

Inquiry into unconventional gas in Victoria

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As we begin the 21st century, new dilemmas confront our society and our planet. Unprecedented levels of consumption co-exist with extreme poverty. Through new technology we are more connected than we have ever been, yet civic engagement is declining. Environmental neglect continues despite heightened ecological awareness. A better balance is urgently needed.

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Introduction

The Australia Institute welcomes the opportunity to contribute to the Environment and Planning Committee of the Victorian Legislative Council Inquiry into Unconventional Gas in Victoria.

The Australia Institute has published numerous research papers and submissions relating to unconventional gas in Australia, provided expert speakers at many events and public forums on the issue in Victoria and throughout Australia, and been a regular media commentator.

The Australia Institute publications on unconventional gas include:

- [Cooking up a gas price rise](#), Grudnoff, 2012
- [Fracking the Future](#), Grudnoff, 2014
- [Gladstone's \\$2.9 billion dollar gas surcharge](#), Ogge, 2012
- [Inquiry into the supply and cost of gas and liquid fuels in New South Wales Submission 2014](#), Grudnoff, Ogge, Campbell.
- [Briefing Note: Debunking Solving for 'x' - The NSW Gas Supply Cliff](#), Denniss, Grudnoff, 2013
- [Is Fracking good for your health?](#) Moss, 2013.
- [Measuring fugitive emissions. Is CSG a viable bridging fuel?](#) Grudnoff, 2012.
- [CSG economic modelling: On the alleged Benefits of the Santos coal seam gas project in North West NSW](#), Richardson, 2011.

This submission primarily covers section 3 (c) and section 4 of the Terms of Reference relating to the implications for regional development, investment and jobs, and the ability of unconventional gas resources to contribute to the State's overall energy mix

There are three main justifications used by industry advocates and proponents of unconventional gas in Victoria and elsewhere in Australia. The first is that an increased supply of gas is required as an energy source for consumers and industry. The second is that unconventional gas will reduce gas prices to industry and consumers. Finally, industry advocates claim that developing unconventional gas will provide jobs and economic benefits to the State as a whole, and for regional areas in particular.

All of these claims are highly contested and this paper examines each of them.

1. Unconventional gas extraction in Victoria will not reduce gas prices for industry or consumers.

Some proponents of unconventional gas extraction in Victoria claim that unconventional gas would reduce gas prices for Victorian households and provide a low cost energy source to Victorian industrial users. These claims are misleading for the following reasons:

- Eastern Australian wholesale gas prices are linked to global prices, and there is no reason that unconventional gas would be sold at less than the market price.
- The US shale gas "industrial renaissance" is not analogous to Victoria or Australia because the US does not currently export gas while Australia allows virtually unlimited exports.
- Unconventional gas has high extraction costs.

1.1 The eastern Australian gas market is linked to global prices

All of eastern Australia is part of a single gas market (which includes NSW, Victoria, Queensland, South Australia, Tasmania and the ACT). With the completion of liquefied natural gas (LNG) export facilities in Gladstone Queensland, the eastern Australian gas market is now linked to the larger Asian gas market.

This means that Australian gas prices will move towards the Asian market “netback price” (the Asian price minus the cost of liquefaction and transport).

There is some uncertainty about as to where the price is likely to settle. Until early this year analysts believed that Australian domestic wholesale gas price could triple. Since then OPEC nations have significantly increased their output, which has put downward pressure on global oil and gas prices.

The commencement of gas exports from Gladstone in Queensland has permanently linked Australian gas prices to global prices. Australian customers now have to compete with Asian customers for gas. No amount of additional gas mining in Victoria or elsewhere will significantly reduce gas prices in Victoria.

This is the finding of the highly authoritative NSW Independent Pricing and Regulatory Tribunal IPART, who have clearly stated;

“The increase in regulated retail gas prices 2014/15 reflects increased wholesale gas costs as eastern Australia becomes part of a single global market for commodity gas, as well as increasing network charges”¹

1.2 The US shale gas “industrial renaissance” is not analogous to Victoria or Australia.

The gas industry in US has regularly credits itself for the revival of US manufacturing since the Global Financial Crisis, arguing that cheap gas from the shale gas boom has boosted manufacturing by providing a competitive advantage through cheap energy.

