

**Submission
No 702**

INQUIRY INTO COAL SEAM GAS

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Submission by private citizen.

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General Purpose Standing committee No.5

1. Environmental impacts:

International experiences have shown CSG production to be unsafe for both quality and quantity of underground aquifers. The dangerous impacts are well recorded across many sites in the USA.

CSG activity covers an enormous geographical area in NSW and we do not know what chemicals will be released with the groundwater that CSG brings to the surface as it is not possible to know in advance what dangerous chemicals will be liberated from the coal seams. Once they are accessed it is not currently possible to return everything to 'its previous state'.

In the Marcellus shales across Pennsylvania and New York States in the USA radioactive radon and radium have been released from within the coal body due to CSG water extraction. Now local water authorities have to deal with contaminated water for the human population. These extraordinary costs have to be borne by the public and will make the cost of water supply to households much larger.

CSG brings giga litres of underground water to the surface and it is all contaminated with salt. It is not possible to use this water for irrigation and it has to be desalinated for human uses, again increasing the cost of water supply. We do not know what will be the long term consequences of removing such large amounts of water and we do not know if these aquifers will be able to recharge and stay recharged after CSG mining ceases. Rural Australia cannot afford to lose water for any reason. We are the driest continent. CSG will pierce many aquifers that are part of town water supplies...creating threats of permanent loss or contamination. Again the costs of rectifying these problems will be large. The cumulative size of the CSG industry across so many aquifers will have enormous consequences. It is the cumulative nature of turning underground NSW into a geological 'Swiss cheese' that is of enormous concern to scientists and hydrologists everywhere.

Even if all the chemicals used in fracking are scrutinised by an independent chemical safety review body, we have no way of knowing what other chemicals are present in the coal seams over such an

enormous area. When coal is formed and then lies untouched for millennia many chemicals are formed within the rock strata. These will be released with the water and gas and there is very little knowledge of what will be where, how much and how toxic. The size of the areas for CSG exploration and mining is too large to map it accurately. After 10 years of drought and the added uncertainty of climate change water is without doubt our most precious resource. Why risk it?

In regards green house gas emissions it has been established that CSG provides the same greenhouse gas footprint as coal. Fugitive gas leaks are a serious contributor to its Greenhouse gas emissions. See attached journal paper from Cornell University, USA (Howarth et al, 2011). The CSG mining industry refutes this saying that there is negligible gas leakage. If this was true then the exclusion safety fencing for flammable substances around every gas well and compression station would be unnecessary. Chemists and gas fitters know that it is not possible to prevent gas leakage 100%.

In summary it is necessary to be cautious in the development of CSG and as such it should not proceed until independent scientific scrutiny of these environmental issues of water, chemicals, gas leakage, fracking, greenhouse gas emissions and all environmental impacts are fully assessed. The potential for permanent damage of the Australian landscape and water reserves is very great and they cannot be repaired.

2. There has been much reporting of standover tactics and bullying of landholders by CSG exploration companies. The legal rights of landholders need to be supported and strengthened. Their rights need to be endorsed and supported. The non-disclosure sections of agreements are a certain sign of dishonesty by large multi-nationals. Communities too need support to be able to challenge and enforce laws when public landholdings come under exploration and mining leases.

Intensive agriculture and broad acre cropping is under threat from CSG. Not only are aquifers being drained and contaminated, it is not possible to carry out large scale cropping with roads and wells and pipes crisscrossing the land. These farming operations use GPS to plan and plant their enormous areas. It is not compatible with CSG activity.

Furthermore Australia has a tiny amount of high value cropping farmland. Soil is a living ecosystem that cannot be made or perfectly restored by humans after mining activity. The very best farm lands must be preserved in totality for all future generations of Australians. The worlds exploding human population is already at a size that current agriculture can only just feed. Whilst agriculture research can only increase production at about 2% per year, the population is growing at a much faster rate. There is no certainty the Agricultural science can continue to improve production be 2% annually. With the added problem of climate change and water shortages there is no way known to produce ever more food at ever increasing rates. Food production is a biological process...it is not a manufacturing industry that can endlessly churn out more and more. Biological systems have limits and we are fast approaching that limit with food production. IT would be the most dangerous decision ever made by any government in this country to threaten our best farming lands. It is irreplaceable and a national treasure.

For this reason the Liverpool plains in NSW need to be completely off limits for mining activity. It is the only area in NSW that has the highest quality soil.

The impacts of all mining on Australia's food security are extremely serious. Mining needs to operate in areas where agriculture is only marginal because in 20 or 30 years the mining will cease and we will not have enough good soil for future generations. There are already large amounts of scientific independent research to support the threat to farming and food security. Listen to it!

Not only do we need to ban mining in good quality farmland, it needs to be prohibited from important bushlands, forests, important groundwater aquifers used for town and agricultural water supplies, residential areas and all national parks. Our preserved bushlands are the country's lungs and water purification systems. We must keep them in good condition for all future generations.

Mining activity causes great social upheaval in the small towns it encroaches upon. We need to protect both social values and the infrastructure resources within these communities. Real estate values become two tiered in these communities and we need to protect residents from the social and economic problems that result.

The damage of infrastructure as large developments of CSG occur is massive. Roads damage is considerable as the quantity and weight of traffic escalates. Local authorities need help to address this problem. The towns require more water and sewerage infrastructure. State legislature needs to make mining companies pay for infrastructure needs instead of rate and tax payers.

3. Europe, Africa and NZ have embraced alternative energy supplies. China has large numbers of scientists working on renewables for energy delivery. As soon as a cheaper alternative to coal and gas is found, NO ONE will buy carbon based energy. Energy supply is a matter of national security for all nations and renewables will give everyone energy security. A Solar breakthrough is imminent (less than 5 yrs) and then coal and gas will have little or no market. Australia will have a salty landscape, contaminated groundwater, destroyed farmland and no market for its coal and gas if it pursues carbon selling relentlessly as the only economic driver.

Conclusion:

We need a moratorium on CSG exploration and development until ALL the environmental impacts have been independently assessed.

CSG exploration and mining must comply with all existing environmental legislation including native vegetation and water management laws.

Landholders must have legislative protection from exploration they do not consent to. Agreements must be available for public scrutiny and non-disclosure arrangements need to be reviewed.

All chemicals used in mining and which result from mining activity need to be assessed by an independent chemical regulator. There needs to be a system of policing mining activity so breaches are found and consequences result.

In summary it is time to stop exploration and CSG mining until all the threats and risks have been assessed and the necessary protections legislated and enforced.