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Sent: Wednesday, 8 July 2015 9:19 PM
To: EPC
Subject: Latrobe Valley Sustainability Group Submission re Onshore Gas in Victoria
Attachments: VIC LC Enquiry into CSG.doc

Dear Legislative Council members.

Please accept this submission on Onshore Gas from The Latrobe Valley Sustainability Group centred in the Latrobe Valley.

Thank you for the opportunity to present our views on this extremely important issue for the future of this state.

Dan Caffrey LVSG secretary

Latrobe Valley Sustainability Group Submission to the Victorian Government's Enquiry as to Whether an Onshore Unconventional Gas Industry be Allowed in Victoria



To: Keir Delaney,
Secretary Environment and Planning Committee,
Parliament House,
Spring St, Melbourne VIC 3002

From:
LVSG PO [REDACTED]
Submission Coordinator: Dan Caffrey (Secretary)
July 3rd, 2015

The Latrobe Valley Sustainability Group (LVSG) is a community based, incorporated group of citizens with the aim of working towards creating a sustainable future for our own and future generations and to preserve the natural environment to provide quality of life for our citizens. As the name suggests we are based in the Latrobe Valley region of eastern Victoria. We do not have tax deductibility status. We have over 150 members and welcome this opportunity to contribute to the Legislative Council Enquiry into Coal Seam Gas.

Our submission will centre on the reasons why we think that unconventional gas production will not be good for the State of Victoria, in particular why it will not be good for farmers and rural communities.

Our objections to this industry will centre on three main areas

1. The Impacts on Individual Farmers and Their Operations
2. The Impacts on Rural Communities
3. Health Impacts to Humans and Livestock
4. The Inconsistencies in the Explanations Given by Lakes Oil and Ignite Energy
5. Questions of Economic Sustainability in Light of Onshore Gas Projects

IMPACTS ON FARMERS AND FARMING

The following is a list of concerns that farmers are concerned about

Aquifer and Ground Water Contamination

- Because the wells, access the coal seams, which may lie below an aquifer, the aquifers are penetrated by drilling the wells through them
- The casing of the well is filled with concrete, but this is corroded over time by the gas and other chemicals contained in the coal seam. Eventually, the gas will migrate up along the casing and into the aquifer and ground water, infusing this hitherto reliably pure water with hydrocarbon, heavy metal and radioactive contamination

- “Produced water” is water, which is extracted from the coal seam and hence contains hydrocarbons and pollutants. In order to reduce the pressure in the coal seams to allow the gas to flow, large amounts of produced water is pumped to the surface. It is a waste product from the process. It may be saline. If fracking chemicals have been used, it will contain a significant amount of these. Where does this water go?
- The Condamine River in QLD has been bubbling up methane for three years now and only started when a well was put in less than a km away.
- In Qld, gas has penetrated some irrigation bores many kilometres from the nearest well and farmers have had to bear the cost. In one case there was so much gas that the pump motors burnt out because of the cavitation effect. The drilling company paid for new pumps and sunk the bores deeper as recognition of their part in causing this

Ground Water Supply is Diminished for Farming

- As the extraction process involves the use of enormous amounts of clean water, obtained from aquifers which are presently accessed for stock or irrigation, many bores in CSG affected areas of QLD have gone dry or the water has to be obtained from further down.
- This is a massive disruption to the natural ground water supply

Loss of Control of Farming Business Operations

- On a 100 hectare farm there could be two or three wells. Each well has two pipelines connected to it. One for water and one for the gas.
- Each pipeline is usually buried, but still limits the use of land above it
- Effectively about 20% of the land is unusable in the construction phase and the land around the well heads and other infrastructure is out of production for the life of the project – up to 20 years or longer
- Banks are refusing farmers loans near QLD gas fields because they are considered “high risk”
- All agreements that a farmer signs with a drilling company, will bind future buyers of the farm or parcels of land the farmer may want to sell or purchase.
- The CSG companies in QLD have sworn the farmers who have signed contracts to secrecy about their operations. Farmers who are unhappy cannot publicly say so, without getting sued for breach of contract. The bits of information that have come to light indicate that some farmers are getting paid a lot more than others for the “privilege” of hosting wells on their land.

