T R A N S C R I P T

STANDING COMMITTEE ON THE ENVIRONMENT AND PLANNING

Inquiry into unconventional gas in Victoria

Melbourne — 5 August 2015

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Witnesses

Dr Nick Aberle (affirmed), Safe Climate Campaign Manager, and

Ms Anne Martinelli (affirmed), One Million Homes Energy Efficiency Campaigner, Environment Victoria.

Necessary corrections to be notified to executive officer of committee

The CHAIR — I declare open the inquiry into unconventional gas in Victoria and welcome witnesses from Environment Victoria. Evidence taken at this hearing is protected by parliamentary privilege. Therefore you are protected against any action for what you say here today, but if you go outside and repeat the same things, those comments may not be protected.

I welcome Dr Nick Aberle and Anne Martinelli to the hearing. What I will ask you to do is provide a brief introductory submission, and then we will follow through with evidence.

Dr ABERLE — Thank you to the committee for the opportunity to appear this evening. I would just like to start with a few comments about the risk of onshore unconventional gas. As the committee would be well aware, the types of activity that would be undertaken if the moratorium were to be lifted would create risks of damage to land and water resources — damage that could affect both environmental health and agricultural productivity.

The central question here is: can the risks be adequately managed?. Our position is no, the risks cannot be adequately managed. It is important to note that risk is not merely the likelihood of something happening but also the consequence of that thing happening. Regulators can impose licence conditions, for example, as a way of trying to reduce the likelihood of a leak or a spill, but conditions and other regulatory measures are only as good as the ability and the willingness of the regulator to regulate. Monitoring thousands of gas wells across the state and trying to enforce dozens of licence conditions is not a trivial task, and, with all due respect to state bureaucrats, it is not a task that we should assume can be done adequately. The catastrophic Deepwater Horizon spill, for example, is probably a worst-case scenario of regulatory failure, but it is an important marker of our inability to avoid disaster just by relying on approval conditions and monitoring systems.

Closer to home, the fire in the Hazelwood coalmine last year shows what can go wrong even when there is a comprehensive regulatory system in place in Victoria. Inevitably things slip through the cracks, but at least in the case of the Hazelwood mine fire the fire could be put out. The big problem with risks of unconventional gas to aquifers, for example, is that they cannot be cleaned up. Once an aquifer is contaminated, it stays contaminated. Contamination of an aquifer could destroy a farming community if the water that they have relied on for generations becomes unusable. The probability might be low, but the consequence is enormous.

It is hard to conceive of a regulatory system that could in the real world guarantee that no disasters happen or that could guarantee disasters could be rectified or that could guarantee that the cost of clean-up, if a clean-up is even possible, would be paid for by the company that is responsible for the disaster rather than by Victorian taxpayers. The Hazelwood mine fire inquiry has recently reopened, and one thing that it is investigating is the appropriateness of the $15 million rehabilitation bonds held for each coalmine in the Latrobe Valley. The department has said that the purpose of these bonds is to cover the full cost of rehabilitating the mine site. What kind of bond might be required to cover the cost of cleaning up something that cannot actually be cleaned up?

With all these questions over our ability to prevent a disaster, it is important to point out that there is no need for this industry. Allowing unconventional gas in Victoria does not solve any problems. The Australian Energy Market Operator has said that there is no need for increased supply to meet demand, which is projected to continue to fall, and increased supply from Australia will not reduce the international prices that Australian consumers are exposed to. Allowing unconventional gas extraction simply puts the interests of the petroleum industry ahead of the interests of farmers and communities when there is no compelling reason to do so.

If the problem that we are really trying to deal with is the rising costs to gas consumers — and that is a reasonable problem to tackle — the far better solution is to look at energy efficiency. Victoria's homes are very energy inefficient. Draughty and poorly insulated homes are very difficult to heat, meaning much more gas is used to keep occupants warm. Implementing basic energy-saving measures at home and upgrading appliances can cut household bills by 40 per cent. Switching to efficient electric appliances that need no gas, such as reverse-cycle air conditioners, is now an excellent cost saving option for residential consumers.

