8 July, 2015

Mr Keir Delaney
Secretary
Environment and Planning Committee
Parliament House
Melbourne VIC 3002

Dear Mr Delaney,

Re: Inquiry into Unconventional Gas in Victoria

Environment Victoria welcomes the opportunity to make a submission to Environment and Planning Committee's Inquiry into Unconventional Gas in Victoria.

About Environment Victoria

Environment Victoria is one of Australia's leading independent environment groups. With over 40 member groups and tens of thousands of individual supporters, we've been representing Victorian communities on environmental matters for over 40 years.

Recommendations

Environment Victoria does not support the development of an unconventional gas industry in Victoria.

We recommend that the Victorian government:

- Introduces a permanent ban on all forms of unconventional gas exploitation including coal seam gas, tight gas, shale gas and underground coal gasification; and
- Implements a comprehensive energy efficiency program to ease rapidly rising cost pressures being experienced by Victorian residential, commercial and industrial gas-users as a direct consequence of the expansion of Australia's export gas industry.

Below, we set out a range of concerns on the issues covered by the inquiry's Terms of Reference.

1. Risks posed to land and water resources cannot be safely managed

It is widely acknowledged that unconventional gas mining poses risks to Victoria's land and water resources.[1] Extraction of large quantities of groundwater as part of the mining process poses a

[1] ACOLA (2013) *Engineering Energy: Unconventional Gas Production*, Australian Council of Learned Academies; NSW Chief Scientist & Engineer (2014) *Final Report of the Independent Review of Coal Seam Gas Activities in NSW*

range of risks including aquifer depletion and subsidence, while the release of this low-quality water into surface water systems poses risks to water quality, natural flow regimes, river and wetland health and agricultural productivity. Hydraulic fracturing or 'fracking' required for the extraction of shale gas poses risks to groundwater quality through cross-contamination between aquifers, and between boreholes and aquifers.[2]

Unconventional gas development also leads to the broad scale industrialisation of the landscape through the construction of mining infrastructure such as wells, access roads, water management facilities, processing facilities and export terminals. This can have significant impacts on agricultural productivity and farming communities, as well as disrupt natural ecosystems and degrade environmental values inherent in farming and bushland landscapes. [3]

Victoria's highly productive land and water resources and natural ecosystems are already under pressure from two centuries of exploitation. Any risk of destruction, degradation or further pollution of these ecosystems risks damaging the industries, regional communities and jobs on which Victoria's economy and prosperity depends. Agriculture and tourism are particularly susceptible to being damaged by a gas industry.

The question faced by policy makers is whether it is possible to manage the risks of UCG development to a point where the gas industry can legitimately be said to have a social licence to operate, and at a cost to Victorian taxpayers and the wider economy that does not outweigh promised benefits.

Environment Victoria shares the concerns expressed by regional communities all over eastern Australia that it is unlikely these risks can be managed to the point where the likelihood of adverse impacts could be lowered to an acceptable level. As will be explored below, there is no pressing need for UCG development so there is no need to risk the health of the environment or the health of existing industries.

The Independent Review conducted by the NSW Chief Scientist concluded that effective risk management would depend on (among other things) highly developed and comprehensive monitoring and data management systems, operating within a "clear, revised, legislative framework which is supported by an effective and transparent reporting and compliance regime".[4]

The Hazelwood mine fire in February and March 2014 cast significant doubt on the likelihood of such a best practice regulatory regime operating in practice. This disaster provides a recent example of inadequacy and failure of risk management systems in the mining context, and the very significant health and economic costs borne by the local community as a consequence.

Furthermore, even if it were technically feasible, any regulation and compliance regime capable of effectively managing the large and complex risks posed by UCG development is likely to be extremely expensive. In the interests of independence, transparency and accountability, these

[2] NWI (2011) *National Water Commission Submission to NSW Inquiry into Coal Seam Gas*
[3] NWI (2011) ibid.
[4] NSW Chief Scientist & Engineer (2014*) Final Report of the Independent Review of Coal Seam Gas Activities in NSW*, pg. iv

regulatory and compliance costs would need to be borne by government, rather than industry. These public resources could be put to more productive uses in other parts of the economy, for example investment in clean, safe renewable energy.

2. Victoria needs to rapidly reduce greenhouse emissions not add to them

The Andrews Government was elected in November 2014 with a promise to restore Victoria's status as a leader on the environment and climate change, and has most recently reiterated that commitment in its Energy and Productivity Statement.[5] A decision to allow the development of new fossil fuel resources such as unconventional gas at a time when reducing emissions as rapidly as possible is imperative, is completely inconsistent with this ambition.

