

**Submission
No 11**

**INQUIRY INTO THE IMPLEMENTATION OF THE
RECOMMENDATIONS CONTAINED IN THE NSW CHIEF
SCIENTIST'S INDEPENDENT REVIEW OF COAL SEAM
GAS ACTIVITIES IN NEW SOUTH WALES**

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The implementation of the recommendations contained in the NSW Chief Scientist's Independent Review of Coal Seam Gas Activities in New South Wales

According to its Terms of Reference, the Inquiry basically seeks to establish whether the Chief Scientist's recommendations have been implemented and how effective implementation has been.

In turn, the Chief Scientist's Terms of Reference were to undertake a number of tasks, all of which were to allow her to:

identify and assess any gaps in the identification and management of risk arising from coal seam gas exploration, assessment and production.

This submission therefore seeks to identify those recommendations of the Chief Scientist which have not been implemented, or only partially implemented, to date. The recommendations are covered in the order presented by the Chief Scientist. The only recommendations referred to in this submission are those where the author is aware of a deficiency in their implementation. This does not mean that there are not other deficiencies of which the author is unaware. The author has particular experience with the Narrabri Gas Project (NGP) and this submission reflects that experience.

Recommendation 1:

That Government make clear its intent to establish a world-class regime for extraction of CSG. This could be articulated in a clear public statement that covers ... the rationale/need for CSG extraction

Nowhere in her terms of reference was the Chief Scientist asked whether coal seam gas development should go ahead at all. She was only asked how to manage the risks arising from CSG development.

The Chief Scientist makes this deficiency in the terms of reference clear in the first Recommendation, when she calls for a statement on the

rationale/need for CSG extraction.

She also returns to this theme at the end of Recommendation 12, where she suggests that Government be advised

whether or not other unconventional gas extraction (shale gas, tight gas) industries should be allowed to proceed in NSW and, if so, under what conditions.

Clearly, with Australia now the world's largest exporter of gas, there is **no need** for the Narrabri Gas Project, with its many harmful effects on the Pilliga Forest and the Great Artesian Basin.

There is also **no rationale** for developing another fossil fuel project. Contrary to various claims that burning CSG is cleaner than coal, this is simply not true.

The role of fossil fuels in climate change is clear, with the majority of greenhouse gases coming from burning fossil fuels to produce energy. Natural gas emits 50 to 60 percent less CO₂ when combusted in a new, efficient natural gas power plant compared with emissions from a typical new coal plant.

Natural gas also emits 15 to 20 percent less heat-trapping gases than petrol when burned in today's typical vehicle. However, when fugitive emissions are factored in, CSG is no more "greenhouse friendly" than coal.

Fugitive emissions are emissions of gases from pressurized equipment due to leaks and other unintended or irregular releases of gases, mostly from industrial activities. This includes venting of natural gas, flaring, accidental releases and storage losses.

Leaks from pressurized process equipment generally occur through valves, pipe connections, mechanical seals, or related equipment. High point valves deliberately release coal seam gas from high points in produced water pipelines en route to treatment facilities, to prevent vapour locks. Fugitive emissions also occur at evaporative sources such as waste water treatment ponds and storage tanks. Because of the huge number of potential leak sources at large industrial facilities and the difficulties in detecting and repairing some leaks, fugitive emissions can be a significant proportion of total emissions. These gases can have serious health or environmental impacts, including their role in global warming.

According to Cornell University studies of shale gas, fugitive emissions can be 4 to 8% of the extracted gas. More recent studies have shown even higher figures. However, even if only 2% of the gas were to escape, which is closer to **industry estimates**, when this is multiplied by the 34 times heat trapping potential of methane compared to carbon dioxide (over a 100 year period), the greenhouse gas impact of coal is exceeded (the original 50% + $34 \times 2\% = 118\%$).

