in as few words as possible, can you outline how much certainty we have now about the link between continuing worsening of natural disasters and ongoing greenhouse gas emissions?

**Dr Dean:** Can you repeat the question? I am struggling to hear you.

**Mr BERKMAN:** How clear now is the link between worsening natural disasters, which you have said Queensland is at the forefront of, and climate change? Is there any real dispute that if climate change continues we will continue to face worsening natural disasters and the costs and human costs that come with that?

**Dr Dean:** I am sorry, I still did not hear clearly, but I think what you are saying is how much certainty is there that extreme weather will continue to worsen due to climate change in Queensland.

**Mr BERKMAN:** Yes, thank you.

**Dr Dean:** It is absolutely unequivocal. There has been a strong trend for bushfire weather. The accumulated forest fire danger index along eastern Australia in recent decades is projected to continue. It will continue in line with the increase in the global average surface temperature and the Australian average surface temperature. For intense precipitation, for each degree of warming we have already seen about a seven per cent increase in heavy rainfall days or in the proportion of total rainfall stemming from heavy rainfall days. That contributes to flash flooding and that is projected to increase.

For heatwaves, it is completely clear that climate change is driving an increase in the frequency, duration and severity of heatwaves, and that is projected to increase and get worse with the increase in the average surface temperature. Climate models show that tropical cyclones are actually projected to decrease in frequency but significantly increase in intensity. Rainfall associated with tropical cyclones is also projected to increase.

There is also a very clear trajectory with sea level rise. Sea levels have risen by roughly 20 centimetres. That is the global average, but it is rising much more quickly in some areas of Queensland and that is projected to increase. I think the Queensland government is anticipating an increase of 0.8 metres by the end of the century. That is very clear. It is very clear, basically: extreme weather will continue to increase in severity and frequency.

**CHAIR:** Thank you very much, Dr Dean. The time for this session has expired. We have three questions on notice. Dr Dean, we have asked for which governments, national or subnational, use

the carbon budget approach to inform or create policy. Dr Schindler, we asked for the percentage of the reef that is made up of shallow water corals. The Environmental Defenders Office was asked for case law where climate change has been used as a reason to cancel leases or to refuse leases.

**Mr MADDEN:** My question was about case law concerning any decisions with regard to climate change being reasonable grounds to withdraw property rights.

**CHAIR:** The answers to questions on notice are due by Monday, 11 March 2019. Thank you everyone.

**Proceedings suspended from 11.16 am to 11.21 am.**

**DOW, Mr Lucas, Chief Executive Officer, Adani Australia**

**FENNELLY, Mr Paul, Head, Corporate Affairs, Adani Australia**

**HASELER, Mr William, General Counsel, Resolve Coal Pty Ltd**

**CHAIR:** I now welcome representatives from Adani Australia and Resolve Coal Pty Ltd. Who would like to make an opening statement?

**Mr Dow:** Thank you for the opportunity to comment on the bill. For absolute clarity, we clearly recommend that the committee not recommend to pass this bill. Fundamentally, the bill as it is currently conceived is flawed both in nature and in the mechanisms that comprise it.

As you have heard this morning, in essence endeavouring to prevent mining within the Galilee Basin would simply see lower quality coal sourced from other jurisdictions. The reality is that global demand, particularly in those areas that Galilee Basin coals would target—specifically into Asia—will continue to see continued growth and demand over a sustained period. Consequently, shutting in of the Galilee Basin would only seek to see coals derived from jurisdictions such as Indonesia, South Africa, Russia and so on.

Aside from providing a worse environmental outcome by shutting in the Galilee Basin, the bill also seeks to target and persecute Queensland and Australia's economy as a consequence. If those jobs go offshore and are sourced out of places like Indonesia and so on, the reality is that the benefits are going to flow to those nations. The stark reality of this bill is that it seeks to undermine and prevent the economic participation and contribution of the Galilee Basin as it pertains to Queenslanders and in particular regional Queenslanders.

Before we press on beyond this aspect, I think it is also pertinent to describe a little our approach to climate change. Without question, Adani Australia forms part of the Adani global group. Our position on climate change is well known. The reality is that climate change is a global challenge and we are stepping into this space. By way of example, the Adani Group has over 2,500 megawatts of renewable power. That is more than 20 per cent of what Queensland currently has in terms of renewable energy. We understand there will be a transition.

The stark reality is that in Asia there will be continued demand for baseload coal powered energy. This is fundamental to be able to alleviate poverty and shift people from the developing world into developed economies in the same way that Australia has been able to do. We understand the challenges. We are part of it. This is not some glib statement. Some 2,500 megawatts is already constructed or under construction, with ambitions to grow beyond that.

In terms of our project in Queensland, the Galilee Basin and our Carmichael project constitute a 10 million tonne per annum mine of thermal export grade coal in the order of 5,000 to 5,500 kilocalories, certainly a higher quality than would likely be sourced from other jurisdictions. Our development also contemplates the construction of a 200-kilometre greenfield narrow gauge rail line connecting into the existing Aurizon network.

The consequence of this is over 1,500 direct jobs created through the ramp-up of construction, with a further 6,750 indirect jobs created as a consequence of our development, Indigenous participation at 7½ per cent employment, traineeships at over 10 per cent of Indigenous participation and over \$250 million over the course of the project for Indigenous enterprise participation as well. Our project has been subjected to rigorous environmental assessment over the last eight years. All these elements have been contemplated through both the EIS and the environmental authority awarding.

This is a project that will create thousands of jobs and contribute to the royalty stream that builds hospitals and infrastructure and finances police officers, doctors and nurses in Queensland. It is fundamentally a project that will enable the growth of Townsville and Rockhampton—areas that have been stubbornly stuck with unemployment rates in excess of eight per cent.

I will return to the bill. As I have outlined, the reality is that if the coal is not sourced from the Galilee Basin it will be sourced from elsewhere. That demand is there and, despite what people might want to argue, the reality is that that will continue, particularly in places such as India, the primary destination for our coal.

This bill also seeks to cut across existing legal rights and will obviously create sovereign risk and the prospect of questions as to the investability of Queensland. The natural extension of this is: if this were to apply to the Galilee Basin then clearly the rest of the industry would be concerned as to the potential flow-on effects, particularly the retrospective nature of this bill.

Finally, I think you will hear from the Queensland Law Society this afternoon that this bill also fundamentally cuts across the legislative principles as submitted. Accordingly, our recommendation is that the committee must recommend not to progress the passage of this bill. We would be very happy to take questions.

**CHAIR:** Would anyone else like to speak?

**Mr Haseler:** My apologies that Mr Saul is not here. He is overseas trying to seek finance. I have a point of clarification with regard to our submission. Our submission relates to the Bully Creek project, which is a part of the Resolve Coal project, is a two million tonne per annum small mine to the north of Adani's. It has a low strip ratio.

As my colleague has said, thermal coal is going to be 5,600 kilocalories. We support and agree that there is a demand for high-quality thermal coal from the Galilee Basin. Resolve is a small company but it has targeted resources in Australia since 1996. It has employed 70 people in Australia and 400 worldwide. This is its only Australian project at the moment.

The flaws in this legislation have been taken up by Mr Dow. We agree with those. The indirect result of the legislation will be the effect upon such people as the Indigenous people who surround the Galilee Basin. I will want to put in a statement from the Jangga people at a later time. The Jangga people's claim makes up a wide part of the Galilee Basin and they support the development of the Galilee Basin. The Bully Creek project is focused on Charters Towers. We consider that it will create 140 local jobs there.

You will hear this point raised by the Law Society. The legislative effect of this bill is against section 4(3)(g) of the Legislative Standards Act. This uncertainty will obviously affect investment within Queensland and contravenes fundamental legislative principles. For those participants that have international ownership, there is a possibility as well that this legislation could affect things like their standing under bilateral treaties. That is another sovereign risk factor.

**CHAIR:** Thank you. We will now go to some questions. Mr Dow, in your statement you talked about the participation of regional Queenslanders and you talked about the number of jobs. Another submission we received later said that that would be tempered by 40 to 50 per cent with automation. What is the impact of automation on your future workforce?

**Mr Dow:** There is no automation contemplated for our mine site.

**CHAIR:** This is no automation?

**Mr Dow:** No.

**CHAIR:** Certainly, some of the other submissions have pointed out the role of automation in mining in the future. Do you have any plans to go down that track of automation to mirror worldwide trends in the future?

**Mr Dow:** No.

**CHAIR:** You also talked about the rigorous environmental assessment. From what I understand, at the state level there is the groundwater and threatened species, which is also mirrored at the federal level. You need to get approvals regarding species and groundwater at the federal level; is that correct?

**Mr Dow:** We have been through a rigorous process where we have had the EIS environmental conditions. The final step that we are at now is in relation to environmental management plans. These do not pertain to conditions; they simply are a description of how we will meet our conditions, not what the conditions are.

**CHAIR:** Are they conditions of your approval?

**Mr Dow:** It is a condition to have a management plan, but the contents of such plans contemplate how we will meet our conditions. They do not describe the conditions themselves.

**CHAIR:** Do you need to get approval before you commence—

**Mr Dow:** Yes, we have been working through that process over the course of the last 18 months. If I take the black-throated finch, which you mentioned, at the state level we commenced that over 18 months ago—seven revisions, which we completed hand in hand with the Queensland Department of Environment and Science. Through those seven revisions, they provided input and we have iterated with each of those at every step of the way. Consequently, we expected approval in the near term, particularly given the fact that the state has had such input to this point, because the obvious question that remains is: if we have to make significant changes, what has the department been doing over the last 18 months?

**CHAIR:** Where are you at the federal level? I know that with groundwater your plan has gone out to CSIRO to be assessed. What is the time frame that you are looking at with this approval?

**Mr Dow:** The black-throated finch has been approved at the federal department level. I might add that that was the precise day the Queensland government saw fit to try to create a so-called—

**CHAIR:** I did mention groundwater.

**Mr Dow:** Yes, I am coming to that.

**CHAIR:** Okay.

**Mr Dow:** In relation to the black-throated finch, in terms of the groundwater dependent ecosystems management plan, the review from CSIRO and Geoscience Australia has been completed. That is now with the federal government and we are working with the federal government to complete those plans. We expect that approval will be imminent.

**CHAIR:** Thank you very much indeed. You mentioned also the construction of the rail. Bearing in mind what the member for Ipswich West talked about—if there is potential compensation it goes on to costs that are already incurred—what costs have you incurred in negotiation with the rail company about the provision of services? How far has that process gone?

**Mr Dow:** I take it you mean in relation to the owner of the existing network?

**CHAIR:** Yes, and you have your construction and you have a link into the Goonyella extension as well. Where are the negotiations with that?

**Mr Dow:** There is a regulatory process. Just to be crystal clear, Aurizon is the owner and operator of that network. Irrespective of whether they want to deal with us or not, they are obligated under a regulated undertaking. Those negotiations are stipulated and they are prescribed by the legislation. The negotiations are progressing well and are commercial-in-confidence.

**CHAIR:** You have no idea when we could be looking at a successful conclusion of those?

**Mr Dow:** Certainly, I have clarity on that. That is why they are commercial-in-confidence.

**CHAIR:** Thank you very much indeed.

**Mr WEIR:** I will ask the same question that I asked the previous group. I will ask this to both organisations. Were you consulted about the formation of this bill, or did you have any input into it at all?

**Mr Dow:** The short answer is no.

**Mr Haseler:** No.

**Mr WEIR:** I will go back to the financial implications of this bill. As you are well aware, there is to be no compensation. You would have already been subject to heavy expenses and costs. Would you be looking at a legal case to recoup those expenses if this legislation were to proceed? I also wonder about the implications on contractors. I know that there is an airstrip to be built and roads. How would those people be affected?

**Mr Dow:** Right now we are just focused on getting our project up and going for the benefit of Queenslanders, in particular regional Queenslanders. However, what I could clearly say is that we have invested over \$1.4 billion to date on the mine and rail project. Suffice it to say, if this legislation were to somehow find its way and be enacted, clearly there would be a legal recourse to this, not only for the costs incurred but obviously for the future profits that would be forgone as well. That would be a sizeable compensation.

**Mr WEIR:** I do not want to breach any confidentiality, but I am sure there would be contracts that have been agreed to for other infrastructure.

**Mr Dow:** Obviously, take-or-pay obligations with the port and so forth would also come in. Also with the traditional owners there are ILUAs. There is compensation payable under those—landholders and so forth. It is not simply compensation that would be payable to Adani itself, but there would be third parties that would also be implicated and impacted as a consequence.

**Mr WEIR:** Mr Haseler, do you have anything to add?

**Mr Haseler:** It is exactly the same sort of thing. The consequential results of it would be quite significant. Obviously, our position is that we have no support for this bill and trust that it will not be enacted.

**Mr MADDEN:** Thanks for coming in today, gentlemen. I would like to follow on from the question asked by the member for Condamine. In asking these questions—and they are directed to you, Mr Dow—I am going to deal with issues of legal advice. You may choose not to answer all of my

questions and just keep your answers general. Certainly, I am concerned about the issue of sovereign risk. I fully appreciate that your company would be very concerned about the possible breach of section 4(3)(g) of the Legislative Standards Act. I will ask you a question that I asked the former witnesses. This is where you may not wish to fully answer my question. If we are going to rely on the potential defence by the Queensland government of reasonable cause in defending the claim—reasonable action in withdrawing the lease—are you aware of any case law in Australia that would allow that defence to be brought forward?

**Mr Dow:** No, we are not.

**Mr BATT:** Both parties have talked about the quality of coal for export. We have heard from previous witnesses that it is lower quality coal than from other places in Australia. You also mentioned that if this coal does not go to Asia then other parts of Asia would fill that gap. We have heard from others this morning that that is not the case—that that is a big hurdle to jump to say that that would happen. Would you like to go through why you feel it would, compared to others who say that it would not, be filled by others in the Asian market?

**Mr Dow:** Maybe if we just take India, which is our target market, as a prime example. In 2017, India imported 137 million tonnes of thermal coal. Does anyone hazard a guess as to how much Australia contributed to that? It was three million tonnes. That means that there is a competitive market for 134 million tonnes of coal. Where does that other coal come from? Indonesia, the US, Russia, South Africa. Effectively, those areas are growing at the expense of jobs here in Queensland for regional Queenslanders. The market will respond. Shutting the Galilee will simply see those other countries and those other jurisdictions provide coal into those markets. The reality is that we can provide our coal and displace lower quality coals, have a better environmental outcome and contribute to the Australian and Queensland economy.

**Ms PUGH:** Thank you for appearing before the committee today. Could you outline how many direct jobs you anticipate the mine would create once it is fully operational and all the initial construction work has been undertaken? Is there a range—a floor and a ceiling—of those potential jobs?

**Mr Dow:** As I outlined, during the ramp-up of construction direct jobs will total around 1,500. I think probably what is most useful is to give you some guidance in terms of existing operations with similar volumes. Typically, their employment numbers range between 1,000 and 2,000, so you could expect us to fall within that range.

**Ms PUGH:** Thank you.

**Mr Dow:** I might just add that that is direct jobs. I think the other part that is often overlooked is the indirect contribution of the mining sector to the economy. In fact, the QRC has modelled this. Effectively, for every direct job there are 4½ indirect jobs created. In effect, we are talking about well in excess of 5,000 jobs that otherwise would not exist in the Queensland economy.

**CHAIR:** Just to clarify, is that Treasury's analysis or your analysis?

**Mr Dow:** That is the Queensland Resources Council.

**CHAIR:** We will ask them when they appear if they can—

**Mr Dow:** I am sure Ian will be very happy to provide that.

**CHAIR:**—provide that information.

**Mr MICKELBERG:** Mr Dow, presumably you have completed modelling in relation to royalties that may be payable at full operating capacity. Are you in a position to share what that quantum would look like?

**Mr Dow:** We have entered into negotiations with the Queensland government in terms of the royalties regime. I am not at liberty to describe that. Effectively, it is commercial-in-confidence. What I can say is that over the course of the project it will run into billions, even at the 10 million tonne per annum mine capacity that we are contemplating.

**Mr MICKELBERG:** Mr Haseler, in your submission you mentioned an annual royalty revenue out of the Galilee amounting to somewhere around \$500 million a year, assuming 50 million tonnes of production per annum. That number was based on current market prices for thermal coal?

**Mr Haseler:** That is correct, yes.

**Mr BERKMAN:** Mr Dow, you mentioned before figures of 5,500 kcal for your coal; is that correct?

**Mr Dow:** Yes.

**Mr BERKMAN:** Net as received or gross as received?

**Mr Dow:** That is gross as received.

**Mr BERKMAN:** The net as received would be smaller. Can you also clarify that the Land Court—

**Mr Dow:** Sorry, if we could just stop. With net as received, typically you are seeing a reduction of around 200 kilocalories.

**Mr BERKMAN:** Yes, I understand. Thank you. The Land Court heard evidence from your company that the average for the entire Carmichael coalmine project was only 4,950 kcal. Can you tell us: what is the average for the coal that you plan to extract for this reduced 10 megaton per annum project?

**Mr Dow:** As I have described, it will sit between 5,000—

**Mr BERKMAN:** No, the average, please.

**Mr Dow:** Correct.

**Mr BERKMAN:** No, that is a range. Can you provide me an average?

**Mr Dow:** Sorry, I thought you understood this, but let me explain. Effectively, all coals can be washed to a different quality. The reality is that our quality will be adjusted to meet the market requirement. Our coals will range between 5,000 and 5,800 on a gross as received basis, depending on market conditions and outlook.

**Mr BERKMAN:** Can you please tell me or take on notice what will be the energy content of your coal net as received—the average energy content for product coal coming out of the—

**Mr Dow:** On a net as received basis, it will range between 4,800 and 5,600.

**CHAIR:** Do you still want that on notice?

**Mr BERKMAN:** I would like an average figure, yes. If we can get an average figure for that coal for the 10 megaton per annum project, I would very much appreciate that.

**Mr Dow:** Chair, it is an impossible request and principally because we will alter what our saleable product is depending upon market conditions, taking account of premium pricing that exists in the market. It is at our discretion as to whether we want to sell that coal at 4,800 kilocalories or 5,600 kilocalories. They are commercial decisions.

**Mr BERKMAN:** Can I ask about—

**CHAIR:** We will have this discussion at the end.

**Mr BERKMAN:** Can I suggest perhaps that the question might be answered using the same methodology that was applied in providing the evidence to the Land Court.

**CHAIR:** Okay. We will have a discussion at the end of this particular session on that—as to whether we have a question on notice and how that can be answered. Do you have any further questions?

**Mr BERKMAN:** Yes, I do, thank you. You have also claimed 1,500 direct jobs for the scaled back project—that is the 10 megatons per annum; correct?

**Mr Dow:** Sorry, million tonnes you are talking about?

**Mr BERKMAN:** Yes, the 10 megatons per annum project that you are proposing as it is scaled back.

**Mr Dow:** During the ramp-up of construction, as I described, there will be 1,500 direct jobs created through that ramp-up-of-construction period. Following the ramp-up-of-construction period, as I said, similar sized mines see employment workforces in the order of 1,000 to 2,000 employees. We will sit within that range.

**Mr BERKMAN:** Can you confirm that, though? Again, with reference to the evidence that was given under oath in the Land Court that only 1,464 jobs across the life of the mine would be produced for the entire project—this is not the scaled back project—have you done any modelling that might assist the committee in terms of the actual forecast job numbers?

**Mr Dow:** Yes, we have worked through our business plan that describes precisely the jobs that are created.

**Mr BERKMAN:** Modelling, though? Is there any modelling?

**Mr Dow:** Yes, the business plan modelling.

**Mr BERKMAN:** Can we please see the outputs—

**Mr Dow:** Those things are commercial-in-confidence, but I am here to describe exactly the contribution of the project. We have described that.

**Mr BERKMAN:** I have one more question. You might not be aware, but I see Mr Manzi behind you. He would no doubt be aware that the Land Court identified very serious concerns about the uncertainty regarding the source aquifer for the Doongmabulla Springs. That Land Court decision was made some three or more years ago. It was completed in 2015. Has Adani done any seismic testing in the area of the Doongmabulla Springs since that time to clarify the source aquifer for those springs?

**Mr Dow:** Chair, I fail to see how this question is relevant. However, I will describe. We have conducted a significant amount of work as it pertains to the identification of the source of the Doongmabulla Springs of which has been identified as the Clematis.

