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TRANSCRIPT OF PROCEEDINGS

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INDEPENDENT PLANNING COMMISSION

PUBLIC HEARING

RE: NARRABRI GAS PROJECT

PANEL:	**STEPHEN O'CONNOR (Chair)** **JOHN HANN** **PROF SNOW BARLOW**
SENIOR COUNSEL ASSISTING:	**RICHARD BEASLEY SC**
ASSISTING PANEL:	**CASEY JOSHUA**
LOCATION:	**VIA TELEPHONE AND VIDEO CONFERENCE**
DATE:	**9.34 AM, SATURDAY, 1 AUGUST 2020**

MR S. O'CONNOR: Good morning. Welcome to the public hearing for the Narrabri Gas Project. My name is Steve O'Connor and I am the chair of this IPC panel. Joining me are my fellow commissioners, Professor Snow Barlow and Mr John Hann, and counsel assisting, Richard Beasley SC. Before we begin I would like to acknowledge the traditional custodians of the land on which we meet and pay my respects to their elders past, present and emerging and to the elders from other communities who may be participating today.

In line with current COVID-19 regulations we are holding this public hearing online with registered speakers provided the opportunity to present to the panel via telephone, video conference or the studio we have set up in Narrabri. In the interest of openness and transparency, each day we are live streaming this electronic public hearing via our website. As always, the public hearing is being recorded and a full transcript will be made available and placed on our website.

Before we hear from our first registered speaker today I would like to outline how the hearing will proceed. Each speaker will be introduced when it's their turn to present to the panel. Each speaker has been advised how long they have to speak. We have received a record number of speaker registrations and it is important that everyone registered to speak receives their fair share of time. I will enforce time-keeping rules as the chair and reserve the right to allow additional time for the provision of further technical material. You will hear a warning bell at one minute before your allocated time expires and two bells when your allocated time has finished. I also ask that the speakers today refrain from making offensive, threatening or defamatory comments, as per the guidelines available on our website.

It's important that all speakers understand that the hearing today is no debate and the panel will not be taking questions. If there is something that you would like the panel to consider, and you don't get the opportunity to raise it, the panel will consider any written submissions lodged up to the extended deadline of 5 pm on Monday 10 August 2020. All written submissions are made in the same way as verbal submissions are made during the public hearing. It's important to understand that any person can make a written submission irrespective of whether they have had been allocated time to speak at the public hearing. If you have a copy of your speaking notes, or any additional material to support your presentation, it would be appreciated if you could provide that information to the commission. Please note, however, that any information provided to us may be made public. Thank you. I will now ask ..... to introduce today's first speaker.

MR R. BEASLEY SC: We have George Mercier. Mr Mercier.

MR G. MERCIER: Yes.

MR BEASLEY: Can you hear me?

MR MERCIER: I can.

MR BEASLEY: Yes.

MR MERCIER: Can you hear me?

MR BEASLEY: We can hear you. So go ahead.

MR MERCIER: Great. Good morning, Commissioners. I just wanted to voice my strong opposition to resist to gas mining proposal in the Narrabri region. Not only is it something that would severely damage the forests with extraction of gasses, it's totally unnecessary. All alternatives to gasses are ..... solar wind and ..... can satisfy all our needs and also gasses are a nasty and poisonous substance. It is toxic and dangerous in every sense. The safest place for gas is to be left where it is in the ground ..... which is even more toxic, it is just crazy that we're going to release that into the atmosphere. And we have the – an extraction process with toxic substances that are going to be injected into the ground and the damage to the Pilliga Forest and the environment in Narrabri is, you know, just unspeakable.

So ..... needs but is a backward step and it is just so unnecessary. In 60 years I have seen how things have changed from how we used to not care about the environment, factories used to pipe their waste directly into rivers and ..... etcetera. So ..... you realise that was no longer acceptable. We're now – now we are going back to those bad old dark habits. It's very sad. And while I have a great deal of respect for the Office of Prime Ministers, this PM deserves no respect for initiating proposal. He and the Premier are supposed to protect us, the people New South Wales, and our environment from harm. This proposal does nothing but harm.

When Morrison and Berejiklian came on TV and spoke of this proposal it sent a chill up my spine because, in order to hoodwink people of New South Wales, he deceptively used the term "transitional." That is just a smooth-talking term that is not a fact. They both looked foolish and deceptive portraying it as transitional. But there you have it. It was a very disingenuous line to take. It was obvious it was just going to – it was done to fool the public and satisfy the fossil fuel supporters and the fossil fuel agenda.

Also, AEMO, the Australian Energy Market Operators, said in a statement the other day that renewables will be cheaper than gas. The chair of Tesla, Robyn Denholm, said recently that batteries will be cheaper than gas soon. So we mustn't commit Australia to this old technology. It is a huge waste of money and will take us down the wrong track. You know, Australia is just – is such an advanced and dynamic place. It can be a leader in clean energy but it's just not going that way. Since 2013, in particular, we have pursued backward policies and technologies. It's just the wrong direction to take.

Not only that, there's just so many other factors, the damage to the Pilliga Forest and the surrounding environment is just, you know, unbelievable. We've seen overseas, and in other parts of Australia, what damage it does to the environment. It is just something we just shouldn't do especially when there's alternatives. In my 60 years

I've seen back – in the 1960s, as a kid, I understood where electricity came from and, in those days, we had no choice. There was just coal and that was it. But now we have solar, we have wind, we have green hydrogen, clean – clean green hydrogen. We just don't need to do this. It is just a very unnecessary proposal. I'm not usually that outspoken but this is just crazy. It's like I said, once we commit, we – it's so hard to change track and get with the times.

I take – there's just a case in point with – in my life, my place in the country, when I bought it, had no electricity running to the house. I inquired as to what the cost would be and it was going to be over 40,000 to connect to the grid and I instead did my own system and, stupidly, at the beginning I even, myself, have a confession here, I connected up to a gas fridge because I just didn't think solar would do it, and one day the – four years later the gas fridge broke down and I had the choice to go – do I go to solar or do I go buy another gas fridge? I bought an electric solar fridge and now it's just amazing how it has just covered all my needs and now I can cook with a induction cooker with electricity from the sun.

I'm going from 95 per cent using gas, because I had lighting with electricity on batteries, now to 100 per cent powering all my needs from the sun. I only get three hours of sun because I've got trees around. So it just goes to show we can do it. It's just a matter of committing ourselves to do it. We just have to get off the gas, it's a poisonous substance, and we just need to get on with the clean energy transition now. We don't need to transition through gas. It's totally unnecessary and it's just a sad thing that it's even being put forward. I mean, I did it on personal - - -

MR O'CONNOR: Could you wrap up now, please, George?

MR MERCIER: I will. Thank you, Commissioners. Signing off now. Thank you very much.

MR O'CONNOR: Thanks for your presentation. Our next speaker, please.

MR BEASLEY: Our next speaker is Russell Chiffey. Mr Chiffey, can you hear me?

MR R. CHIFFEY: Yes, I can hear you. Can you hear me?

MR BEASLEY: Yes. Go ahead, please.

MR CHIFFEY: Okay. Well, first of all, good morning, Commissioners, I am opposed to the approval of the mine. I have a background in physics and so consider that I have a good comprehension of the science surrounding the mine project. I have also spent considerable time in the Pilliga and the surrounding areas and I have an understanding of how this mine will ..... the region if approved. I'm also an active member of the Coffs Coast Climate Action Group, a large and very well supported group in the Coffs Harbour region, and I have been asked to speak on their behalf in this presentation.

Although well displaced from the Pilliga, we are aware of the implications of an approval for the mine. Firstly, my I acknowledge the significance of the task you, as Commissioners, have been given but I must also say that I am in awe of the quality of the vast majority of presentations. So many of them demonstrate meticulous research and thoroughness in their areas of expertise. In other cases, I note the passion behind the opposition to the threats this mine presents and the toll on the health of many people who are threatened by this mine. The enormous amounts of time and effort that have been put into the presentations are commendable.

Now the Santos proposal fails on many fronts. Briefly, here are a few: it has no social licence, as has been demonstrated by almost universal opposition by the local and broader community. The climate issue: there is no dispute that this industry has a climate footprint comparable to the coal industry. Its associated toxicity is an added risk. In the case of water, even the slightest risk is too much risk. It is clear that surface and ground water contamination is inevitable in a GAB recharge zone. The waste issue: there is no acceptable solution. No acceptable solution has been provided regarding produced water and contaminated salts from the coal seam. Vetting and flaring are significant issues also.

On the economics front: there are no economic arguments for this project, except for the benefit of Santos and its supporters. Santos is a member of the East Coast Gas Export Cartel. Australia has more than ample gas already, and besides, the concept of gas being a transition energy source is a furphy. Renewables already do the job and are increasingly doing it better. The cost of dealing with safety and the aftermath of a short-term industry such as CSG are a significant burden and long lasting. Ecology: this is a disruptive industry that has a 10 to 30-year lifetime, during which the ecological impacts have been well documented. When Santos leaves at the end of the mine's short life, there is the legacy of dealing with the impacts of generations to come.

And, finally, Santos, their case is made up of generalities, maybes, ambiguities, and a general lack of rigour. The project is not subject to the NSW Chief Scientist 16 points on the safe ..... gas extraction. They have offered and handed out large financial incentives for support of the project. Marketing has been slippery and well resourced. And the toxic fallout is much larger than the numbers being proposed. This is only for phase 1 of the project. Subsequent phases will be larger and will be rubber stamped if phase 1 is passed. And then all of north-western New South Wales will then be Swiss cheesed to no purpose. And, finally, Commissioners, I urge you to reject the Santos proposal outright, with no qualifications to continue with the project. And thank you.

MR O'CONNOR: Thanks, Russell, for your presentation. Our next speaker, please.

MR BEASLEY: Next speaker is Colin Hutton. Mr Hutton, are you there? You might need to turn your microphone on, sir.

MR HUTTON: Yes. Yes, I am. Can you hear me now?

MR BEASLEY: Yes. Go ahead.

MR HUTTON: All right. Good morning and thank you for allowing me to present. First, I'd like to pay my respects to the Kamilaroi Peoples, who ..... of the land we discuss today, elders past, present and future. What I would like to do is remind you of several events that have happened that I think and believe outline culture in the mining industry and why I object to putting Australia at risk by the go-ahead of the Narrabri coal seam gas.

I believe we understand that mining is a dangerous and risky business. In mining, it is reasonable, even with regulation, processes, systems, training, and years of experience, for accidents to happen. I would like to highlight, this is not the only reason. And I'd like to take you back 10 years to the Deepwater Horizon oil spill disaster; the largest marine oil spill in history caused ..... explosion on the Deepwater Horizon oil rig located in the Gulf of Mexico.

The incident killed 11 workers. The volume of oil escaping the well, originally estimated by BP as a thousand barrels a day, was thought to be by US government officials as 60,000 barrels a day. A surge of natural gas blasted through a concrete core recently installed by contractor Ali Burton in order to seal the well for later use. It later emerged, through documents released by WikiLeaks, that a similar incident had occurred on a BP-owned rig in the Caspian Sea in 2008. Both cores were likely too weak to withstand the pressure because they were composed of a concrete mixture that used nitrogen gas accelerate the curing. BP knew about this problem, but still ..... BP used a quicker and cheaper casing designed to save money.

Now, a bit of history. In 2005, 15 workers died when there was an explosion at a BP oil refinery in Texas. The U.S. Chemical Safety and Hazard Investigation Board identified numerous technical and organisation failings at the refinery and within corporate BP. BP accumulated 700 violations, carried out three million ..... safety violations, was convicted of criminal charges, and accepted fines of $370 million. This was the change. When Tony Hayward became CEO of BP in 2007, he stated, "I will be laser focussed on safety." The result of the Gulf of oil – Gulf spill in Mexico ..... volume formed a slick extending over 149,000 square kilometres. There were 1700 kilometres of shoreline polluted. 50 per cent of the oil is sitting on the ocean floor. BP's CEO Tony Hayward has claimed its oil spill in the Gulf was relatively tiny compared with the very big ocean. In June 2010, Tony Hayward also stated:

> *I'm sorry. We're sorry for the massive destruction this caused their lives. There's no one who wants this over more than I do. I like my life back.*

So in this incident there was no one who went to jail. BP transit and Ali Burton paid compensation. BP was also fined $500 million for misleading investors on the size of the spill, and Tony Hayward left the company in September 2010 and then started as ..... of Glencore Xstrata in May 2014.

I'd like to bring you back to Australia and Western Australia to the Juukan Gorge caves. May 2020, Rio Tinto was blasting in Western Australia and they demolished the Juukan Gorge caves, which devastated a cave that had been used by Aboriginal people for 46,000 years. The destruction of ancient indigenous sites ..... described as home to the dawning of humanity, to allow a mine expansion, is devasting. And now to Santos. Santos has had its own issues over the years; the Moomba explosion in South Australia in 2004. In 2006, it was a ..... in Indonesia. In 2008, Santos poured ..... and hydrocarbon ..... another explosion. In the Pilliga, it was a CSG wastewater spill in 2011; a 10,000 litre spill of untreated coal seam gas water. In Jackson, oil spill in 2013. And a uranium contamination on Narrabri aquifers in two thousand and .....

At the start, I commented that in mining it is reasonable, even with regulation, processes, systems, training, and years of experience, for accidents to happen. Regulation, processes, systems, and procedures will not change or deter corporate greed or their practises. ..... and allow or ignore corporate culture that is significant. Operation - - -

MR O'CONNOR: Colin, can you please wrap up now, thank you.

MR HUTTON: - - - unethical behaviour. I hope I have demonstrated there is also issues in the culture decisions mining companies make that put profit before people, environment, and our children. I ask you to say "no" to CSG in Narrabri. I object to the Narrabri CSG Project. I support Narrabri for farm. And I thank you and wish you all the best.

MR O'CONNOR: Thank you for your presentation, Colin. Our next speaker, please.

MR BEASLEY: Next speaker is Sean O'Shannessy. Mr O'Shannessy, can you hear me?

MR O'SHANNESSY: Is that good? Good morning.

MR BEASLEY: Please go ahead.

MR O'SHANNESSY: Thank you. Good morning. Thank you for the opportunity to address this Commission on stolen Gomeroi land from Bundjalung country. I wish to express my appreciation, respect and commendation to you all personally for the calm and professional manner in which you've conducted these proceedings. It's been long and arduous process.

I must admit you've given me hope for the future of our civilisation at a time when it faces very real existential threats. We see a rise of autocratic authoritarian governments around the world as the climate emergency mounts and obviously in the United States, China and Russia, these ..... are becoming alarmed.

At the same time that democracy has been under assault, it's also been being protected and supported in the streets by people across the world in movements such as extinction rebellions, school strike for climate and the Knitting Nannas. The conduct of this Commission has reminded me of the call for people's assemblies to advise and inform our democratic processes. It seems to me that this process demonstrates one possibility of how that might look in the modern world.

I'm hoping you're cognisant of this extraordinary moment that we're sharing and I'm allowing myself to hope that we're actually going to do the right thing here. You know what that is. About 95 per cent of the submissions to this Commission have told you what that is. It's a straightforward choice right now. You're either going to make the decision which is demanded of you by your responsibilities and by the overwhelming majority of the people who've taken the time and effort to make verbal submissions to you or your alternative is betraying democracy and your professional commitments, undermining Aussies' hopes for a peaceful and just solution to this conflict and setting us to the path of lawlessness, violence and the ultimate collapse of civil society. As I said, I have allowed myself to become hopeful that this is going to go well for us all.

You've heard from experts in the sciences, the law, economics and industry. You've heard from traditional owners, local farmers, fireys, mums and dads, grandparents and relatively young people. Hundreds of citizens of New South Wales have spoken here against the Santos proposal. For everyone who has spoken, thousands stand behind them. If you choose to ignore them, they're not just going to lie down and play dead. They detailed at length the threats of this proposal, of poisoning our air, water and soil, undermining our ecology, climate and economy. I support the overwhelming majority of submissions to this Commission which oppose the destruction of these fundamental values which we all share.

Something which I have not heard discussed enough so far this week is the fundamentally antidemocratic nature of fossil fuel exploitation. The previous speaker actually touched on it. Fossil corporations poison not just our air, land and water but also our democracy. Fossil donors have seized control of both major political parties in Australia with their massive buckets of dirty money. They're revolving door takes ministers and public officials of all stripes from their positions of responsibility and places them into lucrative sinecures to reward them for their compliance with the toxic agenda.

Coal, oil and gas barons pay little or no tax and yet demand multibillion dollar handouts with menaces. They have royalty holidays and tax breaks and all manner of corporate welfare to which they seem to feel entitled. Global fossil fuel subsidies reached $5.2 trillion and $29 billion in Australia, reads just one of many headlines covering the story. When an elected government suggests that fossil corporations should pay their way, then they feel empowered to mount slick multimillion dollar PR campaigns against good governance. They're aggressively supported by the Murdochracy shamelessly dishonest editorial edicts, abusing and undermining the

democratic process of Australia and instructing Aussies as to the corrupt climate criminals that they should elect. Don't get me started.

I could talk at length about global war and genocide, but we don't really have all day. I presume that you've heard of the Middle East? Enough said. Santos proposal represents an assault on democratic processes which would condemn future generations of Australians to be lumbered with this stranded asset, this toxic, useless white elephant of a project. Clearly nobody accepts Santos and its toadies wants that. What everybody does want is renewable prosperity, a clean, green future powered by abundant, cheap carbon free energy with a stable climate, ecology and a just and peaceful civilisation.

As I said, I have hoped for this process because I have trust in you. I trust that you are human. That you, like all of us, need to breathe clean air, drink clean water and eat clean food. I trust that you, like the rest of us, need good governance that, like everybody else in this process, their families, parents, children, grandparents, friends and colleagues with whom you wish to share a civil society. I trust that your professionalism and your honour will dictate and demand that you do what is right in this process because you, like all of us, has to sleep at night. I believe that there is only one choice for you now. Reject this proposal in its entirety. The alternative is too horrible to contemplate. Thank you again for your time.

MR O'CONNOR: Thank you, Sean, for your presentation. Our next speaker, please.

MR BEASLEY: Next speaker is Johanna Kijas. Johanna, can you hear me?

DR KIJAS: Yes, I can.

MR BEASLEY: Please go ahead.

DR KIJAS: Thank you, Commissioners, for hearing me today. My name is Dr Jo Kijas. I'm a consultant historian and I wish to acknowledge the Gomeroi People of the Pilliga region and I speak today from Widjabul-Wyabul country of the Bundjalung nation. I live in Lismore and I'm one of the 87 per cent of ..... population who voted against coal seam gas in our community and I'm opposed to the Narrabri Gas Project.

Today I want to alert you to a – an oral history project that the State Library of New South Wales commissioned in 2017 about communities who challenge coal seam gas across our State. The State Library felt that the community challenge to the industry had built in previous years to such levels of concern that their stories should be told and kept for future generations. I conducted 14 interviews with 20 people across five regions of New South Wales who had challenged coal seam gas in their regions and I spent a week in the northwest and Coonamble and the Pilliga where I conducted five interviews with seven people. Four of them have either appeared before you in the past week or been represented so therefore their stories of 2017 stand.

I want to reflect on some of what I learnt from those interviews in relation to the department's assessment report and the issue of social licence. The concept of social licence has three key elements; legitimacy, credibility and trust. The department asserts that this is a relatively small project and they have acknowledged, of course, that there has been significant community concern about the project. However, they noted in their executive summary, quote:

> *The department has found it difficult to reconcile the significant community concerns about the Narrabri Gas Project with the technical advice from experts that the risk of any significant impacts occurring is generally low and can be controlled using standard environmental practice and imposing strict conditions on Santos.*

The department suggests, quote:

> *One of the reasons for this dichotomy may be the limited exposure the community has had with coal seam gas in New South Wales and its reliance on reports about the actual or perceived impacts of non-conventional gas developments in our jurisdictions.*

My interviews would suggest otherwise. Firstly, the technical advice of it is not sufficient to enable full confidence that the Great Artesian Basin will not be impacted. The technical advice and that – sorry, that technical advice and engineering ..... total of responses required diminishes the depth and complexity of the community's rationale for rejecting this project.

Secondly, for locals who know and love and Pilliga, the idea that up to 850 wells is a, quote, relatively small project, is absurd and an insult. In that context, they aren't comparing it to anywhere else. They know the current exploratory wells intimately and the concept that up to 850 wells with their linking infrastructure, scattered throughout the landscape with its resulting habitat fragmentation and disruption is abhorrent. Thirdly, the assertion that the community concerns may be due to limited exposure of coal seam gas in New South Wales suggests that the department may not have been listening carefully enough to the many meetings they note that they've conducted with – over the last three years with concerned groups.

The opposition to the Narrabri Gas Project from local and broader New South Wales community comes not from a generalised green activist minority but from local members of local communities across central and northern parts of the State who have had direct local experience of the industry. The community members that I interviewed learnt about the industry usually from an open minded standpoint, often from the standpoint of disinterest in the beginning, and in some cases, as one of my interviews from my region of the Northern Rivers, certainly an initial thinking that the industry might bring much needed jobs to our region.

My interviewees had carefully researched the available science about their local places, and they've come from all sides of the political spectrum, age groups, and

indigenous and non-indigenous backgrounds. Those in the north west know their place very well and they have been supported across New South Wales by people who have known their local places, and now, with over a decade of experiences, those localised voices have merged into one united New South Wales community voice. The department is wrong to suggest:

> *That any adverse social impacts of the Narrabri Gas Project can be mitigated to a large extent by ensuring that Santos –*

complies with a series of recommendations that they've made in that report.

MR O'CONNOR: Johanna, could you please wrap up now.

DR KIJAS: Yes. Well, they'll never build a social licence. The three key elements of legitimacy, credibility and trust has not been won by either Santos or the state. Opposition to the project will not go away. In the past three years of EIS submissions, this certain view is growing across our state that the time for the coal seam gas industry has past. Thank you.

MR O'CONNOR: Thank you, Johanna, for your presentation. Next speaker, please.

MR BEASLEY: Next speaker is Margaret Louise. Ms Louise, can you hear me?

MS LOUISE: Yes, I can.

MR BEASLEY: Please go ahead.

MS LOUISE: Thank you. Thank you for the opportunity to speak to you today. Before I begin, I'd just like to acknowledge the Gomeroi People, the traditional owners and custodians of the Pilliga region, whose lands have never been seeded. I pay my respects to their elders past, present and emerging, and also to the elders of the Widjabul People of the Bundjalung where I make my home and I speak from today. I'm raising my voice in objection to the Narrabri Gas Project.

This development presents a level of risk that is totally unacceptable and any reassurance by Santos that they can safely manage these risks rings quite hollow, especially when you realise that of the 16 recommendations to mitigate the inherent risks of this coal seam gas project that were made by the New South Wales chief scientist six years ago, to date Santos has so far implemented only two. Santos still have no clear knowledge of how the extraction of billions of litres of water each year will affect the underground aquifers, including Great Artesian Basin, and above ground they have no viable disposal plan for over 800 tonnes of salt contaminated with toxic heavy metals that will be a by-product of their project.

Facts like these are hardly encouraging demonstrations of Santos' dedication to safety or to credibility. As a long-time resident of New South Wales, I've travelled

and camped extensively in this state over many years. A decade ago, I saw firsthand the environmental damage of early Santos activity in the Pillaga and I was heartbroken. Even more so today when I know that this kind of damage is only accelerating. The Narrabri Gas Project will slash its way through the largest temperate rainforest in eastern Australia. Irreplaceable habitat in the Pilliga Forest will be put at risk by industrialisation. As a member – hello?

MR BEASLEY: Yes, we can hear you.

MR O'CONNOR: Go ahead.

MS LOUISE: Okay. As a board member of Friends of Koala Incorporated, I know that the largest koala population west of the Great Dividing Range will be seriously jeopardised if gas fields here are established. After last year's devastating bushfires, millions of people from all over the world sent donations to ensure that koalas could get the care they needed but here at home, we're considering building 850 gas wells in the midst of some of their last habitat. Clearly, we can do better. For this and for many other reasons, Santos' proposed Narrabri Gas Project should not be approved. It does not have social licence, it is environmentally damaging. Its use as a transition fuel is unfounded. Investment in renewables would do a better job.

It will accelerate climate change and it will make it impossible for Australia to meet its emissions targets. It's not going to bring down prices for gas in New South Wales and any jobs that it creates will only partially offset the jobs lost in farming and manufacturing. I care deeply about these environmental, cultural and social risks, but I care even more about the morality of the Narrabri Gas Project going ahead. I don't think there is any ethical framework for endorsing a development that is unnecessary, unwanted, unsustainable and just plain unsafe. Is it ethical to risk future water security, long-term pollution of farmland and negative social outcomes in order for Santos to increase shareholder dividends?

No, but still this proposal's being pursued despite a huge weight of scientific warning and community opposition. I'm very concerned that decisions have been made and are still being made, not in the interests of the common good but in the interests of a powerful few or a powerful corporation seeking only to enhance their profits at any cost to the environment or to society. And what can I do about my concerns? Today it comes down this. I can only put my trust in you, Commissioners, and hope that in fact you are independent, that you take your own Commission's code of conduct seriously, seeking to enhance public confidence in the Commission's integrity by acting in ways that are honest, responsible and ethical because you have a huge ethical responsibility in considering this proposal.

It's not just a matter of what New South Wales or Narrabri Shire residents happen. It's a matter of what kind world their children and my children and grandchildren all over this state and country will inherit. Will it be a world of opportunities for employment without destroying the earth that sustains us for enjoyment of a flourishing natural environment for a society of respect and integrity, or will - - -

MR O'CONNOR: Could you please wrap up now, Margaret? Thank you.

MS LOUISE: Thank you. Please consider the morality of your judgments.

MR O'CONNOR: Thanks for your presentation, Margaret. Next speaker, please.

MR BEASLEY: Next speaker is Alan Roberts. Mr Roberts, are you there?

MR ROBERTS: I'm here.

MR BEASLEY: Go ahead, please.

MR ROBERTS: I think I'm unmuted. You can hear me?

MR BEASLEY: We can. Go ahead, sir.

MR ROBERTS: Yes. Okay. I want to acknowledge the Widjabul, from whose land I'm doing this presentation, and the Gomeroi and the Gamilaraay, on whose land this travesty is proposed. Now, if I can share my screen, I hope. Let me – I think – I'm not the best – what do I have to do? Share. Okay. All right. Now, we're - - -

MR BEASLEY: Yes, it's starting to work now. We can see it now.

MR ROBERTS: Yes. We've got three times more fossil carbon underground in 2010 than we can burn for two degrees C. The blue bit stays underground, the yellow bit we've burnt since 2010, and the red bit is still to go. And this is done by McGlade and Egans, and this is the whole globe, how much coal, gas and oil. We have to leave the blue bits in the ground, and this is how they've done it for gas. They've done the whole world's gas resources. The black box here is the proved and probable. We can only use up to the red line, which is the two degrees. When you drill down through Australia, only five per cent of our coal we can burn, about half the gas and oil.

This is – when we've reached our 1.5 degrees, coal was actually at the same time as the Pacific Islands blockade in new gas in October 2014. Since then, we've extracted four gigatonnes of coal to reach our two degree limit in March 2019, and then shortly after, in February this year, we have extracted 962 ..... of gas to reach our 1.5 degree limit. And if we keep going at the same rate by December 2024 – 2024, we'll have reached our two degree limit in gas. And – and this is a timeline. Whatever level of greenhouses gases we get to in the atmosphere, that's what we've got for 1000 years. So now we've got 1000 years of catastrophic bushfires, droughts and floods for our children. And we've activated tipping points now. Artic, some of the sea ice, is almost gone. Alpine glaciers are receding. Coral reefs ..... 500 million people are just about dead.