In Victoria, however, 40 per cent of gas is consumed by industry and manufacturing, not residents. The BIS Shrapnel report has found that across Australia rising gas prices due to LNG exports could cost between 20 000 and 90 000 jobs in the manufacturing sector. State government support for energy efficiency schemes that help keep costs down would be the best way to protect these jobs. The environment and resource efficiency plans program, which was run by the EPA until 2013, is one example of a very successful Victorian government scheme that should be reintroduced to reduce energy costs to industry.

Finally, a word about climate change. Environment Victoria has been working on climate change for about 20 years, back when it was global warming. Frustratingly the globe is still warming. People keep talking about limiting warming to a 2-degree increase, and there is evidence that even that is too high, but commitments by countries around the world at the moment to reduce their emissions still have us on track to 3 or 4 degrees of warming by 2100.

What does 4 degrees of warming look like? No doubt you will be familiar with what the impacts of climate change are, but leading academics are questioning whether 4 degrees of warming is even compatible with human civilisation as we know it. I think human civilisation is quite good. I like what we have achieved for the most part, and I like to think that my daughters will have the opportunity to enjoy human civilisation in the same way that I have.

President Obama noted this week that we are the last generation that can do something about climate change, after which it will be too late. If we are on track to 4 degrees of warming, we simply must do better. To cite another famous world leader, Churchill once said it is not enough to do our best; we must do what is necessary.

As recently as five years ago Environment Victoria was of the view that natural gas was an important transition fuel in the switch from heavily polluting coal-fired power stations to clean renewable energy. We now no longer see a role for gas in Victoria's future energy mix for a number of reasons, including those I have already mentioned. Amongst the rapid fall in renewable energy costs, the much improved efficiency of electrical appliances such as reverse-cycle air conditioners and the broader lack of progress in reducing emissions in Victoria and Australia generally, there is also worrying evidence that fugitive emissions from unconventional gas mean that gas is not actually the clean fuel that we thought it was.

The falling costs of renewable energy in particular demonstrate that it is possible to go directly from coal to renewable energy, together with a switch from gas-based appliances to electric appliances that can run on renewable energy. Along with improved energy efficiency, this is simultaneously the best way to reduce our greenhouse gas emissions and to reduce the costs of heating our homes.

The Andrews government has repeatedly said it will be a leader on climate change. This is a very welcome position and one that all serious governments need to strive for. We submit that allowing the development of a new gas industry is inconsistent with leadership on climate change. We need to get to zero emissions as soon as possible, and locking in an investment in gas will only delay reaching that goal.

In light of all that, we encourage the committee to recommend a permanent moratorium on onshore unconventional gas in Victoria. Thank you again for the opportunity to present. I am happy to take questions.

The CHAIR — Can I thank you for your submission. You do directly touch some of the issues that have come forward during the inquiry. I have asked a number of other people about gas as a transition fuel, because it is clearly less carbon dioxide intense than coal. It seems to me that there may be some role for it there, but you are saying not. It does not seem to me also that it is necessarily counted out from a program that has energy efficiency on one side, which again seems to me to be good business practice in every sense. What I would seek from you is some indication about why you see gas not having any role in replacing coal.

Dr ABERLE — Obviously we do use some gas in Victoria to generate electricity at the moment. We have a number of gas-fired power stations which are dominantly used to provide peaking load on electricity, so I expect that those generators will continue to operate in that manner.

One issue is whether that is likely to continue into the future for a while. With gas prices rising due to exports from the east coast, that is going to make it less economically viable for those gas generators to operate in the provision of electricity, and so with the falling costs of renewables — especially wind and solar — I think there will be a gradual decline in how much we use gas to generate electricity.

There is also a difference between the gas facilities we currently have and any investment in new gas facilities. Obviously investments have already been made, and some of those have quite possibly already paid themselves off, but if we go down the path of encouraging further use of gas, then that is going to lock in investment, and investors will be trying to recoup their investment, which will take a period of time during which it would be better for Victoria to be switching to renewables more quickly.

