Submission No 757

INQUIRY INTO COAL SEAM GAS

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Submission to Parliament New South Wales Legislative Council General-Purpose Standing Committee Number Five Inquiry into Coal Seam Gas

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Submission to the general purpose standing committee number five inquiry into coal seam gas with respect to the following sections of the terms of reference.

1. The environmental and health impact of CSG activities including the:

a. Effect on ground and surface water systems,
Spokesperson for the Australian Petroleum Production and Exploration Association Mr. Ross Dunn has said that "drilling will, to varying degrees, impact on adjoining aquifers. The extent of impact and whether the impact can be managed is the question." *Contamination of aquifers has* already occurred in Queensland due to coal seam gas mining.

b. Effects related to the use of chemicals
David Shearman, Professor of Medicine at Adelaide University and Board Member of the International Climate and Health Council and the International Society of Doctors for the Environment has "expressed concern not only with the hazards of the chemicals which may be used in fracking but also with those arising in coal seams themselves which may be brought to the surface,
"This flow-back water can contain volatile organic compounds, high concentrations of ions such as calcium, iron, magnesium, sodium, strontium, and also radioactive substances. Potential long-term hazards are cancer and deformities."

c. Effects related to hydraulic fracturing
The use of chemicals for hydraulic fracturing may lead to potential health risks as outlined in section B. above.

d. Effect on Crown Lands including travelling stock routes and State forests,
The effects on Crown lands could include contamination of aquifers, contamination of land surface with saline water and chemicals, possible degradation of ecosystem integrity due to habitat loss as a result of clearing and disturbance for access roads and drilling pads. Other effects include reduced public amenity values due to increased traffic and noise, as well as increased erosion and sedimentation of waterways due to earth works for road and drilling pad construction and maintenance. Atmospheric contamination with over 250 toxins including carcinogens from flare stacks and flare pits.
Canadian Public Health Association, Background to 2000 Resolution No. 3 Available at http://www.climatelaw.org/cases/country/nigeria/cases/casedocuments/nigeria/report/section7/doc7.1.pdf

e. Nature and effectiveness of remediation required under the Act,
I believe that the act should provide for full remediation where damage occurs as the primary

beneficiaries of this type of mining enterprise are foreign-based corporations rather than the people of New South Wales. This is may be academic as the remediation of contaminated

aquifers may not be physically possible with current technologies.

f. Effect on greenhouse gas and other initiatives
A number of researchers have cast doubt on to the notion that coal seam gas activities will result in less greenhouse gas emissions than those currently attributable to coal related activities including power generation. Robert W. Howarth, Renee Santoro and Anthony Ingraffea from Cornell University found that assuming a 20 year time frame and utilising up-to-date data for the global warming potential of methane that natural gas potentially contributes more to climate change than coal does. The work was carried out on US shale and conventional gas using US geological conditions for production to end use and according to Santoro is applicable to CSG. *Methane and the greenhouse-gas footprint of natural gas from shale formations*, Robert W. Howarth, Renee Santoro, Anthony Ingraffea, Climatic Change, Published online 12 April, 2011.

Patrick Hearps who is a Researcher at Melbourne University's Melbourne Energy Institute says that " When natural gas is burned in a combined cycle gas turbine power plant it results in fewer carbon dioxide emissions: roughly half, per unit of electricity, of what black coal produces. However, electricity production is not the only way that coal seam gas contributes to climate change. Policy makers need to consider the greenhouse gas emissions produced in the full lifecycle — including extraction, transport, processing and compression. There hasn't been enough empirical, ground-up research into the full lifecycle emissions from coal seam gas taking into account fugitive emissions from all steps in the chain from reservoir to power plant. Fugitive emissions from coal seam gas are significant. Even if only a few percentage points of fugitive emissions across the whole process are released then the supposed benefits of gas will be eroded. Methane is 25-times worse than CO2 over a 100-year period. But when its impact is considered over a 20-year period — which is a reasonable time frame given our proximity to climate change tipping points – the climate change forcing is 72-times greater than carbon dioxide.