..... is losing its footings and we've popped the earth out of its normal glacial – interglacial cycle and now it's too hot to go back. And we're here at a position where Australia's pulling the earth down into the ..... and we've got to make drastic moves to stabilise it at two degrees hotter. And the main ways to doing this is eliminate fossil carbon emissions, enhance the earth's carbon ..... and human cooperation like never before. So the – no new fossil fuel mines anywhere. We have to close down the Australian coal and gas mines, because we've breached the two degrees and because to allocate resources to people who have power to renewables.

We have to protect all native forests to keep our carbon ..... and establish new areas of native forest. Organic farming to increase soil carbon. And ..... sorry. And fossil fertilisation of ocean waters to enhance the uptake of carbon dioxide ..... by phytoplankton, but careful to ..... beautification and now global human cooperation, because we're part of the same system. Widespread rapid and fundamental transformation in behaviour, demographics, consumption attitudes, education, technology, innovation, governance and values - - -

MR O'CONNOR: Can you please wrap up now, thank you, Alan.

MR ROBERTS: I am doing that. This is the same breach of the 1.5 degrees and we cannot ..... in the Pilliga. So that's – that's it.

MR O'CONNOR: Thank you, Alan.

MR ROBERTS: If - - -

MR O'CONNOR: Thanks for your presentation.

MR ROBERTS: Thank you.

MR O'CONNOR: Our next speaker, please.

MR BEASLEY: We've still got Alan on the – we've now got Meg Nielsen on the phone. Can you hear me, Meg?

MS M. NIELSON: I can. Thank you. Yes. Good morning, commissioners, and thank you for this opportunity to speak. I acknowledge the traditional owners of this nation and pay my respects to their elders, past present and emerging. My name is Meg Nielson. I'm presenter and producer of Celebrating Earth & Art radio program. I'm a food producer and a survivor of Metgasco's attempt to industrialise our farming community with 1000 gas wells. This Narrabri project offers us four opportunities: an unacceptable escalation of methane and CO_2 emissions; further destabilising climate; the depletion and contamination of water, so important for our land and our armers; it threatens the recharge area for the Great Artesian Basin, one of our greatest assets and our water source, absolutely vital to thousands of farms.

The project would cause irreversible damage to the Pilliga Forest, an ecologically and culturally significant temperate forest, changing essential habitat for flora and fauna into an area devastated by gas field infrastructure and compromising the forest's ability to store carbon. Expanded gas production with its significant issues of methane leakage has already resulted in a huge rise in greenhouse gas emissions, which if allowed to continue, will lead to us on track for a three to four degree rise in global heating by the end of the century. Are we really prepared to risk Australia being no longer a hospitable place to live?

A destabilised climate, unpredictable weather patterns, ever more severe drought, floods and wildfires, unable to grow food, to a point where we're no longer able to sustain society. We are risking the earth's ability to maintain civilisation as we know it. The intergovernmental panel on climate change and most of the world's scientists have made their findings very clear. We have been warned, yet the Australian governments are not paying heed to these warnings, gambling with our future by promoting the approval of more fossil-fuel projects and continuing to subsidise the fossil-fuel industry with taxpayer funds, for goodness sake.

Last week, New South Wales Energy and Environment Minister, Matt Kean, quite rightly said, and I quote:

> *What could be more important than creating policy fighting for the type of future we're going to leave our children? What could be more important for a conservative government than upholding the rule of law? Businesses that want to harm or put people's health at risk or pollute our environment should face the full force of the law.*

And that was what Matt Keane said, and yet here we are, once again, the people having to fight the gas industry and this government for the type of future we're going to leave our children. If we want sustainable industry, a healthy planet and affordable energy prices, we need to replace this very expensive and very damaging gas and proceed with clean energy generation and storage projects. Narrabri gas is high-cost gas. You heard the director of Department of Planning contradict Santos' false claims that this project would reduce gas prices for Australia. It is simply not possible to bring down the cost of a commodity by producing it at a high cost, as Santos would be doing at Narrabri.

The proposition is economically impossible. According to Core Energy, who were commissioned by the Australian Energy Market operator, while the average cost of production for developed gas fields on the east coast of Australia are $3.05 per gigajoule, the Narrabri Gas Project will have production costs at a minimum of $7.28 per gigajoule, these costs making it truly uncompetitive, even uncompetitive with existing gas projects. The Australian Energy Market says gas prices would need to be low in order for gas to be able to compete with increasingly affordable renewable energy alternatives. There is a worldwide glut of gas and a collapse of gas prices globally, but the taxpayer is still being forced to prop up this failing industry, which pushes up ..... and threatens our life support system.

There's a worldwide glut of gas and a collapse of gas prices globally, but the taxpayer is still being forced – sorry. I read that already. AEMO is confident Australia is going to experience the most rapid energy transition in the world. Their 2020 Integrated System Plan highlights decarbonisation of the system, reducing emissions, reducing power prices and bringing technology in line with the highly-digitised modern world.

MR O'CONNOR: Meg, can you please wrap up now. Thank you.

MS NIELSON: Yes, I will. Thank you. It confirms that the gas lobby claims that gas is a transition fuel is tenuous at best on both economic and environmental grounds, because there are smarter alternatives. While the gas corporations and proponents may wish to continue with business as usual, we must accept reality. The IPCC and all credible scientists call for a phasing out of existing fossil fuel use, not a squeezing in of just one more project.

MR O'CONNOR: Meg, you need to wrap up now, thanks.

MS NIELSEN: I will, thank you. And there's no leeway for any new fossil fuel projects if we're to avoid the predicted catastrophic outcomes. Thank you so much for listening to me today.

MR O'CONNOR: Thanks for your presentation, Meg. Next speaker, please.

MR BEASLEY: Next speaker is Lisa Costello. Ms Costello, can you hear me?

MS COSTELLO: Yes. Hello. Can you hear me?

MR BEASLEY: Yes, go ahead.

MS COSTELLO: Hi. Hi, everyone. Thanks, Commissioners. I'd like to acknowledge I'm on the Widjabul-Wyabul land of the Bundjalung Nation, and I acknowledge the Gomeroi-Gamilaraay People, also Wiradjuri Nation. I first went to the Pilliga Forest in April 2012 on a Tagalong tour with about 30 other people to view the unique Pilliga Forest. I saw the sandstone caves where Aboriginal art and grinding areas are. I saw lots of beautiful wildflowers and heard many different bird calls. I saw tracks and markings made by lizards and marsupials that live there. I stood up high on a fire tower and looked out over the intact, beautiful Pilliga Forest where birds, koalas, and rare and endangered plants have survived for millennia.

The Pilliga, as you have heard from the ecologists, is the only place in the world where the tiny Pilliga mouse lives. It's a place where microbats live and where seasonal migratory birds stop on their journeys. The Pilliga Forest is the largest unfragmented block of temperate, dry forest and woodland in eastern Australia. It is known as a biodiversity hotspot and is home to the largest koala population in New South Wales, a place where Santos propose to put 850 coal seam gas wells. I was

astounded to hear this back in 2012 as I had seen Josh Fox's film Gasland and had seen what damage to land and water was caused by this industry in areas of America.

I have also been to Dayne Pratzky's farm and saw what was happening with the CS industry up there in Queensland with his neighbours – with his and his neighbours' properties being destroyed. I was taken to a site where produced water from coal seam gas exploration wells in the Pilliga had been stored in an unlined dam that collapsed in 2011 during a large rain event. The area was near the Bohena Creek and had poisoned and killed that part of the forest. The poisoned, dead trees were lying everywhere. April, still being hot out there, and ants and flies were everywhere but not in the dead zone, as we called it.

I went back out there every year to watch and see if and how long any rehabilitation of that dead zone was possible. Each time I went out there, I saw that the re-plantings were dead and died time and time again. Santos have put much work into the rehabilitation of that one site. Lots of water, soil, plants, time and money have been used on that still site with only some areas able to be repaired. There can be no life anywhere without clean water. Water is life. Water is more precious that anything. We need jobs that won't cost the earth. You can't eat coal and you can't drink gas. What good is money if you have no clean water for food production and there are no jobs on a dead planet.

Please stop this project before it goes any further. I fear more accidents and poisoning of that forest will happen and take another near 10 years for rehabilitation. I, like many others, would like to see the Pilliga Forest remain the intact, unique forest as it is, so that it's there for our grandchildren's children's children; wouldn't you? Please don't let it be poisoned and fragmented. Wouldn't it be great if we were remembered as the ones that stopped the use of coal seam gas mining in the area and that renewable energy jobs were made for the Narrabri region. Thank you. That's all I have to say.

MR O'CONNOR: Thank you, Lisa, for your presentation. Our next speaker, please.

MR BEASLEY: Next speaker is Gai Longmuir. Can you hear me, Ms Longmuir? Gai, you might need to turn your microphone on.

MS LONGMUIR: Sorry.

MR BEASLEY: We can hear you now.

MS LONGMUIR: Okay. That's great.

MR BEASLEY: We can also see you but you're moving around a bit.

MS LONGMUIR: Is that okay?

MR BEASLEY: That's fine. Go ahead.

MS LONGMUIR: Yes. Thank you very much for this opportunity to add my voice to the many raising their concerns on this critical issue. I begin by acknowledging the Gomeroi People of the Pilliga and much of the North West, and honour their ancestors past, present and emerging. I also acknowledge the people of the Widjabul-Wyabul land of the Bundjalung Nation of the Northern Rivers from where I speak. My name is Gai Longmuir and I was born and raised on the beautiful fertile Liverpool Plains in Gunnedah.

As a primary school girl, I remember – I remember as a primary school girl feeling an enormous pride for my district on learning of the impressive fact that Gunnedah was the biggest wheat receival centre in the Commonwealth. Over the many days of the Commission's hearings, we have heard repeated references to this area as one of the most fertile farming areas in the nation, with - - -

MR BEASLEY: We've just lost your vision there, Gai. Can you still hear us?

MS LONGMUIR: Yes.

MR BEASLEY: Keep talking.

MS LONGMUIR: Okay. Sorry. Yes.

MR BEASLEY: That's all right. We can see you again now.

MS LONGMUIR: Yes. My apologies, I'm clearly nervous.

MR BEASLEY: That's all right.

MS LONGMUIR: Over the many days of the Commission's hearings, we have heard repeated references to this area as one of the most fertile farming areas in the nation, with many moving submissions by fourth and fifth generational farming families. We've also heard from indigenous elders and young people who've honoured this land for millennia acknowledging the sacred ground of the Pilliga Forest and the critical importance of the Great Artesian Basin, its slow recharge and the profound dependence of all creatures on the water it holds.

As Anne Kennedy of the Great Artesian Basin Advisory Committee notes, this body underlines 22 per cent of Australia and is the only inland water we have, and this ancient groundwater is rapidly running out as the recharge process slows on this driest of inhabited continents. Commissioners, against these - - -

MR BEASLEY: Take your time, Gai.

MS LONGMUIR: Then may I just say in concluding that my late father, John Longmuir, was a deeply civically-minded man and a passionate advocate for the

decentralised and sustainable development of regional New South Wales, joining John Dunnett and Harry Sullivan to establish the North West Magazine as a champion for regional New South Wales. Whilst he was a deeply conservative man and the head of the Country Party, later the National Party, I believe my father would be totally supporting me in opposing this insidious industry. We are profoundly blessed in this country to have inherited the legacy of the original Jukurrpa or dreaming in which the past, present and future continuously interact co-creating the world.

We're in a deeply troubling time. Pandora does not go back into her box. The earth is strewn with unintended consequence and I implore you to remember the precautionary principle and think deeply about this tremendously profound question that you have to consider for all of our wellbeing and remember the words of the song: don't let the 10 million years of stored ground water be destroyed by a politician's pen. Thank you very much for your time.

MR O'CONNOR: Thank you, Gai, for your presentation. Our next speaker, please.

MR BEASLEY: We have Karen Wagner on the phone. Can you hear me, Ms Wagner?

MS K. WAGNER: Yes, I can.

MR BEASLEY: Go ahead.

MS WAGNER: Can you hear me?

MR BEASLEY: Yes, go ahead.

MS WAGNER: All right. Okay. Thank you for letting me speak. Many people will be speaking on the dire environmental impact of this gas facility so I wish to draw attention to something else. Countries across the world rely on the International Energy Agency to plan the future of their energy needs. Up until recently, this organisation supported fossil fuels but now the head of this agency has come out in favour of a green Corona recovery calling it a once in a lifetime chance to rebuild from the economic impact of the Coronavirus.

Mr Birol, head of the IEA, says a green recovery will create nine million new jobs each year. The plan is being developed in coordination with the international monetary fund as part of the world energy outlook. It is based on 30 specific energy policy measures and spans six key sectors: electricity, transport, industry, building, fuels and energy low carbon industries. It will reduce greenhouse gasses by over 4.5 billion tonnes over three years. The IEA has now set out the first global blueprint for a green recovery. Wind and solar will be the top focus along with energy efficiency.

These are legitimate international organisations who now see that the future lies with green energy. Sam Fankhauser of the London School of Economics has stated that the green recovery ticks all the boxes and that governments must not try to:

> *Preserve existing jobs in formaldehyde but must provide retraining for jobs of the future.*

The fossil fuel industry is being kept alive with massive infusions of taxpayer money plus, if they had to pay for the environmental damage they've caused, they would have disappeared years ago. My point is that, in a real open market, fossil fuels would be dead in the water. Anyone who invests in this dying industry at this point is not only putting the final nails in the coffin of life on earth as we know it but they may find that as the enraged public rises up against government puppets doing the bidding of the fossil fuel industry that they will lose their investment as well.

Now that mainstream organisations are going green there is simply no more logic or excuse for clinging to these uncompetitive and dirty fuels. The people of Narrabri, the people of New South Wales and the people of Australia are voting with their actions: green energy in and fossil fuels out. Thank you very much - - -

MR O'CONNOR: Thank you, Karen.

MS WAGNER: - - - for listening to my speech.

MR O'CONNOR: Yes, thanks for your speech, Karen. Our next speaker, please.

MR BEASLEY: We now have Pamela Ditton. Can you hear me, Ms Ditton?

MS P. DITTON: Yes, I can.

MR BEASLEY: We can hear you. So go ahead.

MS DITTON: Thank you. I'm speaking on the land of the Arakwal of the Bundjalung Nation and I pay respect to their elders, past, present and emerging as well as the Gomeroi- Gamilaraay traditional owners of the Pilliga region. I am one voice joining the thousands ..... the project has no social licence. Even many politicians, all of all persuasions, in New South Wales don't want coal seam gas. On 3 June, they passed independent MRC ..... coal seam gas moratorium bill in the New South Wales legislative council although it was narrowly defeated ..... in the .....

Commissioners, you may feel you need more than a lack of social licence to reject this project. You must decide if the DPIE report stacks up. So how will you decide? Well, not by using the ..... in the DPIE report which is to minimalise any impact on the region's significant ..... including the Great Artesian Basin – I am hearing all the technical people behind the scenes, do I talk over all of you? Okay. Because I can hear everyone else louder than me. Okay. I will keep going. The correct test is the precautionary principle as detailed by the ..... of the New South Wales Land and

Environment Court, Preston J. Despite that, the DPIE spokesperson, Mr Kitto, said in an exchange with counsel assisting:

I ..... argue we don't think the precautionary principle is ..... in this instance.

The principle can be expressed in various ways. I will rely on – if some course of action carries even a remote chance of irreparable damage to the economy that you shouldn't do it, no matter how great the possible advantages of the action may be. You have heard overwhelming evidence from leading experts that there is much more than a remote chance of irreparable damage to the Great Artesian Basin, biodiversity and more. The water issues alone should be sufficient for you not to approve the project but that's not all.

Professor Sackett and Steffen argue that ..... that regulate the ..... have been activated that we will not reach our Paris targets in the climate scientists have declared a state of planetary emergency, which obviously will impact the health and safety of the local community. They both assert that they must see no new fossil fuel developments. This is a fossil fuel project. The proponents assert that there will be a great advantage as the gas is needed for uses of transition fuel, the second leg of the precautionary principle. That is irrelevant once irreparable harm to the ecology is established. It's also wrong, according to a new report from AEMO and the witnesses, George Robertson and Mark O-g-g-e, Ogge.

The DPIE report optimistically claims that any residual impacts of the project can be reduced to an acceptable level and that Santos will comply with all the relevant regulations. Unfortunately, I haven't tried to delve into what is an acceptable level. But, whatever that may be, you cannot rely on the regulatory framework. It's fundamentally broken. This assertion is supported by two very recent reports. Professor Samuel released the independent report for the independent review of the Environment Protection and Biodiversity Conservation Act and it found the EPBC Act is ineffective. It does not enable the Commonwealth to protect and conserve environmental matters that are important for the nation. It's not fit to address current and future environmental challenges.

Hot on its heels, the Auditor-General has just published its review of the same Act and found some real deficiencies in the environment department's processes. I thank you, Commissioners, for the opportunity to speak on the Narrabri Gas Coal Seam Gas Project.

MR O'CONNOR: Thank you, Pamela, for your presentation. Our next speaker, please. We will now take a short break. We won't have our next speaker. We will return at 11.25. Thank you.

RECORDING SUSPENDED **[10.44 am]**

RECORDING RESUMED **[11.25 am]**

MR O'CONNOR: Welcome back. We'll have our next speaker, please.

MR BEASLEY: I think we have Mr Dey. Can you hear me, Mr Dey?

MR DEY: Yes, I can. Hi.

MR BEASLEY: Hello. Please go ahead. We can hear you.

MR DEY: Great. Okay. Thank you. My name's Duncan Dey. I have made a written submission as well. I'd look to start by acknowledging that I'm on Bundjalung country where I am and that the project is proposed on Gomeroi country, and acknowledge their elders, both lots, past, present and emerging, and also acknowledge that the land that they're on was never ceded and that the Aboriginal authorities of the area oppose the project and I hope you'll acknowledge that as well.

Thanks for hearing me, Commissioners. This is my 70th year on the planet. In 10 years time I will have been here on this continent for a third of white occupation. At the moment, or my own history and my relationship with that country is that I first visited Gomeroi country in 1957 and have observed it ever since. I'm a hydrologist by trade and both through that and just through who I am, I have an awareness of landscape, catchment and terrain, and I've watched that area for about a quarter of white occupation.

I think like many other areas of Australia, it suffers in that it's been impacted by things that we have brought, like weeds, fences and, generally speaking, we've practiced a ruination of the country. I think that factors like that should be considered when we consider further projects and in particular because this kind of project is not only unnecessary, because the same amount of human endeavour put into alternatives would be far more benefit to all of us, but also the impact on the terrain in which this is going to take place. So on the one hand it's an unnecessary project and on the other hand it's going to have huge negative impacts.

During the address by the Department of Planning on the 20th of July, I was quite shocked to hear that New South Wales public servants seem to me to be promoting this project. I heard things said in my field, which is water. A claim was made that because this project is in fact a bit smaller than other projects that rely on water extracted from the great Australian – Great Artesian Basin, that therefore this project had some kind of licence and I imagine as planners, you would understand that it's the cumulative impacts of things that needs to be borne in mind when considering these matters. To hear the argument that this was small compared with other destructive extractions, for me, was quite wrong, and there is a myth that the recharge and therefore capacity of the Great Artesian Basin is yet to be fully discovered, but the reality is that it has been over-extracted for a very, very long time

and to then add extraction of water, I think, is quite wrong and I ask you to bear that in mind as well.

The same speaker told us that the benefit of this particular gas would be that it would stay in Australia, but I also wish to deflate that argument. The reality is that there is a lot of gas being extracted in Australia and, through business arrangements, it's being exported overseas. I think that a far better project would be to change those arrangements rather than to extract more gas with the cry that this particular gas would be for Australians, well, for the people of New South Wales in particular. A further argument that was raised was that this grass project is far smaller than the destructive gas projects of south-east Queensland and again, us thinking that a small share of destruction is okay because there's a far bigger share up the road is quite a false argument and I ask you to please not consider that in a positive light.

The biggest thing that was missing from the Department of Planning's description of the project was the impact of the burning of the gas, not only of the burning of the gas, but of the fugitive gases that are lost to the atmosphere during extraction. And there's no doubt in 2020 that if we, as the people of New South Wales, don't curtail our burning of fossil fuels, the planet is headed for disaster.

I work in flooding, I work – I have a broad understanding of coastal erosion and you'll know that recently there were problems at Wamberal and these problems will grow and rise as sea level rises over the next hundred years.

MR O'CONNOR: Duncan, can you please wrap up now, thank you?

MR DEY: Sorry?

MR O'CONNOR: Can you please wrap up now, thank you.

MR DEY: Yes. I will. I'm almost there. The time frame in which these projects need to be considered is far longer than even a hundred years. Contributing more carbon to the atmosphere is wrong. Lastly, I just sum up by saying, yes, I'm old, but I'm a parent and a grandparent. Not only that, but every human on the planet needs to look out for next generations – of the coming generations and a key reason why this project should be refused is that we do not need fossil fuels. Thanks very much.

MR O'CONNOR: Thank you, Duncan. Thanks for your presentation.

MR DEY: And good luck with your deliberations.

MR O'CONNOR: Thank you. Our next speaker, please.

MR BEASLEY: Next speaker is Jennifer Gray. Ms Gray, can you hear me?

MS GRAY: Yes, I can.

MR BEASLEY: Great. Please go ahead.

MS GRAY: Thank you, Commissioners, for the time to speak. Because the Narrabri Gas Project has risks that can result in catastrophic consequences, I agree with Pam Ditton, who spoke two speakers ago, that the precautionary principle must be applied. So what are the risks and the level of scientific knowledge? Firstly, the risk of ground water levels dropping, the water of the Great Artesian Basin flowing down out of reach of water bores due to drilling, thus threatening the existence of agriculture in western New South Wales.

The DPIE's water expert panel is not confident that Santos's geological and hydrogeological model is adequate to predict movements of water. We heard Professor Matthew Currell from RMIT, on the 23rd, describe research by university of New South Wales in 2019 showing there is a greater degree of faulting than predicted in Santos's model, making this consequence more likely when the faults are drilled through, as well as increasing methane emissions up the faults. Have Santos been hiding this research from public scrutiny?

Secondly, the Pilliga forest is an island of semi-arid woodland, a refuge for 48 threatened species, many of them endemic. We heard from David Milledge on the 23rd stating these species will survive if the forest is left intact, but they will go extinct if the forest is cut up by gas infrastructure. He said the acquisition of offsets is useless to prevent this because species endemic to the Pilliga are not found in patches of forest elsewhere that you may choose as offsets. His research team has found far more animals than Santos research team have, indicating the latter's work cannot be trusted.

Thirdly, fire. There were 17 fires in the Pilliga forest between 2014 and 2018. Santos's claim they will cause an added risk of one fire every 70 years is unbelievable as there are three ways the NGP will increase frequency and intensity of fires. The drying of the forest and higher temperatures from global warming, which the operation of the NGP will increase, the constant flaring of wells. It only takes a willy-willy, a moving spiral of air containing dead leaves, to pass through a flare and the forest will ignite and, thirdly, the network of pipes of flammable gas and who will risk their lives fighting the fires and save the gas infrastructure? The Rural Fire Service made up of the farmers whose livelihood Santos will destroy, such as David Watts, deputy captain of the Wynella Rural Fire Brigade, whom we heard from on the 22nd. On the 23rd we heard Greg Mullins, ex chief fire commissioner, say that the only way to prevent the NGP causing fires is to cut the forest down.

Fourthly, greenhouse gas emissions. We heard Professors Penny Sackett and Will Steffen on the 24th tell us that Australia cannot embark on any new fossil fuel projects, especially this one, if we are to limit global warming to 1.5 degrees. We heard on the 26th, Dr Andrew Grogen, an expert in CO2 in geological formations, say his research shows that the composition of CO2 in 1000 samples from 40 wells over the area of the NGP averages 30 per cent, whereas Santos reports CO2 levels from 250 samples from two wells as five to 10 per cent; although, Santos is hiding the

raw data from public view. Dr Grogen said CO2 would be emitted into the atmosphere, making the greenhouse gas emissions equal to the burning of coal. This debunks the gas as transitional energy fantasy.

So applying the precautionary principle to the NGP, the risks are great and the science is uncertain. The approval for this project must be refused. Homo sapiens as a species has been in existence for 200,000 years. The second most significant decision ever made by humankind was 100,000 years ago, when our ancestors walked out of Africa, proliferated and dominated the planet. The most significant decision will be made this decade when we will decide to stop runaway climate change and prevent the extinction of our species and most others. I ask that you be part of this decision. Thank you.

MR O'CONNOR: Thanks for your presentation, Jennifer. Our next speaker, please.

MR BEASLEY: We have Julia Barnes. Ms Barnes, can you hear me?

MS BARNES: Hello.

MR BEASLEY: Hello. Go ahead.

MS BARNES: Can you hear me?

MR BEASLEY: Yes. Go ahead, please.

MS BARNES: Good morning, Commissioners, Mr O'Connor, Professor Barlow and Mr Hann, and counsel assisting Mr Beasley and broader audience. Thank you for giving me the opportunity to speak today. And thank you as well for the hard work that the IPC has put into this hearing. Before I begin, I would like to pay my respects and acknowledge the traditional custodians of the land on which I speak today; the Wodiwodi People who are part of the Dharriwaa nation, and those of the Kamilaroi Nation which the proposed project is located, and acknowledge their valued connection to land, water and culture. I pay my respects to elders, past and future, and to any Aboriginal and Torres Strait Islander people listening today. I would also like to acknowledge and thank the thousands of people who have taken their own time, expertise, and energy into expressing their concerns for this project.

My name is Julia Barnes. I'm an environmental scientist and educator, with a background in ecological research, sustainability consulting, catchment management and program design. However, most importantly to this project, I'm a proud Narrabri girl, with the majority of my family and friends still living there today. My talk stems from a place of love and respect for my home, my family and friends, for future generations, and the magical biodiversity in a landscape that we're so lucky to have. You want to protect the things you love, which is why today I'm speaking in strong opposition to the Narrabri Gas Project and ask that the Commissioners please refuse this project, despite DEPA's recommendations.

In my talk today, I will very briefly articulate why I believe this project has a risk of posing irreversible damage to our community and environment, and articulate the many public interests that would be achieved by not approving development consent. So I will providing a detailed written submission of my concerns.

I believe this project has a risk of posing irreversible damage to our community and environment, as I do not believe that the courts have been able to demonstrate that the threat of environmental damage does not exist or is negligible. We have heard from scientific, economic, and engineering experts about concerns of groundwater, methane, health, biodiversity and waste. The lack of transparency in management reports, as well as the lack of baseline data in many areas for the public to review at this point in the approval process, despite having pilot wells, leaves me in a place of mistrust and feeling that there might be risks we are not yet aware of the full impact.

For example, there's currently a study being conducted by ..... GISERA – I'm not sure if I said that right – to help refine the understanding of faulting on groundwater. This approval process is not dependant on this study, and we get to see the results. Another example, prior to the commencement of phase 2 of this project, the applicant must prepare an air quality and greenhouse gas management plan and an Aboriginal cultural heritage management plan for the development, to the satisfaction of the planning secretary. Waste disposal and reuse studies is another.