The CHAIR — Let me just try and understand this a bit further. Victoria has a very big network of gas pipelines and is unique in this country and through a lot of the world. If we were to bring in new gas at a low price — and it seems to me more supply would lead to a lower price, notwithstanding; some evidence has been put to us, but there has been other evidence that suggests that more supply would lead to a lower price — why would that not lead to some switching from coal-fired electricity?

Dr ABERLE — From coal to gas?

The CHAIR — Yes.

Dr ABERLE — The Victorian coal generators are quite low cost. Their short-run marginal costs are extremely low. Yes, you are right to say that increasing supply ought to reduce the price, but I think we need to recognise that now that we are exporting gas through the east coast we are now exposed to international markets, and the volume of supply that could conceivably be generated in Victoria and other parts of Australia is not going to be sufficient to significantly impact on those international prices.

The CHAIR — What about if it were quarantined and regulated for the domestic market?

Ms MARTINELLI — I think we are — —

The CHAIR — I am just trying to understand this — —

Ms MARTINELLI — I think this whole question of that impact on price, given that prices have increased so significantly and are having an impact that they were not having not that long ago, part of the reason why Victoria is such a big gas user is that gas has traditionally been a very low-cost fuel.

The CHAIR — Cheap.

Ms MARTINELLI — There is no doubt that the development of an export industry that has led to domestic prices now being basically set by a world price is the thing that has been driving recent very rapid domestic gas prices, not a shortage of supply. I think the issue here is the extent to which additional gas is likely to affect that, and the evidence that we have presented in our submission is that, with Australia being a relatively small player on the global market, additional supply is not necessarily going to affect the global price.

If your primary purpose was to do something about rising domestic prices, and you decided that gas reservation was an appropriate way to do that, we would argue that doing something about consumption also affects cost. The real issue is costs: if you are using less, the price is less relevant. I guess we would argue that even if you decided that a gas reservation policy was the way to go, you could do that with existing conventional gas resources. The question in front of this committee is whether or not it makes sense to develop new, additional and risky unconventional gas resources. Our position would be that is not going to make any difference to those concerns around price.

The CHAIR — I understand your point, but I also — —

Ms MARTINELLI — We have massive resources of conventional gas already. If your concerns are around the fact that those prices for conventional gas are now being set by the world market, you could adopt a gas reservation policy if you decided that was the way to go.

The CHAIR — If you allowed new supply on certain conditions of reservation, which would not apply retrospectively to those sources that are currently in existence, you could potentially keep the price lower and pair that with an energy efficiency policy that might see lower cost but increased supply as well.

Ms MARTINELLI — I guess the point we are trying to make is that there are probably still a lot simpler and less risky ways of addressing those primary concerns than developing a whole lot of unconventional gas resources in order to achieve an outcome that you could achieve in other ways.

Ms SHING — Thank you very much for that outline of the submission itself. I am interested in your views on the extent to which sensitive areas have been declared in New South Wales that were the subject, as you would be aware, of a buyback from the government following an assessment of what the topography was and how many exploration and drill sites might affect those particular sites. What I would specifically like to ask

you about is how, if at all, sensitive area sites might be identified in Victoria if an industry were to go ahead, and in your observation, what factors might contribute to an assessment of what a sensitive area was?

Ms MARTINELLI — I think we would have to start by saying that is not an area of my particular expertise, and we are happy to come back to the committee with further information, if that would be helpful. I think as a general principle we would say that the arguments we have put forward address the basic question of whether or not there is a valid, legitimate argument for developing this industry in the first place. The question of how you would manage those risks was, I think, addressed by Nick in the opening statement, in that all of those questions around how you try to impose a regulatory framework around an industry where those risks are potentially unmanageable is the primary point that we were wanting to make in our submission.

So for all of those secondary questions around how you define what area is sensitive, are you really looking just at the surface topography in terms of land and vegetation resources, or are you looking at underlying groundwater systems? Underlying groundwater systems can be extremely extensive. As far as I am aware — and as I said, we will take this on notice — those New South Wales sensitive areas are not necessarily looking at entire groundwater systems, which might be quite extensive.

