

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

I **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: agriculture and tourism.

Santos proposes an 850 well CSG Field, (The Narrabri Project) knowing CSG is a stranded asset for the reasons set out below 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**.

***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.*

As a grassroots community convened to inform the Dubbo Region of the risks of a CSG mining venture in our region we argue strongly that there is no basis 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 energy 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. Reject this project that is consigning Australia to the fossil fuel rear vision 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:**

The Dubbo Field Naturalists and Conservation Society Inc organised a community information day at the Dubbo RSL on 24 August 2014 to discuss the issue of invasive CSG mining threatening the natural environment in our region.

Michael Caton, prizewinning actor attended to speak about his experience drilling for water in the Great Artesian Basin;

Megan Kuhn, farmer and mother and Coordinator North West Alliance of Lock the Gate;

Anne Kennedy, farmer and grandmother and active in CSW and the Artesian Bore Water Users Group;

Jane Judd, Convenor of Coonabarabran Residents Against Gas at the time.

These speakers convinced the public members present that Dubbo residents had to stand up and be counted in opposing CSG mining in NSW and informing the public of the risks of CSG mining. The people present at this public meeting decided to form GasFieldFreeDubboRegion with fifteen people nominating to be on the Committee and Sally Forsstrom nominated as Convenor.

We have been active as a group supporting the other grassroots community groups directly threatened by CSG mining on their land.north of Dubbo.

We are inspired by landowners north of Dubbo threatened by fossil fuel (CSG) mining on their land and the environmental protectors fighting against fossil fuel (coal) mining for their homes in Wollar near Mudgee (Bev Smiles) and Camberwell in the Hunter Valley (Wendy Bowman). Wendy was awarded the internationally prestigious Goldman Environmental Prize in April 2017 as recognition of her tireless campaigning to save her home and the homes of her neighbours downstream of the massive open cut coal mines in the Hunter Valley. Countless citizens in our region have spent thousands of volunteer hours and spent thousands of dollars of their own money campaigning against invasive CSG mining in our region and every one of them deserves an environmental prize.

We are submitting our proposal on the final day of submissions to celebrate **Biodiversity Day** today, part of Biodiversity Week 2017, and we commit to continue to campaign against CSG mining in the Pilliga Forest, to protect a centre of biodiversity in our region.

#### **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.*

Like many citizens of Australia concerned about the future of the next generation at a time of anthropomorphic climate change, I cheered when Australia ratified the **Paris Agreement** and cannot understand why my NSW Government would support CSG mining which will increase global warming.

Forcey and McConnell clearly argue on page 50 that gas technologies currently provide both bulk energy and flexible capacity in our National Electricity Market(NEM). However wind and solar PV are cheaper forms of bulk energy than CCGT.

Just this week, ARENA reported that all approved solar farms in NSW are fully funded. Lismore opened this week and Parkes and Dubbo are under construction. We don't need another CSG field to produce gas we do not need.

Why has Santos Ltd persisted with this proposal when it has been written off 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.

As Forcey and McConnell note on page 50:

*'In some cases the cost of new-build renewable energy is cheaper than generating electricity at existing gas power stations.'* In addition

*'Alternative options such as renewable energy and storage can place a downward pressure on electricity prices.'* Such storage technologies are competitive with OCGT's in providing flexible capacity.'

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. Its 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 industrialise the Pilliga Forest and protect biodiversity? How can Santos remediate any environmental damage that will occur during this invasive project, when they have lost BILLIONS? This company has no social licence to continue with 850 invasive CSG wells across our forest.

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.

The CWA are meeting at conference today and I await their resolutions against CSG mining and the impact on the lives of landholders and service centres in our region. 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 to protect not only the environmental diversity of NSW, but world wide biodiversity.

We want energy investment in renewables and storage and for all governments to abandon new gas and coal projects. Dubbo is a leader in uptake of rooftop solar and Neoen Australia has the funding to build a solar farm of 22.4MW, part of 157.2MW in NSW

Investment in renewable energy is the only way to meet our 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)

The conclusion below is applauded, 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, and associated pipeline infrastructure, is not the answer to this failure of government.

#### **BUSHFIRE RISK:**

One increased threat to Australia as an outcome of global warming is bushfire. We all know the fear of a bushfire threatening homes, industry and lives. In Dubbo we have seen

long term bushfires in the **Goonoo Forest** north of Dubbo an area subject to a PEL by Santos.

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 bushfire ....and 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.)

At the same time as the **Sir Ivan fire** was raging there were fires north of Mudgee that caused the Moolarbin coal mine to close down to send the workers to safety. How do you close down a CSG field quickly after a lightning strike launches a catastrophic fire?

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. 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](http://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 are concerned about the health impacts on workers and residents living close to the infrastructure of a CSG gasfield based on the health impacts experienced in the USA.

We are concerned about the use of chemicals and radioactive isotopes used by the miners in addition to the natural chemicals and radioactive isotopes released from the water lying around the coal seam during extraction.

