We need a moratorium

The fight so far

In April, a call for a Moratorium on all new coal and Coal Seam Gas projects in Victoria was launched by a coalition of over 50 different community, environmental and farming groups. ***The ALP Opposition have come out and declared their support for a moratorium on Coal Seam Gas in the State.*** In addition, the Victorian Farmers Federation has called for a right for all landholders to veto CSG and other mining on their properties (by comparison, landholders can already veto a wind farm within 2km of their property). The Bass Coast Shire and the City of Port Phillip have also joined the call for a moratorium, and the Otway Shire has publicly declared its opposition to CSG exploration within its municipalities.

"Country and city, united we stand, protect our water, protect our land."

Elaine Armstrong, NSW CWA President speaking to a rally in Sydney

We now need to call on the Coalition Government and particularly the National Party to stand up for the health and safety of rural Victorians and protect our ability to produce food for the nation.

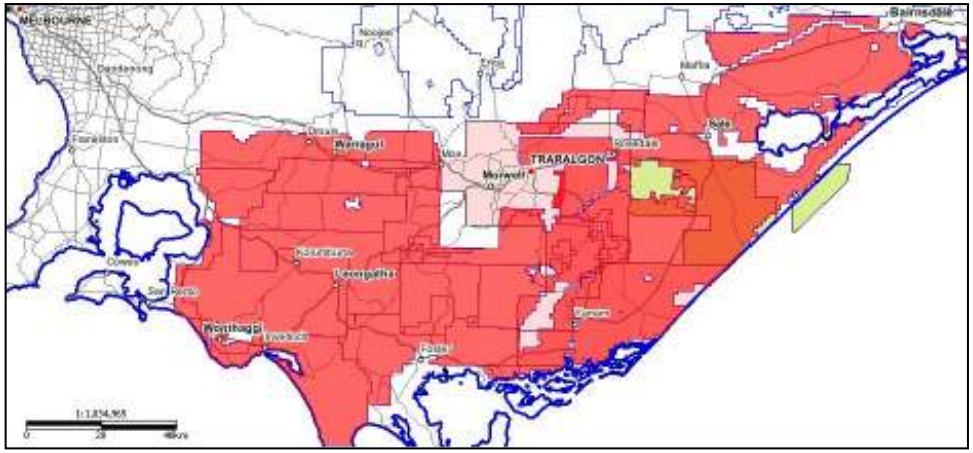
We urgently need to suspend the expansion of unconventional gas fracking, new coal allocations, and experimental new coal projects, until such a time as they can be proven to be safe for the community and the environment.

If you wish to join our call for a moratorium, please visit: **www.tiny.cc/moratorium**

For more information:

please call Cam Walker: 0419 338 047
and check www.melbourne.foe.org.au & www.quitcoal.org.au

Experimental Coal & 'Unconventional' Gas Fracking in Victoria



Victoria is experiencing a rush of exploration for 'unconventional' gas and experimental new coal projects, with large swaths of the state now under coal, coal seam gas, shale gas, or tight gas exploration licenses.

NO NEW COAL BACCHUS MARSH

Gippsland NOT GASLAND

QUIT COAL

Friends of the Earth

What is fracking?

Fracking, otherwise known as hydraulic fracturing, is a process used to extract gas and oil from deposits that were previously considered too difficult. Unconventional gas reserves, which require fracking include, Coal Seam Gas (CSG), shale gas and 'tight gas' (found in sandstone formations). Fracking is the process of pumping water, sand and a cocktail of different chemicals, underground at huge pressure in order to fracture open the ground and allow the gas to escape.

Water Only between 20-80% of the toxic mixture pumped underground is recovered to the surface, while the rest remains underground. It can, and often does, find its way into ground and surface water, endangering the health of local communities and ecosystems that rely on this water. The technique also creates micro-seismic events (mini earthquakes), which cause the connection of naturally separated geological layers. This process can contaminate ground water with volatile organic compounds, methane, other gases, heavy metals, enormous quantities of salt as well as naturally occurring radioactive material.

