



17 July 2015

Mr Keir Delaney
Secretary, Environment & Planning Committee
Parliament House, Spring Street
EAST MELBOURNE VIC 3002

Dear Mr Delaney

RE: Inquiry into Unconventional Gas in Victoria

Thank you for the opportunity to make a submission.

Environmental Justice Australia (EJA) is a not-for-profit legal practice. EJA (formerly Environment Defenders Office Victoria) has been operating in Victoria for 23 years. We provide legal advice and support to the community on public interest environmental issues, advocate for better environmental laws, and provide legal education to the community on environment matters. Particularly relevant to this Inquiry, we facilitate community participation in environmental decision-making processes, to empower individuals and communities to protect the environment. EJA provides legal support to the community on public interest environmental issues. EJA views the exploration, extraction and production of onshore unconventional gas from shale, coalbeds and tight sand as a key public interest environmental issue. EJA has specific expertise arising from providing legal advice, education and representation to the Victorian community on the laws relating to unconventional gas and welcomes the opportunity to provide further comment on the range of regulatory issues that arise from the Terms of Reference.

EJA has concerns regarding the effects that onshore unconventional gas activities may have on the natural environment, on public health and on the rights and interests of the community generally. While we understand that there is considerable scientific uncertainty as to the extent of these impacts, EJA is of the view that an absence of data should not lead to the assumption that no harm is caused by unconventional gas activities.

The current regulatory regime is not sufficiently robust to protect communities and the environment, and the moratorium on activities associated with the production of onshore unconventional gas should remain in place until more is known about the risks involved, and the regulatory regime is reformed in a way that adequately protects Victorian communities and the Victorian environment.

It is our view that a robust regulatory regime needs to be in place that protects the environment and the interests of the public from the impacts and *potential* impacts of unconventional gas activities. This regime should also ensure that unconventional gas activities can co-exist with existing land uses and that the rights of the community are respected. Further, where unconventional gas activities proceed, an adequate compensation scheme needs to be in place for landowners.

This submission addresses the three topics in turn - environmental risks, public health risks, land-use conflicts and community rights.

These issues fall within Terms of Reference nos. 2, 3, 4 and 5.

We also make some initial comments on the statutory scheme covering unconventional gas in Victoria. Further, we prepared a comprehensive report in 2012 on what, in our view, needs to be changed in Victoria's mining laws in order to properly protect communities and the environment. The concerns raised in that report apply equally to laws governing unconventional gas regulated under the Petroleum Act. We attach a copy of that report as **Attachment 1** to this submission.

LEGISLATIVE SCHEME

The mining of unconventional gas is regulated by the *Mineral Resources (Sustainable Development) Act 1990 (Vic) (MRSD Act)*, *Mineral Resources (Sustainable Development) (Mineral Industries) Regulations 2013 (Vic)*, *Petroleum Act 1998 (Vic) (Petroleum Act)* and *Petroleum Regulations 2011* depending on the type of gas and the geological formation that it is extracted from. Coal seam gas is regulated by the MRSD Act and tight gas is regulated by the Petroleum Act. Shale gas as a general rule is covered by the Petroleum Act, however sometimes it will be covered by the MRSD Act.

Determining which Act will apply to proposed activities is difficult for community members who do not have the benefit of legal assistance. There is significant additional confusion from having two different schemes that regulate largely the same activity. Each scheme has different provisions for rights for the community to participate and be involved in decision making. Further, while both the MRSD and Petroleum Acts aim to 'encourage' mining and production of the different gas resources¹, they do not each contain sufficient safeguards to balance this aim against the rights and interests of effected communities. These issues is discussed further below.

ENVIRONMENTAL RISKS

Victorian mining laws still largely ignore the impact unconventional gas activities are likely to have on climate change and the environment.² While 'there is considerable scientific uncertainty over the long-

¹ MRSD Act section 2; Petroleum Act section 3.

² Environment Defenders Office (Victoria), 'Reforming Mining Law in Victoria' (Policy and Law Reform Report, Environment Defenders Office (Victoria) Ltd, 24 April 2012), 32.

term impact of unconventional gas production on the environment',³ evidence exists to suggest that onshore unconventional gas activities have the potential to cause serious harm to the environment. The extraction and production of unconventional gas can have greater impacts on the environment than conventional gas activities. This is 'because well density is inherently higher and above-ground infrastructure denser to produce the gas at economic rates'.⁴ Further, hydraulic fracturing used in some unconventional gas extraction impacts water and groundwater and contributes the emissions of fugitive gases in a way that conventional gas extraction does not.⁵

Victorian mining laws largely ignore the impact unconventional gas activities could potentially have on the environment, and EJA encourages the Victorian Government to make changes to the existing legislative and regulatory framework in Victoria to address this deficiency.

