Submission to Parliamentary Inquiry into Unconventional Gas (Victoria) July 2015

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My farming property is subject to EL 4968. As such I am an affected person who is likely to suffer significant material detriment as a result of onshore unconventional gas mining on, or in the vicinity, of my land. I hold a Master of Education (Uni. British Columbia) and a Master of Social Science – Environment and Planning (RMIT).

Good Governance Principles

The privileged position of Unconventional Onshore Gas mining (UONG) in law is contrary to the principles of democratic good governance. The fact that the Mineral Resources (Sustainable Development) Act 1990 and the Petroleum Act 1998 have sections that override protections in other Acts, results in outcomes that are undemocratic and exceedingly unjust for many people and which place precious natural resources, especially safe drinking water, at risk.

Acts of Parliament where the Mining Resources (Sustainable Development) Act and the Petroleum act 1998 override or conflict with legislation in other key strategic Acts, include:

- Planning and Environment Act 1987
- Environment Protection Act 1987
- Water Act 1989
- Catchment and Land Protection Act 1994
- Charter of Human Rights and Responsibilities Act 2006
- Climate Change Act 2010
- Land Acquisition and Compensation Act 1986
- Safe Drinking Water Act 2003

It is not possible within the confines of this submission to examine every Act of Parliament for discrepancies. However, it is hoped that the Panel will closely scrutinise how the Mining Resources (Sustainable Development) (MRSD) and Petroleum Acts interact with other key legislation. It defies strategic logic that mining legislation can negate other important laws, policies and regulations. In the interests of democratic good governance this anomaly must be corrected. In the meantime, I shall highlight a few inconsistencies and concerns.

Planning and Environment Act 1987

The Victoria Planning Provisions take a strategic approach to land uses and developments. A key of tenet of planning in Victoria is to avoid conflicting land uses and developments in the interests of fair and orderly planning in accordance with the objectives of the Planning and Environment Act, Sec 4.

Example: Wellington Planning Scheme
Clause 21.15 Natural Resource Management Overview - Rural areas

Various clauses, including policy outlined in the Municipal Strategic statement of the Wellington Planning Scheme affirm the significant values of rural areas and their environmental assets.

Clause 21.15 Natural Resource Management (Wellington Shire Planning Scheme) emphasises that the Shire's rural areas contains some of the most ecologically important and diverse areas in Victoria, such as the Gippsland Lakes (which are RAMSAR-protected), National Parks and wetlands. Their high intrinsic natural values are a significant factor in attracting people to reside in and visit the Shire. Also identified is the need to protect the environmental health of the Shire's rural areas, including water quality, vegetation habitat, wetlands and coastal parks. The key points are that rural

amenity and natural assets are strategically important not only for retaining and attracting population growth but for supporting key industries, such as tourism and agriculture. These assets are deemed "worthy of protection".

Clause 12 Environmental and Landscape Values State Planning Policy Framework
State planning policy also seeks to protect the health of ecological systems and biodiversity, habitats, species and genetic diversity. It is policy that planning must implement the principles of ecologically sustainable development in accordance with international and national agreements, such as the Intergovernmental Agreement on the Environment, National Strategy for Ecologically Sustainable Development, National Greenhouse Strategy, National Water Quality Management Strategy, National Strategy for the Conservation of Australia's Biological Diversity, the National Forest Policy Statement and National Environment Protection Measures. This State policy is to ensure that strategic planning avoids and minimises significant impacts, including cumulative impacts, of land use and development on Victoria's biodiversity; and protect sites and features of nature conservation, biodiversity, geological and landscape value.

A key question is: How do OUNG mining activities protect ecological and landscape values? More importantly how do they improve these values? How do they comply or otherwise with the various international agreements and national policies? And, if they do not comply, what is the point of these agreements and policies?

Detrimental Impacts
In Clause 21.15, windfarms and high voltage power lines are cited as having "significant detrimental effects on the landscape". In respect of river health and catchment health, Clause 21.15 states that their health is "extremely important to the long term sustainability of the Shire and the economic wellbeing of its industry, agriculture, and settlements". The protection of Victoria's river catchments are further protected under the Catchment and Land Protection Act and Water Act.

It is important to assess UONG mining within this strategic planning and legal context. Will it contribute to the maintenance, and more importantly, the **enhancement** of Victoria's land, water resource, and biodiversity (See, e.g. CALP Act, Sec 4; Water Act, Sec 1)? To what extent will its operations threaten the viability of these assets, both in the short and long-term? In particular, UONG is very much an industrial activity and the proliferation of gas wells has been shown to industrialise rural landscapes, so destroying the environmental and landscape values that underpin the social life and economies of rural communities.

Clause 22.02-1 Policy emphasises the importance of agriculture to the Shire's economic prosperity. Both the Macalister Irrigation District and dryland areas are "the cornerstone of the Shire's agricultural sector…Fragmentation and loss of productive agricultural land from production will diminish the value of the Shire's agricultural sector."