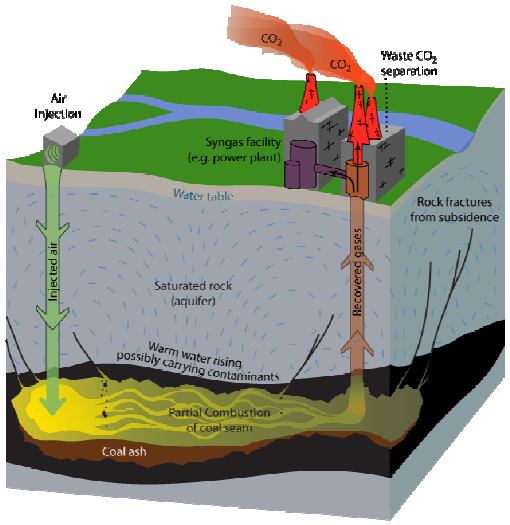
In June last year water tested from the **Condamine River (which connects to the Murray/Darling system**) was found to contain **ten times the safe level of boron and cadmium** and more than **1000 times the safe level of silver, chlorine and copper**. Again in the Pilliga forest, near Narrabri in NSW, testing confirmed the presence numerous substances at **harmful levels** including **ammonia, lithium, cyanide bromide and boron**. These chemicals are dangerous by-products of fracking and were not present in sites tested upstream.

Health The regulation in Australia does not require companies to list the chemicals they use in fracking fluids. However, experience in the USA, Queensland and NSW shows the use of known carcinogens as well as other chemicals including: **ethylene glycol**, which affects kidney function, the lungs and heart; the BTEX group (**Benzene, Toluene, Ethyl Benzene and Xylene**), which affect bone marrow, the blood system and cause leukaemia; and other **toxins that affect hormone regulation and the reproductive system.**

Food In Victoria, the exploration licenses granted cover some of **our most productive agricultural land**. There is a dangerously high risk that **contaminated air and water** will directly impinge on our ability to produce healthy, clean food.
The choice between food and fracking should be simple – we can't eat gas!

Climate Change Studies by independent groups have demonstrated that due to leakage from gas fields (fugitive methane emissions) the greenhouse footprint of fracked gas is as bad, or worse than coal.

UCG threatens the **contamination of vast quantities groundwater** with organic and often toxic materials including BTEX compounds (benzene, toluene, ethylbenzene, and xylenes), phenols, and aromatics (e.g., naphthalene), as well as gases (e.g. Carbon Monoxide and Hydrogen Sulfide) remain in the underground chamber after gasification and therefore are likely to leech into the ground water if not contained by rock. According to independent research, the chemical phenol leechate is regarded as one of the most significant environmental hazards due to its high water solubility and high reactivity to gasification.



Underground Coal to Liquid (UCTL)

The Underground Coal to Liquid process involves drilling to depths of 50m and using high-pressure hot water and alkaline metal catalysts to liquefy the brown coal seam and extract a 'syncrude' liquid for further refinement into oil and petroleum products.
The major risks of UCTL are:

- It leaves coal ash and **heavy metals** in the ground. There is a significant risk of these **leaching into the surrounding aquifers**, particularly if any subsidence of the resultant reaction zone cavity occurs (as is the case with UCG).
- The process itself emits both significant amounts of greenhouse gases.
- It is a new process, untested anywhere else in the world.

Biogenic Methane Enhancement

Melbourne-based company, Regal Resources has begun experimentation with another technology called Biogenic Methane Enhancement (BME) in Oak Park, west of Melbourne. This is a form of methane extraction that artificially stimulates microbes and bacteria to rapidly digest and convert underground coal to gas, a process that normally takes hundreds of years. This is highly experimental and has never been used commercially before.

'Nutrients' and other chemicals are also used to artificially accelerate the process. **The chemicals used in a similar process in the US include ammonium chloride, acetate, sodium phosphate, sodium bromide, potassium chloride, cobalt chloride, and nickel chloride, some of which are known carcinogens.**

Experimental Coal Technologies

Coal drying

The coal technology company Exergen is the main proponent of experimental brown coal drying in Victoria. However, this technology is still unproven on a commercial scale. The process that Exergen has developed involves drilling an 8m wide hole 1km deep and using a high pressure underground heat and chemical reactor to 'dewater' the coal.