On 24 November 2014, **Peter Hannam** wrote in the Sydney Morning Herald (News p.3), that:

*“Radioactive material is being used at some coal seam gas drilling sites in NSW and Queensland, raising concerns about health and environmental impacts... a US-drilling company Halliburton shows it is permitted to use **caesium-137**, a radioactive isotope, for drilling by AGL at Gloucester .. and for Santos in the Pilliga Forests near Narrabri.”*

Peter Hannam noted that the EPA monitors use of this isotope, but the community was concerned when a container with caesium-137 *was found unattended on a site in the Pilliga.*

In this case, the use of a radioactive isotope in the CSG mining process was not disclosed. Workers, farmers, residents and visitors to the forest need to be informed where radioactive isotopes are stored. This type of incident underlies community concerns about the whole CSG mining process. If errors have been made with only a few CSG wells, what will happen with 850 CSG wells? We have confidence in the EPA as a government organisation to monitor environmental indicators, but how much damage will be done, before contamination of air and water is identified?

Once contamination occurs, it will immediately impact health and biodiversity, and there are cumulative impacts from multiple incidents.

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:**

Members of the Dubbo Field Naturalist and Conservation Society Ltd visited the Bimblewindi CSG wells in August 2011 when camping out at the Sculptures in the Scrub in the Pilliga to go birdwatching.. The odour of escaping gas was obvious, even though methane is odourless, which limited our visit to the area around the CSG wells.

Many expert reports are being submitted in response to the EIS about air pollution by coal bed chemicals that lie in the coal seam and are produced during the extraction of CSG. Such chemicals are highly toxic to humans and native fauna.

Members have visited Chinchilla Queensland from November 2014 to August 2016 and spoken with families who live in an industrialised CSG field and suffer ill effects from air pollution from leaking coal seam gases. Professor Tony Ingraffea notes that all CSG wells leak. This pollutes the air and contributes to global warming as methane is a greenhouse gas.

Industrialisation of a farming community by CSG wells and associated infrastructure, such as pipelines, threatens the health of local residents. 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?

I say this in dismay following news from the Queensland Parliamentary Committee that the mining industry has let down workers in the coal mining industry as 20 cases of '**black lung**' Coal Workers' Pneumoconiosis are identified.

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 risk of fossil fuel coal miners acquiring '**black lung**' Coal Workers' Pneumoconiosis, is well known, and supposedly eliminated by strict health screening and dust suppression.

Why then have 20 cases of black lung in coal miners in Queensland being identified this year? **ABC news** reported on 24 March 2017:

A 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.)

Even when known risks of damage to health or coal miners is known the industry has failed them. CSG mining is new in Australia so we do not know the cumulative impacts of working in an environment leading methane and other gases from a coal seam bed.

The only way to protect our workers and our farmers and our children living and working adjacent to CSG mining infrastructure, including pipelines, is to reject this EIS by Santos.

The CSG mining infrastructure, including pipelines, always leak.

## **SURFACE WATER IMPACTS:**

SantosLtd plans to discharge produced water from the coal seam into surface water, namely Bohena Creek, part of the Murray-Darling Basin (MDB). Bohena Creek flows into the Murray Darling Basin, so impacts can be detrimental to all users below Bohena Creek not just limited to the Narrabri-Wee Waa area. Any discharge of produced water could have detrimental and cumulative impacts on water, leading to impacts on the agricultural



industry and biodiversity. The EPA is closely monitoring surface water impacts, but how do you remove an impact after it has occurred?

SantosLtd will extract more than 35 billion litres of water lying in the coal seam, providing the pressure that holds the gas in the coal seam. This water contains tens of thousands of tonnes of salt, for which there is no safe disposal plan.

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 Tintfield 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.

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. (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 impacts of toxic spills reported in Australia and internationally, and 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 is one of the largest subterranean freshwater aquifer systems in the world. 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 September 2016 GDP figures reported by Ross Gittens in the Sydney Morning

Herald noted that Agriculture and Tourism contributed more to Australia's wealth than the mining industry.

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.

How with one hand can our 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.

We have stood in the Pilliga Forest to listen to US farmer, John Fenton, describe the loss of a water supply to his farm adjacent to unconventional gas fields. The farmers of NSW are terrified that the CSG industry will start in NSW and destroy their only source of water from the GAB. With climate change, with longer droughts, not only do we fear increased bush fire risk, but the increased risk of losing water, permanently.

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.*" We have a lived experience of knowing the dependence on the GAB. We 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.

