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TRANSCRIPT OF PROCEEDINGS

TRANSCRIPT IN CONFIDENCE

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INDEPENDENT PLANNING COMMISSION

PUBLIC HEARING

RE: NARRABRI GAS PROJECT

PANEL: **STEPHEN O'CONNOR**
JOHN HANN
SHOW BARLOW

COUNSEL ASSISTING: **RICHARD BEASLEY**

ASSISTING PANEL: **CASEY JOSHUA**

LOCATION: [redacted]

DATE: **9.30 AM, MONDAY, 20 JULY 2020**

MR O'CONNOR: Good morning. Welcome to the public hearing for the Narrabri Gas Project. Before we begin, I would like to acknowledge the Traditional Custodians of the lands on which we meet and pay my respects to their Elders, past, present and emerging and to the Elders from other communities who are participating today.

The applicant, Santos, proposes to drill up to 850 coal seam gas wells and develop associated infrastructure on around 1000 hectares in the Pilliga State Forest and on adjoining grazing land in north-western New South Wales. The project is located within the Narrabri Local government Area.

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 I continue, I should state all appointed commissioners must make a declaration identifying potential conflicts with their appointed role. For the record, we are unaware of any conflicts in relation to our determination of this project. You can find additional information on the way we manage potential conflicts on the Commission's website.

In line with current COVID-19 regulations, we have moved this public hearing online with registered speakers provided the opportunity to present to the panel via telephone, videoconference or the studio we have set up in Narrabri.

In the interests of openness and transparency, we are live streaming this electronic public hearing via our website.

This public hearing gives us the opportunity to hear your views on the assessment report prepared by the Department of Planning, Industry and Environment, before we determine this State significant development application.

The Independent Planning Commission was established by the New South Wales Government on 1 March 2018 as an independent statutory body, operating separately to the Department and other agencies.

The Commission plays an important role in strengthening transparency and independence in the decision-making processes for major development and land use planning in New South Wales.

The Commission is an independent consent authority for State significant development applications where there are more than 50 public objections, reportable political donations or objections by the relevant local council.

The Commission was not involved in the Department's assessment of this project, the preparation of its assessment report, or any findings within it.

This public hearing is one part of the Commission's process. We have been briefed by the Department, have met with the applicant and Narrabri Shire Council, and the Commission has also undertaken a site inspection, which was also attended by a small group of community representatives, adhering to COVID-19 restrictions.

After the public hearing, we may convene with relevant stakeholders if clarification or additional information is required. Transcripts of these meetings will be published on the Commission's website.

Following this hearing, we will endeavour to determine the development application as soon as possible. However, there may be delays if additional information is required.

Before we hear from our first registered speaker, I would like to outline how today's proceedings 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's important that everyone registered to speak receives a fair share of time.

I will enforce housekeeping rules as the chair. I reserve the right to allow additional time for provision of further technical matters. You will hear a warning bell at one minute before your allocated time expires, and two bells when your allocated time is finished. I also ask that the speakers today refrain from making offensive, threatening or defamatory statements, as per the guidelines available on our website.

It is important that all speakers understand that the hearing today is not a 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 an opportunity to raise it, the panel will consider any written submissions up to the extended deadline of 5 pm on Monday, 10 August 2020.

All written submissions are weighed in the same way as verbal submissions are made in this public hearing. It is important to understand that any person can make a written submission irrespective of whether they have been allocated time to speak at the public meeting.

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, but please note, any information given to us may be made public.

At the end of this Friday, 24 July 2020, the panel will adjourn this public hearing to 9.30 am on Saturday, 25 July 2020, and then to 9.30 am on Saturday, 1 August 2020. Thank you. I will now call on Richard to introduce the first speaker.

MR BEASLEY: I think the first speaker is from the Department of Planning, Industry and Environment, the executive director of special projects, Mr David Kitto.

MR KITTO: Good morning, panel members, and Richard Beasley. Firstly, I would just like to start off by thanking you for the opportunity to address the panel today and to be given the chance to present the findings of the – the department's detailed assessment of the merits of the Narrabri Gas Project. My name is David Kitto. I'm an executive director within the department, and I have been involved in – or responsible for coordinating the all of government assessment of this project for several years now. The role of the department in the assessment, we carry out an assessment of all state-significant projects under the Environmental Planning and Assessment Act.

That assessment is a whole of government assessment and it seeks to balance up all the competing economic, social and environmental impacts of a project. The nature of agencies within the State Government has changed quite significantly during the assessment of the project, and you will see various different names through all the correspondence and in the report, but essentially there are three key agencies within the State Government that have a key role to play in the assessment of this project. The first is the Department of Planning, Industry and Environment, which includes, you know, the planning and assessment side of government, it includes the Biodiversity and Conservation Division, it includes the WaterGroup, the independent Environment Protection Authority, and the Natural Resources Access Regulator.

The second key agency is the Department of Regional New South Wales, which includes mining exploration and geosciences, it includes the Resource Regulator and includes Forestry, who is the owner and controls most of the Pilliga State Forest. Finally, there's Transport for New South Wales, which has a fairly minor role in this in terms of some of the road upgrades and traffic and transport issues. As the chair pointed out initially, the role of the Independent Planning Commission in the process is to hold public hearings and make a – and make – and determine the development application for the project. We have been through a long process over about four to five years now and we really are at the end of the process now, and this is the first time these public hearings are being held in conjunction with the determination of the development application, and that follows some of the changes to the – that have been made since the review of the Independent Planning Commission, which said that hearings should be held in conjunction with determinations and the focus should be on the department's assessment report.

Very simply, I would just like to run through what the project is. I know the chair went through that. But the site has been subject to extensive exploration since the 1960s. That means there's a fair bit of infrastructure on the site. Can you just change some of those slides, please. Next one, please, Nick. Okay. There are about 70 gas wells on the site, a range of processing facilities. There's an infrastructure corridor connecting some of the gas wells and processing facilities to the power station at Wilga Park. Some gas from the exploration is being used to generate electricity at the moment, and most of the operations are controlled onsite from the Narrabri Operations and Logistics Centre. All the ..... exploration has identified commercial gas reserves of around 1500 petajoules, and Santos is now seeking approval to develop the gas field to extract those gas resources.

The project includes the gas field, upgrades to the existing infrastructure on site. The project would produce around 200 terajoules of gas a day, which is enough to supply about 50 per cent of New South Wales gas demand. All that gas would be sent to the domestic market, and the project has a capital cost of about 3.6 billion and would create jobs for around 1300 people during construction, and 200 people during operations. The next slide, please. Yes. No, leave it on that one. Sorry, back – back one, please. So key features in the area. Site covers an area of about 95,000 hectares. It's located about 20 kilometres southwest of Narrabri. The development on the site would be spread out, and only about 1000 of that 95,000 hectares would actually be developed, I think leaving a sort of ratio of gas wells to site is about one gas well per 220-odd hectares.

Most of the site, or two-thirds of the site is located in the Pilliga State Forest and the rest is on private agricultural land. None of that land is strategic agricultural land, and it is used mainly for grazing and dry land cropping. Higher quality agricultural land is generally located along the alluvial floodplains of the Namoi River and – and other key ..... There are about 114 residences in the project area and another 103 residences within three kilometres of the – of the project area. Key – key features in the area are the Brigalow State Conservation Area and the Brigalow Nature Reserves, which are protected for biodiversity and Aboriginal heritage reasons, and Yarrie Lake is a – is a popular recreational facility in that area.

The site is fairly isolated from the coal mines in the region, which are generally located several kilometres to the – to the east and the southeast of the project, and key infrastructure in the area is the Kamilaroi and Newell Highways, and some of the local and forestry roads in the area. Next slide, please. The gas field will target deep coal seams in the Maules – Maules Creek formation. Those coal seams are located about 800 to 1200 metres deep, and about 95 per cent of all the extraction would occur in those coal seams. There is some extraction in the Hoskinson seam – coal seam, which is quite a bit shallower, but still located about 500 metres below – below the surface.

Consistent with all coal seam gas projects, the location of the gas wells and well pads would be determined following further appraisal and investigations, and Santos has developed a detailed field development protocol to guide the location and detail design of those gas wells. Principally, the protocol seeks to avoid and/or minimise the detailed impacts of the project, and there is a slide there that sets out in detail some of the key aspects of that field development protocol. Those key aspects relate to landowners, and Santos has made commitments not to locate wells in the vicinity of private residences. The next slide, please. Yes. The one after that. Next one.

So there's – it – the field development protocol has several key commitments to avoid and minimise impacts on landowners, on the significant water resources in the area, the biodiversity – the areas of high conservation value from both the biodiversity and heritage point of view, and there are commitments to collect a whole range of additional information to inform the location of those wells, well pads and the design of the wells. Just some figures to give you some idea. The key well pads

– key well pads are – would be about that – one hectare during construction, and then they would be progressively rehabilitated – next slide, please – to leave an operating area of about 2500 metres squared.

There would be – in general, there would be about three – next slide, please – there would be about three gas wells located on each well pad, and those – there would be a range of different types of gas wells. Some of those would be vertical wells. Others would be deviated wells, and then there would be certain lateral wells that would be located within the coal seam. Next – next slide, please. The extraction and – the extraction process is fairly simple. The gas – the water would be removed from the coal seams to reduce the water pressure, and that would allow the gas to flow. A critical aspect in this area is that because the seams are reasonably permeable, no fracking is required to stimulate the flow of gas from the wells.

All the – all the gas wells would be designed, constructed, operated, maintained and eventually plugged and abandoned in accordance with the New South Wales Well Integrity Code, which has been designed to prevent the leakage of gas and water from the gas wells to the surrounding strata, and to prevent pollutants from the deeper target coal seams from polluting the beneficial aquifers above the – in that – in the shallower – in the shallower strata. Next slide, please. So that's a – that's an example of the design of the gas wells, and you can see there's several barriers in there comprised of steel and concrete, and the key aspect there is that there are at least two layers in – two – several – several layers of protection, so that even if one layer is compromised, the integrity of the well as a whole would continue to – to function.

And so there are several safeguards associated with – or incorporated into that Well Integrity Code, and that was one of the key reforms the New South Wales Government introduced following the New South Wales Chief Scientists and Engineer's review of coal seam gas in New South Wales. Change slide, please. So key infrastructure in the area. As I said, they would be upgrading several of the existing facilities in the area, at Bibblewindi and Leewood, the two existing processing facilities, where all the gas would be processed, the saline water – or produce water from the coal seams would be treated, and any waste – the waste products associated with that water treatment would be managed.

The existing infrastructure corridor connecting those processing facilities to the Wilga Park Power Station and ultimately to a gas distribution pipeline would be upgraded, and Santos is proposing to provide a range of ancillary infrastructure, such as a workers' accommodation, utilities and other infrastructure to support the development of the project. While they are not part of the project, it would also – it's also seeking to rely on existing approvals for the Wilga Park Power Station to continue to use gas from the project to generate electricity, and also to operate the – operate – to coordinate operations onsite from the Narrabri Operations Centre in the – in the area. Next slide, please.

Very – there's a very simple layout. Both gas and water are extracted from the coal seams. They are collected directly from the well heads and put into gas – gathering gas and water-gathering lines that are buried underground, and then they are transferred to the processing facilities, where the gas would be processed and sent to market, and the treated water – or the – the saline water would be treated and either reused or discharged to – to Bohena Creek. Next slide, please. That just is a simple figure of the proposed upgrades of the existing infrastructure facilities, and the major change there would be an upgrade to the water treatment plant and the construction of a – of a new gas processing plant at the – at the Leewood – at the Leewood facility. Next slide, please.

So the timing of the project. The project life is 25 years, but some of that will be involved in construction at the beginning and there will be decommissioning and rehabilitation at the end. So the production – actual production – or gas production of the project would be for around 20 years. The – there are four distinct phases in the project. Phase 1 involves further exploration and appraisal, and so that involves drilling at least another 25 pilot wells in the project area to improve some of the information about the gas resource and – and the geology in the area. Phase 2 involves developing the gas field and related infrastructure, which would see the construction of many wells, or the development of most of the gas wells and the upgrades to the infrastructure.

Phase 3 involves the ongoing operation of the gas field and production of gas for the domestic market, and phase 4 of the project involves decommissioning the gas field and infrastructure and rehabilitating the site. There's – next slide, please. So there's two related aspects of the project that do not form part of the approval. The first of those is the project will require gas pipeline to connect the gas field to the existing gas pipeline network in New South Wales. Now, that pipeline is essential for the project but would be subject to separate approvals. Next slide, please. The – there are two options for that gas pipeline. The first of those is that the project could connect to the Queensland-Hunter Pipeline, which was – which is a critical state-significant infrastructure project that was approved in 2009, but hasn't been built at this stage.

The approval runs till 2024 and could – and if the pipeline is built, it would involve – it would only involve a short connection from the project area to the approved pipeline – Queensland-Hunter Pipeline network. If you look at the following slide, there is a layout showing the existing gas tenements in New South Wales, which are shown in beige on that figure. The Narrabri Gas Project is highlighted in blue within that beige area, and the existing – or approved Queensland-Hunter Pipeline connects from Newcastle all the way to Queensland, and you can see it running along the eastern boundary of that beige – or through the eastern boundary of that beige area and heading up to Queensland.

So that – that pipeline would serve two functions. One would be to connect Narrabri to some of the key centres in New South Wales, but also to connect New South Wales – ultimately facilitate the connection to Queensland and the Northern

Territory, where there are substantial gas supplies available for potential use in New South Wales. The second option – or second potential pipeline is a pipeline route that's specifically designed – or has been specifically designed for the project. It's called the Western Slopes Pipeline, and the ..... of that is shown in the dotted blue line to the west of the project area, and that pipeline would connect the project to the existing Sydney to Moomba Pipeline.

That proposal is still in the early stages of the planning approvals process. It is a state-significant infrastructure project, and at this stage, the Department has issued requirements for the preparation of an EIS for the project and is expecting to get an EIS for that project in early 2021. So the options – the pipeline options do create some uncertainties in terms of which option would be developed if the project is approved and goes ahead, and due to these uncertainties, Santos is – is – is proposing to accept a condition requiring the approvals for a dedicated pipeline to be in place prior to phase 2 of the development, so that's the construction of the major infrastructure and development of gas wells onsite, and then a further condition requiring the pipeline to be in place and operational prior to phase 3 of the project, which is when gas would be sent to the domestic market.

The second key aspect or related aspect of the project is – next slide, please – the Community Benefit Fund. The New South Wales Gas Plan, one of the key drivers of the plan is to ensure benefit sharing with the local community, and the key vehicle for that is companies can establish a community benefit fund for petroleum projects under the Petroleum (Onshore) Act. Contributions to the fund are generally linked to production, or some kind of royalty. So it's a royalty sharing scheme. Santos has committed to set up a fund for this project and to contribute 10 per cent of – up to 10 per cent of royalties to the fund. So with the state's contribution on top of Santos' contribution, that could result in up to $120 million being allocated to the fund, and those funds would be allocated to community projects, and the Department of Regional – Regional New South Wales is currently – or developing specific guidelines for the fund with Narrabri Shire Council, Santos and other key stakeholders.

So those two aspects, the pipeline and the Community Benefit Fund, they are subject to separate approval processes or regulatory arrangements, but they are important aspects of the Narrabri Gas Project. Just very quickly, the project requires several licences and approvals. It needs – it needs development consent under the – next slide, please – under the Environmental Planning and Assessment Act. It also requires several other state approvals, including a petroleum production lease under the Petroleum (Onshore) Act, an environment protection licence under the Protection of the Environment Operations Act. It requires water licences under the Water Management Act and several permits for roadworks under the Roads Act.

Because it could have a significant impact on Commonwealth listed threatened species and also water resources, it requires approval from the Commonwealth Minister for the Environment under the Environment Protection and Biodiversity Conservation Act. Due to the bilateral agreement between the Commonwealth and

the state, this project is being assessed by the New South Wales Government on behalf of the Commonwealth, and following any decision by – or following the decision by the Independent Planning Commission on the development application, the state will forward its assessment of the merits of the project to the Commonwealth Minister, and the Commonwealth Minister will then make a final decision on the project under the Environment Protection and Biodiversity Conservation Act. Next slide, please.

We did go through this in some of the earlier briefings, but the department has consulted widely with the community on this project. It was – the EIS was exhibited for 90 days in 2017. The department held several public information sessions in Narrabri during the exhibition period. Throughout the assessment process, the department has had several meetings with key stakeholders, including Narrabri Shire Council. It has attended meetings for the Community Consultative Committee that was set up explicitly for the project. It has consulted with landowners in the project areas and several special interest groups. All the information on the project has been made publicly available on the department's website, and that engagement has demonstrated that there's significant public interest in the project.

The department received nearly 23,000 submissions on the project, which is something of a record. Many of those were form letters and almost all of them were against the project. About 470 of the 23,000 submissions were from the local area, and although the – you know, the submissions from the local area were still the majority that did oppose the project, there was certainly greater support for the project in the local area than there was from the rest of the state and other jurisdictions across Australia and overseas. Key issues raised in – next slide, please. Key issues raised in – in a lot of that community engagement can really be grouped into four areas.

The first of those was significant opposition to gas development in general in New South Wales. Secondly, many of the submissions expressed concerns about the risk or risks of nonconventional gas development, which was really the – the subject of a major inquiry by the New South Wales Chief Scientist and Engineer in 2013 and '14, which resulted in a major report. Next, there were several criticisms of the Narrabri Gas Project, and I think the major concerns raised by the community were concerns about impacts on the significant water resources of the area, particularly the groundwater resources, the biodiversity and heritage impacts on the Pilliga State Forest, the greenhouse gas emissions of the project and their potential to enhance climate change, and finally, concerns about the impacts on the health, safety – health and safety of the local community.

The department has carried out a very detailed assessment of the project over the last four years. That has involved looking at several other jurisdictions, field trips to Queensland to investigate what's going on in the Surat Basin and to meet with Queensland regulators. Next slide, please. Detailed review of the Chief Scientist's review and recommendations and all the reforms that followed that, reviews of several live studies and regional data sets that have been prepared for the Namoi

area, New South Wales legislation, policies and guidelines, visited the site several times, detailed review of the EIS submissions, response to submissions and additional information. We have obtained advice from several government experts, and we have commissioned independent expert advice from several – on – on several matters. Next slide, please.

Key issue there is the – we formed a water expert panel to provide water on the land – advice on land and water issues. There were four members of the panel, which was chaired by Professor Peter Cook from Melbourne. Other members included Professor Chris Fells, Professor John Carter and Michael Williams. Just like the department's assessment, the panel went through a very detailed process of reviewing all the information available and conducted extensive consultation with community groups and landowners in the area. They prepared a very – a detailed report, which concluded 32 recommendations and 27 observations, which is attached to the department's assessment report.

But in a nutshell, the panel did not identify any land or water issues that were likely to result in any significant impacts on people or the environment, and while the panel identified some uncertainties, it concluded that these uncertainties could be addressed through ongoing monitoring, adaptive management and a robust regulatory regime that is rigorously and effectively enforced. The panel also reviewed and provided advice on the department's recommended conditions for the project. Next slide, please. One of the things the department has found difficult to reconcile is the significant community concerns about the project with the technical advice from experts and the findings of its own detailed assessment of any – that the – that the risk of any significant impacts occurring is generally low and can – can be controlled using standard engineering practice and strict conditions.

One of the key reasons for this may be the limited exposure of the community to coal seam gas impacts and its reliance on reports about actual and perceived impacts on other jurisdictions. As the water expert panel and many other experts have pointed out, there are six significant variations in the scale and nature of these operations in the specific context which makes it very difficult to draw simple comparisons between what's going on in one area and another area, and a key finding of the department's is that it's very important to focus on the specific aspects and the specific context of the Narrabri Gas Project rather than to rely on general studies and – and statements about coal seam gas development across other parts of – of Australia and overseas.

The other key general findings the department would like to highlight is that in relative terms the Narrabri Gas Project is a small gas project. You know, while it involves 850 wells which may seem like a lot, it pales in comparison to the over 7000 wells that have been drilled in Queensland over the last decade. Secondly, there's limited scale for cumulative impacts. With the Narrabri Gas Project, although there are several coal mines in the area, most of them are too far away, and even the closest coal mine, which is the Narrabri Underground Mine, which is

located on the eastern boundary of the – of – of the project area, is not expected to – to cause any significant cumulative impacts with the Narrabri Gas Project.

And again, this compares to Queensland where you have several large coal seam gas operations operating side by side, and where there is a detailed regulatory regime that has been put in place to manage the cumulative impacts of those projects. The third key point is that the Narrabri region has favourable geology for coal seam gas development. In particular, the – the target coal seams are very deep and are separated from the beneficial aquifers by several aquatones, which is really big rock strata that are impermeable and – and – and separate the deeper aquifers around the coal seams from the shallower aquifers. As I said before, there's no requirement to frack, and there's no evidence of any major faults in the area that could create pathways between one area and another ..... different ..... strata.

Fourthly, while there are a number of private residences in the project area, in general the area is sparsely populated, and that's mainly because a lot of the project is – would be located in the Pilliga – the Pilliga State Forest, and secondly, it's important to consider Santos' commitments not to develop on any private land within the project area without the agreement of the landowner. Finally, the New South Wales Government has made – introduced a number of reforms and regulatory requirements in the last few years following the Chief Scientist's review of CSG, and some of those include that the gas company will require water licences, whereas in Queensland that's not required.

All gas projects will be subject to strict conditions under the Planning Act, the pollution control legislation and the petroleum legislation. The EPA has been made ..... regulator for all enforcement and compliance of those conditions. Specific codes of practice have been introduced to ensure that all coal seam gas is carried out in accordance with world's best practice, and in particular, that includes the Well Integrity Code which I mentioned earlier. For a long time now, New South Wales has used outcomes-based regulation with adaptive management, and that was a key recommendation of the Chief Scientist, and the government is committed to requiring ongoing community engagement if any gas development goes ahead, and I think those are key general requirements.

Now, to come to some of the specific issues – next slide, please – the Narrabri Gas Project has been declared a strategic energy project in New South Wales, and that's because it could provide a substantial supply of gas to the domestic market, and to New South Wales in particular. The New South Wales Government has – has also published the New South Wales Gas Plan, which seeks to develop a sustainable gas industry in New South Wales. Now, both of those set a strong strategic context for the project and – and – and are committed to setting up a gas industry in New South Wales, provided it can be carried out safely. At the moment, New South Wales uses about 125 petajoules of gas a year.

Most – a lot of that is sent to 500 heavy industry factories, like smelters and – and about 33,000 businesses. There are also – is also used by about 1.4 million

households, and some of it is used for producing gas-fired electricity for the electricity market. At this stage, most of that gas comes from Victoria and South Australia, and about five per cent of it comes from the Camden Gas Project to the south of Sydney. Over the last decade, however, there have been major changes in the domestic gas market, principally drive by the major development in Queensland of an export industry, which has exposed the domestic market across the east coast but also New South Wales to international gas prices, and – and – and about 70 per cent of all gas produced on the east coast now goes to export markets.

It has also seen a significant rise in gas prices which have nearly doubled, and that's putting pressure on several of those businesses that are dependent on gas. However, forecasts by – by the Australian Energy Market Operator are predicting that there will be shortfalls of gas in the southern states of the east coast from 2024 as the Camden Gas Project is decommissioned and rehabilitated in Sydney and supply in South Australia and Victoria starts to decline, and the majority of gas is then being produced in Queensland and Northern – in the Queensland and the Northern Territory. There's several - - -

MR BEASLEY: Can I just ask – can I just interrupt you, Mr Kitto, and just ask you a question about the topic we're on now.

MR KITTO: Yes. Yes.

MR BEASLEY: And I wonder if you could give the Commission some examples. Just on what you have been discussing, in paragraph 82 of the assessment report, it says that:

> *The increasing prices –*

That is, increasing prices of gas –

> *coupled with concerns about future supply –*

Which are two matters you have just touched on –

> *have made it increasingly difficult for local industries in New South Wales to remain competitive.*

What industries are you talking about? And are you able to give some specific examples?

MR KITTO: So the ACCC is carrying out a major inquiry at the moment, which I think is due to be completed in 2025, but they publish – I think it's a – it's a report every six months, and they have got evidence in there of a number of industries in New South Wales that are closed. I don't – I don't have the exact – I don't have those off the tip of my tongue, but I can certainly go through those reports and identify them. But, you know, each of those – each of those reports reiterates that a

number of businesses are – are finding it difficult to operate based on, you know, securing gas supply and the price, and – and either looking for alternate sources of energy or looking to secure additional supplies potentially from import terminals or – or other parts of Australia.

MR BEASLEY: All right. Santos has sent the Commission some information in – in answer to a – a written question the Commission sent about why will this project, if approved, put downward pressure on prices. I'm just wondering, what's – what's pushing – what's – what's increasing the price of gas at the moment? What's the cause of that?

MR KITTO: So the – the – the operation of the gas market is complex, and I'm not going to – I'm not going to try to be an expert on how it operates, but my understanding from reviewing a whole range of material produced by the Commonwealth Government, Australian Energy Market Operator and the ACCC is essentially the key – the key driver is linking domestic gas prices to international prices, and the lack of supply, or the – you know, lack of supply, which is driving up prices. Another factor is the inefficiency of the gas distribution network, so principally pipelines. So there are capacity constraints, and certainly you can see that in New South Wales where almost all the gas infrastructure has been – pipeline infrastructure has been built to service gas coming from Victoria and South Australia, which, as AEMO and others are pointing out, is really unlikely to be the major – the major source of gas in the future, where most of the gas will come from Queensland and New South Wales.

So I think there's inefficiencies in the pipeline network, and also, ACCC has consistently pointed out a lack of competition in supply and distribution that – that – that is affecting prices. So, I mean, broadly speaking, the key policy drivers from both State and Commonwealth Government and agencies is to try to increase supply to try and improve – or extend and improve the gas distribution network and connect states – various states with better pipeline infrastructure to move gas between different markets, to increase competition within the domestic gas market and – and the Commonwealth Government is – is – is – you know, has still got a mechanism where they can reserve certain – a certain proportion of gas production for domestic – domestic use. So there are a number of levers available.

MR BEASLEY: Sure.

MR KITTO: And I think it would be fair to say, you know, no one is saying in our – well, we're certainly not saying in our assessment that that – the Narrabri Gas Project will reduce gas prices. I mean, when you look at it, it – you know, it will produce a small amount of gas in – in relation to the whole of the market, the whole of the domestic gas market. The – the critical advantage is that – is that it would produce that gas locally, and it would be certainly the – the gas that's closest to the key – the key markets.

MR BEASLEY: I think you have covered greater competition in the assessment report. I think there is a suggestion that that greater competition would put some downward pressure on gas prices, without being more specific than that.

MR KITTO: Yes. We wouldn't want to overstate that – that point.

MR BEASLEY: Yes.

MR KITTO: And certainly, we don't think, you know, that gas price is the determinative issue.

MR BEASLEY: Sure.

MR KITTO: It's more about the reliability and security of supply.

MR BEASLEY: Thank you.

MR KITTO: Okay. I think – so I think we can – we can – we can really skip to the next slide, other than to say that, you know, the project would make a contribution to domestic supply and Santos has made a commitment to provide all the gas to the domestic market, and as we did mention to the panel in our previous briefing, that would be secured through conditions on petroleum production licence, and we have got advice that that is the most appropriate way to – to – to lock in that commitment, you know, in terms of the allocation of the state's gas resources. The next slide just shows the forecast shortfall in gas supply unless new supply is – is added, and the following slide just summarises the department's conclusion that we do think the project is critical for energy security in New South Wales, for the key reasons, that it would provide essential gas supplies to New South Wales.

Importantly, it would facilitate the critical extensions required to the existing gas pipeline network, and that would be taking – connecting most prospective resources in New South Wales to the key markets, but also connecting New South Wales – or facilitating the connection of New South Wales to the major gas fields in both Queensland and potentially in the Northern Territory. A related aspect of this is – and we haven't really touched on this – is there's substantial change going on in the electricity – in the electricity market as more and more coal-fired power stations close and are replaced by renewable energy, but there is a need – given that renewable energy is an intermittent source, there will be a need over the next 30 years for at least – well, between five and 20-odd gigawatts of dispatchable – dispatchable energy, and that can be provided by ..... it can be provided by battery storage, which is still quite expensive but emerging technology, or by gas-fired peaking stations, and this – certainly, this project could facilitate the development of a number of gas-fired power stations in New South Wales, some of which have already been approved down at Marulan and at Tallawarra in the Illawarra, and there's another one that has been declared critical state-significant infrastructure at Tomago.