For each tonne of dried coal produced, approximately 1100-1800 litres of polluted water have to be disposed of. If Exergen's plan to export 12 million tonnes of dried coal from the Port of Hastings were to proceed, this would result in the production of approximately 13-22 gigalitres of polluted water from the drying process alone (Ballarat uses approximately 10GL per year). **This water contains high levels of salt, carbolic acid and ammonia.** Exergen's process also uses a significant amount of energy (with its own greenhouse gas emissions) and produces other contaminants that need to be treated with hazardous chemicals to be safely stored or reused for heating. Exergen claims they will dispose of the carbon emissions in underground reservoirs; a potentially dangerous and unproven practice on a large scale.

Another major exponent of coal drying technology is the curiously named Environmental Clean Technology (ECT). ECT's coal drying process involves mechanically kneading the coal to extract the water. Similar concerns exist with the volume of waste water produced from this process. In addition, on October 9th last year **a 380 tonne batch of coal spontaneously ignited in a smouldering fire that required 15 fire units and over 60 CFA members to bring under control.** ECT described this as "a small, contained incident".

Underground Coal Gasification (UCG)

This process essentially involves igniting a coal seam at a depth of least 100m underground and pumping out the gas that is released as a result. UGC avoids the need for surface mining and leaves combustion waste underground.

UCG is another experimental technology where oxidants are injected into a coal seam in order to convert the coal to gas while still inside the coal seam, rather then extracting it first. The Department of Environment Resource Management recently had to shut down a UCG project by Cougar Energy in Queensland, after the **discovery that local bores had become polluted with carcinogenic chemicals such as benzene and toluene**. Farmers in the area are unable to use the bores anymore. The company became aware of the contamination in April, but didn't notify the department until June.

What's happening in NSW & Queensland?

NSW and QLD have recently both seen a massive expansion in fracking by the coal seam gas industry. Exploration and production licences cover most of both states as we speak and ferocious debate has emerged, particularly concerning land rights and water.
If the state government grants a licence to a company, existing legislation throughout Australia allows that company to mine anywhere within that licence, even if it is on private land. In order to maintain good public relations, most mining companies try to gain permission from land-holders, but in reality **a land-holder has no legal right to stop mining or fracking from occurring on their land**.