I'm also concerned that, in many instances, the criteria set out in both the EIS and DEPA recommendations, that the development standards are not strong enough to prevent long term significant impacts. For example, often wording is used such as "minimise impacts", not language such as "prevent" or "avoid", that would hold Santos accountable. One example from the report is:

> *Minimise leakage of methane, carbon dioxide, ... fluid, saline groundwater and other potential contaminants to the environment*

which I find scary. I also believe that the cumulative ongoing and long-term impacts have not been appropriately addressed, but rather, glossed over. I don't think this is acceptable for development approval in a project that has state, and indeed, when considering climate impacts, global significance. I have not been convinced that the risks of the science behind the suggested approval by DEPA is robust enough to warrant the risks, and the broader position of this project has made it clear that these are not risks that we're willing to pay.

The good news is there are many wonderful, wonderful outcomes of public interest that can come from an Independent Planning Commission refusing consent of this application. People in the northwest region of New South Wales can continue to drink from their water bores without concern of contamination or sickness. Local people, as well as visitors, can breathe the air without potential health implications from particulate matter. There won't be a time where Pilliga bushfires, coupled with gas flares, has to be managed or contended with, putting many lives at risk.

The stars can continue to amaze us, bringing people from all over to appreciate natures gifts and one of the highlights of living away from an urban centre. Groundwater springs can continue to run and support wildlife during the driest months. The Pilliga can continue to be enjoyed by wildlife and humans alike; camping, recreation, small businesses, such as the Pilliga Pottery. Family farms and a healthy environment will still be here for our children and future generations to come. Emotional baggage and anxiety regarding project risk and uncertainty can be lifted, especially during this COVID pandemic, where we can all appreciate the emotional toll it can take.

For groundwater, often quoted as the most precious resources, remains viable. No more toxic spills. No two and a-half B-double truckloads of salt needing to be disposed of each day. No risk of predicting 50 per cent of wells after the project has stopped. There'll be - - -

MR O'CONNOR: Can you please wrap up, Julia.

MS BARNES: I'm sorry, I didn't hear the bell. Yes. I will just finish my last points. I just wanted to mention cultural heritage as well, responsibility to future generations, facilitating ecological sustainable development, providing leadership to drive clean energy movements, and, lastly, the unmeasurable benefit of providing hope in a time when it is so needed that we can grow sustainable communities together. For all these reasons and more, I ask the IPC to please reject the Narrabri Gas Project. Thank you so much for your time.

MR O'CONNOR: Thank you for your presentation, Julia.

MS BARNES: Thank you.

MR O'CONNOR: Our next speaker, please.

MR BEASLEY: Next speaker is Sarah Waddell. Can you hear me, Ms Waddell?

MS WADDELL: Yes, I can.

MR BEASLEY: Please, go ahead.

MS WADDELL: Good morning. Good morning and thank you for this opportunity. I'm an environmental lawyer and, from 2010 to 2012, was on the board of the New South Wales EPA. On an EPA field trip with the inspectors of a coal seam gas pilot site in Narrabri, I recall that board members were particularly concerned with wastewater management and impact on groundwater quality.

To recommend the approval, the department has drafted the development consent with many conditions for water management. Conditions at B38 state that:

A water management plan must be prepared by a qualified and experienced person or persons, in consultation with the EPA and the water technical advisory group to be established by the applicant.

This water management plan will be considered by the planning secretary and will include a groundwater management plan and a producers water management plan. I would like to discuss the application as a precautionary principle, which is relevant to three objects of the Act as per section 1.3 A, B, and E, in regard to the protection of groundwater quality and quantity and these proposed consent conditions prepared by the department. The precautionary principle will be relevant if there is a threat of serious or irreversible damage to the environment and there remains scientific uncertainty as to the level of threat of environmental damage. Using ..... the IPC is supposed to consider, as a condition precedent, if they're a threat and does the threat pose serious or irreversible damage.

So what does it take to be ..... threat. The case law establishes that a threat does not have to be a likelihood or probability, as long as it is foreseeable, not farfetched or fanciful. As Preston CJ has stated, the threats that should be considered have been held to include direct and indirect threats, secondary and long-term threats, and the incremental or cumulative impact of multiple or repeated actions or decisions.

So is the threatened damage serious or irreversible? Going back to Preston CJ again, who has written a lot about the precautionary principle, it involves consideration of many factors. Applying some of the factors listed by Preston to this case, the IPC needs to consider evidence that estimates the magnitude of groundwater quality impact; comments on the perceived value of the groundwater; estimates the longevity of any impact on groundwater; analyses the connectivity and complexity of the groundwater hydrogeology; covers reversibility of possible impacts; and, importantly, identifies where the potential impacts can actually be managed, having regard to available means and the acceptability of means.

So if the IPC does not form an opinion on these factors based on adequate evidence, then it may not have applied the precautionary principle correctly and that's a risk. If there are threats of serious or irreversible environmental damage, the IPC must continue with the application of the precautionary principle and there's a second condition precedent to be considered. Is there a lack of whole scientific certainty? In my view, this appears to be exactly the situation facing the IPC. The technical and methodological complexities of managing the quality and quantity of groundwater do create scientific uncertainty. So if there is lack of whole scientific certainty about the extent of the threat to groundwater from the proposed development but the threat is nonetheless foreseeable and serious or irreversible, and this appears to be the situation, what should the IPC do?

According to Preston CJ, it has to be assumed that the threat is a reality and any decision must be based on this understanding unless the applicant can show that the threat does not in fact exist or is negligible. So once these two conditions precedent are met, the precautionary principle requires that the IPC should not press their own

measures for preventing environmental degradation. It could be argued that the department's proposed consent conditions actually amount to preventative measures but this will depend on (a) the adequacy of information upon which they are based, bearing in mind the factors already mentioned, and (b) the preventative strength of the conditions.

To the contrary, for this extraordinary case, I submit that the precautionary principle provides the IPC with the reasoning that is recognised internationally, nationally and at the state level for refusal of the development application. There are just so many factors that point to the foreseeability of serious or irreversible environmental damage to this high value site, including its pristine groundwater, that the IPC will be fully justified in favouring refusal as the most reliable measure to prevent environmental degradation. Thank you.

MR O'CONNOR: Thank you for your presentation, Sarah. Next speaker, please.

MR BEASLEY: We have Jane Richter. Ms Richter?

MS RICHTER: Yes, can you hear me?

MR BEASLEY: We can, so please go ahead.

MS RICHTER: Lovely, thank you. I acknowledge the traditional owners of the land on which I make this presentation, of the land on which the Commission is meeting, and of the land on which the Narrabri CSG project is intended to be constructed. The land was never seeded. It is, was and always will be Aboriginal land. When years ago I first encountered the film Gasland, I was aghast. How could such an open democracy as the USA permit the homes and lands of its taxpaying and sometimes voting citizens to be victims of predatory fossil fuel companies?

I watched, along with many others, the destruction of pristine landscape, the despoliation of prime and beloved agricultural land, and the invasion by methane of people's home water supplies, so that their children suffered chemical burns from bathwater, and their methane-infused kitchen tap water could be set alight. Never, I thought. Never could that happen here. CSG began in Australia in the Bowen Basin in 1996 and was therefore quietly established by the time Josh Fox's Gasland film came to the attention of the world. We became gradually aware that our laws permitted mining companies to access the resources below our properties and that there was essentially no protection for the landowner who wished to say, "No, thank you", to the fossil fuel company representative at the gate.

The coal seam gas industry is the business of extracting natural gas from the geological strata below the land. Methane, with a chemical structure of CH4, is perhaps the ultimate hydrocarbon and is the largest component of this gaseous commodity. It is known to be 84 times more potent than carbon dioxide in the first two decades of its release. Even miniscule quantities, therefore, cannot be ignored in our pursuit of a carbon neutral future. I'm a presenter on community radio in my

local area. It is my great pleasure and privilege to bring to my listeners interviews with many of the pre-eminent academics of this country, and the most usual topics of our conversations revolve around climate change and the preservation of our severely contested environment, both on a state and federal level.

In talking to environmentalists, ecologists and economists, among others, the strong message I am hearing is that our current economic predicament brought about by the COVID-19 pandemic is giving us the chance of a new start. All seem agreed that the future for Australia is in the manufacturing driven by the abundance of renewable energy that lingers so far largely untapped at our very fingertips. These knowledgeable people are talking about green steel, green aluminium, produced using the energy of the sun and the wind, and the green production of hydrogen. A whole new generation of industry, of which we could be the leader if we move quickly and surely in this direction. All agreed the days of fossil fuels are gone.

Since white settlement, we have demonstrated an appalling record of failure of stewardship of this wonderful land. In a little over two centuries, we have lost untold species to the great abyss of extinction and are on a miserable track to lose more. Coal seam gas is a dirty industry. Wells spew salt and chemical contamination onto land that is then ruined forever. Unmeasurable fugitive emissions contaminate the very air we are trying to clean. Landholders and whole communities lose their hold on a place to which they have committed themselves for decades and often generations.

Although our federal government would like us to believe that Australia is on track to meet our internationally agreed targets, the truth is more than a little different. The figures of the Climate Council of Australia show clearly that we are completely off track to meet these targets. Australia is the 16th largest emitter of CO_2 worldwide and is 10th highest on a per capita basis. These Climate Council figures call out rubbish on the federal government's claims that we are a small emitter on a per capita or national basis. A graph available on the same Climate Council website, climatecouncil.org.au, indicates clearly we will to reduce our emissions by an additional 695 to 762 million tonnes in the decade 2021 to 2030.

If we are not already on track, what makes it possible to even consider any further projects of an industry that is known for its fugitive emissions, the quality and quantity of which is completely unknown? Industry data cannot be considered as impartial but a CSIRO sample of 43 wells in 2019 showed that only three wells had no emissions. There is no moral licence here for us to continue our pursuit of a fossil fuel future and a contemplation of any new CSG project is simply laughing in the face of the certain death we are designing for our environment. Thank you.

MR O'CONNOR: Thank you, Jane, for your presentation. Our next speaker, please.

MR BEASLEY: Next speaker is Linda Whitten. Can you hear me, Ms Whitten?

MS WHITTEN: Yes, I can.

MR BEASLEY: We can hear you, so go ahead.

MS WHITTEN: Good morning. My name's Linda Whitten. I am a Gomeroi woman from Gunnedah in north west New South Wales, just down the road from Santos' proposed gas field. Basically, all I have to say today is enough is enough. I want to ask the Australian Government how much more do Gomeroi people have to give? You know, since colonisation happened, my people have been dealing with the impacts daily. We live them again and again and again. Our access to country is restricted, our right to practice is restricted. You know, our culture is important to us. We have a right.

We have a right in this country under your own laws to do what we are born to do, what we are created to do as Gomeroi people, and that is to look after the land and the waters and the skies that sustain us and protect us all. Now, as the lady before me mentioned, there's an abysmal record of lost species, you know. I don't think anybody else in the world records are as bad as Australia's. It's time that we were given our rightful place in our communities, it is time that we're stopped being forced to jump through the hoops of a government that is built to fail us. Okay. Now, we're tired of having people come to our country and say, "I'm an expert in this", "I'm an archaeologist", "I'm this, "I'm that." They tell us what's important to us. They tell us what we should preserve, what is significant. They don't know anything about that. They're not from here. They're not my people. They're not my elders. We have a song for that. We have a story for that.

The Pilliga holds places of huge significance. Out there you will find our churches. You will find our schools. You will find places where we celebrate. You will also find places where we ..... you will find places too where we perform our most sacred and secret ceremonies, you know? We have a right to that. And we're tired of having our access restricted. We're tired of being denied, as Gomeroi people, to practice our culture and to maintain, protect and preserve our heritage and our country and our waters.

Now, the all mighty dollar in this greedy pursuit where economic benefit outweighs everything else, there are many types of wealth, some people might say that a strong community is a huge type of wealth, other people will say that empowered people is a measure of wealth, some will certainly say that a person's emotional and psychical wellbeing is priceless, absolutely priceless, and the wealth of a person's spiritual wellbeing, well, that's just completely unfathomable, you know? We don't come into your community and tear down what's important to you. We don't say, "You come over here and you jump through all these processes" – which are completely not your way, you know? And we jump through them all.

We have jumped through them all. And we've done it again and again. And anybody that has been through my country there on their way to Narrabri and seen what has happened to it, at the hands of Whitehaven Coal, can walk into Narrabri

there, and around the Warrumbungles, and say, "Yes, this should be done, this will be done in the name of economic benefit in a contract with the government to say it's okay to take away everything that we have left." It's not okay. I'm here to say, on behalf of my people, enough is enough. "Gamil" means "no" and "no" means "no.". And if we have to fight to protect what is ours, we will.

Now, I would like to think that this government will rule in our favour. Unfortunately, based on past experiences, that's not likely to happen. So I will say again: if the government rules with Santos in this, let no person ever say to any Gomeroi person ever again that the crimes of the past happened hundreds of years ago because they are happening right now. Right now. Right now. This very second. "Gamil" means no. Thank you for your time.

MR O'CONNOR: Thank you, Linda, for your presentation. Our next speaker, please.

MR BEASLEY: Our next speaker is Suzette Osborne. Can you please – can you hear me, Ms Osborne?

MS S. OSBORNE: Yes, I can. Thank you.

MR BEASLEY: We can hear you. So go ahead.

MS OSBORNE: Okay. Thank you. Good morning to you all. I come before you today to give account of the responsibility that is set before us all today. True leadership takes account of the greater good overall in the internal knowing that what we do today is about our future based on the list management principles of cause and effect. This project is at the highest risk level of these principles. In truth, I struggle to understand why this project was not rejected forthwith having received much of the reliable information from concerned people from all walks of life. We must ask ourselves the question: why has the Indigenous culture lived for more than 45,000 years and the dominating culture of early arrivals has barely survived 200 years and has almost self-destructed in destroying the earth?

This project is flawed at the most fundamental level because of the associated risk factors to the environment and, subsequently, all aspects of life due to ill-fated consequences as a result of giving into money and power and control rather than upholding the rightful justice of the risk management principles taking account of our responsibilities now for future generations to come. I draw attention to the Armidale branch of National Parks Association document dated 20 March 2017 in addressing the high risk factors associated with this project.

It is very clear – I will just go to that now – it is very clear from Dr Fleming that this project is incomplete and unacceptable and should be rejected. The proposed extraction procedure is flawed and designed to fail. Planned sightings of wells and MSDS – material safety data sheets for those that don't know – provisions are incomplete. We must – I draw attention to this because this is just critical.

Corrosion of proposed plant and infrastructure will ensure the failure of 100 per cent of wells over time, contamination of and reduction in recharge capacity of the aquifer feeding, the Great Artesian Basin will occur, the drilling and fracking process will fracture the ..... rock and high ..... fugitive gas escape to the surface, water mixing and contamination of all aquifers will occur, the predicted small surface water drawdown is unjustified in the EIS.

Any drawdown will impose a future change in land use for this food bowel. The Pilliga State Forest will, itself, be endangered, as will its already endangered species. And it goes on and on. The proposed Narrabri gas field appears inappropriately selected and researched and the EIS ..... as I've already stated, it's unacceptable and should be rejected. I draw attention to my first – one of my friend comments is why and how has this been allowed to go this far? I ask us all because this is all about the future of our children's children and so on. Thank you.

MR O'CONNOR: Thank you, Suzette, for your presentation. Our next speaker, please.

MR BEASLEY: We have Roslyn Nisbet. Can you hear me, Ms Nisbet?

MS R. NISBET: Yes. Can you hear me?

MR BEASLEY: Yes, we can. So please go ahead.

MS NISBET: Thank you very much. My, my, what an amazing time this is. Thank you and – for letting me speak and I would like to acknowledge the Aboriginal people past and present and, particularly, the Wiradjuri people that I'm sitting on at the moment. We are – the relevance of why I'm speaking is that we are farmers from the Riverina area and you have been listening to some amazing information, which I'm not going to bother going over them again. There's nothing I can say that would be different to anybody else that you've heard by the sounds of things. You must be exhausted.

But I would like to say the reason why I'm speaking – and since I'm such a long way away from Narrabri – is that, because we're farmers, we have a unique – also unique environment. We ..... the town that we live in had the largest tin mine in the Southern Hemisphere. It actually finished in 1988. And the company that was in charge of it, Ardlethan Tin, was endorsed with the belief from us that the landowners, people around the area, that they would regenerate what they had done to the actual tin mine, which I'm sure Santos is also making us believe that they sincerely care about the land and what they're doing to it.

The Ardlethan tin mine did not regenerate the land. They made no effort at all. Then they brought in other companies to try and use the tin mine and, first of all, in early 1990s was the toxic waste incinerator and Ardlethan is the small country town with only 500 people and now 200 people, and the Chairman – I can't believe – sorry, the Chairman, Mr Bowen, you also came from a small country town, too, so we fought

that toxic waste incinerator and we stopped it from coming because of our hydrology reports and all the other type of environmental material that you're listening to today, again,

And then after that, the council decided to bring in a waste dump to fill up the whole of the tin mine. I can't believe that Santos will do what they're saying they will do in caring for the land after they rape it, basically. And we're farmers who have sat by and watched people try and do that. We can't fix the fact that the tin mine has got this gaping hole in the land, and we're not going to be able to fix what they're trying to do in Narrabri either.

Basically, this argument is about money and you know that this argument is about money and I beg you to think about this process that all these people have tried to convey to you in this rather amazing process of communicating to you via a video link. I wish I was there in the room but can't be because of COVID.

We, as farmers, try and do the best we can by the land and yet you're going to perhaps allow or the government's going to allow somebody to come and ruin that produce. I apologise to the Wiradjuri people what we have done to the land as well, but we do try and rejuvenate it afterwards, not in this case. There's nothing much I think you can hear more from people like us, but that's all I have to say. Thank you.

MR O'CONNOR: Thank you, Roslyn, for your presentation. Our next speaker, please.

MR BEASLEY: We have Richard Madigan. Mr Madigan, can you hear us?

MR MADIGAN: Can you hear me?

MR BEASLEY: Yes, I think we can. Go ahead.

MR MADIGAN: Okay. Thank you. My name is Richard Madigan, and I would first like to acknowledge and pay my respects to the Dharug and Gandangara peoples whose land I am speaking to you from today here in the Blue Mountains. You have heard from many experts on how, across many sectors, environment, biodiversity, economics, et cetera, this project is either unviable, unsustainable or just plain destructive. I am no expert, but I wish to present to you today my solid belief why, from a human perspective, this project must be rejected.

I am a proud father of three and grandfather to a lovely two-year-old who, in five months, will be joined by a sibling. I am reservedly happy about this, but also very fearful for them and the future that they will inherit. I am 65 years old. For two and a half decades of my life, my focus was on my kids, providing the best education and a solid and secure grounding from which they could then forge ahead a decent future for themselves. About four years ago, I kicked back, feeling content that I had done my best and had been successful in this goal, so I moved to the Blue Mountains for a

simpler live. My two eldest are successful and have a clear trajectory. My 25-year-old is still a student finding her feet in the wider world.

In these past four years I have become more active in my reading about and protesting for the protection of our environment. On an almost daily basis, I read something that just has me shaking my head, wondering how we could have ended up with such a broken society and leaders who are so short sighted. I frequently have an image in my head of lemmings heading towards a cliff with our politicians leading the charge, promising us silent followers that their vision is the best way to a healthy future. I and, fortunately, a growing number of people from all walks of life, see the massive chasm of destruction at the bottom of that cliff.

I wish to mention here one aspect of this project that absolutely defies logic; a proposed 850 gas wells in an area that is dominated by forest. Gas wells have flame associated with them, often large plumes. Is there a fire risk associated with this? Most definitely. All it might take to ignite a fire during fire season is a single, windborne leaf carried through that flame and on to the ground. This is what the term spot fire relates to.

I highlight this as my summer was a catastrophic one. Living on the edge of the national park and Wentworth Falls in the Blue Mountains, we were caught between an advancing fire from the north and an advancing fire from the south. For three full weeks, our life was on hold. If we were not inside sheltering from the smoke, we were outside checking our pumps, our hoses, rehearsing our fire planning, checking our many mobile apps and our ABC for the most current updates. Day in, day out. Waking up in the morning, unsure of what each day would bring, and going to bed totally exhausted from the trauma. It wasn't a question of if, it was a question of when. Fortunately, the closest it came was 1200 metres across – on the ridge across from our gully. Now, thanks to an accelerated rate of climate change, in a big part due to our ongoing burning of fossil fuels, we now need to start preparations for our 2021 fire season and the angst that will go with this.

So for me, the idea of willingly bringing into a forest a potential fire starter is not only illogical, it is immoral. So all of this has led me to become more and more anguished about the future and fearful for my children. I particularly have difficulty accepting that despite me doing my best to provide a safe and secure future for my kids, successive prime ministers and ministers have not backed me up on this. For example, how can a gas-led recovery be good for my kids? How can a destructive fossil fuel industry and its resultant emissions be consistent with the concept of recovery?

Finally, I just wish to say something about water. Water is our life blood. It sustains the individual and nurtures communities. Healthy and abundant supplies ensure a healthy and cohesive society. Any action that endangers this resource should be considered criminal as this resource belongs to everyone. Time and time again, we see how greed and mismanagement of water fractures communities. Decisions on water use must always be based around the greatest benefit to the most people.

In closing, Jared Diamond, in his book 'Collapse', documents prior human societies that became extinct due to a lack of forward thinking on how they use their natural resources. So my plea to you today is a human one. We must be intelligent enough as a species to safeguard our society's survival. The IPC must choose our societal well-being over a stopgap economical one. Your rejection of this project will hopefully encourage our government to lead Australia on a new path from fossil fuels, away from fossil fuels. Your decision to disallow this project will help show them that the unethical and illogical approach that they are taking needs a major rethink. Thank you, commissioners, for the community to voice my opposition today to the Narrabri Gas Project. Thank you.

MR O'CONNOR: Thank you, Richard. Next speaker, please.

MR BEASLEY: Next speaker is Bronwyn Evelyn. Can you hear me, Ms Evelyn? Ms Evelyn? Bronwyn?

MS EVELYN: Can you hear me? Hello.

MR BEASLEY: Hello?

MR O'CONNOR: You've just magically appeared in front of us. Is that you, Bronwyn?

MS EVELYN: Yes. Yes. Hi. Can you hear me okay?

MR O'CONNOR: We can, and you are the right person so please proceed.

MS EVELYN: Thanks. Hi. I'm Bronwyn Evelyn, and again I'm Wiradjuri land and I'm really grateful for their past history and that I can speak from this land. I oppose the Santos' Narrabri Gas Project and the New South Wales Government's assessment of the project. (1) Santos isn't welcome on Kamilaroi land full stop. (2) Serious and irreversible damage to aquifers and groundwater can't be ruled out, and for a single project to jeopardise the integrity of these aquifers in groundwaters is just completely unacceptable. The Pilliga is of significant conservation value and should be protected. Recent government inquiries and an independent inquiry found Australia's environment was getting worse under the laws to protect it.

Australia's natural environment and iconic places are in an overall state of decline and are under – sorry – I'm reaching for my notes – an increasing threat. The current environmental trajectory is just unacceptable and a Parliamentary inquiry into the koala populations states that without urgent government intervention, the koala will become extinct in New South Wales before the 2050, about the same time this project winds up. Loss of the habitat poses the most serious threat. The inquiry wants urgent investigation into using habitat on private land and state forests, which Pilliga is, to replenish populations hit by bushfires. There must be a significant increase in koala habitat protected from logging, mining, land clearing and urban development, Ms Faraman said.

The government needs to overhaul the failed biodiversity offsetting scheme, which allows core koala habitat to be cleared. Koalas do not need Santos' research into their situation. They need habitat, more protections for their habitat and an end to fossil fuels, so their habitat will survive. I don't understand why our natural environment has to be sacrificed every time for economic gain. Our landscape has been constantly hammered since white settlement. In nearly 250 years, five of my lifetimes, and I'm thinking three of yours combined, our natural systems are on the brink of collapse. With the Murray-Darling Basin and catastrophic bushfires of 2019 and 2020, which my mum lost her house in, evidence enough that our management systems are hopelessly inadequate with dire warnings that if we don't rapidly change our ways, it will get worse.

These systems once gone cannot be retrieved. Apparently, vulnerable and endangered and critically-endangered species will be just decimated if this project goes ahead. Santos cannot guarantee a better outcome for these species and the catastrophic bushfires are, like the last speaker said, a very real threat. Santos has – will have no control over flarings happening on total fire ban days. And this will be a catastrophic outcome for the forest and is contemptuous of our state laws. I believe this project is a gateway project. If it goes ahead, it potentially opens up the central west for further gas exploration and export and will only guarantee more harm to our systems and climate change.

I live in Canowindra and in my written submission I've included a segment of this book. I believe it gives a clear view of impacts of climate change in our agriculture and in our region. Climate change only intensifies the terrible consequences of Santos' Narrabri Gas Project. This one project alone will increase our fossil fuel emissions by one per cent and this is just completely unacceptable. The fact that the government says that we need gas to transition from coal to – from – away from coal is a lie. Actions the scientific alliances say would lessen the worst effects of climate include quickly transitioning to renewable energy, promptly reducing emissions of powerful short-lived climate pollutants like methane and increasing protection of biodiverse systems, with an end to land clearing and obviously planting more trees. The UN has said that the time to begin planning for a wind-down of gas production is with – as with other fossil fuels, already upon us. Please - - -

MR O'CONNOR: Can you wrap up now, please, Bronwyn.

MS EVELYN: ..... don't let us open up our gas fields in New South Wales. Thank you very much.

MR O'CONNOR: Thank you for your presentation, Bronwyn. Our next speaker, please.

MR BEASLEY: Our next speaker is Diane Perry. Can you hear me, Ms Perry?

MS D. PERRY: Yes. I can. Can you hear me?

MR BEASLEY: Yes, we can. Go ahead.

MS PERRY: All right. Thank you very much. Good afternoon, commissioners, and thank you for the opportunity to speak today. I live on a property near Quambone in northwest New South Wales. I strongly object to the proposed Santos Narrabri coal seam gas project for a number of reasons and have been seriously alarmed since I first became aware of this project of the risk and impacts that it would have on our lives and livelihoods. I will be speaking as a concerned wife, mother, grandmother, grazier, teacher and community member, but foremost is speaking up for my granddaughter, whose first year of life saw drought, fires, skies filled with dust, smoke and ash. Whilst she is not old enough to speak, she needs to be heard.

Hopefully, one day I can look back and say to her with pride, "Look what we were able to achieve." Today I will speak on some of my other concerns, with my main concern being for the generations to come. Hopefully, they can look back on this decision and be proud. I hope that all future generations will be able to live in a country as we have. Will it still be the lucky country, I ask, that we grew up in? I hope that all children will be able to turn a tap on and to see and feel that precious, clean, abundant water to either drink or wash in. Not everyone is as blessed as we are to have this reliable clean water from the Great Artesian Basin.

For many communities around us, this is their only source of water. Where do they go if this water is no longer there? I fear that many of these families will become displaced from their homes and lives and with that goes jobs in the communities and agriculture. I hope the children will be able to grow new gardens to produce good, clean sustainable food to eat; to be able to run on green grass, not on bare ground covered with thin burrs; to be able to still go to the local community pool to learn to swim or just cool off on a hot summer's day when relentless temperatures of 45 degrees caused from the increased use of fossil fuels on climate change; to go on holidays to the bush; to see all the native animals who, I can assure you, would have not survived without this reliable groundwater source.