Water, Soil, Air and Vegetation

Some studies in other jurisdictions have indicated that unconventional gas activities may affect the quality of nearby water sources, air and soil.⁶ Unconventional gas activities may result in the contamination of groundwater such as drinking water wells and aquifers, as well as surface level sources of water such as rivers, lakes and dams.⁷ This is of particular concern in the Australian context, where water is scarce in many areas: 'Australia is a dry continent and groundwater is a vital water source for agriculture, people and the environment.'⁸ The contamination of Victoria's limited water resources can have grave impacts for those who rely on these water sources for survival, including wildlife, livestock, plant life and humans.

Unconventional gas activities can adversely affect the quality of the air. For example, toxic fumes can be released into the air during the process of hydraulic fracturing. Communities have reported being exposed to noxious odours that originate from the well where the drilling occurs.⁹

Water Over-Consumption

Unconventional gas activities, particularly in the hydraulic fracturing process, require the consumption of massive volumes of water. During the hydraulic fracturing process, the amount of

³ Catriona Ross and Paige Darby, 'Unconventional Gas: Coal Seam Gas, Shale Gas and Tight Gas' (Research Paper, Parliamentary Library, Parliament of Victoria, 2013).

⁴ R. Weijernars et al, 'Unconventional gas research initiative for clean energy transition in Europe' (2011) 3 *Journal of Natural Gas Science and Engineering* 402-412.

⁵ CSIRO, *What is unconventional gas?* <http://www.csiro.au/en/Research/Energy/Hydraulic-fracturing/What-is-unconventional-gas>.

⁶ See S. M. Olmstead et al 'Shale gas development impacts on surface water quality in Pennsylvania' (2013) 110 *Proceedings of the National Academy of Sciences of the United States of America* 13; M.L. Finkel and J. Hays 'The implication of unconventional drilling for natural gas: a global public health concern' (2013) 127 *Public Health* 889.

⁷ S. Nichols 'Santos coal seam gas project contaminates aquifer' *The Sydney Morning Herald* 8 March 2014

⁸ Catriona Ross and Paige Darby, 'Unconventional Gas: Coal Seam Gas, Shale Gas and Tight Gas' (Research Paper, Parliamentary Library, Parliament of Victoria, 2013).

⁹ M.L Finkel and J. Hays 'The implications of unconventional drilling for natural gas: a global public health concern' (2013) 127 *Public Health* 889.

water consumed can be between 1.2 and 3.5 billion gallons, depending on the types of wells required to carry out the unconventional gas activities.¹⁰

While other countries may have the water resources to withstand consumption of this capacity, Australia does not. In an area such as Victoria, where water availability is already strained, the excess use of water may deplete water resources. Dedication of water resources to the development of unconventional gas activities could disrupt hydrological flows and have detrimental effects on the stability of the ecosystem.

The Victorian Government has predicted that if unconventional gas activities were to go ahead, extraction would likely occur in regions such as the Gippsland and Otway basins.¹¹ These areas are susceptible to drought and may therefore be exposed to significant environmental risk by coal seam gas activities.¹²

Climate Change

Unconventional gas activities emit greenhouse gases, such as methane, which contribute significantly to climate change.¹³ Coal seam gas, shale gas and tight gas are mostly made up of methane gas.¹⁴ There is evidence in the United States to suggest that throughout the lifespan of a shale gas well, approximately 3.6-7.9 per cent of the methane from shale gas production is emitted into the atmosphere in venting and leaks over the lifetime of the well¹⁵

The current legislative regimes which regulates unconventional gas does not address the climate change risk posed by these activities. There is no requirement in the legislation for gas operators to clearly account for greenhouse gas emissions, nor do the regulations set limits on greenhouse gas emissions. The moratorium on unconventional gas in Victoria should remain in place until the legislative regime is amended for all types of unconventional gas to set requirements for gas operators to control greenhouse gas emissions, in particular fugitive emissions, and to set clear limits for greenhouse gas emissions from these activities.

Fugitive emissions are unintended emissions that leak out during unconventional gas activities including exploration, production, processing, transport and distribution.¹⁶ Evidence suggests the levels of fugitive

¹⁰ R. Weijernars et al, 'Unconventional gas research initiative for clean energy transition in Europe' (2011) 3 *Journal of Natural Gas Science and Engineering* 402.