**Mr BERKMAN:** Should we take that as a no, you have done no seismic testing since the end of 2015?

**Mr WEIR:** I would think that question is outside the terms of reference of this bill.

**CHAIR:** The—

**Mr BERKMAN:** If I might put a case for the question, Chair.

**CHAIR:** Hang on. No, just a minute here. I am going to rule on this. We have touched on groundwater in a number of submissions, so I think questions on groundwater are legitimate. Whether we want to go down the path of seismic testing, I will leave that to the witness, but we can ask questions on groundwater.

**Mr BERKMAN:** Thank you. Shall I take that—

**CHAIR:** This is your last chance to clarify and then we will be finishing.

**Mr BERKMAN:** Shall I take your answer as no, you have not done further seismic testing to identify the source aquifer for the Doongmabulla Springs since late 2015?

**Mr Dow:** Repeatedly we have worked with the Queensland Department of Environment and Science—

**Mr BERKMAN:** No, please answer my question, Mr Dow.

**CHAIR:** Hang on. I am the one who gives directions here, thank you. Mr Dow is answering the question and if we do need some clarification we can go down that path.

**Mr Dow:** May I proceed, Chair?

**CHAIR:** Yes, you may.

**Mr Dow:** Let us be crystal clear: we have been working with the Queensland Department of Environment and Science and also the federal department of environment through the conditions that require the necessary steps and monitoring regimes to be put in place in order for us to be able to commence the mine. Those activities have been undertaken, including work required as it pertains to the identification of the Doongmabulla Springs. A range of techniques have been undertaken and we have provided that information to CSIRO, Geoscience Australia, the Queensland Department of Environment and Science and the federal department of environment.

**CHAIR:** Thank you. The time for questions has expired. We will just have a discussion about questions on notice. We will have a private meeting for five minutes.

**Proceedings suspended from 11.46 am to 11.53 am.**

**CHAIR:** The committee will resume. We had a discussion about the issue of questions on notice. We note the witness's response to the issue of questions on notice. The committee is satisfied that the answers have been given and note that we will not be placing those questions on notice.

**Mr Dow:** Thank you for your time.

**BARGER, Mr Andrew, Director, Economic and Infrastructure Policy, Queensland Resources Council**

**MACFARLANE, Mr Ian, Chief Executive, Queensland Resources Council**

**CHAIR:** I welcome representatives from the Queensland Resources Council. I invite you to make an opening statement, after which we may ask you some questions.

**Mr Macfarlane:** Mr Chairman and committee, I want to thank the committee for the opportunity to appear here today. The QRC is the peak representative organisation for the Queensland resource sector and its companies. Our membership encompasses gas and minerals businesses operating in the state's regional and remote communities as well as businesses that service that sector. In 2017-18 the resource industry contributed \$62.9 billion to the Queensland economy. That represents one in eight jobs and \$1 in \$5. In the same year the industry purchased goods and services from over 14,200 Queensland businesses and contributed to 1,260 different community organisations. Furthermore, the sector paid \$4.3 billion in royalty taxes to the Queensland government—and that was a record—and will be exceeded again on our predictions this year to the number of \$5.3 billion.

The bill proposes to prohibit thermal coal mining in the Galilee Basin. The QRC would like to express its deep concerns about the Mineral Resources (Galilee Basin) Amendment Bill and calls on the committee to recommend against passing this destructive and reckless proposal to ban thermal coal mining in the Galilee Basin. We agree that climate change is a critical global challenge which must be addressed by all parts of society. The resources industry is committed to being part of the global solution. However, this bill is a blunt legislative instrument which is unlikely to achieve that aim and will have significant negative side effects. This bill would fail to limit coal consumption, risk the jobs of some 316,000 Queenslanders who work in the industry and stunt the Queensland budget. Decisions about the state's resources are not to be made lightly.

The environmental impacts of mining are heavily scrutinised, and should be as well. All Queensland resource projects go through a rigorous assessment process to balance economic, environmental and social impacts. This process includes extensive stakeholder consultation and public feedback. It is a process that serves Queensland well and ensures an ongoing pipeline of investment. Regional job opportunities are few and far between, as many of you who live in regional communities, such as the one I live in also, know. Mining can and does provide highly skilled and highly paid employment opportunities for regional Queenslanders. Figures from the Office of the Chief Economist's December update show that if the six major coal projects in the Galilee Basin were to proceed they would create 13,900 construction jobs and 12,803 jobs during operations.

The global demand for coal is strong. Coal is forecast to remain at about 40 per cent of the total power generation in the Asia-Pacific region by the year 2040 under a scenario modelled by the International Energy Agency. If this bill were to be passed, coal buyers would turn to other countries to meet that demand, many with lower quality and higher emitting coal. Meanwhile, Queenslanders would miss out on job opportunities and the returns from the royalty taxes which pay the wages of teachers, nurses, police and the like.

Without royalty taxes from the resources sector, the Queensland budget would be in the red to the tune of \$4.6 billion. There is no magic source of money in Queensland. The budget depends on investment and production in the resources industry to fund new projects, whether they be roads, schools, hospitals or Cross River Rail.

The bill proposes to rip up existing mining leases in the Galilee Basin, and that would undermine the state's investment attractiveness. This would not be limited to the investments in the resource sector or just the Galilee Basin. It is a signal to investors that regulatory uncertainty is a major risk when evaluating opportunities in Queensland. As we saw last week, Queensland is already sliding down the Fraser Institute's confidence list, losing one place in the survey released last week. By contrast, Western Australia is now No. 2 on that list and knocking on the door of No. 1—a Labor government in a state that values its resources industries.

Climate change is a global challenge, and the resources industry is committed to being part of that global solution including through advances in technology, greater energy efficiency and supplying high-quality, low-emission resources that displace higher emission products. The QRC calls on the committee to recommend against the passing of this bill. Again, thank you for the opportunity to appear here today. I am very happy to answer questions.

**CHAIR:** Mr Macfarlane, one of the issues we talked about with the last witness was the modelling on royalties. Can you give us some more information on what that modelling has produced and how that modelling was done?

**Mr Macfarlane:** Mr Chairman, I am not privy to the particular modelling around the Adani project.

**CHAIR:** In terms of coal and the Galilee Basin.

**Mr Macfarlane:** In terms of Galilee, I am going to ask Andrew, who is our economic whiz-kid—backed by an economic whiz-kid as well so there are two whiz-kids—to give you an insight into how those royalties would work.

**Mr Barger:** Were you asking specifically about how you would derive an estimate of a future royalties stream?

**CHAIR:** Yes. This morning we asked our Acting Deputy Under Treasurer about modelling. We had an answer there and we are seeking more information. We were informed by the last witness that the Resources Council may have modelling on royalties and that would inform us of royalties from the Galilee Basin. Any more information you may have about the broader coal industry would also be appreciated. I am giving you a wide latitude there.

**Mr Barger:** An important point to make up-front about royalty taxes is that Queensland coal belongs to everyone. The royalty is a payment for that transfer of ownership. If you look at the last budget figures, we collect information from our members about their spending. The Queensland government collected about \$5.8 billion in royalties from the sale of coal. The employees who mine that coal—the direct employees of the industry—were paid about \$3 billion. The Queensland government is definitely a stakeholder in the industry.

Ian spoke in his comments about the importance of those royalties in the budget context at the moment where the state does not have many reliable sources of revenue. There is a range of figures in the submissions around royalties. You heard from Treasury this morning. They have a four-year estimates figure. They do not have a specific number that they can point to and say, 'That is the Adani effect.'

The reason you get a range in the values when you model royalties is that, clearly, you are dealing with a long time period. There has been some discussion already with the committee. The key elements are the exchange rate—you sell coal denominated in US dollars so the exchange rate will influence the Australian dollar price, which is what you pay royalties on—and the quality of the coal, so the higher the quality of the coal the higher the price you will get. Queensland has a three-tier royalty rate so, again, the higher the price the greater the share that the state government collects.

Then you are multiplying that all by the volume. A really important variable is: how quickly does production increase and what level does it plateau at? If we look at the projects in the Galilee Basin, using some estimates that we have drawn from the Treasury figures, it looks to us on a fairly conservative estimate about \$220 million a year would be the royalty stream you would get from the Galilee Basin, so a substantial amount of money.

**CHAIR:** We have discussed previously the effect on Queensland jobs and we have touched on, for example, the issue of automation. Queensland, as you have stated, is a world-leading practitioner in coalmining. Automation surely must be part of the calculations about the jobs impact of future mining. Does the calculation of automation feature in a lot of the modelling that we see for the resources industry?

**Mr Macfarlane:** I think it is fair to say that, in terms of the impact on the number of jobs, we do not see a significant change in that number of jobs. We do see a significant change in the skill level and the work environment. We see more highly skilled, technical people using the largest innovation operating these machines but from a remote source. A machine still has to be overseen. You do have situations where people can be removed from a more dangerous situation to literally an air-conditioned room.

In terms of the level of job impact going forward, we do not see a significant number at this stage, but we do see an increase in the skills level, which, as an aside, is why the Resources Council is so heavily promoting STEM—science, technology engineering and maths—in schools with great success, I will add as well.

If we look at the mines in the Galilee Basin, it is difficult to predict the use of automation. Automation certainly has some real opportunities underground but is used in open cut as well. We will need to see how these operations would pan out. If you were to say to me that in the short term we would see this as a non-automated region initially and over time—perhaps in a decade or so—they may evolve to a more automated system, but the impact on jobs would not be significant.

**CHAIR:** That automation and remote operation can be done regionally or a bit further afield—intrastate and nationally—is that correct?

**Mr Macfarlane:** It can be done from anywhere. Traditionally what happens is that it is either done at the top of the mine on-site from an air-conditioned office precinct—and there are a number of examples of that, particularly with remote dozers and the like—or it can be done from Brisbane, which is the case with some of the BHP operations.

**Mr WEIR:** Given that the Queensland Resources Council is the peak group for resources in this state, I was curious about any consultation between your organisation and the member for Maiwar in the drafting of this bill.

**Mr Macfarlane:** No, we had no contact with the member.

**Mr WEIR:** As you are well aware, no compensation is offered for the expiry of these leases. How would that affect international confidence? As you mentioned, there is quite an onerous process to go through now and I could readily name a couple of mining organisations that are over 10 years and still going. What would the impact be?

**Mr Macfarlane:** The impact on sovereign risk would be not only on potential future investments in mines but also on potential future investments in Queensland per se, because it would be seen as a move by the government of the day to not offer the level of certainty that you would expect from a developed country such as ours, a First World country. That has to be seen also in the context that we are in a fiercely competitive environment in terms of attracting investment here. The Queensland government does have an investment commissioner who is out on the road constantly looking for investment opportunities. As well as that, Australia promotes Queensland through its various trade facilities and embassies. Any change in the sovereign risk profile and any fall in the attractiveness of investment will impact not only on mining but also on all projects including engineering projects and the potential of overseas companies to be involved in building roads and railway lines.

**Mr WEIR:** If this legislation were to proceed, would you envisage any legal action to try to recoup lost tenure or costs?

**Mr Macfarlane:** That is really up to the individual companies, but the most recent is interstate where leases have been removed and the state government has been forced to pay significant sums of money in compensation. It is difficult to surmise what that number might be, depending on the number of companies that did force compensation, but it will be a very significant number.

**Mr BERKMAN:** Can I clarify what interstate examples the witness is referring to?

**CHAIR:** We can cover that later. Are you foreshadowing a question?

**Mr BERKMAN:** No, I am wondering whether there can be clarification of the response that we have had to this question—the interstate examples the witness has referred to. Which are those where compensation has been forced?

**CHAIR:** Sorry, I am not understanding you.

**Mr BERKMAN:** The answer that the witness has just given to this question has referred to interstate examples where compensation has been forced or required. I am seeking clarification of what those examples are.

**CHAIR:** Okay. We will take that on board. We have touched on that briefly with the member for Ipswich West.

**Mr BERKMAN:** I am seeking to clarify if they are the same examples.

**CHAIR:** We will come back to you at the end. That will be one of the things that we can seek clarification on.

**Mr MADDEN:** Thank you for coming in today, gentlemen. I am glad that you raised the issue of sovereign risk, Mr Macfarlane. You have raised five primary reasons the Resources Council does not support the bill. One is sovereign risk, but it is No. 5 that I would ask you to expand on. It states—

The Bill unnecessarily restricts options available to address climate change by focusing on eliminating thermal coal, rather than reducing emissions.

I invite you to expand on that item.

**Mr Macfarlane:** Thank you very much. In terms of what will be the immediate impact of not mining the Galilee Basin, it will be that other coals will be purchased by customers, particularly in Asia, to take up the deficiency because we are not producing coal in the Galilee Basin. Australia is well renowned for high-quality thermal coal. The benchmark is Newcastle coal, which is sometimes as high as 6,500 kcal. You go from there to more average coal, depending, as the previous speaker said, on how much it is washed, which is somewhere between 5,000 and 5,500 kcal.

Compare that, for instance, to current coal produced in India, which is about half that thermal content so you have to burn twice as much coal. You have significantly more CO<sub>2</sub> emissions as a result of that. Along with increased CO<sub>2</sub> emissions from burning lower quality coal, some of those coals are very high in sulphur compared to Queensland and New South Wales coals, which have a very low sulphur content. There is a geological reason which I will not bore you with for that, but the reality is that coals out of Indonesia are known to be high in sulphur because of the volcanic activity in that region. That sulphur is turned into sulphur dioxide which, when it touches moisture, becomes sulphuric acid or acid rain. Across the spectrum, not only in terms of CO<sub>2</sub> emission but also in terms of particulate and other pollutants, the pollution impact is higher. Therefore, the environmental impact is higher and it runs counter to reducing global emissions.

**Mr MADDEN:** That clarifies that point.

**CHAIR:** I note that, due to our private meeting, I will extend our time for this session by 10 minutes.

**Mr BATT:** Mr Macfarlane, in your report to our committee you mention that you agree with the member for Maiwar that climate change is a critical global challenge and that the resource industry is committed to being part of that solution. You also agree with the member for Maiwar that this is a drastic piece of legislation and that the bill is sufficiently drastic to exceed Australia's climate change commitments. Can you explain what you mean by that as to why this bill goes beyond what you think we need to be doing?

**Mr Macfarlane:** We have a number of commitments which we have signed up to, the most recent being the Paris Agreement. In terms of the proposal from the member for Maiwar that takes into account issues that are not covered by the Paris Agreement—for instance, scope 3 emissions are not; Australia is not expected to account for scope 3 emissions; they are the emissions from the coal being burnt somewhere else in another country and we only have to account for the emissions that we produce in producing that coal, whether it be fugitive emissions from the coal seam itself or from the machinery related in mining it—it goes way beyond any international commitment we have, bearing in mind that Australia is one of the few countries that are on target to meet the Kyoto agreement in terms of its global emissions and is on target in terms of its commitment to reach the Paris Agreement.

**Ms PUGH:** I want to touch on the Glencore decision that was made last month, I believe, to cap coal production at 145 million metric tonnes per annum. In your view, what impact does this have on the future of the industry, given that this is a market-led decision?

**Mr Macfarlane:** The decisions of individual companies are decisions of individual companies. It is worth noting in the Glencore announcement that they allowed themselves room for growth in that—so it was a cap; it is not current production. They have not capped current production; they have allowed themselves a factor of growth in that as well.

In terms of the industry, the industry will meet the demand and will meet it under some of the strictest environmental mining standards in the world, and we will meet what the market is requiring in terms of tonnages. The coal market is not determined by Australian companies or companies operating in Australia. It is determined by people who want to burn coal, whether that is Germany, which still burns 170 million tonnes of coal per year—and it is very low-quality coal, I have to say, which is mud compared to ours—or whether it is India, which is seeing some significant growth in coal, or whether it is China, which burns three billion tonnes of coal per year. The coal market is determined by those who buy coal, not those who sell it.

**Mr MICKELBERG:** In your submission you talk about the thorough environmental assessment and ongoing regulatory framework for resource projects. The Carmichael project has gone or is going through that framework, but it seems to me that the goalposts for that project continue to change and this bill obviously is the most serious step. Do you think that shift in the goalposts is fair?

**CHAIR:** Just to clarify that, is that federal or state?

**Mr MICKELBERG:** I think it is definitely happening at a state level.

**CHAIR:** Are you sure it is not happening at the federal level?

**Mr Macfarlane:** I will answer it on a state basis, Mr Chair. I think the Carmichael mine in particular but also the potential Galilee projects are certainly worthy of close scrutiny. There are a whole range of issues which the industry is very cognitive of. We support the environmental requirements that are placed on the industry in general and, as you well know, supported the passage of rehabilitation legislation last year. That will be Australia leading if not world leading. We are certainly up for that.

In terms of some of the extensions to the environmental assessment process, we are surprised by them. We are particularly surprised by the extension of the inquiry and management of the black-throated finch, bearing in mind that the state government was working with the Commonwealth government in the assessment of that management plan, that it had been through I think six revamps or reviews. When the Commonwealth arrived at a conclusion that the management plan was satisfactory, the state then introduced a further set of reviews. I think that could be deemed as moving the goalposts. It certainly was not made clear to any of us, including the proponent, at the beginning of that process that this process would continue on and on, even after the Commonwealth had reached agreement.

**Mr MICKELBERG:** Why do you think those goalposts continue to move?

**Mr Macfarlane:** I could not speculate on that.

**Mr MICKELBERG:** All right, I will ask you a separate question. We heard last week from the Deputy Premier, who said that workers in thermal coal mines should reskill now due to a global move away from thermal coal. This morning we heard from the department, from DNRME, which said that global demand for thermal coal is expected to remain stable or increase, and that mirrors what you submitted earlier in your comments. I take it from your comments earlier, then, that you do not agree with the Deputy Premier's contention?

**Mr Macfarlane:** I do not agree with the Deputy Premier's contention. I was surprised that she was supplied information that she obviously relied on to make those statements. There is, as you say, growing demand in Asia for coal, particularly high-quality coal. The demand for very high quality coal—the 6,000 and above—in countries like Japan has seen a lot of the supply in Queensland and New South Wales locked up into the future, because they need that for their latest high-efficiency, low-emission power stations which they and most countries are still building.

In terms of the jobs in the mining industry, a mine that is operating today can be expected to operate in 30 years time and in some cases longer than that, so I thought the Deputy Premier's advice on what the job prospects were was counter to what we know to be the case. Coal exports last year were a record. Barring any natural disaster this year, we would expect them to be around that number again. In terms of the growth in exports in Queensland, they have grown substantially. If you look back over two decades, they have grown in multiples of tenfold—that is, if we look back to the nineties.

We are seeing a very substantial growth in the coal industry. There are over 1,000 jobs in regional Queensland vacant at the moment for people who have the skills to work in the resources industry, including the coal industry. I thought the Deputy Premier had been very ill advised on the information that she was given to make that statement.

**CHAIR:** Member for Maiwar, before you get to your question, can you clarify what you were asserting before.

**Mr BERKMAN:** I do not know if you were here earlier, but there was an example referred to by the member for Ipswich West where compensation was paid. Are you referring to BHP's projects—the BHP Caroonna exploration lease—where compensation was paid as part of a buyback of that exploration permit?

**Mr Macfarlane:** There is that example. There is also the example of a gas company in northern New South Wales that was paid significant—

**Mr BERKMAN:** A gas company, all right.

**Mr Macfarlane:** Well, they are resource companies. If you take back a resource lease, you are entitled to compensation—or that has been the case in New South Wales.

**Mr BERKMAN:** Governments have made decisions to provide compensation. These have not been court awards of compensation.

**Mr Macfarlane:** In the case I am thinking about—and I will supply the committee with the name of the company—significant legal action began before the state government agreed to make the compensation.

**Mr BERKMAN:** So no court orders, thank you. You refer in your submission to ongoing demand for thermal coal and you refer specifically to the IEA central scenario in making those assertions. Correct?

**Mr Macfarlane:** It is not just the IEA. We use a number of sources, including the Office of the Chief Economist.

**Mr BERKMAN:** The IEA is the one you have referred to in the submission, though. Are you aware that that central scenario that you have relied on there—and you might have heard the evidence earlier—will actually see a dramatic exceedance of Paris targets and will take us to something like three degrees of global warming?

**Mr Macfarlane:** Not by Australia.

**Mr BERKMAN:** No, I am talking about the scenario. It is a global scenario that you have relied on here, and that would see something like a three-degree warming globally. Do you accept that?

