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# **Submission**

to

**The Chief Scientist and Engineer's Review**

**[csg.review@chiefscientist.nsw.gov.au](mailto:csg.review@chiefscientist.nsw.gov.au)**

on

# **Coal seam gas mining**

# **Submission to the Chief Scientist and Engineer's Review of Coal Seam Gas Mining.**

## **Introduction.**

The Clarence Environment Centre has maintained a shop-front in Grafton for over 23 years, and has a proud history of environmental advocacy. We have been particularly concerned about the activities of coal seam gas miners in NSW and have already made a number of submissions and approaches at both both State and Federal level over the past 4 years calling for a comprehensive review of all aspects of the industry. We have sponsored numerous information seminars for concerned landowners, and made representations to the Clarence Valley Council. **Therefore, we fully endorse the setting up of this review by the Chief Scientist and Engineer.**

The screening of the American documentary, "Gasland", was a wake-up call to the world, and the predictable response from the gas mining industry, claiming that what they were doing here in Australia is not the same, failed to convince many in the community.

It now seems the community's scepticism was well-founded, with evidence emerging from Queensland to show that what the gas industry is doing in that State is exactly what they were doing in the USA. Water bores are being set alight, carcinogens being found in water supplies, exploding well heads, and releasing toxic produced water into waterways, fugitive methane emissions finding their way to the surface, resulting in elevated levels of methane and other toxins occurring in the vicinity of gas mining operations in the south east of the state.

The claims by the industry that it is highly regulated is a complete nonsense, and Governments across Australia must take responsibility for firstly failing to undertake a thorough risk assessment, or to put adequate controls in place, and secondly failing to monitor compliance with those few controls that were in place.

## **Justification**

Coal seam gas (CSG) is a fossil fuel and its use contributes to greenhouse gas pollution. It generates more than 40 times the amount of greenhouse gas per unit of energy generated than solar or wind and will make a major contribution to global warming.

The big lie being promoted by the Australian CSG industry, is that methane is an ideal, low emissions, transitory fuel for electricity production as the country moves to a renewable energy future. While that statement holds true for natural gas, i.e. that sourced from underground reservoirs that do not require multiple well heads, horizontal drilling, and hydraulic fracturing (fracking) of underground rock formations, in does not hold true for unconventional gas.

The lie becomes clear when all the collateral carbon emissions are taken into consideration, something that has now been quantified by scientists from the Cornell University in the USA and other scientific institutions. They have found that when all the emissions, including methane vented or flared directly into the atmosphere, along with emissions from machinery used in land clearing; the manufacture and laying of pipelines; in drilling and fracking processes; as well as the pumping, refining and liquefaction processes, and transport, the total footprint of CSG exceeds even that of coal-fired electricity production. The fact that most gas in NSW is extracted for export, not to meet local energy needs, further confirms the transition fuel lie. **Therefore there is no justification for mining CSG at this time.**

## Summary.

Faced with global warming (currently trending to 6 degrees hotter within 90 years, it is imperative that the world moves immediately to using renewable energy. There are vast solar, solar thermal, geothermal, and wind resources in areas where CSG mining is now proposed, The massive expansion of coal seam gas production is delaying the transition to renewable energy alternatives, while adding to atmospheric pollution, so it is equally imperative the gas mining be discouraged.

Added to CSG's contribution to global warming, are the already identified threats of pollution and depletion of ground and surface water, is the destruction of the natural environment through the construction of well heads, a network of pipelines, access roads, toxic waste water holding lakes, evaporation ponds, compressor stations and waste water treatment facilities. As well there are clear signs of health implications for people forced to live in close proximity to these gas fields because they can no longer sell their properties.

**Therefore, the Clarence Environment Centre calls on the Chief Scientist to recommend that the NSW Government place an immediate halt, not only on coal seam gas exploration, but to all gas mining activities in this state.**

A proposal has already been put before various State Government departments whereby CSG and other unconventional gas can remain stored underground and counted as carbon credits, thus compensating gas companies who have already received full production licences. The Clarence Environment Centre also asks the Chief Scientist to seriously consider such a scheme which, when a carbon trading scheme is put in place, would help offset possible revenue losses for the Government.

## Terms of Reference

Below we have dealt with each of the six terms of reference separately, making comments where appropriate.

1. *The Chief Scientist and Engineer is to undertake a comprehensive study of industry compliance involving site visits and well inspections.*

*The Chief Scientist's work will be informed by compliance audits undertaken by regulatory officers, such as the Environment Protection Authority and other government agencies.*

**Comment:** This has to be an essential component of any review. However, when the Clarence Environment Centre reported toxic waste water spillages at Glenugie, near Grafton, we first contacted the NSW EPA and were informed they had no jurisdiction over coal seam gas mining operations, so we are unsure why the Chief Scientist has been asked to investigate EPA audit inspections. Would it be the case that the Premier's office was unaware of which agency regulates the industry? Given revelations in last week's 4 Corners program, that seems highly probable.