¹¹ Catriona Ross and Paige Darby, 'Unconventional Gas: Coal Seam Gas, Shale Gas and Tight Gas' (Research Paper, Parliamentary Library, Parliament of Victoria, 2013).

¹² Department of Environment and Primary Industries, 'Index of Stream Condition: The Third Benchmark of Victorian River Condition- Corangamite Region' (2010) 107; Department of Environment and Primary Industries, 'Gippsland Region Sustainable Water Strategy' (2011) 21.

¹³ Catriona Ross and Paige Darby, 'Unconventional Gas: Coal Seam Gas, Shale Gas and Tight Gas' (Research Paper, Parliamentary Library, Parliament of Victoria, 2013).

¹⁴ CSIRO, *What is unconventional gas?* <<http://www.csiro.au/en/Research/Energy/Hydraulic-fracturing/What-is-unconventional-gas>>; Catriona Ross and Paige Darby, 'Unconventional Gas: Coal Seam Gas, Shale Gas and Tight Gas' (Research Paper, Parliamentary Library, Parliament of Victoria, 2013).

¹⁵ M.L Finkel and J. Hays 'The implications of unconventional drilling for natural gas: a global public health concern' (2013) 127 *Public Health* 889 citing primary source Howarth RW, Santoro R, Ingraffea A. Methane and the greenhouse gas footprint of natural gas from shale formations. *Climate Change*; 2011;

¹⁶ H.S. Eggleston, L. Buendia, K. Miwa, T. Ngara and K. Tanabe (eds) 'IPCC Guidelines for National Greenhouse Gas Inventories: Chapter 4 – Fugitive Emissions' (National Greenhouse Gas Inventories Programme, 2006).

emissions from unconventional gas activities ranges from 0.6 - 9 per cent of total gas production.¹⁷ This range may be attributable to the measurement methods employed. Bottom-up approaches examine emissions at the source, including the well or pipeline, gathering data on the particular section being measured.¹⁸ Because bottom-up studies only capture a partial picture of the emissions process, studies based on this methodology tend to find low emission rates ranging from 0.6-3.3 per cent.¹⁹ In the alternative, top-down approaches examine the amount of methane in the atmosphere from a particular height to capture the emissions from an entire project.²⁰ As top-down approaches also capture emissions from other sources in the same vicinity as a gas well, emissions rates using this methodology are higher, ranging from 3-9 per cent.²¹

The level of fugitive emissions arising from existing unconventional gas activities in Australia is unclear. A report to the Department of Environment, based on a study conducted by CSIRO in 2014, found fugitive emissions rates of approximately 0.02 per cent of total production,²² a rate much lower than estimates of emissions from unconventional gas production in the United States. It is important to note that this study only examined 43 CSG well sites in Queensland and New South Wales, representing less than 1 per cent of wells in operation. In addition to the small sample size, the study did not examine 'other components downstream of the wells which have the potential to release greenhouse gases'²³ including processing plants, pipelines and production facilities. A comprehensive study adopting top-down

¹⁷ Note these studies were primarily conducted in the United States.

¹⁸ S. Day, M. Dell'Amico, R. Fry and H. Javanmard Tousi 'Field Measurements of Fugitive Emissions from equipment and Well Casings in Australian Coal Seam Gas Production Facilities' (Report to the Department of Environment from CSIRO Energy and Technology, June 2014).

¹⁹ See T. Stephenson, J.E. Valle and X. Riera-Palou 'Modelling the relative GHG emissions of conventional and shale gas production' (2011) 45 *Environmental Science and Technology* 24 and F. O'Sullivan and S. Paltsev 'Shale gas production: potential versus actual greenhouse gas emissions' (2012) 7 *Environmental Research Letters* 4 which both found fugitive emissions rates of 0.6 per cent; See M. Jiang et al 'Lifecycle greenhouse gas emissions of Marcellus shale gas' (2011) 6 *Environmental Research Letters* 3 which found a fugitive emissions rate of 2 per cent; N. Hultman, D. Rebois, M Scholten and C. Ramig 'The greenhouse impact of unconventional gas for electricity generation' (2011) 6 *Environmental Research Letters* 4 which found a fugitive emissions rate of 2.8 per cent; R.W. Howarth, R. Santoro and A. Ingraffea 'Methane and the greenhouse gas footprint of natural gas from shale formations' (2011) 106 *Climatic Change* 4 which found a fugitive emissions rate of 3.3 per cent.

