

Inquiry into Unconventional Gas in Victoria

Submission by Stuart Jones

(1) The prospectivity of Victoria's geology for commercial sources of onshore unconventional gas

Response:

Historically, the state's geological endowment has had some spectacular successes such as:

- (a) The gold rush that commenced in 1852 around Ballarat and Bendigo and led to the transformation of the economy and demographics of a fledging colony that was to become the State of Victoria.
- (b) The vast and exceptionally thick lignite seams in the Latrobe Valley that have underpinned (and still underpin) the State's competitive position as a low-cost electricity producer compared to other Australian states.
- (b) The substantial (conventional) oil and gas resources in the offshore Gippsland Basin and more recently in the offshore Otway Basin. Since the start of production, the offshore Gippsland Basin has contributed some \$300 billion to government revenues (in 2014 dollars) and, at its heyday in the 1980s, it contributed about 10% of the federal government's revenue base.

Whether the geological prospectivity for commercial sources of onshore unconventional gas in Victoria will ever be known (and then realised) is critically dependent on suitable policy settings that are required to attract energy companies from the private sector to take risks on exploration activities and then on project developments.

It is possible to assess the geological prospectivity of an area for onshore unconventional gas. This should be the role of government.

Whether onshore unconventional gas resources are commercial is an entirely different question and requires detailed evaluation by risk-taking energy companies from the private sector.

Providing government policy settings are attractive, energy companies may decide to take out exploration tenements, undertake exploration and, if successful, then commit risk capital to fund feasibility and environmental studies that can then frame a proposal for development to be submitted to the relevant minister for either approval, subject to certain conditions, or rejection. It is only at this late (development proposal) stage that a proposed project could be described as 'commercial'.

Victoria's government policy settings need to be competitive with other jurisdictions both interstate and internationally if the State of Victoria is to attract risk capital from energy companies.

As long as the current moratorium is in place, there can be no evaluation of prospectivity of Victoria's geology for commercial sources of onshore unconventional gas.

The moratorium needs to be lifted.

(2) The environmental, land productivity and public health risks, risk mitigations and residual risks of onshore unconventional gas activities

Response:

Much has been said on these matters by groups opposed to onshore unconventional gas development.

However, these issues have been comprehensively assessed by reviews elsewhere (see a small selection in the response to Section 6).

(3) The coexistence of onshore unconventional gas activities with existing land and water uses, including —

(a) agricultural production and domestic and export market requirements;

Interstate experience shows that onshore unconventional gas developments are comparatively small in area and can co-exist with agricultural production.

(b) the legal rights of property owners and the impact on property values; and

An onshore unconventional gas development is no different from any other development proposal that may affect a property owner and these issues need to be worked through the appropriate legislative and legal channels.

(c) any implications for local and regional development, investment and jobs;

It is too early to tell and would depend on any individual development proposals that may arise.

(4) The ability of potential onshore unconventional gas resources contributing to the State's overall energy sources including —

(a) an ability to provide a competitive source of energy and non energy inputs for Victorian industries;

Again, it is too early to tell and would depend on any individual development proposals that may arise. However, it is difficult to imagine why a private sector proponent would propose an 'uncompetitive' project.

(b) an affordable energy source for domestic consumers; and

See response to Point 4 (a) above.

(c) carbon dioxide emissions from these sources;

It is not clear to what 'carbon dioxide emissions from these sources' refers. It could be carbon dioxide emissions from the production of onshore unconventional gas resources or it could mean carbon dioxide emissions from the consumption of the natural gas produced by onshore unconventional gas resources. If it is the former, then I have no comment. However, if it is the latter, then surely the important question is; compared to what? Carbon dioxide emissions from consumption of onshore unconventional gas resources should be essentially similar to that from conventional gas resources, but both should be substantially less than, say, from consumption of lignite (such as by the Latrobe Valley power stations).

(5) The resource knowledge requirements and policy and regulatory safeguards that would be necessary to enable exploration and development of onshore unconventional gas resources, including —

(a) further scientific work to inform the effective regulation of an onshore unconventional gas industry, including the role of industry and government, particularly in relation to rigorous monitoring and enforcement, and the effectiveness of impact mitigation responses; and

Response:

From a global perspective, the onshore conventional and unconventional gas industry is a mature industry with millions of exploration wells drilled and hundreds of thousands of production wells either currently in use or decommissioned. Surely, the resource knowledge requirements, policy settings and regulatory safeguards that have been formulated and progressively refined in those jurisdictions would be an appropriate starting point for examination and evaluation by the responsible agency in the Victoria public service so that the lessons learned can be applied to a future onshore unconventional gas industry in Victoria and the mistakes of history can be avoided or, at least, minimised.