Finally, we have already gone on about this increasing competition in the market and putting downward pressure on gas prices. And finally, there is potential for both the gas project and any pipeline to facilitate economic development in northern New South Wales, and Narrabri Council is looking at establishing an industrial hub on the edge of the project, in conjunction with the development of the – the inland rail, and Santos has – has given the department some evidence to say that they are in discussions with some industrial facilities to – to locate in that area and to make use of potential gas – the gas – the gas supply in that area. So - - -

MR BEASLEY: Can I just ask you a – can I just ask you a question of clarification on – on some matters you have just touched on. New South Wales obviously has a particular demand for electricity, which has to be reliable, and you mentioned phasing out coal-fired power plants, and no doubt there's good environmental reasons for wanting to phase out coal and other CO2 emitting means of providing electricity. But on the other hand, when you mentioned renewables, do I – do I understand that because we need – there is a demand that has to be met for reliable energy, we're not ready yet to immediately transmission – transmit to renewable energy and we need to have this bridging time period where we use coal to supplement the electricity demands that New South Wales has?

MR KITTO: I – that's right. I think there's – there's two points I would make though on top of that. The first is it's important to see the electricity market, there's a need – you know, the electricity market is – is – is in transition and renewables are likely to play a much greater role under almost every development scenario. And – and, you know, gas – gas-fired power may play a role in providing dispatchable energy to that market, provided you can get gas of a – you know, a secure supply and price. But I – but I think the other thing to – the point I would make is, there's also a gas market which is separate from the electricity market, where a lot – you know, it's a stationary energy market where a lot of – a lot of businesses rely directly on the supply of gas, and so there – if there's not that supply of gas or there's a shortage of supply of that gas, then you – you know, there will be a greater reliance on the electricity, so the transition will be required to deal with the changes in the stationary market as well as the electricity market.

MR BEASLEY: Sure.

MR KITTO: So I think you just need to look at both markets as opposed to seeing it as one and the same – one and the same thing. But I – I – the critical issue is that the transition of the national electricity market will take several – will take several years and require significant investment particularly in transmission infrastructure, but also dispatchable energy to smooth out the intermittency of – of renewables. Now, that can be done in a number of ways, and it's not clear that gas is the – you know, gas is just one of the choices that could be made to do that.

MR BEASLEY: Sure. Thank you.

MR O'CONNOR: David, just Steve O'Connor here. One question just going on from that, that transition you just referred to. Are there any state or Commonwealth policies that outline that transition? In other words, phasing out coal and having an interim reliance on gas-fired power stations until renewables can completely replace what's lost from the coal-fired power stations? Are you aware of any such policies?

MR KITTO: Well, it's primarily driven by the national electricity market. Now, the market operator, AEMO, has – was required following the Finkel Review of the national electricity market to prepare what's called an integrated system plan, and that plan really looks at what the demand is, what the committed projects are, and really a number of development scenarios for the future development of the market. Now, that integrated system plan, as I say, it does have a number of scenarios but almost all those scenarios acknowledge that renewable energy will be the cheapest way to provide the energy.

The critical aspect is you can't do that development without upgrades to the transmission network and by providing dispatchable energy at the same time. So it is a bit of a cat's cradle but certainly no one is saying – no one is saying – you know, I don't think anyone has a crystal ball, you know, to work out exactly what the future – what the future holds, and, certainly, there are a range of uncertainties about how, you know, that transition will occur over the next 20 to 30 years.

MR O'CONNOR: Thanks, David.

MR KITTO: I think the last point – the last point I'd make there is most of the coal-fired power stations in New South Wales are scheduled to shut before – in the next 20 years, so that starts with Liddell in 2023/24. It's then followed by Vales Point Power Station, then by the biggest power station, Eraring, and then Bayswater, and then it's only a couple of years after that, that Mount Piper is scheduled to close. So that would be about 10 gigawatts – you know, 10 gigawatts of generation capacity that would be lost to the system within the next 20 years, so that transition is very real. Certainly, no one is suggesting – at least in New South Wales – to build new coal-fired or those sorts of power stations. So the transition is being driven by the market and the integrated system plan sets out how that might best be addressed.

Just next slide, so probably the biggest issue for the community in the assessment of the project has been concerns about the project's potential impacts on the significant groundwater resources in the area. There are three key aquifers. First of those are the shallow alluvial deposits around the Namoi River. You then have the aquifers associated with the Pilliga sandstone in the Surat Basin, which forms part of the larger Great Artesian Basin. And then finally you have the deep aquifers which are associated with the coal seams in the Gunnedah-Oxley Basin.

The shallow aquifers – which is really the aquifers around the Namoi River and the aquifers in the – aquifer in the Pilliga sandstone – they are highly, highly productive aquifers. There are about well over – around 4600-odd registered bores in those areas, and average water use in those – from those aquifers is about 165 gigalitres a

year. So they're highly productive, fully allocated, and, you know, they support significant irrigation and other uses in the region. The deep aquifer is highly saline and currently has no beneficial use in the area.

As I mentioned before, one of the key things to do with the project is that the shallow aquifers are separated from the deep aquifer by several aquitards, which are sort of rock structures that are highly impermeable and retard the drawdown and leakage of water from the beneficial shallower aquifers down to the deeper coal seams. Key community concerns are about the extraction of water in the deep aquifer drawing water away from the shallow aquifers and having an impact on all the farmers and so on in the – that have bores in the beneficial aquifers, but also in contaminating the – by bringing up salty, highly saline water and gas and so on. They're also concerned that gas would leak out of the gas and water would leak out of the gas wells or through other pathways and contaminate the quality of the groundwater resources.

The next slide really just gives you a sense of how deep the coal seams are in relation to the beneficial aquifers. Most of the bores in the beneficial aquifers are less than 150 metres deep, whereas 95 per cent of the development here would be between 800 and 1000 metres deep, and the last – you know, only five per cent of that would be – even the five per cent in the shallower coal seams are still, you know, at least 350 metres below most of the registered bores in the shallower aquifers.

The next slide shows, you know, the geology there, and the key thing to note there is all the red formations there are the aquitards which would retard the flow of water between the shallower and the deeper aquifers. And the following slide just gives you some sense of the enormous size of the Great Artesian Basin, and if you look down in the bottom right-hand corner, you can see in a little blue dot there, that's the Narrabri Gas Project in relation to the broader – given the community concerns, on the next slide, you know, this is probably an area where thousands and thousands of hours have been spent going through a detailed assessment of the water impacts.

That's been informed by the detailed water sharing plans which have been prepared to regulate the allocation of water resources in those – in the relevant aquifers, and a lot of – those plans are informed by a lot of work done by government to set sustainable limits in the Murray-Darling, you know, Basin. So the water sharing plans set the key framework for all water use in those areas. The Commonwealth Government has collected a lot of the data in that area in a bioregional assessment for the Northern Inland catchments. About 10 years ago, due to concerns about potential growth of coal mining and gas development in the Namoi Basin, the government commissioned the Namoi Catchment Water Study which was a significant piece of work which investigated potential cumulative impacts of resource development with agricultural development in that area.

Several specialist studies have been carried out by Santos and its experts, and I included in the EIS and the response to submissions, you know, a whole range of additional information that's been provided to both the department and other agencies, but also the Water Expert Panel. Santos' model has been peer reviewed by

CSIRO. There's a group called Desira, and I won't go into the detailed naming of that, but they have done a lot of research and modelling across both Queensland and New South Wales, and some is specific to the area around Narrabri which has informed the assessment.

A lot of the special interest groups had expert advice from – or expert advice about the water impacts of the project. Several experts within government which have provided advice. In accordance with the bilateral, we've consulted with the Commonwealth Independent Expert Scientific Committee, and then to wrap all that up, we've formed the Water Expert Panel, which has been through all that material and written a comprehensive report outlining the findings – their findings on the assessment. Just to summarise those findings - - -

MR BEASLEY: Can I just ask you - - -

MR KITTO: Yes.

MR BEASLEY: Can I just ask you a question about this whole area, Mr Kitto, given you've come to it, because it does seem to be the main community concern. I want to give you a chance to respond to something that – I'm not sure whether I've got an advantage over you but I received last week some submissions prepared by counsel for the North West Alliance. Have you had a chance to look through those submissions?

MR KITTO: It's probably better if you just explain.

MR BEASLEY: Right.

MR KITTO: We have had some questions.

MR BEASLEY: What I want to give you a chance to respond to is there's an assertion made in those submissions that in relation to – and it may apply to other issues but certainly in relation to groundwater, that the department has failed to have proper regard to the precautionary principle. Okay. That's the thrust of the submission. Okay.

MR KITTO: We haven't seen that.

MR BEASLEY: And the way that they – and this may be explained better on Thursday or differently on Thursday but my understanding of it is this. And I'll put this to you in a series of short propositions that I'll get you to indicate you understand, otherwise I'll be asking for a second time the world's longest question. So – but in terms of the risks you've said the community have identified – I think in your slides you've identified the two principal risks that in this submission it's said that their expert evidence supports. That is, the risk of depressurising the aquifers first. Okay. You understand that's a risk?

MR KITTO: Yes.

MR BEASLEY: And the risk of by some means the produced water contaminating either important fresh groundwater or surface water. Okay. They're the two principal risks, and they say that the risks are posed because there might be unknown faults in the geological structure which creates a pathway for either methane to get into the aquifers or for leakage from the freshwater aquifers downwards because of the depressurisation. Following me so far?

MR KITTO: Yes.

MR BEASLEY: And there might be other risks associated with leaks from the wells from any means. That at any stage where the produced water is coming up from the coal seam, going up through the well hole, out to the surface, then having to be transported, then having to be stored, there's a risk through all of those processes that might create some form of contamination. Understand that so far?

MR KITTO: Yes.

MR BEASLEY: And they also mention some risks of perhaps seismic issues and whatnot, and a lack of understanding everything about the geology and the hydro geology. And I think what's then put against the department is this. That if you consider that – what I'll call the total risk profile and you apply the precautionary principle, then because of that total risk profile, coupled with if the risk comes in there's a very, very bad consequence – depressurisation of an aquifer, pollution, etcetera – that the proper application of the precautionary principle in response to the risks is an actual refusal of the project, rather than a conditional approval. Do you understand the general thrust of the argument?

MR KITTO: I do.

MR BEASLEY: Okay. Now, my understanding – this is where I want to give you an opportunity to say whatever you like but I'll give you my understanding of how the department through the assessment report has approached the issue of risk and ecologically sustainable development is this. Is, firstly, there are low risks in relation to this project, as I understand it, for what I'll call natural reasons. That is, some that you've identified. That is, firstly, the coal seam from which the gas is going to be extracted is a long way below the freshwater aquifers. That's one point; correct?

MR KITTO: Yes.

MR BEASLEY: Another issue in relation to risks is, as you've mentioned, the aquitards. The rock that separates the – as a barrier between the freshwater and the coal seam itself; correct?

MR KITTO: Got it.

MR BEASLEY: And we also know, and it's in the report, that it's a seismically stable area; correct?

MR KITTO: Correct.

MR BEASLEY: All right. And then there are – risk has been incorporated for what I'll call reasons imposed. That is, precautions taken which form the conditions of the approval. One of those might be, amongst a number, making sure that the well integrity code is enforced, for example.

MR KITTO: Yes.

MR BEASLEY: Correct. That's a precautionary measure. Another is that fracking is not allowed, for example; correct?

MR KITTO: Correct.

MR BEASLEY: And another is the department's satisfied that there is a lot of knowledge about the geological architecture of where the gas project is going to be, and it's going to be in a region where there's satisfaction that there aren't geological faults that might create something above what is a low risk; correct?

MR KITTO: I think on the faults issue, the panel was quite clear it was about major geological faults or structures at a regional scale, and so that's saying, you know, in terms of risk management, the risks of any regional scale impacts due to faulting were low.

MR BEASLEY: Yes.

MR KITTO: That's not to say that you wouldn't get local faults and structures that would need to be - - -

MR BEASLEY: Sure.

MR KITTO: That would need to be factored in to the design. Now, the conditions do have a regime where further work needs to be done - - -

MR BEASLEY: Yes.

MR KITTO: - - - to find out more about those, and that work would be presented in any field development plan that was submitted to the planning secretary for approval.

MR BEASLEY: I was going to suggest the - - -

MR KITTO: If there are - - -

MR BEASLEY: The field development protocols are another measure whereby risk is factored in, and that's a response to that – that's a precaution in response to that risk.

MR KITTO: So there's the field development protocol, which is Santos', say, performance measures or risk management measures to avoid or minimise risk, but the field development plan is saying before – and that's one of the conditions in the recommended conditions. What that's saying is before Santos can drill any wells, they need to prepare a gas development plan for – say they want to do 20 wells, they have to prepare one of 20 wells. Now, that would include further information on structure and so on in those areas and the risk assessment of those, which would then feed into whether the planning secretary approved – you know, would allow those to be done.

Now, if there were local fractures or – I mean, local faults or structure in an area, you may not locate wells in those areas, depending on the findings of that risk assessment, or you may take other measures to mitigate those risks. But that's another way that the conditions deal with that because over time, the biggest issue is that the more you – you know, you just – you can't find out more information to address these risks without actually doing the development. And through doing that, you would find out more about the integrity of the aquitards, whether that aquitard, you know, spanned the whole area, whether there were weaknesses in that area. You would find out more about faults and structure.

MR BEASLEY: Yes.

MR KITTO: About the composition of the gas, which leads to how you design your well. You know, in terms of - - -

MR BEASLEY: When you're using the word "development" there, you're including primarily phase 1, where there is – some of these knowledge gaps are filled in before you actually get to production; correct?

MR KITTO: It's – no, it's basically all phases of well development. So phase 1, 2 and the wells developed in phase 3.

MR BEASLEY: Yes.

MR KITTO: So it's an ongoing – it's a bit like equivalent to, say, an underground coalmine where you may approve a mine plan to extract a whole coal resource but there would be subsequent approvals for a long wall or several long walls that would be required under the conditions of approval before those long walls could go out.

MR BEASLEY: Sure.

MR KITTO: And it's a critical way of dealing with uncertainty and bringing in a whole lot of new information over time in a progressive way to deal with and

manage any risks. But, fundamentally, as you pointed out earlier, I think what the Water Expert Panel and a lot of other experts have pointed out to us is that we are talking about localised uncertainties and risks, not uncertainties at a broad regional level that would lead to fundamental, you know, significant and irreversible harm. So if you go to the precautionary principle and you take the two strands that, you know, Judge Preston has outlined there, it's – you first need to establish that there will be significant and irreversible harm.

MR BEASLEY: Yes.

MR KITTO: But you wanted to be – play devil's advocate here. You know, the maximum amount of water to be extracted from the deeper strata is 37 gigalitres over the 20-odd years. Say, for instance, that was – you know, all of that water came down to the deeper aquifer, you know, that still – you know, say it was 1.5 gigalitres a year. It was straight from the upper – the shallow aquifers to the lower aquifers. You know, that's still probably a quarter of what a cotton farm would use in that catchment in any one year. So, you know, in terms of establishing the significant and irreversible harm, you know, the water – whatever water is taken out of the system would ultimately re-pressurise over time. It might take many years.

MR BEASLEY: Yes.

MR KITTO: And if there were any concerns in terms of triggers and so on, you'd have monitoring placed to pick that up and you could really just stop the development of further gas works. So, I mean, we've thought long and hard about this.

MR BEASLEY: Yes.

MR KITTO: I guess, in our view, we don't think the precautionary principle is triggered in this instance, and, you know, a lot of – a lot of the reasons why are probably best spelled out in the Water Expert Panel's report, attached to our report, and we've really summarised a lot of the findings from that expert advice in our assessment report.

MR BEASLEY: All right. Thank you. Is there anything else you wanted to say about that? Because that - - -

MR KITTO: I mean - - -

MR BEASLEY: I mean, there are obviously other precautions in the conditions. For example, the monitoring.

MR KITTO: There are, and I think - - -

MR BEASLEY: The monitoring and the fact that it's independent monitoring at times, etcetera. Is there anything else you wanted to add to that - - -

MR KITTO: Some of the future slides do go into some of that. I guess - - -

MR BEASLEY: All right. Sorry, I'll let you go on.

MR KITTO: I'm sure once I stop now, there'll be 100 things that I think about that I would like to say, so it might be something that we could give a further written response or come back to, if we are going to come back and answer more questions later on in the hearing process.

MR BEASLEY: Thank you. That covered what I wanted to ask you about that.

MR KITTO: Okay. So I think we've sort of – I can skip through some of these findings on groundwater, but I think the key point is that first dot point there. That:

The geology and hydrogeology of the area is well known at a regional scale.

And particularly in the shallower aquifers. I think the key uncertainties are in the deeper aquifers, simply because not much development has happened there, but that's been addressed by using very conservative assumptions and, also, by applying sensitivity analysis to the groundwater model and the findings of the model.

And I think, you know, CSIRO, Water Expert Panel, government agencies, independent expert scientific community, they all see that while the groundwater model is probably as good as it can be now with the state of information we have, it is fit for purpose and as more information becomes available, it will be possible to within a reasonably short period of time upgrade that model and validate it and calibrate it, so it's a much more accurate tool for predicting, you know, localised impacts of the project.

As we pointed out in our report – and I won't go through it again – you know, we do think there are 10 reasons – at least 10 reasons why the risk of any significant groundwater impacts is low. You're right, some of that is really just the geology and hydrogeology, and some of that is related to the controls and mitigation measures and requirements in the conditions that would really take an outcomes-based approach with very strict adaptive management and a progressive approach to any development. Is that the bell?

MR O'CONNOR: Yes. Unfortunately, David, we've interrupted you, so you're running out of time. Are there any slides in those remaining that you particularly wanted to take us to before we ask a couple more questions?

MR KITTO: Okay. So just – so I think the – I'll just – yes. So we've got the key conditions on groundwater there. We won't go to that. I think the big thing that I would want to talk about there is, you know, there are a range of additional safeguards over and above the conditions of approval. And I know some people have raised the fact that why aren't there conditions picking up the – you know, the chief scientist and engineer in the review of CSG said that there should be three

levels of safeguards. But a lot of those, you know, are not things that we would put in any conditions of approval because they relate – better relate to other instruments, like the security deposits under the petroleum legislation.

EPA has talked about having financial insurance and assurance modules under the petroleum licence, and then the government has an existing Legacy Mines Program. Now, a lot of these go to the fact that some of these gas wells would be in the – you know, there for hundreds of years, and concerns about the integrity of those wells for many years. So we do have other safeguards there. There also, you know, would be detailed landholder agreements for any development on private land, and the petroleum legislation has provisions for recompense for loss, so it's not just the conditions of any planning consent that will be important. There are other mechanisms that were used under other legislation, and also the well integrity code is required to be reviewed and updated from time to time.

MR O'CONNOR: Thanks, David. I think we understand that.

MR KITTO: Yes.

MR O'CONNOR: Do you have anything else you need to refer to? Because we do have a couple of questions we'd like to put to you.

MR KITTO: That's – I mean, I'm happy to answer questions. I guess, I'll just table the presentation.

MR O'CONNOR: Yes. We'll make sure that goes on our website.

MR KITTO: Yes.

MR O'CONNOR: And it's available.

MR KITTO: Okay.

MR O'CONNOR: Okay. Just a question following on from Richard's discussion with you moments ago about the precautionary principle. Looking through the department's assessment report, I'm struggling to find where the ESD principles – the ecologically sustainable development principles – have been addressed by the department. Can you lead me to where that's given some consideration?

MR KITTO: So I – I mean, the principles of – I mean, the principles of ESD as they're defined in New South Wales are the effective integration of economic, social and environmental factors. And our view is that the whole report is really an attempt to integrate those aspects and, you know, ESD, you know, is not something that you can point and say it's in paragraphs 3, 4 and 5. It really is the whole report. Just – you know, and we're fully aware that, you know, under the public interest – the requirements to consider the public interest, that imports the objects of the Act.

And, you know, ESD is certainly one of the objects of the Act but there are also – you know, it's one of six objects that are relevant to the consideration of the project, and we haven't gone about the, you know, proper use of various – you know, all those other objectives. So, you know, we're quite happy to provide a very simple version of it but, as I said, our view is our whole report is about the effective integration of economic, social and environmental factors into decision-making. In terms of the principles of ESD, you know, the legislation does single out, you know, the precautionary principle as a potential way of achieving ESD.

You know, in our view, you know, there's two limbs to that under case law and, in our view, we have – none of our assessment has identified any potential significant or irreversible harm that would result from the project. And, in our view, the project does not trigger the precautionary principle. In terms of intergenerational equity, I think our assessment makes it clear that there are unlikely to be any significant impacts on people or the environment, and certainly there would be no – you know, the ability for the environment – you know, the future generation to be able to benefit and use the natural resources, and the environment in that area would not be compromised by the Narrabri Gas Project. The – just give me a second. The - - -

MR O'CONNOR: Well, David, I'm quite happy with that offer you've made - - -

MR KITTO: Yes, yes.

MR O'CONNOR: - - - just to provide us with a short summary. I'm quite happy to take that.

MR KITTO: No. Yes, yes. No. So, I mean, in short, we have considered it in detail and our view is our whole report deals with those issues, like protection of biodiversity, conservation, and also improved valuation. Certainly, Santos is – you know, has proposed to include a whole range of controls to mitigate and control the impacts of the project. And our conditions impose a whole lot more obligations on them, where they would be required in the – with the polluter pays principle to deal with mitigating or avoiding any impacts of – any significant impacts of the project.

MR O'CONNOR: Thank you, David. I might now hand over to John Hann to ask a question.

MR HANN: Thanks. David, would you be able to clarify for us the total number of wells that would be operating – production wells that will be operating at any one time? As we understand it, the assessment report of the department assesses up to 850 new wells, but when we look at the EIS – particularly chapter 2 and table 2.1 – what that shows is that there's at least another 49 production wells that could – or trial appraisal wells that could be brought into production. So would you be able to advise, at any one time what would be the total number of wells that could be in production on the site, and whether there's been a cumulative assessment completed for that?

MR KITTO: So we're happy to do that. I think there's – from my understanding, there's around 70-odd wells there now, and that's been factored into all the baseline work and the assessment that's been carried out. And so the 850 wells has been – is being considered on top of that, so the answer is the cumulative impacts of the ongoing operations of the wells that are there now or been approved now and any new wells has been fully considered in the assessment, but we'll clarify that and come back to you.

MR HANN: Okay. No, that would be – that would be appreciated, David. Just in regard to water balance, given that the Water Expert Panel did identify some significant discrepancies between what is in the EIS and the New South Wales Government's own predictions – this is for the lower Namoi aquifer. So would you be able to confirm how the conditions would address this? And, particularly, ensuring that there are appropriate levels of entitlements and the monitoring.

MR KITTO: So I'm just – can you – I mean, so I did see some questions on this that were forwarded to us but I'm not sure I understand. There seems to be quite a few issues tied up in that one question. Can you maybe just break it down?

MR HANN: Yes. In the Water Expert Panel's report, they identify a significant discrepancy between what's in the EIS and the modelling in terms of flows and what the New South Wales Government's modelling showed, in terms of this is flows for the lower Namoi aquifer. And, given that, how are the conditions addressing that sort of discrepancy in regard to ongoing modelling and monitoring? And, also, it relates – it will relate to how the entitlements – the level of entitlements are set.

MR KITTO: So, you know, as I understand it – and we will go back and clarify it. You know, what that relates to is really the flux or flows between the shallower aquifers and, really, what most of the assessment is about is they are taking water out of the deeper aquifer. So I'm not sure, you know, how that relates to your question about water balance or – you know, the drawdown is minimal, so there's very little – you know, what – all the assessment is saying is there would be minimal impact on both of the shallow aquifers. So in terms of that – you know, that discrepancy in the rate – I mean, it was something that had been raised in submissions and considered but I'm not sure to what extent it's a material issue, but we're happy to go away and look at that, and to come back to you.

And as I understand it, you know, it was incorporated into the sensitivity analysis that was done for the Water Expert Panel, but I'll come back to you. I'm just not sure what the material issue is about that discrepancy.

MR HANN: Okay. David, look, perhaps it would help you if you go back and look at the Water Expert Panel's section on that, and that'll assist you in terms of responding.

MR KITTO: Okay. Yes.

MR O'CONNOR: David, I want to give Professor Snow Barlow an opportunity to ask a question as well. Snow, are you there?

PROF BARLOW: Yes. Can you hear me?

MR O'CONNOR: Yes, certainly can.

PROF BARLOW: David, Snow Barlow here. How were the greenhouse gas emissions from this project – particularly in regard to the emissions of CO_2 – estimated when your assessment report sort of stated that you hadn't at that point received any information from the proponent of the project on what the CO_2 content of the coal seam gas that would be extracted from the project would be?

MR KITTO: So I'm struggling – I can't really hear what you're saying, Snow.

PROF BARLOW: Perhaps I'll clarify - - -

MR KITTO: We've got a very bad – I can hear everyone else but, yes, I just can't hear you.

MR O'CONNOR: We might put a hold on that, Snow, and we might put that in writing to the department. It sounds like there's a bit of difficulty hearing that question. I want to now pass over to Richard. He has a question as well he'd like to ask.

MR BEASLEY: Yes. Just two quick final questions, Mr Kitto. I just want to get your response to this proposition. I think it's one that will be familiar to you. It's one that people have made a submission is a reason to refuse the project. And I appreciate this is at a high level of generality but the proposition is this. That this – if this mine is approved – sorry, this project's approved, it will be a new source of fossil fuel emissions, inconsistent with the carbon budget, and because of the increase in CO_2 emissions from this new project, it'll be inconsistent with the urgent need to reduce CO_2 emissions. Do you have a general response to that proposition?

MR KITTO: So I think we've got – I've got some slides further down that do deal with that, and it might just be worth running through - - -

MR BEASLEY: Sure.

MR KITTO: - - - you know, what our assessment of that is. So if I go right – if you go right down to, you know, findings, and there's one – on findings under greenhouse gas emissions. I think it's slide 48. So to some extent we touched on this in our earlier discussion. We pointed out that both the gas and the electricity market are going through rapid change at the moment. There is a transition underway to a low emissions economy, based primarily on renewables with dispatchable energy, but that's likely to take several years. In the interim, all the relevant government agencies – particularly AEMO – are predicting that gas use in

New South Wales is likely to remain strong, certainly over the next 20 years and potentially the next 30 years.

You know, there's government support for this project as a strategic energy project because it will supply gas to the – you know, up to 50 per cent of New South Wales gas, will facilitate peaking power, and create a sustainable gas industry in New South Wales. So I don't think anyone in government, at the Commonwealth or state level, is saying that gas doesn't have a role to play in the next 20 or – 20 to 25 years, the life of this project. Now, greenhouse gas emissions associated with the gas use of – or the use of gas in New South Wales, given that this is solely a domestic project – unlike some of those previous examples, you know, of coalmines where, you know, the emissions were being – you know, occurring in international places.

This is solely for the domestic market. You know, the gas in New South Wales will have to come from somewhere, and the gas – the use of that gas is essentially an ongoing use which is part of the background at the moment. Now, what AEMO is predicting is there might be a small drop in that demand but fundamentally the ability to transition straight away is not going to happen in the next 10 to 20 years, so the gas use is likely to continue whether the project is approved or not. And that – the scope 1 emissions, which are the emissions associated with extracting the gas, will have to occur somewhere, either in Victoria, South Australia or Queensland. You know, so that wherever that gas is produced, there would be scope 1 emissions.

And what we're saying with the emissions from this project is that in relative terms the emissions of the Narrabri Gas Project are likely to be low because the methane is very deep. It's isolated, so you don't have a lot of fugitive emissions leaking, and our report does contain some further information on this. In absolute terms, it's a very small proportion of total emissions in Australia, and from the department's perspective, we can see no basis for refusing the project based on greenhouse gas emissions.

MR BEASLEY: Thank you, David.

MR KITTO: I think the final point we would just make there is we also do point out – and I know that this is subject to debate, but if you are producing electricity from gas-fired power stations, there is a CSIRO – recent CSIRO study saying that's up to 40 per cent less emissions intensive than coal. Now, I do know there was articles in the Sydney Morning Herald saying that might not be right, but certainly that's the most up-to-date evidence that we've considered. And I think if you're importing gas to New South Wales from overseas, there will be the added emissions associated with transporting that gas here and then distributing it to the places in New South Wales where it's required.

MR BEASLEY: Thanks. Thanks, David. Just one brief final question. I know for the purposes of the department's assessment, Professor Kemp was asked to do a review of that part of the EIS dealing with social impacts. Am I right about that?

MR KITTO: You're right, yes.

MR BEASLEY: Yes. The Commission has received late on Friday – and I saw it yesterday – a slightly strange email which, in part, suggests that Professor Kemp had some impact on conclusions reached about hydrogeology. Just to confirm, Professor Kemp's got nothing to do with hydrogeology; correct? She - - -

MR KITTO: No.

MR BEASLEY: That's not her - - -

MR KITTO: No.

MR BEASLEY: - - - expertise. Could I just ask you, has she contacted you at all about any comments about her work that have found their way into the assessment report?

MR KITTO: No.

MR BEASLEY: She hasn't expressed any concerns, for example.

MR KITTO: No.

MR BEASLEY: All right. Thank you.