How many towns rely on these tourists visiting, creating jobs and benefiting the economy? I hope my granddaughter never has to spend another night in makeshift accommodation after being woken early in the morning by her parents to leave her grandparents' house with fire all around them under threat from the Cobargo bushfires is a catastrophe no one should ever be faced with where lives and livelihoods were lost and lives changed forever. How well prepared is Santos for their disaster? Will they be prepared for a fire, maybe like the fires on the South Coast? How many firefighters will have to risk their lives just for a small boutique gas field, as we are now informed, will not lower gas prices.

Hopefully children will not have to live in a world where the sun is always being either blanketed by smoke or dust. As a parent, teacher, community member, it is our responsibility and duty of care to provide a safe environment for all children to live in. So why is this project being considered, as it will clearly add to the climate

impact on a planet that is already under pressure. I am also concerned for people's mental health. After the longest drought in history, I have seen myself and husband, as well as watched many farmers and in the community under enormous pressure and stress. I wonder how many will cope when they are faced to encounter the continued stress and pressure from the coal seam gas industry.

Do we not consciously and morally have a duty of care to protect everyone from undue issues that will impact their health? Does everyone not have a right to a peaceful existence no matter who we are? I am concerned about our pressure water from the Great Artesian Basin. I am worried about the risks of contamination and drawdown of this water supply. We all need clean air, water and a safer climate for our families and communities. We need to protect our environment, health, cultural heritage, agricultural land and future generations.

Santos will come and go but they do not have a long-term interest in the future of our sustainable environment, our families, our communities and our health. They have no social licence. I fear this project is like a disease or cancer. It will spread if not stopped, so if there are only going to be 850 wells in the Pilliga as we are being told, then why have the remaining PELs not had their licences extinguished? There are too many questions unanswered to proceed.

Do we not all have a duty to take reasonable care for the safety and welfare of all? I believe this is unable to be achieved if this project goes ahead. We educate our children to live a healthy sustainable life and how to look after our environment so it will look after you and that renewables are our future. Is this project not a contradiction to what we are trying to teach? I do hope the future generation will have the opportunity to live in a world where they have clean water to drink, clean food to eat, clean air to breathe, an environment and ecosystem to admire.

MR O'CONNOR: Can you please wrap now thanks, Dianne.

MS PERRY: Yes, I've just about finished. I suppose that is up to us. What we choose to do today to take a stance and say no, this is not right, and dare to change it. Drought and fire are two catastrophic events of the past year. Our government say that we are doing everything to help climate change, but instead only care about supporting overseas conglomerates like Santos who desecrate and pillage our lands for some measly profits and in the process make all the hard working Australians like the firefighters and farmers pick up the pieces.

MR O'CONNOR: You need to wrap up, now please, Dianne.

MS PERRY: We've been told just to remain calm as our country turns to dust and ash. Thank you very much for your time.

MR O'CONNOR: Thank you for your presentation, Dianne. The next speaker, please.

MR BEASLEY: We have Warwick Irving on the phone. Can you hear me, Mr Irving?

MR IRVING: Yes, I'm here. Can you hear me?

MR BEASLEY: Yes, go ahead.

MR IRVING: Yes. Good morning independent commissioners. I have no doubt what I'm going to say to you, you will have heard many times over the last week, as well as reading over the next month and I urge you to listen to the vast majority of people who are doing submissions on the coal seam gas project in the Pilliga State Forest and reject the proposal completely. The research and information available is showing the project to be undesirable. There seems to be great political pressure being brought to bear to fast track this particular proposal without taking into account the full implications of what can not be seen as a safe industry. At risk here is damaging of the Great Artesian Basin. In Santos' own words that are:

> *It is unlikely to affect and if it does affect it will not be for tens or hundreds of years away.*

This is not good planning. The Great Artesian Basin feeds and clothes millions of people both in Australia and overseas. Firstly, by direct employment, ie, supply chain from farmer to butcher, or from wheat through to flour on the supermarket shelf, or wool through to clothing on the shop shelves. This is an enormous employment for Australia. Secondly, this food and clothing not only sustains the people who work in the supply chain, but also feed and clothe everyday people all over the world and we rely on the words "unlikely to affect", I ask you.

I would like to note at this point that Santos are claiming to create a relatively small number of permanent jobs compared to the massive employment agriculture and its supply chains have. Over the past 25 years farmers in the Great Artesian Basin have gone 50 per cent with the government capping and piping bores. Millions of dollars have been spent shoring up our biggest asset – water. This scheme has been very successful with the pressure of the Great Artesian Basin rising and millions of litres of waters being saved. We are now told that Santos will be allowed to waste two billion litres a year in one of the most important recharge zones for the Great Artesian Basin. And into the deal, we get 840,000 tonnes of toxic waste. It seems we are planning for disaster.

The NSW Government has seen 16 recommendations from the Chief Scientist and as a result has only implemented two fully. The government seems to have more faith in Santos than their own scientist, otherwise all recommendations would be implemented. So we rely on Santos' own research and that of GISERA, which is 70 per cent mining company funded, and supposedly the best research is on six gas wells in southern Queensland, hand picked for the job no doubt, out of some 19,000 gas wells. And this is the most comprehensive study? We are planning for disaster.

The Independent Planning Commission – and we have to trust that you are independent – is being asked to look at 850 coal seam gas wells in the Pilliga State Forest and the infrastructure that goes with it for two different pipelines. For me, the maths is not adding up. 850 wells, $360 billion worth of pipe. Santos has shown investors plans for at least seven other gasfields in the area. Now the maths add up. So in effect, this is the first of many. To me, it looks like the Planning Commission is only being shown the effects of the first little bit. It seems to be a try and see approach, not a planning approach.

To finish off with, I would just like to let you know that our medium sized farming operation produces approximately 40,000 kilograms of lamb, 100,000 kilograms of beef, 38,000 kilograms of wool, three and half thousand tonnes of wheat, 500 tonnes of chickpeas. To do this we employ four people full-time as well as some seasonal workers in an average year. We are tax payers as we are profitable – unlike Santos. There are another hundred businesses just like this in the Warren Shire. Imagine the production in the Great Artesian Basin. In the last three years we have had unprecedented drought and in the last year there has been no water in any of our 28 dams, plus the river didn't run below Warren. If we did not have our seven bores, there would have been no water.

If we damage the Great Artesian Basin we will return this country to pre-1900 levels of production in relation to water where you leave when you run out. That doesn't sound like a good plan. Let's go with renewables. Thank you.

MR O'CONNOR: Thank you, Warwick, for your presentation. Our next speaker, please.

MR BEASLEY: Ms Robson, can you hear me?

MS ROBSON: Hello.

MR BEASLEY: Bernadette Robson?

MS ROBSON: Yes, I can hear you. Can you hear me?

MR BEASLEY: Yes, go right ahead, please.

MS ROBSON: Okay. Good morning. Thank you for the opportunity to speak. CSG is defined on the Department of Agriculture, Water and the Environment's website as a risky invasive form of unconventional gas. And it goes on to tell us that the groundwater extraction may affect the quality and quantity of town water and the environment may suffer as a result of the toxic chemical waste. So all this is common knowledge. The Chief Scientist wrote in her 2014 report:

> *There are no guarantees. It is inevitable that the CSG industry will have some unintended consequences including as a result of accident, human error and natural disasters. Industry, government and the community need to work*

together to plan adequately to mitigate such risk and be prepared to respond to problems if they occur.

So there is no dispute about the potential harm. It's all about mitigating risks. She states that:

The independent petroleum engineering, geological and geophysical experts advising the review note that the drilling in any new location is to an extent a learning by doing activity.

Learning by doing – so modelling is theoretical. They find out as they go along. To my mind this is a casual attitude to a non-renewable life sustaining resource like the Great Artesian Basin. So the Chief Scientist supported the project but was cognisant of the risks and the fears of the community and made 16 recommendations to mitigate the risks to the environment and allay stakeholders' fears. As we all know, Santos has only complied with a few of these recommendations in the past six years.

The department's assessment when it comes to mitigating risk has a list that starts with "Santos should" with no specifics on how they should achieve these things and, more to the point, who is going to monitor the safe disposal of toxic waste and ensure the integrity of the abandoned well casings and monitor water quality? Santos? As a business its vision is focused on profits, not the health of the environment or the communities. And besides, Santos has a poor track record and a history of environmental damage. So the accidents will happen and Santos, if this goes ahead, will leave a damaged environment that can never be fixed. Groundwater contamination is not reversible. This will result in a trail of broken communities scaring future generations.

The value of the land in the Great Artesian Basin are sidelined in the interests of an outdated industry that is on its last legs. By the time this project is up and running, it will be on the road to a stranded asset as renewables will have moved to the forefront as the way of the future to reduce carbon emissions. This project has been pushed as a provider of cheap energy. A claim that has since proven to be spurious and a shot in the arm for the post-COVID economic recovery, providing jobs at the cost of the vital agricultural industry that's going to lose out if this project is approved with people's livelihoods threatened as they face trying to uprate on uninsurable land.

Besides the fact that the farmers provide us with food, and will do so into the future if the means of production, healthy land and water are still available to them, the injustice of favouring a short-term questionable project over the land and livelihoods of Australian families, who have farmed for generations, is heartbreaking. Jobs for the future will come from renewables and sustainable tourism from innovation. There's a lot of fearmongering going on and the fossil fuel companies and the government are playing on this. These companies, like Santos, are going to fight to keep their dominance and, since they are among the biggest donors to the major political parties, the politicians are motivated to keep them happy and they're ignoring the long-term interests of its citizens in favour of short-term political gain.

If COVID has taught us anything it is that we have to do things differently. We have to be more self-reliant and imposing a corporate project, like CSG, on an agricultural community is self-defeating, destructive and unjust. Then there's the failure of the Pilliga Forest. The largest temperate forest in New South Wales, land of the Gomeroi people, home to unique flora and fawn, many of which are seriously endangered. Following the recent report on koalas in New South Wales, the government made a commitment to protect koalas from extinction but yet this same government is approving a project that will result in the destruction of even more animal habitat.

Besides its intrinsic value, it also has a value as a sustainable tourist attraction. The trend in this post-COVID world is to look closer to home, go slower and appreciate nature. As we face increasingly ferocious bushfires our forests should be treated as valuable and precious. Just in my own country of origin, Ireland, the broader area where I lived was earmarked for CSG mining. It was successfully opposed and now has opened up to equal tourism with high community involvement in a way that would never have been possible had CSG been allowed. CSG mining is banned in Ireland, also in France, and there is a moratorium on it in the UK.

MR O'CONNOR: Can you please wrap up now, thanks, Bernadette?

MS ROBSON: Okay. The precautionary principle should govern the decision on this project and it should be rejected for the wellbeing of the community and future generations. I just want to say that the future of our rural communities is in your hands. As a grandmother, I want the best for my grandchildren and so, please, listen to the science, listen to the people, make the right decision and please reject this project. Thank you very much.

MR O'CONNOR: Thank you. Thanks very much, Bernadette. Our next speaker, please.

MR BEASLEY: Thomas Walker. Mr Walker, can you hear me?

MR T. WALKER: Yes. Can you hear me?

MR BEASLEY: Yes. Go ahead.

MR WALKER: Good afternoon, Commissioners. My name is Tom Walker. If the Western Slopes Pipeline is required it will need to cross the Macquarie River on my property. Thank you for the opportunity to speak. I would like to pay my respects to all traditional custodians. They understand, as I do, that if you look after the land, it, in turn, will look after you. There is a sacred bond, a duty of care, my family has owned a mixed farming property on Macquarie at ..... for over 120 years. We have ongoing commitment to an ecologically, responsible and sustainable business and have been recognised for our biodiversity.

I would, therefore, like to add my voice to the many concerns already expressed in the report's failure to address multiple biodiversity issues. As a senior deputy captain, I am also alarmed at the failure to recognise the extreme fire risk with this project, the absence of a comprehensive operational fire plan. I also note that other plans are missing, particular those for heritage, produced water, salt, and underground water management. I'm also concerned at the risk of inadequate or non-existent insurance cover. The exposure to my business I find completely unacceptable.

As someone heavily involved with the formation of a 100 year plan in the Lower Macquarie, I appreciate the significance and interconnection of the social environmental and economic considerations. There are serious concerns in all three areas but I particularly note the absence of any social licence to proceed with this project. Without this it cannot proceed and it will not succeed. The precautionary principle should always be considered as critical. No more so than with this particular project in regard to serious and irreversible risk to ..... and water.

Let's be clear: despite proclaims and counterclaims, no one fully understands the cumulative impacts of this proposal on the GAB, Great Artesian Basin. This really represents our best guess based on very limited data. This is why everyone has left themselves plenty of wriggle room in the event something ..... and will go wrong ..... to Australia. We are the driest inhabitant ..... on earth with any project, let alone one that is short-term and extremely controversial. History shows that when making second-guesses nature, they always get it wrong. Climate change is a simple example of nature letting us know the cost of stuffing it up.

When you look at the management of aboveground water, we can all actually see the results by looking at the Murray Darling Basin plan, what an absolute mess. The only agreement by stakeholders is that it is a spectacular failure. I had a great deal more to say but time is not going to permit me. So I will leave it to my written submissions. I believe there is a very real prospect we may lose sight of the bigger picture. The danger being that we can't see the forest and the trees, if you get my drift. The fossil fuel industry has acted like the tobacco industry by exerting their considerable influence through politics, government and the media. They constantly deceive the public by providing them with false, misleading and unsubstantiated claims that don't stand up to scrutiny while all the time discrediting anyone who opposes them.

Due to the power and resources of the gas lobby, I have been constantly expecting a slightly convincing argument supporting this project, however, it has just not happened. The scale and magnitude of the drought and following fire season have been a wake up call to all of us. We must change the way we do things and we have to start today. Only then do we give ourselves a fighting chance to turn things around. I recommend this public hearing be viewed by everyone. However, it should be absolutely mandatory for politicians and responsible government agencies. And a warning to Santos' shareholders: you might be horrified.

We can thank the COVID-19 disaster for the fact that the details of this hearing are easily accessible for all to see. There is no hiding any more. There's no ..... or indifference. This is our destiny and that of future generations. In conclusion, it is sad that people have felt it necessary to beg you, as Commissioners, to look to your conscience and integrity. I simply ask you to be accountable and to do your job. I am not alone in that the evidence I've seen, and heard, is overwhelming against this project going ahead. Once people have the facts, rather than media spin, this struggles to even pass the pub test ..... others have passed on or ignored the responsibility as custodians, decision-makers and elected representatives. Instead, they've chosen - - -

MR O'CONNOR: Can you wrap up now, please, Thomas?

MR WALKER: I am. Instead, they've chosen to delegate this job to you. You are the potential scapegoats. Their "get out of jail free" card. They, in turn, will hide and divert public scrutiny by virtue of a fraught process. You, unfairly, have been put in this position where the buck stops with you. On the upside, few people get the opportunity and power to possibly contribute to the greater good and make a real difference. I will just have to trust you can and will rise to the challenge. I expect you to do so by completely rejecting - - -

MR O'CONNOR: Time is up now, Thomas.

MR WALKER: - - - this ill-conceived project so it will never get approval in any form. As the chief scientist discovered, recommendations can be ignored and safeguards simply don't work. History will judge you accordingly.

MR O'CONNOR: Thank you, Thomas. Our next speaker, please.

MR BEASLEY: Next speaker is Angela Hannigan. Ms Hannigan, can you hear me?

MS A. HANNIGAN: Yes.

MR BEASLEY: Please go ahead. We can hear you.

MS HANNIGAN: Good afternoon. My name is Angela Hannigan. I am a 32-year-old resident of the Coonamble Shire. I am a teacher at the local high school, on the board of the Coonamble Golf Club, a community member of the Great Artesian Basin Protection Group. Four years ago, I returned to Coonamble to be closer to my family. I returned to a community that was about to face a savage and debilitating drought and yet I found a community that was thriving. For years, I had been mildly amused as my conservative parents began to object to a project in the Pilliga scrub not far from where I had grown up. However, as the phone calls became more frequent and frantic, I made it my business to understand why.

It was not long before I had the same fears about increased bushfire hazard, damage to groundwater, environmental degradation, increased greenhouse gas emissions, threats to the flora and fauna, damage to cultural sites and the Great Artesian Basin. Today, I am voicing my objection to the Narrabri Gas Project, my objection to a project that places the Great Artesian Basin, this region's only secure water supply, at risk. The Narrabri Gas Project will produce toxic wastewater and toxic salt. Treatment of water brought up from underground will produce up to 840,000 tonnes of solid salt waste laced with heavy metals. Santos still have not said how they will dispose of this waste.

Their estimated volumes of salt waste have roughly doubled since their first estimates. Where will they put the tonnes of salt waste? The DEPA final assessment report has concluded that the Narrabri Gas Project has been designed to minimise the impacts on the region's significant water resources including the Great Artesian Basin. "Minimise" means reduce something, especially something undesirable, to the smallest possible amount or degree. We would like to know what Santos' measure of minimising the impacts are before the project goes ahead. What will it be minimised to? Minimise is not good enough.

However, "minimise" also means to represent or estimate at less than the true value or importance, which is how the affected communities have been made to feel by Santos. Santos have minimised and devalued our concerns about how the toxic salt will be disposed of. Santos have minimised and failed to address our concerns about the threat this toxic salt could pose to our precious water. And Santos have minimised their own history of fines and breaches at the exploration phase. However, these concerns should not be underestimated or minimised by the IPC when making their decision. Last week, Santos chief executive, Kevin Gallagher, said the time for political games is over.

This is not a game. When the Barwon electorate voted out the Nationals after 69 years in power, it was not a game. This may stop soon for some, but we will live with this decision for the rest of our lives. If this project progresses, it will be lifechanging. A future of uncertainty. A future that from June became uninsurable. We don't deserve a lifetime of uncertainty. In its current condition, this project is not approvable unless you think without a shadow of a doubt that it is safe for communities. In 2014, the New South Wales chief scientist, Mary O'Kane, concluded that if 16 conditions were implemented, the risks could be managed.

Earlier this year, a hearing by a New South Wales Upper House committee found that of the 16 recommendations, many were not being implemented at all and some only partially implemented. How can risks be minimised to the smallest-possible degree when less than 25 per cent of recommendations are being followed? In a DEPA assessment report it says:

> *The independent water expert panel for the project identified some uncertainties that could be managed.*

Well, let me give you some certainties. Certainly that a chemical spill has already occurred in the exploratory stage and despite thousands of dollars being thrown at it, rehabilitation does not look possible. Certainty that an aquifer has been contaminated by uranium in the exploratory stage. Certainly that Tony Pickard's bore, along with numerous Queensland bores have already been compromised, with many more predicted. And certainly that there is no social licence. The community does not want it. Mr O'Connor, Mr Hann and Professor Barlow, I understand that as educated and experienced professionals, you have been given a job by us speaking to you as people.

When you are making a decision, you are framing our future here in regional New South Wales. We, as Australian citizens, deserve a guarantee that our water will be safe. We need to be certain when it comes to something as important as our only secure water supply. Please, be certain. I am not. Are you? Thank you for your time today.

MR O'CONNOR: Thank you, Angela, for your presentation. Our next speaker, please.

MR BEASLEY: Next speaker is Timothy McGuire. Mr McGuire.

MR T. McGUIRE: Yes. I can hear you. Can you hear me?

MR BEASLEY: Yes. Please go ahead, sir.

MR McGUIRE: Good afternoon, commissioners. My name's Tim McGuire. I have a professional background as an IT consultant and project manager with many years of experience. I'm a parent of three adult children and a grandfather-to-be. I'm a lifelong resident of New South Wales. I live on Sydney's northern beaches, which has now seen damage from coastal erosion. Primary cause, sea-level rise and storms; the root cause, climate change. Welcome to the start of the bushfire season. It's the beginning of August, yet in a couple of parts of New South Wales, including Armidale, there's a bushfire risk. This is a very serious message about one of the many implications of climate change.

Albert Einstein is attributed with the expression that the definition of insanity is doing the same things repeatedly and expecting different results each time. How much longer can we expect to continue to extract and burn fossil fuels given what we have known for well in excess of 30 years and pretend that we are providing jobs and economic benefits, when in reality we are choking our environment to death? There are no jobs on a dead planet. I hope that you reject the Santos Narrabri Gas Project for the 13 reasons that I've provided in my written submission, but in this submission I just wanted to paint a picture and look at a couple of different aspects of it.

In November, when bushfire smoke choked the skies of several Australian cities, including Sydney, I thought about the fires, what's driving them and if it's bad here, a couple of hundred kilometres away, what's happening on the ground where the

flames are roaring, the extreme conditions are destroying our natural heritage, killing our native animals, burning our forests, houses and settlements? Never before has 20 per cent of Australia's forest cover gone up in flames in one bushfire season beginning in August, winter, which has also never happened before. Climate change is supercharging the condition for these fires.

Root cause of climate change is the burning of fossil fuels; of that there is no dispute. Just yesterday, at the conclusion of the 2020 National Bushfire and Climate Summit, Greg Mullins says the former New South Wales Fire and Emergency Services Commission said the simple truth is you can't fight fires unless you fight climate change. What sort of lunacy and double-speak is it to accept the science of climate change, as our New South Wales Government professes, but then to allow develop of fossil fuel projects to make a dire situation even worse? We need to get out of the 19th century. We've got to move on from burning stuff for energy.

Let's use the power of the sun and the wind. We can do it. If we don't, we're on track for a four to five degree warming that will end our civilisation as we know it. What sort of future do you want for your family? The people of New South Wales, Australia and the world don't want more fossil-fuel projects that add to the climate catastrophe. What they want is the sort of renewable energy projects as exemplified in the first New South Wales Renewable Energy Zone where the expected $4.4 billion worth of projects snowballed into $38 billion of proposed renewable energy projects. That's the sort of project we should be supporting in New South Wales. How are we going to meet our Paris commitments by digging more fossil fuels? It's simply insane. We simply won't have a future if we don't stop being fossil fools.

As I concluded in my written submission a job in energy generation project to encourage fossil fuels is analogist to deciding to burn the family home and its furniture to cook the dinner and keep warm at night. The essential question is: what happens when the fossil fuel runs out once we've changed the atmosphere and changed the climate so we can't grow crops reliably any more, don't have reliable rainfall, or in the analogy: what happens when there's no more of the house to burn and we've got nowhere to live? This Santos Narrabri Gas Project fails every test. It has no social licence. Please do not approve it. Gas is just another dirty fossil fuel. Leave fossil fuels in the ground. Thank you for the opportunity for this.

MR O'CONNOR: Thank you, Timothy, for your presentation. We will have our final speaker now before we take a lunch break.

MR BEASLEY: We have Stephen Bell. Mr Bell.

MR BELL: Good morning. I will just – I've got a couple of slides I will put up on the screen.

MR BEASLEY: Sure, go ahead.

MR BEASLEY: Yes, they're coming up now.

MR BELL: Can you see those?

MR BEASLEY: It has just come up. Australia's manufacturing cornerstone.

MR BELL: Yes.

MR BEASLEY: Yes.

MR BELL: I'm just trying to get a slideshow on – probably a bit slow. Good morning. I'm Steve Bell. I'm the CEO and managing director of Qenos who is Australia's largest petrochemical producer. Qenos supports the development of the Narrabri Gas Project subject to, clearly, the science supporting it and that there's no unreasonable danger to the water table and agriculture, etcetera, and also that it's subject to good regulation. There's, I think, ample precedent to suggest that coal seam gas projects can be safely managed provided good regulation and science is in place. I'm not proposing to go through the couple of slides here in detail, but just to provide a bit of background.

Qenos is part of gas based manufacturing in Australia which contributes $38 billion per annum to the Australian economy and employs in the order of 212,000 people. We are a key player in most of the industrial value chains, so gas based manufacturing industry provides inputs into about 108 out of 112 industries in value chains in the Australian economy. And Qenos itself employs 1000 people directly and supplies some 400 businesses right across the Australian economy. We've got manufacturing operations in Melbourne and in Sydney in New South Wales. And like most users of gas in the east coast of Australia, we're suffering from the problem of all the gas being exported and shortages of gas available at competitive prices to both consumers and industrials like ourselves. And if this is not addressed in part through more gas coming into the market place, such as what the Narrabri Project would deliver, then I think there's going to be a significant impact on the economy and jobs in the economy.

Just to paint a bit of a picture of where we fit in the value chain, Qenos is a unique case in that whilst we're a very large gas user the predominant use of the gas is as a raw material or building block, so it's elaborately transformed into the end products that we make. Whilst we use some gas in our process for energy, the gas is turned into, typically, products that go into the industrial chain and consumer value chain in Australia. The value-add on these industries is in the order of 10 to 30 times the value of the inputs going in terms of the gas.

And this picture here just shows a representation of both the industries and the customers that we go into. But it's a highly integrated value chain which also incorporates the refinery, so there's an integration all the way through from upstream to downstream. This just represents here the key product out of the gas for Qenos is ethane which we turn into ethylene and then into polyethylene which then goes into those industry value chains that I highlighted just there. But we also use some gas, as well, as an energy source for our process and therefore, gas is both a raw material

and an energy source, but predominantly about 25 to 28 petajoules per annum is the ethane and it's the raw material that goes into the finished products.

The key point here is that there has been a market failure on the east coast of Australia. Australia is now the largest exporter of gas globally, yet we are not able to find a way to get competitively priced gas to our consumers and large industrial users. And there has been a range of reasons for this that are outlined. The companies particularly disadvantaged are companies like Qenos that use the gas as a feedstock or raw material. Likewise, fertilisers and explosives makers are in a similar position. We must have globally competitively priced inputs in order to be able to compete, because we compete against the world.

Our raw – sorry – our finished products are not sold based on the costs in Australia. They're sold based on the global market place that we're competing in and therefore, we have to have comparable priced inputs to our competition offshore to be able to compete in this market place and maintain the jobs and value that come into the economy. As I highlighted, gas based manufacturing is 38 billion per annum of economic value. That is roughly $286 million per petajoule of gas consumed. By comparison, LNG exports contribute about $9 million of economic value per petajoule and at 212,000 people employed, there's 1600 jobs per petajoule. Again, a comparison with LNG exports there's 20 jobs per petajoule of gas in that chain.

The final slide just shows what has happened to gas pricing on the east coast of Australia over the last few years and, particularly, when the LNG trains in Gladstone were turned on. And you will see that in the order of two to three times increase in pricing has occurred making Australian consumers and industries uncompetitive now in terms of the gas inputs in the industry.

MR O'CONNOR: Could you wrap up now, please, Stephen.

MR BELL: In closing, I just want to say that we very much support projects like Narrabri that will bring additional new volume of gas into the market place, but we also support that these projects need to be based on sound science and not politics and ideology. Thanks very much for your time.

MR O'CONNOR: Thank you very much for your presentation. That brings us to our lunch break. We will return at 1.40 pm. Thank you.

RECORDING SUSPENDED **[1.01 pm]**

RECORDING RESUMED **[1.40 pm]**

MR O'CONNOR: Welcome back. We will now move onto our next speaker.

MR BEASLEY: We have Susan Flower. Ms Flower, can you hear me?

MS FLOWER: Okay. Yes, I can. Okay. I'll start now.

MR BEASLEY: Please, go ahead.

MS FLOWER: Thank you very much. Who am I? Well, I'm a Narrabri local. I'm a wife, a mother of four, three of whom are resident with partners in Narrabri, a grandmother of 11, with six of them here, I'm not associated with any pro and anti-gas organisations, and I'm certainly not associated with Santos.

All I am is just an every day person speaking for those who – in Narrabri who, like me, are fully in favour of this project. Now, this project has an approval process that has passed through several government departments, being scrutinised by qualified professionals within those departments, specialised water hydrologists, geologists, etcetera, as well as key facets of research, then have been reviewed by GISERA for independent scientific verification. The NSW Chief Scientist said it was a reasonable project and the risk can be mitigated by the project's design.