**Mr Macfarlane:** I am struggling to find the relevance but I will ask Andrew if he wants to comment.

**Mr Barger:** I was here this morning for the discussion around the IEA scenarios. At the risk of sounding like I am dancing around it, it goes back to the previous question a little bit. You can spend a lot of time worrying about global coal demand, but you heard some evidence from companies this morning about the markets they are targeting. They are not looking to sell into Europe and they are not looking to sell into mainland United States; it is South-East Asian demand so it is—

**Mr BERKMAN:** The picture that has been relied on in your submission, though, is the IEA scenario. Is that—

**Mr Barger:** No, hang on. Yes, we referenced that scenario. It is an independent body saying, 'In this scenario, we see a world where coal is growing.' You have also heard evidence this morning from EDO about some of the other scenarios where that coal demand falls away. The important distinction I want to make is: regardless of which of those worlds you end up in, it is not axiomatic that if global coal demand falls away by X per cent then Queensland coal demand falls away by the same percentage. It is a question that the committee has asked quite a few questions about.

It also relates to the carbon budget debate. Queensland coal is higher quality and it is produced under better standards so it attracts a premium. We have existing customers that have built long-life infrastructure based around that coal source, that fuel supply. It is not a homogenous product. You are not buying smarties on the open market.

I will get to the answer. The case of which scenario you subscribe to is interesting in terms of what global coal demand is doing. You may find that there are a lot of credible scenarios—if you look at the BP analysis, if you look at some of the things that Shell has done, where you find worlds entirely compatible, global coal demand may well be falling sharply at the same time as Queensland coal demand is growing strongly. That is what Ian is describing that we are seeing at the moment.

The quality and reliability of Queensland coal attracts a premium. Part of the reason that your bill is so disturbing is that it goes deliberately to the heart of that reliability of us as a fuel supplier by saying, 'You know what? We're going to change the rules and we're going to change the rules in a way where property rights are being overridden and they are being overridden retrospectively.'

**Mr BERKMAN:** Time is short so I will cut you off there. Very quickly, Wood Mackenzie is an institution whose research the coal industry relies on very heavily and is largely respected and accepted. Is that fair?

**Mr Barger:** Yes.

**Mr BERKMAN:** In terms of the analysis that has come out recently that shows that expansion into the Galilee Basin would actually cost jobs in the Surat and the Bowen Basin, you would readily accept that as being a very real risk of these projects expanding?

**Mr Macfarlane:** Not necessarily, because I think you are missing the point that Andrew has just made and we made earlier. This coal may, and most likely will, substitute for lower quality coal currently being purchased overseas.

**Mr BERKMAN:** But that is contrary to Wood Mackenzie's analysis. You know the report I am talking about.

**Mr Macfarlane:** I can say that economists were put here to make weather forecasters look good, but I will not trivialise the hearing.

**CHAIR:** I think both of you have made your points on this particular one. The time for this session has expired. We have one question on notice, which was the details of the company.

**Mr Macfarlane:** I will get you the name.

**CHAIR:** That is due by Monday, 11 March 2019.

**Mr Macfarlane:** I will have it for you this afternoon.

**Proceedings suspended from 12.26 pm to 12.57 pm.**

**BELL-JAMES, Dr Justine, Senior Lecturer, TC Beirne School of Law, University of Queensland**

**WARD, Dr Selina, Senior Lecturer, School of Biological Sciences, University of Queensland**

**CHAIR:** I now welcome Dr Justine Bell-James and Dr Selina Ward. Who would like to make an opening statement?

**Dr Bell-James:** I think we are going to share it. Our written submission has outlined that the exploitation of the Galilee Basin is at odds with science, international policy and law. We are going to briefly summarise some of these points today and also address a few things that came up earlier today.

Globally there is movement towards keeping warming at 1.5 degrees. That is the aspirational goal of the Paris Agreement. One degree of this has already occurred. We are pretty close to exceeding that guardrail already. I also wanted to point out that we heard a representative of the Queensland government this morning reiterate the government's commitment to reaching this goal.

Australia has a lot to do under Paris. There is one point of clarification I want to make. I think Sean Ryan said this as well, but I want to reiterate it. There is a distinction between the Paris goals and the Paris mechanisms. We want to get to 1.5 degrees, but what we currently have, both in Australia and globally, is not going to get us there. What we do have, though, is what is called the ratchet mechanism. Every five years countries have to make a new pledge and it has to be more ambitious than the last one. Every five years every country that is party to the Paris Agreement has to pledge to do more to get towards that 1.5-degree goal.

Australia is not meeting our current target. The UN's emissions gap report released a few months ago tells us that. The federal government's figures also show emissions continuing to rise. We are not meeting our current target. We need to make a more ambitious target. The other thing we need to think of is that other countries, including those that are potential markets for coal, also need to make more ambitious targets under the Paris Agreement.

If we look at emissions globally and use the carbon budget that Dr Dean from the Climate Council talked about—so I will not tread all of that ground again—there is only a very small amount of CO<sub>2</sub> emissions that can occur globally to give us any chance of staying within those climate targets. The carbon budget science has been calculated with regard to a two-degree target. We are now looking at an even more ambitious target. What the science tells us is that exploiting the Galilee Basin is completely at odds with this target, as is the continued global use of coal. I am going to pass over to Dr Ward.

**Dr Ward:** I would like to talk specifically about the Great Barrier Reef today. Dr Schindler earlier told you about the 2016-17 bleaching events and covered those really well so I will not cover those again. I would, however, like to clarify the 50 per cent mortality issue that was a question for later. It was 50 per cent mortality on the shallow reefs. The shallow reefs are the reefs that we all visit. There are deep reefs in the Great Barrier Reef, and these are between 30 and 125 metres basically. They are not ones that people visit. We are only in the infancy, really, of learning a lot about the composition and the way that those reefs work. It was a catastrophic event.

There are other effects of temperature. Coral disease is exacerbated by higher temperature. Reproductive modes are disrupted by higher temperature. Basically, fish biology is very badly affected by increases in temperature. It is not just bleaching, but this is one that attracts most of our attention. Unfortunately, in the past year we have seen papers in very highly ranked scientific journals telling us that the frequency of bleaching events has increased dramatically in the recent couple of decades and also that recovery rates have dropped quite dramatically. This is really bad news. We need recovery rates to continue to be effective following bleaching events, particularly if they are getting closer together. The Australian Institute of Marine Science put out preliminary data in January looking at a comparison between 2017 and January 2019 for 11 reefs and found that only one of these has increased cover. The rest have reduced their cover or maintained very low cover. This is disturbing.

There are other big effects of climate change. There is the increased intensity of cyclones which has caused a lot of mortality in recent decades. There are also increases in sea level rise. There is also ocean acidification. We do not talk about this much. This is a very big problem for oceans globally. So far we have had a 30 per cent increase in the amount of carbon dioxide in the sea since pre-industrial times. There are big changes there.

Apart from climate change, I would also like to consider the localised effects of the Galilee Basin mines going ahead. You will hear later this afternoon about the effects on water, which are important of course. We have heard a little about the black-throated finch. We will have problems with Brisbane

agriculture because we are going to have a rail line that runs through agricultural land, bisecting cattle-grazing land. There is also the fact that coal trains go through uncovered, so we get coaldust that leaves those trains.

If we get to the site of the port, the Abbot Point terminal, which is going to be expanded, we note that before the expansion we already had problems. We have large piles of coal that sit there waiting to be shipped away. This blows into the water. Before the expansion even begins, we now have toxic levels of some of the most harmful chemicals in the coaldust. Coaldust is a serious problem for marine animals. These chemicals have been detected for hundreds of kilometres across the reef already.

We have had two events recently where we have coal laden water end up in the Caley Valley Wetland adjacent to the port. They are home to tens of thousands of migratory birds. It has gone into the sea there as well. The two events were Cyclone Debbie and the recent flood events. Given the location of Abbot Point, these sorts of events are likely to happen again.

The port expansion will also involve dredging. In terms of dredging, we get increased sedimentation and pollutants both from capital dredging and maintenance dredging afterwards. We will have increased shipping, which of course increases the spills, collisions with the reef, introduction of exotic species, plus noise for the charismatic large animals that are involved.

It is really important for the future of the reef that we have good resilience of the reef. This means that everything else, aside from climate change, has to be as good as we can get it—water quality, protection, fishing regulations and all of those sorts of things. Clearly these port expansions do not help with coral resilience so it is a bad fit.

**Dr Bell-James:** I will speak briefly on a couple of points about the legalities associated with this. I think we can all agree that there has been a climate of uncertainty surrounding these projects in recent years. There has been a lot of litigation around them. If you look at the jurisprudence coming out of Queensland courts, we are edging closer towards climate change arguments succeeding. If you think there needs to be, say, six things that a court needs to be convinced of to find in favour of an environmental group, in each of these cases they are willing to find another one of those factors. We are inching closer to success. We of course have the very recent case in the New South Wales Land and Environment Court where the court upheld a decision to reject a mine on bases including climate change.

The market substitution defence has been the main hurdle in some of these cases. That is something that we have been talking about a lot today. That is this idea that if we do not dig up the Galilee Basin then someone else will dig up coal and that will be burnt instead and, in fact, that coal may be even dirtier. This has been a sticking point in a lot of the litigation.

There are a couple of things that we need to bear in mind with this. Firstly, the market substitution defence is inherently interwoven with demand for coal. We have tried to clarify that if we want to meet the Paris goals then we need to be moving away from coal. If we are moving away from coal globally then the market substitution defence entirely falls down.

The other thing to think of—and something that courts in New South Wales and the United States, for example, are beginning to challenge—is the fact that we are trading a known risk for a speculative risk. We are trading something that we know will have an impact on the environment for a project that may or may not happen at some undisclosed point in the world at some undisclosed time. There is that problem in terms of what you are substituting.

The other point I want to address briefly is the point that has been coming up today around fundamental legislative principles, property rights and the requirement to pay compensation. Firstly, to reiterate, there is no constitutional requirement to acquire property on just terms at the state level. The bill that we are talking about would remove the legislative entitlement to compensation under the Minerals Resources Act, which is not a constitutional right.

The fundamental legislative principles are a guide which can be derogated from if the circumstances demand it. This is an urgent global problem that we are dealing with—climate change. A representative of the department gave evidence today that there have been several instances of mining leases being revoked by legislative acts in Queensland without compensation, including a case where this was necessitated by the public interest.

The other point I want to make is that we are not talking about a case where a vulnerable landholder is having their house acquired by a large infrastructure project, which is really what the fundamental legislative principles are dealing with. This is a well-resourced multinational company

we are talking about that has extensive knowledge about climate risks and has chosen to invest in an industry at a time when there is a global push away from coal. That is something to bear in mind as well.

In summary, we and our colleagues who wrote the submission with us support the passage of this bill. We would say that it is a timely opportunity to be on the right side of history.

**CHAIR:** Dr Bell-James, it seems to me from reading through the submissions that the legal framework is starting to change when it comes to these issues. You have talked about jurisprudence. There are now an increasing number of legal precedents starting to emerge around taking climate change into account in making decisions; is that correct? Could you expand on that?

**Dr Bell-James:** In Queensland we had a situation just over 10 years ago where courts would not even accept climate change science. Through the course of cases in Queensland we now have courts that accept climate change science, accept that single projects are significant and accept that scope 3 emissions are relevant—the global burning of coal overseas is relevant and emissions must be considered cumulatively.

We have cases like, as I said, the recent one in New South Wales where a mine was rejected on grounds including climate change. The market substitution defence was also rejected there. The case in the US involving WildEarth Guardians, which I think Sean Ryan from EDO referred to earlier, was another case where the market substitution defence was rejected for the sorts of reasons that I mentioned earlier around it being speculative in terms of whether or not there would be something to replace the known impact that the court was dealing with.

**CHAIR:** In the Rocky Hill decision by Judge Preston the market substitution defence was specifically not taken up and scope 3 emissions were regarded as relevant. How can that translate to courts in Queensland taking notice of that? Is there any impediment to that Rocky Hill decision being taken up in Queensland?

**Dr Bell-James:** No. Both jurisdictions have legislation that requires the courts to have regard to a whole bunch of competing factors, and it is ultimately up to the court which ones they decide to prioritise. Even though we have all this acceptance of projects contributing to climate change, Queensland courts have then said that the economic benefits of projects outweigh that. We also have the 'if we do not do it someone else will' argument.

If the evidence starts to turn and the economics of projects start to become in doubt and we look at the fact that all of the cases we have in Queensland pre-date the Paris Agreement, pre-date the IPCC special report and pre-date a whole lot of things that have happened then there might be a different weighing up of where those factors should lie. Of course, that will also influence how the market substitution defence is interpreted—that is, whether or not there is this genuine argument that if we do not do it someone else will.

**Mr WEIR:** Have you had any involvement or been consulted in the drafting of this bill?

**Dr Bell-James:** No.

**Mr WEIR:** I turn to your comments regarding the FLPs. I value property rights very highly. You made the comment that this is a large company that basically should be prepared for that. Surely whether you are a large company or a single house owner here in Brisbane the principles should apply, not the size of your chequebook. Would you clarify that for me, because I am a little astounded by it?

**Dr Bell-James:** Certainly. It is not an issue about the size of your chequebook. I suppose the point I am trying to make is that we have the fundamental legislative principles for the protection of society, to make sure that parliament does not ride roughshod over people's rights. We have a case here where the climate issue has been known for a very long time and we have had the tide turning against coal for a very long time. We have had momentum at the international level for a long time.

Any large company that is making a decision to invest in coal is aware of this global climate and is aware of the fact that there are all of these things happening through international law and policy, and that should be something at the forefront of their minds. It is not a surprise, that climate change has just popped up and is an issue that governments might want to deal with; it is something that has been known for a long time. It is not the size of their chequebook; it is the knowledge.

**Mr WEIR:** That would apply across alcohol and across tobacco? You could apply that to a whole number of things to justify this removal of property rights?

**Dr Bell-James:** Can you clarify what you mean by that?

**Mr WEIR:** You are going back to a known risk. A known risk has a pretty wide scope.

**Dr Bell-James:** At the end of the day, the fundamental legislative principles are a guide. I think we had evidence from the government earlier today that there have been situations where they have made a decision to terminate mining leases on the basis of public interest. It is available to the government to make that decision. Climate change is a well-known risk. That is the highest I can put it.

**Mr MADDEN:** Dr Bell-James, my question is to do with this notion—and you have mentioned it a number of times—of the potential litigation against the Queensland government should this legislation pass. It is to do with sovereign risk et cetera. You mentioned the Gloucester case. One of the factors that the Chief Justice considered was climate change. In law we use terms such as ‘beyond reasonable doubt’ and ‘balance of probabilities’. I will use the word ‘likely’. If this legislation is passed, would you agree that it is likely that Adani would succeed in an action against the Queensland government?

**Dr Bell-James:** I really cannot think of any cause of action that they would have, certainly at the domestic level. As I said, there is no constitutional requirement for acquisitions of property to be on just terms for the state government. I am no expert in international law, so certainly I cannot talk to the ISDS issues there. However, I cannot think of any cause of action. I am sure your government can look at that, but it is not within my expertise. There is nothing that I can think of there.

**Mr MADDEN:** The explanatory notes to the bill state—

It could be argued that the Bill contradicts the FLP that legislation should not interfere with property without fair compensation unless there is a good reason.

There seems to be a lack of good reason.

**Dr Bell-James:** A lack of good reason? I would probably disagree with you on that perspective. Again, I will reiterate what was said this morning by the representative of the government that there has been a decision to do pretty much exactly what this bill is proposing in another instance on the basis of public interest. I think that would be a really interesting case for everybody to have a look at.

**Mr MADDEN:** It would be an interesting case.

**Mr BATT:** Dr Bell-James, you have mentioned the market substitution going from—and you mentioned the words—a ‘known’ to an ‘undisclosed risk’. Earlier we talked with different people in the room about Asia currently needing over one billion tonnes of coal a year. If our Australian coal is not going over there, it is not really an unknown risk. You do not just go from one billion tonnes of coal to zero tonnes in the next five years, so they do have to get it from somewhere else.

**Dr Bell-James:** Yes, they do have to get it from somewhere else, and obviously they are getting it from somewhere else at the moment. That is known mines that we are talking about. This bill is not intending to deal with known mines in Queensland. I suppose the thing we have to think about at the global level as well is that there are existing mines all over the place that are currently sourcing what is needed in terms of global demand in coal. The mines that are proposed for the Galilee Basin are looking at future demand for coal, and any hypothetical mine that might take the place of a Galilee Basin mine is one that is also dealing with hypothetical future demand for coal. That is really interwoven with all the movement that is happening at the international level towards reducing climate change and moving away from coal.

**Mr BATT:** These mines would also be getting this future demand from businesses in Asia that are already using other countries’ coal and substituting it with this Australian coal.

**Dr Bell-James:** I cannot talk to the specifics of that. I note there will be some colleagues from the Australia Institute and other groups appearing this afternoon who can talk more about that. You really just need to look at the market substitution defence in the context of demand. We are not looking at what demand has been; we are looking at what demand will continue to be.

**Mr BATT:** We would prefer that and get the extra carbon emissions from the dirtier coal rather than use Australian coal?

**Dr Bell-James:** That is entirely predicated on them wanting to continue to use that amount of coal. As I have said, countries that are party to the Paris Agreement have to continue ratcheting up their ambition under the terms of the Paris Agreement, so they have to continue to make more ambitious climate goals. I do not know how that all squares up, but it does not seem like it would involve coal use at the same rates that it has in the past.

**Ms PUGH:** We have heard a bit about the Paris Agreement from a number of witnesses and about the Queensland commitment to climate change. I am curious from a countrywide perspective, because the Paris commitment has a countrywide perspective. In Queensland we have a commitment  
Brisbane

to 50 per cent renewable energy by 2030. I am interested to hear if you think there has been a climate of uncertainty created by previous decisions. In 2016, then minister for the environment Greg Hunt overturned a Federal Court decision. Can you speak to the uncertainty or otherwise that that may have created in the federal market?

**Dr Bell-James:** In the federal market for?

**Ms PUGH:** For building projects such as this one.

**Dr Bell-James:** That is not something within my expertise. I think we will leave that for the speakers this afternoon.

**Mr MICKELBERG:** Does your submission represent the views of UQ or are they your personal opinions?

**Dr Bell-James:** They are our personal views.

**Mr BERKMAN:** We have heard a bit already about the Rocky Hill decision that was made in the New South Wales Land and Environment Court. Earlier, Mr Ryan took us some way through the reasoning that underpinned that decision and shifted away from the market substitution argument. For the benefit of the committee, Dr Bell-James, can you step us through the basic steps of the court's reasoning and how it came to move away from the market substitution argument?

**Dr Bell-James:** Sure. To convince a court that a project should not go ahead on the basis of climate change, you need to look at the legislative framework that they are operating within. The New South Wales legislative framework is similar enough to Queensland's in that there are a multitude of different factors that have to be considered, including the environment and public interest, as well as your obvious economic arguments. Justice Preston weighed up the evidence and found that the potential climate change impacts that would result from the project were sufficient to say no to it on that ground, amongst other grounds.

I suppose courts have treated the market substitution defence as a defence, really. You can make out the cause of action and then you have this thing that comes afterwards. Justice Preston's analysis of that, as I mentioned before, was that you have this known risk: you have a mine before the court that we know is going to dig up coal that we know will be burned and will have an impact on the climate. You are weighing that up against something that we do not know about, that we have no evidence of, that is speculative. That was the reason he was willing to reject that argument in that case.

**Mr BERKMAN:** You have spoken already about the difference between the broad, overarching goals of the Paris Agreement. We also heard from Mr Ryan how NDCs fit within that as the mechanism. Those NDCs will not achieve the goals of the Paris Agreement.

**Dr Bell-James:** That is right.

**Mr BERKMAN:** You spoke about ratcheting up. Can you tell us what that means for Australia as a signatory to the Paris Agreement and for every other signatory?

**Dr Bell-James:** Sure. The ratchet mechanism is probably one of the most important parts of the Paris Agreement, because, as I said, you have this goal that looks great on paper, that globally we want to move towards this 1.5-degree guardrail of warming, but then the mechanism that underpins that is not quite going to get us there. The ratchet mechanism is a requirement for countries to submit a successive NDC, a nationally determined contribution, every five years. Under the terms of the agreement, that new NDC must be more ambitious than the previous one. Every country that is a party to the Paris Agreement and has made their pledge—Sean talked a little bit about Australia's pledge being 26 per cent to 28 per cent by 2030—is required to submit something more ambitious by the time it comes to making a new pledge. Every country across the world that is a party to the Paris Agreement is required to successively do more.

**CHAIR:** At the national level, we need to have some clarification of how we get to that. It seems murky at the moment; is that right?

