SANTOS DEWHURST GAS EXPLORATION PILOT EIS

Thank you for the opportunity to comment on this EIS. Following are my comments on major aspects of the proposed project.

WATER

The proposed activities are likely to permanently damage water resources in the immediate area, the Great Artesian Basin and the Murray-Darling. Evidence is available from many places around the world showing that unconventional gas drilling contaminates a variety of water resources, both surface and subsurface.

As a result, the project will put at very severe risk Australia's food security, at a time when it is already under increasing stress from a variety of factors and we should be improving its resilience.[1]

The proposed project is in the Pilliga Scrub, which is recognised as a groundwater recharge area for the Great Artesian Basin.[2] The Great Artesian Basin is one of the largest artesian groundwater basins in the world[3] and provides the only source of fresh water for much of Australia. It was formed over

Furthermore Surface water in the Pilliga is part of the Murray-Darling Basin[4], which is Australia's main food bowl.

Water baseline studies and monitoring has not been provided. This work needs to take place for a couple of years at least, be provided and shown not to be affected by gas drilling **before** any gas exploration takes place. The proponent has not provided sufficient evidence of:

- water baseline studies
- their groundwater model
- the quality of the water
- their monitoring methods
- how they propose to stop saline or contaminated water from the drilling spreading throughout the local environment and/or the Great Artesian Basin (for example, via seepage, re-use to control dust, or overflow)

to allow the impact of the proposal to be assessed.[5]

Furthermore, I understand that:

- The drilling of the proposed wells will produce over three years for the operation of Dewhurst 13-18H and Dewhurst 26-31 pilots an additional 331ML of highly saline water containing heavy-metals and 413 ML of highly saline water containing petrochemicals. Santos does not have approval for any long-term sustainable management of this toxic produced water that poses a huge threat to the local creeks and groundwater from spills.
- Despite the risks posed by the new tri-lateral wells there is no established baseline data for the important groundwater systems underlying the Pilliga such as the recharge zone for the Great Artesian Basin. The aquifer monitoring

bores required to do this have have not yet been commissioned and some are still to be constructed.
- In addition, the cumulative water model used by Santos lacks the basic data required to assess the impacts of drilling for coal seam gas on groundwater in the future.

BIODIVERSITY

The further drilling required for these wells could be death by a thousand cuts for the Federal and State listed threatened species that live in the Pilliga Forest. These include the Pilliga Mouse (found only in the Pilliga), Koalas, the Black Striped Wallaby, Eastern Pygmy Possum and many more. The Pilliga is also a haven for birdlife, including the internationally protected Rainbow Bee-eater.

Santos have admitted that their CSG exploration will destroy habitat for the Pilliga Mouse. The breeding status and population dynamics of the threatened species in the Pilliga are very poorly understood. There must be baseline ecological surveys to assess the population dynamics and status of the Pilliga Mouse and other threatened species.

GREENHOUSE GASES

CSG and other unconventional gas drilling adds significantly to greenhouse gas emissions in three ways:

1. emissions of methane (more potent than carbon dioxide) where gas is removed from the ground and during transfer of gas through pipelines and equipment. The extent of these so-called fugitive emissions is little understood[6] but recent studies are showing that they are much higher than previously thought. For example studies of unconventional gas drilling from Harvard University have suggest gas emissions from drilling and fracking are 50% worse than previously thought. The US Department of Energy and researchers at the Southern Cross University have also found significant methane gas leakage from unconventional gas drilling.[7] It is widely accepted that it is virtually impossible to seal fossil gas pipes and equipment against leaks.
2. carbon dioxide from transporting gas, for example to overseas markets.
3. carbon dioxide from burning gas

This would be occurring at a time when we need to be keeping fossil fuels in the ground to avoid catastrophic climate change.

HAZARDS

The Pilliga is highly susceptible to fires, largely due to the high incidence of ironstone attracting lightning strikes. It is quite common for the Rural Fire Service to record up to 1000 lightening strikes over a 24 hour period in the Pilliga region.

Given that, to date:

- Santos' CSG drill sites in the Pilliga flare gas (unlike in other countries like the US)
- those flares have exempt from fire bans (even the recent ones that were for an unlimited time because the fire threat was so serious), and
- Santos blocks public access roads in the Pilliga,

every time Santos gets extra access to drill for CSG increases the chance of having a severe and tragic bushfire in the Pilliga.

Santos does not appear to have a clear bushfire strategy, especially for gas flaring which cannot be shut down on catastrophic fire days.

AIR QUALITY

The baseline atmospheric methane data collection against which to assess any future potential fugitive emissions and Independent Health Impact Assessment of north-west NSW to establish baseline health data and air quality information has not yet been conducted.

ECONOMICS

There is no need for these projects to proceed. All the energy and economic needs it purports to be satisfying can be supplied by renewable energy, most likely at lower direct cost and without the huge broader costs outlined above.

The assessment that has been done does not take into account any costs of the project – including broader economic costs (for example, those listed under Water above), health costs, social costs – only claimed benefits. This approach has been labelled as "biased", "abused" and "deficient" by the ABS, Productivity Commission and Land and Environment Court respectively and doesn't comply with DGRs.

DGRs call for a demonstration of "net benefit" to the NSW community. To an economist, this is a clear call for cost benefit analysis. There is no cost benefit analysis in the EIS. NSW Treasury and Department of Planning put out guidelines in Nov last year specifically to guide cost benefit analysis of mining and CSG projects. These have not been followed.

HERITAGE

It is extremely disappointing that Aboriginal Heritage requirements were taken out of the Director General Requirements. This means that the impact of the proposal on this area with strong connections to local Aboriginal people will not be assessed – and it should be.

The Gomeroi Traditional Owners of the Pilliga Forest have an ongoing connection to the Pilliga Forest through ‘song-lines’, sacred sites, bush-medicine and cultural practices. To not include an Aboriginal Cultural Heritage assessment is denying the rights of the Gomeroi Nation to have their traditional knowledge considered as part of this Planning proposal.

G King
9 December 2013

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[1] Cribb, J. (2010. *The Coming Famine. The glob al food crisis and what we can do to avoid it.* CSIRO Publishing : Collingwood.
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[3] http://www.nrm.qld.gov.au/factsheets/pdf/water/w68.pdf, accessed 9 December 2013
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[5] http://www.theland.com.au/news/agriculture/general/news/pilliga-project-raises-water-concerns/2680665.aspx?storypage=0, accessed 9 December 2013
[6] Kirchgessner, DA; Lott, RA; Cowgill, RM; Harrison, MR; and Shires, TM. Estimate of methane emissions fom the U.S. natural gas industry.
http://www.epa.gov/ttnchie1/ap42/ch14/related/methane.pdf, accessed 9 December 2013
[7] http://bze.org.au/media/releases/csg-leaks-carbon-liability-could-end-industry-121119, accessed 9 December 2013