(b) performance standards for managing environmental and health risks, including water quality, air quality, chemical use, waste disposal, land contamination and geotechnical stability.

Response:

See response to 5 (a) above and also the response to Point 6 below.

(6) Relevant domestic and international reviews and inquiries covering the management of risks for similar industries including, but not limited to, the Victorian Auditor-General Office's report *Unconventional Gas: Managing Risks and Impacts* (contingent upon this report being presented to Parliament) and other reports generated by the Victorian community and stakeholder engagement programs.

Response:

Regarding the 'Relevant domestic and international reviews and inquiries covering the management of risks for similar industries', I wish to bring to the inquiry's attention the principal findings of three relevant reports:

1. *Independent Review of Coal Seam Gas Activities in New South Wales, September 2014, by the NSW Chief Scientist and Engineer.* The independent review's main conclusion was:

'... that the technical challenges and risks posed by the CSG industry can in general be managed ...'

2. *The Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources, June 2015, by the US EPA.* The report concluded:

'Through this national-level assessment, we have identified potential mechanisms by which hydraulic fracturing could affect drinking water resources.'

'We did not find evidence that these mechanisms have led to widespread, systemic impacts on drinking water resources in the United States.'

'The number of identified cases where drinking water resources were impacted are small relative to the number of hydraulically fractured wells.'

3. *State Oil and Gas Agency Groundwater Investigations and Their Role in Advancing Regulatory Reforms, A Two-State Review: Ohio and Texas, August 2011, by the Ground Water Protection Council.* This report addresses both conventional and unconventional oil and gas developments and is attached in full as <state_oil_gas_agency_groundwater_investigations.pdf>.

Both Ohio and Texas have massive oil and gas producing industries on a scale that dwarfs anything seen or likely to be seen in Victoria. For example, the report states that:

In Ohio, over 33,000 oil and gas wells were drilled and nearly 28,000 wells were plugged from 1983 through 2007. The number of producing wells increased by 29 percent from a low of 50,342 in 1983 to a high of 64,830 in 1991.

In Texas, 187,788 oil and gas wells were drilled and 140,818 wells were plugged from 1993 through 2008. During the 16 year study period the number of producing wells increased 6.7 percent from 237,136 to 253,090.

The report is instructive because it quantifies the groundwater contamination incidents caused by historic or regulated oilfield activities in Ohio and Texas:

During the 25 year study period (1983-2007), Ohio documented 185 groundwater contamination incidents caused by historic or regulated oilfield activities. Of those, 144 groundwater contamination incidents were caused by regulated activities, and 41 incidents resulted from orphaned well leakage. Seventy-six of the incidents caused by regulated activities (52.7 percent) occurred during the first five years of the study (1983-1987). When viewed in five year increments, the number of incidents caused by regulated activities declined significantly (90.1 percent) during the study period. Seventy-eight percent (113) of all documented regulated activity incidents were caused by drilling or production phase activities. Improper construction or maintenance of reserve pits was the primary source of groundwater contamination, which accounted for 43.8 percent of all regulated activity incidents (63) in Ohio.

During the 16 year study period (1993-2008), Texas documented 211 groundwater contamination incidents. More than 35 percent of these incidents (75) resulted from waste management and disposal activities including 57 legacy incidents caused by produced water disposal pits that were banned in 1969 and closed no later than 1984. Releases that occurred during production phase activities including storage tank or flow line leaks resulted in 26.5 percent of all regulated activity incidents (56) in Texas.

While it is clearly the case that oil and gas exploration, production and legacy well incidents (plugged wells) have caused groundwater contamination, it is also clear that the total number of groundwater contamination incidents is miniscule compared to the number of producing wells in both states. In Ohio, there were 64,830 producing wells in 1991 and 185 groundwater contamination incidents documented from 1983 to 2007, which equates to one groundwater contamination incident per 350 producing wells. In Texas, there were 253,090 producing wells in 2008 and 211 groundwater documented contamination incidents from 1993 to 2008. This equates to one groundwater contamination incident per 1,200 producing wells.

In relation to hydraulic fracturing (or fracking), the report is also instructive and states:

During the study period, over 16,000 horizontal shale gas wells, with multi-staged hydraulic fracturing stimulations, were completed in Texas. Prior to 2008, only one horizontal shale gas well was completed in Ohio. During their respective study periods, neither the RRC or the DMRM identified a single groundwater contamination incident resulting from site preparation, drilling, well construction, completion, hydraulic fracturing stimulation, or production operations at any of these horizontal shale gas wells.