**Dr Bell-James:** It is murky how we are going to get there in terms of what parties have currently pledged, but it will be what is pledged in the future, I suppose, as to whether that all adds up and gets us to the end game that we need to get to. I suppose the relevant point is that every country that is party to it is going to need to do more and more, and transitioning away from coal is going to be an integral part of that.

**CHAIR:** The time for this session has now expired. No questions were taken on notice. Thank you very much for your time today, Dr Bell-James and Dr Ward.

**JEREMIJENKO, Dr Andrew, Specialist, Occupational and Environmental Medicine, Mater Private Emergency; Doctors for the Environment**

**KOCHMANN, Dr Karin, General Practitioner; Doctors for the Environment**

**WATT, Dr Lucy, Career Medical Officer, Emergency Medicine, NSW Health; Doctors for the Environment**

**CHAIR:** Would someone like to start with an opening statement?

**Dr Kochmann:** Thank you for the opportunity to address this committee. Doctors for the Environment Australia represents over 1,000 Australian doctors. We work with the AMA, the Royal Australasian College of Physicians and other specialist colleges to increase awareness of and advocate for action on the most pressing health issue of our time: climate change. A stable climate, clean water, clean air, food and shelter are the basic determinants of health—things we take for granted until they are no longer there. We support this bill for the reasons outlined in our submission; namely, the negative health impacts from the climate crisis and the negative health impacts of coalmining, both in Australia and India, by air and water pollution, water scarcity and environmental degradation.

The evidence for climate change is now unequivocal, but the link between climate change and health is often not appreciated. It is our role as health professionals to make these connections clearer. The increased frequency and intensity of extreme weather events not only risk direct physical injury and death but also increase incidents of medical events with heatstroke, heart attacks, strokes, asthma and other respiratory illnesses. In addition, there are the mental health repercussions of depression, anxiety, post-traumatic stress disorder and suicide, which take a toll not just on the individuals but also on families and communities.

Crop and livestock losses threaten farmers' livelihoods and drive up food prices, which impacts on people's nutrition and health. In the decades to come, food security is under threat. Right now we are seeing catastrophic floods, storms, heatwaves, bushfires and severe drought on unprecedented scales. As well as the weather events, we are reporting melioidosis from the Townsville floods, dengue as far south as Gladstone, thunderstorm asthma, and water insecurity in townships on the Murray. Those are not just vagaries of the harsh climate we have in Australia.

The *Lancet* has characterised climate change as both the biggest threat to human health in the 21st century and also the greatest global health opportunity. The *Medical Journal of Australia* and the *Lancet* have collaborated to produce Australia's first Countdown report on health and climate change. They concluded that a lack of effective Australian climate change policy threatens lives.

We commend the Australian government for leading the way with its Health and Wellbeing Climate Adaptation Plan, but it is an ethical as well as an economic imperative to do more to avert and mitigate the climate disruption and related health threats that the very strategy anticipates. We have the know-how; we just need the political will.

**Dr Watt:** The federal and state governments have both committed to action on climate change, yet they continue to support mining in the Galilee Basin. For us, this demonstrates a serious disconnect between policy and politics. To remain within our carbon budget and to honour our Paris Agreement, 90 per cent of our coal needs to stay in the ground. The lights do not have to go out, as advances in technology enable us to transition to renewable energy solutions as we phase out coal.

With regard to the argument that Australia contributes only 1½ per cent of global emissions, it is good to remember that our population comprises only 0.33 per cent of the global population. Not to include our exported coal and gas in our carbon budget is deceptive. By including it, our contribution more than triples to over 4.5 per cent of global emissions.

Air pollution is the other issue that is of grave concern to us. It is now well understood as a very important contributor to non-communicable disease deaths such as strokes, heart attacks, cancer and emphysema. It is our children who bear the brunt of exposure to air pollution, starting as early as the embryonic phase. The cost of reducing air pollution is more than offset by savings in healthcare costs and lost productivity.

The twin fallacies of economic benefits and job creation, which are promoted by detractors of this bill, need to be addressed. The indirect economic costs of coalmining are conveniently forgotten. These are the social costs of carbon. The social cost of carbon is a measure in dollars of the long-term

damage to the environment, to human health and to property that one tonne of carbon dioxide emissions can do in a given year. For Australia, that value is approximately \$58 per tonne. These externalised costs are not borne by the mining companies but by society through our taxes and our suffering. For the Galilee Basin the social cost of carbon is estimated to be anywhere between \$18 billion and \$24 billion Australian, which I think is significantly greater than any royalties received by the Queensland government from mining companies.

Lastly, employment is the backbone of a healthy community, yet the prospects of fewer than 2,000 jobs promised by the Carmichael coalmine pale against the 65,000-odd jobs that are at stake from lost tourism on the Great Barrier Reef. Farmers depending on water will lose their livelihoods, as watertables in the Great Artesian Basin fall and rivers dry up. Employment in the renewable energy sector is far more conducive to thriving, healthy communities than the boom-bust effects of mining development and fly-in fly-out work.

**Dr Jeremijenko:** I am a bit different in that I work for companies. I have been the chief medical officer for Woodside. I have worked for BP. I have lived in Indonesia for eight years. I have worked for coalmines in Indonesia. I advise companies on risk management in the health area. For instance, with automation, I would be advising that companies should get automated. It takes coalminers away from the coal dust that causes black lung. It takes them away from the diesel fumes. They are healthier if they are in an air-conditioned office than if they are in a coalmine. For Adani to say what I heard them say—that they would not be automating at all—I would say that that is ignoring occupational health and safety risks. It is important to automate. It is important to protect your workers.

I also have concerns about black lung. You have all been through the parliamentary inquiry about black lung. We now have over 100 cases or so in Queensland. It is a recurrence. I have two brothers who work in a coalmine and my son was given a job in a coalmine by one of my brothers. I have skin in the game and I want them to protect our workers. Black lung is increasing across the world. It is in America as well. We need to ensure that the coal companies take the necessary steps to ensure that it is reduced, that it goes back to where it was.

I have talked about coalmines. I went to Dutton Park today and I picked up this piece of coal that was at Dutton Park station. As you know, the coal trains still come through. I checked if I could bring this in and they said that it was okay here. I know in Parliament House it is not allowed. I think now you should be scared of this piece of coal. You should be afraid of it because, politically, it is not good to get pictures with coal. The community is beginning to become concerned about coal and its impact on climate change. You have to be careful about getting pictures with this piece of coal.

It came from Acland. I talk to my brothers sometimes about why they are working, because they could get other jobs. One of my brothers was a science teacher. He could go back to science teaching, but it would cost him money and he has got divorced and has two kids. He wants to have as much money as possible. My other brother worked in the Army. He is a major. He could easily get a job there. Again, they are not going to move across while they are getting all of this great money from the coalmines.

It is a bit like when you are talking to a person about health. You might have a person who is a bit overweight, who likes his cigars, and you are trying to tell him, 'You have to change. You have to think about having a healthier lifestyle.' Sometimes people will know the evidence, but they will not act. You have to try to work with that person. I would still treat that person. Even if they say, 'Look, I'm not going to do anything. I like my cigars, I like my fatty meals. I'm not going to do anything.' I will still treat his hypertension. I will still try to act to ensure that his health is protected. Likewise, if they want to act, I would help them by sending them to dietitians.

I see your job as being like doctors. You have an ability to convince Australia to move in a healthy direction by legislation or by other things. It is not going to be easy. You might get a lot of resistance from many people, but do not give up. Do not treat people because they are not cooperative. You still have to try to get them on that healthy path. I really think that is what your responsibility is—'Try to avoid this path (piece of coal in hand), because it is not a healthy path.' That is what we are trying to say.

**CHAIR:** Thank you, doctors. I will start off with questions. First of all, thank you for appearing. We have never had Doctors for the Environment come to our hearings. We appreciate that. You have certainly brought the different perspective of health risk. That is something that we have not heard before. In the last session we talked about the legal framework that has been shifting. You are saying that, in terms of the risk management framework, health is one of the issues that we need to focus on with this activity. Is that correct?

**Dr Jeremijenko:** Correct. They have to focus on the local area—the air quality within the mines. They also now have to consider a larger area as well. There is a debate about something called no safe threshold. In other words, the more air pollution you have, the more illness we are seeing. It is all done through epidemiology and statistics—strokes, heart attacks. If you live close to a main road, the products of combustion are now associated with increased risks of these diseases.

The problem is that air pollution is invisible, even in the mines. Sometimes the miners come out with black stuff all over their faces. You can see that they have been breathing in black dust. Even sometimes with open-cut mines you think, 'There's no risk there,' but there is risk. It is an invisible risk; you just do not see the black dust as well as you do in the underground mines.

**Mr WEIR:** I can assure you that there is nobody on this panel or, I do not think, in this parliament who does not take black lung very seriously and who has addressed it and who will continue to address it. It is a real problem. Have you had any consultation on the drafting of this legislation?

**Dr Jeremijenko:** No.

**Mr WEIR:** We have heard today that there is still demand from other countries and they will continue to burn coal. If they do not get it from Australia, they will get lower-quality coal, which will make more pollution and have more effects on health in those countries. Where does our responsibility lie? If we do not export and they burn dirtier coal, are we absolved from that? Do you see where I am going?

**Dr Jeremijenko:** I see where you are going. I think about my experience in Indonesia. The air pollution there was terrible. It was awful. I have worked in China as well and the air pollution there is terrible. A lot of that is due to the burning and the exhausts from factories and also from car pollution. It is having health impacts. I think, yes, we have to address the impacts of air pollution. We have to try to maintain good air quality in our cities. I do not want us to end up like China. I was living in Jakarta. I do not want to be able to not see across the street.

Interestingly, there are other impacts as well. I want to bring this up, because it is not something that is often talked about. As a guy who has worked in coalmines in Indonesia, Port Hedland and Karratha with Woodside, wherever there is a mine there is also a sex industry. The sex industry supports a hyper masculine workforce. You often find brothels around towns. It has a social impact. I treat the diseases so I know that people are having sex with these people and I am giving them antibiotics to treat it. I am saying that there are a lot of externalities that are not factored into coalmining. It is not only coalmining and air pollution but also things like sex workers who are around the mines. That has a health impact as well.

Your point is that, if they use our coal, it will be cleaner than other people's coal and so there will be less air pollution. My view is that it is the drug dealer's defence—'If you don't get nice clean drugs from us, someone else will give you dirty drugs.' I just do not think that is a good defence. Air pollution is a problem. We need to address it. We need to have standards and legislation in place to reduce the risk. I do not think that we should go to that drug dealer's defence of, 'We will supply the drugs because our drugs are cleaner than your drugs.'

**Mr MADDEN:** I am fascinated by your submission. As the chair said, this is the first time we have had your group make a submission and to hear particularly Dr Jeremijenko speak about the broader aspect of health related to mines. I invite you to tell us a little bit more about your organisation. I see that you are based in South Australia.

**Dr Watt:** No, we are a national organisation. Each state has a committee, but we are a national organisation. Basically, we are an NGO that is committed to making the link between health and the environment a little clearer for people who often do not appreciate how our health is impacted by an environment that is not supporting us adequately. That is our primary role as an organisation.

**Mr MADDEN:** I am looking at the bibliography with your submission. It is very detailed. I would like to thank you for that. Your position is clear. You have certainly raised issues beyond the terms of reference of this committee. I would like to thank you for that.

**Mr BATT:** I will follow up with a similar question that was asked by the member for Condamine. Page 6 of your submission talks about negative health impacts. It states—

In India, where coal from Adani's mine is destined to be burnt, coal-fired power stations contribute to air pollution that leads to the premature deaths of an estimated 1.1 million people per year and affects many more with minor and major illnesses.

Surely, as we have just talked about, that is the lower grade, high-sulphate content coal. If we have high-grade low-sulphur content coal, some of these 1.1 million people are not going to die.

**Dr Watt:** I think it is a short-term argument if we are saying that we are going to send them coal that is of a better quality, that we are going to reduce the impact of air pollution. It is still going to be air pollution. It is just to what degree. It is still going to be CO<sub>2</sub> emissions.

In the long term, when we talk about CO<sub>2</sub> emissions and our carbon budget, the carbon budget is finite. We are burning our way through it really quickly. Whether the CO<sub>2</sub> comes from so-called clean or dirty coal is really a very-short term argument, because, in the long term, it is CO<sub>2</sub>. It is going to the budget and it is causing climate change.

**Mr BATT:** If these countries want to jump on board the Paris Agreement and try to reduce their CO<sub>2</sub> emissions—and, yes, it does not reduce it to zero but it could reduce it by, we have been told, at least 20 per cent by using cleaner coal—should we not be helping them do that?

**Dr Watt:** I do not think we are necessarily helping them by offering them so-called cleaner coal. As I understand it, that coal still has to be washed and processed, because it is not as high quality coal as is usually available in other areas of Australia, for example. I think there are a lot of arguments to be had about the benefits of so-called cleaner coal that we would be sending them.

**Dr Kochmann:** Taking a step back, as doctors we are not specialists in the field of energy production, but my understanding is that solar energy has become cheaper. To create new sources of electricity generation, it is actually cheaper these days to set it up as solar energy and renewables than to build new coal-fired power stations.

**Dr Jeremijenko:** On that point she was raising, I guess what Adani was saying is they can clean their coal. The other side of that is that you have to use more water to clean the coal and that means draining more water from the Artesian Basin or the river systems or whatever other system they get their water from to clean their coal, so everything has a cost. If you want to provide these nations with cleaner coal, that is draining more water from our farmers for instance. We obviously would prefer people move towards a cleaner system that causes less pollution and cars that do not have exhausts and move away from diesel fumes. There are so many things we can do. Sometimes maybe taking away a source will force them to look.

When we have a patient who comes in who does not want to do anything if he has heart disease, sometimes we have to talk to the wife and we have to say, 'Look, you're going to have to take away his fatty meals so that he can live longer and keep making you some money.' You have to try different ways and approaches to get countries to think. I think you are struggling with things that we struggle with every day. How do you implement what science is telling you to do when people do not want to implement them? I get that. I cannot convince my brothers to quit out of the coal industry. I know how hard this is, but do not stop trying.

**Ms PUGH:** My question is in your area of expertise regarding patient care. Obviously you have spoken about the impacts of climate change. We have had a couple of record hot summers. In terms of your patient load, I am wondering what you are noticing with regard to what you are treating and if you are seeing heat related and climate change related conditions like heat stress and other sorts of things increasing in your patient care workload?

**Dr Watt:** I can answer that from the perspective of working in an emergency department. We have just gone through a mini heatwave where I work and we have seen particularly older members of society suffering. If we have two or three days of extremely hot weather they start to develop problems such as dehydration, renal failure and there is an increased likelihood of them having heart attacks and strokes while they are suffering through the heatwaves, and we are also seeing the impact on smaller children who cannot thermoregulate properly and when it is very hot they struggle to maintain their temperatures. They are also presenting with dehydration and effects from heat stress.

**Ms PUGH:** Just to clarify, when you say 'smaller children', are you talking five and under? Would that be correct? Are you referring to just under primary school age or are you talking small babies?

**Dr Watt:** Yes, mostly babies. It is babies who cannot thermoregulate properly. Older children are a little bit more able to drink when they are thirsty and that kind of thing and make adjustments for themselves, but young babies are very vulnerable to heat stress.

**Mr MICKELBERG:** I want to expand on the question earlier with respect to the health impacts and in particular with regard to the trace elements from coal. Dr Jeremijenko, earlier you described harm minimisation and treating a patient as best you can within the circumstances you have. Given that we know and the evidence before the committee is that the coal from the Galilee Basin is below Australian averages for trace elements and other harmful chemicals like sulphur and is up to a quarter of world averages, would a harm minimisation type strategy fit with the logic that says that that coal

would be better supplied? Setting aside the ideological argument that says that we would prefer no-one burnt coal, if someone has to burn coal would it be better that we burn coal that has lower amounts of trace elements and sulphur as opposed to a higher amount?

**Dr Jeremijenko:** Your rationale seems sensible, but really the epidemiology is a lot more complex than that. In terms of coalmines, we have had a number of floods, for instance, in Queensland and during those floods they have to release water into the river systems under TELs, temporary emissions licences, and at that time the water got into the coalmines, it became acidic, it leached out the minerals and then it was released into the rivers and in Rockhampton and a number of Central Queensland towns the water supply was affected because of the minerals in the water and because of the taste and salinity and all these other issues. In actual fact, Ensham mine caused some problems with the water as well.

I guess what you are saying is if you give them cleaner coal by washing it more here then that is great for over there, but again there is a risk over here that we are going to have more of the minerals and things here that have been washed out in the coal because we have had to do that to make it more pure. Again, you are saying, 'Make them cleaner but we'll take the risk ourselves.' This is what it always is in medicine. You often have a balance of risks. You are trying to work out how we are going to do this and now the balance of risk is clear that renewable energies are trumping coal particularly.

**Mr MICKELBERG:** Presumably the environmental controls that exist in Australia would be harsher and/or superior to those in less developed countries. For example, I would rather you do surgery on me at the Mater Hospital than go to a Third World country.

**Dr Jeremijenko:** In Indonesia they had contract wives, so you could get a wife who would live with you and supply all the services because there are no rules about that sort of thing. You cannot have contract wives here in Australia. What you are saying is true in that we often export all our things offshore to Vietnam and China because they have poorer occupational health and safety standards and their workers are in a lot of trouble. In fact, I have taken a job in Qatar because I know I am going to do more good over there because they are using all of these poor workers and they are not treating them as well as we do our workers. Yes, I think there is an argument that Australia does do things better, but it is coming at a cost. We are big coal producers and it is having an impact on our image and it is taking our water supply from our farmers.

I was involved with the Acland case which they lost on groundwater. I was the expert witness there. We talked about the air pollution and the noise that affected the farmers. There were a lot of issues there. When you approve a coalmine here in Queensland maybe we are helping overseas, but you are not really helping the people who live around that coalmine and you may be impacting our food security, our water security and many other things as well. You have to get the risks right. It is not as simple as, 'We've got cleaner coal so we're better.' You are saying, 'We're going to take the risks and we're going to put that on to our community so that India and Indonesia can be a little bit better in their air pollution.' I do not know whether that is a sensible thing.

**CHAIR:** Member for Maiwar, you can wrap it up very quickly.

**Mr BERKMAN:** Thanks, Chair. Super high level. Dr Watt, you discussed before the concept of the social costs of carbon. I am just wondering—and the answer may be that there is none—if there are any reliable or high-level estimates of the—it may not be quantifiable but broadly—health costs associated with climate change? Have there been any attempts at quantifying that for different degrees of climate change?

**Dr Watt:** I have not seen anything that directly relates to the health costs.

**Mr BERKMAN:** It is a very big question.

**Dr Kochmann:** We would have to take that on notice.

**Mr BERKMAN:** That would be great.

**Dr Kochmann:** That would be interesting to take on notice.

**Mr BERKMAN:** Thank you.

**Dr Watt:** There are so many different implications and repercussions to health that it would be quite hard to just give a packet figure for it, but we can certainly see what we can find.

**Mr BERKMAN:** I would appreciate it.

**Dr Jeremijenko:** I think there probably are some costings in various areas, but again we would need to take it on notice and get that back to you.

**Mr BERKMAN:** Thanks so much.

**CHAIR:** Thank you. That question on notice was about the health costs of climate change. The answer to that would need to be provided by Monday, 11 March 2019. The time allocated for this session has now expired. Thank you very much for your time today.

**CAMPBELL, Mr Rod, Research Director, The Australia Institute (via teleconference)**

**HUGHES, Mr Travis, Researcher, The Australia Institute (via teleconference)**

**SWANN, Mr Tom, Researcher, The Australia Institute (via teleconference)**

**CHAIR:** I welcome representatives from The Australia Institute. I invite one of you to start with an opening statement.

**Mr Swann:** I want to begin by thanking the committee for this opportunity. We would like to speak briefly to some of the points we have raised in our submission. I have had the pleasure of listening to proceedings earlier today and I would like to respond to a few things that have been raised and then we are very happy to answer your questions. The Australia Institute is a public policy think tank based here in Canberra. We have an extensive range of research on climate change and energy and in particular the question of coalmining and coal exports, looking at economic and political issues in this area. Our submission is really based on our extensive research in this space, in particular three reports which we have submitted to the committee, but our submission draws out some of these key points.

The basic point that we would like to bring today is that there is a fundamental contradiction between Australian federal and state government policies on climate change and policies on coal production. Australia is committed to the Paris Agreement, which requires a reduction in global demand for coal, while Australian governments have been promoting growth in coal production and exports. Whilst this bill is not necessarily the best solution or a perfect solution by all means, it should be supported as a step towards reconciling climate policy and coal policy. The first point I want to raise is that this would be an example of what is called supply-side climate policy. Historically in Australia and under the Paris Agreement, countries have been making pledges regarding emissions produced within their countries, allowing them to continue to export more carbon and contributing to more climate change through their exports. This is really cutting with one arm of the scissor. In economics we have two arms of the scissors—supply and demand—and we should be making use of both of them.

