

Submission
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INQUIRY INTO COAL SEAM GAS

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The following is a brief outline of Alan Randall's paper, *Regulating coal seam gas: implications for energy, food and water security*, prepared for the ACCEL Conference, University of Sydney, June 17, 2011.

Professor Randall has worked extensively on issues concerned with environmental sustainability. His latest book on this is *Risk and Precaution: towards a risk management framework for coal seam gas*. (Cambridge 2011).

This outline is essentially taken from the presentation in order for it to be considered in its own right. Although analytically the work needs a detailed analysis, what follows here will only look at a few of the issues of immediate concern. The pagination follows from the text as developed in the outline. Although the maps, pictures and schematics of wells are in general circulation, they are reproduced here in order to compliment the text. The emphasis and underlining throughout is mine. KR)

Impacts of Coal Seam Gas extraction (p 1)

The paper outlines the serious problems with the way current CSG extraction is conducted. For concerned people working in the area these problems are familiar, but the paper emphasises the fact that, as yet, **there is no satisfactory regulatory framework in place to control CSG extraction.** (this applies particularly to the way water is used in the extraction process). Despite government assurances to the contrary this industry has no adequate legislation to control the way it is operated; as a consequence it tends to be in the hands of 'different operators at different times doing different things'.

1. The voracious demand for water by the CSG industry **is not controlled by groundwater withdrawal licenses, water management plans, nor are the cumulative impacts known.**

2. There is no solution for the disposal of the water in evaporation ponds that concentrate the toxics. **Recycling requirements, as yet, are not in place to do this. It requires aggregating waste water from spatially dispersed wells.**

2. Land and sub-surface geo-systems are disturbed and fragmented.
There is contamination from drilling and fracking fluids, and subsidence

and methane migration. **Importantly, there is irreparable damage and destruction of aquifers.** There is increased seismic activity.

(This is of interest to some seismologists, who argue the relation between the increase in seismic activity and global mining activities KR).

Atmospheric disturbance.

3. Methane and CO₂ liberation – methane a potent GHG.

Social Impacts

4. Existing infrastructure in rural communities stressed.

Farmers and rural communities experience economic impacts with GSC extraction.

National Water Commission: (p.2)

[http://www.nwc.gov.au/resources/documents/Coal Seam Gas. pdf](http://www.nwc.gov.au/resources/documents/Coal%20Seam%20Gas.pdf)

5. GSG risks **significant, and long term adverse impacts on surface and groundwater systems, including the Great Artesian Basin and the Murray–Darling Basin: these impacts are extremely serious because the cumulative impacts of multiple projects are not well understood.**

Enormous increase in water use.

CSG expected to extract 7,500 gegalitres from groundwater systems in the next 25 years. (total extraction from the Great Artesian Basin is currently 540 GL annually).

Randall states there is ‘good reason to be concerned about the impact of the CSG industry on water quality, quantity and pressure.

Risk Management (p. 3)

Traditional approaches to risk management.

The decision criteria seem to be a) utilitarian: basically a benefit cost criterion **for risky opportunities,** b) built on the paradigm **of well-specified games of chance.**

Management tools seem to be primarily focused on the economic value of CSG extraction: a) getting prices right (correcting market failures and incentive problems), b) insurance, self-insurance, self-protection.

Precautionary Approach as part of Risk Management. (p. 3–4)

Randall argues that the above risks, (uncertainty, gross ignorance, “unknown inknowns”) demand a precautionary approach to CSG. He considers that the ‘time-window for affordable effective action may be quite short’; that in the worst case ‘harm might be horrific’, and remediating this ‘may be enormously expensive’.

CSG extraction can be approached as a novel intervention (p.5)

It is ‘novel’ because of the ‘sheer scale of the intervention’. This ‘novelty’, however, involves unpredictable impacts from fracking technology; secrecy about the nature of the chemicals used which have included some ‘rather nasty substances’.