MR KITTO: I don't think – I don't think the assessment report – no. No, certainly, we haven't heard – certainly, her expertise is in social impact assessment.

MR BEASLEY: Yes.

MR KITTO: And we haven't heard anything from Dr Kemp for some time now.

MR BEASLEY: All right. Thank you for that.

MR O'CONNOR: Thank you, David. I'm going to have to wrap it up there, but we do appreciate your presentation. We're running a little behind time, so we're going to take a short break now and be back at 11.25. Thanks, David.

RECORDING SUSPENDED **[11.15 am]**

RECORDING RESUMED **[11.27 am]**

MR O'CONNOR: Thank you. I think the next registered speaker we have is Mr Kevin Gallagher, who is the CEO of Santos. Mr Gallagher.

MR GALLAGHER: Good morning.

MR O'CONNOR: Good morning.

MR GALLAGHER: Thank you Chairman and commissioners for the opportunity to appear before you today. First, let me introduce myself. I am Kevin Gallagher, the managing director and chief executive officer of Santos. I joined Santos in 2016, after more than 25 years in the oil and gas industry in Australia and around the world.

Proudly Australian, Santos is a leading supplier of natural gas, our fuel for the future, providing clean energy to provide the lives of people in Australia and across Asia. Santos is a top-50 ASX listed company. We are already Australia's biggest domestic gas supplier, and we aim to be a leading LNG supplier to the Asia-Pacific. We've been working in partnership with local communities around Australia for over 65 years, providing jobs and business opportunities by developing Australia's natural gas resources safely and sustainably for the Australian industry and households.

Over the last four years, I have restructured the company to implement a "transform, build, and grow" strategy, using a disciplined low-cost operating model focused on core natural gas assets in Australia, Papua New Guinea and Timor-Leste: Narrabri is one of those assets. Our strategy has resulted in a stronger balance sheet and improved production and financial performance, positioning Santos to pursue developments such as the Narrabri Gas Project, an important investment that would bring energy security, jobs, and economic benefits to the region and to New South Wales.

I am also leading and driving the ambition within Santos to decarbonise energy at its source. We're deploying renewables, implementing energy efficiency projects, and investing in technologies like carbon capture and storage, which the International Energy Agency and the Intergovernmental Panel on Climate Change say is a critical technology to achieve the world's climate ambitions. Natural gas is the perfect partner for renewables and will play a key role as the world transitions to a lower-carbon future. This is because gas provides a reliability that renewables need to offset intermittency in power generation.

Gas, combined with carbon capture and storage, is also the fastest and most efficient pathway to a hydrogen economy, which will be necessary to provide zero-carbon energy for transport and energy-using sectors other than power generation. Indeed, these sectors make up more than 80 per cent of the world's energy demand. So you can see that natural gas is a very important energy resource for decades to come, including here in New South Wales.

This important, independent process will determine whether the people of New South Wales are able to have their natural gas resources developed and reduce their reliance on other states for more than 95 per cent of their gas needs. Indeed, Santos

has been supplying gas to New South Wales customers from South Australia's Cooper Basin since 1976.

According to the extensive scientific investigation Santos has undertaken for its EIS, the Narrabri Gas Project can be developed safely and sustainably without harm to water resources or the environment. Extracting natural gas from coal seams is a clever, low-impact way of producing clean energy from coal with a very small environmental footprint on the land. As you will have seen from your recent field trip, this clever technology means that the natural gas is able to be extracted without taking the coal out of the ground.

As the Department of Planning found in its assessment report, it is:

> *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 engineering practice and imposing strict conditions on Santos.*

Santos has advised the Department of Planning that if the project is approved, we can accept and will implement the conditions proposed in the assessment report, to provide confidence to regulators and to the community that there will be no harm to water resources or the environment.

This process is not only important for the people of New South Wales, it's also very important for the Australian company I represent, Santos. The outcome will play a role in determining where Santos makes its next investments in natural gas development, and we want to invest here, in New South Wales.

Since 2011, we have spent more than $1.5 billion acquiring, appraising, developing, and operating gas assets in the Narrabri region. Santos is already an important member of the Narrabri community. Narrabri gas from appraisal wells already supplies the Wilga Park Power Station, generating enough electricity to power around 23,000 households, and this will soon increase to 32,000 households. We employ 16 people who live and work locally, and we are buying locally, spending $2 million last year alone on local goods and services.

If approved, the Narrabri Gas Project will bring up to 200 skilled, well-paying, secure jobs throughout this operation, and many more hundreds during the construction phase. I am personally committed, as the Santos CEO, to ensuring that if the project is approved, our operational employees work and live locally with their families as part of the Narrabri community throughout its operation.

As part of our commitment to the community, I am also very pleased that Santos has entered into a $14.5 million voluntary planning agreement with the Narrabri Shire Council, which, if the project is approved, we will deliver: improved infrastructure throughout the Narrabri Airport, more maintenance for local roads, further development of the Narrabri sports and tourism precinct, library relocation to allow

the expansion of the Country Universities Centre, and many other valuable community initiatives. Santos will also work with the council to encourage new gas using industries to locate to Narrabri, bringing even more jobs and business opportunities, and helping to build stronger and more vibrant regional communities.

At Santos, we work closely with Indigenous communities to ensure protection of their cultural heritage, and they share in the benefits of development on their traditional lands. For Narrabri, we are currently negotiating formally with the 18 authorised applicants of the traditional owners of the land, the Gomeroi Nation, and we are also engaging with the broader community, including the local Aboriginal Land Council. We value the relationships we are building with the Gomeroi People, and we are committed to working with the Gomeroi on matters relating to native title, cultural heritage management, and economic development.

Importantly, Santos has a strong track record of safe, sustainable, and successful natural gas development. We're already a major producer of natural gas from coal seams in Queensland, where we are protecting water and the environment. The industry is welcomed by the communities where we operate, and regional towns are thriving because of our industry. Analysis from Lorax Consulting shows that the Queensland gas industry has spent almost $50 billion over the past eight years, purchasing Queensland-made goods and services, investing in regional community infrastructure, and in payments to government.

There are 4,600 long-term direct jobs in the industry ..... and 1,700 of those are in Queensland's regional areas. In Queensland's Roma region, in 2018, Santos and their employees added more than $90 million to gross regional product, and the same year Santos spent over $130 million in the Roma region on local goods, services, wages, community investment, payments to landholders and payments to local government authorities.

Across Queensland, farmers have received over $500 million in payments from the gas industry, and some are benefiting from a major new source of water supply, available only because of gas production. These benefits have helped drought-proof local farms by providing a second source of income from hosting gasfield infrastructure, allowing landholders to expand their business in other directions, purchase additional land, and add value to their properties.

Santos, ourselves, operate a grass-fed beef cattle business in Queensland on our own properties, using produced water from our natural gas operations. We have a prize-winning Droughtmaster herd that we proudly show at the Brisbane Exhibition every year. We want to see Narrabri and surrounding communities benefit from the safe, sustainable development of coal seam gas resources in the same way Queensland communities have done over the last decade or more.

The Narrabri Gas Project has the potential to supply enough natural gas to meet up to half of New South Wales' natural gas demand. With the state importing more than 95 per cent of its gas, New South Wales businesses face a disadvantage compared to

their peers in Queensland. According to the New South Wales Business Chamber, a commercial baker in Sydney pays $26,000 more for gas every year than they would if they were located in Brisbane. The Chamber also claims that dry cleaners, food processors, and other manufacturers would be better of by tens and, in some cases, hundreds of thousands of dollars a year if New South Wales developed its own gas supply sources.

As you know, Santos is committed that 100 per cent of Narrabri gas will be sold into the domestic market. We have advised the Department of Planning that we are prepared to accept the condition on our resource tenure to provide confidence to the community in this regard. Santos will bring to the Narrabri Gas Project the experience we've gained from our low-cost operating model in Queensland, where we have reduced connecting well costs by 84 per cent and unit production cost by 36 per cent since 2013.

Combined with proximity to New South Wales customers, this will make Narrabri gas very competitively priced, delivering a new source of gas supply and helping to put downward pressure on gas prices. The Australian Competition and Consumer Commission has found that customers in southern states, including New South Wales, pay $2 to $4 per gigajoule more for gas because of transportation costs alone. That could account for 20 to 40 per cent of the delivered gas price. Narrabri would provide reliable, affordable, clean energy to support the 1 million homes, 33,000 businesses and the 300,000 jobs in New South Wales that rely on natural gas. Without New South Wales developing its own gas resources, its businesses and households will continue to face higher energy costs than across the border in Queensland.

A decision on a pipeline route connecting Narrabri to other markets in regional and metropolitan New South Wales is yet to be made and will depend on customer requirements and strategic issues such as the ability to improve long-term supply security and competition for the state. It is important to note that the development of the Narrabri Gas Project provides a catalyst for new economic opportunities that will benefit from increased gas supply competition and supply security over the long term.

Before I turn to water and the environment, I'd like to recap on the project's benefits as set out in the EIS. The Narrabri Gas Project could provide: up to 1,300 jobs during construction; up to 200 local direct and indirect jobs during operations; approximately $1.2 billion in royalties to the State of New South Wales to help fund essential government services such as health, transport, and education; and a community benefit fund up to $120 million for the benefit of local community groups.

It's very important to me and to everyone at Santos that no harm is caused to the environment or water resources. New South Wales already has very strong environmental regulation in place, informed by an inquiry and the implementation of the recommendations of the Chief Scientist in relation to coal seam gas development.

The EIS includes comprehensive data and scientific studies, concluding that Narrabri Gas Project would have a significant impact on the ecology of the Pilliga State Forest. The EIS draws upon more than 13,000 hours of on-the-ground environmental surveys to produce detailed vegetation and habitat mapping. Further surveys will be conducted as individual well locations are identified, so that no protected vegetation or habitats are impacted.

The project area does not include pristine forest, national parks, or nature reserves. The part of the Pilliga Forest in which the project is located is largely dry scrub land that was designated as state forest in 2005 by the New South Wales government under the Brigalow and Nandewar Bioregions Regional Assessment and set aside for the purposes of forestry, recreation, and mineral extraction, with one of the strategic aims being to provide for exploration, mining, petroleum production, and extractive industry.

At full production, project activities will cover less than half of one per cent of the Pilliga's 500,000 hectares, which will continue to be used for timber harvesting and other activities. Santos will enter into conduct and compensation agreements with landholders for our operations on their properties. As the assessment report states, there are approximately 114 residencies within the project area.

Farmers who host natural gas activities are protected by indemnities offered by Santos and land access agreements, and by extensive regulation and legislation. Following the recent withdrawal of some insurers from the market, peak industry bodies including the Insurance Council, APPEA, National Farmers' Federation, AgForce, and Cotton Australia are working together to provide assurance to farmers that they are and will continue to be appropriately protected in relation to public liability.

Turning to water resources, the EIS concluded that the project would have a negligible impact on existing water usage. The ground water model developed to assess the project's impacts was reviewed by the CSIRO, which described it as "state of the art". We have used the best available science to provide a comprehensive understanding of any potential groundwater impacts.

Santos is not proposing to take any water directly from the Great Artesian Basin or other high-quality groundwater sources, such as the Upper and Lower Namoi Alluvium, for production operations. The project would extract water from deep coal seams. This water is salty and of no utility for existing water users. The target coal seams are very deep: at least 350 to 650 metres deeper than 97 per cent of the productive ground water bores and the shallower aquifers overlying the project area.

The coal seals are physically separated from the shallower aquifers by hundreds of metres of impermeable rock. The coal seams are reasonably permeable, and the exploration undertaken by Santos has demonstrated that no hydraulic fracture stimulation is required to ..... gas from the coal seams. Santos has made a

commitment in the EIS that it will not conduct hydraulic fracture stimulation for the Narrabri Gas Project.

Santos will remove salt from produced water so that around 80 per cent of the water can be beneficially used for irrigation and other beneficial purposes. The salt remaining after produced water is treated is mainly sodium bicarbonate, commonly known as "soda ash". At peak production, the Narrabri Gas Project will remove an average of four to eight tonnes per day of this product, which can be beneficially used to manufacture glass, pulp, paper, soap, and many other industrial products. The amount of salt removed is small compared to the 1,000 tonnes of salt per day that is disposed of from the Murray-Darling Salt Collection Scheme. That is 20 times the amount of the Narrabri Gas Project.

Santos has recently signed a memorandum of understanding with Natural Soda to look at processing the sodium bicarbonate to produce industrial products which could create a new industry for Narrabri and replace imports for Australia. If the salt cannot be used, there are 11 licensed waste facilities within 150 kilometres of the project area which can safely accept the product for disposal, noting that it meets the general waste classification guidelines.

The project will also produce carbon dioxide in association with natural gas. The EIS assessed the gas would have an average carbon dioxide content of 10 per cent over the operating life of the project. 250 gas samples taken from the appraisal operations indicate that the carbon dioxide content of the gas is much lower, at less than 5 per cent on average. Compared to coal and some existing sources of natural gas in the east-coast gas market, this is a very low CO2 content, so Narrabri gas would be displacing higher emissions energy sources. Santos is also working with industrial users of carbon dioxide to potentially capture and utilise carbon dioxide for industrial purposes.

Now, turning to the department's assessment report, in summary, the department's assessment report concludes that the project is unlikely to result in any significant impacts on the local community or the environment, that it is in the public interest, critical for energy security and reliability in New South Wales, and would deliver significant economic benefits to New South Wales and the Narrabri region.

As part of thee department's assessment report, a Water Expert Panel was established with independent experts. Both the environmental and water concerns have been thoroughly investigated by Santos, independent experts engaged by us, the New South Wales Department of Planning, and independent experts engaged by the department. They have all come to the same findings: that this project can be safely developed. Santos is willing to accept the strict conditions proposed by the Department of Planning to ensure the project would not result in any significant impacts. In closing, Santos is confident that we have relied upon the best science to confirm that the Narrabri Gas Project can be developed safely and sustainably without harm to water resources, human health, or the environment.

COVID-19 has changed the way we all work and live. As we come out of the health crisis and the economy emerges from hibernation, it is more important than ever to back job-creating and investment-driving projects. Narrabri is an area which has been heavily impacted by drought over the last three years and, more recently, by the economic downturn as a result of the COVID-19 pandemic. Our rural and regional areas like Narrabri need new projects to facilitate new investments, new jobs, new business opportunities and economic recovery following drought and this public health crisis.

If approved, the Narrabri Gas Project could be at the forefront of the region's economic recovery, also, delivering more competitively priced gas supplies for industry and households across New South Wales. My commitment is that if the project is approved, Santos will implement the conditions proposed by the Department of Planning and the requirements of laws to guarantee the project is developed safely and sustainably, without harm to water resources, the environment, or human health. Thank you.

MR O'CONNOR: Thank you for that presentation. You've covered a wide range of issues there. We do have a number of questions, if you're able to stay online and take a couple of questions.

MR GALLAGHER: Yes.

MR O'CONNOR: I might cross to Professor Snow Barlow and ask him if he has any questions.

MR GALLAGHER: Sure.

PROF BARLOW: Can you hear me?

MR GALLAGHER: Yes, loud and clear, thank you.

PROF BARLOW: Mr Gallagher, it widely reported in the press that Santos had signed a memorandum of understanding with American Soda Ash as a potential market for the sodium bicarbonate that will be the final product of the salt extracted from the coal seams. What is the status of that memorandum of understanding?

MR GALLAGHER: Well, thank you, that's a good question. Look, the status is that we're now engaging in studies with, you know, the company you're referring to. They're a large US-based organisation, and this is their core business so, really, they're undertaking those studies now to ascertain the market opportunity and whether or not they can build a viable business on the basis of the salt that we would supply from the project.

Our base project, if you like, is based on treating the water that we extract from the coal seams to a very high standard, and we do that so that we can use around 80 per cent of that water again for irrigation purposes and other uses. The salt remaining

after the treatment process is, therefore, a natural product and, as we said earlier, that's around 4,000 to 8,000 tonnes per day at the peak of the project. A very small amount would - - -

PROF BARLOW: .....

MR GALLAGHER: - - - ..... projects, and this is really around them, then, seeing if they can use that salt. Certainly, the salt is the right type of salt – soda ash – for their business purposes. It's really whether there's enough or not for them to run a sustainable business. They're conducting those studies as we speak.

PROF BARLOW: Thank you.

MR O'CONNOR: I'll just hand over to Commissioner John Hann to see if he has questions.

MR HANN: Yes. Kevin, look, we heard earlier from the Department of Planning – David Kitto – in regards to the gas market in New South Wales, and he went to some length to explain very well the overall situation. But if we can go to Santos' assertion around the Narrabri Gas Project and, particularly, that it would put downward pressure on prices – however, with the potential for imports from Port Kembla, what risk do you think that poses in terms of project viability?

MR GALLAGHER: Look, I think very little impact on the project, to be quite frank. LNG prices, in my view, will always be higher through the cycle than domestic gas prices and, certainly, from a cost of supply perspective, from the Narrabri Gas Project.

The reason for that is that you can see supply and demand impacting the domestic market today. There was a very temporary impact today, but it was driven by very soft LNG prices, and what you can see happening all over the world right now is that excess LNG supply is being turned off. And here, in Australia, the impact of that is that some of that gas that was destined for LNG markets has been diverted into the domestic gas market, and we're seeing very soft domestic gas ..... prices today.

Now, that will fix itself, because, you know, the impact of turning off that LNG supply is that the LNG market will come back into balance the minute that the world economy starts recovering from the COVID-19 impacts, and you will see that gas taken away from our domestic market again. So, what we would propose is that supply and demand going into the domestic market – increasing supply into the domestic market, sorry, using Narrabri gas will have that same impact. It will drive downward prices, because we're brining low cost of supply gas to the market.

What people must always remember is that if it makes sense for us to export gas here from Australia, that's the same pricing market that any LNG coming through Australia is priced in. So, you know, it will be LNG export pricing arriving on the shores of Australia, then it has to be processed back to dry gas, and then transported.

I'm sure there's a place for that, from a continuity of supply perspective, but it will not be cheaper and cannot be lower cost gas than the Narrabri Gas Project and the gas coming from the Narrabri Gas Project.

You've seen the impact that we've had in Australia – sorry, in Queensland over the last four or five years, where we've taken down the cost of supply by reducing drilling costs by more than 84 per cent and production cost by more than 36 per cent. As we continue on that trajectory, we're driving the cost of supply down, and Narrabri will benefit from those cost ..... programs and those efficiency programs that we've been able to implement over the last four years or so to drive that cost of supply down further.

And, you know, as I said in my speech a little while ago, you know, there are a million homes in New South Wales, 33,000 businesses, and 300,000 jobs that rely on natural gas as a source of energy. The New South Wales Business Chamber estimated bakers in Sydney are paying $20,000 more per annum for their gas than an equivalent business in Queensland, and the ACCC found that in the southern states, you can pay $2 to $4 per gigajoule more for your gas, due to the transportation cost: paying the tolls and the tariffs to go through those pipelines to transport the gas over huge distances. So, it stands to reason that a gas supply closer to the market – to the users will reduce the cost of transportation. Given that that can be something like 20 to 40 per cent of the price of gas, you know, that's a very significant component of the cost of supplying.

And the demand is very significant. To date, we have signed MOUs with companies like Brickworks and others for gas from the Narrabri Gas Project. We've also had a head of agreement. We've agreed with Perdaman, who are looking at an ammonia fertiliser facility, potentially, in the Narrabri region, and we're in discussions with other potential buyers in New South Wales for the gas from the Narrabri Gas Project. So the demand is very strong for this gas.

MR HANN: Thank you very much Kevin

MR GALLAGHER: Thank you, John.

MR O'CONNOR: I've got a question that relates to the way the department have framed one of their conditions if this project were approved. As you're no doubt aware, the production of the gas and its sale is dependent upon those pipelines. There are two options as to where the pipelines might deliver and, therefore, until those pipelines are in place, no gas can be delivered to the domestic market, but you touched a moment ago on the potential for industries to be established in Narrabri that might rely on this gas. Would Santos, if the project were approved, would they be looking to provide that gas earlier than those pipelines might be finalised and in production for distribution to the wider network? I just wonder about the timing situation.

MR GALLAGHER: Well, look, I mean, that's a really good question, and the reality is that, you know, if the project gets approved to move forward, over the course of the next 18 to 24 months, we will then embark on our detailed appraisal program and get ourselves to a final investment decision and finalise the work programs, if you like, for the development of the project. In doing that, we would be looking to tie up those contracts with the buyers to underpin the development of the project. And, so, how that is phased really depends on the readiness of the business to accept the gas.

I'm quite excited about the opportunity to bring new business to the Narrabri region itself, and if Phase 1 of the project, as the gas ramps up, is to supply to local buyers, if they're ready to accept that gas then, you know, that would a great income from my perspective, but it really needs us to wait and see which buyers step up and are ready to accept the gas, and in what timeframe, because that will determine where the first gas goes. Obviously, if that – you know, being able to phase it by supplying local users first provides more time for the pipeline selection, approval, and construction processes.

MR O'CONNOR: Yes. It would certainly provide more flexibility. I understand. Richard, do you have any questions? No? Look, I think that might wrap up our questions. Thank you very much for your time this morning, and we'll no doubt be looking forward to hearing from all the other presentations today. Thank you.

MR GALLAGHER: Okay. Thank you very much. Thank you.

MR O'CONNOR: We'll move on to our next presenter.

MR BEASLEY: Yes. I think Councillor Cathy Redding is available now. She's the Narrabri Shire Mayor.

MR O'CONNOR: Ms Redding?

CR REDDING: Good morning, Commissioners. Firstly, I wish to acknowledge the Gomeroi People of the Kamilaroi Nation, and recognise their continuing connection to land, waters, and culture. We pay our respects to their elders, past, present, and emerging. Thank you, Commissioners, for giving us another opportunity to present on Council's views regarding a project of state significance.

The last two or three months, we have been incredibly busy in terms of getting through the many hundreds of pages of material on various projects in our shire. We've been working around the clock to ensure that we are across the key issues that matter to residents and ratepayers within the Narrabri Shire. We understand that the Commissioners and their staff will have even more work to do over the coming months to meet the deadline set by the New South Wales government. I again place on the record my support for the Commission and its independent assessment processes. On this and other projects in our shire, we will accept the final decision of the Commission.

There will, again, throughout this hearing, be many passionate words from a variety of stakeholders on this project. Indeed, the attention it has received from people who live outside our region is nothing short of amazing. It is great to see that so many people take an interest in what is happening in our neck of the woods. In fact, I encourage all external stakeholders who have made a submission this project either for or against to come and visit Narrabri Shire. It is a great place for families to visit, with lots to see and do. You will see for yourself that we live and work in a beautiful part of New South Wales, where mining and agriculture can coexist.

Not everyone will agree on the subject of resource extraction, and everyone is entitled to their own opinion. We live in a democratic society, and everyone can and should have their say. That is what I believe this process is all about, and I commend the Commission for making the time and effort to come to the Narrabri Shire and see with their own eyes what is happening on the ground in our community.

It may be frustrating for some people both for and against this project that this project has taken so long, but we do need to get it right, and I believe that the proponent has been reasonable in their discussions to date. Our interactions have been cordial and professional. Where there have been areas of concern, there has been no hesitation from Council to express this in writing, and this is already on the public record for anyone to view and read.

Transparency and accountability are both key parts of any development assessment process, and for the community to have faith in that outcome, what you will see is that this proponent has made very attempt to carefully address any issues and concerns that we may have had. They have tried to work together with us in a constructive manner, and they have tried to demonstrate good faith by making concessions and accommodating what we believe are mutually beneficial initiatives that are in the overall interests of our community. They have shown respect for us, even when we have disagreed with them. They have maintained a visible presence in our community, and we expect that they will continue to do so.

In my experience as a leader, there will be incidents where some stakeholder groups will not necessarily get what they want. Indeed, there are times in council meetings where not every councillor necessarily gets what they want, but what I know is that as a mayor and councillor, you must ensure that the final outcome is always in the overall best interests of the community. Over the last month or so, in front of this commission, we have advocated a position of favour for one project, but expressed opposition to another. We, as a council, will not be deterred from our merit-based assessment, not matter how loud the outside noises are from either side of the debate.

As the Mayor of Narrabri Shire Council, it is not my job to speak for a selected group of interests, and certainly not my job to advocate one ideological position over another; it is my job to listen to all sides of the argument, and it is also my job to learn about the subject matter in front of me and objectively assess the advice that I am given. That is what I have done on behalf of Narrabri Shire Council in front of this Commission in recent weeks, and what I am doing here again today.

As you will see from our publicly available council meeting minutes, there have been points of difference amongst our governing body, but one point of complete and unanimous agreement is the economic benefits that will be delivered if this project is approved. We have done our research, sought advice, and had the debate. This is what a normal and healthy part of any functioning democratic community does, like ours.

At our November 2019 meeting, my colleague, Councillor Staines, the Deputy Mayor and a passionate advocate for the Narrabri Shire, moved a motion, and this motion was that council support the Narrabri Gas Project. The motion was discussed at great length and, ultimately, supported. It is now the agreed position of Narrabri Shire Council: we support the Narrabri Gas Project, Commissioners.

We have raised our issues with this project: we want to be sure our groundwater resources are safe from harm, we want to be sure that our farmers are treated with respect and compensated where it is fair and reasonable, we want the recommendation from the Chief Scientist's report on financial assurances to be enacted, we want the Department of Planning to say that the compensation and insurance funds are adequate and explain to us in plain English why they come to this conclusion, and we want continuous monitoring of gas wells in place until the science on abandoned wells is settled.

With the right safeguards in place and with the proponent's commitment to fund further research in the area of abandoned gas wells, I believe this project should be approved. I urge the Commission, once these issues are satisfied, to approve this project.

Our support for the project is largely premised on social and economic benefits. If I can quote Federal Minister Angus Taylor, referring to the gas market in 2018:

> *Conditions will become even tighter if more gas supplies are not delivered and developed in the next decade.*

Over the longer term, greater energy security, self-sufficiency and supply chain certainty is likely to be in Australia's national interest, particularly in a post-COVID-19 world. If I can quote Federal Minister Karen Andrews in a speech to the National Press Club in May:

> *It is clear we can't rely on foreign supply chains for the essential items we need in this crisis.*

Narrabri Shire is ready to play its part in Australia's economic recovery and energy security. We want to make things here, not overseas. This project, in conjunction with Inland Rail and our proposed inland port, has the potential to deliver jobs and opportunities well into the future for our people. The multiplier effect is likely to be very significant. We want this project to work alongside other industries in our shire, particularly agriculture, and we believe that it can.

Being a mayor is not always easy. You have to make tough decisions in conjunction with your fellow councillors, and we agreed in November 2019 to support this project, despite some opposition and concerns that were voiced earlier this year, but that was the decision we, as a collective, believed was in the overall interests of our community. It is my job to advocate on behalf of Council in favour of the agreed position, just like it was my job recently to present the agreed counter position to the Commission on another project.

In both cases, I am proud to say that our councillors, as a collective, have not taken the easy way out. It would be nice to be able to make everyone happy, where everyone is in agreement and there are no differences, but that is not the real world and we have to manage the situation with the facts that are in front of us. We have made the tough decisions, but we believe we have taken the right position in the interests of our community.

I am hopeful that the Commission will make the right decision that will protect the best interests of the Narrabri community, provide safeguards for future generations, and deliver a much-needed economic benefit to our community. I urge you again, Commissioners, to approve this project and I thank you once again for listening to my remarks.

MR O'CONNOR: Thank you, Mayor. That is much appreciated, and we certainly did appreciate the opportunity to meet with you and your fellow councillor and council officers when we were in Narrabri recently. I might ask Commissioner Hann if he has any questions.

MR HANN: Thank you, Mayor. Look, I just wanted to – you mentioned earlier, in regard to insurances – we would appreciate your view and the council's view just in regard to the insurances, the security deposits, and bonds. These are really designed to protect the community, amongst other things but, particularly, would you expect those to be managed?

CR REDDING: As you would remember, we recently raised this when we met with the Commission in Narrabri. Since then, we have written to the department and I would like to take that on notice until we do have a response back from the department and I can discuss it with my staff.

MR HANN: Thank you very much. We appreciate that. We look forward to hearing from you.

CR REDDING: Absolutely. We can provide a written response back to the Commission on that.

MR HANN: Thank you. We would appreciate it, Mayor.

MR O'CONNOR: Following our meeting in Narrabri, we did pose a couple of questions which you took on notice, and we've since – thank you – received a

response. One of those responses raised a concern about one of the suggested conditions in the recommendations from the Department of Planning in relation to compensatory water.

The department's usual approach where there is an issue about water not being able to be secured as it has in the past and there's an implication that it might be as a result of this project, there's a condition that sets up a mediation process to get it investigated and get a result, however, your submission pointed out that this can take some time and you would like to see the benefit of the doubt given to the local landholder so that they are provided with compensatory water while that whole review process of what the cause and what the correct decision going forward should be. Do you want to elaborate on that? Because that is quite different from the way the department normally structures its conditions.

