

INQUIRY INTO COAL SEAM GAS

Name: Name suppressed

Date received: 13/09/2011

Partially Confidential

Greg Knight - Submission to Senate Enquiry

Personal Qualifications

I am making this submission to the Senate Committee as a private citizen concerned for the future.

Qualifications. I have a Bachelor of Metallurgy from the University of Wollongong. My 39 year career at The Port Kembla Steelworks culminated in my position as a Technology Planner requiring me to read Scientific Papers and assess their credibility and make logical conclusions as to their application/consequences in the commercial world.

Premises for this submission

This submission seeks to make comment on some aspect of sections 2&3 of the Terms of reference of the INQUIRY INTO COAL SEAM GAS GENERAL PURPOSE STANDING COMMITTEE NO. 5

I have read extensively on the known scientific aspects of Shale and Coal Seam gas extraction. Many of the papers and especially the summary paper will have been submitted to the Senate Enquiry already. I will not cloud this submission by regurgitating them again.

This submission is one of **logic** and hopefully can provide some broader input into the recommendation process of the Committee.

Accordingly you find no references or quotations.

Many of the conclusions relate to the local area, which is mostly what I have been applying the reading outcomes to. Some discussion will be related to CSG exploration and extraction in the bushland and water catchment to the West of the Illawarra.

Main Points

Natural Gas is not a transition fuel

One of the main premises of the Coal Seam Gas Industry is that per Kilowatt-hour, gas produces less CO₂.

This is true but not the whole story. Fugitive Emissions need to be taken into account for both the Coal and the CSG extraction process for the LIFETIME of the operation.

Calculations

The lifetime effect on Greenhouse Gases needs to be modelled both for Coal and "Natural Gas"

The modelling needs to be on the following basis.

For a standard unit of electricity, what is the cumulative CO₂ generated from the Mining, extraction, compression, transport operations, PLUS the CO₂ produced in the Generation of the electricity Plus the Fugitive Methane emission.

The CO₂ Equivalent of Methane is popularly quoted as 22 times. However recent research is revealing that it may be up to 105 times but decreasing as the gas oxidises to CO₂ but only coming down to 30 times.

My calculations from what I can glean from the available papers is that comparing Coal plus Fugitive emission to Gas plus Fugitive emissions is that only 10% leakage is required to put Natural Gas on a par with Coal.

Taking into account that the liberated gas can still escape into the atmosphere for decades after the CSG well is non productive. This 10% is a real possibility. WE DON'T KNOW

CSG processes misdirect capital away from renewables

This premise that Natural Gas is more efficient than Coal is directing valuable Capital away from renewable energy. It will delay this bringing on line of the appropriate level of renewable energy sources by decades which this planet can ill afford.

The threat to our water supplies is unacceptable

Extensive Coal mining in the Illawarra area has already changed the underground environment and disturbed the natural water supplies forever. To date, no catastrophic contamination events have occurred but a few decades is very short in the Geologic Timescale. The effects are NOT YET KNOWN. CSG Gas production by its very nature extracts water from the strata in order to liberate the gas. This will occur over an extensive area and will initiate extensive contamination and MIGRATION of water from the coal seam level and more disturbingly from layers above the well.

This operation, while using and extracting vast amount of water will trigger a series of events with dire consequences for future generations. WE DON'T KNOW

The Damage to Ecosystems on the Surface is extensive and unacceptable.

In order for progress to occur, mankind has traditionally deemed the destruction of small areas of ecosystems as an acceptable cost to be weighed against the benefit. Accordingly Coal mining destroys 5-10 hectares of ecosystem per mine and extracts millions of tonnes of coal.

In contrast a CSG production field apparently destroys a large number of very small areas. In truth it is the ecosystems in the total area of the production field that are damaged. The production field is criss-crossed with roads that must be capable of supporting very heavy equipment and also a lattice of pipelines to transport the gas to a sale point.

An example is the Dharawal State Conservation Area. The NPWS state that it is a delicate conservation area with hanging swamps etc. It is so delicate that it is illegal to camp in the area. In contrast there are PELs issued to extract CSG from the area which would decimate the ecosystems.

Clearly there are some land uses that are more "Valuable" than others when considering large area disruptions to the contiguous ecosystems.

Recommendations

Natural Gas as a viable energy source.

- Commission extensive research into the total lifetime emissions of the CSG gas Process including quantification of direct and indirect long term fugitive emissions. Include a re-evaluation of the CO2 equivalent of Methane.
- Model the Capital Efficiency of Renewable Energy Sources vs the transitioning to and then away from Natural Gas as an energy source.

The Threat to our water supplies

- Model the effect of disturbing the natural order of the ground waters including migration of injected and liberated petrochemicals. Assess the threat to ground water supplies.
- Model the effect of the above on the economy in terms of food production and drinking water supplies.

Damage to Ecosystems

There should be some prioritisation of various land-use types with appropriate permissions for:

- National Parks, Conservation areas
- Water Catchments
- Prime food producing areas
- Others

These should be Gazetted as permanent NO-GO zones. The intent of the Mining act is that the resources belong to the people of Australia, this must be balanced against environmentally and economically valuable land,

Partially Confidential