

This is a submission rejecting the proposal by Santos Ltd to mine COAL SEAM GAS (CSG) in the Pilliga Forest, part of the Gunnedah Basin. (**The Narrabri Gas EIS**)

We, **The Knitting Nannas Against Coal and CSG - Dubbo Loop**, **OBJECT** to this project and recommend that it be rejected.

The basis for unconventional CSG mining has not been proven in this EIS.

COAL SEAM GAS (CSG) MINING is highly risky to our natural environment and our profitable industries established in north western New South Wales that depend on a health environment: agriculture and tourism.

Santos proposes an 850 well CSG Field, (The Narrabri Project) while knowing CSG is a stranded asset for the reasons outlined in an article by Ross Gittens, Economics Editor, **Sydney Morning Herald, on 18 February 2017**. Ross Gittens reported on comments by Ross Garnaut, that Australia had the natural resources to be a **powerhouse of renewable energy**. Indeed, in Dubbo, Neoen Australia Pty Ltd is building 22.4 MW of large-scale solar in Australia, part of 157.2MW under construction in NSW.

***First**, the cost of renewable energy generation and energy storage equipment has fallen "massively".*

***Second**, there have been "transformational improvements" in battery storage technology, used at the level of the electricity grid, to ensure balance between supply and demand despite renewables generators' "intermittency" (inability to operate when the sun's not shining or the wind's not blowing).*

***Third**, there's been a dramatic reduction in the cost of borrowing the money needed to cover the capital cost of generation equipment.*

***Fourth**, there's been a dramatic increase in the **cost of gas** - and thus gas-fired electricity. Ten years ago Australia had the developed world's **cheapest natural gas** - about a third of prices in the US. Today, our prices are about **three times higher** than in the US.*

*Why? Because the development of a liquid natural gas export industry in Queensland has raised the gas prices paid in eastern Australia to "**export parity**" level - the much higher price producers could get by selling their gas to Japan or China (less the cost of liquefaction and freight).*

*It's worse than that. Because foreign investors were allowed to install far too much capacity for LNG exports - meaning **none of them is likely to recover their cost of capital** - they've been so desperate for throughput they've sometimes bid gas prices well above export parity.*

*Apart from making **gas-fired power more expensive** relative to renewables, this has implications for how we handle the transition from "base-load" coal-fired power (once you turn a generator on, it runs continuously) to intermittent solar and wind production. It had been assumed that gas-fired power would bridge the gap because it was cheap, far less emissions-intensive than coal, and able to be turned on and off quickly and easily to counter the intermittency of renewables.*

*Now, however, without successive federal governments quite realising what they'd done, **gas has been largely priced out of the electricity market**, with various not-very-old gas-fired power stations close to being **stranded assets**.*

*"**Play our cards right**," and Australia's exceptionally rich endowment per person in renewable energy resources makes us a low-cost location for energy supply in a low-carbon world economy.*

We ask you to reject the Santos EIS. CSG is too risky, Santos is unlikely to recover the cost of capital investment in CSG, and we do not need any new Fossil Fuel mining with the commitment by Governments to the Paris Agreement. The renewable revolution has begun.

ECONOMIC IMPACTS:

Later Ross Gittens reported that the September 2016 quarter of economic data demonstrated that mining was third in value to agriculture and tourism. Why would the citizens of NSW want a risky CSG mining operation that will put our established economic enterprises at risk of failure through damage to water, and the increased light pollution hinder the work of scientists at Siding Spring?

Dubbo is a prosperous regional centre offering services in education, health, transport, and justice for the central west and beyond. This prosperity is based on established sustainable industries like agriculture and tourism. Renewable energy will be a further impetus for growth as Dubbo had one of the largest uptakes of rooftop solar from 2007.

Most importantly, we do not need to mine a fossil fuel like CSG. We need to fund renewables and storage to meet the Australian commitment to limit global warming. Santos uses the jingle "*we have the energy*." Today, energy consumers interpret this jingle by Santos as "*they have taken our energy and shipped it off shore*" with the hope of maintaining record prices. As the oil and gas market changed, prices dropped, Santos has international commitments to meet and takes all the energy from the domestic market to sell off-shore. (Greg Jericho 'Fracking and coal seam gas is no solution to an energy crisis of our own making.' **The Guardian 21 Mach 2017**)

Santos has taken our energy and we do not want to give them anymore. We have been duped by Santos and the Governments' failure of energy policy. Reject this project that is consigning Australia to the fossil fuel rear view of history.