There are many factors contributing to the recovery of manufacturing in the United States, (including simply a cyclical recovery) and cheaper gas may be one of them. However there is considerable dissent on this point. A recent report delivered to the European Parliament by the French think tank, the Institute for Sustainable Development and International Relations (ISDIR) concluded that there is “no evidence that shale gas is driving an overall manufacturing renaissance in the US.”²

Even if we accept the assertion that cheap shale gas has to some extent assisted the manufacturing recovery in the US, the situation in Australia is entirely different.

The US has low gas prices *because* it does not export any gas (although some exports have recently been approved). As a result the US has a domestic gas glut and is not exposed to global prices.

By contrast, with the approval of some of the world’s largest LNG export facilities at Gladstone, Australia has linked Australian gas consumers to global gas prices.

¹ Inquiry into the supply and cost of gas liquid fuels in NSW, IPART 2014. Accessed 10 July 2015 [http://www.parliament.nsw.gov.au/prod/parliament/committee.nsf/0/efb3f0c1908f7b21ca257dc70005b1b2/\\$FILE/0023%20-%20IPART.pdf](http://www.parliament.nsw.gov.au/prod/parliament/committee.nsf/0/efb3f0c1908f7b21ca257dc70005b1b2/$FILE/0023%20-%20IPART.pdf)

² Spencer, T., Sartor, O., Mathieu, M. (2014). Unconventional wisdom: an economic analysis of US shale gas and implications for the EU, Studies N°02/14, IDDRI, Paris, France, 36 p.

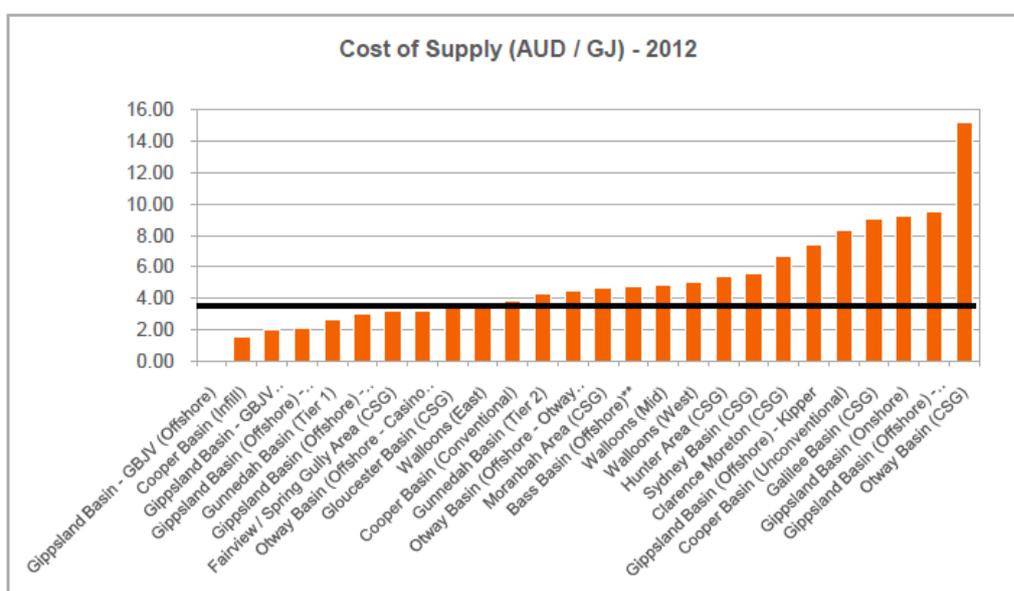
1.3 Unconventional gas is has high extraction costs.

Onshore unconventional gas is usually far more expensive to extract than conventional gas and as such is highly unlikely to provide a low cost energy source for Victorian manufacturing or households.

Shale and tight gas, which are the predominant forms of unconventional gas in Victoria are also more expensive to extract than coal seam gas in other states because they are far deeper.

The supply cost distribution graph below shows relative cost of extracting gas from various Australian gas basins. The graph, commissioned by The Australian Energy Market Operator (AEMO) clearly shows that Gippsland onshore unconventional gas has at least double the extraction cost of conventional sources and even of CSG from other states.³

Figure 1. Supply cost distribution from various gas basins, Australia.



Source: Core Energy Group

2. There is no gas shortage

Unconventional gas companies in NSW have energetically argued for a number of years that NSW needed to allow the development of unconventional gas to avoid the “crisis” of an imminent gas shortage.

