Submission from Stop CSG Sydney on the Santos Narrabri Project Environmental Impact Statement

About Stop CSG Sydney

Stop Coal Seam Gas Sydney was formed in 2011 by residents of the inner west suburbs of Sydney following their discovery that Dart Energy was about to explore for coal seam gas in St Peters, just 7kms from the CBD. The company had an exploration licence (PEL 463) covering not only the whole of metropolitan Sydney but as far as Gosford in the north and Sutherland in the south. The licence was cancelled by the Baird government in March 2015 following a strong community campaign against coal seam gas exploration and mining in the region.

Stop CSG Sydney has continued to campaign against unconventional gas development in NSW and we strongly object to the Santos Narrabri Project.

Grounds for our opposition to the Project

The project would cause trauma to the traditional custodians of the Pilliga

This proposal exposes the company's misconception about the importance of the Pilliga to the Gomeroi/Gamilaraay people. We support the submissions of the traditional owners of the land that the Pilliga as a whole is central to preservation of their culture and connection to country.

The company may pretend the situation is one where "heritage" sites and artefacts need to be "avoided" by their operations. Protecting Aboriginal sacred sites and the forest as a whole from mining and invasive infrastructure is critical to the Gamilaraay people and to their future.

Industrialisation of the Pilliga would be totally contrary to the rights, cultural responsibilities and needs of the Gamilaraay people.

The Project poses real risks to the natural environment

Santos claims it does not plan to use fracking. Even if we put to one side that it would probably be impossible for government agencies to ensure that no fracking occurs over the next 20 years, the fact remains that this project would be far too risky whether or not it uses fracking.

Santos reveals in the EIS that it plans to use highly toxic chemicals in drilling up to 850 wells. It acknowledges the toxicity of the drilling fluids and cuttings, and the fact that most of the fluids will remain in the soil and water. It plans to bury drilling materials on site and have not assessed the risk of further contamination. It plans to store the chemicals on site – creating a major risk of accidents causing harm to workers and surrounding environments.

Drilling for CSG involves disturbance of naturally occurring radioactive materials, which if left alone are not a risk but once disturbed can be released into surface and underground water supplies.

Santos is well aware of this serious environmental threat following its contamination of Pilliga aquifers with uranium in 2014. Yet it states in the EIS that the risk of such events is "negligible". Further, it plans to use treated waste water for "beneficial" purposes such as irrigation and dust suppression.

Rather than provide evidence to support its claim that this would be safe Santos says it will operate in a way that "minimises" leaching. Minimising leaching is not good enough, and with no evidence of the level of efficacy of water treatment there appears to be a major risk that toxic chemicals will be released into the Pilliga's waterways and groundwater. This must not be allowed to happen.

Santos' history of contaminating the environment in Queensland and in the Pilliga is public knowledge. Instead of addressing that history with evidence of how it would avoid future damage, Santos claims the risks are "negligible". In saying this in the face of its own experience and international evidence this company demonstrates that it cannot be trusted with our precious natural resources.

Risk to the Great Artesian Basin (GAB)

Santos claims that "the project area is not located in a major recharge area for the GAB". Yet NSW government hydrogeological mapping of the GAB shows the project surrounds the most important inflow zone of the GAB in NSW. See NSW (Hydrogeological Atlas of the Great Artesian Basin (2016) Department of Water Resources (NSW) Hydrogeological Series Sheet SH 55-12; NSW Department of Water & Energy April 2009 PN00799 WR2008-089).

The GAB has already been damaged by unconventional gas mining in Queensland, where aquifers have been drawn down. Santos doesn't mention this.

It does admit that extracting 37.5GL of groundwater over 20 years would result in drawing down of GAAB aquifers over time. It is the NSW government's responsibility to ensure

careful independent evaluation of the risks of this project to the GAB, one of the country's greatest natural water resources.

Bohena Creek

Santos plans to release treated water into Bohena Creek when it is flowing. While Santos may look at Bohena Creek and see a waste disposal system, it is really a complex ecosystem supporting biodiversity, as well as a recognised surface groundwater system. Polluting it must not be permitted.

