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Mindaribba NSW 2320

10<sup>th</sup> March, 2017

Attention: Executive Director, Resource Assessments  
Department of Planning and Environment  
GPO Box 39  
SYDNEY NSW 2001

Dear Sir

**Re: Santos proposed development of 850 CSG Wells in the Pilliga**

I am writing to express my deep concern about the Santos proposed development and desire to have recorded my absolute and heartfelt rejection of the above proposal. I do so for many reason which I will elaborate on below. I need to declare that I am not a scientist. However I am an intelligent NSW resident and believe what thousands of scientists have been saying for years – that Climate Change is an enormous problem and that we MUST act NOW to avoid having catastrophic impacts which will affect future generations.

So why do I oppose the approval of the Santos Gas Well Project?

**1. Climate Change**

The main reason (from my perspective) is that as a nation we need to be urgently transitioning to renewable energy sources. Over the past 10 years we have experienced the hottest summers on record. This summer just past was the hottest ever! We had consecutive days where the temperature peaked over 40 degrees with 2 days over 45 degrees. This is unprecedented! Scientists tell us to expect more intense, longer heat waves as climate change increases. Scientists also tell us that the main way to avoid worsening an already critical situation is to transition from fossil fuels to renewable energy sources such as wind, solar, geo-thermal, hydro and tidal. For the NSW Government to even consider approving a new fossil fuel project of this magnitude which will cover 95,000 hectares and open up 850 gas wells is totally lacking in foresight. If this project were to be approved it would demonstrate an absolute lack of vision for a better future, be negligent to the duty of care a government owes to its citizens and suggest an alternative motive or hidden agenda that chooses to ignore the real concerns being expressed so widely.

Additionally, attention must be drawn to the enormous underestimated impact of CSG in terms of emissions. The methane emissions from CSG wells has been measured by scientists from Southern Cross University at 6.7ppm in the Queensland Gas Fields and only 1.7ppm outside the gas fields. In the United States where unconventional gas production has a longer history than Australia, measurements exceeding 30ppm have been recorded.

Methane is a much more dangerous gas in terms of climate. It is 80 times more powerful than carbon dioxide. It is odourless and invisible. However, Tim Forcey, a Chemical Engineer from the University of Melbourne has used a FLIR Camera to film these otherwise invisible emissions. Despite regulations supposedly controlling the venting of methane from well

stacks, methane is continually being vented from CSG wells across Australia. Santos has not proposed an alternative approach in their EIS. The conclusion can be reasonably established that the 850 wells proposed will all emit dangerous quantities of methane.

If Australia is anyway serious about meeting our commitments made in the Paris Accord, the Santos Project cannot be approved.

## **2. Groundwater.**

Whilst the EIS submitted by Santos explains the scope of the project without huge detail it does not provide location of exactly where the wells will be drilled. This is a problem. The region Santos has chosen for the project lies above the aquifers of the Great Artesian Basin (GAB). The EIS admits drilling will draw on the waters of the GAB. This has happened already in the gas fields in Queensland. This information needs to be considered when assessing Santos's EIS as an accumulated impact. Assessment in isolation will not allow an accurate picture of the impact on the groundwater resources.

Groundwater in the Pilliga and surrounding areas that rely on the GAB to grow crops and livestock would be devastated should groundwater supplies be affected. Australia is one of the driest continents on the planet. Our farmers already have so many obstacles and barriers to overcome in order to produce the food that feeds us all. Climate Change is already delivering more and harsher conditions making it increasingly difficult for them to produce the food we need for our growing population. Increasing this burden by putting their groundwater aquifers under threat is irresponsible and preposterous.

## **3. Water Treatment**

Further to the above points concerning the drawing down of groundwater, the process of CSG extraction requires water to be used and creates a problem with waste water treatment. Currently the Leewood Water Treatment Facility in the Pilliga is already experiencing operational difficulties. These problems are happening now when essentially, Santos are only in what they class as their "exploration phase" ie "trialling" and "testing" wells. Compared to the project that is proposed, they should have had "no" problems treating the relatively small quantity of waste water that has been produced. But this has not been the case. There have already been more than 20 leaks and spills – devastating large areas of the Pilliga Forest. Whilst Santos is quiet about issues they have experienced, the fact is, water produced as a result of CSG drilling contains a host of dangerous chemicals including radioactive waste. The proposal on the table will produce 35 billion litres of poisonous toxic waste water. There is no demonstrated capacity or ability to manage wastewater with the current operations in the Pilliga – why should Santos be trusted to safely treat 800 times the quantity of wastewater?

Water from the Pilliga area flows into creeks which ultimately feed into the Murray Darling Basin. This is the one of the main food bowls for Australia. If the Santos Project is approved, the threat of having toxic wastewater affecting the water catchment of our most important food growing area is imminent. Surely, with our climate rapidly changing, with food security being challenged, putting our food growing regions under risk is a danger far too great to ever contemplate.