As above, the sheer scale of the intervention makes voracious demands on water without water management plans; there is no solution to waste water disposal; the toxic substances in the waste water produced during extraction are concentrated in evaporation ponds, and there is intrusion on the landscape’. (p. 6)

We are unfamiliar with the technology used in CSG extraction and its impacts on our environment. We may still have the opportunity to stop harm being done with proper regulatory practices

For Randall the major goal of his approach is ‘to provide protection from serious threats of harm, without stifling innovation’. (p. 4)

Possibilities for controlling (confinement) of CSG in terms of a precautionary approach (p.7)

Randall argues that in *Risk and Precaution* confinement is a key element in his argument. The point is, he says, ‘if we can test a new innovation in confinement before release, we can make the release decision with much better information thereby eliminating the extreme risk without overly delaying relatively benign innovations. However, this possibility is largely absent in the case of CSG,

So with CSG we face a true dilemma—costly moratorium vs serious threat of costly harm’

Given the uncertainty and instability of current CSG extractive processes, mentioned above, Randall argues for a precautionary approach in order to help resolve the tension between what he considers the necessity for ‘real

progress towards intrusive extraction processes', (in a note to KR 1.7.11), and the serious harm being done to the environment and social fabric by existing practices. The argument is that such an approach would perhaps help 'satisfy the goal of protection... without stifling innovation'.

The possibility of a Moratorium to provide protection from harm without stifling innovation (p 8)

It would allow research that would resolve many of the uncertainties and unknown threats from CSG extraction and refine risk management strategies and remedies against harm.

A moratorium would require the following to be in place:

environmental assessment

a study of the impacts on groundwater ;

a systematic assessment of the long -term impacts of fracking on geosphere and aquifers;

research into designing reliable waste water treatment technologies.

prohibition of unacceptable additives to the "mud" added to fracking water;

licenses required for groundwater withdrawals;

waste water treatment regulations

incentives for waste water recycling;

regulations to protect prime farmland, riparian areas, wetlands and other fragile environments.

Randall considers, however, that 'delay in implementing large-scale CSG extraction would delay its benefits: cleaner transitional energy, income, jobs and export markets.

For certain kinds of novel interventions *Risk and Precaution* offers 'real progress in reducing the conflict between protection and innovation'

however...

coal seam gas does not seem to be one of them. (see AR's note concerning this p.3)

Brief notes regarding Alan Randall's proposed risk management framework for CSG.

Although the presentation *Regulating coal seam gas; implications for energy, food and water security* has to be recognised as a short outline of the more extensive work in *Risk and Precaution*, the approach to CSG risk management is restricted, I argue, by the limitations imposed by the traditional framework in which it is developed.

Given this, a few of the unresolved paradoxes and contradictions that inevitably occur will be briefly raised: the problem of abstract concepts/terms presumed to be self-evident, constructs built on what need/ought to be, and the difficulties which emerge when projects are proposed in isolation from their relation to international, political and global economic factors—in particular global warming and climate change.

Randall is obviously very aware and very concerned about the dangers inherent in current CSG practices; his intention, nevertheless, is to 'encourage and applaud real progress towards intrusive extraction technologies', a position he considers consistent with his 'meta-objective' of 'minimising harm without stifling innovation', analytically a very difficult contradiction.

This intention, of course, is a difficult one, relying on the idea that this project will be made possible by proper regulation, overseen by regulators who will be disinterested, objective and so uncontaminated by the vagaries of subjective interpretation or emotion. But despite all the positive ideas about someone or something being objective, ('facts' are high on the list here), this belief is more conditional than is generally imagined: it is grounded on the unstable logic of an unperceived metaphysics which in true dualist form separates 'objective' from 'subjective' this making it impossible to either incorporate or recognize the processes which constitute thinking or actions. In traditional thinking, then, the 'subjective', unrecognized, is always an element in any 'objective' proposition.

