



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

8 July 2015

Dear Mr. Delaney,

Re: Inquiry into Unconventional Gas

On behalf of the Northern Alliance for Greenhouse Action (NAGA), I am writing to thank you for the opportunity to provide input into this inquiry into the exploration, extraction, production and rehabilitation for onshore unconventional gas.

The Northern Alliance for Greenhouse Action (NAGA) operates across the northern metropolitan region of Melbourne. NAGA's members include Banyule City Council, Darebin City Council, Hume City Council, Manningham City Council, City of Melbourne, Moreland City Council, Moreland Energy Foundation, Nillumbik Shire Council, City of Whittlesea and the City of Yarra. NAGA formed in 2002 to share information, coordinate emission reduction activities and cooperate on research and the development of innovative projects. NAGA's goal is to achieve significant emissions abatement by delivering effective programs and leveraging local government, community and business action.

NAGA's concerns about unconventional gas production primarily relate to potential environmental damage caused by the practice and a shift in focus away from progress towards a future based upon renewable energy. It is for these reasons that NAGA requests an extension of the existing moratorium on unconventional gas production until adequate research has been undertaken to better understand the environmental impacts of this industry, and how these can be adequately addressed.

Potential Environmental Damage

Opposition to the development of unconventional gas sources has centred on a number of environmental concerns, including those specifically related to greenhouse gas emissions:

The views represented in this submission do not necessarily represent the views of all NAGA members individually.

- *Fugitive emissions* – caused by leakage of coal seam or shale gas as part of unconventional gas production; taken together with emissions from use of gas this results in emissions, which may be potentially higher than conventional gas production¹. Given the variety of geological conditions that exist, and differing extraction techniques, it is likely that fugitive emissions will vary from site to site.
- *Biodiversity impacts* – a US study on the impact of unconventional gas production on local biodiversity in the Appalachian Mountains highlighted a range of negative biodiversity impacts, including increases in synthetic chemicals, salt and radionuclides in the environment, fragmentation of existing forests and reduced water flows in surrounding rivers and streams.² The study also noted disruption of the local landscape by wells, pipelines and roads, and increased truck traffic. As a result, plant and animal species with restricted geographic ranges were considered particularly vulnerable.
- *Groundwater contamination* – contamination of groundwater surrounding unconventional gas production takes the form of methane at levels higher than would normally be expected, and contamination by fluids used as part of the process to force gas into larger cavities. Methane has been found in groundwater close to wells at dangerously high levels in research conducted near unconventional gas production in Pennsylvania and New York³. In 2011, a US EPA study found contamination of groundwater supplies by unconventional onshore gas production chemicals in Wyoming, near an extraction facility following complaints from residents⁴. The US EPA noted that the well in this instance had been drilled much closer to groundwater supplies than was the norm.
- *Geological impacts* – unconventional onshore gas production in the United States has resulted, in some circumstances, in increased geological instability in the form of an increase in concentrated earthquakes. States such as Oklahoma and Pennsylvania have recorded increased seismicity around unconventional gas production sites, likely due to the injection of waste water from the process into disposal wells⁵.

Shift in Focus away from Renewable Energy

NAGA argues that investment in gas as a transition fuel diverts governments from investing in renewables which provide a more long term, sustainable solution. Communities that undertake early transition to renewables are expected to enjoy social and economic benefits in addition to the environmental outcomes.⁶ Modelling shows that even with abundant gas, from both conventional and unconventional sources, emissions reductions achieved through its production, by comparison to fuels such as coal, are limited and

¹ Howarth, R., Santoro, R. & Ingraffia, A. (2011) Methane and the greenhouse-gas footprint of natural gas from shale formations, *Climatic Change*, 106 (4), pp. 679-690.

² Kiviat, E. 2013. Risks to biodiversity from hydraulic fracturing for natural gas in the Marcellus and Utica shale's. *Annals of the New York Academy of Sciences*, 1286, pp. 1-14.

³ Osborn, S., Vengosh, A., Warner, N. & Jackson, R. 2011. Methane contamination of drinking water accompanying gas-well drilling and hydraulic fracturing, *Proceedings of the National Academy of Sciences USA*, 108, pp. 8172-8176.

⁴ *Fracking may be causing groundwater pollution, says EPA report*, The Guardian 10 December 2011 (<http://www.theguardian.com/world/2011/dec/09/epa-reports-fracking-groundwater-pollution?guni=Article:in%20body%20link>). Accessed 2 March 2014.

⁵ *Earthquakes in Oklahoma*, <http://earthquakes.ok.gov>. Accessed 7 July 2015

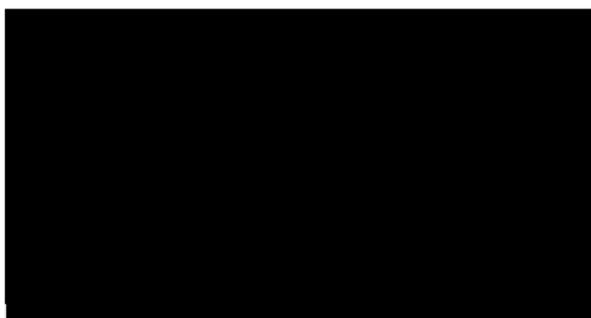
⁶ Engelder, T., Howarth, R. & Ingraffia, A. 2011. Should fracking stop? Extracting gas from shale increases the availability of this resource, but the health and environmental effects may be too high. *Nature*, 477 (7364), pp. 271-275.

may even result in increases in emissions due to cheaper fuel supporting overall increased economic growth⁷.

Our position is that the transition to a renewables-based economy should be the priority of governments at all levels. We are encouraged by the Victorian Government's activity including the upcoming Victorian Generation and Renewable Action Plan and believe that supporting an increase in unconventional gas production may detract from these efforts.

Please contact me [REDACTED] if you would like further information, case studies or any clarification regarding the issues raised in this letter.

Yours sincerely

A large black rectangular redaction box covering the signature area.

Paul Murfitt
NAGA Chair

⁷ McJeon, H., Edmonds, J., Bauer, N., Clarke, L., Fisher, B., Flannery, B., Hilaire, J., Krey, V., Marangoni, G., Mi, R., Riahi, K., Rogner, H. and Tavoni, M, Limited impact on decadal-scale climate change from increased use of natural gas, *Nature*, 514, pp. 482-285.