This is outlined in more detailed in a report published in peer review journal 'Cutting with both arms of the scissors: the economic and political case for restrictive supply-side climate policies'. Very briefly, there is a range of economic benefits of supply-side policies. They have low administrative and transaction costs, but it is essentially because they are very simple and they are very easy to monitor. They have price and efficiency effect. You have already heard some of these arguments earlier today. By restricting supply of a product, you push up price, discouraging its use. In doing so, you avoid lock-in. Climate change is a long-term problem, but infrastructure lasts for a very long time. Once the coal export infrastructure gets built, there is a risk that either it will be used at below its long-run marginal cost of production, which essentially is good for nobody, or it will end up being stranded assets, which is a waste of capital. Finally, it mitigates the green paradox. This is the idea that carbon producers who think that there will be a future policy to reduce carbon emissions may produce more quickly in the short term to avoid the future policies, and supply-side policies can work against that.

Moving to the next part of our submission, this is based on a report called *Never going to dig you up: modelling the economic impacts of a moratorium on new coal mines*. This was an extensive macro-economic model with the Victoria University Centre of Policy Studies, a very respected modelling outfit, looking at the impact on the Australian economy of a moratorium on all new coalmines. It found essentially that there would be very little impact on GDP, exports or employment. GDP would be affected by just 0.6 per cent in 2040. The coal industry is very capital intensive and not particularly labour intensive. As a result, there is a difference in employment that peaks at 0.4 per cent in 2030 and then the gap closes again. The effect is slightly more pronounced in Queensland, but even in Queensland it is a small effect as coalmining is a small employer, even in Queensland—only around one per cent of the workforce. Coal exports are significant to exports, but having a long transition period allows our export profile to adjust with minimal ongoing impact.

The next part of our submission looks at this social cost of carbon, and I understand you were discussing this just before. The social cost of carbon is a calculation of the cost imposed on society at large globally from each tonne of CO<sub>2</sub>. This has been calculated by the US Environmental Protection Agency at US\$42 a tonne in 2020. This is a midrange, very conservative estimate that increases over time. Applying this to the production from the Galilee Basin, we estimate a social cost of carbon of between \$18 billion and \$24 billion per year of production. These are the climate

damages that are imposed and not paid for by this production. To be really clear, the economic costs of doing something about it are rather minimal, but the economic costs on society at large from allowing the Galilee Basin to go ahead are very substantial.

Turning now to the final part of our submission, this was based on previous comments from the coal industry and lobby groups. It applies to a lot of what we have already heard today in the inquiry. These are the comments about coal and employment. We have heard a lot of talk about forecasts from the IEA. Anyone who talks about forecasts from the IEA is generally misusing the data. The IEA World Energy Outlook does not produce forecasts; they are very explicit about this. It states that it 'does not aim to forecast the future.' It is a scenario based on policy assumptions. In the new policies scenario it assumes that the world does not take sufficient action to reduce climate change. In the sustainable development scenario we get ongoing economic growth, universal access to modern energy everywhere for everyone, reduced pollution and success under the Paris Agreement. In this scenario, which is clearly the scenario we should all be aiming at, we have a dramatic reduction in coal demand. It is not surprising that the coal industry would rather point to the new policies scenario because in this scenario we do see an ongoing coal demand in the traded markets, but in the sustainable development scenario, coal demand decreases substantially, and this is the scenario that we should be aiming at.

Finally, I turn to claims about employment. There have been many claims about the jobs from the Adani mine, and these have changed depending on which audience the Adani company is speaking to. In public it has made very large claims of up to 10,000 jobs. In court it was much less and in the financial press talking to investors the head of Adani in Australia said that the mine would be automated from mine to port; this is the mine of the future. There were also stories in 2015 about buying driverless trucks. We are very confused by the evidence earlier today that Adani was not contemplating automation given comments from their CEO previously that this is what they intended to do.

If I can make one final point regarding supply and demand, we hear lots of claims that if we do not export the coal, someone else will. At the same time, we hear claims from the LNG industry at the moment that we need to increase the amount of LNG that we export in order to displace coal. Very clearly, both of these claims cannot be accurate. Either what we do or do not export does impact world emissions or it does not. If it does, as the LNG industry is saying, then we should be reducing the amount of coal that we are exporting in order to reduce emissions.

I bring your attention to the comments from the federal Minister for Resources, Matthew Canavan, at Senate estimates recently. He pointed out that many other coal-exporting countries are using their coal more domestically. He said that alternative sources of supply in the region are limited. If this is correct—and I am not sure that it is correct—it means that Queensland in particular has a very big opportunity to impact world emissions because there is limited scope for substitution. That is pretty much all I would like to go through. I welcome your questions.

**CHAIR:** We touched on this briefly. You said there was a fundamental difference or a mismatch between federal and state policy and mechanisms. Can you expand on that?

**Mr Swann:** The point that we make in our submission is that there is a mismatch between stated commitment to the Paris Agreement—which, if it is to succeed as a global agreement, will require dramatic reductions in coal use—and policy at both the state and federal levels, with Queensland and New South Wales being the main coal-exporting states. Also at the federal level they have generally sought to promote the increase in coal exports.

**Mr Campbell:** I want to pick up on that point. If we are to meet the Paris Agreement, IEA analysis shows that coal demand and coal trade will go into steep decline and yet none of our state or federal government agencies conduct any analysis on similar scenarios. We have heard earlier witnesses make reference to the Office of the Chief Economist. The Office of the Chief Economist makes no assessment around Australian coal export volumes under a Paris agreement like scenario as the IEA does, neither do state agencies that I am aware of or that are publicly released in Queensland or New South Wales. While there is not often an explicit state government policy to increase coal exports—or there have been in the past; certainly the Newman government's Galilee Basin development plan explicitly stated a goal to increase coal exports. While it has not been recently stated explicitly, the machinery of government at a federal and a state level is still clearly operating in a way that paints as the norm ever expanding coal exports.

**Mr Swann:** If I can make one final comment, we heard in the first session today—or maybe it was the second session—Queensland public servants claiming that the new policies scenario was the Paris scenario. That is a pretty basic bit of information about the scenarios on which coal exports were to be justified. It was somewhat concerning to hear them make that pretty basic error.

**Mr WEIR:** If you have been listening, you will know what I am going to ask straight away. Were you consulted in the drafting of this bill at all?

**Mr Swann:** I certainly was not.

**Mr Campbell:** No. As research director, I do not think anyone at The Australia Institute was consulted regarding the drafting of the bill.

**Mr WEIR:** Amongst your statements there I did not hear anything about the actual extinguishment of any existing leases. To me it is extinguishing a property right. Do you believe using the heavy stick of legislation is justified to achieve this outcome?

**Mr Swann:** I certainly do. As we outlined, the social cost of carbon from the coal, from this very large resource, shows potentially tens of billions of dollars worth of damage per year out of the Galilee Basin that would not be paid for. If it were to be paid for, it almost certainly would not be going ahead as a development. I also note from the explanatory statement that comes with the bill that it is difficult to see how the cancellation of a mining lease and a permanent ban on all coalmining on that same land would qualify as an acquisition. We are not lawyers; we are public policy experts rather than lawyers. I see the sense in that statement. The Queensland government would not be acquiring the land in order to mine the coal itself; it would be preventing any coalmining on the land, so it is difficult to see how that would be an acquisition. Finally, I would point out that the Queensland government has previously extinguished mining leases without compensation.

**Mr WEIR:** It would be an extinguishment of a current right though.

**Mr Swann:** It would be an extinguishment of a current mining lease; yes, that is correct.

**Ms PUGH:** I note in your opening statement you spoke about some comments made by Senator Canavan. I noted that a few weeks ago Senator Canavan, who is also the resources minister, actually passed comment on Glencore's decision to cap their production of coal. In terms of ongoing security and stability for the overall energy sector going forward, do you have any concerns? Do you think there is an impact that comes from politicians running commentary on specific issues in this industry?

**Mr Campbell:** I think a resource minister will always make comment on the resource industry, and I think that is fine. I think part of his comment was that Glencore was acting in its own self-interest, which underlines the point we have been trying to make that reducing coal supply is in the interests of Australia's existing coal producers.

This is not new territory for Glencore. Glencore spoke out in 2015 opposing NAIF money or other forms of subsidy going to Adani in the Galilee Basin. They are certainly not alone. We have seen a fair bit of analysis come from the port of Newcastle. I think there was some discussion earlier about the port of Newcastle commissioned analysis from Wood Mackenzie. There are some heavyweights of the coal industry all saying the same thing, that existing coal supply is more than enough to supply the existing market for quite a long time and that restricting supply will keep prices higher and benefit the existing coal industry. That is the best way to assist existing investors and communities that work around coalmines get ready for an inevitable transition to a future with lower coal exports, lower coal production: keep those existing mines operating for longer than would be the case if the Galilee Basin was fully exploited.

**Mr BATT:** In your submission you say that state and federal governments are contradictory to the Paris Agreement by supporting coalmining, but if both the state and federal governments' plans to meet the targets for the Paris Agreement can include coalmining and still meet those targets, why would it then be contradictory?

**Mr Swann:** The Paris Agreement is an agreement to make pledges and to increase those pledges over time, but it is an agreement to increase pledges so as to meet a global goal. When we talk about policy on coal exports being contradictory with the Paris Agreement, what we are talking about is policies around the supply of coal, the export of coal being contradictory to that global goal. We have argued on numerous occasions that it is also contradictory when you consider the risks associated with allowing, or encouraging as the Queensland government is still doing with various subsidies, the increased export of coal—in that the world has committed to increase its ambition on climate change going forward. It has committed to do this under the Paris Agreement's ratchet mechanism. Every five years there will be a stocktake, and countries will be expected to increase their ambitions, including Australia. That ratchet mechanism and those pledges and Australia's current pledge all relate to domestic emissions. As we have been saying, that is a problem. It is only one side of the equation; it is all about demand and not about supply. Decisions made in other countries about increased ambition—particularly with the absolutely plummeting cost of batteries and

renewable energy—and the increased risk of litigation around climate change are going to see increased risks for coal exporting companies and jurisdictions.

**Mr BERKMAN:** I am really interested to hear what more you can tell us about the Wood Mackenzie research and the negative impacts on coal jobs in other existing coalmining regions. That report obviously is not publicly available as far as I know and it is a very expensive piece of work to purchase, so any information you could give us would be great.

**Mr Campbell:** The Wood Mackenzie report, you are right, as far as I am aware is not publicly available, but an awful lot of it can be gleaned from an ABC report where the ABC journalist clearly had access to it. The Wood Mackenzie report looks at pretty significant declines in volume in terms of export of thermal coal that would go through the port of Newcastle, as well as impacts on thermal coal in the Bowen and Surat basins and I guess in the case of the Surat Basin the development of thermal coal projects there. There was a fairly significant decline in volumes going through there.

Wood Mackenzie did not assess what that would do for employment impact. One of the attachments to our submission looks at that, based on three different ways of estimating relationships between employment and coal volumes. I guess our ballpark figure is that the full development of the Galilee Basin would see around 10,000 fewer people working in existing coal regions of Australia.

**CHAIR:** I thank everyone at The Australia Institute. The time for this session has expired. We do not have any questions on notice. We appreciate your time.

**BUCKLEY, Mr Tim, Director, Energy Finance Studies, Institute for Energy Economics and Financial Analysis**

**CHAIR:** Welcome, Mr Buckley. I invite you to make an opening statement and then we will have some questions afterwards.

**Mr Buckley:** Thank you very much for the opportunity to speak today. IEEFA supports this bill. Firstly, I would like to state that I accept the science of climate change. Secondly, I support the Australian government's commitment to doing our fair share to deliver on the Paris Agreement—in particular, as the earlier speakers talked about, the critical importance of the 'ratchet-up' clause. We can come back to that. As I think the earlier speaker addressed, it is a critical aspect.

Thirdly, I see clear sovereign risk for Australia in failing to act on our treaty obligations relating to the climate agreement of Paris. We can come back to that again. We have heard very extensively from the coal industry about why they think it creates sovereign risk for us to not do the right thing by them, but the Australian parliament, the Queensland parliament, represents the people of Australia and your obligation is, I would have thought, to do the right thing by Australia and our international treaty obligations. There is sovereign risk in both sides of the equation and I would be happy to explore that further.

The fourth point I would make is that coking coal is very different to thermal coal. Coking coal is used for steel. To be clear, thermal coal is used for power generation. Queensland is the world's leader in coking coal. The IEA makes a very, very clear distinction between the two. I am emphasising that and I can come back to why that is important. When we talk about the coal industry being critically important to state royalty revenues, when we talk about it being critically important for current employment, I totally accept that, I totally can see that. Thermal coal is a very small part of the Queensland economy. It is a quarter of exports, and it is critical to differentiate that because the Paris Agreement says thermal coal goes to zero by 2050 if we deliver on Paris. That is pretty unequivocal. That is very clear from the scientific literature and from world modelling.

I have a few additional comments. Firstly, in the Galilee Basin tenure has been open for decades. There is a very, very clear reason nothing has happened in the Galilee Basin. It is extremely remote; it is low quality, high ash thermal coal for exports; and there is no existing infrastructure. If the Paris Agreement is delivered on, it is a straight stranded asset. There is a lot more coal closer to the coast, closer to export ports with existing infrastructure that is much, much higher quality.

India has also moved on. India's coal minister, Piyush Goyal, has repeatedly said that he expects India to cease thermal coal imports. We are an exporter. India, Japan and China are the customers. When the customer says, 'We don't want your coal,' I listen to the customer, as someone in finance. The Indian coal minister has repeatedly said, 'We don't want expensive thermal coal imports.' India needs energy security, and energy security comes from leveraging domestic resources.

I have heard reference today to rigorous assessment. We are talking about an entire thermal coal basin—undeveloped thermal coal basin. Cumulative assessment, particularly on water but also on climate, has not been done. We are talking about nine mega projects of global significance—the nine biggest undeveloped coal projects in the world. This is not a small project; this is nine of the biggest thermal coal projects. There is a cumulative impact so no rigorous assessment has been made. No assessment is legally required of the cumulative impact.

I will move on. In September 2018, Standard Chartered announced its support for the Paris climate agreement. In that statement, Standard Chartered announced it would immediately cease financing any new thermal coal project anywhere in the world. It built on the decision in 2016 that Standard Chartered said they would no longer finance thermal coalmines anywhere in the world. The CEO stated, 'Climate change is one of the single biggest challenges society has to address,' and that alternative sources for electricity are now available. The chairman concluded, 'Here for good means saying no to coal.' That is not an environmentalist; that is the chairman of one of the biggest globally significant banks in the world.

If I could take leave, we published a major new report last week, which I would like to table. It is an extension of what we have in our submission. I have two copies here. The reason I mention Standard Chartered and then this report is that that report identifies that there are over 100 globally significant financial institutions which now have policies similar to Standard Chartered.

**CHAIR:** We will accept that as being tabled.

**Mr BERKMAN:** That is actually the one I tabled earlier.

**CHAIR:** Is it the same one?

**Mr BERKMAN:** It is.

**CHAIR:** We already have a copy of that. Mr Buckley, continue.

**Mr Buckley:** This report highlights that 100 or more of the globally significant financial institutions are doing the same thing as Standard Chartered, so I would put forward that in the absence of finance no new coal-fired power plants will be built. We are not at that point, but we are getting very close to that point—40 per cent of the 40 biggest banks in the world say they will not finance new coal.

We need the governments to lead and we need the government to create the framework for a market to operate. That is what corporates do; they operate within the market. You the legislator create that framework. The market does not create the framework. The market will look after itself within the framework our governments provide. To me, that is a critical distinction. I worked for the biggest bank in the world. I was the managing director in the biggest bank in the world. I am all for free markets, but we know from the global financial crisis what the outcome is if you leave the banks in charge without proper regulation.

The IEA says that India will be the world's biggest market for new demand in thermal coal. I was in Delhi two weeks ago. I was in the opening panel of Coaltrans India talking with 300 Indian coal executives. The panel was meant to be a debate, where Tata Power—the biggest private company in India—was for coal and I was asked to speak against coal, pro renewables. Unfortunately, the first speaker was Tata Power and their opening statement was, 'We, Tata Power, the biggest private company in India, will never build another greenfield coal-fired power plant again.' That is a pretty strong statement. It destroyed the whole idea of the panel because he was meant to be talking pro coal and I was talking pro renewables. He then was pushed by the moderator, 'Why would you make such a statement?' Finance is not available and renewables are now the low-cost source of electricity for India; all of our new emphasis is going into renewables. They are 20 to 30 per cent cheaper than existing thermal coal powered plants. That is the biggest private company in India. That is not my view. That was his statement. It is entirely consistent with the coal minister of India, and the coal minister of India operates the second biggest coal-producing nation in the world. I would look at what they are doing.

To conclude, in the last 10 months, India have commissioned 120 megawatts of thermal power generation. In the same 10 months, they have commissioned 6,740 megawatts of renewables. Let us not talk about what might theoretically happen in 20 years time. Let us look at what India is doing today. There were 50 times more renewables commissioned in the last 10 months than thermal power. As we heard earlier from the CEO of Adani, all of their coal is going to India but the Indian government, the Indian industry and the Indian finance sector are investing 50 times as much in renewables as they are in thermal power. That is pretty conclusive to me that the market for this substance is changing dramatically. When you are the world's biggest exporter of coal, the second biggest exporter of thermal coal, the last thing we Australia want to do is flood the market with new supply, when the IEA is saying demand is going to zero on a 32-year time frame if we are going to deliver on Paris.

**CHAIR:** You mentioned before the 'ratchet-up' aspect and the sovereign risk aspect. Could you expand on that?

**Mr Buckley:** The 'ratchet-up' agreement, as the earlier speaker talked about, says that we have to ratchet up our ambitions and so will every other country which is party to that agreement, which is almost every country in the world. India is up to 10 years ahead of its nationally determined contribution that it committed to three years ago. China, I believe, is at least five to 10 years ahead of what they have committed to. They are holding back and saying, 'Hang on, we did not cause the problem.' India did not cause the problem—common but differentiated responsibilities. They are going to do their unfair share, but they are waiting for developed nations to do their fair share and then India will ratchet up and accelerate the deployment. They are going to do it any way, in my view, but as an exporter of fossil fuels we really need to understand the implications of this massive technology disruption. The 'ratchet-up' clause says that everyone must do more progressively.

That is what the financial institutions are looking at. They are saying that compliance with the Paris Agreement means thermal coal use must cease within 32 years. Why would we provide finance for a new, undeveloped project that will increase supply when we want supply to go to zero? That is our commitment. We will not provide the finance. The government should lead but finance will lead. Finance is saying they are leading. Adani put out a press release to this effect last year. They did not intend it in this regard but that is what I read into it. They put out a press release saying that they were

unable to find a single financial institution anywhere in the world willing to finance their project. Therefore, they had no choice if they were going to proceed but to sell finance because no-one will go near it.

The world has changed. I study India as my primary market. India is leading that change. This is maybe a slight digression, but when Adani bought from a private company—not from the Queensland government—the tenure in the Galilee the cost of renewables was 10 times what it is today. Businesses operate in a world of risk. They make judgement calls. They take project risk. If the world changes, if technology changes, decisions made eight or nine years ago are now superseded. They are redundant. The world has moved on.

That is the nature of a multinational. They take a whole range of risks. As Adani also testified, they are one of the biggest developers of renewables in India. They only started that business three years ago, but they have invested \$3 billion in the last three years in that business. I would say that the world has moved on, technology has moved on and finance has moved on. That is the nature of business. You take a risk. Sometimes they work; sometimes you move on.

**CHAIR:** You were touching on sovereign risk.

**Mr Buckley:** Thank you for the reminder. Sovereign risk says that international investors will put a risk premium on future decisions for Australia if we make a decision. The hypothesis was there is sovereign risk. Foreign investors will say that Australia has higher sovereign risk if we legislate to comply with the global Paris Agreement. I would say there is sovereign risk of us not complying with a global treaty we signed. Businesses have known about climate change for decades and decades. They can argue against it. It is not in their interests, but at the end of the day they could argue against solar technology costs coming down 90 per cent. They have dropped from \$10 to \$1 a unit in eight years, but that does not stop the technology moving on. China has moved on. India has moved on. It is time we move on and look to industries of the future. I do not believe any foreign investor is going to look at Australia and say, 'Because Australia is complying with the Paris Agreement, because Australia is going to uphold rigorous assessment of environmental process, there is any sovereign risk at all.'

