CLARENCE ENVIRONMENT CENTRE Inc
87-89 Skinner Street
South Grafton 2460
Phone/ Fax: 02 6643 4611
Web site: www.cec.org.au
E-mail: admin@cec.org.au

Date: 27th June 2020

To the New South Wales
Independent Planning Commission

Submission to Santos' Narrabri Gas Project

Introduction

The Clarence Environment Centre (CEC) has maintained a shop-front in Grafton for over 27 years, and has a proud history of environmental advocacy. The conservation of Australia's natural environment, both terrestrial and and marine, has always been a priority for our members, and we believe the maintenance of healthy ecosystems and biodiversity is of paramount importance. To that end we are making yet another submission to express major concerns with the above proposal.

Background to the gasfield proposal

Santos plans to st up 850 new gas wells across some 95,000 hectares in the north eastern part of the Pilliga forest near Narrabri, clearing close to 1,000 hectares of the forest in small patches connected by massive network of narrow cleared corridors for pipelines and access tracks.

While much of the area is state forest, there are also more than 100 private residences within the proposed gasfield.

Santos proposes four phases for the development, which can overlap:

• Phase 1 is the drilling of 25 more coal seam gas wells for “exploration and appraisal” in addition to 69 wells already drilled in the forest. It is proposed that this will occur before a pipeline is approved or built, and before some of the management plans for the gasfield are finalised. Santos is already commercially using “appraisal gas” in its Wilga Park power station, and paying no royalties on it.

• Phase 2 is construction of the rest of the production gasfield. The Government has proposed there be a condition of approval for the gasfield that this stage cannot begin until there is approval in place for a pipeline connection, either the Queensland-Hunter gas pipeline to Newcastle, or the Western slopes pipeline to the Sydney-Moomba pipeline.

• Phase 3 is production of gas from the gasfield.

• Phase 4 is decommissioning.

The coal seams, which Santos hopes to break up to release the gas, using a process known as “Hydraulic Fracturing”, which also involves the injection of a cocktail of chemicals known as “fracking” fluids, and sand to keep the cracks open. These coal seams lie between 800-1200 metres underground, and hold small pockets of natural gas that has been captured there for millennia, after which water will be pumped underground to force the gas to the surface via pipes to the well heads, and from there across the world to be burned.

Hydraulic fracturing (fracking)

Above that coal seam in the Pilligar, is a fragile outcropping of sandstone, providing the crucial southern disharge, delivering vital water to recharge the Great Artesian Basin.

Scientists fear, the fracking process will not only release gas but risks fracturing the sandstone, diverting, and/or polluting, the water flowing into the 'Basin', which is the life-blood of thousands of out-back properties in western NSW and beyond.

Discussion

Unconventional gas mining negatives.

There are a large number of undisputed facts about the negative impacts of unconventional gas mining. Because it requires the process of hydraulic fracturing mining companies,

- cannot guarantee that groundwater will not become polluted,
- cannot guarantee that aquifers will not be destroyed or diverted,
- cannot guarantee that fugitive emissions will not create a fire hazard,
- cannot guarantee that emissions will not have detrimental impacts on human health,
- cannot guarantee that, in high rainfall areas, toxic 'produced' water will not escape into waterways,
- cannot guarantee that toxic waste water will not leak into groundwater, and
- cannot measure how much methane, a potent greenhouse gas, is leaking directly through the ground into the atmosphere.
- cannot permanently seal disused well heads, as cement casing predictably breaks down over time, allowing the methane to flow freely into the atmosphere for ever.

All the above effects have been recorded around the world wherever unconventional gas has been mined.

Also unconventional gas mining in the Pilligar forest:

- will have detrimental impacts on threatened species, and endangered ecological communities,
- will cause massive fragmentation of native bushland and wildlife habitat,
- will force unacceptable impacts on landowners and their neighbours through, noise, dust and odours, leading to social disruption, and physical and psychological health impacts.
- will create downward pressure on land prices, both in the short and long term,
- will disrupt and divide communities,
- will use high volumes of sometimes scarce water resources,
- will create unacceptable greenhouse gas emissions during the exploration, extraction, transportation and refining processes.
- will impact on roads and bridges,
- will, through increased traffic volumes, have negative road safety implications,
- will put significant pressure on public waste disposal facilities

Again, all of these negative impacts have been acknowledged in the EIS, and apparently deemed acceptable through some environmental offsetting, a process that always results in a net loss of biodiversity, and a highly exaggerated promise of employment and economic gain.