## **LOSS OF BIODIVERSITY:**

The Pilliga Forest is the largest temperate woodland in NSW. This project will require clearing of 1,000 hectares leading to fragmentation of the forest and threatening key species:

### **Mammals:**

*Pseudomys pilligaensis* (**Pilliga Mouse**) endemic to this area. This nationally Vulnerable species will be severely impacted by the direct habitat loss from CSG exploration and production, infrastructure construction and maintenance, increased predation (cats and foxes) and fragmentation leading to impacts on dispersal;

*Macropus dorsalis* (**Black-striped Wallaby**): Endangered in NSW, requires dense woody and shrubby vegetation and is extremely vulnerable to clearing. Known to occur;

*Chalinolobus picatus* (**Little Pied Bat**): Vulnerable in NSW and known to occur;

*Nyctophilus corbeni* (**South-eastern Long-eared Bat**): Vulnerable in NSW and nationally this species prefers large intact stands of native vegetation such as in the Pilliga. Known to occur but at risk of fragmentation, loss of hollow trees and uncovered saline ponds;

*Miniopterus schreibersii oceanensis* (**Eastern Bentwing - bat**): Vulnerable and known to occur;

*Saccolaimus flaviventris* (**Yellow-bellied Sheath-tail-bat**) Vulnerable and known to occur.

*Phascolarctos cinereus* (**Koala**) Vulnerable in NSW - Santos EIS reference Chapter 15-32 reported as likely to occur, whereas should be known to occur. The Regional Koala survey (EIS page 15-36) identified ten individuals west of the project area along Etoo Creek and Baradine Creek, mainly in Red gums or White Cypress Pine.

*Dasyurus maculatus* (**Spotted-tailed Quoll**): Vulnerable in NSW and potential to occur based on the presence of suitable habitat.

*Petaurus norfolcensis* (**Squirrel Glider**): Vulnerable in NSW: known to occur.

*Cercartetus nanas* (**Eastern Pygmy Possum**): Vulnerable in NSW potential to occur based on suitable habitat but likely to be impacted by habitat loss and fragmentation;

#### **Birds:**

*Calyptorhynchus lathami* (**Glossy Black-Cockatoo**): Federally *Endangered* and *Vulnerable* in NSW is highly dependent on the distribution of *Allocasuarina* species in woodland and open forests and requires tree hollows for breeding. Known to occur

*Pomatostomus temporalis temporalis* (**Grey-crowned Babbler**): *Vulnerable* in NSW is found in open forests and woodlands. This is the most prominent Babbler in the Pilliga - but White-browed also seen.

*Stagonopleura guttata* (**Diamond Firetail**): *Vulnerable* in NSW requires open grassy woodland, heath and farmland or grassland with scattered trees. Known to occur

*Melanodryas cucullata cucullata* (**Hooded Robin**): *Vulnerable* in NSW requires lightly timbered woodland mainly dominated by acacia and/or eucalypts. Known to occur.

*Chthoniola sagittate* (**Speckled Warbler**): *Vulnerable* in NSW requires dry sclerophyll forests and woodlands dominated by eucalypts. Known to occur.

*Grantiella picta* (**Painted Honeyeater**): *Vulnerable* in NSW requires dry open forests and woodlands and is strongly associated with mistletoe. Known to occur

#### **Migratory birds:**

*Anthochaera phrygia* (**Regent Honeyeater**) Potential to occur

*Polytelis swainsonii* (**Superb Parrot**) *Vulnerable* in NSW potential to occur

Many in our group enjoy birdwatching and plant identification by camping in the Pilliga Forest, an area of biodiversity that attracts birdwatchers from the Northwest region of NSW, nationally and internationally.

**Birdlife Australia** has listed this forest of 490,000 hectares as a Key Biodiversity Area (KBA), with Painted Honeyeater and Diamond Firetail listed as key species. Bird diversity

is an indicator of biodiversity and each KBA has a Guardian appointed to monitor this diversity on a regular basis. Baseline monitoring has therefore been completed external to Santos Ltd. This biodiversity is in peril from the clearing of the temperate woodland required to establish an industrial 850 well CSG field, as well as the dewatering impacts of the CSG mining process.

Please refer to the expert biodiversity reports submitted by the Wilderness Society and Lock the Gate in response to the Santos EIS.

In Chapter 15.5.1 of the EIS, Santos outlines the offset requirements to achieve long-term conservation outcomes for the plant communities, endangered ecological communities threatened and migratory fauna. Santos lists the impacts on the habitat of the above species and proposes a range of supplementary measures.

However, we are concerned by the statement:

*“The availability and suitability of potential offset sites in the region would be **investigated after submission of the EIS**. This process would seek to meet the majority of the like-for-like offset liability of the project as far as practicable.”*

**The Santos EIS is a 7,000 page document, and the potential biodiversity offset package is yet to be developed. Santos announced a loss of billions at the AGM in May 2017. Therefore the statement of commitments at 15.5.3 is hollow. Santos has marginalised this project and plans to sell it. There is no assurance that Santos, or subsequent owners will compensate the people of NSW for the loss of biodiversity in the project area.**

**We ask that this project be rejected.**

## **CONCLUSION:**

We urge the Government to reject this project and direct support to the established industries of agriculture, tourism, education, health, 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 degrees C of warming as required by the **Paris Agreement**.

**We urge you to** reject this proposal for a new unconventional CSG field that is NOT NEEDED for energy security. Santos Ltd has publicly rejected the commitment to the **Paris Agreement** by outlining a goal of **4 degrees C 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 the Pilliga Forest..