CR REDDING: Yes. We have requested that in our letter to the department, Commissioners, and we have expressed our concerns, as you pointed out, to the department, and we are waiting on their response.

MR O'CONNOR: Okay. So you will let us know once you get that response?

CR REDDING: Absolutely. We will provide a written response back tot eh Commission on what we receive from the department.

MR O'CONNOR: Thank you. I don't think there are – sorry.

MR BEASLEY: Mayor, you said in your oral submission just then that the economic benefits and the social benefits of the project were very important to the council's support of it. I'm just wondering if you could tell us, as Mayor, what do you consider – and if you can tell us, what does the Council as a whole consider – to be the principal social benefits of the project if it was approved?

CR REDDING: The principal social benefits of the project are – they have been a very good company to work with. They've been very obliging, they've integrated themselves within our community, they have – you know, made sure that any concerns that we have as a council are addressed to our satisfaction, and we have had concerns, and we have voiced them to them.

The other social benefits are the gas to our inland port. As I spoke of earlier, we are developing a very large inland port which will focus on manufacturing, and with the manufacturing will come jobs, will come growth, and it is what will sustain our community well into the future. It will give our youth the opportunity to stay, to develop their families and their careers within the Narrabri Shire.

MR BEASLEY: So retention of your population is one of the social benefits that you see from the project?

CR REDDING: Absolutely.

MR BEASLEY: All right. Thank you.

CR REDDING: Retention and growth.

MR BEASLEY: Yes. Okay. Thank you.

MR O'CONNOR: Just, finally, Professor Barlow, do you have any questions for the Mayor?

PROF BARLOW: Thank you, Mr O'Connor. No, I don't have any further questions for the Mayor.

MR O'CONNOR: Okay. Well, thank you for your time, Mayor. We much appreciate the responses to the questions you have provided and look forward to those additional responses in time.

CR REDDING: Thank you very much, Commissioners, for once again listening to our views on the states of ..... projects.

MR O'CONNOR: Thank you. We will move on to our next speaker now. I think the next speaker is Councillor John MacKenzie from the Newcastle City Council. Mr MacKenzie, are you there?

CR MacKENZIE: Yes, I am. Good afternoon, Chair. Good afternoon, Commissioners.

MR O'CONNOR: Hi. Please go ahead.

CR MacKENZIE: Thank you. And thank you, again, for the opportunity to speak on this project. My name is John MacKenzie, I'm a councillor for the City of Newcastle, and I'm also a member of the Hunter Regional Planning Panel. Suffice to say, like the preceding speaking, as a member of a consent authority under the EP&A Act, I'm very aware of the task in front of you this week and beyond in relation to this project, so I will try and be mercifully concise with that in mind.

I can appreciate that Newcastle is quite a distance from the project under consideration. I recognise, as well, that a part of my responsibility as an elected councillor is to represent the collective interest of residents, and there is literally so much opposition to this project, right across the State of New South Wales, that I felt that I would be derelict in my responsibility not to speak on this matter and to reiterate that level of opposition from the community.

As we heard this morning from the DPIE presentation, this project has 98 per cent opposition on the basis of submissions that have been made so far, including two out of every three people in the surrounding area of the project. Importantly, and I think this is a critical matter for consideration in the determination of this project, it lacks anyone that would constitute a social license.

That opposition and that lack of social license is reflected in the number – the unprecedented number, actually, of speakers that are attending this hearing, and also the array of issues and concerns that will be raised, the least of which will be the impacts of fragmentation and industrialisation of what is a globally significant ecological refuge that provides the conditions for the survival of 25 nationally listed and 48 state listed threatened species, the unmitigable risks to the integrity of the groundwater supply in the Great Artesian Basin and, not least of which, the ..... greenhouse gas emissions from this project, which are of global significance.

On each of those topics, you will hear more from experts who are more learned than I am in those areas, but I think the point I want to make upfront is that all of those issues go directly to questions of the suitability of the site, the environmental impacts on the natural environment, and the public benefit tests. Obviously, those three things in particular, as you are well aware, are matters for consideration going forward.

I want to focus my time with you this afternoon on the issue of waste management, specifically the management of the salt produced through the treatment of the produced water. We're aware this project shall generate 115 tonnes of contaminated salt per day during the peak periods of production, and quite a staggering 430,000 tonnes of salt over the life of this project. Rightfully, under the environmental assessment ..... the proponent was required to produce a waste management strategy specifically in relation to the EPAs requirements for the EIS to document:

> *Handling, transport, storage, processing and dispersal of the contaminated salt waste, among other waste streams that will be generated by the project.*

In the EIS, in the RtS, the proponent has failed to demonstrate a viable waste strategy for that contaminated salt. The EPA has now multiple times requested details regarding the salt disposal, including their response to the RtS. Given that the proponent has repeatedly failed to provide this information and has had, now, almost 10 years to develop a waste management strategy, I do not believe that we can have any confidence going forward that this failure to provide a viable waste management strategy can be addressed through the recommended conditions. To quote directly from the EIS – and I'll alert you to chapter 28, page 20, where the salt management strategy is articulated:

> *The proponent has held discussions with a number of major waste disposal organisations, and they have indicated that they have the capacity and capability to dispose of the salt waste at a number of their appropriately licensed facilities.*

In short, they've had some conversations with a number undisclosed of waste disposal organisations who have indicated they reckon that they can take on the salt waste at some undisclosed number of licensed facilities. We have no idea at this point – the Commissioners have no idea – who they spoke to. We have no undertaking as to who provided these assurances of the capacity and capability to

dispose of that waste. We don't know if it's one landfill, if it's multiple landfills, if there is some sort of sharing arrangement, if it's an expansion of an existing landfill site, or an entirely new operation. We don't know whether it's a private provider or a local authority. We don't know what EPLs those sites are operating under and whether they will have to be varied as a result of taking this quantity of waste, and we don't know about the capacity of the landfill.

All we know is there is 11 landfills in the area, but we don't know about their capacity in terms of volume, and we don't know about how they are able to ensure safe processing of that salt waste. In short, we have no idea where 430,000 tonnes of salt will be going on approval of this project.

We certainly know that it won't to be going to the Narrabri Landfill, which is licensed by the EPA to receive 12,000 tonnes in total per annum, and we know that this project will have an average annual salt waste of 17,000 tonnes per year, and considerably more than that during the peak production process. The submission from Narrabri Council, notwithstanding the comments earlier made by the Mayor, is that they have neither the capacity nor the processing capability at their landfill site to deal with this volume.

The EPAs letter in response to the RtS even calls into question the availability of landfills at a regional scale that are capable of taking on this level of salt – talking about the Northern Inland Regional Waste Strategy – and even suggests that a state-wide survey of landfills may be required, particularly if there is some contingency factored in.

As someone who is engaged in the process of issuing development consents, I personally would not approve the demolition of a carport if I didn't know how the construction waste going to be ..... Here, we're not talking about some sticks and some Colorbond sheeting – we're talking about more than 400,000 tonnes of contaminated salt with the potential for severe, irreversible environmental impact and a risk that needs to be managed in perpetuity.

If it is to be disposed of in existing landfill sites, we should at least know what facilities and what quantities over what time periods, so that the capacity and the capability of those landfills and the EPLs under which they operate can be critically evaluated. Dumping salt into landfills creates risks associated with floods and associated with leaching into groundwater unless the proper controls are in place.

Those controls can be achieved through things like site selection and the use of impervious linings. And that needs to be done in a way that will require, as I said, permanent management well beyond the life of this project. Some of the submissions have raised the concern that the salt produce is only suitable for monocell landfill design. That is, landfill design which is capable of waste types that need to be kept separate from other wastes in order to avoid chemical reactions and physical interactions, either directly or with other waste, or leachate generally associated with the contact of water. We don't have any information about whether

there are monocell, or intended to be monocell landfill designs associated with the waste generated by this project.

But if it's not using an existing landfill and involves the construction of a new landfill or the expansion of an existing site, then the development consent process for that expansion or for that new landfill should, at least, be concurrent with this application. Landfill, as you'd be aware, approvals relating to landfill site are complex. They're subject to rigorous environmental conditions, and any given application has no guarantee of approval. There's much evidence to demonstrate that the availability of landfill in New South Wales is declining. But in the absence of this information we cannot have any confidence that this enormous quantity of toxic and contaminated salt will be appropriately and safely disposed of.

So to put that into context as well, the City of Newcastle runs one of the largest waste management facilities in the state at Summerhill Waste Management Facility. And we recently installed a new – or a – a new landfill cell. It's taken more than three years at a cost of $20 million, and that cell had to be sealed with thick specially engineered plastic membrane to stop leachate escaping, with settling bases, drainage berms to manage storm water. In short, this is not a trivial matter, the establishment of a new landfill.

In the recommended conditions – and I refer specifically to condition b-65 – it requires a salt disposal study to be completed prior to the commencement of phase 2. As far as I'm concerned, that is well too late. The horse has bolted by that stage. And this is reflected in the comments – the response to the RTS from the EPA who called for a detailed presentation of the management of the salt waste prior to determination. That's potentially supportable, but the fact that this information has not been provided 10 years into the process after multiple requests indicates that the proponent does not have an adequate solution that they can put forward for this – for the purposes of this assessment. They don't have a solution that could be supported. And they risk putting refusal of this project at risk by providing that information. In my opinion, the ongoing failure of the proponent to provide any detailed information regarding the management of the salt generated by this project prior to the determination would be sufficient grounds for refusal. Thank you, Commissioners.

MR BEASLEY: Can I just quickly ask you, you went to conditions b-65 and there's also b-66 of the proposed conditions which relate to a – a undertaking to produce salt beneficial reuse and disposal study to the satisfaction of the planning secretary and preparing a waste management plan. They're both have to be done prior to the commencement of phase 2; why do you say the horse will have bolted?

CR MacKENZIE: They should be done prior to the commencement – that's prior to approval. The – we have heard, even earlier today, these sort of far-fetched notions that it's going to be used for the production of baking soda or plastics or glass, that information should be made available for the purposes of determining – of determination. Not at phase 2 when there's potential that we will not have an

adequate study and already the process will have been initiated to the point where it's too late to wind back that approval process for the development.

MR BEASLEY: Thank – thanks, very much.

MR O'CONNOR: Thank you, Councillor, thanks for your time and your presentation.

CR MacKENZIE: Thank you very much, Commissioners.

MR O'CONNOR: We move on to our next speaker.

MR BEASLEY: I think the next speaker is Councillor Stephen Lawrence who's the Deputy Mayor of Dubbo Council. Are you there - - -

CR LAWRENCE: Yes, good afternoon.

MR BEASLEY: All right, Councillor Lawrence, please go ahead.

CR LAWRENCE: Thank you for the opportunity to make a brief submission on behalf of the community of the Dubbo Region. Can I start by acknowledging the traditional owners of the land across the region and paying respect to their elders, past and present. I won't be making substantial environmental or economic arguments to you today. Others with far more expertise than me are on the speakers list and I only have a short period of time. Our submission will focus, rather, on aspects of the public interest and the social impact of the proposal. Though, even to a lay person the careful language in the Government's report seems obvious. And while (xi) of the report, I quote, it reads:

> *Despite some uncertainties, mostly due to a lack of detailed information about the deeper geological strata as a result of its limited development potential to date, these experts agree the geology and hydrogeology of the area is generally well known at a regional scale.*

And then over the page on (xii):

> *Third, there is no evidence of any geological structure that could create a pathway between the shallower aquifers and the coal seams, so the risk of regional scale water impacts is generally low, even though some localised impacts could still occur due to minor faults and structures.*

As a councillor, and as a lawyer, I know the difference between there being supposedly "no evidence" of something and something to the contrary being established to a reasonable degree of certainty. Dubbo Regional Council is far from convinced that this project is not a threat to groundwater resources and therefore other agricultural and human activities in North Western New South Wales. We ask as, as I'm sure you will, that you fairly and carefully consider the evidence of the

experts who will give evidence to you, who are sceptical of a Government's approval project. Yes, there is big money tied up in this project, but you can't put a value on the adverse outcomes for the community if the big risks are realised. And we are the people in Western New South Wales who will most directly deal with those, not the forces and interests behind the proposal.

There is currently, in my view, no real process for strong local opposition to significant projects leading to a local veto. That's perhaps understandable as a general proposition, but as an absolute proposition it erodes public confidence in democratic processes. We ask that you take into account local and regional opposition as a feature of the public interest. As a council and a community we have a number of interests in the Dubbo Region in the project that you are considering. Our community relies to a significant extent on the economic and human activity in the region where the project is planned. Its people are a key part of our economic base which is made up from communities across Western and North Western New South Wales. Any threat to agriculture and human communities in the Pilliga Region and its surrounding towns is a threat to the Dubbo Region.

However we, in our view, are also at risk of being industrialised, of having our region turned into a gasfield or a series of them if this project is approved. We are told that if the Pilliga – that if the Pilliga project is approved and takes place, that CSG extraction becomes more economically viable in adjacent areas such as ours. There have been PELs issued in the Dubbo Region. We ask that you take a broad view and squarely grapple with what you approving this project means for the growth of the CSG extraction industry across North Western New South Wales. The Government's own report relies on an absence of cumulative risk such as been present in Queensland but, I ask how real is that equation?

Relevant to the public interest, in the view of Dubbo Regional Council, is also social stability and cohesiveness. Despite the Baird government introducing new anti-protest laws in recent years past designed to give the State Government the power to push through projects like this, in our view it is the case that the community here and from elsewhere will prevent the Pilliga being turned into a gasfield regardless of your decision, Commissioners. Unlike Tasmania in the 1980s the protest movement is not a nascent one, it is already in full swing, highly organised. It is farmers, it is town folks, it is Greenies, it is Aboriginal landowners, and many, many more. It is widely expected that the IPC will approve this project, that you will ultimately be convinced by the economic arguments, that you might well act on the insurances of .....

MR O'CONNOR: ..... can you please wrap up now? We – we've come to the end of your allocated time.

CR LAWRENCE: Yes. We ask that you take a broader view. That you squarely grapple with what you approach here, approving this project, means for social stability and cohesiveness in respect of a project and an industry that has lost its social licence to operate in our community.

MR BEASLEY: Can I just ask you a very quick question, Councillor Lawrence? When – when you were talking about the prospect of turning North West New South Wales into a gasfield, are you proposing to the Commission that it should not only consider cumulative impacts to the extent that there may be any but, also the issue of whether approval of this project would open the floodgates?

CR LAWRENCE: Yes, and of course it's a matter for the Commission to interpret its statutory mandate - - -

MR BEASLEY: Yes.

CR LAWRENCE: - - - but we are very concerned. And we have been repeatedly advised that approval of this project will – in terms of infrastructure expenditure and various other factors – mean that CSG exploitation in our region becomes viable. And that is very much, of course, our immediate and personal concern.

MR BEASLEY: All right. And when you said you had a concern about the big risks being realised, do we – do I take it that what you were referring to was risks in relation to the groundwater issues?

CR LAWRENCE: Yes.

MR BEASLEY: Correct? Yes, that – thank you.

CR LAWRENCE: The extraction – yes, of CSG - - -

MR BEASLEY: Yes.

CR LAWRENCE: - - - from ..... the groundwater aquifers has that capacity - - -

MR BEASLEY: All right.

CR LAWRENCE: - - - to collapse them - - -

MR BEASLEY: Yes.

CR LAWRENCE: - - - and have all sorts of impacts on the geological structure and the availability of groundwater for - - -

MR BEASLEY: Yes, yes.

CR LAWRENCE: - - - agriculture which, of course, is one of our main - - -

MR BEASLEY: Sure.

CR LAWRENCE: - - - industries.

MR BEASLEY: Understood. Thank you very much.

CR LAWRENCE: Certainly. Thank you, Commissioners.

MR O'CONNOR: Thank you, Councillor, for your time. We move on to our next speaker.

MR BEASLEY: The next speaker, as I understand it, is Ms Georgina Woods from Lock the Gate Alliance. Ms Woods, are you there?

MS WOODS: I am, can you hear me?

MR BEASLEY: We can - - -

MR O'CONNOR: Yes, yes.

MR BEASLEY: - - - please go ahead.

MS WOODS: Thanks very much. I want to begin by acknowledging that I'm speaking today on Gomeroi land, the Pilliga is Gomeroi country and Lock the Gate pays our respects to elders past and present and to all Gomeroi people watching the hearing today.

Lock the Gate Alliance is a network of hundreds of community groups and one – over 100,000 individuals across Australia. We're a member of the North West Alliance, a network of community groups here in North West New South Wales from many of whose members you will hear over the coming six days in their allotted five and 10-minute slots.

This project is the most controversial in the history of the Environmental Planning and Assessment Act. Of the almost 23,000 submissions to the Environmental Impact Statement, 98 per cent were objections including a majority of submissions from the local area. In addition, I have with me here today 5000 signatures on a petition against the project which we will submit to the Commission. The department is condescending about these objections, implying that people don't understand the issues. But it is the Department of Planning that has failed to understand the unmistakable public rejection of this industry in the local area, in the region, and in New South Wales more broadly.

The Commission has urged us to focus our presentations on the department's assessment report. But that document presents inaccuracies, omissions and biases about issues of great importance to people in our network. In the absence of being afforded time to enumerate them all we're relying on the Commission to read our submissions and draw its own conclusions.

Much of this gasfield proposal is situated on public land. The assessment report cites the Brigalow Belt Nandewar Community Conservation Area Act to argue that there

is strategic support for a gasfield in this part of the Pilliga because it's in Zone 4 where such use is allowed. In a typical act of omission, however, the assessment report does not refer to the Brigalow and Nandewar Community Conservation Area Agreement under which the Pilliga is managed. That agreement is created under the Act to provide a coordinated land management framework. The first of its high-level strategic aims is that all zones are to be managed for social, economic and environmental sustainability based on the principle of intergenerational equity. There are other relevant provisions of that agreement that the department has failed to mention, addressing ecologically sustainable development, connection to country, Aboriginal access to land for cultural use, and biodiversity management that is responsive to climate change. None of this context is provided by the department, nor does the assessment report engage at all with the principles of ecologically sustainable development.

The groundwater impact assessment for this project is based on a groundwater model of Class 1 confidence described by DPIE Water as having "a high level of inaccuracy". It is not able to accurately predict how water resources relied upon people by – in this region, will react to coal seam gas development, particularly at a local scale. The DPIE Water division told the department:

> *The model could not provide output at a scale and accuracy that would allow the project's impacts to be assessed against the minimal impact considerations of the aquifer interference policy.*

Despite this, the department's assessment report makes the claim that the project complies with those minimal impact considerations. To clarify this point, we would draw the panel's attention to the assessment reports written by the department for Santos's most recent Bibblewindi and Dewhurst coal seam gas pilot expansion projects, approved in the project area in 2014. The then Office of Water told the department at that time that:

> *The use of the Class 1 model would only be acceptable where activities are demonstrated to be particularly low risk.*

A requirement to undertake work to upgrade Santos's model to Class 2 or 3 confidence level was written into the conditions of consent for those pilots. The assessment report for those pilots both stated that:

> *Such a model would not be suitable for predicting groundwater impacts for a larger coal seam gas production project.*

What has changed now, six years later? Nothing has changed. But Santos has still not upgraded its model and the IPC is now being asked to approve the gasfield anyway. It's implicit in the conditions of consent proposed by the department that development of 25 more appraisal wells may allow Santos to gather sufficient further data to calibrate the groundwater model so it's able to accurately predict impacts. It's not certain. The proponent has already drilled more than 50 wells in the project

area and has been preparing this assessment for several years but existing data has not been used to inform it, and baseline data has not been collected that would enable an assessment to actually predict the impact of this gasfield on water users in the Gunnedah-Oxley Basin immediately east of the Pilliga, or on Namoi Alluvium and GAB water users immediately north and west.

There's been a similar lack of attention to groundwater chemistry. Santos told the Water Expert Panel that in all recorded cases of methane in groundwater outside the coal measures, concentrations are below 10 parts per million. This statement is repeated by the department in its assessment report, but it is categorically not true. It's not even close to true. Why is Santos making this false claim? Because the presence of methane in overline aquifers can be a signal there is more connection between the coal seams and those aquifers than Santos's model allows for.

We'd like the IPC to consider the unusual management response triggers proposed by DPIE Water to manage the risk associated with low confidence in the modelled impacts. DPIE Water's advice for several groundwater formations states that if reassessment is triggered and reveals impacts greater than the level 1 impact considerations of the Aquifer Interference Policy then the response action should be:

> *The proponent consult with the Department of Planning and Environment as to the requirement to reapply for project approval.*

The IPC needs to clarify the practical implementation of this advice, since reapplying for project approval is not a mechanism provided for in the Act. These triggers and response advice reveals the seriousness of the uncertainty about the scale of groundwater impacts that will occur as a result of this gasfield. The fact that Santos has not agreed to these triggers, and the department has not included in them – in the draft consent conditions, leaves this enormous uncertainty on the shoulders of existing water users in the region.

This unacceptable risk has partly been created by the New South Wales Government's stalled implementation of the Chief Scientist's recommendations on coal seam gas. The Chief Scientist statement, commonly repeated, that the risks associated with coal seam gas development can be appropriately managed, came with the caveat:

> *Provided drilling occurs in areas where geology and hydrogeology can be characterised adequately.*

The Water Expert Panel clearly told the Department of Planning it was not confident that the information provided in the EIS meets the threshold of being adequately characterised. In other words, we shouldn't even be here today. If the Chief Scientist's recommendations had been implemented, we would not be here. An inquiry in the New South Wales Legislative Council in February unanimously found that only two of the 16 recommendations from the Chief Scientist's review had been fully implemented, and half of them haven't been implemented at all. That inquiry

referred to the industry as "uninsurable" and the EPAs finding that the insurance industry is not prepared to provide environmental insurance to coal seam gas confirms that view.

Narrabri Council has repeatedly asked Santos be – to be required to hold pollution liability insurance. That request has – was not even acknowledged by the department in the assessment report. Nor does the report mention the EPAs policy on safeguarding future environmental liabilities from coal seam gas. I have been informed by a risk expert that the acknowledged one in 70 chance this gasfield will cause a bushfire makes it uninsurable, and that this probability is actually much higher with climate change loading the dice.

We'll provide further details on this and many other aspects of the gasfield that we don't have time to address this morning. But I just want to mention biodiversity. Because no comprehensive biodiversity surveys were conducted to inform this assessment. No biodiversity values are granted exclusions in the field development protocol. No biodiversity offsets, at all, are proposed for the nearly 1000 hectares of clearing proposed to be undertaken across a large area of forest for this gasfield, creating indirect impacts on biodiversity across tens of thousands of hectares of a nationally significant forest which harbours dozens of threatened plant and animal species.

The department makes no mention in its assessment report of the Biodiversity Conservation Division's finding that the offset strategy doesn't conform to the relevant guidelines. To illustrate this, a property search conducted for Santos's biodiversity offset strategy found a total of 11 suitable potential offset properties in the entire Brigalow Belt South IBRA Bioregion. Together, these properties harbour not much more than the six and a half thousand hectares of native vegetation, various ecological communities, estimated to be required to offset the impacts of clearing for the gasfield in the Pilliga. In other words, to meet its offset obligations Santos may need to buy every eligible private property in the bioregion. Extraordinarily, the department leaves this question entirely unresolved. They cite the – instead, the total area of native vegetation on private land in the bioregion, presumably in order to disguise the impossibility of this offset proposition. It is impossible, essentially, because the Pilliga is unique - - -

MR O'CONNOR: Georgina - - -

MS WOODS: It harbours unique biodiversity - - -

MR O'CONNOR: - - - can you please wrap up your presentation?

MS WOODS: Yes, I'm just concluding. It's uniquely important to Gomeroi people, it's a place of great hydrological, ecological and spiritual importance.

MR O'CONNOR: Yes.

MS WOODS: It's dark skies, it's groundwater recharge, it's sandy creeks, they're used and loved by Gomeroi people and the community more broadly. Please don't let them industrialise it.

MR BEASLEY: Can I just ask you a very quick question? Perhaps to – you said – one of your submissions was that the department's assessment report, I think your words were, "Did not engage with ecologically sustainable development"; you remember saying that?

MS WOODS: Yes.

MR BEASLEY: I just want to give you the chance to respond to this: Mr Kiddo from the department was asked that very question and his response, in summary, was, "Look, the whole report deals with ESD in the sense that it discusses an issue, for example, like groundwater, sets out what the evidence is about groundwater, conducts an analysis including grading risks, and then – which in large part or all said to be based on the evidence, low to very low risks – and then suggest what conditions might be appropriate to manage any residual risk. So in that sense, the entire report engages with ESD"; do you have a response to that?

MS WOODS: Well, I guess it's pretty – I found it pretty unconvincing, to be honest. I mean, the groundwater impacts of this project on the overline aquifers are going to be peaking, you know, a couple of centuries into the future, so intergenerational equity very much comes into the picture when we're talking about the impacts of this project disproportionately affecting future generations and the benefits of it really only lasting, you know, for the next 20 years. So I think if the department had engaged in the principles of ecologically sustainable development they probably would have mentioned them by name in their assessment report.

Certainly, the precautionary principle, you know, that comes to mind when we think about the failure of the department and Santos to adequately characterise and find evidence to support their claims that the gasfield won't have significant environmental impacts when there is, you know, a good reason to think that they – it may well do.

MR BEASLEY: All right. And just finally, in terms of your submission for Lock the Gate, you mentioned how that the Chief Scientist, when she did her review in 2014 recommended drilling in areas where the geology and the hydrogeology are well known. It – do – does the – should the Commissioners take that as a submission from Lock the Gate that you don't think that the geological characteristics and the hydrogeological characteristics of the area where the Narrabri Gas Project would be, are well known?

MS WOODS: Well, that certainly seems to be what the Water Expert Panel is saying, and I think it's what the Department of Industry, Environment, Planning and – sorry, the Water Division have been saying.

MR BEASLEY: All right.

MS WOODS: And, I mean, we're aware of seismic data that was collected by Santos's previous partner, Eastern Star Gas, which does show evidence of faulting in the area which wasn't used to inform Santos's model, so I – you know, we're not – we don't think that the hydrogeology has been adequately characterised, but it does also appear to us that what little is known hasn't necessarily informed the assessment.

MR BEASLEY: All right. Thank you very much.

MR O'CONNOR: Georgina, I just had one question, just want to make sure I understood one of the points you were making. You referred to the unusual management response to initiate a review and basically asking for a re-applying for project approval once again, but you said that wasn't included in the final conditions; were you referring to some earlier draft conditions?

MS WOODS: No, I'm just saying that those specific recommendations of DPIE Water aren't in the conditions and so - - -

MR O'CONNOR: Right.

MS WOODS: - - - I guess our big concern of this is that these – this advice has been made and once a development consent is granted it's really a point of no return. I mean, it can't just be easily revoked, it'll all be dealt with by management plans and – and, you know, future discussions between Santos and the department. But it seems to us from reading that DPIE Water advice on triggers, that there really are threshold issues for a consent decision that need to be, kind of, front-end loaded into the IPC, it's consideration. If they're saying impacts greater than level 1 are minimal impact considerations should be – should trigger re-applying for project approval, then that seems to us to indicate that such impacts would be threshold issues for the granting of consent in the first place. And since there's no mechanism to revoke consent, or reconsider consent once it's granted, we strongly argue that that sort of information and that degree of assessment and confidence needed to be in front of the Commission to inform its decision.

MR O'CONNOR: Right. I understand that point now, thank you for clarifying it. And thank you for your time this afternoon. That brings us to - - -

MS WOODS: Thanks so much.

MR O'CONNOR: - - - the end of this session. We will resume at 1.25 pm. Thank you.

RECORDING SUSPENDED **[12.53 pm]**

RECORDING RESUMED **[1.30 pm]**

MR O'CONNOR: Apologies that we're a little late resuming. Our next speaker, please.

MR BEASLEY: Our next speaker is Ms Wendy Spencer from the Dharriwaa Elders Group. Ms Spencer, are you there? Sorry. Sorry, Ms Spencer. We just missed the first couple of words you said. If you start again, please.

MS SPENCER: Hello. I acknowledge Gamilaroi land, which these hearings are about, and pay my respects to Gamilaroi elders past and present, and the elders and other aboriginal people taking part in this hearing today. Would you like me to continue?

MR BEASLEY: Yes, please.

MS SPENCER: Thank you. I work for a Walgett non-profit community association of aboriginal elders, 20 years standing, and this statement has been authorised by the elders, Clem Dodd, who is the speaker, and the secretary, Virginia Robinson, for the organisation. Walgett's Dharriwaa Elders Group's message to you today is that the Independent Planning Commission must reject the dangerous proposal to expand coal seam gas mining in the Pilliga Forest and shut down existing gas wells and rehabilitate them. ..... has not healed, and learned how fines have been issued for polluting aquifers. ..... Santos in a Walgett meeting where the waste brine would go, and have received no answer.