The so-called crisis has been discussed extensively in the media and has been the subject of various company research papers, such as AGL’s early 2014 report *Solving for ‘x’ – the New South Wales Gas Supply Cliff*.⁴

The Australia Institute (and other commentators, including major gas industry players⁵) have consistently argued that there was never any prospect of a gas shortage in NSW and that gas will be available at global linked prices.

³ Gas Production Costs, Core Energy, 2012, <http://www.aemo.com.au/Gas/Planning/Gas-Statement-of-Opportunities/Previous-GSOO-reports/2012-Gas-Statement-of-Opportunities/Production-Costs>

⁴ For a more detailed explanation of the AGL report see Campbell (2014) *Debunking Solving for ‘x’ – The NSW Gas Supply Cliff*

The most recent AEMO Gas Statement of Opportunities confirmed this view, clearly stating that there is “no supply gap in NSW”.⁶

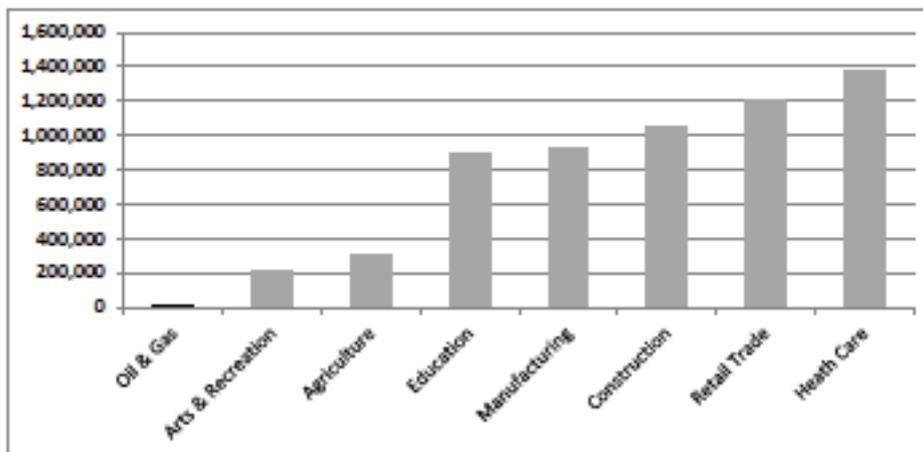
AEMO has never suggested that there is any risk of a gas shortfall in Victoria over their forecast period.

3. Unconventional gas is a small employer.

According to the Australian Bureau of Statistics, in 2013, at the peak of the Liquefied Natural Gas (LNG) construction boom, the entire gas industry in Australia employed 20,700 Australian workers, less than one fifth of 1% of the Australian workforce.⁷

Only a fraction of these were employed on unconventional gas projects in Eastern Australia (largely QLD CSG) as most were employed on huge conventional gas LNG projects in Western Australia and the Northern Territory, as well as existing gas fields in Victoria and the Cooper basin. By way of comparison, the total employment provided by the oil and gas industry operating in Australia is considerably less than the retail hardware store Bunnings who employ 33,000 people.⁸

Figure 2. Employment in Australia by selected industry.



Source: ABS (2013a) 6291.0.55.003 - Labour Force.

With the construction phase winding up, the unconventional gas companies operating in QLD are in the process of cutting their workforces by up to 80%.⁹

Workers for any unconventional project in Victoria are likely to be sourced from interstate. Like any industry, the gas industry prefers workers with direct experience in the field. Experience in QLD has shown that construction workers are largely employed on a fly-in-fly-out, “FIFO” or drive-in-drive-out “DIDO” basis. With the wind-down of the CSG construction

⁵ Chamber M (2013) Looming gas shortage a myth says BG Group. The Australian. Accessed 28/12/14. <http://www.theaustralian.com.au/business/looming-gas-shortage-a-myth-says-bg-group/story-e6frg8zx-1226732175131>

⁶ AEMO GSOO 2015

⁷ ABS (2013a). 6291.0.55.003 - Labour Force, Australia, Detailed, Quarterly, Aug 2013, Australian Bureau of Statistics, viewed 21 November 2013, <<http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6291.0.55.003Aug%202013?OpenDocument>>

⁸ Bunnings (2013). About Us: Who we are, Bunnings, viewed 21 November 2013, <<http://www.bunnings.com.au/about-us>>

⁹ Bureau of Resource and Energy Economics, Resource and Energy Major Projects 2013.

boom in QLD, there is a large pool of workers who are ready to fill positions on a FIFO/DIDO basis. Few people from local Victorian communities are likely to be employed in either the construction or operational phases of any unconventional gas development.