As well as the greenhouse impact of burning gas for energy, there is growing evidence that the impact of fugitive emissions (unintentional leakage of gas during extraction, transport and processing) may be significantly higher than that of conventional natural gas. Hence, exploitation of coal seam gas could make a significantly higher contribution to greenhouse emissions than has previously been acknowledged.[6]

Furthermore, the fracturing process typically required for exploitation of shale gas has a high energy cost compared with conventional natural gas drilling. The emissions intensity of the energy supply therefore also needs to be factored in to the total emissions impact of unconventional gas extraction, and hence the claim that gas is a 'clean' fuel.

Until as recently as five years ago, Environment Victoria's position was that gas had a role to play as a 'bridge' fuel in the transition from coal to renewable energy. In light of growing concerns about fugitive emissions, the broader environmental damage of onshore unconventional gas, the significant decline in renewable energy costs, the rapid rise in gas prices, and the lack of progress in reducing emissions in Australia and globally which has exhausted remaining carbon budgets, Environment Victoria now considers that gas can no longer part of Victoria's long-term energy mix. The focus of energy policy must be on a rapid transition to zero net emissions. Developing a new gas industry is inconsistent with this over-arching imperative.

3. There is no need for additional gas supply

There is no supply shortfall predicted for any of Australia's gas markets that would justify the need for additional gas supplies from the development of Victorian unconventional gas resources.

The most recent 2015 Australian Energy Market Operator analysis concludes that, due to lower than forecast gas consumption across eastern and south-eastern gas markets, "no regions should expect gas supply gaps". Even in NSW, where a supply shortfall had been previously forecasted, the AEMO

[5] Victorian Government (2015) *Saving energy, growing jobs: Victoria's energy efficiency and productivity statement*, June 2015

[6] Grudnoff, M. (2012) *Measuring Fugitive Emissions: Is coal seam gas a viable bridging fuel?,* The Australia Institute at: http://www.tai.org.au/node/1883

is now saying that "no gap is expected" due to a 17 percent decline in industrial, residential and commercial consumption.[7] This decline in demand is expected to continue.[8]

Furthermore the gas industry's claims that Victorian unconventional gas resources are needed to meet the growing energy needs of our Asia-Pacific neighbours are debatable.[9]

It is beyond doubt that poverty alleviation is a significant challenge for our region and the world, and that affordable energy will be needed to drive development. However, it does not follow that fossil fuels (and expensive, environmentally risky fossil fuels at that) are the only or natural option for meeting those energy needs.

An overwhelming majority of the world's poor live in rural areas, which are often not connected to a centralised energy grid. Fossil fuels such as coal and gas can do little towards improving access to affordable energy unless accompanied by massive investment in grid extensions. Such investment by already poor countries would be an enormous waste of money at a time when the world is moving away from fossil fuels and towards renewable energy.

As has occurred with telecommunications technology where many developing countries have bypassed centralized landline infrastructure and moved directly to the roll-out of mobile phone technology, it is likely to be vastly quicker and more cost-effective for our Asia-Pacific neighbours to provide affordable energy to their citizens by investing in de-centralised renewable energy rather than building costly centralized energy grids.

Local, de-centralised renewable energy systems provide access to clean, safe and affordable energy, and brings jobs and development to rural and urban communities. In Bangladesh the number of home solar systems has jumped more than a hundredfold in the past 10 years, in turn creating over one hundred thousand new jobs. In the Pacific, solar energy is reducing reliance on expensive imported diesel and providing power to schools and health clinics.[10]

And of course it goes without saying that the impacts of climate change will fall first and hardest on the poor and vulnerable. Any energy supply solution which is not only failing to contribute to climate change mitigation, but actively exacerbating the risks and costs cannot seriously be considered to be a poverty alleviation strategy.

4. The export gas industry is hurting Victorian gas users and costing jobs

The reality is that the push to develop unconventional gas resources in Australia is not being driven by the need to meet demand shortfalls either domestically or overseas.

---

[7] AEMO (2015) *Gas Statement of Opportunities for Eastern and Southeastern Australia*, Australian Energy Market Operator

[8] Forcey, T and M. Sandiford (2015) *The dash from gas. Could demand in NSW fall to half?* Melbourne Energy Institute

[9] For example, Santos (2014) *Annual Report*, pg. 1

[10] Bradshaw, S. (2015) *Powering up against poverty*, Oxfam Australia

It is being driven by a short-sighted imperative to deliver returns to (predominantly offshore) shareholders of our major oil and gas companies, and is coming at the expense of Victorian gas users, regional communities and our key local industries.