The proposed radical industrialisation of the rural landscape near Narrabrai, transforming natural forest and productive farmland, into an 850 well gas field is unthinkable. From the receipt of 8000 objections already lodged opposing this gas-field, it is also clear that the proposal is unacceptable to local farmers, towns-people, traditional owners, conservationists and scientists. **i.e. it has no social licence, and should not be approved.**

Scientists have warned that this gas-field will de-water our natural environment by extracting over 35 billion litres of toxic salt-laden groundwater. It will generate almost 500,000 tonnes of salty brine laced with heavy metals and other toxins, with no disposal plans yet revealed.

There is even concern that light pollution from the giant gas flares may even force our globally recognised observatory at Siding Springs to close by ruining the dark skies it depends on.

Years ago, the founder of the "Lock the Gate" movement, Drew Hutton, emphasised the enormous threat that the communities around the country are facing, describing it as, ***"the greatest threat to rural Australia, and probably the most radical transformation of rural Australia since the pastoral expansion of the 19th century"***.

Since then his prophesy has become reality with reports of polluted underground water, chronic sickness affecting children living in gas-fields, bores becoming flammable, and fugitive emissions seeping from underground, from supposedly sealed well-heads and from every joint in the system. Community opposition has continued to grow, as everyday Australians see and learn of the impacts that flow from unconventional gas mining.

Coal seam gas, and gas from other unconventiional sources such as shale, is a fossil fuel and its use contributes to greenhouse gas pollution. It generates more than 40 times the amount of greenhouse gas per unit of energy generated than solar or wind and will make a major contribution to global heating.

The big lie being promoted by the industry, is that methane is a low emissions fuel, ideal as a transitory fuel for electricity production as the world moves away from coal to a renewable energy future. While that statement may hold true for natural gas, i.e. that sourced from underground reservoirs that do not require multiple well heads, horizontal drilling, and hydraulic fracturing of underground rock formations, in does not hold true for unconventional gas.

The lie becomes clear when all the collateral carbon emissions are taken into consideration, something that was quantified more than 5 years ago by scientists from the Cornell University in the USA and other scientific institutions. They have found that when all the emissions, including methane vented or flared directly into the atmosphere; emissions from machinery used in land clearing; the manufacture and laying of pipelines; and in drilling and fracking processes; as well as the pumping, refining and liquefaction processes, and transport, the total footprint of CSG exceeds even that of coal-fired electricity production.

However, probably by far the biggest contributor to greenhouse gas emissions from the mining of unconventional gas, is something known as “fugitive emissions”, something that is impossible to measure, so is therefore ignored. The greatest source of fugitive emissions is the gas that does not conveniently find its way into the miners' pipes, but follow the fissures in the rocks caused by the fracking, and finding their way to the surface. As a odourless invisible substance, methane cannot be observed rising up through the earth, but scientists, including a team from our own Southern Cross University, has measured elevated levels of methane in the atmosphere across existing gasfields that can only mean that these fugitive emissions are continuously rising from the ground into the upper atmosphere. Also, where these 'leaks' occur under water, such as in the Condemine River in Queensland, the constant stream of bubbles that can be set alight, provides proof of fugitive emissions.

Overview of the Project

This project is the most controversial in the history of the Environmental Planning and Assessment Act 1979. The Environmental Impact Statement attracted 22,721 submissions, of which 98% were objections. The majority (63%) of the 470 submissions from the immediate local area were also objections. **Clearly the project has no social licence!**

In February 2020, a NSW Legislative Council Committee found the Government had only fully implemented 2 of the 16 recommendations made by the Chief Scientist in 2014 to guard against risks of the coal seam gas industry. Half of the recommendations had not been implemented at all.

Because of its size and controversial nature, State Government has passed the approvals process to the Independent Planning Commission (IPC), which is holding a public hearing about the Narrabri coal seam gasfield on 20-24 July. **The Clarence Environment Centre would like to express to the IPC, our great concern over the Narrabrai proposal, and urge that it be rejected on the following grounds**.