Simply put, at present all the legislative principles and acts (even the much hallowed precautionary principle, or the EPBC Act, and even the Constitution) are subject to the open-ended potential of 'subjective' interpretation, and given the underlying power of current economic processes can be seen to have failed to protect either people or the environment. (almost 100% of cases mounted against

mining corporations in the courts have failed in NSW). Since decision-making and legislation is in the hands of governments and their bureaucratic structures, and since most are pro-mining given the complex and fragile relation of money and political power, dubious legislation can be sanctified as fundamentally 'true' and 'sound', all this particularly valuable in constituting institutional power arrangements.

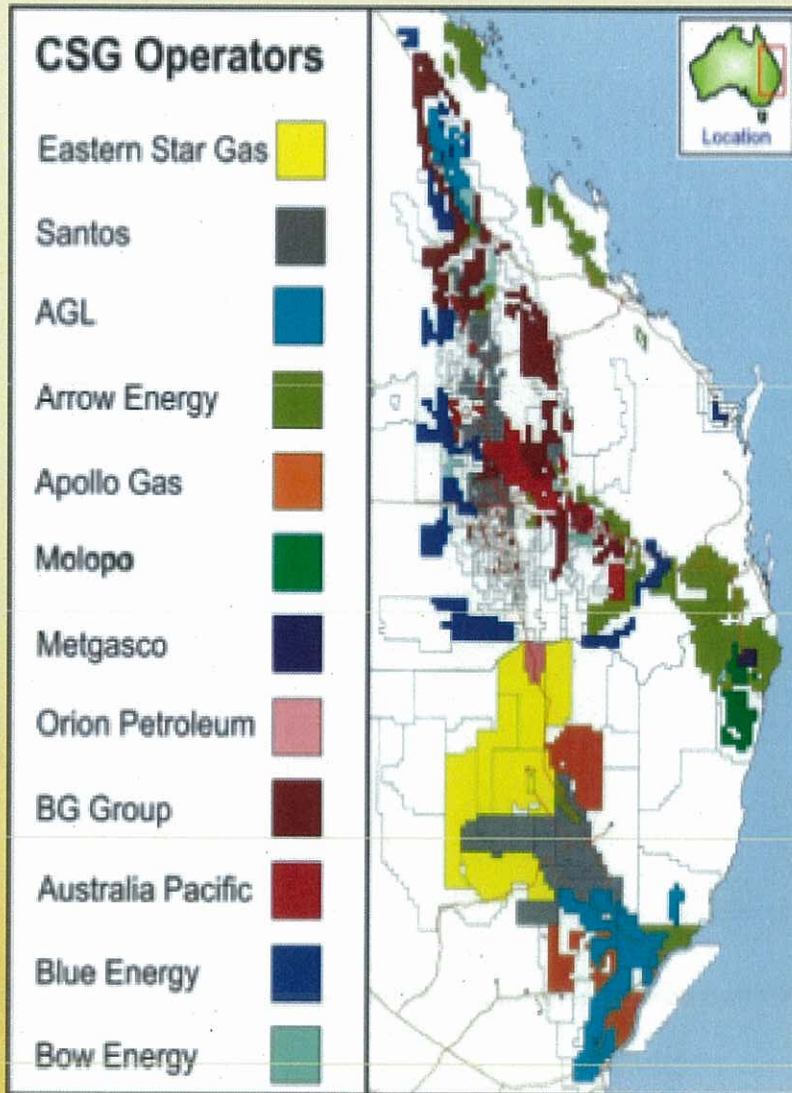
Assessments and recommendations for proper practice also appear conditional: statements about what needs to be done, ought or should be done often sound equivocal, and confront the problem of moving from ideal to action.