Listening ..... objectors to this project, I have to question whether some speakers truly think it is really logical to think that these individual departments and GISERA have, at best, been incompetent, or as someone on anti-CSG social media have said, "corrupt and in the pocket of big business". That's a lot of professional people – qualified people – to be incompetent or corrupt. Is that really what the reasonable man would believe.

Many speakers over the first three days have expressed their concerns and fears for the water security of the Great Artesian Basin. And they are quite right; water is an extremely valuable resources, so whoever uses the water must be held accountable for that use or misuse. However, there is never any mention I've seen, by objectors to this project, on the current number of uncapped, unrestricted bores in the GAB in New South Wales. The New South Wales Government Cap and Pipe Scheme still has about five per cent of bores to cap in its program. I have been told this equates to about 800 uncapped bores in the GAB in New South Wales. These uncapped bores just flow 24 hours a day, seven days a week, producing the water in the GAB; water that just flows onto the ground or in a channel, open to evaporation and reducing volume and pressure in the GAB. Why is this water use not criticised, but the water use by Santos – by the Santos project is.

The Santos bores would be highly regulated and monitored by ..... Water use by both agriculture and industry are not incompatible with each other. They can exist side by side, but both should be monitored and regulated. Two weeks ago, in my mail, I received an advertising flyer from the North West Alliance stating that 63 per cent of the Narrabri locals objected to the Santos Narrabri Gas Project. Well, technically, I would say that this statement should read that 63 per cent of locals who put a submission in, or signed a petition, objected to the Santos Narrabri Gas Project. I have family, a significant number of friends and neighbours, who are in favour of

this project, who are not represented in the above statement. In fact, there is significant about of approval for this project near Narrabri. And looking at the number of people I actually know in favour of this project, I would have to say the GISERA figures of around 70 per cent in favour is more reflective of the true amount of local approval of this project.

There is also the economic impact of this project. Narrabri needs this project for long term economic stability. This project gives Narrabri and New South Wales resilience in energy; energy for citizens, for families, for manufacturing and business. The pamphlet that I received from North West Alliance talks about having a renewable energy future for Narrabri, and this will be wonderful when it occurs. However, it is possible, unknown, unplanned future project, not a project that is ready now. South Australia still is Australia's largest user of gas-fired power plants to power its renewable energy grid. Societies that are not diverse economically are not resilient societies. History shows that when you rely on one industry, you are subject to the slings and arrows of outrageous fortune; for example, the 19th century Great Irish Potato Famine.

This project gives the Narrabri area greater resilience, with several new industries indicating their interest in our area, should the project go ahead, which will significantly boost our economic stability, as well as the New South Wales economy. We need to take advantage of this for employment for our youth, security for our town, and our future. We cannot just continue to rely on farming, which has always – and I emphasise "always" – been subject to such a wide variation in production, due to seasonal and climate conditions. It is possible to have both agriculture and industry co-existing. We don't have to choose one or the other; we can have both. We are fortunate in Narrabri, if this project is approved, that we can future-proof our town, area, and economy, with both agriculture and industry. I ask that you use reason and logic, not emotive responses, fear, and unfounded science, and approve this very beneficial project for the region in New South Wales. Thank you for your time and consideration. Thank you.

MR O'CONNOR: Thank you for your presentation, Susan. Our next speaker, please.

MR BEASLEY: James Nalder. Mr Nalder.

MR NALDER: Yes, sir.

MR BEASLEY: Go ahead.

MR NALDER: Yes, I can hear you.

MR BEASLEY: Yes, go ahead.

MR NALDER: Afternoon, Commissioners, and welcome to my little patch of paradise, which is a farm on the east side of Coonamble. My involvement today is to

explain why I'm objecting to the project. As far as – not just being a farmer; I'm also on several community groups, as well as being the immediate past chairman of the NSW Farmers Coonamble branch here, as well as – my connection to Narrabri, more directly, is on a current trustee of the Wheat Research Foundation, which is the current over of the Plant Breeding Institute, where the – the side of the Plant Breeding Institute, where a large amount of research for agricultural crop production is carries out at Narrabri.

I've been involved in – following this industry since – throughout 2012, when this was all starting to come around to being the project being proposed in Pilliga there. And I've been up to Queensland before to look at the issues up there, personally. But in looking through the report – the department's report that you're specifically looking at, as far as your position on the Commission is, that – that so much of the detail is marked as requiring further assessment, ongoing studies, adaptive management, combined with uncertainties involved in the project and unknown cumulative impacts. Essentially, from our position as both the farmer and a community member is this project has been based on trial and error. As much as this industry's been carried in Queensland and other areas around Australia, I've seen personally the impacts of this projects – these sort of projects have locally on these areas.

In about 2013, I went up to Queensland at the invitation to be part of a farmer information day finding out about – more about the gas industry there, where I met a number of Queensland landholders there, voicing their concerns and wanting to find out more about their legal rights as far as dealing with the gas industry. And one of the great issues, talking with the landholders there were – so even though some of them didn't have gas projects on their land specifically – they were next door and nearby – within a couple of years of the project being carried out in their region, they were finding that they were losing their groundwater in their bores. When they approached the gas companies there about the issues they had about losing their water and saying that they had a suspicion or a feeling that their bores had been negatively impacted from the gas project, they were simply told to go to court and prove it.

For them to try and take on a multi-national company in a court of law, or even trying to find experts to prove what was taking place below ground, where you physically can't see down there what's going on, it's quite an impost on the landholders to be able to see what is going on there to try and prove the situation. But from their own experiences, they were saying it was an issue that was across their – the region, which was around the area of Miles and Condamine there, where the – even though the modelling suggested that the groundwater wasn't going to be impacted, their own experiences themselves were that they were being heavily impacted in specific regions on their farm and that they had – there was no resolution to be able to see that being rectified or prevent it. That is some of the concerns that I, as a landholder and a community member, have for our own region, seeing that even though the modelling suggests that there isn't going to be negative impacts, but the reality for these people were they were being impacted.

And now that we're seeing that the Queensland State Government's own reports are saying that currently as many as 574 underground aquifer bores are going to be negatively impacted from current CSG operations in Queensland, it's not unreasonable to suggest that these same negative impacts are likely to be seen within our own region. The current project is of – in the Pilliga region, itself, at the moment, but what we can see is that Santos has also admitted back in – as early as 2012, and before, that this entire region, stretching from the Queensland border down to Dubbo, is going to be a proposed gasfield in the future, which has grave concerns for those outside ..... the impact on the water aquifers, as well as the community cohesion, which is quite an important aspect that was – that has been heavily impacted up in Queensland areas, which can realistically be seen here as well.

Santos has not – in the department's own report, it says Santos has not yet demonstrated it can achieve high-quality rehabilitation of the gas well pads and the actual sites that they're looking to conduct, and that is another reason, as with many others, that we hold concerns that the project that Santos is proposing, they will not be able to rehabilitate to an adequate that the community expects of them.

They also say they would not result in any significant impacts on people and environment, which has clearly been proven to be otherwise. There is the issue of jobs being proposed but we've seen this before that a lot of promises have been made but the reality on the ground is the jobs never seem to be as much as what they predict and the impact of flow on – the jobs being taken away from existing industries have a greater impact than the jobs actually created. In finalising, my speech to you, there's a bit of a quote that states that:

> *The wars of the future will not actually be based upon – fought over land, oil or politics but, rather, as a result of water.*

And what we're currently seeing here is that the opposition that's on the ground currently, it is inevitable that there is going to be ongoing battles against this project as a result of issues over water affecting the Great Artesian Basin and Gunnedah-Oxley Basin, which is more close to this project.

MR O'CONNOR: Could you wrap up now, please, James?

MR NALDER: In conclusion, Commissioners, I'd just like to reinstate my opposition to this project. I hope that you too can see the opposition from the community to this project. Thank you for your time.

MR O'CONNOR: Thank you, James, for your presentation. Next speaker, please.

MR BEASLEY: We have Lock Barker. Mr Barker.

MR BARKER: Yes. Can you hear me?

MR BEASLEY: Yes, go ahead, sir.

MR BARKER: Okay. I'd like to do my presentation via a slide show. Can you see that first slide?

MR BEASLEY: Yes. No. No, we can see the Commission's website, I think.

MR BARKER: Yes. It's a screen grab taken from the Independent Planning Commission website.

MR BEASLEY: Right. Yes, we can see it then. Yes.

MR BARKER: Good. Okay. My strong – I'd like to express my strong objection to the Narrabri Gas Project. It's mostly economic but I'll come at it, a couple of different directions. Firstly, democratically. This slide shows the public submissions to the IPC website Narrabri Gas Project. As you can see on the right, on July 31 when I did the figures yesterday, 91 per cent of the public submissions oppose the project. This follows on from previously when the project was put out for public comment on the major projects website, and there of the 22,000-odd public submissions, 98 per cent were against it, including an overwhelming majority from the Narrabri region of 63 per cent.

Why does the well-informed public quite rightly loath coal seam gas so much? Well, the best but saddest exemplar is the desecration that coal seam gas has visited upon the Darling Downs in Queensland. I won't speak at length on the damage and destruction done up there. You've heard much testimony about that already and a few speakers behind me in the running order is an occupational health and safety expert from the Darling Downs who will explain that again. I will complete this section with this slide. Recently, the insurance industry drew a line under the score book and declared coal seam gas uninsurable. It's therefore no longer safe to proceed with coal seam gas in New South Wales.

Talk of insurance brings us to economics. One of the assertions of the Santos company is that their Narrabri Gas Project will bring prices down in New South Wales. It's completely untrue, it's a fallacy. First, let's define what's a fair price for coal seam gas – or a fair price for gas in the east coast market. This page is taken from the Australian energy regulator website. I think you can see my mouse moving.

MR BEASLEY: Yes.

MR BARKER: There's the graph data and information. I've downloaded the data from the data tab, put it in the spreadsheet and done the averages. 2011 to 2015, the average price in the domestic market was $4 a gigajoule. In 2015 LNG export began out of Gladstone, the price shot up. I have used as a benchmark for my presentation $5 a gigajoule as a fair price for gas in the domestic market. That's taken from $4 in 2014/15 was a fair price. It was comfortable. People were happy to pay that, gas intensive industries, people who use gas for cooking in their home. Allowing for inflation and even a modest profit margin for the gas companies, they should be selling gas at $5 a gigajoule in 2020. That fair priced gas.

Santos' Narrabri Gas Project cannot provide fair priced gas. It can't bring the price down in the east coast gas market and this is why. Here are the production costs for the Narrabri Gas Project. You can read the detail in the bottom half of the screen if you wish. I've summarised it at the top. It would cost Santos $8 and change to such the gas out of the ground at Narrabri, approximately $1 to pipe it to the eastern seaboard, and they'd want to sell it for probably $1 a gigajoule profit, so they'd be trying to sell $10 a gigajoule gas into the domestic market of the east coast. Clearly, this is double a fair price for gas in 2020. Santos' Narrabri Gas Project cannot bring prices down in the east coast gas market to a fair price.

So if Santos' Narrabri Project is not the solution, what is? Well, the solution is very simple. Firstly, cancel Narrabri, and I urge as a recommendation that this Commission recommends to the state government coal seam gas is banned in perpetuity in New South Wales. But the best and overarching solution is simply this. A domestic reserve policy for the east coast gas market. This is currently operating in Western Australia and it's working well. The domestic demand is approximately 600 petajoules. The way this policy would work is the gas industry provides the domestic demand of 600 petajoules at $5 a gigajoule. The LNG industry of Queensland can export what's left. Presentation ends.

MR O'CONNOR: Thank you, Lock, for your presentation. Next speaker, please.

MR BEASLEY: We have Jolieske Lips. Are you there, Ms Lips?

MS LIPS: I am. Yes, I am. I've unmuted. Unmute myself.

MR BEASLEY: We can hear you.

MR O'CONNOR: We can hear you.

MS LIPS: You can hear me.

MR O'CONNOR: Yes.

MR BEASLEY: Yes, go ahead.

MS LIPS: Terrific. Okay. We'll start. So, first of all, thank you for the opportunity to make this presentation today, and I would like to acknowledge the traditional owners and custodians of the land affected by this project and to pay my respects to the elders past, present and emerging. I object to this project. I'll begin by stating how incensed I was when registering to speak that I was forced to tick the box stating:

> *I am not directly affected by the proposed development but have an indirect interest.*

No, I do have a direct interest and I am directly affected by this project. Have we learnt nothing from COVID-19? We are all interconnected, dependent on others for our wellbeing, and while many of us do not understand or do not recognise it, we are all connected to and dependent upon our environment being healthy with fully functioning ecosystems.

I am directly affected when the Great Artesian Basin is damaged by this project and reduces the ability of farmers to produce my food. I am directly affected by the loss of biodiversity. I grieve at the possibility that I will not be able to share with grandchildren and great-grandchildren the excitement and joy of seeing a koala in the wild, as I was able to as a three year old, an experience I still vividly remember. I am directly affected by the increase in greenhouse gas emissions that this project will produce. While I have been lucky to reach my three score years and 10 in times of peace, mild climate and prosperity, it saddens me beyond description to contemplate the highly altered planet that those much younger than me will have to cope with.

We have listened and are listening to the scientists during this COVID-19 pandemic. Why do we disregard the scientists when it comes to climate change? Why do we disregard the science which demonstrates that a dirty, hazardous project such as this should not go ahead? I'll tell you why. It's because of the wealth, power and dominance of the fossil fuel corporations in the world economy. These corporations are able to wield their influence in so many direct and indirect ways, too numerous to detail here, and I instead refer you to reports by Greenpeace, The Guardian newspaper, The Australia Institute.

There are numerous reasons why this project should not go ahead. Others will have presented detailed scientific papers so I will not take time to repeat the points they make. Instead, I implore you to listen to the science, the science about the inadequate groundwater modelling, the science about the importance of the Pilliga sandstone as a major recharge place – charge area for the Great Artesian Basin, the science about climate change, the science on the negative impact on the local society, the science on the negative impact on the living indigenous culture that is here, the science about the negative impact on the biodiversity, the science on lack of adequate plans to deal with the waste, the science about the unacceptable increase of risk of fire.

This is a dirty, polluting industry. Already there have been 200 spills and leaks of toxic water and uranium contamination of an aquifer and yet still the government has not implemented all the recommendations of the chief scientist regarding the coal seam gas industry, recommendations that may help to reduce some of the negative impacts. Why not? This is concerning.

Always a key argument why a project such as this should go ahead is because it provides jobs. Jobs, jobs, jobs. It seems to be a mantra that closes off science and all counterarguments. But there's never talk about the loss of jobs. Some 30,000 jobs go when we lose all our koalas, which we are getting perilously close to doing, and

to which this project will contribute. Yes, 30,000 jobs lost and that's just from a little snippet that I picked up on ABC 7.30 program a couple of days ago.

But there are other jobs, one million of them, and I refer you to the million jobs plan recently put out by Beyond Zero Emissions. Yes, a plan for a million jobs, a plan that presents, to quote:

> *A unique opportunity to demonstrate the growth and employment potential of vesting in a low carbon economy.*

We do not need the few jobs this hazardous polluting project may provide. There are a million other jobs out there. Let's go for those and protect our Great Artesian Basin and allow our great grandchildren the opportunity to see koalas in the wild. While knowing full well there'll be an enormous negative backlash from both the all-powerful minerals council and government, please, I implore you, demonstrate your independence and reject this project. Thank you.

MR O'CONNOR: Thank you for your presentation, Jolieske. Our next speaker, please.

MR BEASLEY: We have Ray Edwards. Mr Edwards.

MR EDWARDS: That's Edwards. Thank you. Can you hear me?

MR O'CONNOR: Yes, go ahead.

MR EDWARDS: Thank you. I'm grateful for the opportunity to speak at this public hearing and thank you all for your attendance. I wish to acknowledge the Gomeroi People and that the land on which the Santos gas project is planned is Gomeroi Aboriginal land and that their sovereignty of this land was never ceded. First and foremost, I object to the proposed Narrabri Gas Project and ask that the Independent Planning Commission reject this project based on environmental and social concerns.

Having spent the last four years of my life dedicated to studying in the field of environmental science, I feel that I am in a position of responsibility to speak on behalf of the environment and for those people who also oppose the project but were not afforded the opportunity to speak at this hearing. Therefore I feel both privileged and dismayed to have a strong understanding of the deleterious effects of coal seam gas extraction for the environment and for human life.

Coal seam gas is a fossil fuel. Fossil fuels are unsustainable, single use source of energy. Every phase involved with the extraction, processing and consumption of fossil fuels liberates another new source of environmental pollution that is ultimately incompatible with biological life. This is plant and animal life, and this is human life. Coal seam gas extraction is not a safe process and a significant amount of environmental degradation will always occur. Planned allowances for the release of

fugitive greenhouse gas emissions from coal seam gas extraction and production alone highlights that no project of this kind can be carried out in a clean, sustainable process that is guaranteed to adequately safeguard the environment.

Heavy metals, radioactive material and toxic chemicals that have accumulated over millions of years will be unearthed in this Narrabri Gas Project. The risk of these substances entering recharge points of the Great Artesian Basin and contaminating this precious and ancient water resource is too great to consider this project as viable. Furthermore, the removal of billions of litres of groundwater will detrimentally and irreparably damage the structure of the underlying landscape in ways we cannot fully predict, even with modelling. Our climate is being rapidly altered and fossil fuels are the driving cause. If our consumption of fossil fuels, like coal seam gas, continues unabated, in a single life-time of someone born today, that person will endure unprecedented levels of change in the way our planet's climate systems function.

Compared to how the earth looks today and how it behaves, it will appear very different in just a few decades from now. Over the past few years, we have already begun to witness the dangerous consequences of fossil fuel emissions altering our climate with some of the most devastating bushfire, flood and drought events occurring in recorded history. The prediction of these climate-induced events is that they will occur more frequently and with more intensity. Therefore, this project will significantly contribute to the burden of future generations for an insignificant, short-term economic gain. This knowledge is not elusive and it is not new.

If there is now a majority consensus in our understanding of climate science, how, in 2020, can we be considering yet another coal seam gas project and show such disregard for human health and well-being. The future is our responsibility. The potential loss of life or property through inaction is unacceptable. I would like to thank you all for taking the time to listen to my submission during this hearing. I hope that I have made a convincing argument for rejecting the proposed Narrabri Gas Project. I wish you all the best with your decision-making. Thank you.

MR O'CONNOR: Thank you, Ray, for your presentation. Next speaker, please.

MR BEASLEY: We have Mervyn Ciesiolka on the phone. Are you there, sir?

MR CIESIOLKA: Yes, I am. Yes, I'm on the phone.

MR BEASLEY: Yes. Go ahead.

MR CIESIOLKA: Okay. I want to pay my respects to the Gomeroi People who are the traditional custodians of the land in which this NGP is proposed. My name's Merv Ciesiolka. We farmed for 50 years six miles from the project. I rely on irrigation by the viability of the farm. Water is the biggest worry for the community because everyone is reliant on it. The artesian basin needs to be penetrated to get to the coal seam. Irrigation wells are limited to depth, so we don't interfere with the

artesian basin. Penetrating the artesian basin will change the quality of the water above forever.

The gas industry has bitten off a bit more than they can chew. In the early days, when Eastern Star workers from Alabama visited my farm because they wanted to eat peanuts, as it was traditional in Alabama, they said to me that the gas was going to be very hard to get. They drilled some holes to get the gas released but it would be a tough job to release the gas. The system sort of went to sleep for a while. They indicated it was going to take a big explosion under the ground to get the gas.

I thought it was going to be too hard for them to do and it wouldn't go ahead. Amen. Santos tried to buy the community. After this – after this, Santos bought Eastern Star and started handing out beads and trinkets to win favour and to compromise the community local council, giving sporting facilities, school prizes, et cetera, et cetera. Just like Captain Cook did when he encountered the traditional owners of this continent.

So a natural inheritance. The Pilliga forest was taken from the timber industry and made into a national park to save this area from the impacts of the timber production. The bee industry benefited from this move. Besides producing honey, the bee – the building a forest helps in the maintenance of the population of the bees and the recovery of populations, as the recovery from the current drought will take at least two years. Bees don't run well on methane gas.

I'm amazed that no one has spoken about the bee industry. No one has even considered the impact of the gas industry on bees and what that means for agriculture in the future. What the gas industry wants is 20 per cent of the area and cut it up into little squares so the area is useless for wildlife and natural purposes. Our natural inheritance – bees, wallabies, flora and fauna – and Aboriginal sites and the things of this area will only be maintained if the forest is locked up for conservation. This will be heritage area in the future. I don't want the custodianship of our natural inheritance in the Pilliga Forest to be given to private enterprise who just don't care about these things. No cheap gas.

The escaping methane gas cannot be controlled and the cost of purifying this gas is expensive because of its high proportion of CO_2. The experts have indicated that gas is $4 per gigajoule, Sydney, where the escalated costs of the Narrabri gas is between seven or eight dollars a gigajoule. Bruce Holland from Norwood Resources said the royalties will be great but my question is, are these royalties based on a gigajoule? If so, this low-grade gas will use a greater volume of gas to create one gigajoule of high-grade gas. Andrew Grogan said the high level of CO_2 gas will be no better than burning coal because of the low quality gas.

What standards will be set for the CO_2 that is emitted from the very costly process of making this into high-grade gas? Will Santos use gas in the process of the purification that will not attract royalties? They should be paying royalties for all the gas they extract, otherwise they will get it for free with no benefit to Australia. So

much interference by ScoMo in private enterprises is an additional interference. Everything is compromised by handshakes. There's more handshakes than telling the truth. Bruce Holland had pie in the sky suggestions about the gas industry would benefit the local community, so that the benefits would outweigh the health risks, forestry destruction, any water solution, harassment of the community and to get their own way.

He should not be believed. This compliance attitude is ticking boxes, beads and axles, smoke and mirrors, don't worry about it, it'll be right, mate, trust us. This point is demonstrated by the fact that Santos couldn't comply with the 16 recommendations of the chief scientist.

MR O'CONNOR: Can you please wrap up, now, thanks, Merv?

MR CIESIOLKA: Right. With slick accounting, they'll never turn a profit and their taxable – that is taxable. And the error is not about the community investment if they don't pay tax. Conclusion, no one trusts the project or fast approval processes. The project has no social licence and should not be approved. Thank you.

MR O'CONNOR: Thank you very much, Merv, for your presentation. Next speaker, please.

MR BEASLEY: We have Shay Dougall. Can you hear me, Shay?

MS DOUGALL: Yes. Hi. Thank you, Commissioners. Can you hear me?

MR BEASLEY: Yes, and we can see a – you've put something up on the screen, have you?

MS DOUGALL: Yes. I'm just going to share my screen with the Commissioners.

MR BEASLEY: Yes, we can see it. Yes.

MS DOUGALL: Great. I would like to speak to you guys today about landholders. I believe that the landholders impacted by coal seam gas are the invisible stakeholders in this process. My name is Shay Dougall. I'm an advocate and a consultant for landholders, both close and neighbours, to assess the industry. I'm a resident of Chinchilla. I have completed my masters recently, had my paper published, and am commencing my PhD at the moment on the topic of OHS implications for farmers hosting unconventional gas.

This is an image of my community as impacted by coal seam gas. The yellow triangles are coal seam gas wells. The black circles are farmers' stock and domestic water bores that to be immediately or long-term impacted directly as a result of the industry. The pink circle in the top there is the excavation caution zone from the Linc contamination incident, and the Xs – the little Xs – are the multiple large infrastructure required, like compressor stations, for the industry. The next slide

shows you what was behind those yellow triangles that you couldn't see very well, and that is the red shading. That red shading is landholders' properties who have been purchased by multinational companies from this region.

I've personally been immersed in the landholder end of unconventional gas experience and I've engaged with this industry myself personally but I've also assisted over 50 individual families who have also been expected to host the industry. I personally was also involved in the Linc contamination incident and we experienced exactly how the strict conditions, robust regulation and adaptive management actually failed the people who are expected to live with it at the end of the day. Out of all the 50 people – over all the people I've had the experience of engaging with this industry with, there's been a consistent theme in the landholders' response to engaging with the industry.

And I believe you have experienced this same evidence yourselves from the voices of perhaps hundreds of Australians who have presented to you guys over the last seven days. What I have witnessed and what is empirically supported in the evidence and the peer review literature is that there is a devastating link between the host landholder and the neighbours' lived experience of the unconventional gas industry and their psychosocial health. What I am trying to say is that it is the government and the industry policy and regulations that is the foundation of this problem.

The way in which this industry is structured and the way in which the landholder is then expected at the end of a long and drawn out process to then accommodate this industry is the foundation of the problem. Your assessment report showed that you're replicating in New South Wales what is happening in Queensland, and what is missing is a possibility for stakeholders, like the landholders, to be able to contribute meaningfully in supporting their – in protecting their livelihoods and their families. In Queensland and in your report for New South Wales, there are presently unidentified exposures that aren't being addressed for the landholder, and these must be addressed to prevent future injuries, diseases and fatalities for farmers.

In your assessment report and your supporting documents there are several assertions made. These have been meaningfully refuted by others. I won't go over them again, but I wanted to say that the real lived experience of the landholders hosting this industry in Queensland also meaningfully refutes those major assertions that are made in your assessment document. There's one particular item in those assertions that I would like to address, and that is the statement that this industry will provide an off-farm income for host landholders. I particularly take exception to that because these payments are in fact very specifically designed by the government and the industry, not the landholders, as compensation for loss.

And the foundation of that is actually inequitable. It's arbitrary and it's not been proven as being totally accommodating to the loss. It also fails to recognise that these arrangements put farmers in a position who are already in economic vulnerability and are required then to make some pretty wicked decisions. So this

statement, I think, specifically needs to be removed from your assessment because this is not a source of off-farm income, this is compensation for loss. Also in your assessment reports, you have modelled data and broad commitments from the proponent which are yet to be implemented.

When I compare that in your report to what the experience has been in Queensland for the landholders, it is evident that modelling and broad commitments just don't translate to the lived experience for the people expected to live with this industry. Upon reviewing your conditions and the reports that you commissioned and were supplied, there are hazards, risks and social impacts there that remain the same. They're the same gaps and failures in your arrangements that continue to cause problems for us in Queensland. You also fail to consider the very important issues that have been raised by the Queensland audit report on how the industry is managed by the government in Queensland, and I have detailed those in my submission.

MR O'CONNOR: If you could wrap up now, please, Shay.

MS DOUGALL: Thank you. This is my final slide. When you guys – when the gas industry and the government are talking about turning on this magical valve to get more gas, what needs to be understood is that the farmers are the place where this magical amount of gas is going to be taken from, and while that is happening, the farmers are getting an increased level of red and green tape to undertake their business. They also then need to accommodate another business who's having their red and green tape reduced. That actually reduces the protection for the landholders and it means increased impacts on the farmers, removal of the resources that they need to undertake their business in order to boost some economic growth of another sector. I want to thank you for the opportunity to provide this submission. Thank you.

MR O'CONNOR: Thank you for your presentation, Shay. Next speaker, please.

MR BEASLEY: We have Pierre Four on the phone. Mr Four.

MR FOUR: Yes, hello.

MR BEASLEY: Go ahead.

MR FOUR: Yes, hello. I am Pierre Four. I have worked in the coal and oil and gas industry for about 30 years in engineering and I particularly wish to address the people of Narrabri and its region. The people of Narrabri and the Pilliga must understand the risks that lie with coal seam gas. Accidents are the reason for this presentation of mine.