Even if some people from local communities are employed on these projects, they are unlikely to be drawn from the ranks of the unemployed. Because the gas industry requires skilled and experienced workers, when it does employ local people they tend to be skilled workers from local manufacturing and agriculture. This is disruptive to local businesses and forces them to compete with inflated gas industry wages to recruit or retain key staff.

What about “indirect jobs”

The gas industry often argues that even though it is a small employer, there are large numbers of flow-on, or indirect jobs. These “indirect jobs” estimates are usually based on “jobs multipliers” from Input Output (IO) modelling.

The use of “jobs multipliers” has been roundly discredited as a way of evaluating the benefits of these kinds of projects. The Australian Bureau of Statistics no longer publishes multipliers for this reason, describing them as biased¹⁰, the Productivity Commission described them as “regularly abused”¹¹, they have been rejected as unreliable by the NSW Land and Environment Court¹², NSW Supreme Court¹³, multiple Planning Assessment Commissions (PACs) in NSW and many prominent economists¹⁴.

In reality, all industries create indirect jobs. Just as gas industry workers spend money at restaurants and get vehicles repaired, so do teachers and nurses. However the economy has finite productive capacity, and an expansion in one sector is often at the expense of other sectors. The mechanics workshop repairing the gas company’s vehicle may mean that they don’t have the capacity to repair the farmer’s tractor, and so the farmer has to wait, or go to the next town. This effect is ignored in IO modelling.

4. The impacts unconventional gas developments on local businesses.

While some people and businesses do gain from coal seam gas unconventional gas development, many other businesses and industries can be negatively impacted and jobs in other sectors are often lost as a result.

The most advanced unconventional gas development in Australia is Queensland’s Darling Downs region. The gas industry has pointed to this region of an example of the economic benefits that unconventional gas provides to local communities.

However the research tells a far more complicated story.

The most detailed examination of the economic impacts of unconventional gas development in the Darling Downs is a study carried out between 2008 and 2013 by the industry-funded Sustainable Minerals Institute SMI and the University of Queensland.

¹⁰ ABS 2011, Australian National Accounts; Input-Output tables, electronic publication, final release.

¹¹ Gretton P 2013. On Input-Output tables, uses and abuses, staff research note, Productivity Commission

¹² Preston, B 2013. Judgement on Bulga Milbrodale Progress Association v Minister for Planning and Infrastructure and Warkworth Mining Limited.

¹³ NSW Supreme Court, 2014 Warkworth appeal case judgement.

¹⁴ For example (Abelson, 2011; Denniss, 2012; Layman, 2002)

This study¹⁵ surveyed stakeholders from different sectors in the local community including the business, agriculture, local government, advocacy groups, environmental consultants, as well as the mining and unconventional gas industries.

The survey asked them rate the impact of unconventional gas and mining in the region over a five year period on key indicators including the following:

Financial capital: Available revenue streams and economic resources.

Built capital: The physical infrastructure such as buildings, transport, equipment and communications utilised for economic and other activities.

Social capital: The degree to which people know each other and collaborate and the level of trust people have in local organisations and institutions.

Human capital: Skills, knowledge, abilities and good health possessed by individuals that enable them to work, earn a living and contribute to society.

Natural capital: Key natural resources such as water, land, clean air, wildlife and forests.

In almost all categories of capital, all stakeholder groups other than those representing mining and unconventional gas, believed the development of mining and unconventional gas had a negative impact on almost all types of capital. Notably, even the mining and unconventional gas industries thought local infrastructure had deteriorated as a result of mining and unconventional gas development in the region.

Figure 3. Stakeholder responses assessing the change in different types of capital over the last 5 years as a result of interaction between gas and other industries.

	Financial capital	Human capital	Built capital	Social capital	Natural capital
Gas	Better	Better	Worse	Better	Better
Mining	Better	Better	Worse	Better	
Agriculture	Worse	Worse	Worse	Worse	Worse
Local business	Worse	Worse	Worse	Worse	
Local government	Worse	Better	Worse	Same	Same
Community	Worse	Better	Worse	Worse	Worse
Advocacy	Worse	Worse	Worse	Worse	Worse

Source: CSRM 2013

It is striking to note that the local business community felt the impact of mining an unconventional gas had led to deterioration in financial capital, infrastructure, human capital, infrastructure and social capital.