Clearly with the high cost of gas caused by the Government's failure of policy, the SantosLtd CSG enterprise is at risk of being a stranded asset. No citizen in North West NSW aware of the changing energy market would support this project with is doomed to economic failure. **Play our cards right** - refuse this project

WHO ARE WE?

GasFieldFreeDubboRegion formed at a public meeting on 24 August 2014 to join other grassroots community groups across the state to oppose CSG mining in all areas. This group was supported by the NorthWest Alliance of Lock the Gate.

On 30 September 2014, the NSW Chief Scientist, Mary O'Kane, released a FINAL report into Coal Seam Gas (CSG) mining. The report concluded there are genuine risks to water supplies and public health from CSG, matching the concerns raised by communities in

NSW over the previous four years when Petroleum Exploration Licences (PEL) were issued across the state. The closest PEL to Dubbo is 35km north in the Goonoo Forest, and Tooraweenah at 107 km. Dubbo is a regional centre for these locations.

On Wednesday 26 November 2014, Bev Hamilton and Helen Jeffery, farmers from Narromine, convened **Knitting Nannas Against Coal and CSG - Dubbo loop** outside the office of the MP for Dubbo. (*Daily Liberal 04 December 2014*).

On Friday 05 December 2014 our loop joined many farmers and *Lock the Gate* members to stand outside the office of the MP for Dubbo to hand over 107,000 signatures from an online **GetUp!** petition demanding a stop to new CSG activities until the impact on water, farmland and community health are made known. (*Weekend Liberal Saturday 06 December 2014*)

On 14 March 2015 we attended a day of action in Gunnedah to protest new coal and CSG. Representatives of political parties and independents standing for election turned up except the Nationals. (*Daily Liberal 18 March 2015*)

We have been involved in two Newell Highway actions to draw attention to the risks of Coal and CSG mining.

We have continued meeting on the streets of Dubbo (with the permission of the Dubbo Regional Council) up until Wednesday 10 May 2017 to provide information to the public about the risks of CSG mining. We follow the successful model of the **Knitting Nannas Against Coal and CSG** in the Northern Rivers, raising concerns about invasive CSG mining (as shown in the movie 'The Bentley Effect'), sitting on chairs on the street knitting and provided information to anyone who stopped.

Usually five members of the **Knitting Nannas Against Coal and CSG group - Dubbo loop** meet on a Wednesday morning. Every session we meet people from Dubbo and regions, from across NSW, Victoria and Queensland who are concerned about the impacts of CSG mining. When the pipeline route was announced recently as proposed by APA, people were in tears, frightened for the future of their farms. Our supply of No to CSG signs were quickly depleted as farmers nailed them to the gates.

From this background it should be obvious that we have maintained a long term presence on the streets of Dubbo motivated by our concerns that CSG mining is too risky. Our most important concern is that CSG will dewater the Great Artesian Basin through the dewatering process involved in extracting CSG from the coal seam.

We have taken our concerns to our local representatives, the MP for Dubbo and the Federal MP for Parkes, both National Party members. Despite these politicians listening politely to our concerns, the response is always the same word - jobs.

Jobs in the fossil fuel industry are diminishing and jobs in the sustainable long term renewable industry are increasing. We have demonstrated our commitment to a NO to CSG vote by campaigning on the streets of Dubbo for two and a half years. We say no to CSG and ask you to **reject this EIS**.

CLIMATE CHANGE:

Peter Hannam reports in the Sydney Morning Herald on the University of Melbourne Australian-German Climate and Energy College report by Tim Forcey and Dylan McConnell 'A Short Lived Gas Shortfall.' **May 2017**

<http://www.smh.com.au/environment/higher-energy-prices-have-little-to-do-with-gas-shortages-researchers-say-20170517-gw6tg2.html>

The Forcey and McConnell report notes on page 48 that

*'In December 2015, an historic global climate agreement was agreed under the United Nations Framework Convention on Climate Change at the 21st Conference of the Parties in Paris. This agreement included a global goal to hold average temperature increase to well below 2 degreesC and pursue efforts to keep warming below 1.5 degreesC above pre-industrial levels. This **Paris Agreement** entered into force on **04 November 2016**, after the required ratification conditions were met. On 10 November 2016, the Federal Government reaffirmed Australia's strong commitment to effective global action on climate change with the ratification of the Paris Agreement.*

Why has Santos Ltd persisted with the EIS to build 850 CSG wells in the Pilliga Forest when Santos has written off the project as zero and sidelined as a non-core business? Clearly, since the **Paris Agreement**, the time has passed for any CSG field to be developed in NSW.

