

Dear Commissioners,

I am writing to ask you to reject the proposed Santos Narrabri Gas project on the following grounds:

1. Gas price and Project Justification

Santos is claiming they have been getting high contract (international) prices of A\$12/GJ this year despite the oil price collapse, but at the same time, saying that Narrabri Gas will bring down gas prices in Sydney by between 4-12% over a decade, reducing to 3-9% if a portion of the gas is take up by a local fertiliser factory.

ACIL Allen's model shows gas prices generally increasing over the next two decades and from 2030-40, staying above \$9/GJ with or without Narrabri.

But AEMO's recently released Integrated Systems Plan 2020, looking at future energy grid options, is clear that gas prices would need to be as low as \$4/GJ after 2030 to be competitive with battery-supported renewable energy.

The new ACIL Allen report, however, notes that "Gas Power Generation demand is likely to decline from 92 PJ per year in 2020 to 30PJ per year by 2028" in the eastern Australian gas market. They anticipate that it will rise again post 2030 when more coal power stations close, but AEMO's analysis is clear that this will only happen if the gas price is half or less than ACIL Allen's forecast. The recent announcement by AGL that they are scoping a plan to build grid-scale batteries to replace Liddell underscores this.

<https://reneweconomy.com.au/agl-targets-1-2gw-of-new-battery-storage-by-2024-plans-tender-54451/>

Santos is ignoring the fact that with renewable energy costs, especially solar PV, having plummeted over the past decade, Australia is already transitioning to the cheaper renewable energy sources, solar/wind & storage.

This trend will continue as private equity is choosing to invest in cheaper, cleaner and quicker to build, renewable energy. As evidenced by the oversubscribed first NSW REZ, which attracted 27Gw of renewable energy projects: 3x the stated goal of 9Gw...and the subsequent plan to open a second REZ in NSW.

As more renewable energy and storage capacity for renewable energy is brought into the energy system, the demand for fossil gas will reduce.

The cost of the Santos Narrabri Gas Project is uncompetitive, and the gas industry has been declining over the past decade.

Santos has already written off \$6.9 billions in their gas industry investments over the past 5 years.

This means that gas industry investment is high risk and that government funds would be at risk of gas industry investment, such as in a new pipeline, becoming a stranded asset. (There is no guarantee given that the pipeline would be capable of carrying hydrogen.)

2. The role of natural gas in a low emissions future.

Santos says “Compared to coal and some existing sources of natural gas in the east coast gas market, Narrabri gas has a very low CO2 content, so would be displacing higher-emissions energy sources.”

The CO2 content from the test wells at Narrabri were found to be high in CO2 content. Some samples tested were as high as 90% CO2. The average CO2 content was found to be 25-30%..this is about 3x what Santos assumes in their EIS. The previously available exploration data

clearly showed high CO₂ which is not reflected in Santos' claims of low CO₂ content.

Santos on this final report is claiming that the gas has an average of no more than 10% CO₂...and that the highest reading for CO₂ content was 74%. Santos says that they are not misrepresenting the CO₂ content of the coal seam gas at the Narrabri site.

Even if they are correct that the average CO₂ content is less than 10%..this is still a significant CO₂ content which would have to be discarded to obtain the saleable natural gas and this CO₂ content would be emitted into the atmosphere as waste. This fact, plus the inevitable CH₄ fugitive emissions from CSG processes, means Narrabri CSG would significantly add to GHG emissions.

Also when the emissions from the burning of gas for heat or power by consumers is compared to those from renewable energy, it is a comparatively high emissions energy. At a time when we in a climate crisis and need to reduce emissions as quickly as possible, major investment in CSG is at odds with meeting NSW Paris Agreement target of net zero by 2050.

The combined GHG's from CO₂ content and CSG methane leakage make Narrabri a much high emissions polluter than we are led to believe from gas industry marketing of fossil gas as 'clean' & 'natural'.

Whilst burning fossil gas, offers some improvement over burning coal, with lower CO₂ emissions, this Santos argument is both ignoring the much greater reductions made when switching to renewable energy from coal, and it is ignoring the CO₂ content of the gas wasted in production, and also ignores the imperative need to also reduce CH₄ emissions in the fight against climate change. And that CH₄ has been found to be emitted in high concentrations from gas fields similar to the proposed Narrabri Gas Project.