Clause 21.17-2 states that: Agriculture is a major industry within the Shire, producing approximately $430 million worth of agricultural commodities and employing approximately 1,758 people in 2012. This "important industry" provides direct and indirect benefits to the ongoing prosperity of the Wellington community.

Clause 21.17-5 states that Tourism is also a key industry whose "significant potential for growth" depends on "the promotion of farm-based tourism and marketing of the rural and natural environment". A key strategy is to: "Promote the natural environment as a strength for the

Wellington community and its visitors, particularly through sustainable eco-tourism". Tourism is likely to be severely affected by UONG mining with resulting negative impacts on tourism revenue and the Shire's reputation as a tourism destination.

Clause 22.02-3 states *inter alia* that commercial, industrial and other land uses that do not demonstrate a direct link with ongoing and sustainable agricultural land use or rural dependent tourism enterprises should be strongly discouraged. In some cases, they are prohibited, but not gas mining.

The MRSD and the Petroleum Acts override the Planning and Environment Act 1987 and the Victoria Planning Provisions because for a mining or petroleum licence Section 118 (1)(a), no planning permit is required; (b) there is no need to comply with the planning scheme in relation to use and development of land for exploration; and (c) subsections (a) and (b) apply even if the use and development would normally be prohibited in the zone.

Differences in the treatment of windfarms and gas wells are not in the interests of fair and orderly planning. Windfarms are regulated under the Planning and Environment Act and the Victoria Planning Provisions whereas gas wells and associated activities are legislated under the MRSD or Petroleum Acts depending on the operation. Given that they are both energy generators, this legislative inconsistency is not founded in strategic logic.

Windfarms:

- Windfarms require a planning permit under the planning scheme
- A 1 kilometre buffer from a dwelling is required with the owner's consent
- Affected persons are able to lodge objections to a windfarm with the right to appeal at VCAT

Gas wells:

- No planning permit is required for an exploration licence but either a planning permit or an Environmental Effects Statement is required for a mining licence.
- There is no specified buffer but work cannot be conducted **within** 100 metre from a dwelling without the owner's consent (MRSDA Section 45). Horizontal drilling can occur beneath a dwelling, perhaps without the owner's knowledge.
- Although the MRSD Act, Sec. 85, lists matters for which compensation can be claimed, there is no right to veto. In comparison, under the Planning and Environment Act Sec 48, another party may only apply for a planning permit on another person's land with their signed consent. Nor do affected persons, other than the landowner, have rights to object. With no veto right, ultimately, the only right open to a landowner is to appeal the compensation amount to VCAT, at the landowner's expense.

International Human Rights legislation and the Charter of Human Rights and Responsibilities (Vic)

"Land is a key issue and one that strikes an emotional chord due to the strong affinity Australians have with their land and its central role in the livelihood of rural communities. There is a perceived lack of support for rights of landowners in terms of access to their land. Lack of consultation, inadequate compensation, property value decreases, and potential legacy issues are also cited as major issues by landowners as are the negative impacts on amenity and a lack of adequate benefits for their neighbours and their communities." (Chief Scientist and Engineer, Final Report of the Independent Review of Coal Seam Gas Activities in NSW, September 2014, p7).

The fact that the MRSD and the Petroleum Acts facilitate access to private land for exploration and mining is a vexed issue for country Victorians, which explains why organisations such as LockTheGate have gained so much traction. Country people see that their rights are being eroded for a perceived, but unproven benefit, where any benefits are not enjoyed equally. Under current legislation, country Victorians face the threat of losing control of their properties and seeing many long years of hard work despoiled or disappeared while mining company shareholders reap all the benefits. The experiences of landowners in NSW and Queensland affected by CSG wells is chilling. It is utterly unjust, unreasonable and cruel that country people should suffer enormous loss, possibly impoverishment, for the perceived profit of others faraway, in many cases foreign corporations.

The Victorian Human Rights Commission website states that the Charter requires the Victorian Government to act consistently with the twenty human rights protected under the Charter and to consider human rights when developing policies, making laws, delivering services and making decisions with the critical rider that "some rights may be limited". However, this must be necessary and reasonable and there must be clear reasons for the decision."

One such limitation is found in the Charter, Sec 20: "A person must not be deprived of his or her property other than in accordance with law". The MRSD Act can deprive property rights and the peaceful enjoyment of property. The legal and ethical question is: is this deprivation necessary and reasonable even if the reasons are clear?