It is surprising that Santos proposes to release waste water into surface waterways in the Pilliga in light of the outcome of a legal challenge in Queensland to its practice of discharging waste water into the Dawson River. Following the legal challenge the approval conditions were changed out of court by the Queensland Minister, who prohibited Santos from any further releasing of waste water into surface waterways.

Surely this ruling should automatically be followed in NSW?

Bush fires

Santos says it is aware of the history of bush fires happening in the Pilliga Forest, saying it will develop a Bushfire Management Plan to reduce the risks associated with bush fires. In other sections of the proposal Santos reveals plans to install continuously operating flaring systems on two sites in the forest – Bibblewindi and Leewood.

It is hard to believe there could be safe management of the risks associated with continuous flaring in the forest in the common summer weather conditions of extreme heat and winds. This must constitute a high risk to the lives of workers and to the environment, and is a further example of the potential for disaster inherent in this proposal.

Salt

Santos admits that the project will produce 42,000 tonnes of salt per year in the early years of the project. It says it will pay for it to be taken away in B-double truckloads every day, numerous truckloads in the early years of the project.

Salt is a natural enemy of water supplies and productive lands. What is proposed is the creation of a massive amount of toxic waste every year for 20 years.

Assessors of this project need to know exactly where the salt would be disposed of, and what impact it would or may have on the environment in that area in both the short and long term.

The production of these vast amounts of waste dangerous to the environment is one of many good reasons to reject this project.

The project is unnecessary

Santos claims that if allowed to develop CSG in the Pilliga it will be able to assist NSW avoid a shortage of gas supplies for industrial and domestic use, supplying up to 50% of gas demand in NSW.

In recent years a number of research reports on the industry have exposed the gas shortage as a fallacy.

A new report by Tim Forcey and Dylan McConnell of Melbourne University reveals that there is no gas shortage, and that the development of further mines will not reduce the rising cost of gas. Wholesale gas prices have risen by 300% since 2009, driven by over construction of gas export capacity, contractual export over-commitments and the high cost of coal seam gas production.

The mismanagement and greed demonstrated by the gas industry are not reasons to develop unnecessary and destructive new gas projects.

Santos claims it considered alternatives to this project and found only one: to do nothing.

For the NSW government there are many alternatives. We urge the government to recognise the strong community support for the development of renewable sources of energy. The technology exists to move forward quickly with the development of solar and wind energy and storage. The development of renewable energy industries is the best way to ensure the availability of cheaper electricity, and to protect the environment and other industries from the devastation inherent in the mining of coal seam gas.

Climate change

Santos does not address the significant implications for climate change in the fugitive emissions from CSG mining. Nor do they address the fact that continuous flaring would release methane into the air, continuously.

Researchers have not been able to estimate the quantity of fugitive emissions from CSG exploration and mining. It is possible, however, to say that emissions result from production, processing, transport, storage and distribution of CSG.

At its May 4 AGM, held in Adelaide, Santos revealed that its business plans are based on an increase of 4 degrees Celcius in the global climate.

In assessing this project the government needs to keep in mind the company's blatant disregard for Australia's commitment to the internationally agreed Paris Climate Agreement to keep temperature rises at or below 1.5 degrees Celcius.

There is an urgent need to act to avoid catastrophes associated with climate change. Gas producers and others have suggested that gas is the "transition fuel" as we move towards zero emissions.

But with significant falls in the cost of renewable energy and storage it is hard not to see projects like Narrabri as desperate attempts to use old and dangerous technologies before the inevitable switch to safe renewable energy.

The project would reduce biodiversity of native fauna and flora

The Pilliga is the largest temperate woodland in New South Wales. Santos proposes clearing nearly 1000 hectares of the Pilliga, including habitat for koalas and the critically endangered Regent Honeyeater. The clearing would be spread across the whole forest resulting in fragmentation of much larger areas of habitat. The project would result in the clearing of breeding habitat for the Pilliga Mouse, which lives nowhere else, and breeding habitat for other wildlife.