Ms SHING — That is my reason, I suppose, for asking. We have terms of reference which go into very broad terrain around the way in which questions about the viability of the industry across a range of considerations ought to play out. As a committee it is incumbent upon us to test the assumptions of various stakeholders and representatives from across the entire spectrum of views on this particular issue.

Nick, in your opening submission you referred to the risks and to management of risk being an inherent part of that. You talk about contamination of groundwater, and you talk about damaging primary resources in a potentially irrevocable way. I suppose what I am giving you now — and you have indicated you will take part of this on notice — is an opportunity to talk about the extent to which potential translates to actual as far as damage that goes to the heart of what you are seeking to avoid for, as you outlined, your daughters in terms of the environment that you want them to have.

Dr ABERLE — Again I think it comes back to that risk being a product of consequence versus probability. Yes, you can implement measures through licence conditions or other measures that will create incentives for companies or operators to reduce the likelihood of an event. As I was saying in my opening statement, for example, the consequence of a spill or a leak is such that the risk is still very high.

Ms SHING — Sorry; I am just going to again tease this out because this is an important point. The risks being very high for an area which does not contain prime agricultural land or water resources that are relied upon by a state to the extent that, say, Gippsland does is a very different proposition to the land used in Western Australia, for example, or parts of Queensland in relation to the operations there. Again it is about understanding what you mean by risk and what you mean by probability and reducing or removing the risk of damage, because damage means different things to different environments.

Ms MARTINELLI — We reiterate that we are using risk in the sense that it is used in a risk assessment framework, which is that it is a function of both probability and consequence. Even if you have lowered the probability of an adverse outcome to very low levels, if the actual hazard around that low probability of something bad happening is very high, your risk is still high. I would still say — and we will come back to you with further detail if necessary — that regardless of what might be on the surface in terms of land or vegetation resources in Western Australia or Queensland, if the groundwater systems that underlie those areas are connected, as they generally are, to much more extensive and interrelated other systems, you might still have quite a high hazard if something goes wrong.

Dr ABERLE — I would also just add that there are those very specific localised impacts on the land or immediate water area, but that does not address or deal with the greenhouse gas emissions component of our concerns. It does not matter where the greenhouse gases come from; they all end up in the atmosphere.

Ms SHING — I understand the general point you have made. I would encourage you to take that question on notice to the extent that it applies to Victoria and in relation to localised risk as far as groundwater and primary assets are concerned. Thank you.

Mr DALLA-RIVA — I thank you for your presentation. One of the issues on which I wanted to get a bit more of an explanation about from Anne is that of the One Million Homes campaign. You mentioned upgrading Victorian housing energy efficiency measures. Have you done any analysis of the cost of doing that and the benefits apropos the costs, given, as we are hearing, there is potentially a reduction in gas costs? Have you done any analysis of what the savings would be in running your program and the cost of imposing that compared to if we had an increase in unconventional gas? I am trying to get an idea of what the cost and benefits that your program is anticipated to deliver.

Ms MARTINELLI — Yes, sure. Many of the committee members are probably aware of a Sustainability Victoria report that came out last year. It is probably the most recent comprehensive look at what the various costs of different retrofit options might be. That is where that 40 per cent saving in an energy bill figure that is in our submission came from. That came out of a whole range of examinations of different housing stock. Inasmuch as it is possible to apply a rule of thumb, I was talking to someone from the energy efficiency industry on Monday who was reiterating that as a general rule of thumb for most houses it costs about $1500 for each improvement in the star rating. So Victoria's pre-2005 housing stock currently — —

Mr DALLA-RIVA — Sorry; I missed that.

Ms MARTINELLI — It is $1500 per star rating. Say your house is currently two stars, which is what the average rating in Victoria is, it would cost you about $1500 to get it up to three stars. It would cost something slightly less than $5000 to get it to near five stars. Given that the average Victorian energy bill is something like $2800 a year, according to that SV report, if you cut your energy bill by 40 per cent, that would be about $1000 per year. The payback times on a reasonable sweet spot-type retrofit should be between about five and seven years. That is fine, if you have the money upfront.