Most importantly with Australia's ratification of the **Paris Agreement**, Forcey and McConnell argue '**increasing gas consumption in the power sector is inconsistent with Australia's commitment to the Paris Agreement objective.**'

The proposal by SantosLtd is completely at odds with the **Paris Agreement**. At the SantosLtd AGM the CEO advised the company was aiming at limiting warming to 4 degreesC.

Helen Davidson reported in **The Guardian** 05 May 2017:

'Santos has admitted its business plans are based on a climate change scenario of a 4 degreeC rise in global temperatures, at odds with internationally agreed efforts. It's Chairman, Peter Coates, made the comments at an AGM in Adelaide telling shareholders it was "sensible" and "Consistent with good value"...there had been a shareholder push for a resolution that Santos disclose its climate risk assessments and scenario analyses.'

Ben Creagh noted in **Oil and Gas Mining** that Peter Coates also announced he was departing as Santos Chairman. Coates was first chairman from 12/2009 to 3/2013 then reappointed 4/2015.

The SantosLtd AGM also reported a full year 2.7 Billion LOSS. This was a 189% deterioration in the loss of \$935 Million last year.

How can Santos remediate any environmental damage that will occur during this invasive CSG project, when they have lost BILLIONS?

Forcey and McConnell said other energy companies are addressing climate change by moving from gas. Energy company **AGL said:**

*'... the NEM could transition directly from being dominated by coal-fired caseload to being dominated by storable renewables' and
'... the energy transition we have all been anticipating will skip big base-load gas as a major component of the NEM's base-load generation and instead largely be a case of moving from big-coal to big-renewable.'*

The Country Womens Association NSW State President Annette Turner notes our governments have taken us for fools (**How stupid do they think we are?**) by using the Winston Churchill strategy '*Never let a good crisis go to waste*' to argue the current rising energy prices mean we need more fossil fuel mining. Regional businesses and homes are hurting from increased costs of energy.

<http://www.theland.com.au/story/4606038/politicians-should-take-lead-on-energy/?cs=4763>

What do we need? We need an energy plan to transition from fossil fuels like coal and CSG to renewables. With the commitment by the Australian Government to the **Paris Agreement**, the statements by the Managing Director & CEO of SantosLtd, Mr Kevin Gallagher, that '*Natural gas is an essential requirement for a strong NSW economy.*' needs to be **rejected** completely.

We do not need any CSG to be produced in NSW by Santos Ltd or any other company.

WE OBJECT strongly to this EIS which is written by a company, SantosLtd in denial about the urgency to limit global warming.

We want energy investment in renewables and storage and for all governments to abandon new gas and coal projects. This is the only way to meet the commitment to the **Paris Agreement**.

THERE IS NO GAS CRISIS, THERE IS A POLICY CRISIS:

Force and McConnell noted that

'on 09 March 2017 AEMP warned of a small gas-supply shortfall that might impact electricity supply 18 months from now (December 2018). As potential solutions this shortfall, AEMO suggested new gas-pipelines (from the NT) and /or new gas fields (Gunnedah / Narrabri in NSW). Our review finds that the AEMO's forecast shortfall is very small.... and the rapid rise in wholesale gas and electricity prices is and will cause 'demand destruction' that is far larger than the AEMO's forecast supply gap.'

The authors make recommendations about effective actions for consumers and governments to take, such as utilising energy storage and reducing the opacity of the gas industry such as LNG export contracts and commitments. (p.51)

I particularly liked the conclusion that

'over the past decade, the energy policies of Australian federal and state governments have often been short-lived, unclear or absent.'

Energy consumers have demanded that governments take action to develop an energy policy. Building a CSG industrial landscape in the Pilliga Forest is not the answer to this failure of government.

BUSHFIRE RISK:

One increased threat to Australia as an outcome of global warming is bushfire. The **Wambelong fire** that burned in the Warrumbungle National Park in January 2013 destroyed 95% of the park and 50 homes. This was another example of catastrophic fire conditions with 40 degree temperatures and strong winds, a '**wildfire Pearl Harbour**' said the Deputy Coroner. This inquiry noted a

'trend toward increasingly intense fires. Climate change is a reality and as a consequence extreme dry and drought in advance of a bushfireand the potential for vorticity lateral spread phenomenon which occurs with the interaction of winds, fire and terrain that causes fire swirls under certain conditions.' The cause of the fire could not be determined. (ABC News report 28 September 2015.)