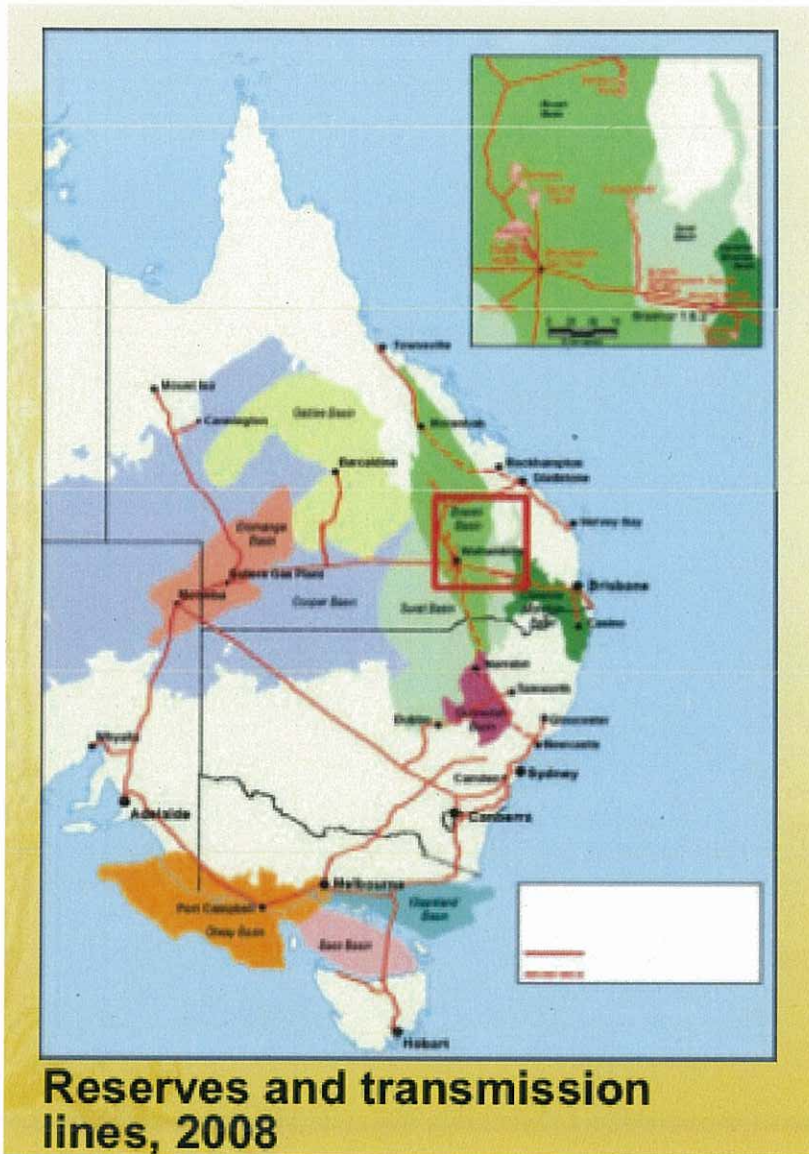
The answers to these few points are probably dealt with further in *Risk and Precaution*, but although brief, they raise important questions which concern the status of current thinking about mining in Australia, (legislative, bureaucratic, and juridical), and the role of what often appears to be merely formulaic exercises of investigation and assessment.