Taking into consideration the total life cycle emissions of coal seam gas, particularly methane, its emissions intensity is likely to be a lot closer to coal fired power. Increasing the use of coal seam gas will increase the difficulty of achieving mid- to long-term emissions reduction goals".

2. The economic and social implications of CSG activities including those which affect:

b. Food security and agricultural activity,

According to Associate Professor Peter Dart, Agriculture and Food Sciences, University of Queensland, "Coal seam gas has been touted by some as the answer to our addiction to dirty coal. It's marketed as a 'transition fuel' that will ween us off fossil fuels as we move to renewable energy." But this transition could also see Australia become a net-importer of food instead of a net-exporter because we are the driest continent in the world. That's why we must do everything within our power to ensure this water intensive and destructive industry does not destroy our precious underground water sources that feed our rivers, streams and prime agricultural land.

Professor Dart went on to say, "The Darling Downs and Liverpool Plains with their heavy clay soils, reliable rainfall and extensive underground water resources are among the most productive agricultural lands in the world. These soils store enough water to tide crops over in times of low

rainfall. They have inherent soil fertility and soil organic matter that underpins their exceptional and reliable productivity. But the process of drilling for coal seam gas poses a significant threat to another environmental challenge of the 21st century – food security."

c. Regional development, investment and employment, and State competitiveness,
I am concerned that coal seam gas and the associated development infrastructure i.e. roads, pipe lines, fossil fuel based transport networks will provide only a temporary boost to regional economies and employment. This temporary boost may also detract and divert funds and infrastructure development from more sustainable technologies which would assist regional economies in the long term. In addition the question of who benefits from the rapid exploitation of a non-renewable resource by foreign companies and corporations needs to be raised. At best it is likely that the development of coal seam gas will have a trickle on effect as most profits go overseas.

e. Local Government including provision of local/regional infrastructure and local planning control mechanisms.
Many local councils are struggling to maintain road infrastructure. Coal seam gas development will place heavy demands on already inadequate road networks forcing councils to reduce services and placing them under financial stress.

3.
The role of CSG in meeting the future energy needs of NSW including the:

b. Relative whole-of-lifecycle emission intensity of CSG versus other energy sources,
Please refer to section 1. f. above.
According to a recent Cornell University assessment, "Natural gas obtained by the controversial technique of hydraulic fracturing may contribute significantly to greenhouse gas emissions and so should not be considered as a cleaner alternative to coal or oil"
Robert Howarth (2010) *Preliminary Assessment of the Greenhouse Gas Emissions from Natural Gas obtained by Hydraulic Fracturing,* http://www.damascuscitizens.org/GHGemissions_Cornell.pdf

e. Proportion of NSW energy needs which should be base load or peaking supply and the extent to which CSG is needed for that purpose,
the proportion of New South Wales energy needs which should be base load or peaking supply needs to be assessed on the basis of reliable records of previous usage statistics and projections of usage. As to the extent to which coal seam gas is needed I would contend that it is not needed at all. I base this assertion on work done by a range of sources which indicate that renewable energy technologies including solar thermal. wind, photo voltaic and others are capable of providing all our base and peak loading energy supply.

f. Contribution of CSG to energy security and as a transport fuel.
The extent of contribution that coal seam gas can make to energy security is determined in part by the working life of reserves. The working life of reserves will be determined by their extent or capacity and the rate at which they are exploited. Given increasing domestic demand and export pressures for energy and the finite nature of this non-renewable resource it is unlikely that coal seam gas will make a significant contribution to energy security. The need for energy security is likely to be met in the medium to long-term by non-renewable energy sources.

5. The impact similar industries have had in other jurisdictions.
Contamination of aquifers, degradation of ecosystem integrity and reduction in public amenity

values has been noted in Queensland due to coal seam gas mining.