A 2014 Deloitte Access Economics study concluded that "while the gas and construction sectors are expected to benefit from the development of a new East Coast LNG industry, almost all other sectors within Australia's economy are likely to experience losses in income."[11]

The key reason for this is the impact of rapidly rising domestic gas prices, which is a direct consequence of linking the domestic market to the international market. Domestic prices are now being effectively set by the (much higher) wholesale international price.[12] As a result, wholesale gas prices in eastern Australia are forecast to double or even triple, with flow-on effects for domestic retail prices.[13] Retail gas prices have risen by 66 percent since 2008.[14]

This impact on domestic prices has not been an unintentional consequence of the expansion of the export industry, but a deliberate tactic to create market conditions conducive to the exploitation of previously unviable unconventional gas resources, as this quote from Santos 2014 Annual Report makes clear:

> "Exposing Santos' gas reserves to global markets has created the scale and pricing necessary to justify the continued development of our resources and ultimately, deliver greater returns to shareholders." [15]

As the biggest residential users of gas in Australia, Victorian households are being more adversely affected by rising gas prices than households in any other state. Over 90 percent of Victorian households have either a mains gas connection or use liquefied petroleum gas (LPG) or bottled gas. With the average Victorian household spending around $1,200 per year on gas, predicted price rises of 24 percent will see average bills increase by $300 this year.[16]

This will put significant added cost of living pressure on many Victorian households, particularly low-income households, those with high energy needs such as people living with a disability, renters and social housing tenants.

Rising gas prices are also hitting the manufacturing sector, one of Victoria's most important industries, hard. The manufacturing sector relies heavily on gas, either directly as an ingredient in

[11] Deloitte Access Economics (2014) *Gas Market Transformations – Economic consequences for the manufacturing sector*, July 2014
[12] Australian Government (2014) *Eastern Australia Gas Market Demand Study*
[13] Forcey, T and M. Sandiford (2015) *The dash from gas. Could demand in NSW fall to half?* Melbourne Energy Institute
[14] CUAC (2014), *Our Gas Challenge*, Consumer Utilities Advocacy Centre
[15] Santos Annual Report (2014), p. 5
[16] CUAC (2014), *Our Gas Challenge*, Consumer Utilities Advocacy Centre

making plastics and chemicals such as fertiliser, or indirectly as a source of energy. Collectively, the industrial sector accounts for around 40 percent of total gas consumption in Victoria.[17]

A recent study by BIS Shrapnel has concluded that the doubling to tripling of gas prices over the next two to three years will result in a significant loss in the value of manufacturing input, ranging from AUD$14.2 billion (equal to 3.9 percent of output) to AUD$59.3 billion (15.4 percent of output). It concluded that a number of gas-intensive manufacturers would be put out of business, with job losses of between 21,900 and 91,300 from the manufacturing sector.

The study concluded that any positive economic effects from increased LNG exports will be outweighed by the negative impacts, particularly on the manufacturing sector. BIS Shrapnel economists estimate that economy-wide net losses will be between AUD$26.6 billion to AUD$110 billion of the value of output, and job losses between 56,500 and 235,800, once you add the net indirect flow-on effects of the suppliers to the manufacturing and LNG sectors. The study concluded that, in effect, there will be a substantial transfer of national income from Australian gas users, particularly manufacturing and households, to the gas and LNG producers.[18]

5. Expanding supply will not lower domestic prices

Australian LNG exports account for less than 10 percent of the global market and are less than a third of the world's largest exporter, Qatar, which has a global market share of approximately 25 percent.[19]

Therefore despite self-serving and unsubstantiated claims to the contrary by the industry,[20] it is highly unlikely that expanded Australian supply would expand global supply sufficiently to exert any downward pressure on global wholesale prices, and hence on domestic retail prices. Australia is a price-taker, not a price-maker in global gas markets.

The focus for the Victorian government should therefore be on mitigating the impacts of permanently higher retail gas prices on Victorian gas users, rather than on attempting to influence prices by expanding supply and allowing the exploitation of Victoria's unconventional gas resources.

6. Energy efficiency is key to economic and energy security

While the Victorian government has limited options for influencing gas prices by expanding supply, it has significant opportunities and a responsibility to assist Victorian households, businesses and industry to adapt to higher prices by reducing consumption and hence costs by improving efficiency.