The right to lead one's life in peace and contentment, the right to conduct one's business without fear of bankruptcy is overridden by the compulsory use of land by mining companies. Note that the Land Acquisition and Compensation Act 1986, Sec 38 excludes compensation for gold, minerals and pastoral licences. The key difference between the Land Acquisition and Compensation Act and the MRSD and Petroleum Acts is that mining licensees are not required to buy out a landowner, even at fair market value, but can use and development private land with government sanction. The VCAT appeal process is inadequate to protect landowner and community rights because the Act only allows for limited compensation. VCAT does not have the power to refuse a licence. In effect, the rules of Natural Justice afforded objectors under the Planning and Environment Act do not apply to gas exploration or extraction. Given that property values have been shown to fall even with the threat of mining, even to be unsaleable, determining fair market value for the purposes of compensation will inevitably be contested by the company. At what point in the process should fair market value be determined?

Crown ownership of all minerals beneath land is an outdated convention that has no place in a modern democratic system. Nor is it universal; in some states in the USA, for example, landowners own the minerals under their land, which gives them greater control of what they want to do with their land and greater access to minerals' profits.

<u>The Right to Farm and Do Business</u>

The MRSD Act interferes with the Right to Farm legislation and the Right to Conduct Business.
The primary purpose of the Farming Zone is to protect the Right to Farm and to prohibit or restrict land use and development that threatens that right. Primary production in Gippsland is more than dairy, sheep and beef. Organic food production and vegetable growing are key farming activities in the region. Horse breeding and training for performance sports, Thoroughbred racing and ancillaries, e.g. large veterinarian equine hospitals inject millions of dollars into the Gippsland and Victorian economy.

While Noise and other nuisances may be controlled under an EPA Work Plan, they cannot be banned. Nuisance effects – noise, flaring, and lights-- prove that UONG mining is an industrial activity that is inappropriate in the Farming Zone; these disturb people and also livestock. Will the mining company or the government be liable if a valuable, and possibly irreplaceable, animal is injured or has to be destroyed? Other uses, such as dog kennels require the preparation of an acoustic assessment and generally, such uses must implement nuisance attenuation in their buildings. Given that gas wells are not enclosed, there is no way to muffle noise and light nuisance. These sort of disturbances are perhaps common to an urban industrial environment but country people are unaccustomed to such ongoing noise and light. For people who have experienced bushfire events, flaring will be very alarming. These effects will certainly affect people's mental health, their animals and their livelihoods.

For Australians, private land ownership carries a very high social and personal value. In addition, the farm is a substantial financial and life investment. The farm is the not only a place of business but the farmer's home. There are also increasing numbers of "tree-changers" who have moved to the country for the peaceful and relaxed lifestyle it offers. These new residents help to sustain the social and economic life of rural townships but they will not want to live next to gas wells.

The current mining and petroleum legislation facilitates the transfer of private wealth to mining companies and the State. This is achieved through the mineral rights' law where minerals are owned by the Crown, which can then vest ownership in a mining company. It is on the public record that property values and rural business enterprises are eroded or destroyed by incompatible gas mining activities. The nature of agriculture is that farmers often carry large debts. Dairy farmers often have million dollar loans. Disruptions to productivity and perceptions about product purity will affect their businesses. Compounded by falling property values or worse, unable to sell the property puts landowners and farmers in an invidious position. Bankruptcy often results. The stress of managing the loss of one's life investment is enough to lead to severe mental health problems, even suicide. Government policy and legislation that facilitates the impoverishment of rural people at the expense of mining companies, often with vested foreign interests, is unjust, undemocratic and immoral.

A Lakes Oil representive told me that their compensation to landowners is $10,000 per well. This sum is not just and fair compensation for a landowner whose property is no longer saleable or whose business income is impaired or destroyed due to the negative impacts of mining exploration and production on the land.

Biosecurity

Trucks and other equipment have the capacity to import weeds and exotic pathogens onto properties. Contamination can be transferred from one property to others. Under existing law, the landowner is legally liable for the control of declared noxious weeds. Weed control is extremely expensive. Governments spend millions on assisting landowners with weed control. It is also a labour-intensive task. It is unfair for the landowner to be responsible for eradicating weeds imported by the mining company. Some farms are required by industry regulation to observe strict biosecurity controls on farm with penalties for failure to do so. This includes restricting public access to livestock and land and requiring visitors to undertake disinfection processes. What will be the protocols if another Equine Influenza or Anthrax outbreak occurs? Regarding the provisions of the Livestock Disease Control Act 1994, how will farmers be able to implement these controls when mining employees and their vehicles will have free access to their land day and night?

Right to Personal Safety

Stranger danger – strange workers lurking on private property create real and/or perceived risks to personal safety; risks to livestock, fencing, house and contents, and other infrastructure. The presence of strange workers (mainly all male) will be a constant cause of anxiety for landowners, especially women living alone.