A real focus for the One Million Homes campaign is around how to address the barriers that a lot of home owners and landlords face in terms of spending that sort of money and looking at ways the government can help facilitate and broker finance in cooperation with retailers and other sources of finance to help people with those up-front costs so that they can then use those energy bill savings to pay back the cost of that investment.

In terms of the relationship with gas, as we mentioned earlier, Victoria is unique in terms of being a high residential gas user. A big chunk of that gas use occurs in winter for heating. Up until recently that has been fairly unproblematic for a lot of households. Gas has been relatively cheap. That is how we have ended up in this situation.

We are now seeing, because gas prices have risen so much, that fuel switching is much more of an option now than it was even a few years ago, and that particularly with the significant technological improvements in reverse-cycle air conditioners and the reduction in price in renewable energy — rooftop solar in particular — it is now much more affordable to be looking at integrated renewable energy and retrofit programs whereby people might turn off their gas-ducted heating and turn on their air conditioner as a heater instead, and that actually does not cost you anything. If you have already got the air conditioner, you can actually save a lot of money immediately just by using electricity instead of gas for heating.

It still goes back to our original argument, which is that Victoria already has significant conventional gas resources, we have significant opportunities for addressing household costs in the face of rising prices by doing something about energy waste and that there are a lot of cost-effective things that we could be doing that would also stimulate an industry that is supporting significant numbers of jobs and could support more, all before you even start looking at exploiting additional gas resources.

Mr LEANE — The evidence we have had has been very polarising, as you understand. This committee needs to produce an evidence-based report; we cannot just say what we think and put in there what we would like to see. I appreciate your global argument, but to narrow it down to the concerns around unconventional gas exploration and tapping, what would you see as the best studies and the best work that you could point as to, that you have sourced, in that concern?

Dr ABERLE — Sorry, on which concern?

Mr LEANE — On the unconventional gas, on the tapping of unconventional gas. We appreciate that a lot of work has been done and this inquiry is not a unique situation in recent years, so to assist us in your argument, where would you be pointing us to?

Ms MARTINELLI — We have got a pile here of the documents we have referenced in our submission. There are obviously a number — almost unlimited — scientific studies that have been done around the technical questions of likely risks and an enormous amount of technical work that has been done around how you might manage those risks and hazards. I guess the point we are wanting to make as an environmental organisation is the technical solution to any problem is only as good as the regulatory context that it sits within. And that it may be technically feasible to do almost anything, but the question is: what is going to be the cost of that?

We cited something in our submission around a recommendation, I think it was from the New South Wales chief scientist, who said that this industry can be put in place safely but it will require a 'clear, revised, legislative framework which is supported by an effective and transparent reporting and compliance regime'. That sounds great, but in our view that is obviously going to have to be something that is managed and paid for by Victorian taxpayers. I do not think we want to leave a regulatory system as important as this to industry self-regulation.

So the question for a committee of Parliament is: what is the cost of that? What is the cost of that to deliver a regulatory and compliance framework that is going to give the people of Victoria an adequate sense of safety around this? Our perspective is that it would be hugely costly and that there are probably other ways we could spend that money. And so I think the challenge in all of this is to translate the technical scientific studies into a policy framework and make those judgements about what is the actual real political, economic and social costs of what would be required to deliver the safety that you are after.

Dr ABERLE — And I think an additional point to that is not only to consider the costs that might be required to try to ensure the safety but what are the costs you are going to face if it all goes horribly wrong.

Ms MARTINELLI — And who is going to wear the costs.

Dr ABERLE — That is right. I think if there is no good answer to the question of how do we clean it up if it goes wrong, then it is not necessarily the path you should be heading down for the reasons we have already mentioned. You can regulate as best as you can, but things still do tend to go wrong. You see that all of the time. If you do not have a good answer for how do we clean up the mess if the mess is made, then you have got to really put big question mark over whether you should proceed I suppose.

