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Change  
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The Director  
General Purpose Standing Committee No.5  
Parliament House  
Macquarie St  
Sydney NSW 2000

Dear Sir/ Madam

### **Introduction**

Climate Change Australia was formed as a local community group to respond to climate change. We aim to raise community awareness and responsibility about climate change issues and impacts, to encourage everyone to conserve energy and water, to promote the increased use of renewable energy, and to lobby all tiers of government to implement genuine and effective mitigation and adaptation measures to address climate change.

Thank you for the opportunity to provide a submission to the NSW parliamentary inquiry on coal seam gas.

It is appreciated that the terms of reference for the inquiry are broad however the Clarence Branch is concerned that the inquiry is narrowly focussed on only one form of unconventional gas, i.e. coal seam gas (CSG). Serious environmental and social impacts can arise from the exploration and extraction of other forms of unconventional gas, namely shale gas and tight sandstone gas, during which hydraulic fracturing ('fracking') and substantial quantities of water are used. Without due consideration and mitigation of potential impacts, the exploitation of conventional natural gas can also be problematic for the environment, agriculture and the community. Since all forms of onshore gas exploration/ mining are covered by the same pieces of legislation, it is unfortunate that the inquiry has only focussed on one form of gas.

It is noted that, since coming to power, the O'Farrell Government has made several announcements which, if successfully implemented in the longer term, could limit the potential impacts of CSG mining. It is understood however that most are just interim measures or are measures that only apply to new mining activities or are yet to be backed up by enabling legislation.

The following points are made in relation to the existing terms of reference:

#### **1. The environmental and health impact of CSG activities**

a. CSG mining poses a significant and serious threat to water resources due to the potential for drawdown and contamination of aquifers and other forms of groundwater. The water extracted from coal seams ('produced water') may be very salty and contain

heavy metals or other toxic chemicals. If this produced water is stored above ground (e.g. in holding ponds), it has the potential to pollute surface waters, leading to serious reductions in water quality and impacts on aquatic fauna (including fish stocks).

b. CSG activities involve the use of many chemicals, in the drilling fluids and during hydraulic fracturing, and several more chemicals are part of the waste products from mining activities. Management of the produced water and other wastes represents a serious environmental risk through leaks, spills and discharge. Treatment of this waste can result in highly concentrated slurries which are a problem to store and dispose of safely.

c. Hydraulic fracturing has the potential to fracture rocks which currently separate aquifers and has been implicated in earthquakes in various locations across the world.

d. CSG activities represent a major threat to the natural conservation values of Crown lands, including state forests, travelling stock routes and state conservation areas. CSG mining involves extensive clearing and fragmentation of native bushland, adding to habitat loss for threatened species. Fugitive emissions plus the presence of flares increases the risk of catastrophic bushfires. Interference with shallow groundwater, clearing of recharge areas and use of holding ponds threatens wetlands.

e. It is understood that the Act currently requires exploration sites to be made good to the satisfaction of the relevant authority (currently the Minerals and Energy Division of the Department of Trade and Investment, Regional Infrastructure and Services (DTIRIS Minerals)). In the past however, there has been little checking by DTIRIS Minerals or its predecessors of so-called remediated sites, with some former well-heads continuing to leak methane after they have been capped and 'closed'. Compliance of licence conditions is a major ongoing issue for all Government departments. Unless the relevant authority has the necessary staff to carry out compliance, the requirements of the Act are meaningless.

There needs to be an independent performance audit of compliance and enforcement activities in relation to mining in NSW, including consideration of adequate resourcing. There should also be increased and ongoing monitoring to identify breaches of conditions. There also needs to be penalties to deter future breaches of mining approvals and conditions.

f. CSG is a fossil fuel, predominately methane which is a potent greenhouse gas, with 72 times more warming potential than carbon dioxide over 20 years. More information on this is outlined in 3(b) below. The extensive clearing of native vegetation associated with CSG activities, particularly in areas of native bushland, is likely to create significant greenhouse gas emissions. Forested vegetation in particular is an important carbon store. Even dry 'depauperate' forests can store more than 1500 tonnes of CO<sub>2</sub> per hectare.

g. Relative to conventional natural gas, there is the potential for greater environmental impacts to arise from CSG due to the dispersed nature of CSG activities to exploit what is a relatively dispersed energy source.

## **2. The economic and social implications of CSG activities:**

a. Under the current legislative framework, property owners have limited legal rights. Landowners are at a disadvantage when negotiating access agreements as they have little understanding of what may be involved in the process (even in the 'exploratory' phase, there may be test flaring of pilot wells for 12 months or more and, in the Pilliga, a

powerstation was constructed in an area with only an exploration licence). Landholders can be compensated but, again, it is up to individual landholders to clearly understand the potential impact of the CSG activities on their lifestyles and economic activities.

Apart from the enclosed well-pad and ponds, there are other matters to consider: the scale and timing of truck movements, generators to power derricks, test flares and construction works. The current minimum set back from houses (200 metres) is inadequate for such noisy activities, particularly in rural areas with no other sources of industrial noise.

Landholders face the prospect of losing control of their land and it is reasonable to believe that property values will be affected accordingly, not just where the well-heads are located but also neighbouring properties.