Right to Health and Wellbeing

Prime Minister Abbott has recently criticised windfarms as ugly, noisy and capable of causing negative health impacts. Yet, the same applies (arguably, even more so) to gas wells, which create intense and unrelenting Nuisance 24/7 from noise from bores, flaring and lights. Various medical specialists both in Australia and abroad (most recently in The Lancet) confirm that UONG causes debilitating health impacts, including mental health impacts, such as depression, anxiety etc. The suicide rate, which is already at alarming levels in rural areas, is very likely to increase if gas wells are allowed to industrialise our rural areas. In the Australian Government's Agriculture Competitiveness White Paper (recently released), under *Strengthening our approach to drought and risk management*, the government says it will provide "increased financial counselling services and improved access to community mental health" as part of drought relief. Will it do the same for UONG mining relief? The impact on communities and individuals suffering these impacts in other States is truly shocking. I personally know people who are already experiencing severe stress and are already grieving. For any compassionate government who is legally charged with acting in the best interests of its citizens, this is totally unacceptable. The question is: can Gippsland and the State, more widely, withstand such an onslaught on the social and economic wellbeing of its citizens?

Rehabilitation issues

Rehabilitation is unlikely to be successful given the nature of many Gippsland soils and the considerable effort that now goes into maintaining and improving productivity.

Salinity continues to be a serious problem across the region. Gas mining processes are well-known to produce large quantities of highly saline water. Disposal is impossible.

Many soil types in Gippsland will not withstand heavy vehicular traffic during wet conditions. Trucks will be bogged. So any on-farm roads to gas wells will need to be heavy duty. This means that soils and pastures will be irreversibly destroyed for roads. Rehabilitation, especially to fragile soils and pasture will not be achievable in most cases, in spite of best efforts. This is contrary to the Victoria Planning Provisions for Farming Zone land, Clause 35.07, which has a primary objective *inter alia*:

- To ensure that non-agricultural uses, including dwellings, do not adversely affect the use of land for agriculture.
- To encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision.

Co-existence

The idea that agriculture and gas mining can co-exist in Gippsland is a fallacy. Gas mining is not a sustainable use of agricultural land, especially in the more fragile soils of dryland country. Gippsland is a very close-settled farming region. Unlike Queensland and NSW where farms are many thousands of hectares, most Gippsland farms are generally under 200 hectares with many 40 hectares or

smaller. It will be impossible for small holdings to absorb the disruption of gas mining activities and infrastructure. The result will be permanent damage to soils, pastures, businesses, and livelihoods.

The idea that an individual might supplement farm income from allowing gas mining on his land leads to inequity with others in the area and a source of friction between neighbours. This applies to other infrastructure such as mobile phone towers and wind generators, where one landowner receives financial benefit for the inconvenience while all his neighbours get nothing and suffer the negative impacts. The equal sharing of profits and losses across the community might influence public opinion on the merits of gas mines. However, the LockTheGate surveys across Gippsland has resulted in an overwhelming majority of community members declaring their communities GasFieldsFree. Clearly, Gippsland communities do not see that gas mining will benefit them.

Community resilience

The Victorian Government has expressed a policy objective (the subject of the recent planning zones review) that population growth will benefit rural communities and compliment rural businesses. Allowing gas wells to industrialise rural land will definitely discourage people from moving to live in the country. Experience shows this will lead to the "hollowing-out" of communities, even the evacuation of entire townships as has happened in NSW and Queensland. Reduced population leads to business and schools' closures, and the concomitant loss of vital community services and facilities, which support agriculture, tourism and other rural businesses. Such an outcome is contrary to government policies of demographic decentralisation and strengthening the resilience of rural communities.

Disaster management

How will fire and flood events impact on gas wells? For example, settling dams containing toxic wastewater can be flushed into the landscape in times of flood. Flaring wells could cause bushfires. Where are the controls? And who will pay? We are already seeing GDF Suez, an international company, refusing to pay the $18 million Hazelwood fire bill (The Age, 26 July 2015). Without considering the health and other costs to Morwell residents, default will be a huge impost on all Victorian taxpayers. The fact that GDF Suez would even consider defaulting indicates that the regulatory regime is inadequate. It is a warning that regulations will not prevent UONG mining companies from trying to avoid their duties when things go wrong. There have been too many examples of this worldwide to think otherwise. At the very least, governments will be forced to sue for damages at great cost to taxpayers.

In addition, free trade agreements that allow corporations to sue governments for lost profits due to their laws and regulations, could lead to a situation where governments cannot prevent environmental and socioeconomic damage, even if they wished. This is not speculation. In 2013, Lone Pine Resources lodged a $250 million damage suit against the Quebec (Canada) government for its moratorium on fracking. The statement of claim accused the Quebec government of being "arbitrary" and "capricious" in revoking the company's rights even though an environmental study on the fracking process was not complete (Business Canada, www.huffingtonpost.ca, 10 March 2013, updated 23 January 2014). The case is still ongoing. Enabling corporations to sue governments means that governments will be unable to enforce their laws and protect their citizens' rights. Lakes Oil has already threatened to sue over the moratorium.