#### **4. Salt Production through Water Treatment**

Another huge impact and result of CSG drilling and the resultant water extraction is the water removed contains high concentrations of salt. Through the water treatment process, the salt is removed. The scope of the proposed Santos CSG Pilliga Project – 850 wells will produce 115 tonnes of salt each and every day. At peak production, approximately 42,000 tonnes of salt will be produced. Santos proposal is to hide this salt in “landfill”. 42,000 tonnes of salt is about 920 B-Double truck loads filled with salt every year. This is a dangerous quantity of salt to dispose of in landfill – in an area that feeds water to the Murray Darling Basin!

#### **5. Bush Fire Threat**

The Pilliga Forest is a dry temperate woodland. The Santos proposal will place 850 gas wells within this fragile environment. The changing climate is delivering many more hot dry days, increasing the length and intensity of heat waves and decreasing the rainfall. This greatly increases the risk of bush fires. Add to this risk the inclusion of CSG flares, the naked flames (flares) extending many metres high which are dotted throughout this dry region and it could be a recipe for a disaster. Far too great a risk to consider approving this project.

#### **6. Fauna and Flora**

The Pilliga is an area rich in biodiversity. There are many species of fauna and flora only found in this area. The Pilliga Mouse are only 2 of many, that are threatened as their habitat continues to be shrunk due to expansion of mining and other development. The Santos CSG proposal will put the fauna and flora of this region under threat. Santos have argued their proposal does not negatively impact threatened species, but the reality is the intrusion into this sensitive area, fragmenting and degrading the areas will adversely impact the breeding spaces for these species. Without clearer understanding of exactly where Santos are proposing their wells (lacking in detail in the EIS), an exact estimate of this impact is difficult.

Australia has one of the worst records of species extinction of the Western world. We must improve our record or risk losing yet more important species forever. Santos 850 CSG Project will most certainly put species into greater risk of extinction.

#### **7. Health and Well-being**

As previously noted, Santos are not proposing any major shift from current industry standards relating to CSG production. Therefore we can reasonably draw from experience of other regions where CSG production occurs. In these regions, the health and wellbeing of surrounding communities has been critically impacted. There are many medical reports documenting the negative impacts resulting from CSG production including respiratory impacts and water contamination.

#### **8. Air Quality**

The air quality assessment completed by Santos, fails to include health damaging fine particulate pollution with a diameter of 2.5 microns or less. With diesel generators at each well pad and at the water treatment and gas compression plants, there will be significant fine particulate emissions. As previously mentioned, the air quality assessment and greenhouse section of the EIS also fail to model the likely substantial escape of fugitive methane emissions.

## **9. Dark Sky**

An emerging problem that has not sufficiently been addressed by Santos is the issue of "Dark Sky". One of the worlds most important observatories – the Siding Springs Observatory, is threatened due to the well flares. These flares will reduce the capacity of the Observatory to undertake its hugely important work.

## **10. Heritage and Culture**

I personally know some Gomeroi people who are the traditonal owners of the land on which Santos propose this 850 Well CSG development. I know they are opposed to this project and have heard first hand how their land is the centre of their spiritual, cultural and social life. This project is fragmenting their country. It is industrialising and destroying their country – against their will. Their sovereignty is not ceded. Santos have no legitimate right to continue without traditional owners support.

## **11. So Why Would this Project be Approved?**

The significant harm on the social, environmental and economic values of the Narrabri Shire and New South Wales that this project will inflict needs to be weight against the economic justification for the project. The problem is – there is not economic justification. Santos is one of several large gas companies that threw the east cost gas market and the industries that rely on it into turmoil by opening up CSG fields in Queensland and contracting to sell more gas than those fields can product to overseas customers. They drove up the price of gas and are plundering supplies previously available to Australian industrial and domestic consumers.

The gas produced in the Pilliga might be as little as 4.9% of the volume contracted for sale out of Queenslsand. Its not going to bring down prices. In fact, it will force prices up because unconventional gas like CSG is so expensive to produce and yields are so low. Research undertaken by gas company AGL shows that gas from the Pilliga would be the mostt expensive gas of anywhere in the current east coast gas market.

The number of jobs the project will support once the construction is over is just 145! Weighed against damage to the land, and the Great Artesian Basin, this makes NO sense.

At a time when all governments should be looking for sustainable employment options, an approval of this project could only be described as plunder for profit!

In conclusion, I repeat. This project has no social license and must not be approved. I ask the NSW government to have a vision of a better and sustainable future where jobs and income can be achieved without destroying our environment.

**ANNE HODGSON**