2. *The Chief Scientist and Engineer is to identify and assess any gaps in the identification and management of risk arising from coal seam gas exploration, assessment and production, particularly as they relate to human health, the environment and water catchments.*

**Comment:** Another essential component of any review. In this case we believe the "gaps in the identification and management of risk arising from coal seam gas exploration and production relating to human health", has been non-existent. Clearly, it cannot be healthy to live with the elevated levels of airborne toxins, that were recently identified by Southern Cross University, yet governments in all states have failed to require the collection of baseline data, or undertake subsequent air-quality monitoring, putting people's health at serious risk.

3. *The Chief Scientist and Engineer is to identify best practice in relation to the management of CSG or similar unconventional gas projects in close proximity to residential properties and urban areas and consider appropriate ways to manage the interface between residences and CSG activity.*

**Comment:** Given the global threats through global warming, brought on by the burning of fossil fuels, added to the potential threats to water supplies and degradation of the natural environment and food producing land, the Clarence Environment Centre strongly believes that **there is no justification for the mining of unconventional gas. This therefore, would completely nullify the need to identify “best practice”.**

4. *The Chief Scientist and Engineer is to explain how the characteristics of the NSW coal seam gas industry compare with the industry nationally and internationally.*

**Comment:** Again the Clarence Environment Centre strongly believes that **there is no justification for the mining of unconventional gas, making the comparison unnecessary.**

5. *The Chief Scientist and Engineer is to inspect and monitor current drilling activities including water extraction, hydraulic fracturing and aquifer protection techniques.*

**Comment:** Again this is essential. The 2011 Senate Standing Reference Committee on Rural affairs and Transport inquiry into impact of CSG extraction on the Murray Darling Basin recommended, in light of the tens of thousands of wells that are planned for the Basin, that CSG expansion should be halted until independent science had answered the numerous questions regarding water resources.

That has yet to happen despite varying estimates of the amount of water that would be extracted from the Murray Darling Basin alone reaching 1,500 gigitalitres a year, all of which has to be treated, often by reverse osmosis, to remove salt. The National Water Commission estimates that CSG extraction will see 31 million tonnes of salt produced across the country by over 30 years, some 700,000 tonnes per year!

However, improving **those drilling activities should be rendered irrelevant because they should not be occurring in the first instance.**

6. *The Chief Scientist and Engineer is to produce a series of information papers on specific elements of CSG operation and impact, to inform policy development and to assist with public under standing. Topics should include:*

- \* *operational processes*
- \* *NSW geology*
- \* *water management*
- \* *horizontal drilling*
- \* *hydraulic fracturing (fracking)*
- \* *fugitive emissions*
- \* *health impacts*
- \* *wells and bores*
- \* *subsidence*

**Comment:** This is by far and away the most important element of this Review, because every one of the nine dot points pose an unacceptable risk. **However, every one of these aspects are directly related to hydraulic fracturing, something that has to occur, along with the need for clustered multiple well-heads across a gas field, to extract the gas.**

**Fracking is the core element in the 'operational process', and it can only operate in areas where the 'geology' is suitable, i.e. shale, coal seam or sandstone.**

**The 'blasting open of underground rock strata through horizontal drilling in the rock seams, which is what the fracking process does, cannot be undertaken without consequences. Those consequences are:**

- **migration of potentially toxic water via the resultant cracks in the rock to potable water aquifers,**
- **depletion of aquifers draining through those cracks,**
- **fugitive emissions finding their way to the ground's surface via those cracks, as demonstrated by the current leaks in the Condamine River,**
- **the contamination of wells and bores with gas released by the fracking process, that have already been recorded in the US and in Queensland,**
- **the potential for subsidence following the breaking of rock strata, and the removal of the huge amounts of water that is extracted with the gas, and**
- **the clear implications for human health impacts for those forced to live with elevated levels of aerial methane and toxins.**

We note that: *“The NSW Chief Scientist & Engineer will provide an initial report to the Premier and the Minister for Resources and Energy on her findings and observations by July 2013”*. We see this as an opportunity for sanity to prevail.

In terms of the loss of revenue that the State would incur, should it be decided that CSG mining should not proceed, we would like to introduce a scheme that has been floated locally, where CSG is kept underground for 100 years, allowing it to accumulate carbon credits which can be traded to benefit landowners, mining licence holders, and the State's economy (Contact WG Oxenbridge, Old Six Mile Lane, Glenugie.

The Clarence Environment Centre thanks the NSW Government for this opportunity to comment on the coal seam gas industry review as outlined in the Terms of Reference given to the NSW Chief Scientist and Engineer.

Compiled by John Edwards  
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