We've read how coal seam gas fracking wastewater contains dangerous endocrine-disrupting and other extremely concerning chemicals, and so fear for the health of our community that already suffers a high burden of chronic disease. The methane emissions from the wells and the increased carbon emissions from burning the gas will worsen the world's climate emergency. During these hearings, you will be provided with the overwhelming evidence that coal seam gas mining is risking our health and environment, the Namoi River and the groundwater we rely on in Walgett.

The elders group asks that you listen to the facts being presented to you by many very serious ordinary people who have been dedicating their lives to fight this threat. You must not ignore them or the risks they are alarmed about. Their dedication and persistence has been ringing alarm bells for a long time now, so it's very hard to understand why the New South Wales Government has proceeded this far with the project. Walgett Elders pay their respects to the Gamilaroi Gomeroi brothers and sisters of the Walgett Elders who have been involved in the struggle, some who have passed away in the process, and pay respects to the North West Alliance grassroots groups organised during this process, and the hard-working people of Lock the Gate, the Wilderness Society, the Great Artesian Basin Protection Group, the Knitting Nannas, to name a few.

I take this opportunity to send love and regards to Peter Thompson and Meg Lethard, who might be listening. We thank you all for your dedication in this struggle for a better New South Wales. Dharriwaa Elders Group doesn't believe that coal seam gas mining will bring significant jobs to aboriginal people in the region. Those who lie to communities with high unemployment like ours about promised jobs enrage us. ..... the health of Gamilaroi country from multiple gas wells, quarries and broadacre crops are destroyers of the public estate for short-term gain and shareholders who mostly do not live here. Cautionary principle requires that the Narrabri coal seam gas project must not proceed.

If the Great Artesian Basin, the Namoi River and the Namoi alluvial basins are polluted by this activity, the IPC and the New South Wales Government will be responsible for knowingly contributing to our community's already overburdened chronic disease. They will be responsible for denying our community water to drink, water to grow our food, rivers that provide our communities food and well-being. What gives anyone the right to think they can do that? Are you going to expose the taxpayer to litigation risk and massive clean-up costs? Do you know whether a clean-up would even be possible? ..... one of the main drivers of poverty and disadvantage for the Walgett community.

No one has convinced us of the economic benefits to New South Wales communities of coal seam gas. There will be ..... benefit from a Narrabri Gas Project, except for those who do not act in our interests as far as we can see. There is another way. If this government prioritises well-being. A responsible government and IPC would say no to dangerous, time-wasting proposals like this, and instead would encourage the development of local renewable energy proposals that generate safe, affordable energy within a series of local energy networks. A local sustainable energy network would support the creation of long-term local jobs by supplying affordable energy to start-up enterprises like a local waste factory that Dharriwaa Elders Group is working towards establishing.

Income that would have been spent on expensive energy would be devoted employing and feeding families. Government services currently focused on our disadvantage would find themselves no longer needed. We might move closer towards closing the gap. Narrabri Gas Project is too risky. Dharriwaa Elders Group believes that the many dangers of the extraction process of coal seam gas ..... dangerous to our community and others nearby, and that these dangers are being presented to you during these hearings. We ask - - -

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

MS SPENCER: We ask that you act with integrity to reject this dangerous project.

MR O'CONNOR: Thank you, Wendy. I noted you mentioned the danger of fracking fluids. I just want to make sure you're aware that there is no proposal for fracking in this project before us. And in fact, if it's approved, there are conditions that don't allow that as well.

MS SPENCER: Thank you.

MR O'CONNOR: Thank you for your time.

MS SPENCER: Thank you.

MR O'CONNOR: Our next speaker, please.

MR BEASLEY: The next speaker is Cathy Craigie from Gomeroi Traditional Custodians, who I think is on the phone.

MS CRAIGIE: Yes, I am. Thank you.

MR BEASLEY: Hello, Ms Craigie. How are you? Please go ahead.

MS CRAIGIE: I'm good, thank you. Okay, start?

MR O'CONNOR: Yes, please.

MR BEASLEY: Yes. Go ahead.

MS CRAIGIE: I'm a Gamilaroi traditional owner. Just tell me if you can hear me properly.

MR O'CONNOR: Yes.

MR BEASLEY: Yes, we can.

MS CRAIGIE: I am a – I am a Gamilaroi traditional owner and grew up in the Narrabri and Moree areas. I maintain my connection strongly to Gamilaroi culture and beliefs, and I work in the cultural industries and centre my work on Gamilaroi culture. Growing up in Gamilaroi country, I knew from a young age that the Pilliga is a special area. My grandfather was one of the last native black trackers in Gamilaroi, and my grandmother was a fluent speaker of our language. Both were knowledgeable in Gamilaroi knowledge. Often we would visit family in Dubbo and would have to drive through the Pilliga. We were always told never to stop in the Pilliga, especially at night. This is a common story across the Gamilaroi nation.

One story I do remember clearly was about the yowie-yua, a protector of the area. Europeans would probably know it as the hairy man. I am currently working on the story of the Mimi, the Gamilaroi story of the seven sisters. In our culture, these women were protectors of – were protectors of water. Water is women's business. I'm just going to get rid of that phone call. Water is women's business. In short, women are the givers of life, and in First Nations we understand that water is life. Without water, there is no life.

My objections to Santos coming into the Pilliga-Narrabri area is derived from my Gamilaroi heritage. To allow Santos to drill or to do anything in this area would be a desecration to an important Gamilaroi area. Fracking or mining for gas uses millions of litres of water, and in this case Santos will be penetrating deeply into the Great Artesian Basin. In our culture, water is protected by lore, l-o-r-e. It's in our songs, our dances, our stories and our art. To allow any sort of interference in the area identified for Santos will certainly desecrate an important Gamilaroi area, and this will again highlight the disrespect Australian governments have for First Nation beliefs and cultures.

Australia is the driest continent in the world, and yet our people survived here for thousands of years. We survived through long droughts, the Ice Age, great floods, and we did this without very little damage to the environment. Our science was impeccable. We knew this land like the back of our hands. In the time since invasion of our lands, the landscape has changed. We have lost much of our flora and fauna, and many of our sites have been destroyed. Today we have no voice. Decisions on our land are made by others without meaningful consultation with traditional owners. Santos consulted very little traditional owners in something that is so important.

The Pilliga is connected to all of Gamilaroi land, not just the area it is in. Our nation sits wholly in the Artesian Basin, and we are culturally connected to each other through the waterways. Our cultural values were and still are dependent on water. All aspects of our lives were dependent on water. Our people knew of and utilised the secret water, which is what the Artesian Basin was. Creation stories, our language, resource sites, ceremonial sites, and gender-specific sites – for example, fertility sites – were all located around water. The Pilliga holds all of these. The recent bushfires in New South Wales highlighted that the newcomers do not understand this country. It also highlighted that aboriginal cultural burning is more effective and suitable to this country. But our knowledge and science is ignored. It seems that economics overtake everything in this country, to the detriment of First Nations people, but also the everyday Australian.

In 2019, global investment in renewables was 71.2 per cent, coal was 9.3 per cent, and gas 11.9 per cent. The investment in renewables is only going to increase, as is the decrease in investment in coal and gas. Australia is lagging other countries when it comes to moving towards renewable energy. Places like Germany and other places in Europe have been using wind for many, many decades with quite success. The area identified by Santos also has the capacity to develop wind and solar industries. Both these do overuse water – both these do not overuse water and are freely available without desecrating land. The Narrabri Shire Economic Social Plan, 2002 to 2015, identified the need for the potential for a growing green economy and highlighted the following sectors. Building, retrofitting - - -

MR O'CONNOR: If you could please - - -

MS CRAIGIE: Yes.

MR O'CONNOR: - - - wrap up now.

MS CRAIGIE: Okay. Here in 2020 we have a government ignoring the science, the evidence and damage from fracking in local aspirations. The Santos project will affect the aspirations and contribute more to global warming. And I just wanted to end on this: there's also serious risks to health and that, and I want to talk about Walgett sitting on the Namoi River, run out of water, which is the water that will be taken out by Santos. Droughts are a natural part of living in Australia. Renewables are the way of the future, and investment is showing this. And I just – I've got – all this – there has just been a review on the environmental – Australia's Environmental Protection and Biodiversity Conservation Act, and it recommends sweeping changes and that the community does not trust governments to plan for our future.

MR O'CONNOR: If you could – if you could wrap up now - - -

MS CRAIGIE: Okay. This is it now.

MR O'CONNOR: - - - and please, by all means - - -

MS CRAIGIE: To sum up - - -

MR O'CONNOR: - - - put that in a submission to us.

MS CRAIGIE: Okay. To sum up, I would like to finish with a Native American prophecy. This is from the Cree Nation:

> *When all the trees have been cut down, when all the animals have been hunted, when all the waters are polluted, when the air is unsafe to breathe, only then we will discover that you cannot eat money.*

Thank you.

MR O'CONNOR: Thank you, Cathy. Next speaker.

MR BEASLEY: Next speaker is Doug Storer from the Warren Pipeline Action Group. Mr Storer, are you there? I don't think we can hear you. Yes.

MR STORER: How's that?

MR O'CONNOR: Yes, that's great.

MR BEASLEY: That's better. Thank you. Please go ahead.

MR STORER: Hi. Doug Storer on behalf of the Warren Pipeline Action Group. Thanks to the IPC for letting me have the opportunity to speak today. We formed our group after learning the proposed Western Slopes Pipeline was coming through our area. Our group consists of concerned farmers and residents from the Warren

area. We are concerned about the impact the pipeline will have on our local area, but we're also concerned about damaging the Great Artesian Basin. We knew that a half-billion dollar pipeline would only be the start of the creeping cancer called coal seam gas. You don't spend half a billion dollars on gas transporting infrastructure for one little gas project at Narrabri.

We are concerned about coal seam gas extraction along the pipeline and surrounding areas. Coal seam gas is coming, in our opinion. And I don't understand how it got to this point in time, when it appears the only people who want coal seam gas are the people with a vested interest in it. Local surveys taken in our surrounding shire areas tell us that over 90 per cent of the people in these shires do not want coal seam gas. I've also read that around 70 per cent of the people in New South Wales do not want coal seam gas. People want change. People want sustainability. People want certainty. And people have a right to water and good health, both physical and mental wellbeing.

People don't want short-term profiteering. People don't want more pollution in the form of methane, heavy metals, salt, disruptive infrastructure, and surface water diversion. People don't want pollution below ground. People don't want our sustaining groundwater tampered with. And people don't want groundwater and Artesian Basin water depressurised. Our group is also very concerned with the science surrounding the Narrabri Gas Project. The New South Wales chief scientist also has concerns. Unfortunately, Santos' science is based on best-case scenarios. And unfortunately, the science doesn't appear to factor in the risk.

I'm a farmer, and I understand best-case scenarios, because this is how we want things to go. This is how we want all our projects to progress. They never go as planned. Things go wrong. And the damage already done around Santos' existing wells in the Pilliga Forest shows that Santos' science is already out the window. Unknown risk is unknown risk, and we risk destroying the Great Artesian Basin, and locally, the Pilliga National Forest. And what does this mean? Well, around a third of New South Wales relies on GAB water in some form or another. Much of the State's more arid regions would be less pliable without this resource.

If our farming enterprise did not have access to Artesian water over the past three years of drought, we would not have been able to sustain our business, and I suspect many other farming enterprises would have been in the same boat. What do we risk? We risk primary production. We risk wool, land, mutton, beef, wheat, barley, chickpeas, canola, even cotton. The list goes on and on. And that production supports stock agents, fertiliser and chemical suppliers, fuel merchants, pubs, butchers, supermarkets, accountants, financial agents, contractors, freight companies. The list goes on and on again. And all of this primary and secondary production supports our local community.

In the past – the last three years have shown us that actual whole communities could be displaced if we can't get access to Great Artesian water in the future. Just think about that. The lady before mentioned it. Walgett, gone. Whole communities

packed up and moved, to where and why? This is the risk. Since we started our group, I've been reading and researching coal seam gas. In that four or five-year period, I've found no sound evidence that coal seam gas will benefit the State of New South Wales and the people of New South Wales in any way. The Narrabri Gas Project is just the start of a toxic polluting cancer called coal seam gas.

MR O'CONNOR: If you could wrap up, Doug.

MR STORER: And ..... the risks are just far too great. Thank you.

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

MR BEASLEY: Next speaker is Mr David Chadwick from the Great Artesian Basin Protection Group. Are you there, Mr Chadwick?

MR O'CONNOR: You need to .....

MR BEASLEY: You might need to put your microphone on, sir.

MR CHADWICK: How are we going now?

MR O'CONNOR: Yes.

MR BEASLEY: Much better. Please go ahead.

MR CHADWICK: Thank you very much for the opportunity to present to you this afternoon. My name is David Chadwick, speaking on behalf of the Great Artesian Basin Protection Group. I've been a stock and station agent in the eastern half of Australia for 40 years. Over that period I've never seen such vehement and united opposition to any project where aboriginal town and farming communities stand together in solidarity against a risk to our water. The record 23,000 submissions have been backed up by doorknock appeals in the five shires surrounding the Pilliga, which have returned a similar result of 97 per cent.

We live on the driest inhabited continent on the planet. The Great Artesian Basin is our only secure water supply. If I could share with you a contrasting story with my experiences, which the group has asked me to share with you. In 2007 I proposed to build a 10,000-head cattle feed lot in Coonamble. I went to DIPNR, which was the Department of Infrastructure, Planning and Natural Resources at the time, knowing that I would probably have to get some permission to put a bore down. They told me that we were specifically excluded from the stock and domestic scheme, and therefore we required a commercial law. I was also told that in my lifetime the embargo that was on commercial laws would never be lifted. The reason given was that the Great Artesian Basin was depleting at such an alarming rate it had to be protected above all costs.

They drew their attention to the Cap and Pipe the Bores scheme, which was conceived in 1990. It's a joint-funded $500 million project that was funded by landholders and government. There was enormous resistance from within DIPNR. However, the proposal was elevated to a state significant development, and the water – we got a 430 million litre water licence, of which we only use about 100 million. We had an immediate impact on the neighbouring bore, the Megalow bore, which is 2.7 kilometres away. The head pressure of that bore dropped by two metres. I was quite concerned, naturally enough, because we didn't want to be bad corporate citizens. There's 27 users on that bore scheme.

We got onto DIPNR, and they told us that they sort of half-expected that to happen, but, "Don't worry, the water table will restabilise once you fill your storage reservoir." It was about 100-odd megs. But here's the punchline. They said, "If you're going to continue pumping, we would never have granted the licence." Now, Santos plans to put 850 wells in the most sensitive recharge zone of the Great Artesian Basin, and they have to keep pumping; it's the only way they can get the gas up. 37 gigalitres and 430,000 tonnes of toxic salt, and as with the only two implementations of the 16 chief scientist's recommendations, the one that frightens me the most is what are you doing with the waste. There's only two places it can go. One is to leach back into the Great Artesian Basin through the recharge zone. The other is to run down the rivers and creeks and end up in the Murray-Darling Basin.

We have a $64 billion ag sector which is touted to run to $100 billion within 10 years. We in primary production sign statutory declarations declaring our food to be clean and green. If we lose that clean, green image, we're in a lot of trouble. There has been an excess of 20 breaches in the exploration phase alone within the Pilliga. The one that frightens me the most is the uranium contamination 22 times higher than the legal limit. One thing that seems to be elusive on all this debate is the opportunity cost. Our little business employs 25 full-time people plus casuals and contractors. We have a turnover of $85 million. The critical part of our business is we supply 100,000 servings of beef per day, 365 days of the year.

We are just one business on the Great Artesian Basin. If we don't have water or the water is poisonous, we don't have a business. If we don't have a business, there are no jobs, and certainly there's no food. And if that's expounded on to include the supermarkets and the trucks and the abattoirs, it's a frightening proposal. I've had a long history of cancer, but I still am able to maintain a life policy. But I cannot get any cover over the CSG activities on my land. That's frightening, when the biggest risk-takers in the world won't insure you. We're the largest exporting nation on the planet, yet we've got the dearest energy prices.

We've tripled our exports, and in the same time we've managed to triple our energy cost. The NGP at $7.40 at the well head flies in the face of being able to reduce gas prices, especially while the gas prices globally have collapsed. The CSG industry has a carbon footprint similar to that of the coal industry, or perhaps even worse. We've been warned by 7000 scientists of global warming, and here we are chasing something that's choking us. Renewables are moving so fast now. UTAs energy

connected New England and Central West Renewable Energy Zones, but clear and obvious changes in the markets are showing us that they're moving independently from the gas industry's ability to manipulate and influence their agenda. Renewables are creating real and sustainable jobs, and at the same time they're addressing climate change.

I find the behaviour within the industry a little bit unconscionable. The latest GISERA report is just astounding, where 75 per cent of the funding is by Santos and Origin. I just think that's a bit like leaving the fox in charge of the henhouse. I mean, you can't report on six wells when there's approximately 19,000 of them out there. I've never heard of anybody being taken and shown a failing well or a leaky gas evaporation pond by an industry representative. They do exist. We know they do. They exist in droves. And I'm pretty sure your tour the other day would have been nothing short of pristine. I get a bit ..... listening to the well's best practice, and we do things differently now, and we use special concrete and all the Rotary job numbers. And we have no plans to extend beyond the Pilliga, yet here we have last week an announcement by Carbon Minerals that they're going to commence production testing in Liverpool Plains in wells that are 65 per cent owned by Santos.

The Western Slopes Pipeline that was touted to support the project was heading into a multidirectional pipeline. Where's the guarantee they didn't draw it – end up solving our energy needs in New South Wales? Or does it just go to Gladstone and end up in the regasification terminals of Port Kembla, Newcastle. The whole thing has just gone a bit out of control, really. The trail of destruction the industry leaves behind is well-documented throughout Southeast Queensland. I think there's about 522 bores that have dried up. Their Linc Energy environmental disaster has been left for the State Government to clean up, and that's a clear example of when things go wrong, just who pays the price. All these wells will fail. It's just when.

I get a bit frustrated listening to ..... last-minute MOUs with companies like Natural Soda and Perdaman, covering off on a flawed business plan. In my opinion, CSG is Mother Nature's melanoma. If there was ever grounds to invoke a precautionary principle and save our water, it would be now. If we're all wrong, and I don't believe we are, the worst thing that can happen is the gas remains within the ground. But if we're right and it goes ahead, the results will be catastrophic. In the same way you can't get the milk out of the tea, you can't fix the Great Artesian Basin. We're all asked to put our personal assets on the line. I'm sure if we asked the proponents to do the same, they would be singing a different tune. History has a way of repeating itself.

And if you could bear with me, I would just like to tell you about the Great Manure Crisis in 1894, where the world authorities were frightened that by 1930, all the major cities in the world, from London and to New York and all over the place would be nine-foot deep in manure. The life expectancy of a horse was three years, so they were dying in the streets. Disease was rife. It was a crisis. While this was all being planned out, nobody realised that Rudolf Diesel had invented the internal combustion engine, and by 1930 the crisis didn't eventuate because Henry Ford had

built the motorcar. I liken the horse manure to coal seam gas, and the renewable sector to the car. We are begging you to protect our water. We can feed you, your children and grandchildren for generations to come, but we cannot do it without water. Thank you for your time.

MR O'CONNOR: Thank you, David, for that presentation. I might ask John if he has a question.

MR HANN: Thank you, David. Look, you mentioned earlier – you made reference to insurance and difficulties in obtaining insurance. Would you be able to just elaborate on the type of insurance you were referring to and the reasons given to difficulties in obtaining it?

MR CHADWICK: If I was to have coal seam gas extraction on our property, we would not be able to take out public risk insurance with our company, WFI, part of the AIG group. They have refused cover on properties that are hosting infrastructure. Now, if you've got a minute to spare so I can give an example why this is such a big issue. WFI paid insurance claims for me with an animal that one of our team members put on a truck, and it was within a drug withhold period. It went off to the other four, and it wasn't picked up for three days, by which time it had gone through the boning room.

The cost of retrieving that animal was $167,000, which WFI paid for. And the reason we pulled the animal back out of the food chain was because we couldn't run the risk of it ending up with a meat withhold period or meat residue level that was unacceptable in Japan or China or any of our trading customers. That's the sensitivity that we have to be looking at. So apart from the lack of capacity to have public liability insurance, my big question is who pays if this contamination ends up in the food chain. We can't insure against any of that. If we sign statutory declarations, which are a legal document saying that our animal, our grain and everything is clean and green.

MR HANN: Thank you, David.

MR O'CONNOR: Just a supplementary question. Was that public liability insurance you were referring to, you couldn't get if you had CSG infrastructure on your land, David?

MR CHADWICK: Correct. But I think that's the tip of the iceberg. If you really drill down on this industry and look back to where it commenced in the United States and those sort of places, way before it arrived in Australia, it's a trail of destruction. And that's what alarmed me five years ago or eight years ago when I first started on this thing, that this is a disaster waiting to happen. And if it's a transition fuel, I don't think it will be with us in 10 years as the major source, the renewables are moving. But more importantly, it certainly won't be with us in 50 years. But we

will still require food in 50, 500, 5000 years. There's basic requirements that the human race has to have, and that's clean food and water.

MR O'CONNOR: Thank you, David. Thanks very much for your presentation.

MR CHADWICK: Thank you for your time.

MR O'CONNOR: Next speaker.

MR BEASLEY: The next speaker is Mr Chris Lidman from Australian National University, Siding Springs Observatory, I think.

MR LIDMAN: That's right.

MR BEASLEY: Mr Lidman.

MR LIDMAN: Thank you, Mr Chair. May I share my screen? I have a presentation.

MR O'CONNOR: Certainly.

MR LIDMAN: Can you confirm that you see that?

MR O'CONNOR: Sure can.

MR LIDMAN: Good. Thank you very much. May name is Chris Lidman, and I'm the director of Siding Spring Observatory and chair of the Observatory's Dark Sky Committee. Siding Spring Observatory was established in 1964 and is Australia's premier astronomical observatory. It has the Commonwealth-owned Anglo-Australian Telescope, the largest optical telescope in Australia, and telescopes from national and international agencies. The observatory is located about 100 kilometres southeast of this Santos project. It borders the Warrumbungle National Park and is part of Australia's first dark sky park. The Warrumbungle Dark Sky Park, which is recognised internationally.

In addressing you today, I have three main aims. Firstly, I wish to increase public awareness of both the Warrumbungle Dark Sky Park, and the observatory. Secondly, I also wish to alert you to the gradual loss of our dark skies. Lastly, I wish to provide you examples of how we can together protect our dark skies, nature, which depends on there being a night as well as a day, and ourselves. In my first slide, I show you the state of the world at the end of 2019. There are many areas in the world where dark skies are gone. For example, there is no place in continental Europe where the skies are dark. In contrast to this, Australia has large areas where the night sky is still dark.

In my second slide, I zoom into the area on Siding Spring Observatory. The main areas of light pollution are circled, starting with Dubbo to the south, and moving

anticlockwise we have the mines north of Mudgee, the mines in the Hunter Valley, the mines near Boggabri. Also circled is the pilot flare at the Bibblewindi site of Santos. The good news is the dark – is the skies above the observatory are still dark. But we have to remain vigilant. Here is a graph – and I apologise for showing a graph – which shows the night sky brightness produced by light naturally as a function of the angle above the sky. On the right – on the left, one is looking at the horizon. On the right, one is looking almost straight up. The blue line represents the natural sky brightness. The red circle is the legislated threshold to which we must all comply.

Also shown are contributions from two sources to the northeast of the observatory in direction towards the Santos project. As can be seen on the graph, both sources are below the threshold. This is good. However, it is a sum of all sources; that is important. This leads to my last slide. Protecting our dark skies is everyone's responsibility, and it is easy to do. Eliminate upward lights with spill, use fully shielded settings, and direct the light downwards, not upwards. Avoid over-lighting, switch off lights when not required, use energy-efficient lighting, use asymmetric beams where floodlights are required. Avoid lighting reflective surfaces, and use warm white colours.

Good lighting is a win-win situation for everyone. The observatory is happy, because it can continue its work. The local community is happy because it can continue to develop tourism centred on the Dark Sky Park. Businesses and towns are happy, because less light is spilt upwards and less money is wasted. Conversely, bad lighting threatens the long-term future of the observatory and the status of the Warrumbungle Dark Sky Park, negatively affects the lives of humans and fauna, and costs companies and towns more money. For more information, please download the Dark Sky planning guidelines, for which you can see the link below, which has been prepared by the New South Wales Department of Planning and Environment. In it you will find examples of good lighting and bad lighting. Thank you very much for listening to me today, and I will stop sharing my screen.

MR O'CONNOR: Thank you. I just want to be clear. Do you have a concern about this particular project, or you think if the lighting follows those guidelines it can be acceptable outcome from your observatory's perspective?

MR LIDMAN: If the project follows these guidelines, then it would be a satisfactory outcome from the perspective of the observatory.

MR O'CONNOR: Okay. Thank you. Thanks for your presentation. Next – yes.

MR BEASLEY: Next speaker is Mr Colin Irving from the Warren Pipeline Action Group. Mr Irving, are you there?

MR IRVING: I am.

MR BEASLEY: Okay. Please go ahead.

MR IRVING: Committee members, thank you for the opportunity to speak on behalf of the Warren Pipeline Action Group. We are concerned about water security with regard to the proposed Western Slopes Pipeline and Narrabri Gas Project, seen as a major threat to the Great Artesian Basin. This group is very concerned that the process of approval by the Department of Planning is inadequate. In 2015, the New South Wales chief scientist commissioned a report that resulted in 16 recommendations to New South Wales Parliament to regulate CSG, only two of which have been met. Dr Craig O'Neill and Cara Danis stated in their findings to the head scientist:

> *Western parts of the Gunnedah Basin still retains elements of early rift geometry being divided by major cross-faults.*

Santos and the Department of Planning state, "It's unlikely faulting is a major risk," contradicting the independent science finding. Unlikely is not good enough. It's an assumption. We need absolute surety in relation to something as fundamentally important as this water supply. In the assessment report for the Narrabri Project, Santos have said:

> *Impacts on the Great Artesian Basin may not happen for tens or hundreds of years.*

How reassuring, that admission of possible damage. We plan to be here in tens or hundreds of years. The groundwater modelling used in the assessment is only class 1 modelling, and the chief scientist and Department of Water stated:

> *This baseline reporting data has low predictability, indicating possible greater risks.*

The Department of Planning not only relies on modelling provided by the proponent, but also relies on them to further develop the model as they progress and adapt management accordingly. Santos says they can't give a better model until the project starts. This is just a see how we go approach. They're saying they don't know what will happen. This seems to be enough for the Department to approve the project. In effect, get started, self-regulate, putting the fox in charge of the henhouse. The Department is glossing over inadequate water modelling. Our group has no faith in the industry-sponsored research. It is not independent.

CSIRO research in conjunction with GISERA Group could hardly be unbiased, with 70 per cent of GISERA members associated with gas companies – Santos, Origin, Shell, China Gas, etcetera – heavily influencing their findings. During the current COVID-19 crisis, governments have closely followed the recommendations of science, and to good effect. We don't believe they are doing so in relation to the Narrabri CSG Project. The Department constantly reject independent science in favour of industry-funded modelling, which is filled with subjective terms like "minimal damage".

We implore you, the IPC, to take heed of the independent science and the weight of public interest on the water planning issue and recognise the enormity of the risks involved. Santos has reported to their shareholders that Narrabri is stage 1 of the project, with a further six fields being mapped, thereby impacting our area. IAG has said companies will not insure property with CSG infrastructure. Their whole proposed pipeline is gas infrastructure. When we sign vendor declarations, it is a legally binding document. Without insurance, we're exposed to all forms of crippling litigation, a direct threat to our livelihoods.

Science predicts even greater extremes in seasonal conditions, with more extended, hotter dry periods, followed by extreme wet, causing excessive heaving and cracking of unstable vertosol soils, serving only to increase breaches to the pipeline. The impacts of climate change are numerous and must be part of the project modelling. Gas is being widely promoted as clean, cheap energy, but in terms of this method of extraction it's destruction of environment, disruption of sustainable industry, possible damage to crucial water supply of communities, and its own contribution to climate change is a filthy and expensive form of energy.

There are other forms of energy in our region. Dubbo Region, a renewable energy zone, has attracted $38 million worth of applications to private invest. Water has no substitute. Surface water storage on the river and flood plain here has proven inadequate repeatedly. Warren Town relies on 50 per cent of its water supply from the Artesian Basin in normal seasons, substantially more in droughts. Please apply the precautionary principle. Don't let the future generations of our region find out too late that we shouldn't have approved this project. Put a stop to it now, take away the threat to our only really reliable water source. Thereby reduce mental stress and anxiety on the issue in our region. We have many further concerns, and our group will also forward a written submission. Thank you very much for listening to me.