²⁰ S. Day, M. Dell'Amico, R. Fry and H. Javanmard Tousi 'Field Measurements of Fugitive Emissions from equipment and Well Casings in Australian Coal Seam Gas Production Facilities' (Report to the Department of Environment from CSIRO Energy and Technology, June 2014).

²¹ See S.M. Miller et al 'Anthropogenic emissions of methane in the United States' (2013) 110 *Proceedings of the National Academy of Sciences of the United States of America* 50 and G. Petron et al 'A new look at methane and non-methane hydrocarbon emissions from oil and natural gas operations in the Colorado Denver-Julesberg Basin' (2014) *Journal of Geophysical Research* which both found fugitive emissions rates of 3 per cent; G. Petron et al 'Hydrocarbon emissions characterization in the Colorado front range: a pilot study' (2012) *Journal of Geophysical Research* which found a fugitive emissions rate of 4 per cent; A. Karion et al 'Methane emissions estimate from airborne estimates over a western United States natural gas field' (2013) 40 *Geophysical Research Letters* 16 which found a fugitive emissions rate of 5.5 per cent and R. Alvarez et al 'Greater focus needed on methane leakage from natural gas infrastructure' (2012) 109 *Proceedings of the National Academy of Sciences of the United States of America* 17 which found a fugitive emissions rate of up to 9 per cent.

²² S. Day, M. Dell'Amico, R. Fry and H. Javanmard Tousi 'Field Measurements of Fugitive Emissions from equipment and Well Casings in Australian Coal Seam Gas Production Facilities' (Report to the Department of Environment from CSIRO Energy and Technology, June 2014).

²³ Ibid at page 3.

methodology that examines the entire extraction process including exploration, production, processing, transport and distribution is needed to solidify the actual fugitive emissions from unconventional gas activities. Without an understanding of the actual fugitive emissions rates, we cannot understand the full extent of the potential impact of these emissions on climate change.

The current framework for the regulation of the unconventional gas industry in Australia does not provide appropriate safeguards (for example, emissions limits and control mechanisms) to limit impacts of fugitive emissions on climate change. Currently, Australian unconventional gas producers are required to estimate and report their annual greenhouse gas emissions in accordance with the *National Greenhouse and Energy Reporting Act 2007* and *National Greenhouse and Energy Reporting (Measurement) Determination 2008*. The National Greenhouse and Energy Reporting Scheme does not establish emissions limits or targets for unconventional gas producers. Rather, the Determination provides criteria for calculating greenhouse gas emissions including the varying methods to be applied. The lack of emissions limits under the Scheme and clear guidelines outlining how producers can control their emissions represents a gap in the regulatory framework. Until clear guidelines are established to control fugitive emissions, filling this regulatory gap, the moratorium on unconventional gas exploration should remain.

Recommendation:

- **Prior taking further action in support of unconventional gas activities, the Victorian Government should ensure that strong regulatory protection is afforded to the environment, having regard to the impact that unconventional gas activities may have on the ecosystem and its affect on climate change.**
- **Clear protocols should be implemented for hydraulic fracturing. This involves rigorous monitoring regimes, where monitoring results are to be made public. In addition the regulatory regime should require the mining companies to cease unconventional gas activities where there is evidence that the environment and/or public health and safety are being compromised.**
- **The decision to grant or refuse any unconventional gas production licence should be included under Schedule 1 of the Climate Change Act 2010 (Vic) to ensure that the climate change impacts of the decision are considered.²⁴**

²⁴ In the event the review of the *Climate Change Act 2010* results in fundamental changes to the Climate Change Act, a different means of regulating greenhouse gas emissions from unconventional gas may be necessary. This could, for example, be done through requiring all unconventional gas operations to obtain a licence under the Environment Protection Act, and requiring such licences to limit greenhouse gas emissions.

PUBLIC HEALTH RISKS

While there is anecdotal evidence relating to the direct impacts that unconventional gas activities have on human health, a lack of epidemiological studies have been performed to support these findings.²⁵ In light of this, it is necessary to have regard to the precautionary principle.²⁶ It follows that 'It should not be concluded that an absence of data implies that no harm is being done.'²⁷

The environmental impacts of onshore unconventional gas activities pose potential risks to public health. Unconventional gas activities may adversely affect human health through, for example, the production of harmful odours and noise, and the affect that it can have on the quality of water and air.²⁸