Fall in Land Values

- Land Values have dropped by an average of 12% in districts of NSW and Queensland, as soon as a CSG project is announced.
- At Tara and Chinchilla in QLD, more than 50 % of the farms are for sale. No one wants to buy a property that has been tainted by CSG. No one will buy a farm in a CSG area.
- Even if a farmer were to think that the compensation (lease) from the gas company might offer them an income so that they could ease into retirement and that selling the farm in 10 or 20 years time will be their superannuation, then that has proven to be flawed thinking. No one can sell a farm for a decent price with CSG on it.
- In some cases the compensation paid to farmers is minimal and may not have covered the lost yearly production, much less the drop in land value

Liveability Issues – 24 hour noise, dust and light pollution at night

- The extraction of gas from the coal seam is an industrial process. It requires pumping of water out of the coal seams to release the gas.
- The substantial earth works creates mud when wet and dust in dry weather
- The pumping digging, desalination and flaring creates industrial level noise around the clock
- A flaring pipe, which burns unwanted combustible chemicals, is required for every cluster of well-heads. These flaring pipes must burn 24 hours a day in all weather conditions, creating noxious gas and CO₂ emissions and light pollution at night time.

Health Issues Associated with Fugitive Gas Emissions and Fracking Chemicals

- Even though methane itself is lighter than air and migrates upwards rather than concentrates at ground level, other heavier hydrocarbons are released from deep below the earth with the methane. These include benzene, toluene, ethyl benzene, xylene – the BTEX chemicals, VOCs – Volatile Organic Chemicals and PAH's – Polycyclic Aromatic Hydrocarbons. According to Doctors for the Environment, all of these chemicals affect the respiratory system, 25% are carcinogenic, 37% affect the endocrine system, 52% affect the nervous system and 40% affect the immune system.
- Heavy metals and radioactive nucleotides have also found their way to the surface from deep in the earth. In March 2014, produced water containing harmful levels of radioactive uranium (about 20 times the safe level of 17 µg/L), escaped into the Pilliga State Forest in NSW, for which Santos were fined the miserly sum of \$1500. AGL were also found to have released radioactive material into the environment near Gloucester in NSW later that year.

Soil Contamination

- The above chemicals are not naturally found in soil and many of them end up residing in the top soil and entering the eco-system, affecting all life, from microbial activity to high order animals including stock and people.

Fire Risk

- Fugitive emissions are a constant feature of CSG fields. Fittings constantly fail and well documented instances of gas bubbling up through water near well heads have been featured on many news reports about CSG
- Methane and other combustible hydrocarbons escape from other exits points such as cracks in the Earth and in rivers
- Lightning or human carelessness can cause these emissions to ignite and these events have already been recorded
- The flaring must continue at all times - even on Total Fire Ban days as was the case recently in NSW. The temperature in Sydney was 45° C and “Catastrophic” on the fire danger scale, yet the flaring was still allowed to continue
- Gas fires require specialist equipment to extinguish them. How does the local CFA feel about being called out to a CSG fire?

Tainting of Food Produced on the Land

- Food grown in contaminated soil will also be contaminated
- In the USA, milk from some organic dairy farms in a CSG area was found to contain aromatic hydrocarbons and rejected for human consumption. The farms were forced out of business.
- As a result, Vermont, the dairy state and more recently New York State have banned fracking in their states
- As in Australia, the polluters in this case the CSG producers are not held accountable. It is the farmers that can be sued or at least blamed for selling contaminated food to the public
- There are many cases of cattle and other livestock unable to thrive because of the air and soil pollution.
- There have been cases of cattle deaths attributed to CSG poisoning in the U.S.A. In the following article there is reference to 17 cows dying after eating pasture, which was contaminated with fracking water. See the link below.

<http://www.motherearthnews.com/nature-and-environment/environmental-policy/fracking-chemicals-food-supply-ze0z1410zhur.aspx?PageId=3>

<http://www.motherearthnews.com/nature-and-environment/environmental-policy/negative-effects-of-fracking-zwfz1212zkin.aspx>

Introduction of New Weed Infestations

- In many cases, the drilling equipment has been used in other areas and has not been cleaned properly and carries seeds of weeds unseen in these areas, causing a breakout of exotic weeds

- Due to the limited access to certain parts of the farm, weed control from the usual methods of grazing and spot control is restricted, thus ensuring a seed bank of weeds to spread onto the productive parts of the farm

Land Subsidence and Reactivation of Fault Lines due to Fracking and the Extraction of Water and Gas.