**Mr WEIR:** Have you had any consultation or involvement in the formation of this?

**Mr Buckley:** No.

**Mr WEIR:** From listening to your testimony, am I right that you would say the market will sort this out itself? The Paris Agreement has already done it and there is no need for this legislation. It is simple supply and demand. Business, as you say, will sort it out itself.

**Mr Buckley:** The question, as I read it, is the Paris Agreement is an agreement. It is an agreement between almost 200 governments.

**Mr WEIR:** Yes.

**Mr Buckley:** It is therefore up to the government to put in the framework of the nationally determined contribution for each country and to ratchet that up every five years to deliver on that framework. It is the job of the government to provide the framework for industry to work on. It is not left up to the market. The framework is provided by the government.

What I am testifying is that, even if Australia abrogates our responsibility and does not provide the framework consistent with the global Paris Agreement, financial institutions are not going to sit there and fund stranded assets because they believe countries like China, India or Japan will move on. Finance moves very quickly. It does not wait for the life of the project. They will decide it is a stranded asset and run for the door or they will put policies in place to make sure their policies are consistent with the global agreement. The fact that Australia does not have policy to that effect, in my view, is irrelevant because the customer needs to find finance to build a new coal-fired power plant. If they cannot find finance, they will not build a new plant. Therefore, there will be no new demand for that new coal basin.

**Mr MADDEN:** Thanks for coming in today, Mr Buckley. I like your novel twist on sovereign risk. It is certainly an interesting concept. I want to ask you about what you say in your report about corporate tax leakage risk. I would invite you to expand on that.

**Mr Buckley:** Certainly. When the government does a cost-benefit analysis it is looking at the cost to the community, the cost to the environment and the cost to other companies versus the benefits. The benefits accrue to a private company. In this case, it is a private foreign company. The point that it is a foreign company to me is critical. Adani and foreign multinationals comply with Australian law, but we also know from what the ATO reveals every year now that multinationals pay

almost zero corporate tax. This is a statement of fact. Adani has been operating in Australia for eight years with \$3.3 billion worth of investment. If I was the CEO of a company, I invested \$3.3 billion, if I bought one of the most profitable ports in Australia earning a gross cash flow of \$200 million a year, if I made no money and paid no corporate tax then I would probably be under pressure. What I am getting at is that Adani has paid no corporate tax, as far as I am aware. All of the ASIC reports show that they have not paid any material corporate tax yet they are earning \$200 million a year.

I look at the substance of what a company does. We know that BHP pays probably the most tax of any corporate in Australia. They are an Australian company. Multinationals do not have the same franking credit benefit. They certainly do not have the same social licence or requirements to deliver for Australia. I would argue that, by and large, the evidence is that most multinationals operating in Australia minimise tax legally within the existing framework. The cost-benefit analysis assumes there will be zero leverage on the project. I have not seen any mining project in Australia that has ever had zero leverage. Just the assumption that a cost-benefit analysis says zero financial leverage; we are not even talking tax havens. This whole project is structured through multiple tax havens. I would argue that any cost-benefit analysis is flawed because it does not look at what the reality is.

The reality is that multinationals generally do not pay tax. They generally maximise their financial leverage to ensure they do not pay tax—which is entirely legal—but if I had a project from BHP versus a foreign multinational I know who is going to pay tax in Australia. Look at the history. I am not a proponent for BHP but I am a proponent for companies doing their fair share. If we talk about cost benefit, let us make sure that the costs are real and the benefits are real.

**Mr BATT:** You mentioned earlier that rather than being business driven it should be the job of government to be part of the Paris Agreement. Part of that is to reduce our own emissions to get to our target for Australia and for Queensland. Would it not be the same for each of the countries around the world that have signed this agreement that they need to reduce their own emissions? Therefore, if India and China want to reduce them down to the same targets they do not allow coal-fired power stations. Therefore, there is no demand for our coal. We do not need this bill.

**Mr Buckley:** If I am hearing you right you are saying that the government should abrogate its responsibility because the market will take care of itself.

**Mr BATT:** No, what I said was that we already have our responsibility. Our responsibility is to reduce our own emissions.

**Mr Buckley:** I would argue that our responsibility—our agreement under the Paris Agreement—is to deliver on the global Paris Agreement. The global Paris Agreement says that there is one atmosphere, there is one global carbon budget, and every country will do its reasonable share to limit emissions globally. We could pretend that we are accountants and we could pretend that there is scope 1, scope 2 and scope 3, and because it is an export product we are not responsible. However, the Paris Agreement does not say that. The Paris Agreement says that there is one atmosphere, there is one planet, and we have one global target and that is to limit. Our treaty obligation, as I understand it—and I am in finance; I am not a lawyer—is that we commit to doing everything within Australia's reasonable request, and I believe we will have to do a lot that is unreasonable, to deliver on a global limitation of emissions to deliver a 1½ to two degree scenario increase.

**Mr BATT:** Each of these countries also sets their target appropriately.

**Mr Buckley:** Yes.

**Mr BATT:** Then the businesses in that country would not be importing our coal.

**Mr Buckley:** I would put a different slant on it if I may. The core principle of the Paris Agreement is common but differentiated responsibility. If you look at who used up the world's carbon budget to date, the answer is America, Australia, China and Europe. India per capita has used probably one-hundredth—I am not a scientist; I am a finance person—of the emissions that Australia did.

A very core principle of the Paris Agreement is that emerging markets which have not had the opportunity to build their infrastructure do not carry the same historic obligation that we, America or China does. Common but differentiated responsibility says that is not correct, but when I talk to the government of India they say, 'We will do our unfair share,' and the reason they will do it is because of straight economics and energy security. Economics says that renewables are now the low-cost source of supply for India. Their energy minister talks about that every day. In the last week India has announced \$6 billion of new tenders for renewables—in just one week; last night, 750 megawatts. They have not announced a single coal plant.

Your point of the question is right. The market will get there. India will get there. Will we get there in time? That is what the doctors earlier and the doctors from the reef also argued. The Great Barrier Reef will be gone by the time we get there if we leave it to the market. I would argue that it is up to Australia and the government to set the framework to make sure we do what is our fair share, and we look at one world, one planet, one atmosphere and we do not pretend there is a border around the atmosphere because scope 3 is still our atmosphere.

**Ms PUGH:** With your background in energy finance, I am interested to find out what is attracting investment in the energy sector. I am very keen to pick your brains on that because I know that is your area of expertise.

**Mr Buckley:** I am speaking tomorrow at a Sydney energy finance conference. There are 200 international investors. They are there not to talk about coal. They are talking about renewable energy investment in Australia. They are critically interested in that. I am then flying to Melbourne on Thursday and we are talking to 100 Melbourne investors from global organisations which are critically interested in investing in renewable energy in Australia.

I believe Queensland is now an Australian leader. South Australia is a world leader in renewable energy. They are coming here because they see Australia and India as the two world leaders in this development. I am working at IEEFA because I believe it is in Australia's national interest to actually be ahead of the curve and look at industries of the future. The IEA says that thermal coal ceases to exist as an industry within 32 years: 12 years in the OECD, 22 years in China and 32 years globally it ceases to exist. Why would we expand capacity—dramatic capacity—in an industry that is dying when we have the opportunity to be the world leader in renewables and expand on that world leadership?

When I talk to BlackRock, when I Blackstone, when I talk to KKR, they are looking at Australia and India as world leading markets. They want to be ahead of the curve. They want to deploy billions and billions of dollars in this industry. That is why the four CEOs of the four biggest power companies in Australia have all said to the federal government, 'You can build another coal-fired power plant if you so choose, but we want nothing to do with it.' By the way, the four biggest banks in Australia have also said, 'We will not provide any finance for it.' The biggest CEOs, the biggest banks and the biggest utilities in Australia say, 'We are not funding it.' The federal government can do it if they want, but they are not going to be involved. They want to be involved in renewables. They want to be involved in industries of the future.

**Ms PUGH:** To be clear: when you talk about renewables, you are talking about solar and batteries. Do any others particularly form part of that mix?

**Mr Buckley:** That is a really important question. I look at the convergence of the transport industry and the stationary energy industry as compounding the speed of change. When I study China, they are already the world's leader in hydro. They are the world's leader in grid connectivity. They are the world's leader in energy efficiency. They are the world's leader in rare earth processing. They are the world's leader in lithium ion. They are the world's leader in battery manufacturing. They make five times more batteries than Tesla does, than America does. They are the world's leader in electric vehicles. They are the world's leader in solar and wind. They will be the offshore wind leader within two years. Wood Mackenzie just put out a report to that effect. They are looking at all these industries and they are saying, 'We want to be the world leader in that.' That is what our banks and our corporates should be looking at, in my view. When I talk to them, that is what they are interested in.

**Mr MICKELBERG:** Mr Buckley, a number of times you cited the example of how the market is working in relation to the reduction in costs for renewables. You said that you are going to Sydney tomorrow to speak with individuals who are looking to invest in renewables. You talked about Adani building additional renewable capacity of, I think, three billion. Why does the logic not hold that Adani is capable of making sound investment decisions in the renewable space but not in the thermal coal space?

**Mr Buckley:** That would be your assessment, not mine. In 2010 Adani made this decision to buy, from a private company, some tenure. The cost of solar back then was 10 times what it is today. Back in 2010, the energy minister of India said to the biggest companies in India, 'Go out and buy international coal resources.' Adani, GVK, Lanco Infratech, Jindal Steel, GRE, Essar—10 of the biggest companies—and Coal India all went out and bought these deposits around the world because India knew they needed more energy. They were going to double their economy in the next 15 years and they were going to double their energy needs. That was 2010.

Of the 10 projects—and we wrote a report on it a couple of years ago—only one is still left standing and that is Adani's Carmichael project. All of the other nine projects, and they were globally significant projects, have failed abysmally. It is their last man standing and in nine years they have not developed the project one iota. The coal minister—he was the energy minister—Piyush Goyal has repeatedly for the past five years said, 'We do not want to rely on imported thermal coal.' The coal minister 10 years ago said the exact opposite: 'We have no choice but to rely on it.' Why does Piyush Goyal say that? Because his prime minister has told him, 'You will develop India's energy security and you will reduce our reliance on fossil fuel imports.' India's target is to build 275 gigawatts of renewable energy capacity by 2027. They want to build 40 gigawatts a year. The energy minister talks about that every week now; he did not mention it eight years ago.

The world has changed, technology has changed, finance has changed. Adani is left with a stranded asset and they are looking to see how they can get out of that. All this talk of compensation is exactly what they want, because they cannot finance the project. They cannot get it ahead. They made what has proven to be a bad decision. They made 20 or 30 decisions of that sort of magnitude 10 years ago and most of them have gone ahead. This one is just sitting stalled in the starting block, because the world has moved on and technology has moved on. The project is not competitive. Now they need an exit. What is their exit?

**Mr MICKELBERG:** Basically, if I can summarise what you said there, you do not think it is going to stack up as it stands? It was an investment decision made in 2010 and it would not be made today; is that a fair summation?

**Mr Buckley:** The technology absolutely says that is a fair decision. From Adani's perspective, they have sunk \$1.4 billion into a project that is not viable and now they need to work out what they can do. We talk about cost benefit in the evaluation process. The cost benefit has changed dramatically. They were looking at how they now maximise the value of this project. If you externalise all the costs, they might on a marginal costed basis be able to make some money out of it in the short term. However, they will still leave massive final voids. They will still massively erode the global climate budget. They will not deliver on their royalty agreements. With all the talk about royalties to Queensland, even if they tried tomorrow to start building it, the project will not be operational for four years. It will get a seven-year royalty holiday agreement, so it would be a decade from now before Queensland gets a cent of royalties. If they get those royalties—and I believe with Treasury one of the problems they have is that Adani will not provide surety of supply of the deferred royalty payment. If the company in Australia goes bankrupt, there are no assets to pursue. What are you going to do? Pursue them to the Cayman Islands?

**Mr MICKELBERG:** To be clear, you are supportive of a bill that may give rise to compensation for an asset that you think is a stranded asset that will not proceed?

**Mr Buckley:** I am not a lawyer; I am a finance person. The bill says that no compensation is due. I think earlier one on the MPs cited the examples of Shenhua's Watermark project and BHP's Carooona project. They paid the New South Wales government \$300 million for the exploration licences. When the New South Wales government bought back those agreements, with the agreement of Shenhua and BHP, they repaid the exploration payment. I do not believe the Queensland government got a cent for the issuance of the licences. The fact that Adani never paid the Queensland government anything would suggest to me there is no compensation due. However, I am not a lawyer.

At the end the day, I do not believe the project is commercially viable. Adani stated very clearly last year that it is unbankable, and the two are different but related. I think it is very clear that the project is unviable when you look at India, because the cost of renewables is now 30 per cent below the cost of existing domestic coal. It is 50 per cent to 60 per cent cheaper than imported coal, so certainly it does not stack up commercially.

**Mr MICKELBERG:** I struggle to accept the logic that says that it is unviable, but because it is unviable we probably should apply this narrowly targeted provision to carve out the Galilee Basin on something that you have already said is unlikely to proceed and if it does it is not viable in the longer term. If you truly believe that the market would work and it is unbankable and you are not going to make money, surely it will not proceed? On that basis, fair enough: the market has determined that that is the appropriate course of action. You talk about the states, for example, taking action. We are talking about a provision that carves out a small part of Queensland in a federal context or a global context. I cannot accept that that is an appropriate course of action to remedy the problem.

**Mr Buckley:** Maybe if I could respond to part of your question. You are saying that it is a small part; it is a narrow project. The Galilee Basin is the largest proposed coal basin in the world. It sits up there with the tar sands of Canada as the two biggest undeveloped carbon basins in the world

proposed for development. Adani enables the development of the entire Galilee, because no-one else can actually go ahead without Adani's railway line and Adani's port. Therefore, we are not talking about a narrow little part of Queensland. I am not. I am talking about nine of the biggest projects in thermal coal in the world proposed for development that are not yet enabled and the money has not been spent to build the railway, build the power, build the water. They are the two largest coal basins and the International Energy Agency identifies them in that light, with the tar sands.

As part of the global carbon budget, I would say 300 million tonnes a year of thermal coal for 30 to 60 to 90 years, which is Adani's licence and that of the other proponents, is globally significant. It is under the precautionary principle absolutely critical that Australia does our fair share to actually limit the expansion of an industry that is the No. 1 cause of carbon pollution in the world.

**Mr MICKELBERG:** We are talking about less than 10 per cent of global thermal production, even in—

**CHAIR:** We are running out of time. Member for Maiwar, do you have something very brief?

**Mr BERKMAN:** Yes. I am going to have a very brief follow-up on this, so a super short answer if you can. How clear do you believe is the evidence now that the seaborne thermal coal market has peaked? What is the best evidence of that, in your view?

**Mr Buckley:** The International Energy Agency has now repeatedly said that thermal coal demand globally peaked in 2013; that they got their forecast wrong. I had a debate with them back in 2014. They were saying it would not peak until 2030 or beyond. Two years later, they put out a mea culpa and said, 'Sorry, we got it wrong. It actually peaked two years earlier.' They have stood by that statement repeatedly. That is not a forecast; they are saying it peaked in 2013. It has been plateauing since then.

To me that is where the finance issue really comes up. One bank moving does not change the world. Five banks moving does not change the world. One hundred banks of global significance—40 per cent of the world's banks—have moved. What if we go to 60 per cent or 80 per cent of the world? All of a sudden, finance disappears and this whole debate becomes hypothetical. You are saying, but in the meantime Adani goes ahead and builds the mine. Then they will marginally cost it for the next 50 years and flood the market with that coal. They will not make any money on it, but they will still have built it and they will have enabled the opening up of the Galilee. That will destroy any chance for the Paris climate agreement. That is what I am looking at.

**Mr BERKMAN:** I have a very quick follow up, Chair.

**CHAIR:** No, we are really over time. The time for this session has expired. No questions were taken on notice. Thank you very much, Mr Buckley. We will take a short break.

**Proceedings suspended from 2.57 pm to 3.08 pm.**

**DUNN, Mr Matt, General Manager, Policy, Public Affairs and Governance, Queensland Law Society**

**KRULIN, Ms Vanessa, Senior Policy Solicitor, Queensland Law Society**

**PLUMB, Mr James, Chair, Mining and Resources Law Committee, Queensland Law Society.**

**CHAIR:** I now welcome representatives from the Queensland Law Society. Would someone like to proceed with an opening statement?

**Mr Dunn:** Thank you very much for inviting the Queensland Law Society to appear at the public hearing today on the Mineral Resources (Galilee Basin) Amendment Bill 2018. The society is the peak professional body for the state's solicitors, over 13,000 of whom we represent, educate and support. In carrying out our central ethos of advocating for good law and good lawyers, the society proffers views representative of its member practitioners. The society is an independent, apolitical representative body upon which government, parliament and all parties can rely to provide advice promoting good evidence based law.

In relation to the matters being considered by this committee today, we stated in our submission that we really could not comment on the stated policy intention of the proposed legislation. That is really beyond our remit. Our remit really is to talk about fundamental legislative principles and issues that we see in the bill dealing with that. If there are justifications for the breach of those fundamental legislative principles, that is really a matter for parliament to come to a landing on. We can simply point out the things that we see and go from there.

There were two key things that we raised in our submission. One was the rejection of applications for a coalmining lease. If that provision is effected, it will effectively deny a party of rights, including the lawful use of an affected mining interest previously granted to them, as those rights will be extinguished by the operation of law. By extinguishing those things by the operation of law, that will mean that the party who is affected will not have recourse to the courts for an appeal or a review of that decision; it is just automatic on the commencement of the legislation. There is no interpretation or question that can come into that.

The bill also seeks to disallow the future grants of coalmining leases in the Galilee Basin. Probably what is also important is to look at the provision that says that it will apply to applications that have been made before or after the legislation. A process that is already in train, which you would consider ordinarily to go forward, will not. In that regard, the bill has a certain retrospective application applying to something already under consideration.

In addition, the cessation of those existing rights is also something that has been approved and dealt with. Whether that should result in some type of compensation, or whether that should result in some type of remedio quid pro quo for that is a matter open to the parliament in the circumstances. We welcome any questions.

**CHAIR:** Thanks very much.

**Mr MADDEN:** I raised an issue with a number of witnesses today and it arises from the information note that comes with the bill that states—

It could be argued that the Bill contradicts the FLP that legislation should not interfere with property without fair compensation unless there is a good reason.

I have raised this with a number of witnesses. From that is the possibility that, if this legislation were passed, an aggrieved party such as Adani may wish to bring an application against the Queensland government. As you represent the Queensland Law Society, I wonder if you could assist me in advising the committee that, should a company such as Adani feel aggrieved and wished to bring an application, what would be the cause of action? What would be the category of damages in the statement of claim?

**Mr Plumb:** It is a very difficult question. It is certainly open to the possibility that there is no action in circumstances where legislation such as this can be introduced. I think that is the concern of the Law Society fundamentally. You are talking about a situation where the bill does expressly contemplate the cancellation of these existing rights without compensation. I do not know personally whether that is capable of challenge at a further date in circumstances where the state is somewhat differently governed from the Commonwealth in that the Commonwealth has constitutional obligations to look to. Here, it is a different setting, as I understand it. It is for that reason and the difficulty in

bringing that application for compensation—and it would not just be Adani; I think there are a number of entities with applications and other tenures at different stages—the possibility that they are extinguished without compensation and the implications of that is concerning to the Law Society.

**Mr MADDEN:** Assuming there was a cause of action, I am just suggesting that with the statement of claim the two major categories of damages would be costs to date—that is, the costs incurred by a company to date—but also potential income from the operation of the mine. Assuming that there could be a cause of action found, would you think they would be the two major categories of damages?

**Mr Plumb:** It is hard to comment. Ordinarily, costs thrown away in a situation where an action of one has led to loss of opportunity and loss of those things could be brought now in this situation. I am loath to comment as to the nature of such a claim and the extent that it might entail.

**Mr MADDEN:** I appreciate the difficulty. Given that the Queensland Law Society is here, I wanted to put that to you.

**Mr WEIR:** Firstly, was the Law Society consulted in the drafting of this bill?

**Mr Dunn:** No.

**Mr WEIR:** We know that leaseholders will be excluded from compensation but my question goes to other contractors and subcontractors who might have agreements pending that approval. What are their rights? Do they have a right to lodge claims for compensation? How would that work? Would it be against a company that has just had their licence terminated? Where does it leave them?