There are many sides to coal seam gas projects. Every mine site will have accidents and incidents to various degrees. I also stress never forget that accidents happen in every industry, especially in CSG. High concentrations of methane gas can be deadly when they're ignited. The Narrabri project includes three parties; Santos,

the community and the government of New South Wales. Social issues will inevitably result from such a mix and will create discord and hostility. Again having numerous parties creates opportunities for increased incidences. When things go wrong, each party will blame the other. There will be – this will be followed by shame, great hurt and economic disruption to any region where disasters happen.

Didn't the cotton industry do enough disruption to the Narrabri community? Oil and gas can do the same and, mate, it's much worse. In CSG we will see many more problems than with cotton. Residents will see their homes go up and down in value. The residents' health may be deteriorating. One must ask, where does this leave the farming community? The whole community of Narrabri should educate themselves regarding CSG. See the internet regarding the frequencies of disasters that have hit the planet, especially in regard to CSG.

Coal seam gas is an unconventional gas and far more dangerous than natural gas. It is more volatile, more poisonous and pollutes the atmosphere more by depleting the ozone. Also, water courses, perhaps even the artesian basin, might be at risk. Unlike natural gas, CSG requires much more infrastructure to mine it. Major surfaces, areas of land, are required, some hundreds of square kilometres at times.

On the mine site land area, the following are needed. Whirl heads, which is sometimes called Christmas trees by some, and hundreds of pipe burns are needed. Also, compressor stations are needed, treatment plants and toxic waste water storage dams are needed. All these items will mark the landscape. If any piece of the chain of CSG mining fails, it can set off disasters, perhaps greater than Bhopal in India. Nobody knows exactly how dangerous gas mining can be. Neither engineer, scientist, consultant, CEOs can guarantee the safety of mines or the safe use of the final product. No company has complete control over mining hazards. They have limited control only, in spite of the extreme precautions and high engineering standards that they use.

CSG miners invade farmlands that look very familiar – similar to the historical invasions by colonial powers that invaded Indians, Aboriginals and natives from all lands and then proceeded to devastate those people. Narrabri and the Pilliga communities stand to become known as another casualty. Even without accidental occurrences, Narrabri and Pilliga will become pockmarked land and damaged land and wasted land that will remain so for a hundred years or more. Needless to say, values of homes and properties, in the end, will fall dramatically. Has anyone known a ghost town to have a high return on investment? Narrabri – I will finish. Narrabri and the Pilliga might become another Chernobyl or worse. Due to the numbers of lost towns, homes, people and economies that are at risk on this project in particular, in Narrabri. I don't like coal seam gas. I'm sorry. Thank you very much.

MR O'CONNOR: Thank you, Pierre, for your presentation. Next speaker, please.

MR BEASLEY: Michelle Agius on the phone. Ms Agius, can you hear me?

MS AGIUS: Yes, I can hear you.

MR BEASLEY: Great. Thank you. Please go ahead.

MS AGIUS: There was a banner there for the front, I was hoping you could pick that up. I reject the Santos Narrabri Gas Project. I stand with the Gomeroi clans – groups and the Pilliga Push group and Camp Quoll. The government ..... an independent review of ..... failure of the development assessment to respectfully consider groundwater ecosystems. So approximately 46 gigalitres of water a year threatening our water security and risking extinction of microscopic, endemic aquatic stygofauna, groundwater dependent ecosystems that can't survive anywhere with ..... fractured rock and alluvial aquifers at Pilliga.

Environmental changes due to CSG processes such as depressurisation of water tables and treating with biocide used to kill sulphate-reducing bacteria that eats steel and concrete casing, the cause of injection well failures that contaminate aquifers.

Following the regulations in the water trigger policy to tighten policies, to extend all CSG threatening critical decline of the water table, as Santos ..... drawdown impact is not credible and lacks ..... There was no sampling of stygofauna from good condition waterholes, missing a key ..... that indicates good health and permanent, contradicting the GD Atlas which identifies Bohena Creek ..... as a modern ..... lists the Bohena Creek groundwater system as a high priority ecosystem.

Stygoecologia Australasia recorded 11 stygofauna species. Surface and sub-surface environments are in a high condition, contrary to the data in the EIS. Surface ecosystems are a high diversity of plant and associated fauna. Surveys by Santos work to minimise checks of obtaining real results and invertebrae surveys were poor. Special features and surface areas provide a drought refuge but not one assessment exists on impacts of toxins within those surfaces.

If a public ..... and baseline monitoring system listing stygofauna populations around the whole of Australia applied to any more mining applications being passed, we would have a much more honest and factual scope for the environmental impact statement to be assessed and acted upon.

Consider funding the creation of jobs for First Nation's bush rangers or, if you like, bush medicine police, to exist within the boundaries of their clan groups Australia-wide. Provide the needed equipment and training to fulfil those positions, run independently from the current fractured government or mining company mandates. If regular checks of air, water, soil and quality to avoid any more damage to the country, plant, animal or human ..... Please nominate stygofauna for protection under the New South Wales office of water, groundwater dependent ecosystem valuation process as a high conservation value and high priority GBE.

Important to wildlife biodiversity, contributes to ecosystem services, via nutrient cycle, their findings indicate good quality groundwater. Their borrowing activities in aquifers keeps flow paths open, feeding on bacteria and maintaining water chemistry. They are considered to be a 300 million year old living fossil that are amongst the

oldest surviving ecosystems on earth. Their ancient lineages are of high scientific value and conservation significance. It can assist in understanding the evolutionary history of our country. Their main stygo families are found in Australia with their relatives found abroad, reaffirming Australian aborigines as first people, the oldest surviving culture, and Darwin got wrong the Out of Africa theory.

The New South Wales government and affiliations are guilty of not consulting with the original custodians, the Gamilaraay Nation, a matriarchal society that revere water and life as sacred. They, together with First Nations globally, are holders of human survival codes associated with asymmetrical mathematical knowledge, the basis of natural law from which all life depends, and Einstein also got wrong, stating we begin with cemeteries.

This lack of consultation leads to a lack of general environmental and psychological body and mind understanding by decision-makers divided by economically driven empirical science. I urge this panel to sit with the Gamilaraay Nation before any further decisions are made, to be respectful rather than the disrespect of a five minute time slot near closing a decision, more likened to an incision, having not consulted with us to begin.

Please imbed a respectful framework to preserve cultural significant and heritage sites and ..... sustainability water principles. So identification of the many clan groups and ..... that they belong to and wish to preserve. Science without ..... is just a con. By protecting these important water purifying agents we can save the little guys in more ways than one. Thank you.

MR O'CONNOR: Thank you, Michelle, for your presentation. Our next speaker, please.

MR BEASLEY: We've Caroline Crossman. Ms Crossman.

MS CROSSMAN: Hello? Can you hear me?

MR BEASLEY: Yes, we can hear you. Go ahead.

MS CROSSMAN: Okay. Good afternoon. I wish to acknowledge the Gamilaroi People traditional owners of the land on which the development is proposed the Elders past, present and emerging. My name is Caroline Crossman. I hold a Bachelor of Social Science and a Masters of Social Science. I am a member of the Economic Society of Australia, a member of the Hornsby Shire Climate Action Group, and I am a grandmother. This is a project from a bygone century and trying to shoehorn all its risks and problems and impacts into a modern society just cannot be done, and nor should it be done.

It really is like trying to work out how a horse and carts can travel on modern expressways and then who will clean up the mess after them. The project is anathema to a modern forward looking society. In economics we talk about

externalities. This is a poorly understood and under-researched area of economic measurement. What we're talking about with externalities is the public return. A measurement of wellbeing if you like. That is, what does a certain item, action or development do that is not measured by the traditional monetised measures such as the gross domestic product? This is extraordinarily important because this is the real value or cost that a community, a society, the environment and our children, including future generations, must bear.

So what do we know about this proposal? We know that there are no plans to dispose of the extraordinary amount of toxic salt waste . We know that this project poses great risk to water and, as many with expertise have attested, is irreversible. We know that farm output will drop due to soil compaction, lower crop yields as a result of 24 hour light pollution, the reduction in pollinators due to both attraction to and deaths in the gas flares. We know that the light pollution, both flares and lights, impacts the natural environment in complex ways and will negatively impact insects and birds and the growth and flowering of plants. We know that light pollution makes star gazing and research impossible.

We know that gas extraction does impact on human health and that there are myriad associated costs with that. We know that where CSG was introduced in Queensland that for every one gas job created, 1.8 jobs in agriculture and .7 of a service job was lost. We know that tourism is not a feature of any gasfield in the world. We know that jobs in tourism sector will be lost due to the ugly and repulsive sight of the CSG gas wells. Tourism is driven by natural beauty or experience such as a visit to a bore bath, a forest or outstanding caves, the experience of trying and delighting in local flavours, arts and culture. We know, because we have listened to them, that the project will negatively impact the Gamilaroi People's connection to country.

We know that the Pilliga Forest is a unique and ancient forest with intrinsic value. I have a brochure from the NSW National Parks right here explaining this. We know the demand for gas will drop as the Australian Capital Territory will be gas free by 2025 and we know that there is a strong desire amongst many in New South Wales to be gas free in this decade. We know that there is a global gas glut. We know that this project will release potent greenhouse gases including methane and CO2. We know that this will be in significant amounts that will aid, abet and accelerate climate breakdown. We know that climate breakdown will cause more fires, more severe droughts and more severe weather events.

We know that climate breakdown is a threat to our species and life on this planet. We know that the expected royalties from this project are trivial in comparison to the harm to our species and to life on this planet. We know that this project does not fit with the goal or objectives of ESD. We know that this project does not fit with responsibility for intergenerational equity. We know that Australia is a signatory to the climas Paris Accord – the Paris Climate Accord – I'm sorry – as are 188 other countries. We also know that renewable energy is feasible and the uptake in Australia is extremely favourable and therefore this project is not needed. There is

no remedy to mitigate the damage that will be the public return or externalities for this proposal.

It is my strong view that the economic assessments provided with this proposal have taken a very narrow view. Economics as a discipline fails when this is the way it is applied. I love the discipline of economics and when it is applied well it is a positive social science, otherwise, it is a blunt instrument. As a social science it must take the guiding principles of ESD seriously so as to provide a thorough and responsive analysis. This is a fundamental requirement for human wellbeing. We must be cognisant that economic decisions affect people's lives in more fundamental ways than numbers can ever capture. The risk of damage is not found in the one event, but in the cumulative impact.

This cumulative impact needs to have attention applied. This cumulative risk presents potential disaster for the community and the people of New South Wales. With this analysis completed holistically, then the overall finding for this project must be that it is extremely likely if the project were to be approved that the benefits to the New South Wales community flowing from the development would be negative.

MR O'CONNOR: Can you please wrap up thanks, Caroline.

MS CROSSMAN: Yes. Thank you. There is unhealthy future in fossil fuels and that means all coal seam gas must be denied. To do otherwise is reckless and negligent to our farmers, to the Narrabri community, the people of New South Wales and to all future generations. We must put ourselves in future generations' shoes. They will look back at this time and recognise what is decided by this committee. This is your moment. I beseech you to reject the Narrabri Gas Project and wish you well in your deliberations on behalf of the community and the Australia that we need. Thank you.

MR O'CONNOR: Thank you, Caroline. Our next speaker, please.

MR BEASLEY: Abigail Humphreys. Ms Humphreys.

MS HUMPHREYS: Hello. I wish to acknowledge the Gamilaroi People on whose lands this project is situated and these lands have never been ceded. My name is Abigail Humphreys and I am objecting to Narrabri Gas Project due to the environmental and social impacts of coal seam gas extraction. I've read the Narrabri Gas Proposal and I'm shocked that the New South Wales government would consider coal seam gas as a valid proposition to lead New South Wales out of the current recession. A COVID recovery should not proceed at the expense of damaging water resources, loss of significant biodiversity and generated substantial greenhouse gas emissions, all of which have to be rectified at some point in the future.

As recently as last month the United Nations World Meteorological Organization forecasted that the world's global temperature would exceed 1.5 degrees some time in the next four years. 1.5 degrees is the level agreed to by the world's governments in Paris to cap global warming. The World Meteorological Organization goes on to state that any delay diminishes the window of opportunity to achieve this goal. And yet, here we are discussing opening up another climate wrecking project. Are we in a parallel universe whereby governments agree to do something then ignore the science, prioritising profits for a few as if our actions don't count?

We are facing unprecedented climate catastrophe and all the science is in agreement that it is essential to reduce the atmospheric carbon concentration to 350 parts per million. Atmospheric carbon is at its highest level at the moment at 416 parts per million. And we are at a tipping point and might have already crossed the tipping point which will make reversing global temperatures impossible, according to the director of the UN WEO, Max Dilly. For the inhabitants of earth to have any chance we must not continue to extract fossil fuels and must leave all remaining fossil fuels in the ground. The Pilliga Scrub is an area rich in biodiversity that has been cared for by the Gamilaroi People for thousands of years and they have vigorously objected to this further destruction of their traditional lands. Unfortunately, the Native Title Act was watered down by Harwood to prioritise profits for mine interests and this has led to a plethora of actions which relate to cultural genocide.

This leads me to a very – another very grave concern and that is the ecological sustainable development. I maintain these principles are in the public interest particularly when considering intergenerational equity. That the environment is maintained and enhanced for benefit of future generations. The principles of ESD have been discussed long ago in the Bible where it is written in Leviticus 25:13:

> *God wants a land looked after; not to be sold and is not for the property of people but is the property of God as he made it.*

And in Revelations 11:18 that:

> *Those who destroy the earth will be destroyed themselves as God does not like those people who destroy his creation.*

These passages from the Bible reinforce God's will to protect and conserve the earth and all who live on it. What would God say to you now as we're in another mass extinction and wilfully plundering the earth's resources from dubious profits ..... I call upon the IPC to reject this climate wrecking fossil fuel extraction, to exert its independence and demonstrate transparency, to build public trust in the IPCs process and planning systems. Thank you for your consideration and I sincerely hope that you air on the side of caution and protection of the environment and protection of our earth. Thank you very much.

MR O'CONNOR: Thank you for your presentation, Abigail. Our next speaker, please.

MR BEASLEY: Tracie Hendriks. Tracie, can you hear me?

MS T. HENDRIKS: Yes, I can. Can you hear me?

MR BEASLEY: Yes, go ahead.

MS HENDRIKS: Okay. Good afternoon, Commissioners. My name is Tracie Hendriks, I live in Raymond Terrace and have a farming family who live in the area that, if the proposal succeeds, will be directly affected by the development of the gas field in the Narrabri region. Raymond Terrace and the Port of Newcastle, where my immediate family live, will be affected by the development of the gas pipeline from Queensland and Narrabri regions, both during its development and if there are any problems arising in the future.

My sons and daughter-in-law and many of their friends, who are all intelligent, employed, contributing and functional members of society, are so pessimistic about the future of the world that they have made the decision not to have children. The young people of the world desperately want those with political, business and legal powers to work towards limiting climate change, to understand that economics can thrive with development of sustainable energy and ignore the lure of money and political backing.

The area in which this proposed development is situated is surrounded by other large parcels of land earmarked for fossil fuel exploration. Allowing this gas field to proceed will open the door for exploitation of this whole area, wiping out agriculture and agricultural communities. I urge you to listen to the health and climate experts and to those who have spoken today who are telling us that a gas led recovery is not a safe way forward for our country, more gas ..... both for domestic use and for export will raise global carbon dioxide and methane levels even higher than they are at present. A level which will make survival into the 21st century difficult.

As one of the country's most vulnerable to the impacts of climate change, Australia cannot afford to be adding large amounts of greenhouse gas to the atmosphere. Drought, bushfires, coastal erosion, extreme heatwaves, and changing patterns of the scenes are just some of the effects of the climate emergency we face and these have health, economic and social consequences. A large portion of the proposed development will be situated within and destroy some of the Pilliga Forest. The burn-off from the gas extraction, the gas flares, which must proceed even in times of total fire bans, will pose a large threat of bushfires in this region.

The interests of the gas industry should not be put ahead of Australians whose health and wellbeing depends on a liveable climate. Fossil fuel mining and extraction has a limited life expectancy after which the land will be ruined for agriculture and would have ongoing risk to food security. We will have missed the opportunity to join many other developed countries in developing a sustainable economy. The Narrabri gas fields are estimated to be productive for 25 years. Only 25 years. People say, "We can import food", but what money will we have to pay for food when the

income from selling fossil fuels runs out and the whole world is suffering food shortages because of climate change and the prices escalate?

If you allow the gas fields to be developed you will be aiding the destruction of the habitat we share with our flora and fauna. You will be aiding the devastation of our farming communities and threaten our food security. You will be committing Australia to an economic dependence on fossil fuels that will see our economy decline especially after the fossil fuels run out. Please prioritise the energy solutions which have a long-term future and which do not pose a threat to our health and that of our families, not the false promise offered by self-interested and short-sighted people. I beg you to listen to the experts about climate change and its far-reaching consequences and reject this proposal. Thank you for hearing me.

MR O'CONNOR: Thank you, Tracie, for your presentation.

MS HENDRIKS: Thank you.

MR O'CONNOR: Our next speaker, please.

MR BEASLEY: We have Don Craigie. Mr Craigie, are you there?

MR D. CRAIGIE: Yes.

MR BEASLEY: Please go ahead.

MR CRAIGIE: Yes. My name is Don Craigie. I'm nearly 64 years of age. I have 15 grandkids, five grandchildren and I'm very concerned about the future for them. My mother told me a long time ago the first non-Aboriginal person that came into her family was a gardener and that was outside Narrabri. We have family buried and still living in the Pilliga. The country we are talking about is Kamilaroi-Gomeroi lands. I've been representing my people, the Kamilaroi-Gomeroi – people of the land for many years in many capacities and have heard their fears for this project.

At the expense of the environment, without clean drinking water, there is no life. Without clean water there is no food. That's Indigenous food or produced foods. Without clean water, water, salt, communities will die. There is less rainwater falling from the sky each year. The Commonwealth and State Governments just signed a compact ..... and that compact is similar to a treaty and is looking for best outcomes. Now, this could have been a better situation performed here but us Aboriginal people are forced to the table, under duress of the legislations of this land and irrelevant whether we strike a bargain or not. If we don't, we fail our people, we then – we fail, everything fails. Okay.

So we don't condone what's happening in our lands. Subsequently, last week, the Land and Environment Court ruled in favour of the Federal Environment Minister, Sussan Ley, concerning another project that's happening in Gomeroi lands only about an hours drive from where you are. The court said it was more beneficial

financially than the significance to the Aboriginal people. I dare say this will be looked along similar lines. As I've said, there's less water each year and, such is the aquifers, they're all interconnected. You get water in one, you get water in them all, you poison one, you poison the lot and, subsequently, in the last few months, before the Planning Commission made this decision to send this to the IPC.

Now, the Federal Government Prime Minister, Scott Morrison, along with the State Government Premier, Gladys Berejiklian, came out in the media and made statements to the effect they were going to rip up all the red and green tape that was in front of the resources industry and this decision from the Planning Commission, that passed it on to you, has only happened in the last four or six weeks or something. So these other statements were made previously. So I think there's some kind of a conflict there anyway. But, anyway, we will let our legal ..... worry about that.

Now, in saying that, my people have always been in these lands, we're treated like second, third class people, we're forced to the table to negotiate, as I've said, irrelevant – whether we negotiate a fair outcome for our people, you know, that's irrelevant here today. But the Act says that if we fail, then we end up in the Land and Environment Court and, as the Act said, the proponent's rights overrides ours. So we got nowhere . We never had any word in our lands, subsequently, in 232 years and, I dare say, if this matter goes ahead, the consequences and ramifications that will be felt from here on in, because everything ..... if that is poisoned and, subsequently, as the Prime Minister said, he said there is going to be twice the extraction of gas taken out of the Pilliga.

Now, I don't know if that was taken into consideration by the Planning Commission. I'm sorry, I do – I meant to mention that.

MR O'CONNOR: Can you wrap up now, please, Don.

MR CRAIGIE: Yes, I'm just about there. So I just wanted to make sure that all of those points were made and, subsequently, I don't know, over the last 15 years plus – now, the all the roads – I feel the roads out there are starting to bend, okay? They're cracking to the point that they're two metres deep. So that's a third of those roads. Okay. And if that poison – if they are poisoning the underground aquifers and everything else, everything salt will die. That's the communities also. Now, there was a university professor out of the University of New South Wales said that there was over 23 billion trees along the Murray Darling, he estimates there's only about eight now. We keep clearing them up the desert is getting bigger and hotter.

MR O'CONNOR: Don, you will have to wrap up now, thank you.

MR CRAIGIE: Okay. I think I've said what needed to be said.

MR O'CONNOR: Thank you very much.

MR CRAIGIE: Just take it all on board.

MR O'CONNOR: We will. Thank you very much.

MR CRAIGIE: Which, as Aboriginal people, we do not believe you will be because we believe everyone else's rights will override ours. Okay. Another than that, you have a good day.

MR O'CONNOR: Thank you.

MR CRAIGIE: And hopefully our children will have a better future depending on the decisions from this year and, I would say, subsequent any other ones. Thank you again. Thank you. Thank you very much.

MR O'CONNOR: We will now take a short break and resume at 3.15 pm when we will hear from Mr David Kitto from the Department of Planning Industry and the Environment. Thank you.

ADJOURNED [2.54 pm]

ADJOURNED [3.16 pm]

MR O'CONNOR: Thank you for joining us for what will be the last session of this public hearing into the Narrabri Gas Project. This session we will hear from the Department of Planning, Industry and Environment in relation to a number of questions that the Commissioners have prepared following the seven days of submissions from a wide range of the community. Thank you, David Kitto, for being available on behalf of the department to answer our questions.

I might start off under the theme of bushfire threat and kick off with the first question, which is has the department considered the likelihood of increased fire risk due to climate change in its assessment report, given that the frequency and intensity of fires is likely to increase during the life of this project?

MR KITTO: Thank you, Steve. So the short answer to that question is, yes, we have. One of the key risks in that area is bushfire because it is a bushfire-prone area, and particularly the Pilliga State Forest has substantial fuel and you get very dry periods there, and so – and the history has shown that the frequency of fires in those areas is quite consistent, at least every decade or higher. And, you know, with climate change, one would expect there to be an increase in the frequency of fires in that region but, also, an increase in the severity of fires.

So, clearly, that's a key consideration in any risk assessment. I think what flows from that is that there will be greater periods of high or catastrophic fire danger in that area, and the assessment that's been carried out in the fire impact assessment is really focused on the periods where there's catastrophic fire danger. So while the

frequency might change, you know, over time, the assessment has been based a worst-case scenario, so a catastrophic fire danger, and from that flows a whole range of modelling, you know, and criteria that need to be met that have been set by the Rural Fire Service.

I think in terms of fire risk, though, I think there's – you know, what that translates into is you may need to protect the infrastructure onsite more often, and so a lot of that comes down to the design of the project infrastructure and the – you know, the firefighting capability you have onsite to be able to deal with anything and protect the infrastructure onsite. And then it also becomes about reducing the likelihood of causing any fires, and quite a lot of work has been done, you know, looking at that, particularly in terms of, you know, the key – the key issues there are really the increased human activity onsite. So there will be quite a few workers, you know, onsite during construction and then during operations.

Some of the works will involve what are called hot works like welding, there'll be vehicles, there'll be handling of dangerous goods and so on. And, you know, a lot of those can be controlled through standard procedures and design. And the second issue is the flares onsite. So there's two types of flares that are proposed in the EIS. The first of those is safety flares, and so there would be two of those flares at the key infrastructure site. The first of those would be at the Leewood site, which is outside the forest, and the second of those would be at Bibblewindi, which is in the forest. Now, you know, there are critical requirements in terms of the clearing.

You know, that there's nothing in and around those flares that can burn, and so, you know, the design of the project incorporates those. There would be at least 130-metre radius around those, and both of those flares would be about 50 metres high, so the risk of igniting any surrounding vegetation and so on is, you know, almost nil. You know, there's Rural Fire Service's set criteria for radiant heat levels under catastrophic fire danger and Santos has done the modelling of the operation of those flares and the modelling results are well below the standards set by the Rural Fire Service, so it comes around – I think it's 6.31 kilowatts per metre square against a criteria of 10.

So I guess that they do meet the radiant heat levels. The other thing to bear in mind with those safety flares is that they are for non-routine operations, so they really are only operated during – you know, a couple of times a year, if that, during scheduled maintenance and also if there's an emergency onsite. So the operation of those flares is very infrequent, which reduces the risks of anything happening substantially. There is a small pilot light on those flares when they're not being operated but that's a very minor – you know, minor flare in the area.

I guess it is possible to – you know, you can't really schedule emergencies but there's a lot of flexibility in terms of scheduling maintenance and, you know, just like that Santos has committed with the observatory, you can schedule those outside areas of catastrophic fire danger and so on or, you know, from the observatory point of view when the observatory's being used. So there is scope to schedule the

maintenance but you can't really schedule the emergencies. I guess when they are operating during emergencies, you know, the risks of, you know, igniting vegetation and so on are reasonably low because of that cleared area.

Secondly, because they're 50 metres high, so, you know, any kind of fuel that might get up to the flame needs – you know, the heavier materials in the surrounding area are more likely not to get up to 50 metres unless you have significant winds. And whatever does go up into that flame, the intensity of the flame will really incinerate it straight away. So, I mean, we've looked in the area. You know, similar flares have been used in other bushfire-prone areas and, certainly, we haven't uncovered any evidence that they are causing fires.

I guess the second type of flares that they've got onsite are appraisal flares, and they were canvassed early in the EIS, and they've canvassed having up to six appraisal flares. Those are quite different. You know, normally, you would have flares like that if you were doing exploration and you hadn't connected them up to your system, and so you would be flaring the gas until you had connected them up to a system. I think the issue now is – or certainly the assumption of the department or what we – the assumption we'd been working on, is that none of those appraisal wells should be necessary; partly because they're routine operations, but the key issue is, really, they can be connected up quite easily to the gas gathering system, and the gas can be taken to the Wilga Park Power Station and used to produce energy, rather than being flared into the atmosphere.

So in our view, and it has always been the assumption that those flares would not be installed on site and, you know, that there wouldn't be any fire risks associated with those flares. So, I guess, at the heart of our assessment, it's saying there are things that can cause fires as a result of the operation, but, based on our assessment, the likelihood of that occurring is remote, which is the lowest criteria you can have on the likelihood spectrum.

We don't want to underestimate that if a fire does occur in that area or is caused by the fire that the consequences of any fire could be severe. It could result in significant property damage and, you know, injury. But I guess where Santos's assessment came down was that the likelihood was remote, and when you multiple that by the consequence, the overall risk is medium. And we would agree with that assessment. I'm happy to go into that in further details, but that is based on – to come back to your question – you know, an assessment of things under catastrophic fire conditions and, essentially, what our assessment is showing is that those sorts of issues can be managed in a reasonably standard way.

MR YOUNG: David, it's Mike Young here, on behalf of the department as well. Is it my – it's my understanding, David, that we would have an expectation that Santos would be responsible for ensuring its own assets were protected and having relevant equipment on site to work with whatever fire authorities were doing in the area to actually provide additional assistance and additional equipment to fight fires in the area, not only to protect their own assets, but also to assist in the firefighting effort,

as opposed to just relying on the Rural Fire Service or other emergency services to protect their infrastructure; is that right, David? That's my understanding.