No argument about GHG emissions is complete without considering CH₄, which is an even more potent greenhouse gas than CO₂. Santos seems to have downplay the role of CH₄ emissions from the extraction and processing of fossil gas in contributing to climate change.

NASA's recent use of airborne sensing technology (AVIRIS-NG) to pinpoint methane leakage finds hundreds of individual sources of concentrated methane plumes emitting from gas fields, and that these leaks are contributing to high GHG emissions worldwide.

Santos argues the gas fields in the US are different being shale gas. But a chief research scientist a CSIRO says methane in Australia is rising due to expansion of CSG.

Methane emissions have continued to rise worldwide over the last decade and the concentration levels are consistent with the warmest IPCC scenario of 4.3 degrees C warming by 2100.

Europe is the only continent where CH₄ levels are decreasing, and this may be related to the fact that a growing number European countries since 2011 have banned fracking for gas.

Pep Canadell, chief research scientist from the CSIRO says that emissions from the natural gas industry are "quickly becoming one of the biggest, if not the biggest, challenges to address climate change."

And he says that in Australia over the past 6 years, methane emissions from fossil fuel has been rising "Due to rapid expansion of the natural gas industry and associated fugitive emissions released during gas production and transport". Meanwhile CH₄ emissions from the agriculture sector have been falling.

<https://theconversation.com/emissions-of-methane-a-greenhouse-gas-far-more-potent-than-carbon-dioxide-are-rising-dangerously-142522>

<https://iopscience.iop.org/article/10.1088/1748-9326/ab9ed2>

To meet the 2015 Paris Agreement goal of limiting warming to 1.5 degrees C, the world now needs to reduce emissions drastically by at least 7.6% per year between now and 2030 according to the UN Environment Programme.

Scientists say we cannot possibly meet our Paris Agreement reduction targets while continuing to develop new fossil fuel projects.

And world economic, medical and scientific experts are calling for government funding coming out of the Covid-19 crisis, to be spent on a 'green' recovery, not fossil fuel projects. This is because renewable energy projects create more jobs, cheaper energy, and cleaner energy than fossil fuel projects.

These experts say renewable energy and the emerging green hydrogen industry offer the best outlook for both emissions reductions and economic recovery.

<https://www.abc.net.au/news/2020-06-07/renewable-led-covid-19-recovery-will-create-more-jobs-ey-report/12322104>

<https://www.carbonbrief.org/leading-economists-green-coronavirus-recovery-also-better-for-economy>

The DPIE says Narrabri Gas would play a role in reducing emissions as aging coal power stations close in eastern Australia over the coming decades.

This is ignoring the rapid growth of renewable energy in NSW and that approving and supporting this project would lock NSW into expensive long term gas contracts, at a time when we could be reaping the benefits of supporting cheaper, cleaner and zero emissions renewable energy.

This DPIE argument also ignores that the move to renewable energy is inevitable anyway as Narrabri Gas Project is a very finite resource and cannot replace coal burning for any longer than the gas field is productive.

It makes little sense to lock the people of NSW into a new gas project and consumption contracts when we have all the technology available already for renewable energy. It makes more sense to put government support into electricity transmission line spending to enable better incorporation of zero-emission renewable energy into the grid. This lower our emissions faster.

Supporting the Santos project thus would be a very short-sighted answer which fails to look at the reality of being unnecessarily locked into high emission gas, which would put us directly at odds with meeting NSW Government Paris Agreement commitments.

Santos says that large economies have switched from coal fired power to gas-fired power to reduce their emissions and Santos uses the example of the UK, which has enabled them to reduce emissions from 1990 levels by more than 38%.

This argument ignores the fact that these emissions reductions are not just from switching to gas-fired power, as during that period the use of wind power in the UK has increased dramatically, there have been large gains in energy efficiency & their largest coal-fired plant was switched to burning wood chips, all of which has reduced emissions from coal fired power. Santos' attempt to imply that the UK's emission reductions are entirely due to gas use is misleading.

Gas was useful as a transition fuel a decade or more ago but is no longer just competing with coal, it is competing with renewable energy both domestically and internationally.

Warming of more than 2°C would result in even more dangerous adverse impacts, including the possibility of crossing so-called 'tipping points' that would accelerate climate change, perhaps irreversibly.