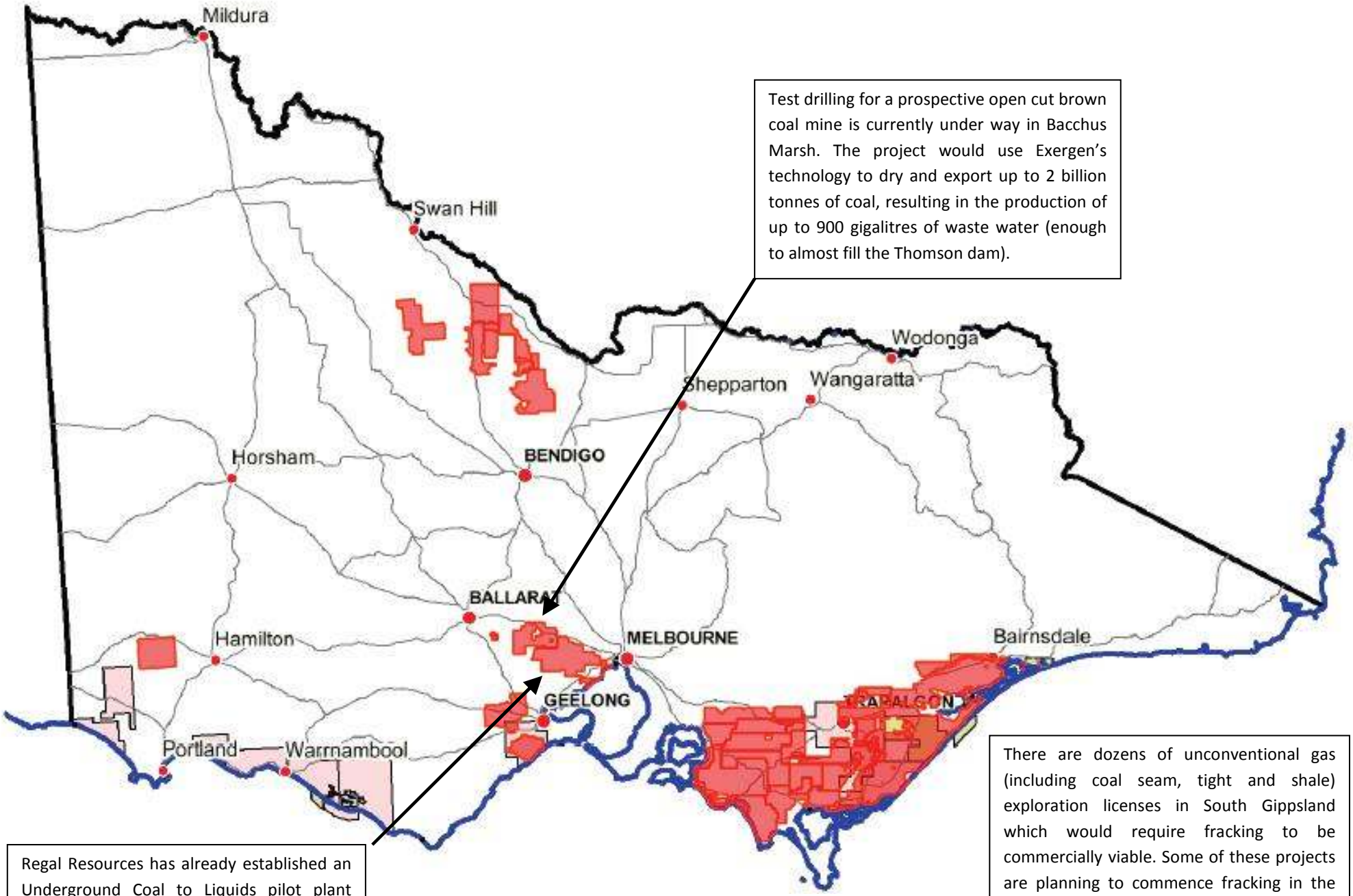
In Queensland and NSW there have been hundreds of reported incidents related to CSG fracking, including spillage of contaminated water and toxic chemical contamination.

Debbie Orr, a landowner in Tara in Queensland reported that her both her children and her neighbour's children have been experiencing headaches and in some cases bleeding from the ears and nose since fracking began in their area. These symptoms have also been associated with fracking across the USA.

"Our members have heard anecdotes and experienced personal examples of what has happened from unregulated exploitation of prime land by the granting of mining and coal seam gas exploration permits. Many have personal experience of irreparable damage done to their properties because of non-regulated activities."

Elaine Armstrong, NSW CWA President

The 'Lock the Gate' movement started in both QLD and NSW to provide protection to rural communities from this industry and its dangerous repercussions given the governments' lack of action against it. Despite the legal implications, **farmers across affected regions have started locking their gates to the mining companies**, refusing the trucks and equipment access to their land. This industry is yet to achieve commercial production in Victoria, but the Minerals Council of Australia declared recently that 'There is enormous potential for Coal Seam Methane (CSG) industry in Victoria'. A number of mining companies have announced their intention to start fracking this year.



Test drilling for a prospective open cut brown coal mine is currently under way in Bacchus Marsh. The project would use Exergen's technology to dry and export up to 2 billion tonnes of coal, resulting in the production of up to 900 gigalitres of waste water (enough to almost fill the Thomson dam).

There are dozens of unconventional gas (including coal seam, tight and shale) exploration licenses in South Gippsland which would require fracking to be commercially viable. Some of these projects are planning to commence fracking in the next 6 months.

Regal Resources has already established an Underground Coal to Liquids pilot plant near Werribee.