



Suite 16  
228 Brunswick Street  
Fitzroy VIC 3065

Justice Rachel Pepper  
Chair of the Independent Scientific Panel

27 April 2017

Dear Justice Pepper,

Beyond Zero Emissions (BZE) welcomes the Northern Territory Government's invitation to make comments on the *Scientific Inquiry into Hydraulic Fracturing in the Northern Territory*.

BZE submits that the Independent Panel should consider the following issues in the context of the risks relating to climate change, energy security, environmental and health risks arising from coal seam gas, including water contamination, waste storage, salts, erosion, air pollution, land clearing and fire risk.

### ***Global warming impacts***

Natural gas is largely composed of methane, which has a global warming potential of 28-34 times that of carbon dioxide.<sup>1</sup> At a leakage rate of just 3.2%, gas becomes worse for the climate than coal.<sup>2</sup>

Gas leakage is increasing as conventional gas reserves are depleted and unconventional forms of extraction such as coal-seam and shale gas are brought into production.

In Australia the amount of methane escaping from unconventional production is not known, as the latest technologies to measure it have not been employed here. That said, in the United States new technologies, including satellite and aircraft-based systems have been used to quantify methane

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<sup>1</sup> IPCC, 2013: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

<sup>2</sup> Alvarez, R. A., S. W. Pacala, J. J. Winebrake, W. L. Chameides and S. P. Hamburg (2012). "Greater focus needed on methane leakage from natural gas infrastructure." *Proceedings of the National Academy of Sciences* 109(17): 6435-6440.

emissions from unconventional gas developments. Emissions ranging from 2 to 17% of production have been reported.<sup>3</sup>

This is 10-25 times higher than the Australian government reports to the UNFCCC, and up to 170 times those claimed by the gas industry.

If Australian unconventional gas production expands to twice its present size, a methane-emission rate of 6% would be equivalent to approximately half of Australia's total nation-wide greenhouse-gas emissions currently reported across all sectors.

BZE considers investing in new gas infrastructure will ultimately result in a massive sunk cost and will delay what is inevitable and necessary: a secure, national electricity market that is powered by 100% renewables. In contrast, moving to 100% renewable energy early will allow Australia, including the Northern Territory, to capitalise on the economic opportunities that renewable resources offers.

### ***Renewable resource advantage***

In contrast, moving to 100% renewable energy early will allow Australia, including the Northern Territory, to capitalise on the economic opportunities that renewable resources offers.

Australia is well placed to become a Superpower in the renewable energy era. Beyond Zero Emissions' research shows that Australia has abundant, low-cost, clean energy. The energy that could be gained from Australia's readily accessible solar and wind energy resources is far greater than the energy that could be gained from our deposits of coal, uranium, gas and oil.

The global market for renewable energy and efficiency solutions has been estimated to be US\$390 billion in 2013, and is expected to grow to US\$2.3 trillion per year by 2035 to limit global warming to 2°C.<sup>4</sup>

By making the transition to clean energy - and away from fossil fuel exploration, extraction and use - Australia can develop the enduring advantage of abundant, internationally low-priced energy, providing a solid basis for our future economy.

### ***About Beyond Zero Emissions***

Beyond Zero Emissions is an Australian research and education organisation. Since 2006 we've helped governments, businesses and individuals address one fundamental question: How can Australia rapidly transition to a zero carbon-emissions economy?

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<sup>3</sup> A review of current and future methane emissions from Australian unconventional oil and gas production, Melbourne Energy Institute, October 2016

<sup>4</sup> Renewable Energy Superpower, Beyond Zero Emissions, 2015

Our work is carried out by a small staff of experts, with the help of academic institutions and a large network of volunteer scientists, engineers and economists. We are funded by private foundations and concerned individuals.

In 2017 BZE's work was recognised by The Lauder Institute's Think Tanks and Civil Societies Program with a global think tank ranking of 52nd for the category "Best Independent Think Tanks."

Yours sincerely,

A handwritten signature in black ink, appearing to be 'V. Petrie', with a stylized, flowing script.

Vanessa Petrie  
Chief Executive Officer  
Beyond Zero Emissions