Scientists say that unless we cut emissions drastically warming will go above 2 degree C, and that developing new fossil fuel projects precludes reducing emissions drastically enough to meet Paris Agreement targets.

Penny Sackett asserts that the Narrabri Gas Project should not continue on the grounds of environmental and climate change considerations, for social equity now and for the safety of future generations.

https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2020/03/narrabri-gas-project/correspondence/edo/sackett-narrabri-gas-project-ipc-advice-revised_final.pdf

Santos mentions Stage 1 of NSW's Net Zero Plan, but not its goal of introducing hydrogen as 10% of the gas in NSW's network. Instead they focus on the "Memorandum of Understanding – NSW Energy Package" signed between the state and Federal governments earlier this year. This MOU, as Santos identifies, set a (non-binding) target of adding 70 petajoules of gas per year into the NSW market. Santos fails to mention two other potential gas projects, one of which already has development consent, were conceived in the MOU as potentially meeting this target, not Narrabri. Santos argues that the CO₂ content of produced gas is far lower than the CO₂ content of the gas underground because of different desorption rates. It appears that the information they claim to have that backs up this contention is still not being made available on the grounds of commercial confidentiality.

3. Insurance

Santos narrows this issue to public liability cover for landholders who host Santos' infrastructure. Most of the submitters who discussed insurance gaps were chiefly concerned about uninsured environmental harms in the public forest and affects on downstream water users. These contingencies cannot be insured against.

Santos completely fails to acknowledge the NSW Inquiry into the Chief Scientist's recommendations on CSG Finding 1: "The committee finds that: • the enhanced insurance coverage as envisaged by the NSW Chief Scientist in Recommendation 9 of the Final Report of the Independent Review of Coal Seam Gas Activities in NSW is not available; • the conclusion is that these risks are uninsurable; and •

landholders are left to bear the risks posed by coal seam gas activities.”

This is untenable for landholders to be left holding risk they cannot be insured against.

4. Salt waste and contaminated water waste

Santos mischaracterises submissions on this issue. The problem is not that the Waste Classification Guidelines “do not apply” to salt, but that for solid waste that becomes liquid upon contact with water, application of those guidelines without further specifications and constraints creates the risk of serious and irreversible environmental harm, in the form of groundwater leaching. They cite some landfill design features that could mitigate this risk, but provide no information about whether landfills that have such features are available and willing to take the huge volumes of salt they will produce.

The precautionary principle of ecologically sustainable development in relation to groundwater impacts and other ecological impacts from this toxic salt waste should mean that the project is rejected on the grounds of Santos having no known viable waste disposal plan.

Santos was also found in the past to have used CSG water without a permit. This sort of disregard for rules increases the public’s distrust of Santos’ project.

<https://www.smh.com.au/environment/conservation/embarrassing-santos-fined-for-using-csg-water-without-a-permit-20181017-p50a7v.html#:~:text=By%20Peter%20Hannam&text=Santos%20has%20been%20fined%20by,project%20for%20irrigation%20without%20approval.>

5. Water licences

In section 9.1 Santos presents information on “average volume traded” in various water sources since 2017. This is to support its contention it will easily be able to acquire the necessary water access licences, but this is misleading since it doesn’t specify what type of water trading is covered. The NSW water market allows for temporary and permanent trades. To account for water take over several decades or centuries, a temporary trade would obviously not be appropriate. The IPC should follow up seeking information about permanent transfer trading or Water Access Licence trading in each of the affected water sources.

6. Gunnedah Oxley Basin water users

Santos’ assurance that impacts of the project on these water users “can be adequately managed through monitoring and adaptive management as prescribed in the recommended conditions of consent which allow for early detection of drawdown effects in the Gunnedah Basin” are not credible given the on the advice from DPIE Water that Santos’ proposed groundwater monitoring network in the GOB is not adequate to achieve this.