MR O'CONNOR: Thank you, Colin, for that presentation. Next speaker.

MR BEASLEY: The next speaker is Mr Peter Small from the Friends of Siding Spring Observatory. Mr Small, are you there?

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

MR BEASLEY: Yes. Please go ahead.

MR SMALL: Awesome. My speech goes longer than five minutes, so I will cut it short, but I will submit the full version with pictures to the website.

MR BEASLEY: Thank you.

MR SMALL: We object to the Narrabri Gas Project, and I wish to talk about the current effects from nearby gas field exploration, the future effects from the gas field expansion which affects Narrabri, and the further areas such as Coonabarabran in relation to the established scientific pursuit of professional and amateur astronomy

and the largely unique astrotourism. Working at Siding Spring Observatory for over seven years, I have already seen the impacts from coal seam gas exploration, and I'm worried for the future of science if the gas field goes ahead. Also, because of backlash from federal politicians due to the ANU withdrawing investments from Santos, including comments by the then-PM Tony Abbott, Treasurer Joe Hockey, and the LNP Cabinet, we believe that the SSOs voice has been quietened due to funding threats, that they will not speak out in the official capacity that they need to.

The submission for the EIS made by the AAO was written with no testing and only taken from highly questionable results organised and paid for by Santos. We believe that those results were an understatement of the current impact, and in no way show what the future impact would be due to the information in the EIS to have more flares and build them 10 times the size. I base this on ground monitoring and testing done by the world-famous astronomer Rob McNaughton, evidence he submitted previously. Rob has over 40 years' experience in observational astronomy, including 30 years directly at SSO, with over three times the amount of discoveries as the next most successful comet-hunter in history. What he found was Santos' figures do not match the actual damage being done, and greatly underestimate what their actual impact is.

So I'm going to skip ahead. So what does coal seam gas have to do with this? It's quite simple. Uncontrolled light pollution through flaring and infrastructure can greatly and does affect astronomy right now. Flaring is just a cheap way for gas companies to get rid of bad gas and pollutants. They may use the excuse it is needed for regulation, but that has been proven false, as there are now states in the US which will not allow flaring, and make the companies catch it and treat all gas. And in WA is the first state to bring in regulation to ban flaring completely, as well.

In reality it's just negative air emissions. Even after being burnt, they are causing damaging gas particles which affect the health of people and animals when breathed in. This has been shown in families in Queensland gas fields, who have exactly the same symptoms as the Porter Ranch gas leak in America currently being classed as one of the world's worst environmental incidents, even worse than the huge BP spill. The New South Wales EPA actually has recommended on flares and advised that they should be shielded or enclosed, such as what AGL did recently in Gloucester, New South Wales.

We have seen firsthand from Queensland what appears to be orange sunsets in the east. I know that doesn't happen. It's because of the massive amounts of flaring from the large gas fields in place now, blanketing the sky in light. Stars aren't just hard to see, but practically impossible to find. The same is to be expected if production takes place. I will give you a Narrabri gas exploration example. A recent worldwide light pollution map of this region taken in 2018 showed just one exploration flare at the Bibblewindi site and the Pilliga Forest, which is unmanned, produces more light pollution than the entire town of Coonabarabran with over 3000 people. That's right, unmanned with no one working there, only a five-metre flare stack.

Well, the entire region up to 200 kilometres from Coonabarabran has building regulations to follow, enforced by law, to have such conditions as shielded light preventing light spill upwards and unwanted pollution. Gas mining companies are exempt from the same building requirements. That also includes gas flaring. Giant gas flames burning at night, including burning on total fire ban days. There are concerns at the lack of understanding, including comments that the impact is small, but already there is too much light pollution across the region.

Culminative impacts already from towns, coal mines, industries are already doing damage. Every new light source – every new source of light spill is making it worse for Australia, never better. Flaring is the worst type of pollution, because the typical light from the gas burning closely matches the red spectrum science that's being conducted while increased dust affects the blue end. Santos plan in their EIS to remove their five-metre stacks and replace them with 50-metre high stacks with flames capable of another 30 metres. There is every reason to be concerned. 10 times the current height, 40 metres above the tree line, nothing will block the light pollution on neighbours, nocturnal life, and surrounding townships. The pilot flares can be seen directly from Siding Spring Observatory. So to increase - - -

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

MR SMALL: Yes, no worries. So to sum it up, nothing good will come from the gas fields in this region in relationship to the important scientific research in astrophysics and astronomy, including astrotourism. The two cannot coexist under the lack of any restrictions with light pollution and flares. The current flares are unacceptable, and the EIS planned flares are unacceptable. Bare minimum outcome will be for the EPA guidelines and to enclose the flares. This has been done with AGL recently in Gloucester. There is no suitable reason why Santos should not comply. But better would be to remove the flares altogether, which is a possible and real solution. As it stands, with the New South Wales Government proposals, I reiterate, the two cannot coexist. For your consideration.

MR O'CONNOR: If you could send us your submission, it would be much appreciated. Thank you, Peter.

MR SMALL: Yes. Thank you for your time.

MR O'CONNOR: Not a problem. Next speaker, please.

MR BEASLEY: The next speaker is Dr Bob Vickers from Doctors for the Environment Australia. Dr Vickers, are you there?

DR VICKERS: .....

MR BEASLEY: Thank you. Go ahead.

DR VICKERS: I'm just going to share my screen to pop up some PowerPoint slides.

MR BEASLEY: That's fine.

DR VICKERS: Okay. Good afternoon, chair, commissioners. Thank you for taking the time to listen to my expert evidence. I understand you're going to be quite busy for a week or so. I'm speaking on behalf of Doctors for the Environment Australia, and also as a qualified expert in rural GP obstetrics, rural emergency medicine, and public health. The Lancet Health Commission have declared climate change the biggest global health threat of the 21st century. Whilst the pandemic has taken attention at this time, we do continue to see death and disease escalate as a result of our failure to act on reducing greenhouse gas emissions.

This project would be working directly against efforts to address this health threat. The threat of climate change is going to increase the risk of heat stress, extreme weather events, increases in infectious diseases, food insecurity, mental illness, injury and death. Temperature increase significantly affects vulnerable populations. These are our older and younger populations, those with chronic diseases like diabetes, heart disease, kidney diseases, and others at risk of dehydration. The health risks particularly for heat exposure include heat stress and heat stroke, acute kidney injury, worsening congestive heart failure, increased risk of interpersonal violence
- - -

MR O'CONNOR: We might need to stop.

MR BEASLEY: I apologise, Dr Vickers, but we've lost connection to one of our commissioners, so we just need to pause. Can we just take a short interval, and we will come back to you soon.

DR VICKERS: That's fine.

RECORDING SUSPENDED **[2.20 pm]**

RECORDING RESUMED **[2.25 pm]**

MR O'CONNOR: Dr Vickers, are you there?

DR VICKERS: Yes.

MR O'CONNOR: My apologies for that disruption. We think we've got it sorted now and apologies to our viewers as well. Can you please start your presentation again from the beginning?

DR VICKERS: I can.

MR O'CONNOR: Thank you.

DR VICKERS: So I am speaking of Doctors for the Environment Australia and as a qualified expert in rural objectives – rural emergency medicine and public health. The Landship Health Commission has declared climate change the biggest global health threat of the 21st century. Whilst the pandemic has taken attention at this time, we continue to see death and disease escalate as a result of our failure to act on reducing greenhouse gas emissions. This project would be working directly against efforts to address this self threat.

The threat of climate change is going to increase the risk of heat stress, extreme weather events, increases in infectious diseases, food insecurity, mental illness, injury and death. Temperature increase significantly affects vulnerable populations, these are our older and younger populations, those with chronic diseases like diabetes, heart disease and kidney disease and others at risk of dehydration. The health consequences of heat exposure include heat stress and head stroke, acute kidney injury, worsening of congestive heart failure and increased risk of interpersonal violence. During periods of extreme heat, young children have a greater risk of electrolyte imbalance, fever, respiratory disease and kidney disease.

Long droughts affects hygiene and sanitation. It results in reduced crop yields, malnutrition, rural and remote Australian communities in drought suffer twice the rate of suicide. It increases airborne and waterborne diseases and infections, it exacerbates heat stress and will worsen air quality. The Australian bushfires that took the centre stage of world news prior to the pandemic led to 34 direct deaths, 1 billion animals were killed and we have likely driven some species to extinction. The air pollution created from the smoke has caused over 400 extra deaths and thousands of additional chronic diseases. Floods result in direct injuries, death, spread of vector borne diseases and mental health damage, and this project, again, would work against efforts to limit extreme weather events and their frequency and their intensity.

Mortality rates of dengue is increasing in regions most affected by this disease. The transmission of infectious diseases such as cholera has increased significantly due to climate changes associated with increasing global temperatures, droughts, floods and heatwaves. Crop yield potential for rice, soybeans, wheat and maize has also dropped significantly with increases in global average temperatures. Sea surface temperature and ocean acidification as well as destruction of natural habitats like coral reefs threatens fisheries and aquaculture. Fish is the primary source of omega 3 fatty acids for large global populations. Heat stress also reduced milk yield by 10 to 25 per cent, and in 2020, entire wine yield has been lost in some parts of the Hunter Valley and the Adelaide wine regions due to contamination from the smoke's air pollution.

String weather events interrupt food supply chains and increase vulnerability of perishable foods. Air pollution leads to approximately 4800 deaths annually in Australia. The predominant commercial source of air pollution in Australia is from combustion and extraction methods of fossil fuels for electricity. Fine and ultrafine particles are small enough to enter the blood stream via the lungs and affect every system in your body. Chemicals harmful to human health have been found to leak into ground water and aquafers from coal seem gas mining. Hydrocarbons, naturally occurring radioactive materials and heavy metals are associated with increased rates of bone marrow cancers, miscarriage, prostate cancer, decreased male fertility and infant neurological disease.

There is a 25 per cent increase in low birth weight babies in instances of mothers living within 1.5 kilometres of coal seem gas wells and this effect continues ..... up to five kilometres away. Growth restriction and preterm babies are more likely to require emergency delivery and resuscitation at birth. In rural areas, often – the rural maternity unit is at least an hour drive away by ambulance. Our services do not include the capacity for an emergency delivery. Retrieval services for a baby being resuscitated can take hours to arrive, leaving a baby who requires intensive care deteriorating due to the delay. As a ..... and emergency doctor, I can tell you the most terrifying times of my career are flat babies that need resuscitation.

In summary, the health risks of climate change are the most important issue facing the medical profession currently. This project would exacerbate all health effects of climate change by contributing increasing greenhouse gases at a time when the international community and majority of Australians are causing for a rapid decarbonisation of not just out energy and electricity sectors, but our entire society. The direct and indirect health effects of these types of projects are measurable and seriously concerning.

MR O'CONNOR: Could you wrap up, please, Dr Vickers.

DR VICKERS: Two more sentences then I'm finished.

MR O'CONNOR: Thanks.

DR VICKERS: The Department of Planning will often make comments against health risks by stating that the benefits of a project outweigh health risks. Nothing outweighs health risks to our children and future generations. And as I'm sure you will hear from other presenters, there are arguably actually no benefits to this project. DEA opposes this project based on health risks and it is my personal and professional opinion that this project should not proceed. I implore you to reject this project. Thank you.

MR O'CONNOR: Thank you for your presentation. We move on to the next presenter, also from Doctors for Environment Australia.

DR REDMOND: Hi, hello. Can you hear me?

MR O'CONNOR: We can.

DR REDMOND: Yeah. Great, okay. Brilliant. Okay, I'm Helen, I'm also from DEA. Our organisation has been raising the alarm about unconventional gas mining for about 10 years. First we had concerns about the potential for health impacts and now, with an increasing body of medical and environmental legislature, that actually describes those health harms that are occurring. So yes, we oppose the Narrabri Gas Project. Mining from a coal site – coal seems is a complex industrial process which generally ..... multiple planes and that greenhouse gas emissions which contributes to the climate health emergency that Bob's just described to you.

So research from overseas has demonstrated a wide range of health concerns in people living near these gas developments as well. Things like asthma exacerbation, sinus infections, migraines, skin rashes, headache, fatigue. And while causation of symptoms can be difficult to prove, studies have pointed to increased rates of hospitalisation as well. The serious heart, lung, neurological and immune disorders as well as cancers. And while most of these studies are from the US, there's been some exploratory hospital based studies in Queensland CSG fields which show that similar trends may be emerging there. So – and overseas studies are also showing increased evidence of adverse birth outcomes, as Bob mentioned, for pregnant women who are living in close proximity to gas activities, usually, you know, within the sort of two to three kilometre strange. Such as low birth rate, pre-term deliveries and some birth defects as well.

The chemicals that are used in the gas process, the drilling and hydraulic fracturing, as well as those that occur naturally in the coal seems include endocrine-disrupting chemicals, heavy metals, volatile organic compounds and polyaromatic hydrocarbons, and these are all brought to the surface with the waste water. Many of these chemicals can persist for a long time in the environment and can end up in waterways and the soil, with the potential then for human beings and animals to be exposed to them. Endocrine-disrupting chemicals, for example, can alter the hormonal and metabolic function of our bodies at extremely low exposure levels and can have long lasting effects.

The adverse health impacts of the Narrabri Gas Project have not been adequately assessed, in our opinion. The 2016 health impact assessment occurred but since then there's been over 1500 journal articles published in relation to health and environmental impacts from gas developments, and these have not been considered. It's of grave concern to DEA that the New South Wales government has already approved this gas project without considering the latest health evidence. In fact, the New South Wales Department of Health is aware of this and noted it in 2018 and I quote:

> *There has been a significant increase in the number of studies published on unconventional gas.*

And yet this gas – this evidence has not been considered. This year there was a New South Wales parliamentary committee reviewing the recommendations of the New South Wales Chief Scientist from 2014 regarding coal seem gas and they found that 14 of 16 recommendations that she made back then hadn't been implemented in full and about half of those hadn't been implemented at all.

So that committee recommended that the New South Wales government review all findings in relation to health impacts and that these be included in any new assessment of coal seem gas activities. That was earlier this year. Global health impacts occur from this project as well, and that's because gas is a fossil fuel and the gas industry in Australia is contributing increasingly to the climate health impacts that we are all experiencing, e.g. last summer. Like all gas projects, this one will result in fugitive emissions of methane which is a potent greenhouse gas. When the full life cycle of mining, processing, transport and burning is taken into consideration, only three per cent of gas needs to leak to wipe out any benefit gas has over coal in terms of its climate impact.

The fugitive emission study from unconventional gas fields are in the range of 1.4 up to 17 per cent of gas is leaked as methane. The figure of .5 per cent quoted by New South Wales Planning is based on gas industry observations in Australia and is not based on independent or verifiable research. So rather than being a clean transition, fuel gas is a big part of the cause of global heating. And while Australia's emissions from electricity are falling due to renewable energy, emissions from our gas sector are rising and wiping out this benefit almost completely.

MR O'CONNOR: Dr Redmon, could you wrap up, please.

DR REDMOND: Certainly. Atmospheric methane pollution globally is also rising steeply and emissions from oil and gas industries have been unaddressed and aided by up to four per cent, methane is ..... responsible for a quarter of the warming that we've had already and on current trajectories, methane emissions have set us on a path of three to four degrees of warming, which is incompatible with human civilisation and human health as we have known it. So yes, DEA urges you to consider all the evidence which graphically illustrates the health impacts and the harm from gas and also to reject the Narrabri Gas Project. Thank you so much.

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

MR HANN: Mr David Wallis from Concerned Residents against the Pipeline. Mr Wallis, are you there?

MR WALLIS: Hello, yes, I'm here.

MR HANN: Please go ahead.

MR WALLIS: Just trying to get my screen up. Is that shared screen or not?

MR O'CONNOR: It says almost.

MR WALLIS: Yes.

MR O'CONNOR: There we go.

MR WALLIS: Yes. Okay, righto. Well, I'm representing a group known as the Concerned Residents against Pipelines. We're opposed to the expansion of this Narrabri Gas Project as it'll expand the arterial distribution pipelines through over 300 kilometres of prime agricultural land with deep cracking soils all containing natural water resources. Agriculture is already a victim of many of the government approved projects, including the reform in the dairy industry deregulation. No benefit to customers and no benefit to farmers.

In the New South Wales we had the water reform process, which took 90 per cent of our irrigation water allocation away from us. This was done to ensure the local townspeople had a safe water supple and long-term water security. Our ..... industry was decimated as a result of this move to achieve this goal. The proposed Hunter Gas Pipeline puts this same town water supply at risk of contamination as the pipeline sits in the water. Irrigators across New South Wales including Narrabri lost water allocations to protect these valuable water resources. Indications are now that there will be gas wells drilled in our shire area underneath the water resource. This Narrabri project is another proposed development where we have a project and policy designed for the public good. The profits end up being privatised and agriculture pays and carries the scars of these changes forever.

This paddock shown here is where the pipeline will go through our place. The blue line across the page shows the area that will be cleared and the blue arrow shows the direction of flood water as it crosses our place. This is a crop of lucerne planned for five years. That whole crop will be ripped out for a proposed pipeline. This graph shows 50 years of water levels within our zone. When this pipeline goes through our farm and goes underneath the local creek, it will be in water because the creek's eight metres deep. If they put the pipe one metre below, history shows that 70 per cent of the time, this new pipeline will actually be sitting in water and that water is the town water supply. Second point is these soils are black soils and every time it's dry, they crack and they crack seriously. The plan is to put a pipeline within these soils. Now, I can't emphasise enough how, when it's dry – we've just had three years of dry, we're not sure if we're at the end of a drought or in the middle of a drought, but they do crack quite readily. The proposal is that a gas pipeline of 600 millimetres in size be laid within this soil 700 millimetres underneath with 2500 psi to be laid within this soil. Sooner or later there will be a serious issue and the cracking or the leaking will lead to an issue that will put contamination into our water supply.

So my last point is: agriculture pays and carries the scars for these projects forever. Our water source must be protected before the event and not after. Thank you.

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

MR HANN: The next speaker is Annette Wallis from the Concerned Residents against the Pipeline. Ms Wallis, are you there?

MS WALLIS: I'm here, yes. I will just - - -

MR HANN: Please go ahead.

MS WALLIS: I'll share my screen with you. Can you see that screen?

MR HANN: Yes. Yes.

MS WALLIS: Well, good afternoon, Commissioners, and thank you for the opportunity to speak. My name is Annette Wallis and I speak as a member of the group of concerned landholders from the Liverpool Plains Shire. We are in the pathway of the Queensland Hunter Gas Pipeline. We are indirectly involved with the Narrabri Gas Project since phase 2 of the gas field production relies on an approved pipeline connection. The Hunter Gas Pipeline is the approved pipeline and we are objecting to the Narrabri Gas Project.

Our district is two hours south of Narrabri and we are a part of the Murrurundi gas field in Pelle 1 and Pelle 452. The Hunter Gas Pipeline runs directly along the eastern boundary of these 11 Pelles of the northwest region. So what does this mean to us? The looming negotiation process and legal headache ahead of us is already consuming us, overwhelming us, setting us in a state of anxiety. We are struggling to get answers to serious landholder issues, constructability issues and remediation work specific to our black soil. Our questions are still on the table. The authority to survey has not been issued and the Hunter Gas field is still only at negotiation stage with some of their investors. We are fearful of being railroaded, fast tracked and denied further due process in order for Hunter Gas to meet the energy needs of the east coast.

What does the destruction look like? It's a 30 metre easement to install the 600 millimetre pipe with a provisional time from trench opening to remediation of between one to three months, subject to weather and black soil access. So just to put this destruction into context for you: the current gas pipe maps for the McGuiness's farm at Eastview show seven kilometres of gas pipeline travelling through six kilometres of that black soil irrigation property. ..... takes 15 corners that will need the pipeline indicators in sight able distance from post to post. The gas pipeline is planned to run directly through the pathway of their lateral pivot irrigator and its guidance wire that is buried one metre below the surface. They have flood irrigation paddocks with the gas pipeline planned to run parallel with tail drains that refill into their dams. They have head drains that need maintaining with excavators that this gas pipeline is planned to run parallel with.

Eastview receives all the flood waters from the Bramble Creek and to the south of them in zone 1. He has paddocks in the gas pipeline pathway that he is still pumping water off in order to gain access five months after a rain event. And to quote Scott:

> *If they've been wanting to build this pipe this year, they'll still be waiting to get onto the paddock.*

What would the liability look like? It's the risk of erosion, the alteration of our floodplains and our natural water courses. It's the burden of inspection events and pegging stations, pipeline indicators and 24 hour access. It's the threat of increased insurance premiums and the withdrawal of indemnities. It's the risk of gas leakage due to excavators, people and corrosion. It's the inaccessible black soil hindering any pipeline repairs.

So again, to Eastview, it's been five years since they invested in that lateral pivot irrigator and it's taken all of five years for the soil to subside that they remove from the 250 millimetre water pipe and they still can't farm in that trench. And Hunter Gas will excavate seven kilometres worth of dirt for a gas pipeline more than twice the size of Scott's waterpipe.

So what does the sacrifice look like? That we find ourselves sitting in the same boat as the Pilliga with Narrabri Gas and the Hunter Gas having the potential to kickstart our Murrurundi Gas Field into further exploration, testing and production. The sacrifice looks like the diminishing prospect of ever selling our farms. It looks like the devaluation of our farms, our nest eggs, our retirement plans. The sacrifice looks like succeeding generations pulling out of their family succession plans because they are not willing to take on this liability.

The inequity of this pipeline cannot be recompensed and to quote .....

> *There is no direct - - -*

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

MS WALLIS:

> *There is no direct benefit, only heartache.*

So between those of us in the pathway of Hunter Gas, we will delay this pipeline, we will fight this pipeline, and on the grounds of stress, disruption, liability and sacrifice, we oppose the Narrabri Gas Project. Thank you, commissioner.

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

MR HANN: Is Ms Bea Bleile from Knitting Nannas New England Northwest.

MS BLEILE: Yes, thank you. Good afternoon, commissioners, good afternoon, everybody. Knitting Nannas New England Northwest formed one of over 40 local groups of Knitting Nannas bringing attention to invasive and destructive mining to save our land and water for future generations. Our group started at a camp in the Pilliga Forest around September 2013. Currently, we have 90 members on our mailing list and 1327 followers on Facebook which would correspond to over 2500 members and 37,000 followers in Sydney respectively. There are numerous fundamental problems with the Narrabri Gas Project in general, and the report of the New South Wales Department of Planning Industry and Environment in particular. I will focus on Section 6.6 Greenhouse Gas Emissions and Climate Change.

The Department summary states:

> *The project has the potential to assist in reducing New South Wales's greenhouse gas emissions intensity and be key component in New South Wales's future energy supply mix.*

The Department bases this assessment on the following claims: one, fugitive – and I quote:

> *Fugitive methane emissions from gas production in Queensland are lower than previously though at less than 0.5 per cent of coal seem gas production.*

The Department failed to include references to support this claim and the only relevant compatible one I could find is a CSIRO case study which states, and I quote:

> *Although this is a very low figure, it's important to know that this is only a pilot study encompassing less than one per cent of the existing CSG wells in Australia. Another important consideration is that emissions were only measured from well paths, so cannot give a full representation of the whole of life emissions.*

Then going to the second claim by the Department in the summary. I quote:

> *On a life cycle basis, domestic coal seem gas produced electricity would produce up to 50 per cent less carbon emissions compared to coal fire electricity production.*

The Department attributes this claim to the CSIRO but it comes from GISERA, an alliance of the CSIRO with five of the largest coal seem gas companies operating in Australia including Santos. The Institute for Energy Economics and Financial Analysis stated in March this year, and I quote:

> *GISERA's claim of 50 per cent less emissions from gas is, at best, dishonest and designed to mislead and deceive the public, investors and gas consumers.*

Thus, it is no surprise that the independent NGO, Doctors for the Environment Australia, arrived at the opposite conclusion on the basis of a comprehensive review off the available scientific and technical literature commenced in 2013, and I quote from their – one of their documents:

> *In 2019, there are many reasons to be seriously concerned about the climate change implications of continued reliance on and expansion of gas production for energy purposes. Unfortunately, early claims that using unconventional gas for energy will have positive impacts on greenhouse gas emissions are no longer justified.*

Now I come to the third claim by the Department, and I quote the report:

> *Total projections go one to three emissions would also be low, relative to Australian emissions, at approximately 0.9 per cent of the nation's total emissions.*

Now, the first problem with this claim is that it rests on the assessment provided by Santos and GHD which fails to take into account migratory emissions as well as those from accidents and those occurring after the project's conclusion. Secondly, it fails to mention Santos's ambitions to extend the Narrabri Gas Project into six additional basins, stretching from the Queensland border to the Upper Hunter Valley as declared to shareholders at a seminar in November 2014. I have a figure to go with that that I can submit later.

Finally, we must ensure that total national emissions stay within the budget to keep warming below 1.5 or two per cent – two degrees Celsius. Even emissions which are low relative to current total national emissions can cause total national emissions to exceed these budget.

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

MS BLEILE: Pardon?

MR O'CONNOR: Could you please wrap up now, we've run out of time.

MS BLEILE: So science tells us we must avoid this and in conclusion, the Department's report fails to provide an independent critical analysis of the project's impact on greenhouse gas emissions and climate change. And due to these impacts alone and contrary to the Department's assessment, the project is neither in the public interest nor is it approvable. I'd call on you to reject the Department's recommendation. Thank you.

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

MR HANN: Dr Garry Lyford. Dr Lyford, are you there?

DR LYFORD: I am indeed.

MR HANN: Please go ahead.

DR LYFORD: Look, thank you for the opportunity to participate in this hearing. I feel it is my duty to speak, given my interest in rural health during my 34 years as a rural GP in Gloucester, New South Wales. I've been in a privileged position to witness the social and emotional impact on a small town faced with a non-conventional gas project. The Gloucester project was imposed on Gloucester in 2008 until it was abandoned in 2016. I must declare to the commissioners that I have tried to read the Department of Planning assessment report on the Narrabri Gas Project. As I read the report, I became increasingly irritated to see how much the public relations machine of the gas industry could insinuate its message into a public document. I felt I was rereading the 2013 gas project song sheet in its entirety. There were the old platitudes of community engagement, mitigation effects, there were cherry-picked scientific reports from academic organisations heavily funded by the mining and petroleum industry. There was even an emphasis on an east coast gas problem that was sold to us in 2013 with the implication that, by now in 2020, we'd be breaking up our furniture to keep warm. Unsurprisingly, there was no mention that Australia became the largest exporter of liquified natural gas in 2019.

I continued with the report, but after reading assessments of greenhouse gas emissions and social impacts on page 108 of the report, I was so infuriated that I couldn't keep reading. First, let me tell you about the social and personal impacts I have seen with CSG in Gloucester. I saw the anxiety of residents, who have committed themselves to rural lifestyle about town, suddenly saw gas being flared a few hundred metres from their house. I saw anxiety and depression arising from truck movements and consequence dust and noise. There were huge concerns arising with regard to possible health effects from CSG fugitive emissions, particularly in regards to children's health. Such were concerns that even in our medical practice, 50 per cent of the permanent medical staff were indicating that they would leave our practice if this development was approved.

Primary producers, similarly, were anxious about the development. Even as exploration occurred, they saw gates left open and stock wander. They saw their paddocks affected by Giant Parramatta grass transmitted from the tyres of gas drilling vehicles. Many had a deep despair that their multi-generational farms were being industrialised. They feared that their milk or meat production would be seen as tainted, given that it was grazed on land around gas well heads or on forage grown on produced water from the gas fields. But mostly, and most deeply, they worried about water, its quality and its availability.

On a community level, we lost our way. There were deep divisions in the community about the project with independent polling repeatedly showing that majority – the majority were against the project. The cultural life of Gloucester was stunted as energy was poured into saving the essential natural qualities of our town rather than the organisation of cultural and social pursuits. And conversely, when the

project was finally abandoned, not surprisingly, our real estate leapt from hibernation to vibrancy, building approval soared with an increase in local employment.

And now, to climate. Rural communities will bear the brunt of climate change. Its impacts are increasingly more evident and more costly. Last year, the Gloucester river ran dry. Our water supply failed and water was trucked an hour and a half away over a period of months. Our tourist income was smashed, stock numbers crashed, our rural debt exploded. Many of us spent long days in November and December fighting fires and part of that process was searching for river beds that might still have pools of usable water. As a GP, I have known only too well that hot weather complicates human health, particularly for the young and elderly. I know that mild and stable illness is transformed by heatwaves from an easily managed problem to a problem requiring hospital based treatment.

The proponents of the fossil fuel development justified its produced emissions and its climate impacts on two basic grounds. The first, as every fossil fuel developer will say, is their development – in their development application is that it's only a few extra hundred tonnes of additional CO 2, which they imply to be small in scale of things. But it is yet another body blow to our climate, and death by a thousand cuts is a death nonetheless. The second promulgated fantasy is that gas is better than coal for our environment.