Mr YOUNG — I just want to get a better understanding from you, and if you could differentiate your position on unconventional gas to conventional gas, because it is a little bit confusing to me, and I could have your opinion on both of them individually or if you have got the same opinion across the board for both.

Dr ABERLE — Sure. As Anne has said, we do have an existing conventional gas industry. We have been getting gas from Bass Strait, which is where all our gas today comes from. That is gas we use in our gas cooktops, that is the gas that we use for gas-fired power stations to make electricity. As I said in our introduction, we believe you need to get to net zero emissions as soon as possible. Obviously we do currently use natural gas for a variety of things — electricity and cooking and heating. Ultimately we need to move away from that. If we are going to move away from the use of gas, then allowing companies to invest a whole lot of money in setting up new infrastructure is probably not a wise investment to be making.

Ms BATH — On one of your pages you talk about a recent study by BIS Shrapnel, and you talk about the gas prices doubling or tripling into the future. Who are they, and what is the basis of their evidence for that?

Ms MARTINELLI — Actually I think the doubling or tripling statement came from one of the — —

The BIS Shrapnel report was primarily focused on looking at the impact of rising gas prices on the manufacturing sector, and it was commissioned by the Australian Workers Union. I think it is cited here in that context. Let me just find where we talked about — —

Ms BATH — Dot point 4, just near dot point 5.

Ms MARTINELLI — Yes. Sorry, the question was where does the report come from? That is it there.

Ms BATH — Yes. What is the basis of their, I guess, study and projections or observations with their doubling and tripling?

Ms MARTINELLI — Can I just take a sec?

Ms BATH — Sure.

The CHAIR — It is at the bottom end of 4, is it, the BIS Shrapnel losses?

Ms MARTINELLI — Yes, but it is the other one. It is another report. Can we go to another question while I just find that? I am sorry, I am just — —

The CHAIR — Yes, we will come back to that.

Ms DUNN — Do you want to answer the one before you, or you have not had enough time?

Ms MARTINELLI — No, I am just — —

Ms DUNN — Do you want me to ask mine?

Ms MARTINELLI — It is one of the — if we can just go to another one. I just want to find — —

Ms DUNN — Fine, no problem. You keep looking away there, and I will go to my question.

Ms MARTINELLI — Okay; sorry, the Melbourne Energy Institute, this report, *The Dash from Gas — Could Demand in New South Wales Fall to Half?* is where we have referenced the likelihood that — and I will just read:

> Wholesale gas prices in eastern Australia are forecast to increase at an unprecedented pace — doubling and even tripling — as a result of imminent coal seam gas exports to Asia from Gladstone, Queensland.

That is where I think I have referenced the doubling or tripling. The BIS Shrapnel report was primarily citing the predictions of job losses from the manufacturing sector as a result of those prices. But this report was not looking into the factors driving those prices; it was looking at the impact of those rising prices on jobs.

The CHAIR — It might be worthwhile that other study being made available, if that is possible.

Ms SHING — That is a public document, the BIS Shrapnel — —

The CHAIR — Is it? Okay.

Ms MARTINELLI — Yes, sorry. We realised that today. We mention the BIS Shrapnel report but the footnote dropped off, so it is not referenced.

The CHAIR — Okay.

Ms MARTINELLI — I apologise for that, but I have the report here.

Ms SHING — When you provide any answers to questions on notice if you could refer to that report and the full citation, that would be great.

Ms MARTINELLI — Sure.

Ms DUNN — I notice in your submission, in your conclusions, that one of your dot points is around the threat to existing jobs in areas dependent on agriculture and tourism. I am wondering if you can elaborate on that and perhaps what might inform that view and whether you are aware of any modelling that might have taken place to underpin any economic data or otherwise of that threat to those areas dependent on agriculture and tourism?

Ms MARTINELLI — I think really that dot point in that conclusion is really trying to sum up the general gist of what has gone before. While we will take on notice a request to see if there has been modelling done

specifically around agriculture, I think the general point we were making is that one of Victoria's leading industries currently is agriculture, in terms of Victoria's exports and income. I think there is no dispute that if there are risks posed by the unconventional gas industry, it is primarily to land and water resources, and tourism and agriculture are the primary industries that rely on those natural resources and they are significant industries in Victoria. So I guess we were not necessarily trying to make a new point there; we were trying to just summarise the broader impact and I guess reiterate the key argument throughout the submission, which is that the question in front of us really is not whether there are benefits or not, it is whether those benefits are outweighed by the risks to other industries.