The EIS does not contain specific information about where the wells and lines would be located, making a proper ecological impact assessment impossible. The project should not proceed without such an assessment.

The project would require new roads and easements to be built through the forest, dividing the bush into segments. This will impact on biodiversity through allowing for greater fox activity and increased weed infestations.

The project would threaten human health

The NSW Chief Scientist's report alerted us to the risks to human health at all stages of coal seam gas extraction – through exposure to water, soil and air pollution. The health impacts referred to include respiratory, cardiovascular and digestive diseases, skin rashes and greater risks of some types of cancer and impacts on fertility.

Santos has chosen to use outdated research in its reassurances about the human health impacts of CSG mining. It is the government's responsibility to carefully consider the latest international research. Included in this research review should be the compendium of health studies produced by the Concerned Health Professionals of New York. This reveals mounting evidence for health damage by unconventional gas operations, including water contamination and respiratory illness.

In its discussion of the anticipated air quality around the project Santos fails to include fine particulate pollution (PM2.5) which is well known to have no safe level for human health. There will be very significant emissions from the diesel generators they plan to install for the 425 well pads as well as at the water treatments and gas compression plants.

Santos must be aware that this project will generate significant PM2.5 emissions yet it has failed to reveal this in the EIS.

The project would not coexist with Agriculture

The experiences of farmers on land occupied by coal seam gas mines has demonstrated that the two industries are incompatible.

The project would impact on the Dark Sky requirements of Siding Spring Observatory

Siding Spring Observatory is important to the region's tourism and other businesses. It is a significant site for astronomy in Australia and internationally.

There is a risk that light pollution from gas flares, compressor stations and water treatment plants will severely impact on the dark skies required for the continued operation of the Observatory.

Santos claim it will co-operate with the Observatory's needs, but it has also stated it needs continuous flaring. This is a serious conflict of interest.

Chief Scientist report

Santos claims that the report of NSW Chief Scientist Mary O'Kane on the coal seam gas industry (released October 1, 2014) vindicates the unconventional gas industry in NSW.

Then, as now with the Narrabri Project, Santos says the industry is safe enough and points to the Chief Scientist's report as proof.

It is important to note that the reason the Coalition government commissioned the NSW Chief Scientist to undertake a report was to help quell rising community opposition to the industry's non-compliance and corporate negligence.

But the Chief Scientist was not commissioned to answer the question of whether or not CSG mining is safe.

Instead she was asked to look at *how* to develop the industry, not *if* or under what conditions its development would be considered safe.

O'Kane did make one thing very clear: she said while the risk to human health and the environment posed by coal seam gas can be managed, "unintended consequences including as the result of human error and natural disasters" — are inevitable.

http://www.chiefscientist.nsw.gov.au/__data/assets/pdf_file/0005/56912/140930-CSG-Final-Report.pdf

She also noted that it "is impossible at present given insufficient geological, geophysical and hydrogeological data available on current activities" to measure impacts "with quantitative precision".

She was referring to the Sydney Water Catchment Special Areas — the terms of reference for the report — but this statement could just as well refer to the Narrabri Project.

While Santos and other gas miners have repeatedly stated that the Chief Scientist's report vindicated unconventional gas mining, the fact is that the licences covering the Sydney Water Catchment Special Areas were cancelled (PELs 442, 444, 454) and no new licences have been granted.

http://www.resourcesandenergy.nsw.gov.au/__data/assets/pdf_file/0007/559699/150316-three-csg-licences-over-sydney-water-catchment-cancelled.pdf

To date the NSW Coalition government has either decided that the industry is too risky for this area, or that the political risk is not worth it.

The Chief Scientist's interim report (released in June 2014) noted the risks to soil, groundwater and surface water systems posed by CSG mining and showed that it will likely release toxins and salts, and that it can release heavy metals and radioactive compounds.

It noted: "Produced water brought up from the hydrocarbon-bearing coal seam will likely contain hydrocarbons in the form of volatile organic compounds (VOCs). Concern has been expressed about these compounds, such as benzene toluene, ethyl benzene and xylene (BTEX) chemicals, being volatilised from the liquid phase into the gas phase as an air emission."