The residents of NSW do not need an industrialised CSG field posing a bushfire threat and increasing global warming even further so that we experience more catastrophic bushfires. We say NO to the SantosLtd 850 CSG wells in the Pilliga Forest.

IMPACT ON SCIENTIFIC OBSERVATION OF THE DARK SKY:

The risk to the scientific work at Siding Spring Observatories in the Warrumbungles will be made by increased light at night, from flaring gas. The Warrumbungle National Park, a 23,312 hectare park near Coonabarabran, was awarded the status of **Dark Sky Park** last year. This park is the first IDA **Dark Sky Park** in Australia and this is

'...a natural extension of the work it has done for years to contain threats to the observatory site through outdoor lighting policy and regional planning.' (darksky.org)

If residents of towns as far south as Dubbo comply with council policy for all external lighting to be downward to maintain a dark sky for the astronomers of Siding Springs, why would a government allow a CSG field of 850 wells with all night flaring?

Renowned scientific educator Brian Cox, Professor of Particle Physics, University of Manchester, was at Siding Springs this year with the ABC to film three episodes of *Stargazing Live*. On one night, 90 new planets were discovered by amateur observers. The scientific work of Australian and international astronomers, and amateur stargazers alike, is all threatened by the CSG industrialisation of the Pilliga Forest.

HEALTH IMPACTS:

We support the view of Dr Geralyn McCarron MB BCh BAO FRACGP who submitted an expert health report dated 23 March 2017 saying on p.38 that

'Published outcomes from some of the peer reviewed medical research into the health impacts of unconventional gas are so significant and have such serious potential implications for public health that in my opinion it approaches negligence for Santos to

have entirely omitted any reference to them in their purported Health Impact Assessment.

AIR POLLUTION RISK:

Industrialisation of a farming community by CSG wells and associated infrastructure, such as pipelines, threatens the health of local residents, and threatens their health and wellbeing. Once a gasfield is established, with known air pollution impacting farmers and their stock, farmers cannot borrow against their assets and who will buy their land?

It is a human right to have air quality conducive to health, particularly for pregnant women, children and workers. Look at the long term impacts of air pollution on residents of mining towns like Broken Hill. What will be the long term health impacts from industrial CSG fields? Will SantosLtd be required to obtain baseline health data from all residents and workers associated with the planned industrial gasfield, and compensate people for injury caused by air pollution?

The Queensland Parliamentary Committee found that the mining industry has let down workers in the coal mining industry as 20 cases of '**black lung**' Coal Workers' Pneumoconiosis have been identified.

A Queensland Parliamentary Committee found evidence of a

'massive systemic failure across the entirety of the regulatory and health systems intended to protect coal industry workers... with deliberate underfunding and under-resourcing over more than thirty years.'

(ABC News 24 March 2017 Chris O'Brien and Charlie McKillop.)

Black lung was supposed to be historical and now, in 2017, we have 20 workers with a serious health impact.

CSG mining is new in Australia and the potential health impacts of working closely with noxious gases from coal seam beds, or being exposed to these fumes in residences close to leaking industrial infrastructure needs to be carefully assessed, not ignored.

The fossil fuel industry has failed coal mine workers. Why would we believe that Santos will protect the health of CSG mine workers when the cumulative effects of air pollution in this industry have not yet been identified.

We ask you to reject this EIS to protect the health of current and future mine workers and the next generation of children who live close to the project area.

SURFACE WATER IMPACTS:

SantosLtd will extract more than 35 billion litres of groundwater lying in the coal seam. This water contains 500,000 litres of brine produced daily, for which there is no safe disposal plan. The capacity to store the water produced from a coal seam would be exhausted in three years. Peter Hannam *Sydney Morning Herald* 22 May 2015)

The current holding ponds are in the path of water runoff during high rainfall. How safe is this archaic holding method to deal with produced water? The EPA varied Santos' Environment Protection Licence in March 2016 to require the implementation of a Liner

Integrity Monitoring Program at the Tintsville 1 & 2 sites. The program will continue until the end of 2019 when the ponds will be either taken off line or upgraded to comply with the NSW Code. The **EPA** has also been actively monitoring the performance of the Leewood Ponds and has overseen various maintenance programs since two legally binding **Pollution Reduction Programs** were issued following leaks from waste water ponds triggered elevated levels of heavy metals including uranium. (Peter Hannam **Santos cops warning over CSG leaks** *Sydney Morning Herald* 16 May 2015)

Tony Pickard, a farmer on the Narrabri Community Consultation Committee reported a spill on Bohena Creek years ago and this area is still under remediation. This is a chemical spill during exploration involving heavy metals. What will happen in production when the number of wells increase? (EPA Newsletter April 2017 <http://www.epa.nsw.gov.au/resources/licensing/narrabri-ccc-newsletter-apr2017.pdf>)

There will be numerous expert submissions on the impact of produced water on surface water with recommendations for action if the EIS is approved.

