

**To: Standing Committee on Environment and Planning**

**Subject: Inquiry Into Unconventional Gas in Victoria**

I welcome this opportunity to provide input into this inquiry.

## **Background**

Prior to retiring as a Professional Engineer I became interested in the principles and practice of Landcare. This led to purchase of property in the Latrobe catchment, the heart of Gippsland, over 20 years ago.

Fencing out and re-vegetation of my permanent streams restored a corridor for native wildlife.

A course in “Whole Farm Planning” at Leongatha TAFE opened my eyes to some of the complexities and nature of farming.

Studying alongside larger farmers made much clearer their substantial capital investment, their dedication and the predictable and un-predictable risks facing our major food producers.

Active involvement with our strong local Landcare Group led on to volunteering as a WaterWatcher, with its monthly monitoring of the condition of the streams on my own property and a site on the Moe river.

Field trips with the Latrobe Valley Field Naturalists, canoeing the Latrobe River and sailing on the Gippsland Lakes extended my appreciation of the region and its environmental challenges.

This in turn led to involvement with the Catchment Management Authority in Catchment Management Strategies and study of Environmental Flow requirements.

As a BHP Shareholder I first became aware of problems with accidental Unconventional Gas emissions in 2005. BHP and other long-wall coal mines under rivers which form part of Sydney's water catchments, such as the Nepean and Cataract Rivers, have caused substantial subsidence which has cracked river beds, and caused methane gas emissions which bubble up in the rivers themselves and affect the root systems of plants. I was sent film of bubbling gas, burning above the water. Stretches of water disappeared, to re-surface, polluted, farther downstream. At the BHP AGM of that year I asked the board for an assurance that they would leave substantial buffer zones beneath such rivers. Some buffers have been introduced as a result I believe.

A few years ago I became aware of the problems occurring in the USA as a result of Unconventional Gas extraction. The severity of this and its widespread nature was a shock. Film clips showing burning fugitive gas flows were uncannily similar to the film of the fugitive gas in the rivers of our NSW coalfields from the 1990s onward.

The disruption of broad expanses of land becomes hideously apparent as one flies over it.

A visit to Melbourne by a US farmer made clear the damage done to his entire region.

The problems are further worsened where “fracking” at very high pressures with cocktails of dangerous chemicals is used.

It came as a shock to realise that southern Victoria had been opened to exploration.

## **Gippsland's Water Catchments**

In Australia water is our most limiting resource. We must expect it to become much more a limiting factor as we pretend that we can continue to add to both population and living standards.

Our rivers are already substantially degraded. We face water shortages.

It is difficult to maintain Environmental Flows in the rivers of the Latrobe Catchment.

The accelerating El Nino effect is already noticeable in our rainfall.

10% reduction in rainfall, as a rough rule of thumb leads to about 40% reduction in stream-flow.

The Gippsland Lakes are becoming more saline due to dredging of the mouth as well as declining freshwater input.

The dune systems protecting the Lakes are threatened from the seaward side by rising sea levels and increasingly severe storm surges expected in Bass Strait.

Climate Change is producing more severe weather events leading to heavy rainfall events.

Logging of catchments and increasing hard man-made surfaces are accelerating shorter, sharper flood peaks downstream. These will pressure the dune systems from the landward side as well as threatening towns such as Sale, Bairnsdale, Metung and Lakes Entrance.

At the same time general drying caused by Climate Change is reducing annual freshwater inflows which are needed to dilute catchment salinity.

Agricultural fertiliser run-off, use of phosphorus based fire retardants on forest and mine fires, and warming summer waters increase toxic algal blooms in the lower catchment and Lakes.

Combine rising sea levels, on-shore winds and flood, and the prognosis for low areas is poor.

Around Sale we are already pumping to reduce rising saline groundwater.

All these factors affect agriculture, river and lake ecology, swimming and fishing.

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## **Mining.**

Unconventional Gas Extraction is a form of mining, and has been treated as such under the law.

I have never seen a mining site rehabilitated to the extent that more than a fraction of the diversity that existed prior to mining has been restored.

The vast majority of mining sites are left substantially un-remediated. Runoff water, often acidic and carrying toxic heavy metals is left to leach into waterways and down our rivers to sea.

Water quality, agriculture and environment downstream are seriously affected.

Fish are becoming hazardous food because they concentrate heavy metals and man-made chemicals towards ourselves at the top of the food tree.

Mining companies' objectives are to extract the maximum profit and resource at minimum cost.

They will never protect the environment further than they are forced to, because of the cost.

Corporate structures distance individuals from responsibility to environment and posterity.

A company faced with environmental costs can go bankrupt. Society and environment are left to bear the damage.

Climate Change threatens further investment in Carbon intensive mining which will lead to stranded assets and lost opportunity for scarce capital which could be better employed.

## Unconventional Gas

Extraction of Unconventional gas requires widespread and intensive drilling to significant depths, through multiple geological layers and aquifers.

Wells are supposed to be lined and grouted to high standards.

In fact supervision is poor, cost cutting is endemic and a high proportion of wells lack integrity even in their early life. In years to come **all** will fail as steel rusts and concrete erodes.

Wells provide leakage paths between aquifers containing sweet and salty water, gas, brine and other toxic materials which commonly leak to surface.

It has been the experience in the US that companies with some name recognition and substance, who have funded the initial drilling and taken the profits from vigorous early flows, when faced by decreasing yields and increasing environmental stress, sell older fields to “bottom feeders”, smaller companies with little substance who eke out some more profit before vanishing to leave the problems behind.

Even easily accessed Unconventional Gas extraction results in large volumes of polluted water, particularly salty water brought to surface. This is conventionally evaporated in dams. Storms wash out these dams, taking the salt and other pollutants downstream.

Where high pressure “fracking” with complex chemical cocktails is used to extract “tight gas” toxicity problems are even worse.

Management of toxic chemicals and even radioactive Caesium tracer has already proven to be sadly deficient in Queensland and NSW.

## Conclusion

Unconventional Gas extraction is in no way a sustainable business.

It is indulged in for short term gain and the damage done left to our descendants to inherit.

Claims that it is cleaner than coal ring hollow when fugitive gas, flaring and costs of drilling, pumping, brine separation, aquifer and river degradation are taken into account.

Climate Change is such a serious concern to Australia that such a fuel should not in any case be used to add further to Carbon Dioxide emissions.

Australia has a wealth of new sustainable energy options unrivalled by any other nation.

My own two solar electric systems have illustrated this clearly, with 10 years of trouble free, non-polluting performance, carefully monitored.

We now have the technology to exploit wind and solar, with the economics of scale making them ever more attractive.

It is time for us to actively embrace a more sustainable future.

If we do not - our grand-children face terrifying prospects - and we stand accused of theft.

John Poppins