Given that fugitive emissions have been shown to exceed 2%, CSG is likely to exceed the greenhouse gas production of an equivalent amount of coal, resulting in a more severe impact on global warming. The impact is more frightening over say a 20 year period, for which the heat trapping potential of methane is 86 times more potent than CO₂. Recent research findings suggest that we do not have 20 years before a domino effect is initiated and our imbalanced bio-systems spiral out of liveable conditions. The current impacts have been well documented, including the effects on the Great Barrier Reef, with many of the current generation of the world's citizens already denied the privilege of seeing this magnificent eco-system in all of its former glory.

Many astute business leaders are acutely aware of the problems we face due to global warming. As former National Australia Bank CEO Cameron Clyne said "... climate change is real, human beings are causing it, and the threat is existential..." He added "... we know from history what happens when a business or government sets its face against a change that is coming anyway." Fire chiefs, wineries, banks, insurance companies, etc are factoring climate change into their forward planning. It would appear that Australian legislators, at all levels and irrespective of political affiliation, choose to put their heads in the sand.

This morally reprehensible approach is putting the whole country (and the world) in increasing danger. It flies in the face of the global climate summit in Paris, which forged a landmark agreement setting the course for an historic transformation of the world's fossil fuel-driven economy in a bid to arrest global warming. However, as Clyne says: "It's usually not the politicians or chief executives who end up at the unemployment office. Leadership mistakes are worn by people who are least at fault for the bad decisions: the workers, their families and the communities that depend on them". The Paris summit affirmed that to avert catastrophic global warming, we need to keep nearly all the world's known reserves of fossil fuels in the ground. Why do Australian State governments continue to grant exploration and development approval? Why were Santos and the exploration company that preceded it granted access to a State forest to explore for and develop a gas field? Why are

some Australian governments, both State and Federal, choosing to ignore (and, indeed, fight) the avalanche of renewable energy developments coming our way?

In other words, the NSW Government at the time was determined to forge ahead with the NGP, while the rationale and need for a CSG industry has not been articulated. The Chief Scientist suggests that it should be. This submission suggests, amongst other things, that it cannot be rationalised.

Recent court cases have seen judges rule that climate change needs to be taken into account when assessing potential fossil fuel projects, for example, coal mines at Gloucester and in the Bylong Valley. These judgments certainly need to be taken into account when considering the NGP and other CSG projects.

Recommendation 4:

That the full cost to Government of the regulation and support of the CSG industry be covered by the fees, levies, royalties and taxes paid by industry, and an annual statement be made by Government on this matter as part of the Budget process.

As far as the author of this submission is aware, Santos is using gas from the Bibblewindi pilot plant (part of the NGP) to generate electricity and paying no royalties.

Recommendation 5:

That Government use its planning powers and capability to designate those areas of the State in which CSG activity is permitted to occur, drawing on appropriate external expertise as necessary.

In November 2012, the Namoi Catchment Management Authority released the report *Assessing the cumulative risk of mining scenarios on bioregional assets in the Namoi Catchment: Development and Trial of an interactive GIS tool* (the Namoi Cumulative Risk Assessment Tool - NCRAT). This tool can be used to assess cumulative impacts and hence is described in more detail under Recommendation 11.

Basically, however, the tool works by overlaying maps of natural resource assets and can show how many of these assets would be impacted by mining activity, including CSG extraction. That is, it can show where most or all of the natural assets of an area would be affected, or where few or none of the assets would be affected. In this way, areas can be designated as:

- suitable for mining,
- suitable, with conditions, or
- off-limits.

Deployment of this tool would save the mining industry, and the community, much angst, as miners would be assured that they were operating in safe areas before committing themselves to exploration and development. Knowing that the miners were operating in safe areas, the community would not have to pit themselves against the miners, as has happened with the NGP, which never should have been allowed to proceed this far.

Recommendation 9:

That Government consider a robust and comprehensive policy of appropriate insurance and environmental risk coverage of the CSG industry to ensure financial protection short and long term. Government should examine the potential adoption of a three-layered policy of security deposits, enhanced insurance coverage, and an environmental rehabilitation fund.

As far as the author of this submission is aware, this simply has not happened.