- Whenever water is extracted from below the surface of the earth or when it is recharging the underground with “produced water”, the pressure gradients created have the potential to cause faulting of the area and hence produce earth quakes.
- There have been well-documented cases in the USA and also England where daily tremors of between 2 and 3 on the Richter scale have been caused by CSG mining. England has introduced a moratorium on CSG drilling till the issue can be resolved.

IMPACTS ON RURAL COMMUNITIES

With an influx of men, many of who are Fly In and Fly Out workers, there have been a lot of pressures on local businesses and societal pressures on the local community, as well as transport problems.

Disruption to Local Communities

- Local communities expecting to benefit from jobs growth and increasing demand for the local services sector have been very disappointed.
- Much of the CSG work force is not local people, but people who drive in/drive out from up to 100 or 200 km away.
- Single men are often housed in working mens accommodation a long way from towns and all their catering is done by sub-contractors sourcing their food etc. from the big cities
- Sexual assaults have increased in the mining towns
- Divisions have emerged in communities between those who allowed the drilling and those who did not
- In a recent ABC Landline report, the town of Chinchilla grew to about 11,000 people in the construction phase of the CSG roll-out, but has now shrunk back to around 7,000 once the work has dried up. This has created various levels of hardship for not only the original residents, but now for the businesses, which set up to cater for the demand and which, do not have the population to support them any more.
- At many places in northern NSW and QLD, people have physically blocked CSG industry trucks and equipment and arrests have taken place because of the level of concern for this industry.
- Small country towns in QLD and in the gas-fields of the USA are not pleasant places to live any more. It is hard for the long-term locals and very off-putting for the lifestyle retiree who would otherwise settle in a rural community.

Transport on Country Roads

- In areas of QLD affected by CSG production, endless convoys of drilling rigs and large semi-trailers carrying compressors, generators, desalination units, tankers full of highly toxic chemicals and an enormous amount of pipe for the gas and water pipelines have turned country roads into dangerous high risk areas for local drivers
- Roads are crumbling under this onslaught. The companies were not forced to pay for this cost. The taxpayer had to bear the cost.

HEALTH IMPACTS TO HUMANS AND LIVESTOCK

As stated previously, there have been many cases where livestock have become ill and not thrived in CSG areas. It has been difficult to prove what components of fracking fluids or what combinations of these chemicals were responsible or whether compounds that were extracted from the Earth were involved. The drilling companies should be responsible for finding out the risk factors involved and should be accountable for these losses, but to

date, no company has invested in the required research to make these chemicals safe or to find effective ways of dealing with radioactive elements such as the isotopes of radon which are brought to the surface in produced water. Gas submission 325

- In these circumstances, where links between the drilling operations and the health of humans and animals are well known, the precautionary principle must apply and industries which cannot provide 100% surety of safety should not be allowed to proceed.
- See below for the report from Doctors for the Environment.

http://www.gabpg.org.au/wp-content/uploads/2013/10/CSG_Health_Risk_Management_Tools_Dr_Somerville.pdf

- In the cases of ill health or stock losses, there is no set mechanism for seeking financial redress from the unconventional gas companies. Is there an insurance fund anywhere in the world that can cater for the potential liability of the case for example of a CSG operation polluting an aquifer?
- Unless this type of funding, paid for by the Unconventional gas industry is available, then it would be unwise to proceed, as people whose lives are affected need adequate compensation for loss of health and livelihood.

QUESTIONS OF INTEGRITY OF THE UNCONVENTIONAL GAS PROPONENTS

Lakes Oil

At the enquiry hearing in Sale on Wednesday July 1st, Robert Annells and his geologist Tim O'Brien stated that they have never received complaints about their activities in the region, even at Seaspray. When quizzed by panel members they admitted to maybe one complaint that they could remember. I personally know of many people who have made phone calls and written letters as well as confronted Lakes Oil workers including Mr Annells himself.

To suggest that they were unaware of community opposition to their projects is just plain stupid. We have seen on TV news broadcasts how much opposition there is.

They also seemed to reject the accepted wisdom that at least 5 % of wells fail within the first year. The world's leading expert Prof. Tony Ingraffea is on record as saying this. Their contention that because the gas is in sandstone at depths well below the aquifers that the farmers are drawing from means that there will be no possibility of contamination of the aquifers is therefore false. It is the concrete in the casings that have been the conduit for well failure and these can leak at any level.