Kathe Robinson,

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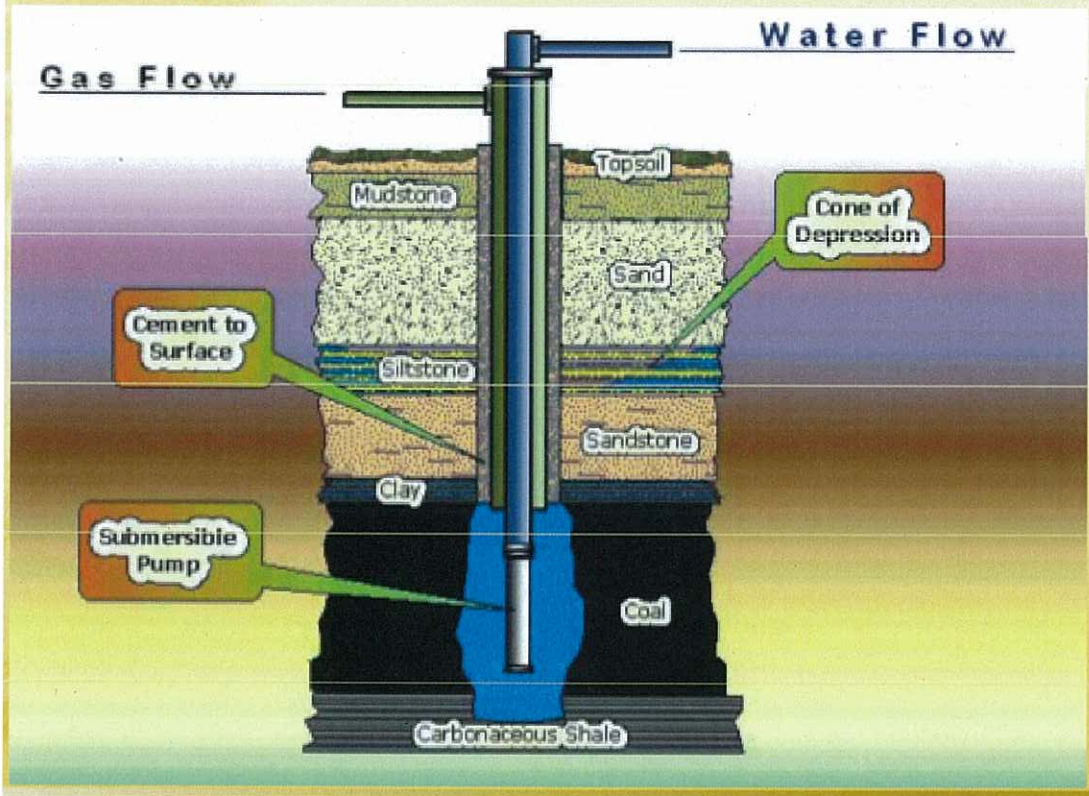
Coal Seam Gas Leases