MR KITTO: So – I mean, that – that is correct. The – the – you know, Santos will be solely responsible for defending or protecting any of its infrastructure associated with the project. So there would be no expectation that the Rural Fire Service would need to do that. I guess, you know, Santos will need – you know, has proposed a whole range of firefighting capabilities and management measures, which will be formalised, you know, in an updated fire plan that they already have, with the relevant, you know, Rural Fire Service and the Forestry Corporation, and so on.

MR O'CONNOR: This is all in proposed condition B74 and 75, isn't it, David? Yes.

MR KITTO: That's correct.

MR O'CONNOR: Yes.

MR KITTO: I guess there's a related issue here in terms of rural fire service and it has – you know, I'm aware it's come up in some of the presentations to the Commission, and that's the history of – and I think it's a very reasonable one, that if you've got all this gas in an area, that if there are fires, well, Santos – if Santos's infrastructure is affected, you know, that's Santos's problem, and they can solve that. The issue is whether it materially increases the risks – offsite risks – for firefighters and other people in the area. And so there was quite a bit of assessment to do with that, as well, which was the sort of detailed assessment that was done under the State Environmental Planning Policy number 33, which deals with hazardous and offensive development. And the primary driver of that is to make sure that, you know, any – there are no offsite risks to people or to the environment that result from an industrial facility like the Narrabri Gas Project.

And so, you know, that – there are a whole range of guidelines that drive that assessment and that risk assessment, and Santos has prepared a preliminary hazards analysis. We had an independent expert look at that hazard analysis, you know. And, essentially, the conclusions of that is that the – you know, the onsite risks that might come with operating a gas-fired – I mean, a gas-fired power station or a gas plant – you know, processing plant or gas wells and gas infrastructure can all be controlled to ensure that the risks are maintained within the site and do not pose any significant risks to anyone in the surrounding area.

So I think that's a key issue in the sense of, even if firefighters were going into the forest to do what they normally do in terms of fighting fires, you know, they wouldn't be expected to go onto the project site and protect any infrastructure. And nothing happening on site, because of the way it's been designed and the shut off systems and a whole range of other things, is likely to result in an offsite impact.

Now, the conditions – and these need to be read in conjunction with the bushfire conditions – is that there is a requirement – there are a whole set of conditions that deal with the design of the various infrastructure facilities, and so on, and, you know, they require Santos to prepare, you know, a detailed – like, a final hazards analysis. So they've done the preliminary one showing it to be managed, but, really, through that final hazards analysis, a lot more work is done to sort of drive the design and make sure that any risks are internalised in the site, rather than posing a risk to people in the surrounding area, or their environment and the surrounding area. So you can't just look at the bushfires in isolation. A lot of it's got to do with the design of the facility, but also all the safety and emergency procedures that you would put in place to deal with those sorts of things.

MR O'CONNOR: Thank you, David and Mike, for those comments. I might hand over to Professor Barlow. Snow, you have a question related to bushfire threat, as well, I understand.

PROF BARLOW: Yes. David, we heard for some very experienced fire experts during the hearings that while the risks might be contained from Santos ..... themselves, a naked flame there is still vulnerable too – there is the high wind days that whip up certain detritus, you know, such as leaves, bark – but in that area, of course, there is a very common occurrence, which are willy-willies, which are twisters that take up, you know, leaves and bark and material at least to 50 metres. So that with the naked flame, you still have a potential ignition source. And has that been evaluated?

MR KITTO: I mean, I think the answer to that question is – no – no – so the answer to that question is there would be two flames – two flares on the site. One of those would be, you know, on agricultural land outside the forest, and the other one would be – you know, would comply with all the relevant criteria. Now, there would be quite a lot of surveillance in and around those areas in terms of any – you know, that sort of thing happening. So it wouldn't be deep in the forest where there wouldn't be much surveillance. There would be workers around there all the time and there would be a firefighting capability to deal with it onsite. Now, I – so across a 95,000 hectare area, you are talking about two isolated flares in that very broad area, both of which, you know, require an event; for a twister to happen in that particular location or in the source of that flame and that flame to be burning. So, I mean, I think, while it's theoretically possible, I think, you know, a lot of things would need to happen for that to all come together and, therefore, there to be – so it's a possibility that it could happen. And even if something does happen, you know, there's a higher likelihood that it would be identified and addressed quite quickly before it got out of control but I don't think you can discount that from happening. All you could say is the likelihood of a twister happening and happening and catching fire and then spreading is – it's a possibility but there are many things you can do to control it and certainly that's what is envisaged in the conditions – in the conditions.

MR YOUNG: So, David, it's Mike Young here. Just – is it fair to say that Santos has, generally speaking, apart from, maybe, emergencies, and I guess that's still a

hypothetical risk, but generally speaking it has control over when it would schedule maintenance and those flaring activities and that there would be some surveillance of weather conditions,

et cetera, and that would be something we would expect them to articulate quite clearly in terms of protocols in their bushfire management plan and other management plans required under the consent, and that they would need to be prepared in consultation with relevant fire authorities to ensure that they were satisfied that those protocols were minimising the risk to its absolute minimum. So I think that's a quite important thing to add to that in terms of characterising the risk profile of that event actually occurring in practice.

MR KITTO: So, Mike, I would just come back to the, you know, the likelihood. So I agree with you in terms of the – you know, the flares wouldn't be operated at full – like, there wouldn't be a massive flare there, you know. For most of the time, it would only be during scheduled maintenance and, and, and emergencies. So the frequency of that would be very rare and in terms of the twisters, and, you know, the frequency would be lower. But you can't discount it because, as I say, there would be a – there would be a pilot flare there but it would be a very, very small flame, you know, so the potential for that to, sort of, burn a whole mass of material and start a fire, I think – I think what would – so I think in answer to your question is it is a possibility but I don't think it changes our assessment of the likelihood of a – of the project starting a fire from being remote.

So I think, you know, our assessment would be the likelihood of the project causing a fire would remain remote and I think our – you know, looking at flight flares in other bushfire prone areas, we certainly haven't uncovered evidence to say – to show that that would be any otherwise but you can never say never with these sorts of things and, really, you need to be geared up to deal with it, if it, if it, if it should happen. So I think that's, that's what we would say.

PROF BARLOW: David, another question, along those lines, is we're aware of there's – you know, there's a World Bank initiative to, you know, reduce flaring up as much as possible and by many countries and petroleum companies, but is it possible, have you considered, to actually shield those flames? Do you have to have a naked flame to do it and, you know, have you considered, you know, sort of asking a requirement that they actually shield the flames?

MR KITTO: So I think there's – there's two things there, Snow, the first is about the World Bank initiative and we are aware of the – you know, the World Bank does have this initiative to have zero routine flaring by 2030. Now, a lot of that initiative relates to – primarily to oil projects across the world where, in the production of oil from reservoirs and so on, you often get gas as a by-product and in many cases the gas is – the gas a flared as a waste product.

And so the primary driver is geared towards a lot of those oil projects and making sure that if the gas can be beneficially used, it is beneficially used. So we would support that 100 – 100 per cent. I think if you take that down to the Narrabri Gas

Project, the two safety flares are for non-routine operations. So they're not captured by the World Bank initiative. They are for non-routine operations as they're defined, and initiatives which is really for emergencies and safety and for schedule maintenance where you can't but shut down some of the facilities to maintain them. So it's not a routine thing.

But as I said earlier, the appraisal flares that are proposed in the EIS, the department doesn't believe they are necessary and certainly, you know, have every intent, through the equality and greenhouse gas plan and through the field development plan, not to allow that and certainly we have no objection to having a condition saying, no – no appraisal flares because they can avoid it. So, you know, if you are looking to be consistent with those plans and to strengthen that obligation, certainly the conditions can be revised to do that.

But, you know, consistent with reducing lighting emissions and, you know, fire risks and – and greenhouse gas emissions, you know, it would be standard practice to, to, to, to cut those out of the project if it was possible and in this case, with the Wilga Park Power Station it is possible. So I think we can have a hundred per cent compliance with the World Bank initiative from, you know – encapsulated in any conditions for the project and ..... obligation.

MR YOUNG: It's Mike Young here. Steve. I was just wondering whether Steve O'Donoghue is also on the line, from our assessment branch, and we wonder whether Steve has any comments about the consideration of shielding these flares, you know, mechanically shielding them in some way and whether that's been considered as part of this.

MR O'DONOGHUE: Well, certainly just on the – noting David's comments that Santos had, in terms of their hazard's assessment, had a look at committed to shielding the pilot appraisal flares but in considering David's comment that the better approach is to get the gas into the power station. For the, for the larger flare, the larger safety flares, I think the issue round that is the – what – when it goes at full – you know, when they're putting the full production through there, just this – the size of the flame and the energy of the flame makes the shielding difficult. I mean, there are options for putting it – putting it down and – horizontally, for example, but that can increase risks as well in putting walls up, and that. That would increase vegetation clearing, for example, as well, in terms of the area you need to do that. So there's constraints around that.

MR KITTO: So I guess, I guess, Snow, to answer your question about shielding, it is possible to shield flares but generally that's only done with appraisal flares, not safety flares. And so I guess it would come down to what you try – and what you're trying to achieve because it's not guaranteed that shielding would necessarily reduce fire risk, even though we think that fire risk is very, very low.

In terms of lighting, you know, the small pilot flare doesn't create much lighting. Light – and then when you do – you know, clearly, when you do operate those flares,

or when they're operated at full, full bore, there are impacts but it's for very short periods, you know, a day or two at a time rather than over extended periods and I guess from a, from a climate change or an energy point of view, they are essential to the operation so it's, it's not that you can cut them out. So I guess in terms of shielding the safety flares, you know, I – it may be possible but it would really depend on what you were trying to achieve and whether that was reasonable and feasible given, you know, what the outcomes you were trying to achieve.

MR O'DONOGHUE: I don't - - -

MR O'CONNOR: We might - - -

MR O'DONOGHUE: Sorry.

MR O'CONNOR: Go.

MR O'DONOGHUE: It's Steve here. Just one other comment. Just in terms of – like, Santos has provided information through the assessment, but I guess in terms of total plan outage, the frequency that they'd be putting, you know, the full gas through there is about once every two years, based on the experience of other plants in Queensland, for about a three-day period. And then with partial plan outages a couple of times a year.

MR O'CONNOR: Thank you. We might move away from the topic of fire and bushfire threats and go to groundwater issues and so I've got a question that arises from comments from both Narrabri Council and others who have raised concerns about draft conditions B30 to 33, which relate to compensatory water:

> *The situation could arise where landowners could be significantly disadvantaged having to provide evidence of impacts to water supply or impacts to water quality at their expense while incurring costs to keep water flowing to their stock or their crops not knowing how long the dispute might take to be resolved. Does the department have any suggestions how to overcome that issue?*

MR KITTO: Steve, the issue of compensatory water supply in this instance relates primarily to the impacts on bores rather than any water to take out of the shallow aquifers. So the take of water from the aquifers, Santos would need to obtain licences, just like any other water user in that area, and we can go into, you know, the more detailed groundwater assessment in a minute but, fundamentally, they would need to secure licences for any take out of the shallow aquifers. So it would be fundamentally about an impact on bores or the drawdown – the drawdown around those bores that would compromise the bores.

Now, in terms of the assessment and the modelling, which the water expert panel has said is fit for purpose, the predictions of drawdown in the shallower aquifers is – you know, it's predicted to be less than 0.5 metres, which is about four times less than the

criteria for minimal impact on the aquifer interference policy. So it's a long way from being minimal and, certainly, to get to a point where you would be looking at compensable loss, it would need to be significantly higher. So I think, certainly, the predictions are not – you know, not predicting any impacts on any of the bores in the shallow aquifers. Although, as we've acknowledged there, there are some uncertainties about, you know, local impacts and, you know, the need to take into account local faults and so on. But, fundamentally, we're not predicting any impact. So I think that's an important point to make before you get to if anything goes wrong.

The second point is that, you know, any impact on those bores is avoidable and reversible in the sense that, you know, what we're requiring in the conditions – and, you know, there will be additional monitoring by government – is that there will be monitoring being undertaken in all the Strata's between the coal seam and the shallow aquifers where most of the bores are in the area and you would pick up any movement, you know, and drawdowns, and so on, long before any bores may be affected. So the issue is: you should be able to avoid – like if in the unlikely event that all the modelling is wrong and that, you know, some drawdown may occur, you would pick it up long before it happened and there are things that you can do to avoid that impact.

So the critical issue there is really the key mitigation measure – and I'm not saying it's the only one – but the key mitigation measure would be to deepen – deepen the bore. And so this comes to, you know, some of the adaptive management measures in the plan, in the water management plan, and so on, where you do the monitoring and if monitoring is picking up early signals then you might take corrective action before it actually happens. So this is a bit different to some of the situations in coal mines, and so on, where the drivers, and so on, are quite different. So I think the likelihood of this being required is extremely or very, very low and there are things that can be done to avoid it and to mitigate against that impact.

I think the – but to come to the question of council and the question you asked, in terms of baseline data, Santos has already collected a significant amount of baseline water data and most of that is included in their water baseline report and the conditions require them to collect a lot more ..... so, you know, a lot of that will be driven through the water management plan and through the field development plan. Now, you know, the collection will be driven by risks and, obviously, the focus of the data collection will be proportionate to any risk. But, you know, the conditions do envisage at least three years of data ..... and, certainly, that will be the case.

Now, I think, you know, there are a lot of community concerned about the project and so, you know, we've had submissions from people from tens and hundreds of kilometres away that are worried about the effect on water bores, and so on, and there may be an expectation that monitoring will be done for every single one of those bores but there will be a focus on particular areas where, you know, the risk is ..... I guess, if you want to say, in that.

So I do think then, you know, people may – everyone may think there will be precise monitoring of their bore but it will be targeted to those areas – certain areas and it will be – and it will be intense and it will be ongoing. So the project might be rolled out over 20 years, 25 years, or if it goes ahead, and through the field development plans, and so on, there will clearly be targeted data collection in and around the areas where those wells will be drilled. There will also be data collected further ..... but it will be focused particularly on those areas.

The second point I would make – like to make is that, you know, the risks of anything happening in the shallow aquifer, in terms of drawdown, are predicted to be many years into the future in potentially over 200 years and, over that period, you would expect to have a lot of data – you know, collected a lot of data that will provide a reasonable baseline and, as I said earlier, we have a lot of data about what's going on in the lower Strata that will then trigger any kind of trigger action response plan or adaptive management to make sure that nobody is compromised.

Now, in terms of the burden of proof, you know, no one is expecting landowners to have to prove their water has been adversely affected by the project. You know, it is – the conditions really require Santos to get a comprehensive baseline of anyone who might be affected and whether, you know, that might be a sample – detailed sample. But there will be extensive monitoring going on and it's not – it will not be up to the landowners to have to fight the case on their own. It really will be the responsibility of government to oversee that and to make sure that, you know, if, in the unlikely event it occurs, that simple measures are in place either to avoid it or, if that's not done in time, then to require corrective measures to either deal with the bore or provide a compensatory supply.

MR YOUNG: David, it's Mike Young here. In terms of timing, my understanding – and, certainly, the way we've conditioned these matters elsewhere in New South Wales – is that we would expect – once there's an indication that the data indicates there is an issue, in that unlikely event, that there may be a longer term solution to addressing that shortfall in yield or water supply for that particular landowner but we would expect, as part of the protocols under the management plans, for Santos to put in place very short-term mechanisms to supply water to that landowner to ensure that, you know, their immediate needs are met in terms of stock and domestic, and so forth, and obviously, in this case, Santos would have a range of water supply ability, in terms of ..... from the project, and elsewhere, that it could easily provide to that landowner in, you know, quite a short period of time.

MR O'CONNOR: Okay. Thank you, Mike. I might hand over to Commissioner Hann now. He has a question related to groundwater.

MR HANN: Thank you. David and Mike, look, we've just heard the discussion around the importance of baseline data and thanks for your response in regard to that. So, look, this question really comes down to the adequacy of the baseline data and particularly around condition B38 in the groundwater management plan because

we've heard from speakers during the hearing, for example, Dr Currell from RMIT and from – particularly in the water expert panel's document where I quote:

> *In the case of hydrogeological information, the current PESA metre network is not sufficient, either in plan position or vertically, to provide data for groundwater flow models in order to predict future impacts.*

So if we come to the question of condition B38 and the adequacy of baseline data, the question, David, is: do you think that the condition is adequate enough in terms of ensuring that the baseline data will enable accurate links between impacts and their causes given that there's no real design in that B38 around the network itself, the baseline network. It's essentially going to be up to Santos to design it. So what's your response to that?

MR KITTO: So, I mean, I've – I mean, I think, at a conceptual level, I mean, you know, part of this relates to – because a lot of the speakers you referred to there, you know, were talking about, you know, the precautionary principle and whether the project would have serious and irreversible environmental damage and also the scientific uncertainty of the project. I think, you know, one of the critical things the department – or one of the critical findings the department has – and the water expert panel, I think, is – you know, that the current model is fit for purpose to allow robust decision-making for a planning decision, you know, and it – you know, there are uncertainties and it is a steady state model and we will move to, you know – you know, all that will be addressed over time and it will improve the ability of a model to identify local impacts and further data will be put in and so it will be upgraded and calibrated and validated and pressured – you know, values, and so on, will be added over time and it will continue throughout the project.

But I do think it – you know, before I rush to talk about collecting data and the baseline data, I do think it is worth just spending a minute or two on our assessment of the precautionary principle and why we don't think it's triggered which then, you know, is a key – is a key answer to why we feel the assessment that is being done to date is fit for purpose and would allow us to move ahead with the project and to condition it in a robust and very strict way to ensure that, you know, adverse impacts don't occur. So from a – you know, a lot of the speakers focused primarily on the scientific uncertainty in relation to the precautionary principle rather than providing any clear evidence of identifying what serious or irreversible damage would occur and how real the threat of that damage was.

I think that's a critical thing because they said that in relation to groundwater, they said that in relation to biodiversity and they said it in relation to climate change. But, just in terms of groundwater, you know, the key issue that we were looking at here is the shallower aquifers which everyone values extremely highly and we totally understand and we agree with everyone on those things. I guess from a – the key reason why we think, you know, the precautionary principle is not triggered in this instance is the maximum takeout of the coal seams will be 37.5 gigalitres and that's – and that will happen over the life of project, over 20 years. It will fluctuate. It will –

but, you know, what flows from that is that the maximum that could come out of the shallow aquifers is around 37.5 gigalitres as well.

Now, that – because of the – you know, the ..... between where the target coal seams are and all the rock, and so on, in place, I mean, what the model is predicting is that that is likely to happen over 1000 years. So that 37.5 gigalitres will come out of the system over 1000 years. And so it will – it will, in many ways, not be drip-fed but it will be – you know, it will take about 200 years to start drawing down and the maximum drawdown you will get is about 60 megalitres a year, which is a very, very small amount in that.

Now, if it's more connective, like, you know, some of the people that gave evidence are saying, you know, it might mean that that 37.5 gigalitres is taken over 750 years or 500 years or 100 years or – but still the maximum take that could come out of those shallow aquifers is 37.5 gigalitres. And whether it's 100 years or 500 years or 750 years, essentially it will represent a small amount of the sustainable take in either the GAB water source or in the Namoi water source. So I think all the modelling that's been done has – you know, yes, it's a steady-state model but fundamentally the assumptions are reasonably conservative, and CSIRO and the WEP and so on are saying that those – you know, the risks of significant impact are low to very low.

What might happen is the – you know, if it is more connective, the impacts might occur slightly sooner, so within 100 years or 50 years or whatever it may be, but the equilibrium between the different deep systems and so on will also occur much quicker. So I think it's an important point to make, in terms of, you know, we certainly haven't heard anyone explain what the serious environmental damage on the aquifer would be because, you know, that hasn't come through in any of our assessment. And in terms of the reversibility, if it is more connective and it happens quicker, then the equilibrium will be established quicker and the impacts will not occur.

So that's a sort of very first principle, I'm sure, but I also think the other aspect of that is, in terms of the salty take that will come out of the target coal seams, that water will be cleaned up through the reverse osmosis plant and actually used within the area. So what you may get is that, you know, the net effect in any one year will be quite small. And that's not diminishing what might happen to the aquifer but we're certainly not saying it's serious. Now, a lot of information was raised in terms of faults and so on, and I think all the stuff in the ..... in terms of bolts and so on, we're aware of.

It's just that that hasn't been incorporated into the steady-state model. It's been factored into some of the assumptions about the layers but there's an acknowledgement that there will be local structure, and you heard from the Water Expert Panel that we would expect that to occur and further work will need to be done to deal with those sorts of issues, but any sort of pathways through there will, you know, be very, very localised and is unlikely to result in any significant impact, or, certainly, that was their ..... by the Water Expert Panel.

I've spoken to you about groundwater bores, and so I'm not going to repeat that. And then there's the issue of pollution, and I think all the evidence is agreeing that, you know, the salt will move downwards in that area. And while there is the risk of methane, the WEP has said that, you know, the risk of that resulting in any significant impacts is low to very low. So I think the issue is – and this is a critical point, in that, you know, there is some scientific uncertainty but we're aware of that uncertainty and that uncertainty is quite common in big projects or mining projects like this.

There's always uncertainty but I guess the issue is it's the magnitude of that uncertainty, and what we're saying is at a regional level, based on some quite conservative, fit for purpose modelling, is that those uncertainties – we are talking about uncertainties but they are about localised impacts, rather than regional-wide impacts, and the severity of those impacts is unlikely to be significant. Now, I guess, that's our finding but – and I think it was acknowledged by some of the speakers, you know, the conditions require a substantial amount of information to be collected to reduce those uncertainties.

So that will include a lot more specific data on, you know, the different strata between the deeper aquifers and the shallower aquifers, and particularly how they respond to changes in pressure and so on. So a lot of the pressure data, there will be more work done on faults to try and identify faults, you know, but certainly what we're saying is we're not aware of, like, major regional faults that connect directly from, you know, the deeper strata to the shallower aquifer that would create significant pathways for movement. So I think the question is, yes, there's uncertainty but it needs to be seen within a broader conclusion about all the work that's been done over the last 10 years, starting with things like the Namoi Water Study, the Bioregional Assessment, Santos' work, and then a lot of the CSIRO work that's been done subsequently, which was referred to by some of the speakers.

So it needs to be seen within a context, rather than there being – you know, yes, there's uncertainty but it's not that we're at the extreme risk end of the scale. It is really about critical things that would need to be focused on to manage those issues. And, you know, consistent with the principles of ESD, you know, you would – you know, a lot of that data can be collected economically and within a reasonable timeframe to inform decision-making to do with this project. You know, so further seismic work can be done, further work can be done on faults, and a lot of the existing knowledge on faults and so on will be reported into the transient groundwater model, which will allow much more refined predictions to be made and to work whether any particular areas need special management. In other words, avoid putting wells in those areas or putting additional measures, and so on. So I do think we - - -

MR BEASLEY: David, I – sorry to interrupt. I had a slightly different take from what the Water Expert Panel said the other day, although it ends in the same conclusion that the department does.

MR KITTO: Yes.

MR BEASLEY: And what I understood them to be saying is that it's unlikely that faulting represents a serious risk. In fact, they view it as being a low to very low risk, although they said there needs to be some more work done or more knowledge gained about that.

MR KITTO: Yes.

MR BEASLEY: But, otherwise, on the basis of the data that they've seen, any risks of environmental harm are catered for or precautioned against by both the proposed conditions and, also, I think, overall, the fact that it's not a proposed mine where 850 wells would be built and operated all at once. It would be progressive and therefore more data obtained and more knowledge obtained as the project proceeds, which is another means of incorporating the precautionary principle.

MR KITTO: Yes.

MR BEASLEY: That's what I took.

MR KITTO: That's right. So the precautionary principle, even you accepted – like, assume it has been triggered.

MR BEASLEY: Yes.

MR KITTO: You know, it does envisage, you know, preventative measures being taken to reduce any threats and so on, and, certainly, adaptive management. You know, the Chief Judge has acknowledged that that may be a very effective way of doing this. So even if – you know, say there is a threat, I guess what – our view is that Santos has done a lot to prove to us that that threat is low or very low. And, certainly, the conditions do envisage that it will happen in an incremental way, that there will need to be sign-offs from the secretary at each stage, and that those sign-offs won't be given unless sufficient baseline data is collected.

And, certainly, the ability is there for the secretary to say, "We are not approving wells in these locations", or, "You need to reduce the take from the coal seams from 37.5 gigalitres to 20 or 15". So there are many levers that can be pulled in that preventative - - -

MR BEASLEY: Yes. I just took them as saying that – I took them as saying that they were – that they engage with the precautionary principle but that the proportional response to it, as they saw it, was not refusal of the project.

MR KITTO: Yes.

MR BEASLEY: It was, it was suitable to be approved with the conditions in place. That that was the proportional response to the risk.

MR KITTO: So I agree with you but I think Robert White and others did - - -

MR BEASLEY: No, they're saying something different. Of course, yes.

MR KITTO: Disfigured. So I don't think – I think we're saying is we don't think it's the case, and I just wanted to - - -

MR BEASLEY: Yes. No, understood. Yes.

MR O'CONNOR: We might move onto our next question now, David.

MR KITTO: But if it is, I think - - -

MR O'CONNOR: And I think we've taken that to a fair way.

MR KITTO: Yes.

MR HANN: Yes. No, look, thanks David, and – so – look, I understand you've given some explanation in some detail, and I'm assuming that part of that means that as far as you're concerned, the water management plan – the groundwater management plan, B38, is adequate for what's needed - - -

MR KITTO: But I - - -

MR HANN: - - - in terms of the baseline network.

MR KITTO: So John, I think that's right, but the further point I wanted to make is that it's not just up to Santos what data gets collected.

MR HANN: Okay.

MR KITTO: I think the issue is government decides what is sufficient baseline data, and part of that data will – it will be a requirement on Santos, and the people involved in setting those monitoring networks and what data is collected will be driven a lot by the panel that we want set up under the conditions, which would include independent water experts, but also members from the community.

MR YOUNG: I – sorry.

MR KITTO: So - - -

MR YOUNG: I think the critical thing, David, is to say that – sorry to interrupt, but that as with every other project that has approved and the way we implement conditions, we wouldn't expect them to identify every single monitoring bore and depth and location of that at this stage. That will be done subject to the approval of the relevant government authorities and augmented with government monitoring separately to the monitoring that Santos would do through its monitoring network.

So I think it would be unfair to characterise this as something like Santos monitoring its own project. That's just not the case.

MR HANN: Okay. No, that's understood, Mike, and, look, thanks, David. Look, I just had another question in relation to water entitlements, and, look, you did speak earlier about some uncertainty in the predictions, and that has been acknowledged in the – this is to do with the flows for the Lower Namoi aquifer, particularly, and the GAB, just to do with the current model in the EIS versus what's proposed in the future, but, look, the question really comes down to, ultimately, at the moment, the water entitlements specifically required by Santos for those particular aquifers are not precisely known. So – look, given the uncertainty of that, how do you – how are you satisfied that Santos can obtain the necessary entitlements as they require them?

MR KITTO: So the short answer is that the conditions require them to have entitlements in place by a particular day, and that will be based on the best available modelling we've got at that point. So at this stage, you know, the – if it was today, it would be the fit for purpose model that we have which is predicting, I think it's, you know, up to five in the Namoi and about 57-odd in the GAB megalitres a year, and so they would have to have licenses for that. Now, in reality, you know, the model is also saying that that would only be required in 200 to 250 years' time.

MR HANN: Just on that point, then, though, David, who would, in fact, have those entitlements in 250 years' time? Because Santos won't be there.

