

Attn: Executive Director, Resource Assessments

Department of Planning and Environment

GPO Box 39

Sydney NSW 2001

This is a submission to the Narrabri Gas Project EIS.

I object to this project and strongly believe it should be rejected.

Risks factors of this project, if approved, would be:

1. Extraction over 35 billion litres of salt laden groundwater, much of it in the first five years. This water will be treated and will generate almost 500,000 tonnes of salt waste, for which there is no safe disposal plan.
2. Clear close to 1,000 hectares of the Pilliga Forest, fragmenting the largest temperate woodland in New South Wales, home to unique wildlife.
3. Drill through a recharge aquifer of the Great Artesian Basin and draw water down from a water resource relied upon by rural communities across western NSW.
4. Lead to large deliberate and emissions of methane from venting and leakage, adding to climate change.

Consequences and concerns of this project, if approved, would be:

1. **Pollution of the Great Artesian Basin and cross-contamination of aquifers.** The Narrabri Gas Project is located within the area of the Great Artesian Basin. The report of the NSW Chief Scientist states that "Having considered all the information from these sources and noting the

rapid evolution of technological developments applicable to CSG from a wide range of disciplines, the Review concluded that the technical challenges and risks posed by the CSG industry can in general be managed through: "...careful designation of areas appropriate in geological and land-use terms for CSG extraction". I question that the area of the Great Artesian Basin is an appropriate area for an industry having to drill through it for the extraction of gas. The integrity of bore heads would have to be maintained even after extraction has stopped. I question that there are resolutions in place to guarantee the long-term integrity of this extraction. RMIT water hydrogeologist Matthew Currell, a consultant to the EDO's expert panel, argues studies overseas suggest contamination risks. "If the wells aren't really well sealed and there are pathways, whether it's through badly constructed wells or wells which have been abandoned, you know there's not proper sealing it can cause cross-contamination between aquifers," Dr Currell said. (<http://www.abc.net.au/news/2017-04-06/nsw-csg-project-sparks-fierce-debate-over-energy-future/8418102>)

The report of the NSW Chief Scientist also states that "Of course, as the technologies involved are applied in new regions where the detailed hydrogeology is not yet fully characterised, there could be unexpected events, learnings, or even accidents. This is common for new applications in the extractive industries and underlines the need for Government and industry to approach these issues with eyes wide open, a full appreciation of the risks, complete transparency, rigorous compliance, and a commitment to addressing any problems promptly with rapid emergency response and effective remediation." I don't feel that the CSG industry has the right to make learning experiences and improvements on their drilling procedures at the risk of polluting the Great Artesian Basin. It is unacceptable that rural communities are collateral damage to "Unexpected events". The industry is not ready nor safe enough to justify this project!

2. **Questioning the ability of Santos to extract gas from coal seams in a safe manner.** Santos cites the NSW Chief Scientist saying "In 2014 the NSW Chief Scientist and Engineer concluded that, with appropriate safeguards and controls, natural gas from coal seams can be safely extracted. The regulations covering natural gas extraction in NSW are among the most stringent in the world and Santos adopts the highest industry standards to ensure work does not have an adverse impact on the environment."

Myself and other community members are highly concerned and wonder how Santos can claim to have the ability to perform their operation in a safe manner once at maximum production, if several incidences of failing to operate safely were already reported during their exploration phase.

For example,

1) "In December 2011, Santos received an official warning over high levels of ammonia discharged in a spill of produced water in the Pilliga Forest."

(<http://www.abc.net.au/news/2017-04-06/nsw-csg-project-sparks-fierce-debate-over-energy-future/8418102>),

2) "A coal seam gas project operated by energy company Santos in north-western NSW has contaminated a nearby aquifer, with uranium at levels 20 times higher than safe drinking water guidelines, an official investigation has found. (<http://www.smh.com.au/environment/santos-coal-seam-gas-project-contaminates-aquifer-20140307-34csb.html>), as well as

3) "The Environment Protection Authority is investigating a 500-litre wastewater spill from a coal-seam gas operation at the Pilliga forest in north-western NSW. The waste water was spilt during a transfer from an assessment well to a holding pond at the Santos gas field near Narrabri on Tuesday, the EPA said." (<http://www.smh.com.au/nsw/santos-pilliga-project-coal-seam-gas-waste-water-spillage-causes-alarm-20140328-35ong.html>)

4) "Santos coal seam gas waste-water pond leaked briefly during commissioning" (<http://www.smh.com.au/environment/water-issues/santos-coal-seam-gas-wastewater-pond-leaked-briefly-during-commissioning-20160112-gm44n7.html>)

As stakeholders, how can we trust a company, which already breaches prerequisites of safe operation before entering their maximum phase of production?

- 3. Questioning that Santos has appropriate safeguards and controls in place.** Damage and pollution of groundwater resources is irreversible. Santos claims to not intend to use fracking for their Narrabri Project, but toxins and salts will still be released from the coal seams and brought to the surface. Santos has monitoring and measuring systems, but they have not suggested which measures to take once aquifers or groundwater is contaminated. Monitoring systems will be in place downstream, however, once levels of toxins measured to exceed limits and released into the environment it seems that little can be done or is in place to reverse the contamination.

Monitoring is good but not good enough to drill through the Great Artesian Basin and aquifers, which goes with a risk of cross-contamination and playing with the future of rural communities.