Risk management into the future

Regulation of decommissioned and abandoned wells into a long-term future is extremely problematic. Companies come and go. To avoid debts and other liabilities, some companies declare bankruptcy and then re-emerge via a process called phoenixing, which is a "significant global problem for taxation authorities and corporate watchdogs" (Roach, Murray, *Combating the Phoenix*

Phenomenon: An Analysis of International Approaches, eJournal of Tax Research (2010) vol.8, no. 2, pp. 90-127. Others are taken over or are simply wound up. How will governments be able to track down these companies twenty, thirty or one hundred years hence when problems emerge with deteriorating well infrastructure? Contrary to industry advocates, "cement and steel do not have the long-term integrity of geological materials" (Final Report Engineering Energy, June 2013 p128). Gippsland is also a known earthquake zone with several faults running through the region. Is it possible that aged cement and steel casings could withstand the power of a severe earthquake? According to the Engineering Energy Report, p29: the long-term management of abandoned wells to avoid cross-contamination of waters and soils, emissions to the atmosphere is **certainly** a matter of increasing concern in the USA (Kenarov, 2013). The Report states that there is "a need to formulate governance and regulation and develop leading industry practice," which arguably must be part of a risk management framework for UONG. Such a framework must also account for the cumulative effects of wells across the landscape because it is not sufficient to consider the impacts of one well in isolation.

Compensation and Insurance

The legal complexities involved in negotiating a compensation package with a mining company are burdensome and will be stressful to landowners. As the Checklist for Negotiating a Land Access Agreement (NSW Farmers Association 2013, *Mining and Coal Seam Gas in NSW – Information for landholders)* shows, the long list of matters to consider is onerous. All this must be negotiated with a stronger and wealthier party who also has the might of the mining law on its side. Getting a fair deal will be difficult and costly – this factsheet advises a lawyer's expertise. Is it fair and reasonable to subject an unwilling, and possibly naïve, landowner to such a difficult, time-consuming, and enervating process?

Legal Liability

Concerns have been raised as to whether or not landowners will be denied house and farm insurance if part of their land is under the control of a non-owner, a mining company. For example, Rabobank, the world's leading specialist in food and agribusiness banking and one of Australasia's leading rural lenders (by its own admission) stated in its submission to the NSW Inquiry into Coal Seam Gas that where CSG mining is "undertaken with agricultural activities on agricultural land, the size and scale of farming operations can be impacted, the production and efficiency base of the agricultural enterprise can be constrained and a new spectrum of operational risks could emerge. In our view, the net impact of CSG mining activities on a banking relationship may include a diminished production base that reduces a borrower's ability to service debt, a diminished asset base (groundwater constraints) and diminished land value, which affects borrowing levels. If a farmers' ability to make loan payments is constrained, the provision of short and long term funding is also likely to be limited. Should the trend toward concurrent CSG mining and agricultural activities continue on agricultural land, asset values in all probability will diminish and problem loans or defaults will rise. This could also have flow on social and economic implications for rural communities" (Rabobank Australia & New Zealand, p1).

While companies are required to hold their own public liability insurance, will that extend to damage to a landowner's buildings, which may not appear for years and, perhaps, after the mining operations have ceased and the company long gone? In the absence of the company, will the legal liability regarding rehabilitation and pollution mitigation works fall to the landowner? Will the landowner be found negligent? Will the landowner who allows a gas mining company onto his land be liable at law should damage occur to his neighbour's land? (Refer, e.g. *Donoghue v Steve*nson: negligence and the duty of care).

In *Nagle v. Rottnest Island Authority* (1993) where the plaintiff was injured while diving into a rocky pool, which was promoted and operated by the defendant (the Authority), the judge held that the board, by encouraging persons to engage in an activity, came under a duty to take reasonable care to avoid injury to them and the discharge of that duty [and] ... require[d] that [other users] be warned of any foreseeable risks of injury associated with the activity so encouraged.

The Civil Liability Act 2002, Sec 5B, General principles states:

(1) A person is not negligent in failing to take precautions against a risk of harm (personal injury or death; damage to property; economic loss) unless the risk was foreseeable (that is, it is a risk of which the person knew or ought to have known?); the risk was not insignificant, and; in the circumstances, a reasonable person in the person's position would have taken those precautions.

(2) In determining whether a reasonable person would have taken precautions against a risk of harm, the court is to consider the following (amongst other relevant things): the probability that the harm would occur if care were not taken; the likely seriousness of the harm; the burden of taking precautions to avoid the risk of harm; the social utility of the activity that creates the risk of harm.

If the State Government lifts the moratorium, it will be encouraging UONG mining. Given that injury to both persons and property from UONG is reasonably foreseeable, and reasonable foreseeability is a question of law, the government needs to resolve these legal questions in relation to Civil Liability on behalf of landowners and communities (and itself) who, should the moratorium be lifted, may well find themselves subject to negligence suits costing millions of dollars.

