

This last weekend I was travelling along a track in the Pilliga and the driver said, 'This will all be gas wells if Santos gets the go-ahead' – I felt sick with horror at the thought that such vandalism could be countenanced.

I object in the strongest possible terms to the Narrabri Gas Project and believe it must be rejected.

Besides personal travel to the Pilliga and region, I have accompanied students from New England high schools to the Warrumbungles on at least 25 occasions over the past 40 years: introducing them to the Pilliga Forest and the astronomical facilities at the Observatory; lying under the night sky and being told the stories of the Gamilaraai; teaching of the significance of the Great Artesian Basin and the forests as 'the earth's lungs' and of the effects of fossil fuels on climate change.

As a teacher and regional resident I believe the following points must lead to the proposal being rejected:

1. the EIS is completely inadequate

- there is no information provided as to where the 850 wells and the lines and infrastructure connecting them will go
- a 'Field Development Protocol' which allows for future development planning 'on the run' is ludicrously inadequate
- 16 plans mentioned in the EIS are to be developed AFTER approval, this proposal makes a farce of any concept of proper planning

2. There is no economic justification for the project

- Santos is one of the companies which has engaged in contracting to supply unrealistic amounts of gas to overseas markets
- the gas produced at Narrabri might be as little as 4.9% of the volume contracted for sale out of Gladstone. Rather than lower gas prices, the Narrabri Gas Project could well drive them up as unconventional gas like CSG is so expensive to produce and yields are so low
- The number of jobs the project will support once the construction is over is just 145
- In Narrabri, this project will have negative impacts on cost-of-living, the labour and housing markets. The latter is cited as a benefit of the project but it will not benefit low-income renters in the short-term and there are no long-term economic benefits
- The effect of the project on cost-of-living in the Shire needs to be modelled, assessed and considered, as do the labour dynamics of the project;
- Tourism will be adversely affected as will local industries such as that based on the production of honey.

3. The Narrabri Gas Project risks compromising the Great Artesian Basin and the Murray-Darling Basin and will create a toxic salt legacy

- The area of the Great Artesian Basin with the highest recharge rates is almost entirely contained within the Pilliga East forest. In a worst-case scenario, the water removed for CSG extraction could reduce water pressure in the recharge areas—potentially stopping the free flow of waters to the surface at springs and bores across the whole Great Artesian Basin.
- Creeks in the Pilliga run into the Namoi River—a part of the Murray Darling Basin. This system is vulnerable to contamination from drilling fluid spills and the salty treated water produced from the proposed 850 wells.
- Three new species of stygofauna have recently been discovered in the

aquifers of the Pilliga; stygofauna feed on bacteria and help to maintain water chemistry and keep groundwater clean; they symbolize the fragility and interconnectedness of the aquifers. Too little is known of the biodiversity and vulnerability of species in the Pilliga to allow the destructive exploitation of CSG

- The NGP will extract over 35 billion litres of toxic groundwater which will be treated to create tens of thousands of tonnes of salt, for which there is no safe disposal plan. Santos has no solution except land fill for disposing of the hundreds of thousands of tonnes of salt that will be produced. Between 17,000 and 42,000 tonnes of salt waste would be produced each year. This industry would leave a toxic legacy in NSW.

4. The Gamilaraay Traditional Custodians are opposed to the project

There are hundreds of cultural sites and stories connecting the Gamilaraay to the forest and to the groundwater beneath. Gamilaraay people are deeply involved in the battle against CSG.

5. Farmers and other local community members reject the project

Extensive community surveys have shown an average of 96% opposition to CSG. This stretches across a massive 3.2 million hectares of country surrounding the Pilliga forest, including 99 communities. Hundreds of farmers have participated in protest actions unlike any previously seen in the region.

6. The Narrabri Gas Project has a long history of spills and leaks of toxic CSG water—Santos cannot be trusted to manage the project safely

- Santos has already contaminated a freshwater aquifer in the Pilliga with uranium at levels 20 times higher than safe drinking water guidelines, as well as lead, aluminium, arsenic and barium
- In addition, there have been over 20 reported spills and leaks of toxic CSG water from storage ponds, pipes and well heads
- All wells will eventually fail; the Narrabri Gas EIS contains no plan for maintenance of plant and replacement of equipment and infrastructure beyond the projected life of the project
- I visited a spill site over the weekend which was contaminated over 15 years ago – 15 years of 'rehabilitation' has simply led to the zone of destruction spreading downhill towards the creek
- Rehabilitation proposed by Santos In the EIS (Appendix V) will not meet sign-off criteria: existing sites demonstrate the inadequacy of Santos' rehabilitation programs- only a few native species regenerate- very few under-storey plants or grasses survive
- Spillage cannot be remediated and exacerbates the problems of regeneration
- Only limited seed banks are proposed

7. The Pilliga is a haven for threatened wildlife; the Project stands to destroy this sanctuary

- The Pilliga is one of 15 nationally listed 'biodiversity hotspots' and is vital to the survival of threatened species like the Koala, Spotted-tailed Quoll, Black-striped Wallaby, Eastern Pygmy-possum, Pilliga Mouse and South-eastern Long-eared Bat.
- The forest is home to over 200 bird species and is internationally recognised as an Important Bird Area.