Specialists in the study of toxic chemicals such as Dr Marianne Lloyd-Jones of the National Toxics Network (NTN) have repeatedly called on federal and state governments to implement a moratorium on the use of drilling and fracturing chemicals ("fracking chemicals") used in coal seam gas and shale gas extraction, until these chemicals have been fully assessed for their health and environmental hazards by the Australian industrial chemicals regulator, the National Industrial Chemical Notification and

Assessment Scheme (NICNAS).

http://ntn.org.au/wp/wp-content/uploads/2012/04/NTN-CSG-Report-Sep-2011.pdf

The NTN's review of chemicals used by the industry has found that only 2 out of the 23 most commonly used fracking chemicals in Australia have been assessed by NICNAS. Neither of these 2 chemicals has been specifically assessed for their use in drilling and in hydraulic fracking fluids.

According to the Chief Scientist: "The Review studied the risks associated with the CSG industry in depth and concludes that – provided drilling is allowed only in areas where the geology and hydrogeology can be characterised adequately, and provided that appropriate engineering and scientific solutions are in place to manage the storage, transport, reuse or

disposal of produced water and salts – the risks associated with CSG exploration and production can be managed. *That said, current risk management needs improvement to reach best practice.*" [Emphasis added.]

The chief scientist's report was logged after the EPA's investigation into two leaking ponds and a contaminated aquifer at Santos' Bibblewindi Water Treatment Facility as part of the Narrabri Gas Project in the Pilliga forest.

While the problems were first detected in May 2012 under the management of Eastern Star, Santos' take-over of the project did not lead to a different practice. In fact, Santos added more toxic wastewater to the leaking pond after it took over the CSG project in the Pilliga.

http://www.lockthegate.org.au/revealed_epa_investigation_report_shows_extent_of_pilliga_contamination

Even knowing about the problem of the leaking ponds, Santos did nothing to prevent it. According to the EPA report, the CSG wastewater had leached a number of heavy metals out of the soil into the water table — including uranium.

Santos may claim that the company is pursuing best practice, but the evidence says the opposite. It proceeded with another holding pond — the on the holding pond and irrigation system — in December 2016 before the verdict of an appeal on that issue and before its environmental impact statement had been released.

The fact that the NSW government fast tracked Santos' Narrabri project (making it a "Strategic Energy Project") allowed the company to even proceed without an environmental impact statement. This is not environmental best practice; this is vandalism. Local communities have for a number of years been expressing opposition to the destruction this has already caused to their region.

The project requires development of a gas pipeline to achieve its goals

The environmental impact of the proposed pipeline needs to be assessed in parallel to the assessment of the Narrabri Project proposal. The project would depend on the pipeline to achieve its objectives so it should not be separated in the assessment of the environmental, social and economic impacts of the project.

Why the Pilliga?

In the EIS Santos has downplayed the immense value of the Pilliga forest. The forest's significance to the lives of the current and future generations of Traditional Owners, its value to the conservation of biodiversity and to the conservation of endangered species is greatly underestimated in the EIS. The company acknowledges that the project will be detrimental to the environment, but they say that it is a poor environment, a scrub, and not prime agricultural land.

We submit that, on the contrary, this project threatens precious resources of immense value to the future of Australia.

The criticisms of Traditional Owners as well as scientific experts and farmers draw on many generations of lived experience in the region, as well as scientific research of the Great Artesian Basin and its associated groundwater systems and the complex ecosystems of the woodlands.

Santos tells us it chose this location as the most likely to produce the best supplies of gas which are more conveniently located close to infrastructure than some other six sites in the region they plan to explore.

The company may believe it will be easier to overcome community resistance to mining in a state forest than on farming land. It is more likely that this threat to the forest will bring the community together in growing opposition. Local people call this project the "Trojan Horse" for the company's plans to mine unconventional gas from Tooraweenah to Taroom — across some of the best agricultural land in NSW.

For all these reasons, we demand that this gas project is rejected, and call for the careful rehabilitation of the Pilliga State Forest.