It is recommended that a robust and transparent compensation regime should be established for all mine-affected landholders which recognises underground and broader impacts, extends compensation to loss of amenity, loss of opportunity and decreased market value.

b. Food security is threatened by risks to groundwater, loss of arable land, and the fragmentation of grazing properties. The current minimum set backs to protect orchards and cropping land can be waived if consent is obtained – this should not be allowed.

c. CSG is being promoted as an opportunity for regional development. It is acknowledged that some CSG mining companies have set up operational hubs in regional towns. None appears to have set up their head office in a regional centre. There is a downside from CSG mining: it is likely to impact negatively on organic farming and farm-tourism enterprises, not just on the affected property but also on neighbouring land. CSG is also promoted as a means to promote energy security for NSW and improve NSW's competitiveness – as if Qld or South Australia are intending to turn off the 'tap'. We are all one country.

d. It is understood that royalties payable to the State are waived for up to 5 years, in a form of assistance to the industry. This is unnecessary and contributes to the 'black hole' in the state's budget.

e. Local Government is directly affected by CSG activities, particularly the damage to local and regional roads through truck movements hauling produced water or equipment to and from well heads. It is understood that Metgasco has willingly undertaken to repair this damage within the Richmond Valley LGA. This should be a requirement – not something that a gas company can volunteer to do or not. Under the relevant State Environmental Planning Policy, mining is permitted wherever 'industry' is allowed under Local Environmental Plans. This only seems reasonable until one realises that 'industry' includes very small-scale 'home industries' permitted in environmental zonings. No mining should be permitted in any land zoned for environmental protection.

Another local authority potential affected by CSG activities are water supply authorities. Under the current legislative framework, these do not need to be notified of any proposed exploration activities – only the local council needs to be notified. This oversight needs to be rectified.

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

a. CSG demand is currently focussed in major metropolitan centres with a reticulated supply of natural gas and the export market. In rural areas (from where most CSG is supplied), there is no demand for natural gas as most burners currently rely on LPG.

b. CSG activities are a potential source of greenhouse gas emissions (long before the gas is burnt) due to fugitive emissions. Fugitive emissions arise from a number of sources, including leaking drill heads (including 'decommissioned drill heads), contaminated water bores, leaking pipes and condensation tanks. The scale of these emissions is such that they have the potential to negate any greenhouse gas benefits of gas over coal. In fact, a lifecycle analysis of shale gas exploration and mining in the USA (Howarth *et al.* 2011) has concluded that:

“The [greenhouse gas] footprint for shale gas is greater than that for conventional gas or oil when viewed on any time horizon, but particularly so over 20 years. Compared to coal, the footprint of shale gas is at least 20% greater and perhaps more than twice as great on the 20-year horizon and is comparable when compared over 100 years.”

There is little reason to assume that CSG will be any different to shale gas, especially when deep coal seams are being exploited. An additional source of greenhouse gases not considered in this study is the liquefaction of the gas prior to export.

c. Climate Change Australia makes no comment on the dependence of industry on CSG for non-energy needs other than to say that conventional natural gas would also supply these needs.

d. Climate Change Australia makes no comment on the costs of CSG versus other stationary energy sources.

e. It is acknowledged that gas has been promoted as a transition fuel, to assist in weaning eastern Australia off coal-fired electricity. See, for example, Saddler *et al.* (2004) and Diesendorf (2005). Gas turbines have a natural advantage over coal in being much more responsive to fluctuations in electricity demand. However this benefit as a transition fuel only works if gas is only used in powerstations that supplement peak power to the grid, or complement intermittent renewable energy sources. Climate Change Australia is concerned by proposals for base-load gas-fired powerstations which would simply replace one fossil fuel (coal) with another (gas) and continue Australia's record as having one of the most greenhouse intensive electricity supplies on the planet.

Further, many climate action groups across Australia consider that a slow phase out is no longer desirable given the warnings from scientists as to the speed that climate change is happening. Simply put, there is a need to make the transition to 100% renewables sooner rather than later. Many of our members support this position. In this scenario, biomass and hydroelectricity can be used as contingency backup for intermittent renewable energy supplies rather than gas (Wright & Hearps 2010). Gas is not required for electricity generation.

f. There is however a need to consider that gas may contribute to meet our needs as a transport fuel – not everyone, particularly in rural Australia, will be able to use electric vehicles. With peak oil likely to limit supplies of petroleum and LPG, it makes sense to plan for a future in which CNG becomes a general transport fuel (rather than just making it available for some specialist transport uses, such as a few token buses in Sydney and Brisbane).

#### **4. The interaction of the Act with other legislation and regulations:**

It is noted that CGS mining is exempt from a number of other environmental statutes, including the *Native Vegetation Act 2003*. Interaction with Federal legislation at the exploratory phase is particularly poorly understood – the current template for the Review of Environmental Factors does not provide enough guidance for either DTIRIS Minerals or gas companies to understand whether their activities are likely to constitute a ‘significant’ impact under the *Environment Protection and Biodiversity Conservation Act 1999*.

CSG and other mining really need to only proceed after a strategic planning process has been completed across NSW. This would identify competing land uses and values between mining and other uses, and establish ‘no-go’ areas of NSW where mining operations would be prohibited.

Where a mining company acquires land, the valuation needs to compensate landholders for the true cost of resuming the same activities elsewhere.

#### **5. The impact similar industries have had in other jurisdictions:**

We only have to look to Queensland with its significant problems with leaking wells, impacts on groundwater, growing social discord, major impacts on natural values, clearing of bushland and alienation of farmland. We don’t have to repeat their mistakes. Overseas, there are regular fires associated with shale gas wells, pipelines and facilities, and increased incidence of earthquakes and tremors associated with fracking.

In conclusion, this gas has been under the ground for hundreds of millions of years. It can wait the few more years it will take NSW to get the legislative and regulatory framework right.

Yours faithfully

Janet Cavanaugh  
Secretary, Clarence Branch

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