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

DR LYFORD: This is akin to spruiking the benefits of carpet bombing over a nuclear strike. Neither is acceptable, not gas, not coal. In this year of COVID-19 we have been shown, once again, that leadership is about following good science, it is about being bold and fearless and acting early to achieve the best long-term outcomes for human health and our economic wellbeing. In the matter before the commission, you're our leaders, and history will judge your leadership. My grandson is banking on you getting it right. Thank you.

MR O'CONNOR: Thank you, doctor. Thanks for relaying your experiences in the Gloucester community. We will now take a break and we will resume at 3.30. Thank you.

RECORDING SUSPENDED [3.00 pm]

RECORDING RESUMED [3.32 pm]

MR O'CONNOR: Welcome back to our public hearing. We will have the next speaker, please.

MR BEASLEY: The next speaker should be on the phone, Mr Grahame Douglas from the National Parks Association. He's the president, I believe. Mr Douglas, are you there?

MR DOUGLAS: Thank you very much. Yes, thank you very much.

MR BEASLEY: Please go ahead.

MR DOUGLAS: Great. Thank you. Look, firstly, I would like to acknowledge the Aboriginal owners of the Pilliga area, the Camilleri people, and I want to acknowledge their elders, past, present and emerging, and also recognise that the Pilliga is Aboriginal land, always is and always will be. So in undertaking our assessment, I'm providing a statewide picture, and our colleague, Lynne Hosking, will be talking after me. We will do a detailed submission to the inquiry post-this. First of all, I would like to just point out – and this is in no way lecturing, but the IPC, like other consent authorities, are required to consider section 415 of the EP & A Act, including the suitability of the development – that is, its context, as well as the public interest test. The public interest test is not simply that people object or support the development, but actually what is in the public interest for the development to proceed.

In considering the department's submissions, we believe that the EFD principle – technological sustainability, is much more than just balancing economic, social and environmental aspects of a proposal. There's the intergenerational equity test which is not meant for a 20-year project. The National Parks Association does not agree with the assessment by the Department of Planning, Industry and Environment in that it asserts that the development or the project has been designed to minimise any impacts of a region's significant water resources, including the Great Artesian Basin, the biodiversity heritage values of the Pilliga State Forest and the health and safety of the community and would not result in any significant impacts on people of the environment. We contest that that's not true.

We believe that the impacts include disruption of groundwater flows, contamination of ground and surface waters at the landscape scale, fragmentation of habitat connectivity at the landscape scale and increased potential for large-scale fires. The National Parks Association views the whole Pilliga State Forest to be considered as of exceptional environmental significance. This is the last major forested system in western New South Wales. There used to be what Eric Rolls used to call a million wild acres. This no longer exists. The conservation values have increased with increasing clearing, and the Department of Planning, Industry and Environment has significantly erred in its lack of addressing cumulative impacts.

The Pilliga State Forest is reflected in the occurrence of 27 threatened species and up to 57 threatened animal species. DPIE acknowledges the impacts on biodiversity through offsets. This does not address adequacy, and we will talk about that in a moment. An estimated 1000 hectares, including 30 hectares of threatened ecological communities, will be impacted, but the department uses a caveat, that it is expected

to be much lower than 250 to 630 hectares and is unlikely to be no greater than 70 percent of the worst case. The consideration, experience ancillary infrastructure impacts or impacts of road networks on the survival of threatened species, including koalas. There is a significant impact.

The department's ..... does not require progressive decommissioning as well, are no longer productive. The proposed condition for pipeline access should be tied to Stage 1 and not Stage 2 of the development. There's no point in proceeding with 24 additional wells if it never gets to Stage 2. I ask that the IPC also considers the chief scientists and engineers' report in relation to koalas and not just in relation to ..... gas. There are specific recommendations in relation to the Pilliga. The NPA supports the concerns of local communities and Aboriginal interests on the project. The department has consistently used, inappropriately considers considerations for cumulative impact, and I will give three examples.

In terms of biodiversity, it states that only a small 4.2 per cent of the total Pilliga Forest area, but only 5 per cent of the protected area needs to meet – sorry, biodiversity is only a small .2 per cent of the total Pilliga forested areas. However, the bioregion has only got 5 per cent of the area as protected areas, and it needs to meet 17 per cent in the bioregion, which will never be met at the existing level of vegetation, let alone any more clearing. So the point there is we've had a much bigger forest area and now it's being cleared to its absolute minimum, and even .2 per cent, if that's all it was, is beyond the tipping point.

Water usage, for example, was talked of this morning as being compared to only a quarter of the cotton farms' extraction, yet it was stated that the water allocation is fully allocated from the good ground water system. And another example is the destruction of carbon dioxide as it happens anyway, and is not acknowledging even methane as a CO2 equivalent in the greenhouse gas emissions deductions. Commissioner, the National Parks Association objects to the development. It believes that the department's assessment has not been adequate in addressing these issues, and we ask that you look at the issues that we will speak to you in our final submissions.

In our view, the department has adopted an entirely inappropriate frame of reference when considering the relationship between the project area and the broader Pilliga Forest. The issue is not that the remainder of the forested landscapes offsets and diminishes the significance of destroying the well sites. The critical issue is that the development has serious repercussions for the integrity, functioning and resilience of the entire Pilliga forest, an irreplaceable national biodiversity ..... site. I would like to thank you, Commissioners. I don't really have much more to add today, but I'm happy to answer other questions if you have them.

MR O'CONNOR: Thank you for that presentation, Grahame. I note your colleague is speaking next, so we might go straight to that presentation.

MR DOUGLAS: Thank you very much for your time today.

MR BEASLEY: So, the next speaker is Lynne Hosking who's from the Armidale branch of the National Parks Association of New South Wales. Are you there, Ms Hosking?

MS HOSKING: Yes.

MR BEASLEY: Please go ahead.

MS HOSKING: Thank you. I wonder if I may share a screen.

MR O'CONNOR: You certainly can.

MS HOSKING: I'm not quite sure – there it goes. Is that coming up for you?

MR O'CONNOR: Not yet. Yes, we've got it now.

MS HOSKING: Right. Thank you. Thank you for the opportunity of meeting with you today. My name is Lynne Hosking. I'm from the Armidale branch of the National Parks and – National Parks Association. In Armidale, we've got actually members throughout a lot of the north-west of New South Wales, and some are property owners who've experienced extreme stress from drought and bushfires, and yet they're still keen to have special places protected. For the last 20 years, we as volunteers have been involved with the Pilliga by taking people on educational visits and supporting locals and advocating for the protection of the Pilliga.

I would like to acknowledge the traditional custodians of the Pilliga – excuse me, and express our respect for elders. We're grateful to be able to visit their beautiful country. Last year we had four visits, three excursions as well as organising a forum we called Sky, Earth, Water, Life – Conversations in the Pilliga. We visited a wonderful Aboriginal co-managed area with National Parks, and we had six guest speakers, five of whom were from the local area and one came from Tamworth, not so far away in our neck of the woods. Locally, we bought food and fuel and stayed in accommodation, thus supporting local businesses within the Pilliga as well as Coonabarabran, Narrabri and the Baradine and Pilliga townships, and we always do this when we go out to stay, and we try to promote the area as well.

The Pilliga as a whole integrated forest area is incredibly important, not only special for the community and the beloved homeland of the Gomeroi people. The Pilliga is also recognised nationally and indeed globally as a biological hotspot and an internationally recognised important bird area.

MR BEASLEY: Ms Hosking, can you just enlarge your slides? I think you will have to do it on your computer. I think you will have to do it on your computer.

MS HOSKING: Sorry.

MR BEASLEY: They're – I think I'm being told bottom left, there might be a means of doing that, or - - -

MS HOSKING: Sorry.

MR BEASLEY: That's it. Thank you.

MS HOSKING: Right. That's how they started. You can see Siding Springs Observatory there in the background in the Warrumbungle's. And that was when I wanted to pay our respect and gratitude to the traditional elders. Okay. So what I was just about to say on this slide, which we considered an incredibly important area, not only important for the Gomeroi people and the local community, but indeed recognised internationally. Throughout these slides, I've included some little comments from people who come along on our excursions and tag along to us. And Narrabri and Coonabarabran Shires and Baradine all promote the cultural, historic and natural values of the Pilliga. Bird routes are promoted, and many visitors avail themselves with printed directions and species lists to travel throughout the whole of the Pilliga. And species such as the koala and the Pilliga mouse are quite well-known, and actually I would be chuffed if I had a scientific name that recognised where I came from. I think it's pretty special for that little mouse.

Less well-known but vitally important for the ecological health of the Pilliga are insects of invertebrates. Last year at our Conversations in the Pilliga Forum, we were amazed to learn that new species are still being discovered. Those ones in the picture were discovered by Dr Peter Cyril, and they live in aquifers. We were – we also learnt that all cockroaches are not distasteful and, in fact, that one at the bottom was quite endearing. There are 63 butterfly species in the Pilliga, including seven species which have the quirky habit of meeting on hilltops and fire towers for their romances, to find a mate. We think that the Pilliga with all its diversity of creatures great and small is a journey of discovery and wonder.

I do not believe that the Pilliga can retain its integrity from the impacts of the Narrabri gas project, nor meet the State and Federal legislative requirements that are designed to protect biodiversity, heritage, health and safety of the local community. For example, of the 27 threatened animal species identified by various Acts, there are 13 – well, some are especially vulnerable to certain aspects. Thirteen are hollow-dependant, that is they require mature-aged trees with hollows. Sixteen are threatened by feral predators, and 23 species are threatened by inappropriate fire.. I mean, more species are less affected by lots of those things, but they're the recognised things in the Act.

There's no recognition of the Narrabri cold seam gas proposal within the Pilliga – within the wider landscape context, nor the vital role of connectivity within the Pilliga, connectivity of water under the ground – such an important recharge system, and it's an essential element of replenishing the great Artesian Basin. Koala species are listed as threatened. It was once populous in the Pilliga, and now it's clinging on

in severely reduced numbers, and there are a whole lot of other impacts. We will put all our details – with more details in the written submission.

So we believe that the forest is fragmenting, and that is impacting on its integrity. And fragmentation is recognised as a key threatening process under the Biodiversity Conservation Act. It impacts in all sorts of ways, on 27 endangered or vulnerable species and three endangered ecological communities. This is a Federal Government assessment. Fragmentation itself is recognised as a key threatening process under the Biodiversity Conservation Act, and you know, when people think of feral animals, they often think of pigs and goats and foxes and cats, but one little known one is the – fragmentation can increase the access by noisy miners, and their aggression towards other birds is another key threatening process under the Biodiversity Conservation Act.

They actually impact very heavily, for example, on the critically endangered region honeyeater, and in our written submission we will give you an example of an abandoned regional honeyeater that was then found in a travelling stock route just near Armidale. Therefore, it's not just such a very, very local impact. You know, we can't expect the koalas and the birds and the bees to all stay just very neatly in one part of the Pilliga. We think that – we can't compartmentalise the Pilliga nor downplay the importance of retaining the integrity of the whole of the Pilliga. There's so many things that could adversely impact on a much wider area.

We're concerned about, for example, the 24 hours a day flares that are permitted even during fire ban periods –

MR O'CONNOR: Could you wrap up, please, now, Lynne. We've run out of time.

MS HOSKING: Pardon?

MR O'CONNOR: Could you please wrap up now? We've run out of time.

MS HOSKING: I'm sorry. I would just like to say that there are more impacts than are obvious. There's the coal – Longwall coal mine impacts in the north-east of the Pilliga, and there will be more details in our written submission. I won't talk about the petroleum exploration licences. other people will be covering them, but suffice to say we are very concerned, as are many farmers. In conclusion, I would just like to say that respect for traditional custodians and respect for clean air plus dark skies plus intact forests plus clean water equals interconnected healthy biodiversity and communities for the long-term, for future generations. The Pilliga is a national jewel too precious to plunder. Thank you.

MR O'CONNOR: Thank you. We look forward to receiving your presentation as a submission. Thank you, Lynne.

MS HOSKING: Thank you.

MR O'CONNOR: Next speaker, please.

MR BEASLEY: Mr Russell Stewart from the Narrabri & District Chamber of Commerce. Can you hear me, Mr Stewart? Mr Stewart, are you there?

MR STEWART: Yes, I am.

MR BEASLEY: Please go ahead.

MR STEWART: Thank you very much. Well, thank you for the opportunity. It's very much appreciated by Narrabri & District Chamber of Commerce. I'm the president of the Chamber of Commerce and I've been a member of the chamber for 30 years. I'm currently the chair and the president for the last six years. I'm born and bred in the Narrabri region and the son of a local soldier settler, so I've seen a bit. Our chamber has a 93-year history of supporting and representing the businesses and wider community of Narrabri and district. We overwhelmingly support Santos and the cold seam gas industry in our area. Business has been extremely hard-hit by drought and is very – we're very aware and business is very aware that they can no longer survive and employ staff based solely on agriculture alone.

A case in our region for some time, and the possibility of the establishment of a cold seam gas industry offers much hope and stability for them for their economic survival. Retention of our quality young people is the absolute key to healthy growth in regional communities. We must be able to offer our young people quality long-term varied career opportunities or they simply just are forced to leave. Santos has shown that they do predominantly hire and focus on local people, so we are confident that this will continue. Santos have been wonderful community and corporate members and very quickly became one of the Narrabri community.

Aside Santos staff attending all chamber meetings, chamber have hosted over 36 well-attended coal seam gas information evenings, where Santos representatives answered all questions put to them without notice by attendees, both members and non-members alike. These information evenings provided critical -–proved critical in allaying the fears put in place by the relentless scaremongering of mostly out of town anti-coal seam gas groups. The overwhelming comments by those attending were that they were pleased that they attended to form their own opinions. They were now not concerned with the project and could see through the scaremongering after – understanding the checkable facts.

As president of Narrabri & District Chamber of Commerce, I receive regular requests for interviews from various media and study groups. I always agree, regardless of their views, however I am regularly concerned at the lack of knowledge of regional communities. Many of these people have, and already have, an anti-coal seam gas opinion formed when they arrive. When I ask why they have formed their anti-coal seam gas attitude, they simply say they have read social media reports and that water is being poisoned and the environment has been ruined. I then ask if they have seen any evidence of this. They again refer back to the statement that they read on social

media. When asked if they have taken the time to back-check the accuracy of the social media statements, or have they visited a coal seam gas spot, the answer is invariably no.

Unfortunately, the majority of the finished reports of these people vary little with their preconceived ideas. Statements made by Santos or their supporters in our area can be and will be scrutinised by all, and accuracy checked. This, of course, should be the case. Statements and innuendo released and utilised by many of the anti-coal seam gas groups seem to be accepted as genuine and accurate. Those that take the time to back-check mostly support the fence-sitters are very disappointed and frustrated at the anti-coal seam lobby, have not taken to task and back-check, as Santos and their supporters are, and expect to be. It's been a major factor in the decisions which may occur.

There has never been a genuine independent survey taken in the Narrabri region to find the actual real community support level of Santos and the proposed Narrabri gas project. The publicly-quoted figure of 98 per cent anti by the anti-coal seam gas groups is clearly fabricated for their purpose and ETS, another example of their willingness to deceive the public on this issue. Chamber members who live, work and run their businesses, employ local people and volunteer in the community believe the vast majority of our community are in support of this ..... Chamber members are extremely grateful that these same activist groups and social media were not around when our wonderful agricultural industry was developed.

It is the opinion of members that the same relentless attacks would have been levelled at that industry. The result would have been devastating for our community, as it should be if the Narrabri coal seam project is not approved. It's a wonderful once in a lifetime opportunity for this region. As president of the Narrabri & District Chamber of Commerce, I regularly receive inquiries from outside businesses, very interested in developing in our district, should the Narrabri coal seam gas project be approved. These inquiries are genuine and very exciting for the healthy growth of our part of regional Australia.

There are numerous businesses just waiting for the approval of this project so that they can invest their money and their efforts into our region. These entities offer the promise of quality long-term career opportunities for our young people so that they can stay, commit, contribute and grow this wonderful community. Chamber members do not only consist of shopfront businesses. Our members include all forms of business and industry, as well as many farmers who all support Santos and the development of the coal seam gas industry in our area. After much genuine consideration of the chief scientist's report and other independent scientific studies into the coal seam gas industry in the Narrabri area, the members of the Narrabri & District Chamber of Commerce are comfortable and convinced that the project can safely coexist with already existing local industry and community.

Many of our farmer irrigator members are in awe at the integrity and construction of the Santos well. Santos always openly and transparently and quick to respond to all

Chamber's questions. Narrabri & District Chamber of Commerce have the utmost confidence in the Commission to work with the facts and approve this once in a lifetime opportunity for our region in New South Wales so that we can move forward with confidence to work together to guarantee healthy growth for all. Timing for this project to be approved has never been more critical and urgent than it is at the moment. We thank you for this opportunity to express our long-time, well-developed and considered opinion, and respectfully urge you to approve the Santos gas project for Narrabri. Thank you, folks, for ....

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

MR BEASLEY: Julian McKinlay King from Free CSG North West. Are you there, Mr McKinlay King?

MR McKINLAY KING: Hello. Yes. Can you hear me?

MR BEASLEY: We can. Please go ahead.

MR McKINLAY KING: Thank you. I've been asked to speak today in my profession as a structural geologist. I don't know a great deal about coal seam gas but I do know a great deal about structural geology and drilling. And from what I've seen around the world of the limited data on coal seam gas, there's a great danger of breaking into water aquifers, especially in this area. You know, within this area of the Narrabri, it's all sedimentary rocks. It's shale, sandstone, and you have elevated perched water tables. This is a really vital resource in a country which is essentially very, very dry, and once you fracture these elevated water tables, once you fracture the Pilliga sandstone, once you allow this water to escape, you cannot reinvent. There's no back tracking. You can't go back and seal all the fractures, all the faults, all the disruption to the pathologies. So I'm just trying to draw the attention to those in the government who are making these decisions, that once you damage the area, the eco systems, the perched water tables and the aquifers, you can't repair them. There's no way in the world you can repair them.

They're often very thin shale deposits which keep this gas and waters separate, and once you drill through them, you break them, even if you case them, the casing, the steel casing will erode, it will rust, and you're going to get a lot of pollution. Once you fracture them to get hold of the coal seam gas, you're going to release the methane, and there's no stopping the methane. And if you're concerned about carbon dioxide emissions and so forth, methane is a lot worse than CO2, as you probably know. What else can I say? On the economic grounds, I don't think we're treating our resources for the benefit of Australians.

At the moment we're seeing very, very minimalist royalties applied to our resources. In the case of LNG gas, for example, we're one of the world's biggest exporters, and we're collecting one-thirtieth or – I think it's 800 million compared to 26.6 billion in Qatar. So we're letting our resources walk out of this country for a song. They're

not benefiting Australians. They're not even benefiting the government. The only people they are benefiting are the mostly overseas corporations. I've also read that the government has failed to implement the 2014 recommendations from chief scientists. I also read that the Pilliga is a large habitat for our endangered koala and other species. This has been devastated by the bushfires. We should be looking to protect all koala habitats right now.

We've lost 20 per cent – 50 per cent of our koalas in the last 20 years. The statistics are phenomenal. So I urge those making these decisions, and the Australian public as well, we need to take immediate action to save our koala, our endangered species. We need to stop our governments selling our resources from under our feet for really a song.

MR O'CONNOR: Thank you, Julian. Nothing further you wish to add?

MR McKINLAY KING: No, thank you.

MR O'CONNOR: Okay. Thanks for your time this afternoon.

MR McKINLAY KING: You're welcome.

MR O'CONNOR: Next speaker, please.

MR BEASLEY: We have Rod Campbell from the Australia Institute. Mr Campbell, can you hear me?

MR CAMPBELL: Yes, I can hear you loud and clear. Have you got me there?

MR O'CONNOR: Yes.

MR BEASLEY: We do. Go ahead.

MR CAMPBELL: Fantastic. I've got some slides here which hopefully should be easy to share. Can you see that slide there?

MR BEASLEY: Not yet.

MR CAMPBELL: Okay.

MR BEASLEY: Something is happening now. Yes, got you.

MR CAMPBELL: Fantastic. So my name is Rod Campbell. I'm the research director at the Australia Institute. We're an independently-funded research organisation based in Canberra, and we've been commenting on and involved in the playing process around the Narrabri gas project for nearly 10 years. We reviewed the original Allen Consulting Assessment back in 2011 – '10 or '11, and we've made submissions consistently since then. And the message has never really changed. The fact is that the various economic assessments of this project heavily overstate its

benefits and understate its costs. I should say also at the outset a colleague of mine will be also presenting. We will be making two written submissions. I will be talking about the cost benefit analysis within the EIS, and some of the macro-economic modelling.

My colleague, Mark Ogge, I think, is scheduled to talk to you on Thursday, and he will be looking at gas and energy markets, the project in the context of gas and energy markets, and also greenhouse gas emissions. But - - -

MR BEASLEY: I'm sorry, Mr Campbell. Someone is just whispering in my ear to suggest that you should put your slides inside slide mode.

PROF BARLOW: I did. Do it in .....

MR CAMPBELL: I'm trying to do that, but for some reason it's not loving me.

PROF BARLOW: Down the bottom on the right, Rod.

MR CAMPBELL: Yes. I'm looking at down the bottom on the right. No, it's ..... I have gone to slide show, but it is not working for reasons I can't – you can see the cover slide there though - - -

MR BEASLEY: You can, yes. Yes.

MR CAMPBELL: Yes.

MR BEASLEY: It's research that matters.

MR CAMPBELL: We will just carry on.

MR BEASLEY: Yes.

MR CAMPBELL: So cutting to the chase of the economic assessment in the EIS is the cost benefit analysis. It was done by GHD Consulting a few years ago. We've made submissions on it, and the key facts around this have never changed. GH – and, sorry, this screen capture – you don't need to go into it in detail, is from the department's final assessment report. The final assessment report repeats GHDs estimates unquestioned, and I guess it's pretty disappointing, I find that after the years of controversy around economic assessment, of mining and gas projects in Australia and in New Zealand, in particular, that the department really just has chosen to accept the original cost benefit analysis almost at face value. We will talk a little bit about its review in a moment, but these are – this is the department repeating the proponent's consultant, based on the proponent's data unquestioned in the final assessment report.

Estimating that revenue from the project in present value terms will be around – just under $4 billion – sorry, revenue would be around $5.4 billion and costs would be

just under $4 billion, leaving a nett value of $1.5 billion. The problem, of course, with this is, as has been noted for several years, that the project is carried by its owners on their financial statements at a value of 0. They've been obliged to write that down in line with conventional accounting rules. And we will discuss a little bit more about that in a moment, but let that sink in for a second. The EIS documents are saying this project is worth $1.5 billion. The proponents' own financial statements say that it's worth 0. The two things can't be right. The two things are not exactly the same, but it's more of a Jonathon – it's more of a Jonathon and a Fuji apple comparison than to say it's not an apple and orange comparison.

You can't have a financial statement saying that something is worth zero while the cost benefit analysis in the EIS, based mainly on revenue and capital and operating costs, is saying it's worth $1.5 billion. That's a fundamental problem, and we will go into detail on it in our written submission again, but the department have addressed this in just one – this pretty fundamental problem in just one paragraph. They say, "Dr Fisher, their reviewer, noted that key concerns raised in submissions – including long-term demand for LNG and the economic viability of the project does not affect the outcome of assessment and does not appear to be consistent with forecasts for the gas market.

My colleague will talk a bit more about the gas market, but the idea that the economic viability of a project is not – should not affect the assessment is absolutely staggering. And it's pretty disappointing that the department has left it to this one paragraph to unpack that issue. Really they've hand-balled it on to their reviewer, Dr Fisher, and his analysis, but his analysis was hardly comprehensive either. The department's final assessment report – and it's one paragraph on this fundamental problem, is in turn, based on one paragraph in a letter from Dr Fisher. Here it is. It's the last paragraph of a two-letter – a two-page letter:

> *The fact that the project assessment –*

this is Dr Fisher:

> *The fact that project assessment has taken an impairment –*

Sorry:

> *The fact the project proponent has taken an impairment on the project and its accounts is also irrelevant to the assessment of the project from the perspective of the community of New South Wales. As a publicly-listed company, Santos is required to adhere to accounting rules and Stock Exchange standards. The value of a project recorded in the historical accounts of the company has no necessary bearing on the future value of the project to New South Wales, should the project be approved.*

I find this a pretty staggering statement, that – I mean, I guess on face value, the idea that an impairment in the accounts might not be disclosed is fine, but the fact that it's

been valued at zero for some years, I think, is absolutely fundamental to understanding the likelihood or the uncertainty around the claimed economic benefits elsewhere. None of the jobs claims, none of the royalty or tax claims – some of which we will talk about shortly, none of those are possible if this project isn't viable. If it – in order to be viable, what we're hearing here is that it's likely to require large public subsidy. It's likely to see the project looking for ways to cut costs which, of course, means skimping on environmental standards, safety standards, rehabilitation obligations and any other kind of corner they can cut, they will be under intense pressure to do so.

They will have every reason to be seeking subsidy from the government. So who is Dr Fisher? In my understanding or in my experience over about a decade of looking at projects in the New South Wales planning process, I've seen quite a few bits of work by Dr Fisher. I've never seen him employed by the department as an – as a so-called independent reviewer before. This role has usually been performed by the Centre for International Economics and sometimes by Marsden Jacobs. To my knowledge, this is the first and only time that this job has been given to Dr Fisher. Dr Fisher is not an independent expert. He's anything but independent. Dr Fisher is a – an economist with a very long track record of very controversially working for fossil fuel industries.

This is a screenshot of the BA Economics website today, and you will see that the first three – this is their recent publications page. The first three of these refer to economic modelling that was released around the time of the last election that purported to model the large – the apparently large economic cost of action on climate change. The first of these was given to the Australian newspaper as an exclusive, resulting in front page headlines about a quote, "carbon cut apocalypse". The paper in question of this front page story was based –

MR O'CONNOR: Rod, please wrap up your presentation.

MR CAMPBELL: Sure. This paper was four pages long, contained no references or substantive explanation on how the results were generated. The results were almost universally panned by economists, including people Dr Fisher had co-authored reports with, calling his work, quote, "absurd" and, quote, "about 10 times too high". These are highly if not partisan, certainly motivated by working for the fossil fuel industry. As with the following publications which the bottom two there were commissioned by the Minerals Council. Dr Fisher has also worked for project proponents in the New South Wales planning process relating to the Rocky Hill extension. He was on the side of the coal mine that was declared by the New South Wales department and the IPC and the Land and Environment Court to be the wrong mine, at the wrong place, at the wrong time.

He's also worked for Hume Coal, declaring that Berrima had just three tourism establishments, and so it shouldn't worry at all about the Hume coal project. Anyone who has ever driven down the main street of Berrima knows that that's a radical untruth. Dr Fisher also worked for Warkworth Coal, another project that the New

South Wales Land and Environment Court had decided was not in the interests of New South Wales. The rest of my project – the rest of my presentation was going to be on jobs claims and jobs modelling, but perhaps if we're running out of time, I will leave it there. Needless to say, if the cost benefit analysis cannot be relied on, certainly the macro-economic modelling and jobs modelling that largely stems from it can't be relied on either, and you know, returning to my original statement and the long-term – where is my stop sharing –

MR O'CONNOR: If you're able to provide that presentation to us, we will have the opportunity to review the balance of the slides we didn't get to see.

MR CAMPBELL: Yes, thank you. So in conclusion, as usual, the costs of this project have been heavily understated, while the benefits of it have been heavily overstated, in assessment that can only be described as at best disappointing, and at worst incredibly not independent. Thank you.

MR BEASLEY: Rod, can I just ask you a quick – Richard Beasley. I would just like to ask you a quick question. The matters you've drawn the Commission's attention to just in your presentation now are matters you're going to include in your written submission?

MR CAMPBELL: Yes, that's right.

MR BEASLEY: Can I just ask you one question? In relation to Dr Fisher's reports, I was looking for a curriculum vitae. Were you able to find one?

MR CAMPBELL: Of Dr Fisher himself?

MR BEASLEY: Yes. I can't find one in the report, so I was just wondering - - -

MR CAMPBELL: I haven't – I haven't looked for it.

MR BEASLEY: I mean, you're giving us – the reason I'm asking is usually they would include details of all the work you've done - - -

MR BEASLEY: For example, for mining companies that you've just taken us through. You can't remember seeing one. I'm not suggesting he's not qualified. I just don't know. But I can't find one .....

MR CAMPBELL: I'm not suggesting that either, but his website certainly has a very lengthy list of publications - - -

MR BEASLEY: Right. Okay.

MR CAMPBELL: These are just the tops ones on the first page, going back about a year or so.

MR BEASLEY: All right. Thank you.

MR CAMPBELL: Thank you.

MR O'CONNOR: Thank you. Look forward to having a review of your submission. Next speaker, please.

MR BEASLEY: The next speaker - - -

MR O'CONNOR: Is it Juliana Goddard?