Two years ago on WIN TV news Mr Annells said that the sandstone formation holding the gas, was 900 m below the surface. Some farmers pump from that depth. I note that he and Mr O'Brien now say that it is about 2 km below the surface, which more conveniently puts it below the aquifers from which most farmers pump.

When asked, by Richard Dalla Riva how many jobs and what annual return they expected to achieve, Mr Annells was unable to give any sort of estimate. It was obvious that they had not done this type of analysis and to us indicates that the request for drilling rights is just an ambit claim for resources access for which they can on-sell to a developer for great financial gain to themselves. It will be a genuine resource company that will take it to the next stage.

When pressed, Mr Annells said the Chinese would pay \$1 billion /year and it would provide 1000 jobs.

Mr Annells also said that the gas that they would sell would be to Australian industries. However, with no reserve scheme being contemplated, all the gas would have to go to export if it paid a higher return. At the moment, Japan is buying gas for about three times what Australasian consumers are paying.

It might be worth noting that Lakes Oil have been operating since the late 1950's and have never produced any saleable gas or oil. They have existed on hand-outs from hopeful investors who have never seen a return and of course on government grants. Gas submission 325

Some of Mr Annell's companies such as Green Earth have supposedly been for geothermal energy and have attracted investment from ethical investors who saw this as an opportunity to invest in renewable energy. However their research efforts were curtailed when the Napthine Government refused further grants. Investors would have lost out yet again.

Ignite Energy

Listening to Dr John White's presentation at the Enquiry, one couldn't help but believe we were being done over by a clever salesman. The main inconsistency, was his contention that lignite, from which they intended to extract methane was a clean, organic greenhouse-gas-neutral product and that somehow, because it was biogenic methane and not thermogenic methane it was better for the environment. They did not actually say it, but we were all led to believe that he meant that it produced less greenhouse gas than thermogenic methane. This of course is a load of rubbish, because irrespective of whether it is from a biogenic or thermogenic origin it is still methane and still essentially from a fossil fuel source.

Methane can only be considered a renewable energy form if it is obtained from organic material which was itself CO₂ in the atmosphere recently – maybe a few weeks ago or a few years ago and produced from the anaerobic digestion of sewage or food waste for example.

If it came from lignite, which was laid down from 10 million to 50 million years ago, then it is certainly outside the time frame for it to be considered renewable energy. When burnt, it adds to the amount of greenhouse gas above the level that Earth can recycle into the biosphere. This excess of greenhouse gas above the level at which the Earth's bio-systems evolved to recycle in a balanced state since well before humans first appeared on the planet (approx 200,000 years ago), is what is driving global warming.

Dr White was also untruthful when on at least two occasions, he likened the Biogenic gas, which *Ignite* were intending to access as like landfill gas. The important distinction to make is that we (humans) put the materials in the tip which then became methane (land-fill gas) because of anaerobic digestion. This can truly be considered as a biofuel because the material which decomposed to produce the landfill gas was itself CO₂ in the atmosphere less than 100 years ago and is just recycled in the same manner as plant matter does when it dies and decays in the natural cycle. Dr White is accessing not landfill gas, but gas which has been sequestered for at least 10 million years and which if released back into the environment by burning it or by fugitive emissions is adding to the imbalance of carbon in the atmosphere and oceans, which is driving climate change.

It was very misleading and deliberately misleading for John White to have us believe that Coal Bed Methane that they were trying to access, would have the same impact on the biosphere as landfill gas.

Ignite Energy has been the beneficiary of Government grants in the past and got \$20 million dollars as part of the Australian Lignite Demonstration program and would probably have ceased to trade to if they were unable to procure this line of funding.

QUESTIONS OF ECONOMIC SUSTAINABILITY IN LIGHT OF ONSHORE UNCONVENTIONAL GAS PROJECTS

The farming regions of Victoria provide about \$16 billion dollars of wealth to the state each year on current prices.