We have seen the impacts of toxic spills reported in Australia and internationally, and we object to Santos discharging any water into Bohena Creek. It is just too risky for those downstream users. Since there is no way of effectively dealing with produced salt, the EIS needs to be rejected.

DEWATERING THE GREAT ARTESIAN BASIN:

The Great Artesian Basin (GAB) is one of the largest subterranean freshwater aquifer systems in the world. We all have childhood memories of droughts where farmers depended on water from the GAB. When surface water was lost during drought, the only water for survival was obtained from the GAB. It was only two years ago that Walgett was about to lose the surface water in the Barwon River, having to rely on drilling bore water to provide a water supply. (**Daily Liberal** 26 March 2015 p.3) Similarly Broken Hill residents face loss of water from the drying Menindee Lake system on a regular basis. There are people who rely on the GAB for a water supply at all times, due to lack of permanent surface water in severe drought.

However, the GAB is a complex entity, the Senate Inquiry report noted it is:

'... a highly complex system of geological formations at a range of depths, of variable permeability holding water of different quality, at different pressures and through which water flows at very different rates, if it flows at all.

The reduction in pressure in a coal seam will result in a local fall in the water level and pressure in that particular area which may alter the rate and direction of the groundwater in adjacent formations. The impact of this change may take many years to have a measurable impact on adjacent aquifers. Similarly the contingent loss of water from adjacent aquifers may not be made good by natural recharge for decades or even centuries.' (Rural Affairs and Transport References Committee 2011, 19)

Others have noted the long history of extraction for pastoral use and the use of springs from the GAB by Aboriginal people. Now in the age of the tourist, such as 'Grey Nomads,' the hot springs of Pilliga, Lightning Ridge, and Moree attract tourists 365 days a year.

Why would NSW Government support a CSG industry which will impact on the flourishing agricultural and tourism industries which are employing people in a sustainable long term way.

The Australian and NSW Governments have funded 'The Great Artesian Basin Sustainability Initiative (GABSI)' which included the Cap and Pipe the Bores program. This program saved 78,500ML of water every year by controlling 398 free flowing bores, installing 18,000km of piping, reduced salt discharge by 62,800 tonnes every year, reduced greenhouse gas emissions by 41,600 tonnes every year and INCREASED artesian pressure, increasing access to water.

We do not understand how with one hand governments spend millions of tax payer dollars improving the water quality of the GAB, to support people in the agricultural industries and then consider giving CSG miners the go ahead to dewater the GAB to release greenhouse gases.

We have watched the U-tube video of George Bender's bore running dry then producing gas in the CSG fields near Chinchilla, Queensland. The water bores that farmers like George depended on to water stock, became not only unproductive, but dangerous emission points for methane and other gases.

The proposed 850 CSG wells lie in the recharge area of the GAB. This is the wrong place for CSG industrialisation. Our mantra is "*Water for Life, you can't eat coal and you can't drink gas.*" I have a lived experience of knowing the dependence on the GAB. I do not want a CSG industry threatening the viability of our communities north of Dubbo. Reject this EIS as the risk to water in the GAB is too great.

CONCLUSION:

We urge the Government to reject this EIS and direct support to the established industries of agriculture, tourism, education, health, justice and infrastructure already thriving from Dubbo north to the Queensland border.

The people of NSW, on the east coast and in regional areas demand that the NSW and Federal governments prioritise a national energy policy to reduce costs to consumers and maintain our commitment to below 2 degreesC of warming as required by the **Paris Agreement**.

We urge you to reject this proposal for a new unconventional CSG field. SantosLtd have publicly rejected the commitment to the **Paris Agreement** by outlining a goal of 4 degreesC warming. Our governments have failed us on developing a fair energy policy for citizens, don't fail us now. Reject this EIS for an 850 well CSG field in our Pilliga Forest..