MR BEASLEY: The next speaker is Ian Gaillard from Garfield-Free Northern Rivers who's on the phone. Are you there, Mr Gaillard?

MR GAILLARD: Yes, I am.

MR BEASLEY: Please go ahead.

MR GAILLARD: Good aye. Look, I speak for – thanks for giving us the chance to speak to you. I speak for Gasfield-Free Northern Rivers who, with massive community support, rejected unconventional gas – CSG, for good reason. I would like to pay respect to the Kamilaroi people past and present. My hope is that for once their submissions for clean, healthy country and future generations are not relegated to the dot point computer checklist as having satisfied cultural heritage guidelines, as is current government practice. That means Kamilaroi's submissions are heard and given priority. That means Kamilaroi lands remain Gasfield-free, and the New South Wales Government rejects Santos Narrabri project.

I would like to talk a little bit about CSG and the safety. So the Santos EIS has failed to address dangerous chemicals that are used in the CSG extraction, including ..... fluids and BTEX chemicals drawn from coal seams. I draw on the National Toxics Network submission of April 2017 to the Narrabri gas – Santos gas field. BTEX chemicals are naturally-occurring volatile organic compounds in gas, coal deposits and groundwater. Drilling and the removal of produced water release BTEX from the coal seam. Their short-term health effects include skin, eye and nose irritation, dizziness, headache, loss of coordination, and impacts to respiratory system, while chronic exposure can result in damage to kidneys, liver and blood systems. These BTEX chemicals are not assessed or addressed fully in this EIS.

In regard to other chemicals used, EIS list drilling and water treatment chemicals, noting they may resort to other drilling chemicals not listed in the EIS. While they propose not to use hydraulic fracturing, they have not provided a legally-enforceable guarantee that fracking will not be used over the 20-year lifetime of the gas fields. That's something I would like to see if they intend to do it. Many of the chemicals proposed to be used are proprietary chemicals, and their full identity kept secret under commercial business information protection. Whilst chemical ingredients are not revealed, then it must be assumed that they have the potential to be hazardous.

Of those chemicals and products identified, at least a serious seven are very toxic. For others, some do not have the chronic health data, while others provide no reproductive data.

There are also serious omissions in the consideration of carcinogenic silica-based products which generally affect drillers and anybody close to the drill site at the time. Importantly, there is no review of the growing body of scientific and health research focusing on the adverse human health and environmental impacts of unconventional gas, both in Australia and overseas. These appear to have simply been ignored. I will talk a bit about insurance. So Insurance Australia Group subsidiary is WFI and CGU who no longer provide coverage if there are unconventional gas CSG operations on their property, as has been brought forward by a couple of the farmers from out there. It's been made abundantly clear that liability for corporate, unconventional gas operation falls on the landholder farmer or local government or whoever controls that land.

The Santos – I mentioned the failure to provide a legally-enforceable guarantee of no fracking. So I will just reinforce, Santos has not provided the legally-enforceable guarantee that will ensure that hydraulic fracturing is never used at the Narrabri gas fields over the 20-year lifetime of the gas fields. Until that is provided, the EIS should include an assessment of fracking chemicals, quantities and related pollution. Now, finally, the question, and a very serious question. Are Santos and the New South Wales Government able to sign a legally-enforceable document that they will not harm the water of the region or leave toxic chemical residue in the Narrabri gas project area and proposed areas of expansion? Thanks for your time.

MR O'CONNOR: Thank you very much, Ian. That was right on schedule. Our next speaker, please.

MR BEASLEY: Is Danica Leys from the Country Women's Association. Ms Leys – Ms Leys, I apologise if I've mis-pronounced that.

MS LEYS: Thank you.

MR BEASLEY: Can you hear me?

MS LEYS: Can you hear me?

MR BEASLEY: Yes. Go right ahead.

MS LEYS: Thank you. Thank you, Commissioners, for the opportunity to present to this hearing on behalf of our members. The CWA of New South Wales is New South Wales' largest rural-based advocacy group, and we have well over 8000 members and close to 400 branches right across New South Wales, so there's no other member-based organisation that has the breadth and the depth of membership on matters affecting country people that we do. Our position is that we object to any adverse environmental and social impact resulting from coal seam gas activities and

infrastructure, including the impact on property rights. We also support positive action on climate change. We are calling for and supporting the implementation of a plan for transforming regions, communities and workers from fossil fuel extraction, processing and burning sectors, to new, inclusive and sustainable economies.

In 2017, delegates at the CWAs AGM passed a motion supporting a ban on unconventional gas explorations, extraction and production. It's important to highlight this because CWA policies such as this updated position on unconventional gas, where an entire industry affecting the economies in regional New South Wales is opposed is never taken lightly in an organisation like ours, and such motions are not often successful. The fact that this motion was passed with such a strong majority is indicative of how concerning this project is for our members in the local area and right across the State.

Today I will just briefly cover some of the concerns of our membership which illustrate why we are so opposed to this project. Our written submission will expand upon all of these points, plus others, in more detail, and I'm happy to take questions. Firstly, the environmental impacts. The environmental impacts of concern to our members include water impact, soil contamination, air quality impacts and health impacts. Our members are particularly concerned about the potential for the project to cause major damage to water systems, particularly the underground aquifers. Questions remain about the treatment and handling of produced water during and post-the extraction period, and our members are concerned with the impact on the recharge ..... of the aquifers and potential contamination via the accidental release of chemicals used in the extraction process.

We also question whether the volume of salt, an average of 47 tonnes per day over the life of the project, can legally and safely be placed in the relevant New South Wales landfill sites. Turning to the statewide review of costing gas activities undertaken by the chief scientist. We're very concerned that the New South Wales Government has not yet implemented the recommendations of the chief scientist in relation to safely managing CSG extraction in the State. In its final report, the Legislative Council Portfolio Committee in February 2020 found that in the five years since the release of the New South Wales chief scientist's report, communication and access to information about coal seam gas activities has not improved, and despite the New South Wales Government and industry representatives claiming that all recommendations were implemented, that this is not, in fact, the case.

In our view, and the general consensus by government at least at the time of implementing the review, was that the progress of the CSG industry in this State would be contingent on the adoption of the chief scientist's recommendations. That has not happened. Insurance has been raised by a number of other speakers during the day, and the chief scientist looked into this issue in detail as well, and recommended that the government consider a robust and comprehensive policy of appropriate insurance and environmental risk coverage of the coal seam gas industry,

to ensure financial protection short and long-term. It's clear that insurance issues are becoming a major hindrance to the execution of this project.

Turning to human health impacts, the chief scientist recommended that the New South Wales Government review in more depth the available information about human health impacts of the CSG industry. This work has not yet been completed. An Australian Government Select Senate Committee Inquiry into unconventional gas mining raises many questions about potential health impacts of the industry, including headaches and migraines, nose bleeds, fatigue, nausea, skin and eye irritations and rashes. And that was using Queensland gas fields as examples. This is in addition to the potential mental health and other social impacts. In our view, none of these potential risks have been adequately addressed by the regulator or the proponent.

In conclusion, thank you again for the opportunity to comment. It's the view of the CWA of New South Wales there are still too many unaddressed uncertainties in relation to both the Narrabri gas project and CSG in New South Wales in general. Our lack of attention to this detail has further fuelled community angst and opposition to projects like this, as is evidenced by our updated policy positions in opposing unconventional gas, and is also evidenced by the number of speakers appearing before you this week. We strongly request that our concerns in relation to the project be taken into consideration. Our comments reflect the concerns of our members which are based on a genuine understanding of, and empathy for, rural communities. Thank you.

MR O'CONNOR: Thank you for that presentation. We look forward to receiving your submission.

MS LEYS: Thank you.

MR O'CONNOR: Next speaker, please.

MR BEASLEY: The next speaker is Gillian Goddard from the Narrabri Industrial Network.

MS GODDARD: Good afternoon, Mr Chair, and thank you, Commissioners, for having us today and giving us opportunity to speak on the Narrabri gas project. I am speaking today on behalf of the Narrabri Industrial Network Incorporated. Our members strongly support and are in favour of the Santos Narrabri gas project. Santos has been working in our shire for many years now, and our members only have praise for their professionalism, input into our community and respect for the environment. The employment capacity of the Narrabri project would be a massive boost to the Narrabri Shire and surrounding communities, not only during construction but long-term.

Projects such as this will not only secure more jobs, but it will create more opportunities for local businesses to grow. With coal seam gas in our shire, we will

have balance and local businesses another income stream. ..... for future opportunities, sustainability for our existing businesses and give the next generation an opportunity for employment in the bush which is so desperately needed. Further development within our region is exciting for our members. It gives them vision to grow and offers further employment opportunities within their organisations for local people. The alternate is we keep following the slow decline and watch regional towns die.

If we let regional areas die, the suburban centres will be heavily affected as a result. There is no denying Narrabri has been on a slow decline for many years. We have lost major retailers, local businesses, pubs, clubs and entertainment venues. All of these businesses were once supported by the agricultural and tourism sectors. Both of these income streams have quite literally been turned off, with no vision for the future, and it is questionable whether they will recover at this point.

Agriculture has been through some tough times at recent points. However, the industry still has a bright future for farmers. Science and technology are responsible for this progression. As highlighted, cotton is one of our major employment avenues within the shire, providing support and revenue for many local businesses within the region. Due to science, technology, the plant now uses 48 per cent less water, 34 – 34 per cent less land and 97 per cent fewer insecticides. The introduction of round-bale picker, GPS systems and cloud-based telemetry control have all had a massive impact on local drugs ..... technology is in the only – is only in the early stages of development. Within the next few years, there will be very few jobs required throughout this process.

Our members have many concerns regarding the future of Narrabri region without diversification. The Narrabri Gas Project can't happen quick enough, as it provides that opportunity for regional diversification. The Narrabri Industrial Network believes there is no – there is no future for the next generation within our area without diversification and the energy security created by the Narrabri Gas Project. Santos has proven they are capable, reasonable and will support surrounding communities. The benefits of this project are wide reaching and not only support local businesses but larger suppliers throughout Australia.

The Narrabri Gas Project is a perfect example of how businesses can give – sorry – of how regional businesses can give suppliers – larger suppliers the turnover required to keep the relationship strong. Alternatively, regional businesses lose buying power and commitment from these companies, which will be – detriment many businesses and the wider community. If we allow this project to move forward, we will see growth within our regional area. This growth will allow small towns to become small cities. Once you create an inland city, it will feed off itself. Once you have the population, the opportunities will follow.

It will allow health care to improve, our schools to grow, retail shops to open and hospitality ..... thriving. Tourism will follow. Thank you for the time to speak today.

Please consider what our members have to say, as time is ticking for many businesses in regional areas. Thank you.

MR O'CONNOR: Thank you, Gillian, for your presentation. Our next - - -

MS GODDARD: My pleasure.

MR O'CONNOR: Next speaker.

MR BEASLEY: We've Mr Daniel Walton from the Australian Workers' Union. Are you there, Mr Walton?

MR WALTON: I am here. How are you?

MR BEASLEY: Good, thanks. Please go ahead.

MR WALTON: Thank you very much. I'd just like to start off by providing a short bit of background. The Australian Workers' Union has been operating now for 134 years, looking after workers across a wide variety of industries right around the country. We look after workers that are the end users of gas, be it industry throughout manufacturing and others, but we are also the union to represent workers that are involved in the extraction and processing of resources and hydrocarbons as well. We find ourselves connected throughout the entire supply chain and have been big advocates for this project and, obviously, for the development of gas and more gas going into the Australian market.

As you well know, the pressures on the manufacturing industry have been well documented right across the board, be it pressures on the extraordinarily high prices for both end users, commercial-industrial users, but also for household users as well. What we're seeing as a consequence of that is that businesses are divesting and are looking to build new facilities overseas, and we are also seeing some additional investment heading to other states, where more affordable and reliable energy is available to them. In New South Wales, we have limited supply, with only five per cent of the state's gas supply coming from the small project in Camden, which has been curtailing year after year, and we find ourselves in a situation where traditional supply out of the Bass Strait is curtailing as each year goes on.

In New South Wales, we rely upon gas being imported across from three separate states, and we're entirely dependent upon their supply for our means. As part of this, we pay extraordinarily high transmission costs, again, leading to further pressure on the end users, being particularly the manufacturing industry, and obviously for households as well. For us, it makes sense to bring additional supply into the New South Wales market, restricting it from leaving the state and providing, ideally, cheap and affordable gas to industry and to households, to lower their bills. The IPCs role is ultimately to consider whether or not this project can go ahead safely and operate within any legislative – legislated safety framework, and the question must be decided on facts, not by any ideology or views about whether or not gas is a good

thing or a bad thing, but purely based on fact, as to whether or not this project can safely operate within any framework.

We are absolutely concerned that any work our members undertake is to be down safely and in a manner which means that they go to work and they come home safely. We've got a long and proud history of standing up for our members' safety at work, and we would not in any way, shape or form propose projects that would put our members' lives in jeopardy. The simple fact is that gas, be it on-shore gas development through CSG, through fracking, through others, operates throughout the world and has been proven scientifically to do so safely, and we believe that there is enormous opportunities for the New South Wales industry and for New South Wales job coming out of this pandemic, that if this project was given the green light, it would provide enormous potential for those regional areas where this project – proposed project would operate, but right through to the eastern seaboard for the – where, predominantly, the end users will operate.

Again, these positions are not ordinary positions. They are high-skilled positions. The gas industry and hydrocarbons industry have some of the highest paying jobs in the Australian market. They provide huge opportunities for training and development not just for operators that we traditionally look after but throughout the skilled tradesperson – through to engineers, scientists and others who operate within this area. For us, we see no impediment if the Department of Planning is giving some consideration to the facts and the case outlined by Santos, that it should proceed to these IPC hearings. If the IPC determines that this project can operate safely within the framework that is designed, if they have in place the right precautions and considerations and strict framework around them, then we are certainly supportive of this project going ahead, giving enormous opportunities to our members, to the regions and to all of New South Wales, who depend so heavily – heavily on cheap and affordable energy, going forward.

It's also worth highlighting that we are going through an extraordinary time, being in this pandemic, and that over 200,000 New South Welshmen have found themselves out of work. Right now is about finding additional opportunities to create jobs and secure the existing jobs we've got in place, and this project, the Santos Narrabri project, provides those opportunities. I will leave it upon those who have given scientific evidence as to whether it can safely go ahead; however, I'm certainly happy to answer any questions that the Commission might have.

MR O'CONNOR: Thank you, Daniel, for that presentation. I don't think we have any questions at this stage, so will you be making a submission?

MR WALTON: Yes, we can certainly provide a submission. Thank you.

MR O'CONNOR: Okay. Thank you very much.

MR WALTON: Thanks for your time.

MR O'CONNOR: Thank you. Bye. Next presenter, please.

MR BEASLEY: Simon Pockley is on the phone, I think.

MR POCKLEY: Yes. I'm here.

MR BEASLEY: Go ahead, Mr Pockley.

MR POCKLEY: You can hear me?

MR BEASLEY: Yes, we can.

MR O'CONNOR: Yes, fine.

MR POCKLEY: I'm getting of an echo, but that's all. Okay. My name is Simon Pockley. I have a PhD in Information Design, and I have worked as a senior business analyst, but I'm also a landholder, and I have to admit that, to my shame, I am a Santos shareholder. I bought a small parcel of shares in order to try and influence their decision, but that's not what I want to talk about. I'm going to refer to the development-consent document where the approval is subject to certain conditions, on page 17, namely, b-30, b-31, b-32, b – and b-33, and I also are slightly concerned by the notes on the burden of proof.

I live to the south of the project area. I don't live in the project area, and I made my home in Warrumbungle Mountains in 1975, so I've been living there for 45 years. At the – at the core of my property is a spring, and that provides me with fresh drinking water. It's a clear reliable spring, and in fact, it's quite a famous spring. On 16 September 1921, a legal agreement was made whereby the owners of the property were required to protect – to protect it from contamination and to protect it from feral animals, so I'm kind of following that, and I guess there is a heritage component here, although it's not heritage listed. Perhaps the b-57, as a condition, will one day apply.

The thing about the Pilliga – the Pilliga sandstone country is that it tilts to the south, and the – the aquifers are pressured by that tilt, and my spring rises from the Pilliga sandstone. I'm actually on a sandstone ridge. I've – I've written to Santos, and Santos has talked depressurising those aquifers that my spring rises from. I'll come to that in a moment. We've just been through four years of drought, and in fact, an analysis of the rainfall records shows that 2019 was the driest year since 1886, when records began, with a mere 167 millimetres. In spite of that, although all my water tanks were empty, that spring was still there, and the wildlife were, in fact, dependent upon that spring.

There are springs scattered through the Warrumbungles, but this is a extremely important spring for the survival of wildlife, and remember that these – this – the wildlife are recovering from a devastating bushfire in – in – in 2013 which burnt about 90 per cent of the national park, so they're already stressed, but they were

dependent on water from that spring where I am. Now, the depressurising of the aquifers – and Santos admits this – mean that I will lose that spring. According to the – the development-consent document, I will be compensated, but the – the compensation is absurd. Santos have offered me a water tank. I don't know how that's going to be filled, but the – the – the main point I want to make is that, for all these conditions that Santos are supposed to meet, they have demonstrated time and time again, over the – over nearly a decade, that they incapable of managing the risks.

Not only are they incapable of managing the risks, but this project will contribute to global warming and further dry out the area and decimate wildlife. So I call on – on – on you, the commissioners, to – to recommend that all consent be withdrawn and that this project be completely decommissioned and .....

MR BEASLEY: What were – what were your – what were your concerns about the burden of proof in the conditions you referred the commissioners to?

MR POCKLEY: Okay. So my spring stops or, worse, it's contaminated.

MR BEASLEY: Yes.

MR POCKLEY: If – if it's contaminated, I will know until I die of some obscure cancer, but should it – should it stop, I then somehow go to someone and say my spring ..... Santos will claim that it's out by the project area and that they know – they have nothing to do with that. This is irreversible.

MR BEASLEY: The – the burden of proof, though, is on them, isn't it?

MR POCKLEY: It is, but I'm the one who's going to be blowing the – the – the whistle, or the – ringing the – raising the alarm - - -

MR BEASLEY: Right.

MR POCKLEY: .....

MR BEASLEY: Okay.

MR POCKLEY: And there doesn't seem to be any clear path .....

MR BEASLEY: Sure.

MR POCKLEY: In any case, how can you compensation for something that leads to the health of the wildlife .....

MR BEASLEY: Understood. Thank you.

MR O'CONNOR: Thank you, Simon. You time is up now. Have you finished your presentation? I think he might have - - -

MR BEASLEY: .....

MR O'CONNOR: - - - gone. Okay. Next speaker, please.

MR BEASLEY: The next speaker is Angus Atkinson. Are you there, Mr Atkinson?

MR ATKINSON: I – I am.

MR BEASLEY: Please go ahead with your submission.

MR ATKINSON: Hang on. I've just go to get - - -

UNIDENTIFIED MALE: .....

MR ATKINSON: - - - the – the IT going. Is that okay with you guys now?

MR BEASLEY: Yes. That's fine.

UNIDENTIFIED MALE: Yes, good. Thanks.

MR ATKINSON: Fantastic. Thank you for the opportunity to – to make some input. I'm a beef producer from Coonabarabran and an active of the New South Wales Farmers Association. I try – I do try to understand the concerns that many people have with this project, but I – I just really hope that everyone is willing to accept the decision of this independent review. I think it's absolutely essentially that the process and the decision regarding this project is open and transparent, and it also will be very important for the State Government to communicate the facts behind the project and – and try and dispel some of the myths that may be in the community. I'm very concerned that, if the decision of the independent review is ignored – that it sets a very dangerous precedent.

I'm a very – I'm a very strong believer in science, and I believe that the decision should be based on an independent review, not a popularity contest nor a scare campaign that doesn't use science – think a perfect example of this has been the recent overreaction to the use of Roundup. Many governments have now banned the use of it with – with – on both – on no science, just a scare campaign a few – a few lawyers trying to drum up some business. I hope the final decision does properly evaluate all the aspects of the project, particularly the financial and socio-economic factors, and doesn't overemphasise, while not – obviously, not ignoring the environment, but I think that it needs to be balanced.

Life is all about – you know, I – like all things in life, it's all about balance; however, I'd have to say that if the project does compromise ag land and water, it – it – it – it shouldn't go ahead, to be honest, but if the risks are assessed and have come

out that it – it can, I think that most parties need to accept the fact that the project has been ..... reviewed, and if that has been found to be acceptable, then we should go ahead for sure. I think it's absolutely essential that the project – that all the monitoring and oversight provisions are rigorously enforced. I think it's essential to remember that water is our most precious resource and must be protect, and that's – and it is – around my area, and in many other areas, the debate has become quite toxic, and people that would probably support the project are unwilling to identify themselves – just fear for the – for the – for possible reprisals regarding their – their opinion, but I'd just like to go back to the fact that I think that I appreciate that this has gone through an independent assessment.

I think that we do need to allow that to proceed, and if – if the review comes up, we should abide by that decision, but just once again, look, I just appreciate the fact that you have continued the process and not let COVID stop what is – is just a process, and I – I'd have to applaud you and thank you for the ability for myself and others to raise concerns regarding this project, and I think that it's been – I just think it's been great, so thank you very much for my – for – for allowing me to contribute today. Thanks again.

MR O'CONNOR: Thank you, Angus, for your – your contribution this afternoon. Next speaker, please.

MR BEASLEY: We have Mr Wes Leedham, who's on the phone. Are you there, Mr Leedham?

MR LEEDHAM: Yes, I am. Yes. Good afternoon to you all, and thank you for the opportunity ..... today, and thank you, Commissioners, for – for ..... basically what Angus also mentioned there before, with the COVID. It's really important that we continue – continue this. I'm speaking today as an individual, a community member and agricultural and environmental scientist, and I'm also speaking as a father, a father of two young girls in this beautiful Warrumbungle area. For me, the Pilliga has always been a very special place. Many, many nights over a – a number of decades I've camped in the Pilliga, been a ..... of not only what cultural diversity ..... is in the Pilliga, of the Gomeroi People ..... custodians, but also the fauna and flora of the area, and it's an area where it's very significant.

It's an area of east meets – meets west, when it comes to our – our local geography, and the geology there is also something also remarkable. I'm very concerned for the project, not only – not only environmentally but also economically. I can only talk about the evidence I've seen ..... I've – I've – I've – I've – I've been able to get to know in the South-East Queensland CSG and the detrimental effects it's had on their communities and also their individual – their individual businesses, as farmers, and also some town people, where the – where the – where they've also experienced the boom and bust. I – I'm – I'm very, very much against the – the project, and I think the science has proven that – that this is the case, and Santos does have the answers for a lot of these things, but ..... for me just aren't quite rigorous enough.

I – I'm very much concerned with collapse after the original economics of the – of the – of the start up and the whole thing about employing ..... people down the track. We always see it ..... and it just peters off. So I'm going to lead back in, now, to the environmental issues that I have. The 850 wells with the fragmentation is going to cause huge amounts impact to – to that unique ecosystem in the Pilliga, not to mention the wells. I want to, you know – you know, be accountable for the damage that these wells are going to cause with regards to the damage to our – our aquifer, and as Australians, we're still not even able to yet manage water above the ground that we can see.

The complexity of groundwater hydrology perplexes even the best geologists in the world, so I'm concerned about that as well, and yes ..... more information about what – what they're trying to do, and I think ..... of the Independent Planning Commission is – is – is hopefully going to stop it, and – and I would – and I – yes, appreciate the – the – the option to talk here today, and I hope that you guys get to make the right decision for us all, and ..... the sustainability of not only where we live locally but also the – the ecosystem ..... is also maintained, and as is the – the precious water that – that we so forever need, so that's ..... and I thank you for your time.

MR O'CONNOR: Thank you for making the time to present to us, Wes. Our final speaker.

MR BEASLEY: Yes, final speaker is Lynda Row. Hello, Ms Row.

MS ROW: Hello. Can you hear me all right?

MR BEASLEY: We can. Please go ahead.

MS ROW: Good. Okay. Thank you very much. Good afternoon, commissioners. I'm going to be reading my presentation. My name is Lynda Row, and thank you for the opportunity to speak today. I would like to acknowledge the Gomeroi People, on whose land I live. Other than for a period of 10 years, I've lived in Coonabarabran with my family since 1966. Our Warrumbungle Shire adjoins Narrabri Shire. As a family, we enjoying living with – with Pilliga as our backyard, and my husband worked extensively within it as a National Parks and Wildlife officer. We visit recreationally, often bushwalking and cycling there, and have grandchildren who do the same.

We know the Pilliga well. Should this fossil gas project go ahead, we are greatly concerned that this amenity and access will be lost to our community and to visitors. As a parent, grandparent and a nurse, I am concerned that there will be significant and ongoing negative health effects resulting from the proposed mining of fossil gas in the Pilliga and its transport across the rural countryside. These have not been adequately addressed. The World Health Organisation defines health as a state of complete physical, mental and social wellbeing and not merely the absence of disease and infirmity. Fossil gas mining puts aspects of this definition at risk in both a local and global sense.

There is much crossover in the negative health effects from gas production and climate change. You'll be aware that methane is a potent greenhouse gas, heating the planet and causing climate change at a much greater rate than other gases, such as carbon dioxide. Methane has been found to leak at almost every phase of the fossil gas production and transport process, from the geology to the infrastructure above it. Flagged at least four years ago, and again as recently as last week, satellite and other data indicates that fossil gas industry underreport the amount of methane they dump into the atmosphere by 25 to 40 per cent and, in some cases, as much as 60 per cent.

Doctors for the environment attest that Australia is freeloading on other countries that are taking much more action to reduce their accumulation of greenhouse gases. The World Health Organisation states that climate change affects the social and environmental determinants of health: clean air, safe drinking water, sufficient food and secure shelter. It is quite possible that drilling for fossil fuels will result in the contamination of water supplies and a release of environmental and atmospheric pollutants further affecting the health of our communities. Contaminated water and air is likely to have impacts on our ongoing capacity to grow food, and increase in global temperatures are already forcing food growers to rethink their practice.

Any increase in the earth – in the earth's temperatures results in changes to the delicately balanced global ecology and habitat. Human health will be compromised in a warmer climate. If current predictions of up to four degrees Celsius are correct, the warming of the earth will make it unhabitable for all inhabitants by the end of this century. More directly, health effects that need to be considered include the so-called minor issues such as skin rashes and nosebleeds that you've heard mentioned already today from local contamination from chemicals drawn from deep underground or used within the process. However minor they may be, they are, nonetheless, experienced in greater prevalence by people living within and around gas fields.

Mental health is affected as people lose control of their ability to manage and insure their properties and amongst whom suicide is already high. Our unborn children are vulnerable, and rural and indigenous children are more – are most vulnerable, with numerous studies, especially based in the US but now also in Australia, linking low birth rates and prematurity as well as congenital defects to the proximity of gas wells. Increasing prevalence of asthma and other respiratory problems are now being linked to higher levels of atmospheric pollutants, as well as pollens and other air allergens that are present in a warming world.

Recent US research showing increasing prevalence of clinical indicators for cardiovascular disease in areas close to drilling activity – these precursors include high blood pressure and blood vessel inflammation. All of this places great pressure on our already overburdened rural health system. Hospital admission rates generally utilised for datasets do not always tell the whole story. Most chronic diseases are treated in the primary care setting. Where required, admissions to hospital are often acute exacerbations of a chronic illness. It is, therefore, possible that some of the data underreports what is really happening in infected communities.

Mining is a hazardous occupation, with one of the highest fatality rates of any industry. The public don't often hear about the occurrence of incidents relating to the handling of uranium used in the logging of wells; spillage of chemicals, of which there are many different types; and ..... accidents causing death and injury. The health system is currently underprepared for them in our small rural services. We just don't have adequate services. Infectious diseases thrive in a warmer world. Malaria, for example, is strongly influenced by climate. A warmer world will create many more infections, some that we don't even know about yet.

The COVID-19 pandemic is just a taste of what our future holds if our delicately balanced habitat is further damaged. The Narrabri risks becoming a contributor to declining health and global health – local and global health. This project, if given the go ahead, will cost us our future as individuals, as communities and as global citizens. Our community overwhelmingly wants and supports clean air, clean water and clean food, and our children deserve it. It is essential in maintaining our health. You have the power to ensure that it happens. Thank you.

MR O'CONNOR: Thank you, Lynda, for that presentation. That brings us to the end of the public hearing today. I'd like to thank all the speakers for their engagement in this consultation process and remind everyone that a transcript will be made available on the Commission's website. The Commission will be accepting comments from the public up until 5 pm on Monday, 10 August 2020. These comments can be sent to the Commission via post, email or through the Have Your Say Portal on the Commission's website. The public hearing will recommence tomorrow morning at 9.30 am. Thank you all for your participation. Good evening.

RECORDING CONCLUDED **[5.00 pm]**