4. Communities and stakeholders question the professionalism and integrity of Santos.

According to the report of the NSW Chief Scientist, “high standards of engineering and professionalism in CSG companies” are required to manage “technical challenges and risks posed by the CSG industry”. And also the report of the NSW Chief Scientist states that “Of course, as the technologies involved are applied in new regions where the detailed hydrogeology is not yet fully characterised, there could be unexpected events, learnings, or even accidents. This is common for new applications in the extractive industries and underlines the need for Government and industry to approach these issues with eyes wide open, a full **appreciation of the risks, complete transparency, rigorous compliance**, and a commitment to addressing any problems promptly with rapid emergency response and effective remediation.” Where was Santos complying with these prerequisites of “full appreciation of the risks, complete transparency, rigorous compliance” in the exploration phase of their Narrabri Gas Project? In the following please find an example of Santos failing professionalism. As reported in the Sydney Morning Herald in 2013 Santos “admitted to failing to report contamination and excessive salt levels at a drilling site in the state's northwest ... Santos NSW has pleaded guilty to four charges relating to failures by the site's operator, Eastern Star Gas, to report contaminated water leaks and lodge environmental management documents, the NSW Land and Environment Court heard on Wednesday.” (<http://www.smh.com.au/environment/santos-faces-fines-for-pilliga-coal-seam-gas-salt-spill-20131218-2zkob.html>)

As stakeholders, how can we trust a company, which already fails complying during its exploration phase? We fear a devastating impact on our prime agricultural land, our groundwater reserves and aquifers. We fear that appropriate monitoring or reporting is not going to be in place and that failure to comply will be tightlipped. The agricultural industry is a sustainable industry, a driver for the future of country towns, and a guarantor for the food production and security of Australia.

5. **Misleading advertisement and integrity.** In the “Executive Summary” of the EIS, SANTOS states that “the project has the potential to supply up to 200 terajoules of natural gas per day; which is sufficient gas to meet up to half of NSW’s natural gas demand”. In my opinion this statement is misleading advertisement for this project. As confirmed verbally by the NSW Department of Planning and Environment, none of the gas extracted from the project is currently allocated for the domestic market, but will be sold into the international market. My statement here does not imply that I am strictly against export of any type, but I rather question the professionalism of Santos having to use misleading phrases to try and improve the project’s attractiveness to the greater community.
6. **Social impacts and Santos using misleading economic arguments.** The report of the Chief Scientist and Engineer Mary O’Kane states that “the technical challenges and risks posed by the CSG industry can in general be managed through ... well trained and certified workforce.” Santos states that the project will create up to 1,300 jobs during construction and 200 ongoing positions and therefore deliver local economic benefits. Considering the high specialization required for the CSG industry workforce, it is rather unlikely to create secure jobs in local towns of North Western NSW. Agriculture is able to provide secure jobs in country towns and have sustainable long-term economic benefits to local contractors and suppliers. In addition, stakeholders are of the opinion that this project will have negative social impacts, including causing stress of affected farmers and impacting living costs of rural communities. Scientific reports have previously confirmed effects on mental health, the hardship mining companies bring to rural towns (e.g. increase in service and living costs).
7. **Relationship of Santos with rural communities.** Santos states on their website that “We pride ourselves on the relationships we build with the local communities that host our activities”. I feel that Santos has failed to do so in the Coonamble Shire. Stakeholders feel that their questions about the safety of this project and the impact of it on the Great Artesian Basin are not sufficiently taken into consideration and addressed.
8. **Effect on cultural heritage.** The project will also cause more trauma to the regional Aboriginal community because the area of impact is crucially important to the spiritual, cultural and social life of Gamilaraay people.

Concluding statements:

The project is not justified: Santos' own coal seam gas export activities in Queensland have caused gas prices to rise and supply to become unpredictable.

Also what happens if Santos sells their project or becomes bankrupt? Who will be responsible for possible contaminations and impacts on society?

It will cause economic upheaval in Narrabri and put agricultural industries at risk, as well as causing light pollution that will ruin the dark night sky needed by the internationally renowned Siding Spring Observatory.

Coal seam gas is harmful to health. Neither the NSW Government nor Santos have investigated or dealt with the serious health effects of coal seam gas now appearing in peer-reviewed research in the United States.

I emphasise again, that in the final report from the NSW Chief Scientist it says "Of course, as the technologies involved are applied in new regions where the detailed hydrogeology is not yet fully characterised, there could be unexpected events, learnings, or even accidents. This is common for new applications in the extractive industries and underlines the need for Government and industry to approach these issues with ... commitment to addressing any problems promptly with rapid emergency response and effective remediation." I have not heard Santos communicating remediation to possible affected communities and therefore strongly doubt their effective methods to prevent or reverse contamination of aquifers or the Great Artesian Basin.

There are no resolutions for possible failure of safeguards. A representative from the NSW Department for Planning and Environment confirmed that monitoring will be in place, but this is not the case for actions in case of contaminations. Santos claims that they will monitor their effect on environment and society.

Again monitoring is good but not good enough for us to give a social license for this project. That is why ***our communities are not prepared to give a social license for this project!***

I have a PhD and worked in cancer research. I know that there are tight regulations for working with dangerous material, which forces labs to not even pour soap-like liquids down the drain. This makes it impossible for me to understand how the potential contamination of a vital and significant body of water is considered acceptable!

I therefore strongly reject the commencement of such a high risk operation and I urge the Government to reject this project.

The greatest and deepest artesian basin in the world should be protected and the Great Artesian Basin recharge made off-limits to gas mining.

Yours sincerely,

Miriam Brandl