The reasons for the overall negative impact on local business are many and varied. They include having to compete with the inflated gas industry wages to recruit and retain staff, increased rent and competition for services (particularly trade and mechanical repairs). There are also disruption to farmers due the rollout of infrastructure including access roads,

¹⁵ Everingham, J., Collins, N., Rodriguez, D. Cavaye, J., Vink, S., Rifkin, W. & Baumgartl, T. (2013) *Energy resources from the food bowl: an uneasy co-existence. Identifying and managing cumulative impacts of mining and agriculture. Project report.* CSRM, The University of Queensland: Brisbane.

pipelines and drilling. Big increases in truck traffic tend to disrupt other forms of transport and damage local roads.

It is important to note that some businesses do benefit. Motels, bars and fast food chains undoubtedly benefit during the construction phase (2-3 years), but there will tend to be an oversupply when the construction phase ends. The large amounts of toxic “produced” or “flow-back” water and salt provide opportunities for waste disposal companies.

It is instructive to contemplate some of the comments from various stakeholders explaining the reasons for these results.

Some stakeholders discussed the impact on existing local businesses;

“Obviously if you’ve got a major engineering or earth moving business, you attract business, you’re doing incredibly well, or a motel.

But, if you work in town at a local shop, or the council, you’re doing incredibly poorly, because your rents have gone through the roof and suddenly you’re flat out paying to be able to live in town. For us, we’re seeing increased costs.

All our professional services are \$100 an hour plus, whereas they used to be [in the] 40s and 50s. Freight is dearer. We can’t get labour. We’re relying on backpackers a lot more because we just can’t get permanent staff. So, It’s quite an added cost to one sector of the community, while the other sector booms.

Advocacy sector 1¹⁶

The impact of having to compete with inflated resource industry wages was also of great concern;

‘What they’re paying for wages [in some towns] is two and half times what the wage should be – just to hold men. That’s forcing consumer goods up, to try to cover the costs of those wages... So it’s all spinning down the line... [For example] from a hardware perspective, anyone doing renovations to their home, even just the little bits are all getting more expensive because these guys are trying to cover the increase in wages that they’ve had to pay to retain men. And the [resources] companies are walking into businesses and offering staff – mainly mechanics...huge wages.’

Business Network 3.¹⁷

Other stakeholders described the corrosion of social capital;

“[I]n regards to a divide between people, not just landholders versus townies, but for instance I’ve got a lot of friends who used to work in agriculture and now work for gas companies – a lot of them. And some family members don’t speak to them anymore because they’re still on the land....

But even in towns now ...once you would go to the local pub in Dalby, it was all full of farmers and that sort of thing and now you’ve got guys in their high vis” and after a few rums things are getting ... they do, it’s starting to get quite ugly. There’s quite a bit of animosity going on. And agricultural communities have never been like that – they’re not. And now that’s building up pretty much.”

Agricultural Sector 4¹⁸

¹⁶ Everingham et al p38

¹⁷ Everingham et al p39

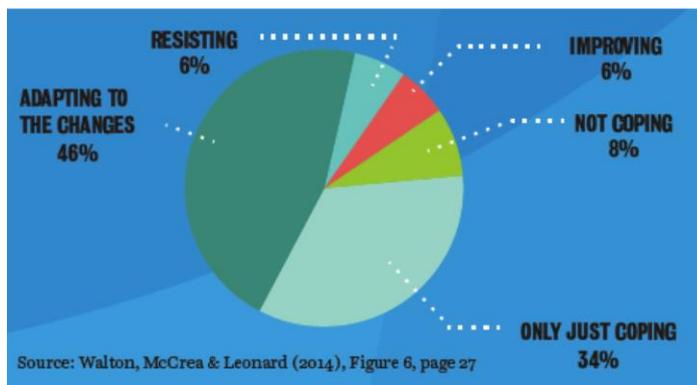
¹⁸ Everingham et al p51

5. Impacts on local communities

Another study in the Darling Downs looked at impacts on communities from gas development. The study, *CSIRO survey of Community Wellbeing and responding to change: Western Downs region in Queensland*¹⁹ was carried out by the CSIRO but funded by the largest CSG companies in QLD including APLG and QGC.