**Mr Plumb:** Again, it is a very difficult question, but I do not think that they would have a claim against the state. Depending on the particular nature of the agreements with the principal, if it were a breach they may have a claim against those entities. In many circumstances those agreements or the commencement of those agreements might be conditional upon commencement of mining and those sorts of things. It most likely would be a situation where they would have a claim for breach against the principal holder of the tenure, but I do not know about their ability to claim against the state.

**Mr WEIR:** When the tenure has had their agreement terminated—

**Mr Plumb:** It would be a situation where the tenure is terminated, but their contractual privity is not with the state. In terms of these third party contractors that you are talking about, I am not sure. I would have to go away and have a look. I think it would be very difficult for them to bring a claim against the state.

**Mr Dunn:** There may be a situation where they could bring a claim against the mining leaseholder for work that they had done for that entity on the basis of the lease being valid and doing the work because the work has been done in the circumstances. It just means that the leaseholder is in a position where they no longer have a lease but they potentially have debts to subcontractors and other suppliers.

**Ms PUGH:** UQ gave evidence about cases being brought against somebody when climate change has not been taken into account as part of the overall evaluation process. Is this kind of litigation a risk that the Queensland government needs to be aware of and alive to should we approve the Galilee Basin mines?

**Mr Plumb:** Was that submission made on behalf of the University of Queensland—so it was not made by individuals but on behalf of the university?

**Ms PUGH:** No, it was individuals.

**Mr Plumb:** What was the submission made?

**Ms PUGH:** The submission made was that climate change needs to form part of the criteria when evaluating whether or not to go-ahead with mines. I am just inquiring as to whether the Queensland government is exposing itself to any risk. Could we face litigation for ignoring the effects of climate change when approving mines such as this?

**Mr Plumb:** That is a difficult one. Scope 3 emissions are something which have been considered by the Queensland Land Court in review of mining lease applications. The Queensland Land Court has an administrative function when objections are made to mining leases and scope 3 emissions are certainly something which has been considered. In Queensland there has not been an application rejected on the basis of scope 3 emissions. I do not think in those circumstances that the Queensland state government is exposing itself unduly for failing to consider in circumstances where those considerations have been made and greater weight has been placed upon other elements.

**Mr BATT:** In your submission you talk about individuals, organisations, businesses, those who come in to supply and service contracts and even ILUAs from Indigenous organisations. If those things are already signed and have future dates in them, they would be more of a contract with the proponent rather than with the government. They would still probably have to pay them out or take them to court to get what they are owed?

**Mr Plumb:** It really does depend upon the wording of the particular contractual arrangement you are talking about. There might be preconditions associated with the start-up of mining. In many of these situations there are further approvals to be granted before mining can commence. It may well be that a lot of the arrangements, a lot of the agreements do not actually commence and those obligations to pay, for example, do not commence until—

**Mr BATT:** The conditions are met.

**Mr Plumb:** Yes, until you have that final step.

**Mr BATT:** You would hope.

**Mr MICKELBERG:** I have a question based upon the submissions we received earlier from the law school at UQ, noting it was an individual's view. This is further to the question that the member for Mount Ommaney asked. The view was expressed that the courts are increasingly moving towards a position where the market substitution defence will no longer be sufficient to win a case or defend a claim. I just wanted to get your view on that.

**Mr Plumb:** Again, it is a little bit tricky to comment on something which was not the subject of our submission. I cannot speak for the Law Society generally on this. I am not sure that it is necessarily open to say that the courts are increasingly moving towards a rejection of that particular argument. I understand that in New South Wales recently comments were made associated with a recommendation of a rejection by the Planning and Environment Court in New South Wales of an application for a mining lease, amongst other factors. Whether or not that is something that could be said to be the case in Queensland or in other jurisdictions I am not so sure.

**Mr Dunn:** Could I also just point out that in terms of the bill in front of us, there are no operative provisions on decision-making of the courts? It happens, as I said before, by the operation of legislation and ousts the courts altogether. If the courts are or are not making any particular decision it will not affect the operation of the particular bill before the committee.

**Mr MICKELBERG:** I guess the supposition that was put forward was that the bill is required because there is insufficient scope for the courts to make a decision that takes into account climate change due to that defence. That is my summary not their words. In the interests of clarity, do you consider a mining tenement a property right?

**Mr Plumb:** Again, that is quite a complicated area of law. It is fair to say that, for the purpose of the FLPs, cancellation or interference with the right should be something that triggers that ordinary expectation of compensation. It is a situation whereby up until now the state has encouraged exploration for and development of certain interests in a particular region and encouraged the expenditure of money and commitments being made by a number of people and a number of stakeholders on the expectation that that will continue. The FLPs are designed to protect against unilateral cancellation of those expectations and rights without due compensation.

**Mr MICKELBERG:** We did hear earlier from one of the witnesses that a large company that was making investment decisions should perhaps not be given the same degree of consideration with respect to that right that you just spoke of under the FLPs. What is your view as to whether or not that FLP applies to all entities and individuals or just mums and dads?

**Mr Plumb:** That is an interesting one. I do not know whether you would like to comment Matt?

**Mr Dunn:** Certainly a corporation is a legal person and so it has rights as do natural people. I think it is perhaps a little bit of an interesting and perhaps artificial distinction to say that legislation must be very kind when it comes to natural people, but can be as discriminatory and as arbitrary and capricious as possible when it comes to a corporation.

I am not sure that the argument that a legal person like a corporation can be treated in a completely and utterly different way to a natural person is a particularly compelling argument in the circumstances. There is a difference of course between a real person and a legal person like a corporation, but I do not think it can necessarily follow, given the fact a corporation is a legal person, that rights can only accrue to natural people and there are no rights for corporations. I do not think the law supports that really.

**Mr Plumb:** I think it is important to note that the Legislative Standards Act does make a reference to an individual in this particular set of circumstances. Having said that, I think it is the Law Society's view, as Matt said, that the distinction between an individual and a corporation which could be a family company does not necessarily lead to a good outcome when developing law.

**Mr BERKMAN:** I just want to backtrack and be sure that I am clear on what you have said previously. You have said that there is perhaps no cause of action to be brought for damages arising from the extinguishment of a mining lease under this bill?

**Mr Plumb:** I think the answer is we are not sure.

**Mr BERKMAN:** But it is possible that there is none at all?

**Mr Plumb:** Against the state?

**Mr BERKMAN:** Yes.

**Mr Plumb:** I would be fearful that is a possibility.

**Mr BERKMAN:** You would be a fearful that there is no cause of action. You cannot identify one, is that the case?

**Mr Plumb:** We did not make a submission on that basis.

**Mr BERKMAN:** You are concerned though that no compensation may be available. Does that reflect the fact that QLS in representing member practitioners is inherently skewed given that your member practitioners by and large, with the possible exception of Jo-Ann Bragg and Sean Ryan, represent the resource industry as opposed to the interests of the global climate at large? Is there any sense in which—

**Mr Plumb:** No. The committee that I represent is made up of a number of different practitioners representing native title stakeholders, landholders, mining companies, private practice in house for a broad church of practitioners. That is why we are very cautious about taking a position on policy.

**Mr BERKMAN:** Policy like the decision for the state as to whether compensation should or would be possible?

**Mr Plumb:** Whether it should or should not be paid. We are looking at that from a fundamental legislative principle perspective rather than a policy position and an equity position.

**Mr BERKMAN:** Earlier today I tabled a copy of a draft strategy prepared for Adani by a law firm which works for Adani called AJ&Co. You may have heard something about this. This document includes a section called 'Play the man', 'Taking the gloves off' and describes the firm as 'a trained attack dog'. That strategy outlines plans to use the legal system to wage war on Adani's behalf, including to pressure government decision-makers, silence critics with lawsuits and bankrupt unsuccessful people who challenge them in court. Does QLS consider that a strategy like that is fair and appropriate?

**Mr Dunn:** Can you outline the relevance to the bill?

**CHAIR:** It refers to something that was tabled earlier. I do not think that these guys have had a chance to actually see that.

**Mr BERKMAN:** I could provide you with a copy, if you are interested. I suppose it relates very much to the questions around the potential for compensation that may or may not be payable and particular legal strategies and tactics that might be used in the context of the bill and following its passage should be it be successful.

**Mr Plumb:** There was a suggestion that a law firm was offering its services to Adani on the basis that it was willing to—

**Mr BERKMAN:** 'Play the man', 'take the gloves off', 'be a trained attack dog'. I guess the question is—

**CHAIR:** Member for Maiwar, I think we probably cannot go down that line unless these people in front of us have seen that document. I think you have made your point with that one.

**Mr Plumb:** It is probably not something that would be appropriate for this setting, in any event really.

**Ms Krulin:** We have refined our comments only to the bill itself and we have not considered any of those other issues.

**Mr BERKMAN:** I appreciate your position and your evidence.

**CHAIR:** You could talk to the member for Maiwar about that later and he would be happy to explain that. Thank you very much. The time for this session has expired. We have no questions on notice. I thank you all very much for appearing.

**McNAMARA, Ms Jane, Mayor, Shire of Flinders (via teleconference)**

**CHAIR:** I now welcome Mayor McNamara. I invite you to make an opening statement, after which we will probably have a couple of questions for you.

**Mayor McNamara:** Thank you, Chair. The Galilee Basin, obviously, is a very near neighbour to where we are in north-west Queensland. We share a common boundary of watersheds. We live on the Flinders River and also the Lake Eyre Basin, which butts on to the Galilee Basin. We felt strongly enough about this Mineral Resources (Galilee Basin) Amendment Bill 2018 to write a formal submission on behalf of the Flinders Shire Council. The following is the council's submission. I will read parts of what we have already given to you but also expand on that.

We feel that, if this bill goes through, council considers it will be the commencement of stopping all coalmining activities in Queensland and Australia. Not only that, we are very mindful of the fact that our region has the north-west minerals province in its mix. Of the people who live within the North West Queensland Regional Organisation of Councils, of which Flinders shire is part of, we raise \$176,000 per head in product per year as opposed to \$66,000 which is the Queensland average. We feel very strongly that this Mineral Resources (Galilee Basin) Amendment Bill 2018 is just the tip of the iceberg. If this bill goes through, we are very worried about what will happen for the north-west minerals province. Some of our area also has coal in it. It is not on the agenda at the moment to mine that coal, because it is lower grade coal, unlike the very good thermal coal which is in the Galilee Basin.

The Queensland government has a thorough assessment and approval process for resource projects which regulates thermal coalmining. The project assessment framework is put in place to ensure the responsible development of the state's resources. This has obviously been working because Adani has, I think, been since 2015 and it has been undergoing very stringent and strict assessment ever since that time. I have just been reading that it has had over 200 addendums put on it that it has to ratify before it can go ahead. As we say, it has been very heavily regulated. We feel that all of the i's will be dotted and all the t's will be crossed before it is allowed to begin.

Prohibiting coalmining in the Galilee Basin is also unlikely to affect the demand for thermal coal globally. This Australian thermal coal is far better in quality than other coal throughout other areas of the world, therefore having much less environmental impact. It is, in fact, going to provide 100 million people in India with better coal for their electricity supplies—if it is allowed to go ahead. Adani, being six open and five underground coalmines, is only a very small part of the whole Galilee state development scheme. We just feel that this whole Galilee Basin will be under threat if this bill is allowed to go through.

Also, mining companies that are involved in the Galilee Basin, such as Adani, have caveats put on them that they must help to assist the Great Artesian Basin in having to contribute to the capping and piping program to assist with conservation of GAB water. This is an environmental and economic benefit that far outweighs the effects that mining in the Galilee Basin will have on the rest of north-west Queensland because it is just on the outer edge of the GAB. For us in the Flinders area in particular, we invite any investment in helping to conserve the Great Artesian Basin. Mining companies can be very good at trying to keep the GABSI funded and up and going, because we still have bores that need capping.

Future mines that could proceed in the Galilee Basin would potentially generate vast numbers of direct jobs—1,200 for North Queensland and 1,500 Australia-wide. This would generate substantial taxes which, in turn, will help to fund more schools, hospitals and public services. Outback Queensland represents some 60 per cent of the state with less than two per cent of the state's population. Recent census data indicates that many communities within outback Queensland, and especially in the Galilee Basin, are reducing in population. We in Flinders have reduced now to under 1,600 people for our shire. It is close enough that we will be able to provide some support services to the Galilee Basin should this be allowed to go ahead.

The knock-on effect from population decline has significant impacts on our education delivery, our health services and our emergency services. The council believes that the creation of a Galilee Basin commissioner, similar to the GasFields Commissioner, would facilitate better relationships, make recommendations to relevant ministers and review and implement regulatory frameworks. We just feel that, if there were an independent commissioner over all of this who could report back to the government, this would help to sift out the facts from the fiction.

Resources are a very important part of our local, state and national economy. The opening of the Galilee Basin after a long and tested environmental approval process will increase employment and business opportunities for the regional parts of Queensland. Therefore, the council reiterates that it does not support the Mineral Resources (Galilee Basin) Amendment Bill 2018.

**CHAIR:** Thank you, Councillor. Thank you for informing us. You have under 1,600 people in the Flinders shire at the moment. What is the current profile in terms of who is in the resources industry and how many are working in agriculture? Can you give me an approximate breakdown of where people are working?

**Mayor McNamara:** In our shire we lose a lot of the younger generation. A lot of those people go and work in mines. They either go to Mount Isa or Cloncurry. If there were mines in the Galilee Basin, which are closer to home, they would be able to go in and out of the Galilee Basin quite easily, because they would be able to come up to Barcaldine and come straight home. We feel that the Galilee Basin would be very advantageous for families here who want to stay here and educate their children here because one of the breadwinners would go and work in the mines in the Galilee Basin. At the moment a lot of our people would go to Townsville and they fly-in fly-out from Townsville to mining jobs. We would like to have something that is closer to home so that we could benefit by supplying some of the transportation and all of those sorts of things. If by chance it is close enough to Pentland—if the rail line came that way, or the roads came that way—it is much closer to home so our people would be much better advantaged being able to live here in Hughenden with their families and fly in or drive-in drive-out to these potential jobs in the Galilee Basin.

**CHAIR:** Are there any mines around where people drive-in drive-out or is it mostly fly-in fly-out?

**Mayor McNamara:** Mainly they drive to Townsville and then they fly-in fly-out from there. There are a few. There have been people in the shire who have even had jobs as far away as Western Australia, but that becomes very tiring and very straining on family relationships. It would be much better if you have some potential jobs in mining closer to home.

**Mr WEIR:** Given the proximity of the Flinders council to the Galilee Basin, was there any consultation or input sought from either the Flinders council or the north-west region of councils into the drafting of this bill?

**Mayor McNamara:** No. The first we knew of it is we were asked to put in a submission. It was brought to council and then Councillor Bode and I decided that we would work with our staff and write the submission and send it through to be one of the submissions.

**Mr WEIR:** You said that there are 1,600 residents in Flinders. It is a very small rate base. I would imagine that the presence of a resource company would have an impact on roads, internet services and other services for the local community that you normally would not have to pay through your rate base. Would that be correct?

**Mayor McNamara:** We would like to think that our people here would have their families stay here where they can do schooling. That means more teachers and more health services for this region. It might be the lady. There are ladies who are here who have been travelling away and the male partner stays here and has a job locally. Usually the grandparents are here as well, so there is somebody else to assist with looking after the children. They can stay here too. It is more the ripple effect for Flinders—that we will be able to provide some services, some transport services in particular, some of the earthmoving services. When there is not enough here they will be able to get jobs in the mines as well. It is a matter of upskilling because, once people go into the mines, they get all of their certificates and they get all of their training. When they come back home they might want to get a job either here on the council or whatever. They are much better trained, so we are upskilling our community, which is very important.

**Mr MADDEN:** It is good to hear from you, Mayor McNamara. I hope you and Brendan are well.

**Mayor McNamara:** Who AM I speaking with, sorry?

**Mr MADDEN:** Jim Madden, the member for Ipswich West.

**Mayor McNamara:** Brendan is fairly well. I think he can see the light at the end of the tunnel from the flooding event.

**Mr MADDEN:** Yes, that is good news from up your way. I hope you are recovering from the floods.

**Mayor McNamara:** Yes, we are slowly, thank you.

**Mr MADDEN:** You have raised some very important issues in your submission, but the one that I would ask you to expand on is your very good suggestion that there be a Galilee Basin commissioner. I would like to give you the opportunity to expand on that suggestion—as to why we need to have a Galilee Basin commissioner, whatever happens with this legislation.

**Mayor McNamara:** I go back to when drilling for gas started to take off. Basically, it seemed that there was gas drilling going on everywhere. It was probably just a lot of media hype, but I know that there were a lot of companies out there with the gas drilling. When the GasFields Commissioner Brisbane

came on board, there was somebody who everybody could go to. There was a central point. At the moment, I think it is very confused within the Galilee Basin because you have government, you have government departments and then you also have all of the activist groups. It is very murky as to what the facts are.

We really need to be able to have somebody who is skilled and trained, especially in negotiation and being able to bring the parties together, to get the best outcome for the area, whether it is on the right or the left or the centre. We really need to have somebody who is able to have submissions made to them, matters raised with them and actually be able to then take those issues through the best channels. It is really to have an overseer over the whole thing. It has become very emotional.

For Queensland, I wanted to know how much of an area it is. It is 105,996 hectares. I have not found out, but I want to know how much of that the Adani project covered and I do not know how much the other mines cover. I think people think that the whole area, this whole 106,000 hectares, is going to be one big coalmine. I do not think people understand that the coalmines are dotted around; it is not the whole area. If there was a commissioner and a framework around people being able to take their grievances and their resolutions and everything else to a central point, it would help to clear the air on what is actually fact and what is fiction.

**Mr MADDEN:** I think that is a great idea.

**CHAIR:** We will move through, Mayor McNamara. We are running over time at the moment.

**Mr BATT:** Being the fourth in line, the member for Ipswich West has asked my question again. Thanks for your time, Mayor McNamara. I will pass to the member for Buderim.

**Mayor McNamara:** That is what happens when you are the last one or you are down the line.

**CHAIR:** There are a few more to go.

**Mr MICKELBERG:** I want to expand a little on what we often hear about how towns such as Hughenden are aligned with agriculture and that is the only industry in the area. I want to get your thoughts as to what diversification means for the town. You talk about people having a job locally. What about areas around the provision of services, whether or not there is enough students to go to the school and those sorts of things?

**Mayor McNamara:** You have just asked my pet question.

**Mr MICKELBERG:** Fancy that.

**Mayor McNamara:** I came in as mayor in 2016, as did four of my fellow councillors. Basically we said the Flinders shire was open for business. Since then, we have worked very diligently on an irrigation project, which is nearing the time of being able to commence. We have also been working on a meat processing plant. We are also very interested in the prospecting that has been going on for rare earths in our area, including vanadium and other minerals, especially in the northern part of the shire that obviously many millions of years ago was all a volcanic area. There are probably a lot of different resources up there that nobody really knows too much about yet, so there has been quite a bit of prospecting going on there. Obviously we are also in the renewables sphere. On top of that, we have sheep, wool and beef.

Luckily, only half of our shire—although to the same size as the Richmond shire—was impacted by the recent flooding event. We are looking to really diversify industry here as much as possible. Obviously transportation is another big thing for us with the progress on the Kennedy Development Road, which will intersect here at Hughenden. That will give us the ability to be an intermodal hub for rail and transport. On top of that, we are looking at smart farming and education for our young people into the farming sphere.

There are a lot of different things that we would like to be able to do here. If it is that we can be a service hub for machinery and things such as tyres, batteries, fuel and whatever else, the Flinders shire is ready to assist. We are halfway between the Galilee Basin and the North West Minerals Province, so it makes sense. We are fortunate to have that transport crossover, so can be of service to the mining industry, as well.

**Mr BERKMAN:** Mayor McNamara, I wanted to ask first of all whether you are aware of the uncertainty about the potential impacts of Galilee Basin mining on the Great Artesian Basin?

**Mayor McNamara:** Yes, I am.

**Mr BERKMAN:** If there were to be unpredictable impacts on the GAB, are you aware what that would mean for your community and for those who are dependent on that water resource?

**Mayor McNamara:** I have studied some of the mapping of the overlap of the Galilee Basin and the Great Artesian Basin. Most of the Galilee Basin actually is on the eastern side of the Great Dividing Range, or it flows to the eastern coastline. Basically, there is a little bit of the Great Artesian Basin that overlaps. Yes, we would like to see that protected and not just monitored, because obviously you would not want to be taking too much water out of that area. However, in the bigger scheme of things with the Great Artesian Basin, it is a very small percentage.