- Santos has used the most basic level of groundwater modelling because of how little is known about the deep aquifers they will dewater to extract gas.
- Over 20 years, Santos will remove 37.5 billion litres of water from deep below the Pilliga and removing this water will cause depressurisation and loss of water in the Pilliga Sandstone, which outcrops in the Pilliga, the southern recharge of the Great Artesian Basin
- The model has been described by the Government's own water agency as having a "high level of inaccuracy", and:
    1. "not able to provide output at the scale and accuracy to assess the project's impacts against the minimal impact considerations of the Aquifer Interference Policy"
    2. The Department of Planning's Water Expert Panel said it was concerned the model "may have poor predictive capacity in relation to the impact of production of the surrounding impacted water sources."
- The approach taken by the NSW Government and its experts is to grant Santos approval to proceed, and let the company drill 25 more appraisal wells while gathering baseline data to inform a more accurate upgraded model before proceeding to full development.
- There are serious anomalies and unknowns regarding:
    a) The degree to which deep aquifer dewatering for coal seam gas will disrupt recharge of the Lower Namoi Alluvium by the Pilliga Sandstone;
    b) The presence of faults that might accelerate movement of water or methane;
    c) Santos' ability to obtain licences to account for the water the gasfield will take over decades and centuries into the future since the productive groundwater sources affected are fully allocated and have limited water trading.
- The Department of Planning is downplaying the importance of the Pilliga Sandstone as a recharge aquifer of the Great Artesian Basin and claims that there will be "no significant impact" but in reality, **there is not enough information for them to make this claim.**
- The Government's failure to implement the 2014 recommendations of the NSW Chief Scientist and Engineer amplifies the risks of this project and means it must be refused.
- The Chief Scientist recommended enhanced insurance coverage for the coal seam gas industry but this has not been implemented. The parliamentary inquiry described the industry as "uninsurable." The NSW EPA' says getting insurance is "not straightforward" and "Operators choosing not to hold relevant insurance will be required to instead prove to the EPA the existence of sufficient potential clean up funds."5 There is no mention of this "requirement" in the Assessment Report or draft consent prepared by the Department.
- The Department's own Water Expert Panel noted that the Chief Scientist urged that "drilling is allowed only in areas where the geology and hydrogeology can be characterised adequately" but that the Panel is not confident the information provided by Santos meets that threshold.

Waste Treatment of water brought up from underground will produce up to 840,000 tonnes of solid salt waste, laced with heavy metals, which will need to be disposed of.

- Santos and the EPA claim this salt will be non-hazardous, but it will have concentrated elements of whatever heavy metals are in the coal seam water they bring to the surface. Where will the disposal area be for the 720,000 cubic metres of coal-based drill cuttings.

- The salt waste will predominately be sodium bicarbonate and its estimated volume has roughly doubled since the first estimates in the EIS, totalling 840,000 tonnes.
- The NSW government's approach is to approve the gasfield first and trust Santos to prepare a strategy for reuse or disposal of this waste before full development, but as the EPA has pointed out, Councils who run waste disposal facilities do not have to accept Santos' salt waste.

Social impacts

- Coal seam gas brings upheaval and division to rural communities. In southern Queensland, a CSIRO survey in 2014 found that only 6% of local people living in gasfield areas thought that the industry has improved their lives. In comparison, 42% said that they were "not coping" or "only just coping" with the changes the industry has made to their lives.
- Santos' own assessment found that there would be "almost certain" impacts on housing affordability for Narrabri residents, which will disproportionately affect low-income households and Indigenous people, who are far more likely to be renters.
- During the construction period, the presence of a predominately male non-resident workforce will change the gender balance in the community from roughly equal men and women to 56% men, 44% women. This "masculinisation" has been observed to have negative social consequences in other communities with a fly-in fly-out mining workforce.