It found that only 14% of people approved of the unconventional gas industry, and astonishingly only 6% of people felt the community was improving as a result of the industry, while many were struggling to cope with the changes the industry had brought.

Figure 4 Community responses to unconventional gas development in the Western Downs QLD. CSIRO



The dash from gas

In last years National Transmission Development Plan (NTDP) for the electricity market in National electricity Market (NEM), AEMO forecasts demand for gas fired electricity in eastern Australia to drop to virtually zero.²⁰ This is a result largely of falling electricity demand, rising gas prices, increasing solar PV penetration and the removal of the carbon price.

In 2013 AEMO forecast that eastern Australian gas use would rise from 417 PJ to 615 PJ by 2033. By contrast, this year it has forecast a drop to 425 PJ over the same period.²¹

This is an astonishing 30% reduction in expected gas use over the projection period in a single year.

The reason for these reductions in expected gas use is that the economics of gas as an energy source for residential use, industrial use and electricity generation have fundamentally changed.

For households, electrical appliances for water and space heating and cooking are quickly becoming more cost efficient for households than gas appliances. A recent report released by the Alternative Energy Association ATA, looked at the relative Net Present Value (NPV) of gas and electrical appliances for households and identified that there is no economic case for

¹⁹ Walton, A., McCrea, R., & Leonard, R. (2014). *CSIRO survey of community wellbeing and responding to change: Western Downs region in Queensland*. CSIRO Technical report: CSIRO, Australia.

²⁰ AEMO (2014) National Transmission Development Plan.

²¹ AEMO GSOO 20145

any new home or suburb in Eastern Australia to be connected to the gas grid.²² The report further recommended that

“An urgent review of the policies and programs that subsidise/support the expansion of the gas networks is required”²³... in particular the particular Victorian Government’s \$100M Energy for the Regions program established to roll out gas networks to regional areas.

By rolling out gas infrastructure to new suburbs and towns, the Victorian government is locking households and businesses into higher energy bills than if efficient electrical appliances were used to deliver the same services. It is also a waste of \$100 million taxpayers money, given the existing grid can deliver the same services at less cost to consumers.

A recent report by the Grattan institute also highlighted that switching to efficient electrical appliances represented huge savings for households, for example that switching from a gas to electric hot water system would save an average household \$400 per year.

As a result of these changes, commentators are talking about a potential “death spiral” for the gas industry, where falling sales force gas suppliers to increase prices, which further accelerates falling demand.²⁴

Conclusion

Unconventional gas fields now cover tens of thousands of square kilometres of Queensland. They represent a major industrialisation of the agricultural land and the natural environment.

This industrial expansion has delivered few of the employment and economic benefits predicted by gas companies and industry advocates. It has in fact damaged many local industries, negatively impacted communities and had serious environmental impacts.

The LNG export terminals in Gladstone have irrevocably linked Australian gas prices to global markets, and no amount of drilling new unconventional gas fields will change that.

At the same time the economics of gas use in Australia have fundamentally shifted as a result of cost reductions in renewable energy and the ever reducing cost of efficient electrical systems that can provide the same heating services as gas in our homes and business far more cheaply than gas.

Recommendations

- An urgent review of policy and programs that subsidise/support the expansion of gas networks is required, in particular Victorian Government’s \$100M Energy for the Regions program.
- Remove subsidies that encourage uneconomic gas use.

²² Alternative Technology Association ATA (2014) Are we still Cooking with Gas

²³ Wood T (2014) Wood T (2014) Gas at the Crossroads. Grattan Institute..

²⁴ Wright M (2014), Gas death spiral, it’s happening, but does anyone care? Reneweconomy. Accessed 28/12/14 <http://reneweconomy.com.au/2014/gas-death-spiral-its-happening-but-does-anyone-care-16818>

- Remove subsidies that encourage expansion of the gas grid.
- Provide Victorian households with accurate information on the relative costs of electrical and gas systems for cooking, hot water heating and space heating, and encourage people to switch to efficient electrical systems where it is cost effective to do so.
- Facilitate identification and financing of energy efficiency and economic fuel switching alternatives to gas use in the commercial and industrial sectors.
- Maintain the current moratorium on unconventional gas development.