I am not a geologist, but I do live on the Great Artesian Basin and I am very fierce about protecting the Great Artesian Basin. I do think that there are enough checks and balances within your state government framework in assessment and approval processes, so that would be part of the protection that would have to go into place for any mining in the Galilee Basin.

Predominantly, if you look at the maps, the Great Artesian Basin goes to the west and the Galilee Basin goes to the east. Predominantly, the Great Dividing Range is where those two meet. There is only a very small percentage of the Great Artesian Basin that we would need to be monitoring and protecting.

**Mr BERKMAN:** I want to clarify: on your reading of the bill, is it clear to you that this bill applies not to all coal in Queensland but only to thermal coal and only to coal in the Galilee Basin? I was a little perplexed by your suggestion earlier that you thought this, in effect, would stop all coalmining in Queensland.

**Mayor McNamara:** No. What I said was—just to be clear—is that I see this as a stepping stone for coalmining in other areas and then possibly other resources, such as what comes out of the North West Minerals Province; that this would be the first step on the way to putting stops to other sorts of mining.

I believe myself that you are far better off mining good quality coal such as what is in the Galilee Basin, because it produces much more energy than your brown coals and other coals from around the world. If you are burning and using good quality thermal coal such as what you can get from the Galilee Basin, you are being a much better steward of the world's environment than if you allow coal from other countries such as Indonesia or South America or wherever that is not as good as the coal that you can get from Australia and you are doing the world a disservice. That is my opinion. You can debate that if you wish, but that is my opinion.

**CHAIR:** Thank you, Mayor McNamara, for your time today. We have run out of time.

**Mayor McNamara:** Thank you for allowing me to give the submission.

**CURRELL, Dr Matthew, Associate Professor, School of Engineering, RMIT University (via teleconference)**

**CHAIR:** Thank you, Dr Currell, for your patience. You are right at the end of literally dozens of witnesses we have talked to today. We are now broadcasting live on parliamentary TV and Hansard is recording the proceedings. Thank you for talking to us today on this bill. We have your submission, but I would ask you to make a brief opening statement. After that, we shall have some questions for you.

**Dr Currell:** I read this bill with some interest when it was first proposed, the major reason being that, for the past five or so years, I have been asked to provide comment and expert opinion on the possible effects of Galilee Basin coalmines on aquifers and groundwater systems in the region. Having looked at both the individual mining project applications for approved mines and proposed mines, as well as the more regional modelling done, for example, by CSIRO and others as part of the bioregional assessments, there are some things that we can say about the likely effects of these mines on the groundwater systems of Central Queensland. In particular, I think it is worth highlighting a few key points.

The approved and proposed mines, individually and in combination, will extract significant quantities of groundwater over a very large area in the Galilee Basin in Central Queensland. The effects of doing this have been modelled and they have been predicted by the environmental impact statements and the work I mentioned earlier by CSIRO and so forth. We know something about what the effects will be and those effects include significant changes to water balances in the region, the creation of a pretty serious area of legacy mining impact that is permanently changing the water balance in the region and water quality. There will be effects on some bores within the region. There will be impacts on surface water systems and springs in the region.

However, there is also some level of uncertainty, which is acknowledged in all of these pieces of work that have been done over the past five years or so. The full magnitude of those impacts—for example, the amount of groundwater drawdown that might be experienced, the number of bores that might be affected and particularly the effect on springs and river systems that are connected to groundwater—is still to some degree uncertain. That is partly because this is a greenfield site, so there is no existing data on mining impacts in the region. It is partly also because there have been some deficiencies or some gaps in the amount of data that has been collected by the mining companies when they proposed these projects.

I guess, in summary, in one sense this bill would provide certainty to water dependent ecosystems, water users and others in the Central Queensland region that these current groundwater systems and connected surface water systems would not be affected by these impacts in the long term. Thus there would be greater certainty in terms of water security and the health of those systems.

Some of the big uncertainties associated with how these mines would impact the groundwater systems are things like the amount of leakage or cross-aquifer interaction. We know that essentially these mines are going to create very significant voids and they are going to extract a large amount of water from a particular depth. The Permian sediments contain the coals. A big outstanding uncertainty is how that would affect overlying groundwater systems—such as those in the lower Great Artesian Basin—which is a significant issue for water users who may have bores in those aquifers. Again, there is the long-term effect particularly of the mining and associated groundwater extraction for dewatering on surface water systems, rivers and springs.

There is something to stress here. Groundwater systems are not the same as geological systems, as in solid material that we mine. Groundwater is connected to the surface hydrological cycle. Any water that is extracted from depth, even if it is a significant depth below the surface, has some level of connectivity with the broader hydrological cycle. When we take water out from deep under the ground, it is not the same as mining a rock—where you are taking an isolated body of rock and moving it somewhere else. There is a connectivity effect. This is where the potential to impact things like springs is coming from. That is the basis of those potential impacts.

There have been various attempts particularly to look at the impact of things like the Carmichael coalmine on springs in the Doongmabulla Springs complex, and a few different models have estimated the level of effect on those springs. Obviously, it is a very important nationally listed ecological community. There is going to be some impact on surface systems. There is some uncertainty about the degree of that impact, so one way of looking at this bill is to say, if you want to safeguard these nationally important ecological systems, this bill provides a mechanism for them to remain protected in perpetuity.

**CHAIR:** Thank you. Did you want to add anything to that or should we jump to questions?

**Dr Currell:** I do not think so. They are the main areas of summary. My overall summary in my submission indicates the types of impacts—drawdown, effects on springs and surface water systems, and those legacy impacts from the mine sites. I am happy to start taking questions now.

**CHAIR:** Thank you. In your submission in the paragraph headed ‘Overall summary’, you say, ‘A cumulative area impacted by significant groundwater drawdown (more than 1m) exceeding the area of Tasmania’. Is this based on the work you have done in the Galilee Basin already?

**Dr Currell:** This is based on two modelling exercises that have been done as part of the federal government’s Bioregional Assessment Program. Those models have looked at the cumulative effect of I think seven of the approved mines, and those are the sorts of areas that have been predicted as most likely occurring throughout the system.

**CHAIR:** One of the things that struck me reading through this is that you said a couple of times a ‘degree of uncertainty’ and ‘difficulty of making accurate predictions’. Is this where we get the precautionary principle coming in, if we are dealing with these kinds of assessments?

**Dr Currell:** Absolutely. As I say, the issue with working in these so-called greenfield sites—where you really have not done a lot of significant water extraction previously—is that you are always in some sense doing a bit of a wait-and-see exercise. There has been a little bit of work by some of the mining companies to do some trials, dig some test pits and that sort of thing to see what kind of drawdown and how much impact on the aquifers occurs, but this is absolutely nothing in comparison to the scale of what these mines would look like once they are at peak operation. If we are thinking about the precautionary principle, applying a level of caution, particularly when some of the affected aquifers and ecosystems are seen as so significant at a national level, would say that there is a strong argument for restricting mining in the area.

**CHAIR:** Just briefly, in part of the Adani submission or the papers we have from them, they have said the mine will not use water from the Great Artesian Basin. Does that intersect with your studies and what you have found?

**Dr Currell:** That is a really important issue. Those statements are correct in the literal, direct sense. The Carmichael coalmine is not proposing to actually take water from the Great Artesian Basin through bores, drains and other mine infrastructure. However, all of the modelling that has been done throughout the Galilee Basin by the CSIRO and other agencies has shown that, as an indirect effect of those mines, there is going to be some leakage of water and some drawdown occurring within those Great Artesian Basin aquifers.

We always use this analogy with our students. If you think about a groundwater basin as a bathtub filled with rocks, soils and sediment, if you start pulling water out using a straw at one end of the bathtub, eventually there is some level of connectivity and some effect of taking that out elsewhere within the bathtub. It is sort of an indirect effect. While they are not directly taking water from the GAB, they are going to cause some leakage of water out of those aquifers.

**CHAIR:** I nearly forgot to ask this question as well. We asked Adani today about their federal report on groundwater being assessed by CSIRO. Is that fairly usual to have that kind of outsourcing of that assessment done by that federal body?

**Dr Currell:** Generally, in our profession, because at certain times we deal with uncertainty, there is a tendency to ask for independent peer reviews in most pieces of work. Often that is done internally. For example, a mining company might commission a couple of consultancies—one to do the main work and another to do a peer review and then submit that to the regulator.

I think, again, I will reflect on two things—the significance of things like particularly the Doongmabulla Springs complex ecologically, plus that level of uncertainty that I think the department has probably acknowledged, and advice from the IESC committee that was provided on that project is consistent with this. You have got the combination and significance of the ecosystem, and the level of uncertainty is quite rightly causing a level of caution and asking for some independent checks and peer review of any work that is being done.

**Mr WEIR:** Was your expertise in this field called on by the member for Maiwar in amongst the drafting of this bill?

**Dr Currell:** Yes. The member for Maiwar did make me aware of this bill coming through. Once I saw the contents of the bill, I thought, yes, there is an area where I can contribute some expertise, given work I have been doing over the past few years.

**Mr WEIR:** You were talking about the connectivity and the modelling that has been done in the Galilee Basin. How has that modelling been done? Has there been a lot of drilling of core samples done? In the area I come from, just by way of explanation, there is a lot of coal seam gas. There is

probably more known about the water system out there than has ever been known, through a lot of the boring and samples that have been done. Some aquifers are interconnected but others are not. How have you based that these are interconnected in the Galilee Basin?

**Dr Currell:** When a computer model is made of a groundwater system, they need to make some assumptions about the type of geology that is going to be mined. Particularly, they need to look at the hydraulic properties of the various different layers through which mining is going to be going through. There are different amounts of data that you can collect to inform that computer model. As you said quite correctly, the more of that type of work that you do—drill the bores, take samples of the material, log the geological material and actually test some of that core—the better confidence you can have in the predictions that are made by the models. In terms of the Galilee Basin groundwater model—that is, both the individual mine models and the bioregional assessment model which looks at all of them in combination—you would say that the level of data or the density of that data through the drilling of pit core bores is fairly limited, which is one of the reasons why there is still a degree of uncertainty.

There is a lot more data that has been collected from the actual mining lease areas themselves. That is because the mining companies have gone in and done exploration work so there is a greater density of data in those areas. In terms of the wider region, including the areas where some of the impacts are potentially quite significant, far less data has been collected because obviously it is not on the mining leases so there has been less interest in drilling bores for exploration purposes.

**Mr WEIR:** Have there been many bores up there for monitoring and research purposes that you are aware of?

**Dr Currell:** There has been a limited set. I think each of the mines, as part of the groundwater impact assessments which they have done in their EISs, have drilled a certain number of bores for monitoring groundwater level and looking at geological properties, so it is not that we are going in completely blind. However, again, there could be a much greater density of data which would give us a lot more confidence in what some of these impacts might be.

**Mr MADDEN:** I have read your report and it seems that your major focus is the Great Artesian Basin. Would you be less concerned about these mines in the Galilee Basin proceeding if they were forbidden from accessing the Great Artesian Basin?

**Dr Currell:** There are a couple of points to pick up. Firstly, as I said earlier, it is not necessarily accessing water directly from the Great Artesian Basin that is going to cause impact in that system. You can still have an impact on the GAB by extracting water from layers that are deeper, which is where the coals are obviously. Certainly, preventing water extraction from GAB aquifers would lessen the impact, but it is not going to completely eliminate the impact on the GAB system.

The second thing to note is, as I was outlining earlier, it is important not to see these systems as isolated. They are all part of the hydrological cycle. When we start taking water out, even if it is very deep in the system, because of the way water flows through subsurface systems, ultimately there will be some level of impact. Even if it is slow and even if it is highly suppressed, there will be some level of impact at the surface somewhere within the broader landscape. I can understand there is concern among GAB bore users. Certainly, restricting extraction from the GAB, particularly in the short term, is one way to protect existing bore users. In the longer term, that in itself is not necessarily going to afford full protection to water users in the system.

**Mr BATT:** Dr Currell, in your submission under assessment of groundwater impacts for the Galilee Basin you state—

Rigorous independent scrutiny of these mine hydrogeological studies ... uncovered a lack of conclusive field data and some questionable assumptions underpinning the models.

**Dr Currell:** Yes.

**Mr BATT:** You also say that 'the scientific basis for presuming minimal effect of the Carmichael mine on the Doongmabulla Springs Complex was found to be dubious'. Are you saying that the government's approvals, or the department of natural resources and mines' approvals, and licences for this have been given on dubious assumptions?

**Dr Currell:** I do not want to question the judgement of the agencies assessing and approving these projects. However, when you have a really close look at the transcripts and the evidence that went through the Land Court challenge of the environmental authority for the Carmichael mine, it was clear and it was agreed by all of the expert witnesses that the evidence base for assessing impacts on those springs was tenuous. To go back to the earlier point raised by the member for Condamine,

there was almost no direct field evidence to make definitive judgements about the nature of the geological structure in the area of those springs. That is where that statement about the dubious evidence base is from. It is coming from that analysis of other experts from the Land Court proceedings and then looking further at what has been done since including the more recent modelling by CSIRO. As far as I am aware, there has not been any more collection of that direct geological and water level evidence from the field within that critical area to fill those uncertainty gaps.

**Ms PUGH:** Dr Currell, I note that your submission has a summary of the impacts of groundwater if the mines proceed. The last dot point is 'the long-term water quality and quantity impacts associated with mine voids, tailings dams and other mine infrastructure'. I want to understand what kinds of legacy impacts we are talking about here.

**Dr Currell:** This is a fairly unprecedented scale of coalmining in Australia—even worldwide. The combination of both open-cut pits and long-wall underground mines over an area with a length well in excess of 100 kilometres is going to create, firstly, permanent land surface changes. The shape and the nature of the land surface will be changed permanently. You will have areas of subsidence and cracking in the surface. You will have the mine voids themselves that are going to be open.

All of this creates a permanent change to the hydrological function of the region. It is likely that a lot of the voids that are left after mining has finished will start to act as permanent sinks for the local groundwater systems to discharge into. You will get the development of these lakes within the pits that are then going to accumulate water that is subject to evaporation, that may be interacting with the mine waste and that will probably create some pretty significant water quality hazards.

There has been a little bit of modelling done by the mining companies themselves about what sort of quality of water we might have in those pits, but it is very hard to get a clear and accurate picture of that. As far as I am aware, there has not been any serious cumulative assessment of long-term water quality risk associated with the mine voids in the areas.

In mine rehab there are a number of options ranging from leaving the mine in a minimal state and not doing any backfilling of the pits—just leave it as is and walk away—right through to advanced systems of backfilling everything and recontouring the land. Most of the mines are proposing something in between that. There is no proposal to fully backfill mine pits so there are going to be fairly permanent changes to the landscape and, with that, the hydrology of these areas.

**Mr MICKELBERG:** My question relates to the Great Artesian Basin as well. We have heard from a number of submitters that the capping of existing water bores for grazing operations has been successful and has been funded by mining companies in part. I want to get your view with respect to whether or not that was a valuable endeavour and whether or not it is something we should be looking to continue going forward.

**Dr Currell:** I am a huge supporter of the GABSI initiative which has seen capping of many hundreds of bores throughout regional areas. The effect on pressures is noticeable. The monitoring data show us that it is effective. There has been some recent research which has shown even when you look at satellite monitoring of the GAB system—there are these big satellites that NASA have put up to look at changes in water storage on planet earth and you can even pick up the effect of the Great Artesian Basin Sustainability Initiative using this satellite data because it is such a regional system. I think that any future activities that are approved that may compromise positive work that has been done on the Great Artesian Basin and reducing the flow and discharge out of the basin is something that needs to be seriously looked at.

**Mr BERKMAN:** Thank you for being with us, Dr Currell. I want to reflect on some evidence. Earlier today I asked the representative of Adani whether they had done any additional seismic testing after the Land Court case in light of the Land Court's finding about the value of that seismic testing to identify the source aquifer for the Doongmabulla Springs. The response was less than enlightening. We did not get a clear indication that there had been any additional seismic testing done. Can you assist the committee by letting us know how important appropriate seismic testing is in identifying the source aquifer of the Doongmabulla Springs and also the extent of potential impacts on the Great Artesian Basin of not just the Carmichael mine necessarily but Galilee Basin mines more generally?

**Dr Currell:** Yes. One of the really important things I have not had a lot of time to discuss here is that there is a really important control on groundwater systems which is faulting. Where there is a fault or a fracture or preferential pathway within rock, that can provide conduits which allow flow and enhance connectivity between deeper and shallower systems. For example, in the case of Doongmabulla Springs there is a hypothesis that is a serious possibility that faulting of geological

layers below those springs is part of the reason for the existence of those springs because it allows groundwater to seep naturally to the surface because a weakness or a preferential faulting allows that water through.

Clearly, assessing that hypothesis is something that can be done using seismic testing. Seismic is a really high resolution way to identify faulting within a sedimentary package. Seismic is absolutely an important aspect of understanding underlying geological structure behind important groundwater dependent surface features. The role of faulting is something that was raised I think way back in 2013 by the IESC—that is the independent federal committee which advises the federal department on groundwater issues. They have pointed out serious gaps in the knowledge about how faults control these groundwater systems.

A program of seismic testing is something that is needed to look at the extent of possible faulting and potential control on groundwater systems. Having said that, I am also a big believer in boring itself—drilling of deep groundwater bores and doing detailed cross-sectional analysis of materials encountered during drilling. Seismic testing should not be done alone without additional drilling work to understand the geology that you are working in. To my mind, there is still a serious absence of data of both of those kinds with which we can assess the true likely impacts of these activities.

**Mr BERKMAN:** Have you seen any more recent work that has been done around Adani's groundwater dependent ecosystem management plan? Does that satisfy you in terms of redressing the uncertainty that has existed in terms of potential impacts of that project?

**Dr Currell:** Yes. Late last year I saw a draft of Adani's groundwater dependent ecosystem management plan, which I think is with the Department of Environment and Science. In that plan I think part of the intention was to shore up the arguments that the company have made about the level of certainty they know about the mine's effect on those springs. I found that there was a little bit of extra field evidence that has been collected. There are some shallow additional monitoring bores that have been collected to look at water levels and better get a handle on those. However, deep work—work looking at the structure of the geology right through the deep sequence including down to the sequences that are going to be mined, which is so important as these are the ones where the water is going to be extracted from—was still absent.

To me, a small amount of work, shallow in the system, really does not get to the nub of the issue which is understanding the effect of what happens right throughout that sedimentary basin from deep to shallow. To me, the additional work on the groundwater dependent ecosystem management plan to late last year has not addressed the uncertainty about impacts to those springs.

**Mr WEIR:** Water, as you would no doubt agree, is a resource and it is one that needs to be managed. Whether it is for agriculture, whether it is for mining, whether it is to supply a town with water, you are going to have an impact on that aquifer. The trick is to get the balance right. What is that balance? What is that percentage? What makes that sustainable? Do you have a view on that?

**Dr Currell:** That is a wonderful question. How long have you got?

**CHAIR:** Not long!

**Dr Currell:** In our field there have been many attempts over recent decades and even centuries to look at what is a sustainable use of groundwater—sustainable management of our water resources. Ultimately, decisions have to be made about what is an acceptable level of impact and that is based upon a whole lot of complex questions. How much are these water resources depended upon? How much do people value the ecological function of water? If water is discharging from a spring, how much value is that placed against the consumptive use of water for mining and agriculture?

In this case the key things to highlight are that Central Queensland is a dry part of the country. It is a dry area, as much of the interior of the Australian continent is. In that context, groundwater is critically important to the sustaining of livelihoods and life, both ecological communities and, as you say, town water supplies. Any activity that potentially causes an impact to those systems obviously magnifies the potential importance of that impact. When you have nationally listed important ecological communities, again, it is something that needs to be weighed up very carefully against potential benefits such as economic benefits from mining.

**Mr WEIR:** It is a fascinating subject.

**CHAIR:** I know both of you could talk for ages on that subject. The time allocated for this session has expired. We have no questions on notice. Thank you very much, Dr Currell.

**Dr Currell:** It is my absolute pleasure, thank you very much.

**CHAIR:** That concludes this hearing. I thank all the witnesses who have participated today. Thank you to our Hansard reporters and thank you to the secretariat staff. A transcript of these proceedings will be available on the committee's parliamentary web page in due course. I declare this public hearing for the committee's inquiry into the Mineral Resources (Galilee Basin) Amendment Bill 2018 closed.

**The committee adjourned at 4.29 pm.**