A Word about Fracking

At the Parliamentary Inquiry hearing in Sale on 1 July 2015, Rob Annells stated that Lakes Oil would not be engaged in fracking. However, Lakes Oil Company information on the Commonwealth Bank broking website Commsec (www.commsec.com.au) states that "evaluations of results from drilling and logging indicates that the Strzelecki group in both Wombat 4 and Boundary Creek 2 contains a number of potential tight gas zones **suitable for fracture stimulation**."

It is generally accepted that due to its geology, Coal Seam Gas (CSG) will not be found in Gippsland. The gas that may be found will be tight gas or shale gas. The Victorian Government's own parliamentary research *Unconventional Gas: Coal Seam Gas, Shale Gas and Tight Gas* (www.parliament.vic.gov.au) confirms that both shale and tight gas require fracking, which consumes large quantities of water. This raises concerns about water availability, given that in Gippsland at least, practically all water is fully allocated. The Australian Government Industry website also confirms that: "Hydraulic fracturing combined with horizontal drilling is used to achieve commercial flow rates from tight gas and shale gas formations." (*Australian Gas Resources 2012*, p8, (Geoscience Australia, www.ga.gov.au). The fact is that tight and shale gas cannot be produced cost-effectively without fracking. Refer: Jake Hays et al, 2015, Science of the Total Environment, *Considerations for the development of shale gas in the United Kingdom*. (attached to email). The authors advise that any government considering the development of unconventional gas should take into consideration the US shale gas experience.

Local Government Infrastructure Costs

An ESSO representative has confirmed at a Wellington Shire Council briefing (2012) that UONG mining will definitely increase truck traffic on local roads. Already the bulk of council revenue, of which the major portion comes from rates, goes towards the maintenance of rural roads and bridges. State and Federal funding for local roads has decreased over recent years. So maintenance

of vital roads' and bridges' infrastructure will inevitably be an increasing burden for ratepayers made worse by increased gas mining traffic.

The decline in property values will affect rates revenue which is based on land valuations. The result will be that as companies receive the benefits of gas mining, local ratepayers will be forced to pay the costs at the same time as their personal wealth and wellbeing are reduced.

Environment Protection and Sustainability

The Environment Protection Act, Section 1B (2) "requires the effective integration of economic, social and environmental considerations in decision making processes with the need to improve community well-being and the benefit of future generations".

The Government needs to explain how UONG mining will improve community well-being, especially for affected communities, and how UONG mining will benefit future generations; noting that Section 1G (1) states that: "Protection of the environment is a responsibility shared by all levels of Government and industry, business, communities and the people of Victoria". Yet, country people who seek to protect their environments are often vilified for doing so.

Climate Change Act 2010

The Climate Change Act Sec 12D specifies that the present generation has a duty to ensure that decision-making considers the short and long term impacts on climate and minimise those impacts for future generations. Sec 14 applies to any Act specified in Schedule 1 and to any decision made or action taken that is authorised by any Schedule 1 Act. Schedule 1 Acts are: Catchment and Land Protection Act; Coastal Management Act, Environment Protection Act; Flora and Fauna Guarantee Act 1988; Public Health and Wellbeing Act 2008; Water Act 1989. Noticeably, absent are the MRSD and the Petroleum Acts. The fact that there is there is no requirement to consider or avoid the greenhouse emissions impacts of mining projects is a serious flaw that undermines principles of good governance.

The need to undertake a full and proper cost accounting of the greenhouse emissions produced by gas mining from exploration to production and consumption is urgently needed if government legislation and policy is to be meaningful. In the interests of legislative consistency and equity, Sec 14 of the Climate Change Act must apply to UONG mining.

Were the Sustainability Principles specified in Sec 2A of the MRSD Act applied in accordance with their full and proper intent to the question of mining licences, then no licences could be approved.

Cost-benefit analysis

In the UK article previously cited (Hays et al), the authors confirm that:

"Empirical evidence should guide policy decisions surrounding shale gas development and, if a country does decide to proceed, it should also guide the regulatory framework. However, there are a number of policy issues that science alone cannot resolve. For instance, science cannot tell us how much risk a society should tolerate to derive certain benefits, which populations should bear the burden of these risks, or what constitutes a benefit — these are ultimately questions of value (Hays and de Melo-Martín, 2014), p39-40, Hays et al).

The question of value is fundamental. A full and proper accounting of the costs and benefits of UONG mining to determine the real value of mining to the taxpayer needs to be undertaken as part

of the decision-making process. External costs, such as loss of community lifestyles and services, environmental destruction, disaster recovery etc. must be included. Sec 26A of the MRSD Act requires that a mining licensee must prepare a statement of economic significance if proposed works are to be conducted on agricultural land not owned by the licensee. However, what should also be required is a similar statement regarding the economic and environmental significance, including its contribution to ecosystems, biodiversity and habitat, of the existing activity on the land.

