

## Submission to express concerns of unconventional coal seam gas extraction in Victoria

In this submission I would like to express my concerns in relation to the drilling and potential fracking in the region PEP163 ( [see map A](#) ), and show why inland Victoria should be declared CSG free.

There are several point I wish to bring to your attention in relation to ground water.

1. According to the [Barwon Water web site](#) the region has two bore fields. The Barwon Downs borefield that comprises six bores, between 300 and 630 metres deep, and the Anglesea borefield which taps into the Lower Eastern View Formation, a vast aquifer some 700 metres below the surface. Both theses fields service the Geelong region when surface water supplies are low.

*With the potential adverse effects of climate change the need to access these fields may increase and as it is pumped to the existing dams to mix before being piped, would it not be irresponsible to potentially compromise the whole supply of potable water to Geelong city and surrounding communities.*

2. Within the Otway region soil structure ground, water and gas are constantly moving through fractures and fissures in the sedimentary rocks, at various rates under varying pressures. The rocks are also moving — continuously or abruptly — as nature balances and rebalances the stresses and strains according to the laws of physics.

*Hence no one can realistically know in advance what will happen, and what hydraulic ramifications are once fracturing and dewatering operations commence. The wells themselves will at one point or another will fail the CSG industry cannot guarantee the integrity of the construction with seismic rebalancing which constantly occurs now and into the future.*

3. As stated CSG requires a dewatering process as part of the gas extraction process, thus large volumes of 'produced water' which is commonly saline and can contain 'geogenic material' such as elevated concentrations of arsenic, fluoride, uranium or selenium, as a result of hydraulic fracturing.

The technique of used in the CSG industry called seismic reflection data can **only infer** strata formation properties and is subjective. It can only pick out the major faults and fissures in geological strata. It is unable to determine the location of geological flaws, fissures, faults, joints and planes of weaknesses, load and relaxation cracks — all, which may be groundwater (with methane pathways).

They also may pathways through mass load changes as water at depth is removed rapidly from the system. Groundwater (with methane) may not be constrained to a particular stratum or horizon (eg. seepage, springs, hidden faults etc.)

*Knowing that the seismic data is limited at best and that groundwater can be induced to flow over a distance greatly separated from the local extraction, no one can realistically know in advance what will happen, and what hydraulic connections with other aquifers will appear once the coal seams are dewatered.*

4. Water is also required for the fracking process. The question is how much, and whether sourcing water from potable aquifers that lie above and below the coal seams will be jeopardised. , as an example CSG production in the Surat basin in Queensland withdrew 18 gegalitres per annum this could increase to 125 gegalitres per annum when full CSG production in the basin is achieved. As a comparison, homes and businesses in Melbourne consumed 365 gegalitres in 2011-12.

*CSIRO, has stated that the relationship of aquifers was unknown and that to repair any significant damage naturally could take 250 years. To make this statement in itself implies that they think such damage can occur.*

5. In regard to Victoria's potential coal seam gas resources, it is important to note that the production of CSG in Queensland and New South Wales is from black coal deposits. Victoria's brown coal (lignite) deposits yield less coal seam gas, and release more CO<sub>2</sub> than black coal deposits.

*It may also be the case that if there is coal seam gas in Victoria's brown coal deposits produce less gas than black coal and harder to extract requiring more drill sites and requiring large quantities of potable water for fracking. Which the Geelong region in particular and Victoria as a whole cannot afford.*

## Summary

There is body of available literature identifying a number of potential issues with the production of coal seam gas that have negative environmental and social impacts. Also there is considerable scientific uncertainty over the long-term impact of unconventional gas production on the environment. Concerns centre on the lack of data – and a lack of sharing of known data – on groundwater systems, CSG activities and their potential impacts on areas where there is strong tourism and the agricultural activity. There needs to be consideration of the cumulative impacts. CSG in Victoria is a short term activity as apposed to food production.

Lakes Oil and there like are in the business of finding reserves and on selling to companies which have the capacity to extract, hence it is in there interest to hold damaging information and exaggerate the potential of an area to government and potential buyers alike.

In Victoria food security now and into the future are paramount and not the short term extraction practice as is CSG. Alternative ways of producing gas ie microbial digesters, chemical synthesis, electrochemically from [water](#) and [carbon dioxide](#) using [ruthenium](#) electrodes the list goes on. Theses technologies are already with us we just need Government incentives to induce industry to develop. As stated Victoria can be a leader not only in stopping the damaging the extractive process of CSG but the development of alternative forms of gas production.

Yours sincerely  
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