The thought that this level of production could be maintained with co-existence of onshore gas extraction is unlikely for the following reasons

- Gas extraction will compete with farmers for access to ground water. If there is less water for agriculture, then there will be less production
- Land has to be sacrificed to the drillers for well pads and access roads and is therefore taken out of production
- If there is contamination of aquifers, or local pollution, then production from the affected areas must cease
- If food comes from an area with a "clean, green" image, then it attracts higher prices because of quality
- At the moment, the dairy industry, not to mention wine, cattle and lamb are on the cusp of a major expansion due to interest from China. The Chinese will pay a premium – already \$7 per litre for Australian milk because it is produced in unpolluted conditions. To lose this competitive advantage by having the risk of potential contamination by fracking chemicals or hydrocarbons will scare this market and prevent its expansion
- If an aquifer does become contaminated with hydrocarbons, then it will affect not just one farm, but dozens or potentially hundreds of farms, who will have to take measures to prevent contaminated food from entering the market place.
- Worse still, a contamination event will cast a shadow over the whole region – In our case "Brand Gippsland" will be forever tainted by the association with contamination of food and our competitive advantage is gone. We won't be able to demand premium prices any more.

Other considerations

- The fact that the onshore gas industry was set up for export means that everyone's gas price will rise as we pay world parity prices. The demand for gas in Asia is so great that even if an onshore gas industry did start putting Victorian gas into the network, it won't cause prices to fall.
- In any case, there is 35 years worth of conventional gas in Bass Strait for domestic use
- At the same time, higher gas prices will gradually force consumers to use more energy efficient appliances for cooking and heating. Heat pumps and induction cook-top stoves are becoming common. Domestically, it is foreseeable that we can wean ourselves off the need for gas over the next 30 years and use renewable energy to provide for our needs. There should not be an need for onshore gas.
- At the moment, a farmer must ensure that the food he/she sells is fit for human consumption. If it isn't then they can be sued. If it is contaminated with fracking fluid or hydrocarbon, then there is no facility for the farmer to claim compensation from the gas company and the farmer is left to wear the cost
- The question for country people is "Why should we be asked to carry the risk and make the sacrifices in lifestyle, income and health, when our own incomes are not substantially improved and indeed may be reduced, when the main beneficiaries of gas development are big corporations and city business people". We carry all the burdens and don't get any of the rewards
- We have heard from tourism operators that visitors come to Gippsland to get away from the hustle and bustle of city life. Industrialising the landscape with a series of wells and especially flaring towers that light up the night is going to severely affect the farm holidays, guest houses and accommodation services.
- If the Gippsland Lakes get contaminated by hydrocarbons, the same result will occur. Every bit of water in the Latrobe River catchment goes to the sea via the Gippsland Lakes.
- We have little faith that regulations could be put in place to properly manage an industry like onshore gas. There were regulations for the coal industry. They didn't prevent the Morwell coal mine fire. Regulations did not prevent the Longford gas explosion.

Greenhouse Gas Emissions

- The promoters of CSG point to the fact that methane (in its pure form) produces about a half of the greenhouse gases that coal does when burnt. They claim this will help in the fight against global warming.
- However, because of the losses of gas all along the production chain creating fugitive emissions, this advantage is virtually cancelled out. As well, the installation of CSG infrastructure and the daily energy required to produce gas is extremely high. There is no clear benefit in replacing coal with CSG.

- Being a fossil fuel, CSG will be subject to a price on carbon (this will come in at some time before 2020. Gas submission 325
The rest of the world has some sort of carbon price. Australia will not be able to hold out for much longer on this) and if properly accounted for, will eat into the profits of these companies.

IN SUMMARY

The Latrobe Valley Sustainability Group considers that the onshore gas extraction industry is just an uncontrolled experiment, where even the promoters of the industry cannot guarantee the safety and viability of their investments.

The developers seem unprepared and unreliable and seem to be making unsubstantiated claims as to the feasibility, social acceptance and the safety of the enterprises, which are at odds to reports from QLD and overseas.

Rural people have little to gain and a lot to lose if this industry were to get a foothold in Gippsland.

With the advent of renewable energy technologies, Gippslanders have more to gain by its development in the region than from the development of destructive extractive industries such as CSG, which cause mass disruption to the natural eco-systems and farmland and which will only be productive for a maximum of 20 years and then leave a legacy of rusting and potentially poisonous and dangerous infrastructure and pollution dotting the landscape.

Country people are asking why the present bureaucracy and Governments are favouring land destroying and polluting developments like onshore gas over renewable energy technologies, which genuinely can co-exist with agriculture.

Aquifers could be contaminated for generations if the worst set of circumstances eventuated and the causes of climate change will still not have been addressed.

For these reasons, we will oppose any on-shore gas industry in Gippsland.