7. Groundwater

Santos insists that calibrating the groundwater model to Class 2 or 3 confidence “may, at best, take decades to achieve.” This is crucial to the IPC’s consideration of the precautionary principle, since the argument is essentially that the impact must be irreversibly inflicted on the groundwater hydrology of the area before it can be understood. Santos acknowledges that GISERA’s groundwater modelling uncertainty analysis generated a range of water production volumes between 4.4 ggalitres and 107 ggalitres and that at the higher end of water removal. CSIRO estimated 2,299ML 5 per year peak induced flux from the Pilliga Sandstone. They claim that two key parameters informed this higher rate of estimated take: greater

proportion of exploitation of the Hoskissons seam than they intend, and greater take of water extraction than the conditions of consent allow. Regarding the Namoi alluvium and the discrepancy in the volume of flux assumed from the GAB recharge to the Namoi alluvium in the NA model and Santos' model is "insignificant" ... but if that's the case, why didn't they just use the existing model's figure for this parameter?

8. Spills

The company claims that “in Queensland, no regulatory enforcement action has been required in a period where up to 8,000 CSG wells have been operating and all spills greater than 5m³ in volume must be reported to the regulator” which contradicts Santos’ own 2015 Sustainability Report which acknowledged two fines for the release of produced water to land at the company's Queensland CSG operations.

Santos and their CSG activities have already not been taken seriously by the NSW government, as evidenced by the small fine given for an environmental breach in the Pilliga in the past:

‘Naomi Hogan from the Wilderness Society says the fine is inadequate. "This pathetic fine shows that the NSW Government is not serious about policing coal seam gas companies and their activities", said Ms Hogan. "The maximum penalty for a corporation to do this sort of environmental pollution is \$1 million so to see Santos getting away with a fine of just \$52,000 is certainly not sending a good message to the NSW community who are very concerned about this industry." Ms Hogan says Santos should be held accountable despite the company not being responsible for the treatment plant at the time of the spill. "Many of the on-ground staff from Eastern Star Gas continued their work with Santos where no action was taken on these spills in the Pilliga Forest.’

Santos said.. "We carried out a thorough review of operations and work practices when we acquired ESG.

"Since then we have spent around \$17 million on rehabilitation in the Pilliga."

But Naomi Hogan says the rehabilitation efforts have not worked.

"Trees are continuing to die" said Mr Hogan.

<https://www.abc.net.au/news/rural/2014-01-10/santos-fine/5194320>

9. Bushfire risk

Santos claims that its application of an FDI rating of 120 (catastrophic) means it has accounted for the impact of climate change. But there is still no engagement from them about the increased frequency of this danger rating occurring over the 25 year life of the gasfield as a result of climate change. For example, the original risk assessment upon which this assurance is based applied standard ambient atmospheric temperature of 25 degrees C and average humidity based on the 2008-12 average. They clarify that the 1 in 70 year fire likelihood is the likelihood that any fire will be caused onsite, not a likelihood of fire moving beyond the project site. They're now claiming that for "ignition scenario impacting beyond the site boundary, the cumulative likelihood would be considered in the order of 1 in 2,600 years, but offer no explanation for how they arrived at this figure.

10. Climate crisis and Jobs Impact

Warming of more than 2°C would result in even more dangerous adverse impacts, including the possibility of crossing so-called 'tipping points' that would accelerate climate change, perhaps irreversibly. Santos is claiming that the project will create a lot of new jobs in the Narrabri region. But the project would prevent NSW meeting its Paris commitments on GHG reductions, therefore would contribute to loss of jobs and societal chaos due to environmental breakdown.

Former head scientists at CSIRO, Penny Sackett says:

'If current accelerating trends in CO₂ and other greenhouse gases continue over the coming decade, the Earth's mean global temperature is likely to warm by 3°C to 4°C in the next 80 years.

At 4°C of warming, the world's ecosystems would be heavily damaged or destroyed, large areas of the world become uninhabitable, the entire global economy would be damaged, and a sizeable risk would ensue that the Earth system is tipped into a state not seen for millions of years, and beyond humanity's ability to substantially influence.

Fossil fuels are the largest contributor to global warming.'

We have a responsibility to ensure that we do our utmost to ensure warming stays under 2 degrees. To ensure a safe and liveable environment for ourselves and future generations.

11. On other issues

Santos barely engaged with the arguments, particularly on social impacts, biodiversity survey effort, offsetting and indirect impacts, merely reiterating what they have said previously

I ask that the Commission reject the Narrabri Gas Project on the above grounds.

Sincerely,

Ann Flynn