The benefits of mining are usually described in terms of economic inputs, particularly jobs created. Royalties are often cited as contributing to government revenue. However, royalties need to be weighed against the many subsidies provided to the mining industry and its ancillaries. Furthermore, according to The Australia Institute report, Victorian, budget papers show that Victoria is charging the lowest royalties ($48.5 million in 2013-14) of any state, compared to $296 million in assistance to the minerals and fossil fuel industry in the form of tax concessions, subsidies and cheaper access to infrastructure (The Age, 24 June 2014, Gareth Hutchens, *Victoria breaks even on mining royalties*). Given the State Government's fiduciary responsibilities, is the provision of such large subsidies to a polluting and outmoded industry a wise and prudent use of taxpayers' money? Would this money not be better spent on renewable technologies?

Given the higher capital costs of exploration and production due to the technical complexities of accessing UONG deposits, net profits are very likely to be far less than industry estimates, especially when the environmental and social costs are factored in. The huge capital costs of exploration, let alone production, are enormous due to the problems with exploiting unconventional gas reserves. It is noted that Lakes Oil, one of two most active companies in Gippsland and listed on the Australian Stock Exchange currently has a share price of $0.002, down from an all-time high of $1.19 in 1986, when its price rapidly fell post the 1987 stock market crash. According to information on the Commsec (Commonwealth Bank broking arm) website www.comsec.com.au), Lakes Oil has no earnings, a negative cashflow, no dividends and no capital spending. The other active company, Ignite Energy Resources is an unlisted company that is resting its financial hopes on a series of highly-speculative and unproven technologies.

A proper cost-benefit analysis would account for the benefits lost. Claims of jobs created need to be verified by factual evidence and need to be weighed against jobs lost, e.g. from agriculture, tourism and allied services, including in health and education, should those businesses decline or fail. The long-term sustainability of jobs should also be considered. As the end of the mining boom shows, mining jobs are not permanent compared to jobs in agriculture, especially in dairy where the industry is forecast to expand. Add to this, the ancillary service jobs created. Mining profits need to be weighed against the cost to the taxpayer of restoring damaged environments, including the costs of processing mining waste products, costs to the health budget of dealing with damaged lives and the costs imposed on local governments and affected communities, including the reduction in social capital resulting from their "hollowing-out". A dollar value should be placed on the various activities so that the benefits can clearly be weighed against the costs. Such assessment should be part of a normal risk assessment analysis.

Claims that UONG discoveries in Gippsland will lower gas prices for Victorians is naive. Victorians are unlikely to enjoy the benefits of the gas product because most of Australia's current gas production (80% approx.) is, and will be, exported. Importantly, the "current pricing of Australian LNG exports is based on conventions in the Asian LNG market, which involve long-term contracts linked to the price of oil." This means that not only will Australians be required by international agreement to pay the Asian price [as they do with oil] but "a sizeable portion of profits will flow to foreign investors." (Reserve Bank of Australia, Cassidy and Kosev, Australia and the Global LNG Market, p40). The Australian Regulator Report 2013, p1, confirms that "international demand for liquefied natural gas

(LNG) exports from Queensland (scheduled to commence in 2014-15) is exerting pressure on gas prices" (www.aer.gov.au). Once gas exports are fully ramped up (2015-2018), the inter-connection of eastcoast pipelines will enable the movement of gas from the cheaper domestic market to the more expensive export market, in accordance with supply and demand theory, and this is likely to result in higher domestic prices with Victorians "particularly exposed to the impact of rising gas prices" (Wood, T and Carter L, Getting Gas Right: Australia's Energy Challenge, Grattan Institute). The AER 2013, p17, further reports that LNG export demand is set for exponential growth but domestic demand for gas, especially for electricity generation, will be weakened, due to energy conservation measures, continuing uptake of renewable energy and rising gas prices.

In considering the potential value to the Australian economy of new gas from Gippsland, it is important to know that Western Australia has huge reserves, approximately 64 percent of Australia's total reserves, an estimated 76 trillion cubic feet, valued at 116 billion dollars (www.dsda.wa.gov.au) and AER, 2012, p87). Queensland and NSW also have large proven coal seam gas resources, which are already under production. In comparison, the potential yield from Gippsland is very small. Ignite Energy Resources estimates its Strzelecki gas reserve to be 3.7 trillion cubic feet. Is this small resource worth the pain? Also, Victoria's offshore conventional gas reserves have more gas remaining than already produced. The Gippsland Basin: has produced 8791 petajoules with 9300 remaining; the Otway Basin: has produced 726 petajoules with 1600 remaining (*Australian Gas Resources 2012*, p2, Geoscience Australia, www.ga.gov.au).