Aboriginal cultural heritage

- The Pilliga is a hugely significant landscape for Gomeroi people. Santos' Aboriginal cultural heritage assessment identified 90 known Aboriginal cultural heritage sites in the area, as well as areas of potential cultural heritage sensitivity, which the company has committed to avoiding when it situates its drill pads and infrastructure, but this is based only on already-known areas
- No detailed new surveying of the area for Aboriginal cultural heritage has taken place yet.
- Santos proposed to undertake detailed surveys after it gets approval and avoid newly found sites of high significance, but this is a highly risky strategy and once granted, the approval will not be able to be revoked.

Biodiversity

- The Pilliga is the largest temperate woodland in eastern Australia and Santos proposes to industrialise 95,000 hectares of it, clearing close to a 1,000 hectares in small patches and connecting lines, including removal of several endangered ecological communities.
- Only limited surveys were done for the assessment of the gasfield, but these found 10 threatened plants and 35 threatened animals in the gasfield area, including pygmy possums, koalas and the Pilliga mouse.
- The Pilliga once hosted one of the most important koala populations in New South Wales, but the species in now on an extinction trajectory in the area. With so much habitat and lives lost to recent bushfires, it is crucial to the survival of the koala that its bushland habitats be spared industrialisation.

Economic impacts

- The Department claims Narrabri gasfield will bring "additional supplies" of gas, but the assessment material provided by Santos makes it clear that " it was assumed that the project did not add to total gas supply at a national level."7 Furthermore, Santos clarifies, "it was assumed that the project itself did not drive change to gas market prices."

- Claims of job creation are crucial to the project's justification, with an anticipated average 190 jobs created locally and 322 in the rest of the state, but this increase comes at other industries' expense. The economic assessment found that there would be lost employment in agriculture, manufacturing and mining as a result of the project.

Fire

- The RFS has repeatedly expressed serious concerns about the operation of a gasfield and its burning flares in a highly flammable landscape like the Pilliga
- The assessment estimated the likelihood of a loss of containment in the gasfield creating a fire in the Pilliga was once in 70 years. That equates to a 35% chance during the life of the gasfield, or a 1.4% chance that this will happen in any year

- From December 2013 to January 2018, at least 17 Pilliga bushfires have been recorded.

Chemicals and spills

- The National Industrial Chemicals Notification and Assessment Scheme (NICNAS) conducted a National assessment of chemicals associated with coal seam gas extraction in Australia found that 48 of 113 chemicals used in coal seam gas operations could harm the health of workers in the CSG industry that come into contact with harmful quantifies of them in mixing or blending chemicals to produce formulations, or in the event of an industrial accident.

- They found that 11 of 21 chemicals used for drilling were of a potential concern for public health following a bulk spill during transport

- In NICNAS' survey of companies in the CSG industry eight years ago companies reported 10 incidents of unintentional release of CSG chemicals including many of the types of incidents that the assessment found can be harmful to the health of CSG workers and the broader public. In some of these reported spills and incidents, the chemicals could not be recovered

- There have already been more that 20 leaks and spills from coal seam gas exploration activity in the Pilliga. At the headwaters of the ancient groundwater of the Great Artesian Basin, we can't take the risk of chemical or salt leakage, accidents and spills.

Greenhouse gases and climate change

- Total greenhouse gas emissions produced by the project could be 127.8 million tonnes of carbon dioxide equivalent, or 5 million tonnes a year. In a time when Australia is struggling to meet its commitments under the Paris Climate Agreement, this one gasfield would increase Australia's greenhouse gas emissions by nearly 1% per year!

- Bizarrely, the Department describes this addition of greenhouse gases to the atmosphere as "driving down NSW GHG emissions and working towards a low carbon future."

- Globally, the UN Environment Program's Production Gap Report in 2019 found that, "With average lifetimes of 20 years or longer for pipelines, terminals, wells, and platforms, the time to begin planning for a wind-down of gas production is, as with other fossil fuels, already upon us."

- Their report found that to achieve the Paris Climate Agreement goal of keeping average global warming well below 2 degrees, global gas production needs to peak by 2030 and decline after that. To meet the safer 1.5 degrees warming limit, gas production needs to peak this year. **Natural gas is a fossil fuel, and its burning results in the release og greenhouse gasses. We can no longer afford to ignore the science of climate change, and continue to approve the opening of new gasfields.**

We thank the Minister for this opportunity to comment

Yours sincerely

John Edwards
Honorary Secretary
Clarence Environment Centre