The natural gas resource itself, as well as 'diesel engines, tanks containing produced water, and on site materials used in production, such as drilling muds and fracking fluids'²⁹, emit direct and fugitive air pollutants.³⁰ Communities located close to the wells may be exposed to chemicals and air pollutants that are produced throughout the exploration, extraction and production process.³¹

In addition, onshore unconventional gas activities have the potential to contaminate drinking water and food sources. According M.L. Finkel and J.Hays in their article *The Implications of Unconventional Drilling for Natural Gas: A Global Public Health Concern*, given the large volume of toxic chemicals that are used in the unconventional drilling process of hydraulic fracturing, there is a 'very real issue of possible contamination of surface and underground water'. A related concern is that unconventional gas activities may have the potential to contaminate food resources, where, for example, animals are farmed in the vicinity of a well.³²

Residents situated near unconventional gas mining sites have reported physical symptoms including: 'upper respiratory tract ailments, burning eyes, headaches, vomiting, diarrhoea, rashes, and nosebleeds.'³³ While symptoms are commonly short-term due to the timeframe of

²⁵ Werner, A, et al (2015) 'Environmental health impacts of unconventional natural gas development: A review of the current strength of evidence,' (2015) 505 *Science of the Total Environment* 1127.

²⁶ See *Intergovernmental Agreement on the Environment* (1992), [3.5.1]; see also *Telstra Corporation Ltd v Hornsby Shire Council* [2006] NSWLEC 133, [107]-[188].

²⁷ M.L Finkel and J. Hays 'The implications of unconventional drilling for natural gas: a global public health concern' (2013) 127 *Public Health* 889.

²⁸ Werner, A, et al (2015) 'Environmental health impacts of unconventional natural gas development: A review of the current strength of evidence,' (2015) 505 *Science of the Total Environment* 1127.

²⁹ Lisa M. McKenzie et al, 'Human health risk assessment of air emissions from development of unconventional natural gas resources' (2012) 424 *Science of The Total Environment* 79.

³⁰ Lisa M. McKenzie et al, 'Human health risk assessment of air emissions from development of unconventional natural gas resources' (2012) 424 *Science of The Total Environment* 79.

³¹ Lisa M. McKenzie et al, 'Human health risk assessment of air emissions from development of unconventional natural gas resources' (2012) 424 *Science of The Total Environment* 79.

³² Werner, A, et al (2015) 'Environmental health impacts of unconventional natural gas development: A review of the current strength of evidence,' (2015) 505 *Science of the Total Environment* 1127.

³³ Werner, A, et al (2015) 'Environmental health impacts of unconventional natural gas development: A review of the current strength of evidence,' (2015) 505 *Science of the Total Environment* 1127.

unconventional gas production (for example, 10 to 15 years for coal seam gas production³⁴), they can manifest acutely and there is a risk that they will remain chronic for the long-term.³⁵

EJA is of the view that prior to making policies or taking action in support of unconventional gas production, the Victorian Government should be required to prove beyond reasonable doubt that unconventional gas activities do not pose public health risks or ensure that strong protection is afforded to the health and safety of the community through robust risk management strategies.

The current legislative schemes which regulate unconventional gas does not address these risks. There is no explicit requirement to consider the impacts of unconventional gas extraction on public health, nor is there any consistent, regulatory approach designed to minimise the risk. This can be compared to NSW where, for example, there are buffer zones prohibiting unconventional gas within 2 kilometres of existing residential zones and future residential growth areas in the NW and SW growth centres of Sydney. We do not suggest this regulation, by itself, is adequate to address public health risk, but to merely point out that comparable legal regimes recognise and regulate the public health risks posed by unconventional gas in a way that Victoria does not.

Recommendation:

- **Prior to creating policies or taking action in support of unconventional gas activities, the Victorian Government should be required to:**
 - (a) prove beyond reasonable doubt that unconventional gas activities do not pose public health risks; or**
 - (b) ensure that strong protection is afforded to the health and safety of the community through robust risk management strategies implemented and enforceable through law.**

LAND-USE CONFLICTS

Because of the matters raised above, unconventional gas operations have the potential to have negative impacts on, and conflict with, other land-uses such as agriculture, conservation and residential uses. Unconventional gas can threaten key environmental assets like groundwater and prime agricultural land, and the environmental services that they provide.

The conflict between unconventional gas and other land uses (like agriculture or conservation) is not managed in a strategic way under the MRSD Act, Petroleum Act or the planning system. This needs to be addressed before the moratorium can be lifted.

³⁴ Catriona Ross and Paige Darby, 'Unconventional Gas: Coal Seam Gas, Shale Gas and Tight Gas' (Research Paper, Parliamentary Library, Parliament of Victoria, 2013).