MR KITTO: No, no, no. So I think the issue is the – you know, the issue is that they will need to secure those entitlements upfront, and that's required in the conditions. Now, you know, to your question, if – what will happen over time under the conditions is it will move from a steady state to a transient model, and a lot more data will be collected, and there would be a lot of refinement in the modelling of what the impacts – the likely impacts are. So if that modelling shows that the numbers would be higher than five or 25 or whatever they may be, Santos will need – be required to get the relevant entitlements, and if that – you know, but those entitlements will be in place. So I think one of the key issues is they may be sitting on entitlements for five and 57 megalitres a year when they don't actually need them. So in some ways, it may be useful for those to be used before they're actually required. But as a safeguard, we're saying they have to have them. And in an area where, you know, if an impact is going on for 200 – like, 1000 years or so on, what would happen with coalmines and other things is that they would need to retire those licenses, so it would be taken out of the system. So - - -

MR HANN: Okay. No, thank you.

MR KITTO: - - - it wouldn't .....

MR HANN: No, thanks, David.

MR O'CONNOR: We might move onto our third theme that's arisen during the past seven days of hearings, and that – in relation to biodiversity, and I just have a question that has been put to us on a number of occasions, that is, is the Department satisfied that the offsets required as per condition B40 are available and can actually be secured?

MR KITTO: The answer is yes, we are satisfied, and the reason for that is, you know, the ..... have been calculated in a conservative way and in accordance with government policy. What we go to great pains in our report to say is that that's based on 1000 hectares of clearing, which should never be – should never happen. So in many ways, it should be a reduced – it could be reduced significantly, and the conditions are seeking to do that, but what we've assumed is the worst case, you're likely to get 70 percent, and so what we're saying is they have to have 70 percent upfront.

Now, simple calculations are saying that would translate into about 6000-odd hectares. Now, you know, there are about 280-odd thousand hectares in the reason that could be used, but what Santos did is they did a – like they said, "Well, let's go and look what's on the market today", so snapshot in time, and I think they looked at six or so properties, and what they worked out was with those properties, they would be able to deal with all the offsets now. I think there's a – potentially a misconception here that all of that land would all of a sudden be taken out of the system and put solely towards conservation, so there would be a massive loss of productivity or whatever in the area. I don't think anyone's saying that.

In many ways, what we're saying is so that gives us the confidence that it can be done, but how it's likely to happen in practice is there are, you know, several farmers in areas there that do have biodiversity value on their land, and they have productive farming land, but it will create incentive for farmers to – you know, some farmers could make quite a bit of money by, you know – it's not that Santos would all of a sudden become a major landowner in those areas, and that land would be just used for conservation. It may well be that, you know, the offsets are distributed over many, many properties and a number of farmers may make money, and that's how the government policy is supposed to work, and it would be focusing on existing biodiversity values rather than taking productive land out and carrying out measures to make it, you know, conservation land.

So I think what's proposed is definitely feasible. It's a cost of the project which Santos has factored in and, certainly, our view is that they can deliver the 70 per cent upfront, and that's why it's a condition of approval. And the last thing I would say is, you know, even while these offsets are going on, there is an obligation to put the forest back to woodland through rehabilitation. That may take a while, and certainly we're not allowing Santos to use that as an offset for the project unless they show that it can be done properly and that the real biodiversity gains are made, so that they can't use that to reduce their 70 percent said liabilities upfront.

MR O'CONNOR: Thank you, David. Snow, I think you have a - - -

MR YOUNG: ..... it's Mike Young just to – sorry, just to add to that, David. Did you – my understanding is that there's also other mechanisms that the – that Santos could use to retire those credits, so it's not necessarily Santos going out and buying all this land, all the properties on the market and so forth. There are mechanisms under the Biodiversity Conservation Trust, etcetera, to hand some of those responsibilities over to government.

MR KITTO: So that's correct, but it – I mean, all that would do is that the – you know, the Trust would then be – that it would be up to the Trust, really, to deal with the credits, with the funding that was given to, you know - - -

MR YOUNG: I guess the point was that it wouldn't necessarily be all Santos somehow then owning huge areas of land and taking up – buying up all the properties on the property market.

MR KITTO: No. So – I mean, in many ways, we think it's achievable. It will create an incentive for farmers to make some money out of conserving the biodiversity values on their land, and it's certainly from – in our perspective wouldn't compromise the productive capability of the region in any way.

MR O'CONNOR: Snow, have you got a question you would like to ask?

PROF BARLOW: Thank you, Steve. David, another issue that's come up repeatedly during the hearings is the question of fragmentation within the total project, the area that's within the state forest. Not so – and that is due to roads and other sort of structures there. What we haven't seen either in your report or the EIS, is any mention of fencing. Is it, to your knowledge, proposed that there is such important areas, such as the infrastructure corridor, would be protected by fencing or will there be no fencing in the project?

MR KITTO: So – I mean, we've definitely considered fragmentation, Snow. I think our – I think our view is that the wells and infrastructure are likely to be distributed over a broad area. But there's no doubt that you could get a, you know, a number of wells in a certain area and whether that, you know, leads to intense fragmentation impacts and so on is something that we would be looking at through the biodiversity management plan and field development plan.

So I guess the issue there is, you know, even though there might be some access roads and so on spread over the project area, the – you know, the frequency of traffic along those roads, and so on, would be, would be low, and certainly we're not envisaging, you know, that you would need underpasses or so on for particular species. But, you know, it's hard to rule out the need for fencing or underpasses or specific mitigation measures in sensitive parts of the site at this stage.

I think the issue is we're fully aware of it and, you know, it will be through the field development plan we will seek to adduce fragmentation. But I think there's plenty of things you could do, and you wouldn't necessarily mandate fencing at this stage of

the process. It would be something that would be – that would come out of the specific location of the wells and the sensitivity of the – those parts of the site.

MR YOUNG: David, it's Mike Young here. I was wondering maybe Steve O'Donoghue might be able to comment on that because it's my understanding that, where possible, existing forestry roads would be utilised and I think there are limits on the proposed fencing, is that right, Steve?

MR O'DONOGHUE: Certainly in doing their analysis of the field development scenarios. There was a priority in using existing access tracks and disturbed areas as much as possible, so they factored that into their clearing estimates. So there is certainly, as part of the requirements to minimise clearing and follow existing disturbed areas as much as possible. I guess the other thing, the – there's no strict requirement for – apart from around the – there's fencing – the security fencing for – just more for access around the well pad sites themselves. But they're fairly – they're well separated, you know, with a lot of – it's really only round the one hectare area and then brought into – you know, when they do rehab and bring the well back into the quarter hectare area as part of that rehab and reduce the impacts through that way as well. In terms of the main infrastructure corridors, through the forest, there's no – there's no requirement for – there's no requirement for fencing of those corridors back to – you know, back to – between – with the – and Leewood.

MR YOUNG: It's fair to say, Steve, that the existing gas gathering lines, and so forth, through the forest, et cetera, are not currently fenced and there's no proposal to fence them, is that right?

MR O'DONOGHUE: That's right. Yes. They're not fenced, apart from any existing fencing. When you're getting back into the, you know, agricultural land, of course, there's requirements there for property and that, but back in the forest there's no – there's no requirement for fencing as part of the process and the occupation lease agreement with forest – forestry, for example.

MR KITTO: But, I think, Snow, that the last point there, really, is, you know, what species are we concerned about. Is there a real risk to those species and is there a benefit in fencing? I think we're attune to those issues. The conditions give us the levers to address those issues should they come up and so we're not ruling out fencing. What we're saying is you wouldn't mandate it at this stage until you'd done that fine analysis which is essentially left for the field development plan.

PROF BARLOW: David, Snow Barlow. Actually, I wasn't proposing fencing. I was actually proposing no fencing in order to - - -

MR KITTO: Yes.

PROF BARLOW: - - - maintain the integrity of the forest.

MR KITTO: Yes.

UNIDENTIFIED FEMALE: Then how do we .....

MR O'CONNOR: Okay. We might move on to the issue of greenhouse gas emissions, now, and, Snow, I think you've got a question along those lines, too.

PROF BARLOW: David, this is the question I tried to ask you on Monday but we had a communications difficulty. And it surrounds the fugitive emissions of the project. We are aware that Santos hasn't released claiming commercial-in-confidence that any CO2 levels in the gas wells post 2014. However, we had had submit – and we also are aware that Santos has given us information that they estimate the CO2 content of the gas to be probably about five per cent and – but we have had information, as part of this public hearing, of accredited analysis of those wells that are on public record, prior to 2014, which are a large proportion of the wells that now exist, and this is claiming that the CO2 content is in the region of 20 to 30 per cent. Could you comment on that?

MR KITTO: So the – I mean, from a greenhouse gas emissions point of view, certainly in terms of the emissions generated on-site, the flaring of CO – or venting of CO2 is the key – is the key emission. Now, there's two prongs to this. There's obviously an economic side to CO2 levels and there's an environmental side to CO2 levels. So from an economic point of view, Santos would want as little CO2 as possible because that's, you know, they don't make any money from CO2. It's – you know, they'd really want the methane. From an environmental point of view, obviously you're wanting to minimise that as much as possible.

Now, I think what the – what everyone has said is the CO2 levels will vary across that project area. So in some levels CO2 levels might be low within the target coal seams and in others they may be higher. So certainly I think on some of the eastern boundary of the project area, you would expect – I think some of the work has shown that you would expect areas of higher CO2 levels. And so I guess in developing field development plans, we would expect Santos to focus on the most prospective areas within the project area and certainly to avoid areas with high CO2 content. So that's one of the key drivers.

I think what Santos is saying is, you know, through the chief scientist and engineer, there was also some work done by Professor Cook which assumed, you know, 10 per cent for, you know, of CO2 levels in coal seam gas. And so Santos has used that number in its greenhouse gas assessment and that's what the – you know, the 12 – you know, their calculations are based on.

Now, what – like you, we're aware that some of the appraisal wells, you know, like, the data coming out of that is that the CO2 levels will be five per cent but we would assume that in some it may be slightly higher. I don't think – you know, I don't think we're assuming it would be up in the 25 to 30 because – but, you know, that may be the case. But I guess the issue – all that we can say at this stage is there will be a variation across the area. We would expect the focus certainly through the greenhouse gas management plan and the field development plan, to minimise, you

know, the CO – you know, to focus on the areas with minimal CO2 so that the CO2 venting is kept to a minimum. But from an economic point of view, Santos has an incentive to do that anyway, but we do have, you know, the power in the conditions to say, "Well, the CO2 levels are very high in those areas and you should be focusing on that area." So the power does exist and certainly, you know, we would be focused heavily on that.

MR YOUNG: It's Mike Young here, Steve. I'm just wondering – Steve O'Donoghue, that is. Just wondering whether you had any comments on the concentrations of CO2. I mean, I would have thought at levels like that you're starting to get into issues of, you know, economic issues in terms of those sorts of levels.

MR O'DONOGHUE: Well, that's right and Santos has discussed that at CCC meetings along the way. You know, there's acknowledgement that there is variability in CO2 levels and, certainly as David said, further to the east where the coal seams, you know, start dipping up and shallower and you're getting into those volcanics in closer proximity that you're getting, you know, higher CO2 levels. So that's – I mean, that's something that has been acknowledged through the CCC meeting and it would put constraints in on viability for going, you know, after the high CO2 level sources.

MR YOUNG: But, presumably from an economic and investment point of view, Steve, that – and my assumption would be that Santos would, obviously, be targeting the most prospective areas let alone what the department does through the conditions. But, clearly, from an economic point of view it would be the majority of the area is in those deeper seams and therefore, I guess, the indication they've put on record with the IPC is that typically it's more like five per cent, is my understanding.

MR O'DONOGHUE: No, that's right, yes. Yes, I agree.

PROF BARLOW: But, can I ask a supplementary there? But I think what you're saying EIS despite the – you know, some wild analytical data being available, just use the Peter Cook assumption of 10 per cent. So do you think that is a reasonable assumption with what the ultimate, you know, effusion of emissions from CO2 in this project might be?

MR KITTO: So, Snow, I think the answer to that is yes, but it's not difficult to do some sensitivity testing and say, well it's 15 per cent and so on. You could work out quite quickly what the emissions are and I don't think that's – you know, materially changes what the scope 1 emissions of the project would be. So I think, you know, it wouldn't change it in a determinative way, but certainly, you know, through the greenhouse gas management plan and through the fuel development plans, you know, consistent with what the mining sect and other things are saying is we were guiding minimisation of greenhouse gas emissions which would be really pushing Santos to target those areas with low CO2 – low CO2 levels and really focusing on the most prospective part of the resource.

MR O'CONNOR: Okay. We might leave that there and move onto a question around waste disposal.

MR BEASLEY: Could I just ask a question before we get there?

MR O'CONNOR: Sure. Yes.

MR BEASLEY: Sorry, can I – I just would like, David, if you can, to give some – the commissioners some assistance with this and I will bundle them together. But they're three submissions that have been made by people since day one of the public hearing. One of these issues we did touch on on day one but, essentially, the three issues are this: there has been some submissions backed up with analysis from people to the commissioners to say first of all, domestic gas prices are now in Australia linked to the international market – I think this is actually picked up in the assessment report, too – and a project of this size therefore is just not going to put any downward pressure on gas prices; that's point 1.

The other, I think, link submission people have made is that New South Wales for its energy reliability and security doesn't need the Narrabri Gas Project. It can get all its gas through the import terminal at Port Kembla – from other sources. And as a consequence of those two things, I think the bundled up submission is that this project is just not critical to New South Wales' energy needs – for its energy security or reliability. Can you provide some assistance to the commissioners in relation to those submissions that have been made?

MR KITTO: So I – I think – I think what I would say in response is at the moment New South Wales is using about 125 petajoules of gas a year and that's spread over heavy industry users, which is by far the biggest user of gas. You've got several businesses that use it for their boilers and other bits and pieces, and then you've got over a million – 1.4 million households that use it every day. And then you have, admittedly a very small fraction of it, being used for gas fired generation, you know, your Colongra and a couple of other power stations. So that's the current situation. I think a million people are saying, "Well, we will just move to renewables and that will all be sorted out."

But I think in a – AEMO published the Integrated System Plan and the new updated Integrated System Plan this week. And I think what they pointed out in that plan is that, you know, I guess Australia, and particularly the east coast, is probably going through one of the quickest transitions in the world towards renewable energy. What they did point out was that there are significant challenges in actually getting there within the next 20 years. And what they really pointed out is, you know, that at the moment that transition is – we're dealing with extreme and great complexity and uncertainty.

So, you know, in terms of dealing with our energy needs, you've got ongoing gas supply and – and several people said, well, it will go down. And that may well be the case, you know, you might go from 125 to a hundred – a hundred. But a lot of

that depends on whether heavy industry stays here, whether a lot of households shift from gas to roof top solar, whether renewable energy is built where the transmission lines are built and so on. There's all these variables and even if you approve a whole lot of renewable energy projects, you still need to connect them to grid, you still need to augment the grid. There are a whole lot of complexities, essentially.

MR BEASLEY: Sure. Sure, but I don't think these submissions were prefaced on we should be – it may be that the peoples' view that made these submissions, but I don't think these particular submissions were prefaced on we can move to renewables tomorrow and keep the lights on. I think they were prefaced on New South Wales is still going to need as much energy delivery tomorrow as it does today, and New South Wales will still need as much gas tomorrow as it does today. It just – I think the submission was, "You don't need to approve Narrabri for this. Approving Narrabri won't make the cost any cheaper and the gas that's needed by New South Wales can come from the import terminal in any event."

MR KITTO: Okay. So – okay. To get – to cut to that point, I think, you know, there's more than enough gas being produced in Australia for domestic use. But I think the important thing to point out there is, you know, with the massive development of non-conventional gas in Queensland and the establishment of an export market, is that fundamentally the east coast market has changed. And a lot of that gas is now subject to commercial – long-term commercial agreements where companies are required to send gas offshore otherwise they face significant penalties and so on. So in a simple sense, we could – you know, you could not send it overseas and you could use it in New South Wales, so I think that's a possibility.

And the Commonwealth Government has the levers to require that to be done through the – you know, they've got special powers that they can invoke to make sure that there's enough gas for the domestic market. So that's true in that sense, you know, but it is a last straw resort power. And certainly both the Queensland – and certainly the Queensland Government has seen it as a massive part of economic development and, you know, maximising the return on the state's resources to export that gas to the – I don't want to get into it, but it may have, you know, benefits in terms of using gas in Asian countries and throughout the world in terms of helping to, you know, transition to a low emission economy.

So I don't think it's as simple as saying you need to see it as a connected market where people have made investment decisions, and so on, and so while people can – you know, you could sort of turn around and say, "Don't send it overseas, it has got to be used here", but the Commonwealth has the power to do that and so no one is saying that that would happen. But it is something that, I think, that the Commonwealth, and the New South Wales Government is saying we would want to avoid.

I think what everyone is saying from AEMO and the Commonwealth Government and ACCC, and ..... is we need to increase supply and we need to increase the efficiency of the transport – gas transport system and we need to increase

competition and we certainly agree with all of that. In terms of the – you know, the – you know, we can just get it from somewhere else. I think what AEMO is saying is that there – you know, the southern supply, which New South Wales has relied on - - -

MR BEASLEY: Yes.

MR KITTO: - - - you know, there's a real risk of shortfalls from 2024 and that's put for two reasons: is declining production in Victoria and some of Santos' gas from Moomba will be sent overseas based on long-term contracts and so on. So - - -

MR BEASLEY: Can I just ask you a question on something you just said about increasing the efficiency of transportation?

MR KITTO: Yes.

MR BEASLEY: Is that linked to the pipeline – the proposed pipeline; is that part of that?

MR KITTO: So the issue is that the pipelines on the east coast are primarily all around, you know, linking south – you know, connections to – well, certainly, the New South Wales ..... is get back towards Victoria and down to Moomba and it's not really – there's almost no gas infrastructure in the northern parts of the State that would allow you to connect to Queensland or efficiently move gas between Queensland and New South Wales. Yes, there are other connections, you can bring some down through the Moomba pipeline but there are significant constraints in the pipeline network to the north which is where AEMO and everyone is saying is the lion's share of the gas in the east coast will be produced, you know, in the – in the – in the – in the next 20 to 50 years, whatever timeframe.

MR BEASLEY: Sorry. So facilitating the extension of the pipeline is part of increasing the efficiency of transporting the gas; correct?

MR KITTO: So yes.

MR BEASLEY: Yes.

MR KITTO: So, I guess, from a Narrabri point of view is – what Narrabri would do is it would generate it in New South Wales, which is consistent with government policy about wanting to set up a gas – a sustainable gas industry in New South Wales and maximise, you know, the gas resources in New South Wales, provided that can be done safely. So it's definitely consistent with government policy and it's consistent with, you know, the aim to increase supply in the system. And a related benefit of it is: it would – you know, it would need a pipeline and that pipeline would be get back into the Newcastle or into the broader grid and so it would facilitate increased pipeline capacity that could be extended to Queensland in the future but that – you know, whether that happens or not - - -

MR BEASLEY: Yes.

MR KITTO: - - - I don't know, but it would facilitate that by creating more infrastructure and heading in the right direction if you wanted to get some gas from Queensland or more gas from Queensland in the future. I think the second aspect of that is you could import the gas from import terminals and the government – the Minister for Planning has approved the Port Kembla Terminal but it hasn't been – it hasn't been built yet and there's no guarantee that it would be built. And, secondly, there's another import terminal proposal up at Newcastle which is the Minister has declared to be critical State significant infrastructure and that's still in the early stages of the planning approval process. So there's a risk it won't be approved and, if it is approved, there's no guarantee that it would go ahead.

So I think, from a – you know, if there is a shortfall of supply, the critical issue will be making sure that we can get it some other way. Now, I guess, from a risk perspective, you know, the State is saying you wouldn't want to put all your eggs in one basket. In other words: Narrabri could deliver it, the terminals could deliver it and if one of those goes to ..... it would make a positive contribution to supplying or ensuring there's a secured supply in New South Wales. If they all go ahead, well, then you really – what you do is you really will increase the amount of gas in the system and that may well have an effect on prices and increase competition and do everything the governments want.

So, I guess, from a planning perspective is developing Narrabri is consistent with government policy provided it can be done safely and sustainably and we – what we say in our report is we do think that can happen. You know, I think ..... something will be done to address the southern – the southern supply shortage and it could have an impact and just like other import terminals could have an impact but I think what we're saying is to ensure consistent supply to New South Wales we do need more gas in the system and it – and that will be critical and, therefore, we do maintain our position that Narrabri is a critical project.

In terms of the pricing, I think we went into that in quite a bit of detail in the hearings. We're not saying it will reduce prices. I think what we're saying is, you know, in the – in the – all the gas that's produced on the east coast, you know, it's – it's not big enough to change prices on its own. So, consistent with what the ACCC is saying, if you can increase the supply, improve the efficiency of the transport and increase competition, we think it will put downward pressure on prices but that is not a determinative issue from our perspective. The critical issue is making sure that New South Wales has a secured supply and, really, the market will set that price.

Now, the ACCC is really the key government agency responsible for regulating price and they have powers, and all sorts of things, that they can do – used to do that and certainly, you know, what we we're expecting from a price point of view is that it would be dealt with through the market and the ACCC would step in if there was any market failure in terms of optimistic gas prices.

MR O'CONNOR: Sure. Okay. Let's move on to the final couple of questions. This next one, as I mentioned a moment ago, relates to waste disposal and this question is being asked about why the department has delayed consideration of the potential impacts of the disposal of waste, particularly the brine produced from the reverse osmosis plan to the preparation of a management plan which is post-approval as per conditions 65 to 67 rather than requiring that assessment to take place pre-determination.

MR KITTO: So, I mean, we heard what Stuart Khan said the other day and we agree – we agree with everything – everything he says in terms of – well, not everything but we agree, you know, that the waste disposal is a key issue. I think we've always seen it and we've always seen that there would be a spectrum of ways to deal with it and I think, with the EPA the other day where they highlighted, you know – would be dealt with within the waste hierarchy in New South Wales and the key aspect of that is to drive avoidance and reuse and so, you know, to the extent that it could be beneficially used, we've always been fully supportive of that and then, at the other end of the spectrum, is really disposal to landfill which should be seen as a last resort.

Now, as we – I think we pointed out the other day, all of those are feasible from an engineering point of view but, obviously, the avoidance and reuse, and so on, is obviously the best – the best possible solution. I think, you know, in our – in our investigations in Queensland, and so on – and I think the composition of the waste product is slightly different to what it would be here and I know that while they have been investigating potential reuse, you know, composition is not ideal for that in that instance. I think, in terms of the – and so we were watching with great interest to what was going on in Queensland and, certainly, there was no obvious solution to a beneficial use.

One of the things the WEP has driven, particularly through Dr – well, Professor Chris Bell, you know, was the focus on the differences in the composition of the salt in Narrabri, you know, the high sodium carbonate content, and that making it a – really, a potential – you know, the potential for reuse was a lot higher. So probably – you know, it would have been ideal if we had picked that up sooner but, you know, that came out through some of the investigations through the WEP and for some time now we have been pushing Santos to really investigate that through the WEP and, you know, recently they have come up with – you know, they've entered into this MOU with this company to investigate it further, so we – I mean, we're fully supportive of that.

I think in terms of, you know, what Stuart Khan was saying is that all this should be worked out prior to anything happen onsite, and I guess we don't agree with that aspect of it. I think we know it can be managed, whether it's a beneficial re-use, whether there are other ways of disposing it, you know, that don't involve landfill. I think he envisaged, you know, potentially dumping it at sea, you know, other spectrums and so on. So I think what we acknowledge is that there are feasible ways to deal with this. They will all come with a cost, and Santos will be required to bear

the full costs of that, but there are, you know, real benefits with re-use and so on, environmental benefits that we really want to push very hard.

Now, I guess we know it can be managed, we know it can be safely stored onsite. There's no way it will – you know, that any storage will – you know, that long-term storage or anything will happen on the site there. We – know, that has been clear from day 1, so it would ultimately have to go to the site, but in the interim, it can be stored properly, and there's no – you know, from our investigations, there's no impediment to being able to dispose of – either reuse it or dispose of it, but further work needs to be done, and so the conditions envisaged doing that, and that – they envisage it being done as quickly as possible.

So they envisage that work being done within the very early years of the project, before, you know, they move to production and significant – you know, any significant creation of salt on the site. So the idea is now that we know that it is really prospective, we want that work to be done quickly, and then to set some rules and to make sure that it's dealt with in a proper way.

MR O'CONNOR: Thank you, David. The final question relates to socioeconomic impacts. Can you just tell us if the potential for the loss of employment opportunities, if the project does proceed, in industries such as agriculture and forestry, have been factored into the social impact assessment?

MR KITTO: So the answer to that is yes, they have been, but I – you know, I mean, I think our view is that it would – you know, it would create opportunities for people in the local area, and certainly in all our consultation with some of the local community, there was a lot of interest in securing jobs at the project. There will be, obviously, a lot of construction jobs and – you know, and then that will come down to 200-odd jobs.

So I think the primary impact in terms of employment would happen in the construction – early years of construction, but in terms of the 200 jobs, I think if you look at the social impact assessment, you know, there will be a portion that comes from the local area and there will be – but there will be some specialists and so on that will need to come out from the area and – so you wouldn't expect there to be a significant impact on agricultural industries, and, I mean, in many ways, our view is that it would create opportunities for employment within the area, but, you know, if the local area can't fill those – all those jobs, then they would be filled from outside the region. So certainly, we didn't envisage it, you know, taking away jobs from other industries in those areas.

MR YOUNG: David, I would just say – Mike Young here – that we would envisage that whilst there would be some local jobs and so forth of various sorts, that there would also be a significant proportion of the construction workforce and the operational workforce that would have very different skills and qualifications, etcetera, than what would be required for, you know, agricultural work.

So we do think that (a) it would create significant additional jobs in the region, which I think everybody agrees is a good thing, and (b) is that the majority of those jobs would be jobs that would be unlikely to be filled by people who are already working on agricultural work within the region. I'm not saying that there couldn't be some crossover, but we do consider that the nature of the overlap and the concerns raised by the community about some kind of exodus of significant numbers of people from other professions in the area, I don't think that we see that as a realistic outcome, given the mix of qualifications and skills of the people that would be required for the project.

MR O'CONNOR: Okay. Well, thank you to David, Mike and Steve for your time and your detailed responses to those questions, and thanks to the Department for making those officers available. That brings us to the conclusion of the public hearing. I would like to thank all the speakers for their engagement in the consultation process and remind everyone that a transcript will be made available too and be placed on the Commission's website.

The Commission will be accepting comments from the public up until 5 pm on Monday 10 August 2020. Please note that these comments can be sent to the Commission via post, email or through the Have Your Say portal on the Commission's website. At the time of the determination, the Commission will publish a statement of reasons for decision, which will outline how the Commission took the community's views into consideration in its decision-making.

I would like to take this opportunity to thank the IPC staff who have worked so hard over the last seven days, and to our technical support team who have been with us supporting us the whole way. They have made an invaluable contribution over the last seven days of this public hearing. In particular, I would like to thank all those persons who took the time to make presentations to the panel. We realise that that can be a nerve-wracking experience and we appreciate the effort that everyone has gone to to bring the information they wanted to bring to the panel's – before the panel so we can consider it in our decision-making process.

I now close this seven day public hearing for the Narrabri Gas Project. On behalf of the Commissioners, thank you everyone for your participation. Good afternoon.

RECORDING CONCLUDED **[4.56 pm]**