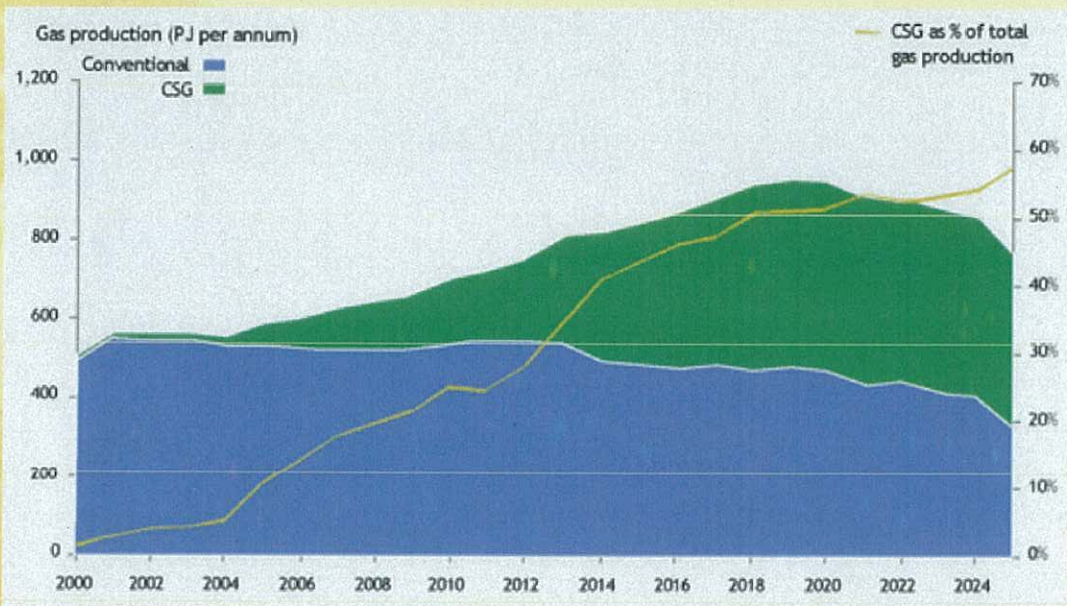


Reserves and transmission lines, 2008

Coal Seam Gas Well – a schematic



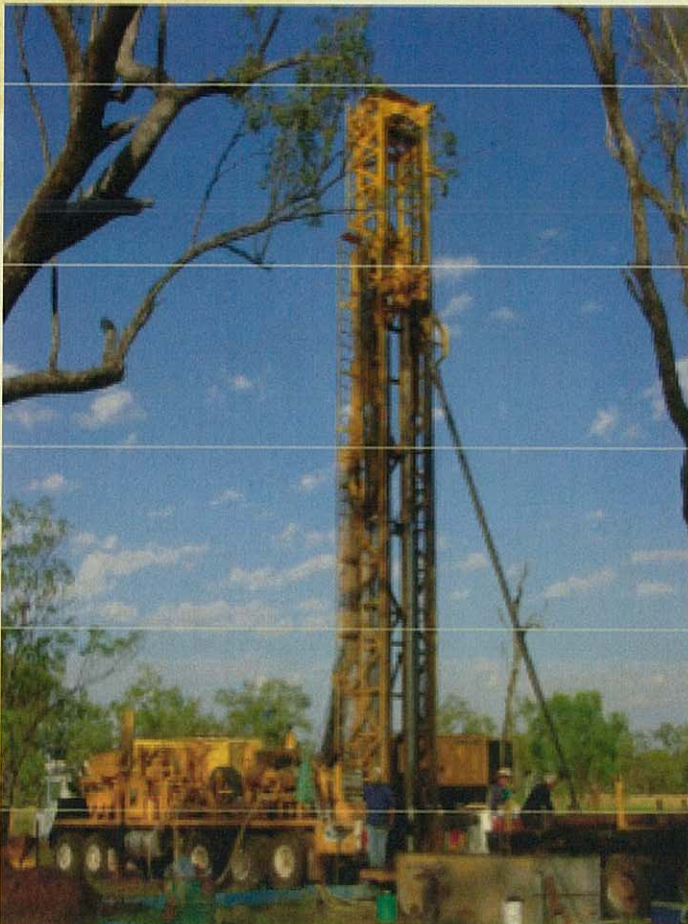
Coal Gas Production in Australia



Pipeline

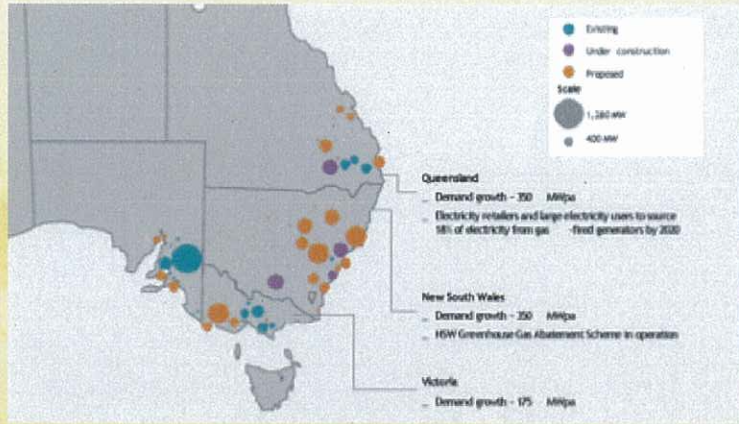


Well Drilling



Markets

Gas-fired Power Plants



But also ...

	Product Market	Process	Economics
Liquid Nat Gas	Offshore	Cooling	Clear
Gas To Liquids	Domestic	Chemical Reforming	Likely
Methanol	Offshore		Uncertain
Ammonia	Mixed		



Waste water evaporation pond and compressors

CSG landscape, QLD