- The Santos gasfield would fragment 95,000 hectares of the Pilliga with well pads, roads, and water and gas pipelines, damaging vital habitat and threatening the survival of endangered species.
- While each of the considerations above is, of itself, sufficient to see the proposal rejected, Santos' failure to investigate cumulative risk is deplorable. A tool such as The Namoi Cumulative Risk Assessment Tool (NCRAT) quantifies the risk of cumulative impacts across ten natural resource assets: land use, soils, carbon, surface water, groundwater, vegetation extent, vegetation type, vegetation condition (intactness), vegetation connectivity and threatened species.

A proper ecological impact assessment is contingent upon detailed and adequate information as to the placement of all infra-structure. Until such information is provided and adequate ecological impact assessment undertaken, the project must be rejected.

8. Air Quality will be compromised and the Project will contribute to dangerous climate change

- Methane is by far the major component of natural gas, and is a greenhouse gas 72 times more powerful than CO₂.
- Scrubbed CO₂, extracted from the methane before it is sent down the gas pipeline is exhausted into the atmosphere; scrubbed CO₂ is not mentioned in EIS
- CSG fields contribute to climate change through the leakage of methane during the production, transport, processing and use of coal seam gas
- The air quality assessment fails to include health-damaging fine particulate pollution with a diameter of 2.5 microns or less (known as PM2.5). With diesel generators at each well pad and at the water treatment and gas compression plants, there will be significant PM2.5 emissions. The air quality assessment and greenhouse section also fail to model the likely substantial escape of fugitive methane emissions.

9. Human health is compromised by coal seam gas

- A range of hydrocarbons and volatile organic compounds can be released into the air from coal seam gas operations, including flaring of gas wells. The effects of volatile organic compounds vary, but can cause eye, nose and airway irritation, headache, nausea, dizziness and loss of coordination. These impacts have been documented in human populations nearby to existing gasfields in Queensland and in America.
- Santos' social impact assessment is three years old and utterly inadequate. The compendium of health studies produced by the Concerned Health Professionals of New York shows mounting evidence for health damage by unconventional gas operations, including water contamination and respiratory illness. The Government must insist that Santos conduct a proper health impact assessment including modelling exposure pathways, reviewing literature and engagement with the Narrabri community.

10. The nation's premier optical astronomical observatory is at risk from light pollution and pollution impacts on the Narrabri radio telescope facilities have not been recognised

- The Siding Springs Observatory, situated in the Warrumbungles and adjacent to the Pilliga, is under threat from the Narrabri Gas Project due to light and dust pollution. The area has been internationally recognized as a 'dark sky park' and the 50m high gas flares proposed by Santos threaten the viability of the facility.
- There is no recognition of the cumulative impact of future expansion from PEL238 to other gas license areas much closer to the observatory
- Santos has failed to propose adequate mitigation of light pollution from flaring operation- no flare shielding is proposed in-spite of it being an recommendation of the Environmental

Protection Agency

- The EIS contains contradictory information about the number of flares: 'up to 6' (5.3.3) pilot well flares yet 25 pilot flares operational at any one time (Chapter 24)
- Santos has not recognized or mitigated chemical air pollution impacts on the Narrabri radio telescope facilities

Santos has failed to ensure that vital astronomical assets of the Commonwealth of Australia, and 50 other international research institutions are not detrimentally impacted.

11. Risk of fires would increase throughout the Pilliga

- Methane flare stacks up to 50m high would be running day and night, even on total fire ban days. The Pilliga is prone to severe bushfires. The project would increase ignition sources as well as extracting, transporting and storing a highly flammable gas right within this extremely fire-prone forest
- On page 59, the EIS states that "the proponent would prepare a bushfire management plan". Given that Santos are already flaring in a high bushfire risk forest, how is it that they do not already have a bushfire management plan?

The credible risk of catastrophic fires, for which Santos has no management plan, is sufficient reason to reject the proposal.

Any ONE of the considerations outlined above should be sufficient to see the Narrabri Gas Project EIS rejected.