³⁵ Werner, A, et al (2015) 'Environmental health impacts of unconventional natural gas development: A review of the current strength of evidence,' (2015) 505 *Science of the Total Environment* 1127.

Recommendation:

- **A state-wide or regional strategic land use assessment and planning process should be undertaken to proactively identify and protect land which provides key ecological processes. This would include prime agricultural land, key groundwater resources, water catchments, river systems, vegetation corridors, and renewable energy resources. The aim would be to identify areas which contain these natural resources, and which are strategically important to the state or region., The process should clearly identify those areas where unconventional gas extraction should not be permitted or only allowed subject to meeting pre-determined criteria.**

COMMUNITY RIGHTS

As part of the regime to ensure that environmental and human health risks are mitigated, it is essential that community rights are addressed. Underlying this is the need to ensure that the community does not feel disenfranchised and that they feel empowered to take action where concerns are raised regarding unconventional gas activities. Key to achieving this is to maintain transparency and to adopt a cooperative and sensible attitude to sharing information with the public with regards to unconventional gas activities.

For tight gas and shale gas projects which are covered by the Petroleum Act, unlike under the MRSD Act, applicants for a permit or licence do not need to notify members of the community that exploration permits or production licences have issued or applied for. This is a significant failing of the Petroleum Act, which undermines several of the Objectives of the Petroleum Act, including ensuring that impacts on individuals, public amenity and the environment will be minimised as far as practicable.³⁶

As discussed above, determining whether the Petroleum Act or the MRSD Act will apply to proposed activities is difficult for community members who do not have the benefit of legal assistance and there is significant additional confusion from having two different schemes that regulate largely the same activity. Each scheme has different provisions for rights for the community to participate and be involved in decision making and this needs to be rectified. For example, there is no express provision in the Petroleum Act that provides an opportunity for a person to object to Petroleum Act permits or licences.

Where there are objection rights in the MRSD Act, they are given a low level of importance, reflected in the lack of criteria for making those objections or considering them. There are no statutory criteria setting out the grounds on which an objection under the MRSD Act may be made, or the grounds on which the Minister must consider those objections. The Minister must merely 'consider' them before making a decision, suggesting this requirement is merely procedural or documentary. Beyond these objections, community members do not have any real rights to

³⁶ Petroleum Act ss3(2)(b).

oppose unconventional gas regulated for under the MRSD Act. The MRSD Act does not give the community any enforceable right to appeal the grant of a licence on the merits. Unless the Minister's decision contains a legal error, they are unable to appeal or challenge it.

Compare this with the planning system, where any person who objects to the grant of a planning permit may appeal the decision to the Victorian Civil and Administrative Tribunal on the merits. This regime gives community members a say in how their community develops, and improves the quality of planning decisions.

There is evidence that many Victorian communities are overwhelmingly opposed to unconventional gas. Without a more inclusive process that gives real, legal weight to the views of a community, imposing gas development and overriding community concern is likely to give risk to significant social and community impacts, including division and discord. Current laws are totally inadequate for dealing with this.

Recommendation:

Communities need more rights and better access to information -

- **The Department of Economic Development, Jobs, Transport and Resources (DEDJTR) should adopt a cooperative, sensible attitude to sharing information with the public with regards to unconventional gas activities.**
- **The DEDJTR website should be further improved to make it easier for the community to obtain information.**
- **Stronger laws relating to disclosure and community consultation should be implemented to encourage transparency.**
- **The MRSD Act and Petroleum Act should be amended to provide for public input on work plans and development plans, before approval by the DEDJTR.**
- **The MRSD Act and the Petroleum Act should be amended so that community concerns are given real weight in decisions about whether to grant licences.**
- **All licence applicants (including for exploration licences) should be required to notify the local council, and owners and occupiers of land within 2 km of the licence area, in writing.**
- **Any person should have the right to apply to VCAT to enforce a breach of the MRSD Act and the Petroleum Act.**
- **Any person who objected to the grant or variation of a licence or environmental approval should have the right to seek merits review of that decision in VCAT.**

Yours sincerely

A handwritten signature in black ink, appearing to read 'Ariane Wilkinson', with a long horizontal flourish extending to the left.

Ariane Wilkinson
Lawyer

ATTACHMENT 1 -_Environment Defenders Office (Victoria), 'Reforming Mining Law in Victoria' (Policy and Law Reform Report, Environment Defenders Office (Victoria) Ltd, 24 April 2012