To quote Chapter 7 of Home Truths (produced by People for the Plains Inc, a group of Narrabri Shire residents who have sought to gain a comprehensive understanding of the processes surrounding coal and coal seam gas developments):

Landholders have been advised by their insurers that their farm businesses, the associated water resources and/or farm produce are considered "uninsurable" against CSG contamination. Therefore both the likelihood of the risk manifesting, and the severity of the risk, are unacceptably high for an insurer to cover. The insurers are suggesting that a significant adverse impact as a result of CSG operations in the region is considered almost inevitable.

Furthermore, Meat and Livestock Australia states that "the landholder may still have primary liability in the event of contamination of the soil, pasture or groundwater, neighbouring properties, as well as livestock which, if then processed and consumed, could breach Australian food standards or importing country requirements for meat." This is particularly pertinent for landholders who sign a National Vendor Declaration or similar document for their produce. Signing such a document provides the buyer with a guarantee of the food safety status of the animals or crops they are purchasing and puts responsibility of any potential contamination in the hands of the landowner.

Being unable to obtain insurance leaves landholders at grave risk, questioning what consequences there may be for food products sold into the future, and whether they may ultimately incur a legal or financial liability. This is precisely why landholders have sought to insure against such an eventuality, and for which cover is not available. Neither Santos, nor its insurance company, nor a NSW Government Bank Guarantee (to an undisclosed amount), can provide certainty of cover for, or remedy, the inability to obtain insurance privately. This will ultimately expose Santos to future claims and legal action on a scale possibly not seen before in this country.

Hence the Chief Scientist's recommendation.

Recommendation 11:

That Government develop a centralised Risk Management and Prediction Tool for extractive industries in NSW.

As discussed under Recommendation 5 above, the Namoi Catchment Authority spent more than \$1 million to develop the Namoi Cumulative Risk Assessment Tool precisely for this purpose and, in particular, to assess cumulative impacts.

NCRAT was developed specifically to assess the cumulative impact of mining scenarios on bioregional assets in the Namoi Catchment, in which the NGP lies, and considers any mining scenario, be it a combination of one of more mines including open cut mines, long wall mines and coal seam gas operations. However, it could be applied to any area of mining, including CSG, activity. It quantifies the risk of cumulative impacts across ten natural resource assets in the Catchment, namely:

- Land use
- Soils
- Carbon
- Surface water
- Groundwater
- Vegetation extent

- Vegetation type
- Vegetation condition (intactness)
- Vegetation connectivity
- Threatened species.

NCRAT is designed to:

- analyse the cumulative impact of a scenario across a number of asset sensitivity surfaces
- call on respective risk tables that associate sensitivity and likelihood/magnitude with risk, and
- produce a risk report that includes maps, area statistics, single and cumulative risk diagrams, and statement about specific assets impacted.

In other words, NCRAT is an ideal tool for assessing the cumulative risks associated with CSG with respect to the natural resources of the region. NCRAT is housed in the North West Local Land Services office as well as the office of the Independent Expert Scientific Committee. However, no government, State or Federal, has called upon the program since its development. It would appear to have been quietly “buried”.

Recommendation 12:

That Government establish a standing expert advisory body on CSG ... to advise Government:

...

- *on updating and refining the Risk Management and Prediction Tool*

Utilising NCRAT, as described above, would be a good start to implementing this recommendation.

- *on how best to work with research and public sector bodies across Australia and internationally*

In the case of the NGP, much of the research to date has been directed through GISERA, the **Gas Industry** Social & Environment Research Alliance, utilising the CSIRO. The CSIRO has high standing in the Narrabri community due to its long history of research in the area, with long-established permanent facilities. However, the highly-prized independence of CSIRO is being questioned by the community, even referring it to the Commonwealth Ombudsman, with CSIRO now carrying out research not only directly funded by an industry (coal seam gas) but with representatives of that industry sitting on the committee/s directing that funding. As CSIRO CEO Larry Marshall said (see <https://www.csiro.au/Vimeo/Larry-Interview-CSIRO-changes/video-transcript>):

“whoever the funder is, they’re funding us to do something and they expect a deliverable, a result”.

A higher degree of independence would be expected from whoever was doing the research.

Submitted by:

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