[17] Government of Victoria at http://www.energyandresources.vic.gov.au/energy/gas/about-the-gas-sector, [Accessed 2 July 2015]
[18] Daiss (2014) "Australia's LNG Export Ambitions May Spell Trouble for Domestic Gas Prices", Downstream Today, October 27 2014,
[19] Jacobs, D. (2011) *The Global Market for Liquefied Natural Gas*, Reserve Bank of Australia Bulletin 0911-3
[20] APPEA (2015) "Gas statement of opportunities highlights lack thereof", Australian Petroleum Production and Exploration Association Media release, 15 April 2013

The energy efficiency performance of Victoria's housing stock is low by world standards, with buildings built prior to 2005 averaging less than 2 stars. As a result, most Victorians are using more energy and spending more money than they should just to keep their homes at a liveable temperature.

For many low-income and vulnerable Australians, heating a flimsy, poorly insulated home is unaffordable, leaving them to live in chronically cold conditions that are detrimental to their health – and ultimately to their lifespans. A recent study published in medical journal *The Lancet* found that cold contributes to more deaths in Australia than in Sweden, not because of extreme events like blizzards but from chronic effects like increased blood pressure from constant exposure to low temperatures – a direct result of the poor quality of our homes.[21]

For most Victorian homes built before 2005, implementing basic energy-saving measures to improve thermal efficiency (which has the biggest impact on gas consumption) and upgrading appliances and lighting can cut household energy bills by 40 percent.[22]

However, low-income households and those at risk of fuel poverty[23] are missing out on the benefits of efficiency (bill savings, improved comfort and resilience against extreme weather) because they can't afford the up-front costs of basic measures, or because they rent.

The broader economic, social and environmental benefits of energy efficiency justify a role for government in addressing this market failure and proactively driving the upgrade of Victoria's housing stock. There is also a clear role for government in driving industrial energy efficiency, given the risk to Victoria's economy and jobs posed by the impact of rising gas prices on the manufacturing sector

The Victorian government has stated its ambition to 'transition to an energy efficient economy' and has committed to follow its Energy Efficiency and Productivity Statement released in June 2015 with a more detailed Strategy in November.[24]

It is important that the general principles outlined in the Statement are followed by much more substantive commitments in the November Strategy, including but not limited to:

- Set a goal to drive the upgrade of Victoria's housing stock to an average of 5-star by 2025;
- Set a goal of zero net emissions and water efficient new buildings by 2020;
- Introduce minimum efficiency performance standards at the point of sale or lease for existing buildings by July 2016;

[21] Barnett, A. (2014) "Cold weather is a bigger killer than extreme heat and here's why", The Conversation at www.theconversation.com, 22 May 2015
[22] SV (2014) *Victorian Households Energy Report*, Sustainability Victoria
[23] Many households struggling to pay their bills or at risk of disconnection are not necessarily concession card holders, but are low to middle income, often larger families with large mortgages who are high energy users.
[24] Victorian Government (2015) *Saving energy, growing jobs: Victoria's energy efficiency and productivity statement*, June 2015

- Facilitate accessible and affordable finance for homeowners and landlords to drive efficiency upgrades;
- Deliver a comprehensive, state-wide retrofit program targeting low-income and disadvantaged households, including the upgrade of public housing stock;
- Reinstate programs such as the Greener Government Buildings program to improve the efficiency of government buildings;
- Reinstate incentives for business and industry to invest in efficiency, including implementing key reforms to the Victorian Energy Efficiency Target.

7. Conclusion

Allowing an unconventional gas industry in Victoria does not solve any problems; rather it creates a range of environmental and social problems. As demonstrated in this submission, an unconventional gas industry:

- Would not protect Victorian gas consumers from rising prices;
- Would not solve gas supply problems, because there are no gas supply problems;
- Would threaten existing jobs in areas dependent on agriculture and tourism;
- Would create a risk of unacceptable and irreversible environmental damage to vast areas of the state;
- Would lock-in additional greenhouse gas emissions when emissions urgently need to fall;
- Cannot be made safe through close regulation, because regulatory systems inevitably fail.

For these reasons, we submit that the Inquiry should recommend a permanent ban on all forms of unconventional gas exploitation in Victoria, including coal seam gas, tight gas, shale gas and underground coal gasification.

To the extent that the Inquiry makes other findings on how gas consumers might avoid rising costs, we recommend the introduction of comprehensive energy efficiency programs for households and industry.

We would welcome the opportunity to present the Inquiry with further evidence should it be required.

Regards,

Anne Martinelli
One Million Homes Energy Efficiency Campaigner
Environment Victoria
[redacted]