Dr ABERLE — And also a recognition that there is significant geographic overlap between where a lot of Victoria's agriculture comes from and where potential gas extraction activity could take place and in many ways incompatibility between those two things, especially if there are leaks or spills that damage the watertable, that damage other water or land resources. I am not trying to cite any specific modelling, but as Anne said, making the general point that there is a bit of a risk there. I mean, I think in Victoria we are still sort of aiming to — I do not know if this is still current government policy, but I think double food and fibre exports.

Ms SHING — Yes.

Dr ABERLE — Yes, thank you. I think there need to be questions about whether that can coexist with a whole bunch of gas exploration in areas that are currently attempting to expand their agricultural output.

Mr RAMSAY — I guess my question is more focused on the costs associated with regional Victoria and the impact to agriculture and food production, given it is my area of interest and concern. The argument you are posing, one, was an ideological one in that you talked about climate change and almost straightaway global warming and that in fact there was not a strong demand for gas and gas prices have increased because of the domestic market merging into the international market and we are tied to the eastern seaboard market. I understand all of that. We have just had probably one of the coldest winters in Victoria, which has increased the price of electricity and gas and other heat industries.

There was that argument about is there a need for gas. You are demonstrating to us you do not believe there is in relation to an energy source. We have other opportunities. We have plenty of brown coal, except that argument seems to be somewhat self-defeating in that people are turning off gas because it is expensive instead of going back to electricity, and those in regional Victoria, for heat, do not have a lot of choice. They either have gas or electricity or firewood, primarily, for warmth. Obviously firewood is now becoming quite a low-cost heat.

I guess my point is from the outset you have believed that there is no argument that you could provide that would convince you to have an unconventional gas onshore system in Victoria at the very least. Your arguments are about ideological but not so much about environmental. My question is: is there any case in any regulatory framework where you would support onshore unconventional gas exploration?

Dr ABERLE — A couple of points.

Mr RAMSAY — Can I just add to that? If not, why are you talking about a moratorium? Why won't you just talk about banning, if you are so convinced that there is no case for coal seam gas?

Dr ABERLE — Sure. I believe there is no compelling case for an onshore unconventional gas industry. I dispute that climate change is an ideological issue; I think it is pretty well founded in all modern science. Climate change is a very real threat that we face, and I think suggesting that Victoria should head down a path that does not take us deeper into the impacts of climate change — sorry, I think I have got my negatives all mixed up there — basically, we should not be doing things that are going to make climate change worse.

I believe, and there is a fair bit of evidence, that burning gas emits greenhouse gases. Should we be encouraging more of that? No, I do not believe we should. That is not an ideological position; that is a 'there is a lot at stake' position, and I think we should be doing what we can to reduce Victoria's contribution to climate change, which is already well above the average for the developed world. We emit far more per capita than most other developed countries.

Mr RAMSAY — Can I just ask you to focus on the environmental, though? Would you take any position in relation to a regulatory framework that would give you some comfort that there would be no environmental impact from unconventional gas installation onshore?

Dr ABERLE — As I said in our opening statement, I do not believe that there is a regulatory framework that is sufficiently good that can deal with the possible consequences of something going wrong with onshore unconventional gas.

The CHAIR — I thank you both for the presentation. The secretary of the committee may want to be in contact over the next period, but thank you very much for your evidence.

Ms SHING — Could you also provide an address for the purposes of the transcript being sent to you? I do not think you provided that when you were sworn in initially.

Dr ABERLE — A work address?

Ms SHING — Yes.

Dr ABERLE — Level 2, 60 Leicester Street, Carlton, 3053.

Ms SHING — Fantastic. Thank you very much.

Ms MARTINELLI — Thank you.

Witnesses withdrew.