Future Energy Use

Trend analysis "indicates a longer term decline in energy intensity of the Australian economy, which can be attributed to two main factors. First, greater efficiency has been achieved through technological improvements and fuel switching. Second, growth has occurred in less energy-intensive sectors, such as the commercial and services sector, relative to the more moderate growth of the energy-intensive manufacturing sector" (*Australian Energy Resource Assessment 2014*, second edition, p32 Australian Government Department of Industry Geoscience Australia Australian Bureau of Economics and Energy Economics, www.ga.gov.au/corporate_data/79675/79675_AERA.pdf).

It is argued that gas is cleaner than coal. However, methane has 20-23 times the potency of carbon dioxide and fugitive emissions are invariably excluded from emissions' calculations. The rapid development of renewable technologies, especially solar, is set to disrupt outdated fossil-fuel energy generation technologies. With coal estimated to remain cheaper than gas and readily available, it seems that coal will remain the preferred fossil fuel in spite of its high emissions. For good or ill, the Latrobe Valley has abundant coal and established infrastructure. Given this, is it sensible, even financially prudent, to facilitate, even subsidise, a new fossil-fuel industry that has so many negative impacts and no social licence? Far better to spend taxpayers' money on developing renewable technologies that will mitigate against devastating climate change and promise to be sustainable well into the future.

Conclusion

The permanent loss of farmland for a short-term, potential gain from gas extraction is a very myopic and, frankly, stupid idea. With global climate change predicted to disrupt world food production, ensuring Australia's food security is a matter of national interest and national security. The Australian Government's *Agriculture Competitive White Paper* confirms that agriculture is "one of the five pillars of Australia's economy and is a key priority for this Government". The continued extraction and burning of fossil fuels cannot continue. Like it or not, Australia will be compelled to join global efforts to reduce greenhouse gas emissions.

The State Government's commitment to renewable technologies is to be applauded. As Premier Daniel Andrews has said: "Renewable energy creates jobs, drives growth and helps us maintain our lifestyle and protect our environment." A safer, cleaner, and sustainable future for all Victorians is a vision for which Victorians hunger.

Various Acts, including MRSD, Sec 2A, invoke the precautionary principle as a guide to decision-making. The growing body of research worldwide shows that UONG mining poses serious and irreversible damage to the environment, not least being significant threats to water security. Just as in the cases of tobacco and asbestos, proof of damage may take decades to emerge. By then, it will be too late. But what is certain is that rural communities will suffer the damage. And, this is unreasonable in the eyes of the reasonable person. In law, the reasonable person is an embodiment of community values and what the community expects of a responsible citizen (Greg Young, Weekend Lecture 1B, Summer 2005-06, *Tort of Negligence - Duty of Care*) --the Wednesbury rule. At the very least, in keeping with the principles of democratic good governance, a social licence for UONG in Victoria is a mandatory requirement. Regarding this, the Environment Protection Act, Sec 1L, states that the aspirations of the people of Victoria for environmental quality should drive environmental improvement; therefore, members of the public should be given access to reliable and relevant information in appropriate forms to facilitate a good understanding of environmental issues; with opportunities to participate in policy and program development.

Victorians who oppose unconventional onshore gas mining do so because they have informed themselves of the facts. They have read widely and they understand the risks. In the interests of good governance and sound risk management, the legislative inconsistencies need to be rectified. Good governance requires that perceived, even real, short-term gains must be irrefutably proven to be worth the long-term and potentially irreversible negative impacts on the environment, socio-economic endeavour, human and animal health and not least our climate upon which all life depends. If the Government and the industry cannot guarantee this, then the precautionary approach must be taken.

A rigorous evaluation needs to precede any further decision to pursue unconventional onshore gas exploration and extraction. As the NSW Chief Scientist and Engineer noted unexpected events, learning, or even accidents are common for new gas mining technologies. Governments and industry need to keep their "eyes wide open" to the risks" (Final Report of the Independent Review of Coal Seam Gas Activities in NSW, September 2014, p.iv). Regulation, however robust, may not be sufficient to prevent damage. And remediation efforts, as we have seen with the Exxon Valdez and BP Mexico Gulf disasters, to name just two, are not very successful. The damage continues for decades. In risk management, damage prevention is always the better solution.

The Government has a statutory Duty of Care to its citizens. A wise and compassionate government would also think very hard about the moral choices. Unless a case can be made that delivers equity and justice to those people suffering the impacts, there is no just, reasonable or moral case for onshore unconventional gas exploration and mining in Victoria.

Highly recommended reading: Cleary, Paul, 2012, *Mine-field: the Dark Side of Australia's Resources Rush*, Collingwood, Vic., Black Inc.

Attachment: Jake Hays et al, 2015, *Considerations for the development of shale gas in the United Kingdom*, Science of the Total Environment, 512-513 (2015), 36-42.