Consultation on ECO Policy on Fracking

Comments from Climate Justice Taranaki, June 2015

Position

1. Climate Justice Taranaki (CJT) fully support the proposed ECO policy on fracking:

   That ECO support a nationwide ban on fracking and sign the *Community Joint Statement – a Call to Ban Fracking in New Zealand*.

Introduction

2. Climate Justice Taranaki (CJT) was the initiator of the Community Joint Statement[i] to ban fracking. Based in Taranaki, the heart of the oil, gas and fracking industry, CJT is well aware of the serious social and environmental problems caused by fracking and the associated and consequential activities: oil and gas production, gas flaring, well workover, contaminant discharge into waterways and waste disposal on farms and below ground. CJT has compiled and analysed research and information from Taranaki and overseas on the subject for over five years. We had our first public meeting on fracking back in March 2011 and were instrumental in getting the Taranaki Regional Council to require resource consents for fracking (since July 2011), as acknowledged by the Parliamentary Commissioner for the Environment (PCE, November 2012)[ii].

Rationale for Banning Fracking

3. Our rationale in calling for a ban to fracking in New Zealand is clearly stated in the *Community Joint Statement*. Numerous studies and information supporting this call can be found on CJT website[iii] and elsewhere on the internet, notably the PSE (Physicians, Scientists & Engineers) Database on Shale and Tight Gas Development[iv].

4. Instead of restating our rationale, we will focus our comments on the pro- and counter arguments put forward in ECO's consultation document.

Arguments in favour of a ban on fracking

5. It appears that the word "No" is missing from the first argument which should read:

   No new gas wells (irrespective of whether the gas is produced using fracking or not) combined with no new coal mines and no new oil wells would signal to the world that New Zealand is taking the global carbon budget required for 2 degrees C seriously.

6. New Zealand has the ethical obligation to reduce its greenhouse gas (GHG) emissions. NZ emits the 3rd highest level of GHG per capita in the world, but it has the natural resources and technological knowhow needed to transition off fossil fuels onto sustainable energy systems. **Fracking enables access to previously uneconomical oil and gas resources, thereby lengthening fossil fuel dependency**.

7. CJT, along with many other groups and individuals, has urged the government to commit to at least a 40% emission reduction target by 2030 (compare to 1990 level), in the upcoming UNFCCC in Paris (CJT submission, 2015)[v]. Other nations including EU member states and Norway have already put forward this level of reduction as their intended nationally determined contribution.

8. The second argument, on **risks associated with fracking, must include health**. Notably New York State's ban on fracking since December 2014 was based on findings from hundreds of peer-reviewed studies, many on health (Huffington Post, 2014[vi], DC Bureau, 2014[vii] and Concerned Health Professionals of NY, 2014[viii]).

9. "As with most complex human activities in modern societies, absolute scientific certainty regarding the relative contributions of positive and negative impacts of HVHF [high volume hydraulic fracturing] *on public health is unlikely to ever be attained. In this instance, however, the overall weight of the evidence from the cumulative body of information contained in this Public Health Review demonstrates that there are significant uncertainties about the kinds of adverse health outcomes that may be associated with HVHF, the likelihood of the occurrence of adverse health outcomes, and the effectiveness of some of the mitigation measures in reducing or preventing environmental impacts which could adversely affect public health. Until the science provides sufficient information to determine the level of risk to public health from HVHF to all New Yorkers and whether the risks can be adequately managed, DOH* Department of Health] *recommends that HVHF should not proceed in NYS,"* Howard Zucker, Acting Commissioner of Health, New York State, 2015[ix]*.*

Problems with the counter arguments against a ban

10. CJT has serious concern over the first counter argument, especially coming from the environmental sector. **The argument that gas is cleaner and less damaging to climate than coal and therefore we must embrace gas and ditch coal is a spin promulgated by the fossil fuel industry to keep itself prospering**. Shell, Chevron, Exxon Mobil and BP recently declared "*Natural gas as a core pillar for a sustainable future of the planet*" (BBC, 9 June 2015)[x]. The industry, governments and even some environmentalists are calling gas "*the most environmentally-friendly*" fossil fuel. But this statement is an oxymoron!

11. "*There is no such thing as a clean fossil fuel, because burning any fossil fuel produces carbon dioxide which by definition means that it's unclean from a climate change point of view. … Natural gas is methane CH4 and it's a far more potent GHG that CO2. How much more potent depends on how long you are willing to measure the potency. And since climate scientists now tell us that we have only 2-3 decades to do something about reducing all carbon emissions … it's appropriate to use that time period to measure the relative potency of methane compared to that of CO2 … methane is 80 to 90 times … more potent as a GHG than CO2 over that time period… that means a very small percentage of methane getting into the atmosphere unburnt (not becoming CO2) … has the same effect as a very large amount of CO2. So the message is methane is really important in our fight against climate change … So if in the process of drilling, fracking, transporting by pipeline, compressing, processing, storing … some of it leaks into the atmosphere, that some had better be really small. Otherwise we are not helping the situation at*

all by switching our vehicles or electricity from coal or oil to natural gas… " Anthony Ingraffea, 2014[xi] and Howarth, 2014[xii].

12. **Importantly, we must not be coaxed or tricked into choosing between coal and gas. These are impossible choices. Both coal and gas are fossil fuels and both should be kept in the ground, especially in New Zealand where there are abundant renewable energy sources.** Currently there are some 46 renewable energy infra-structure projects[xiii] consented or proposed across the country. They can be expected to take off once government support for fossil fuel extraction is removed, and as gas supply declines, divestment movements strengthen and there is a clear demand and widespread support for renewable energy.

13. Mason, et al. (2013)[xiv] showed that **in terms of electricity, "*a generation mix comprising 49% hydro, 23% wind, 13% geothermal, 14% pumped hydro energy storage peaking plant, and 1% biomass-fuelled generation on an installed capacity basis, was capable of ensuring security of supply over an historic 6-year period, which included the driest hydrological year on record in New Zealand since 1931*.**"

14. Although Mason *et al*. (2013) also suggested, "*As a transitional policy, the use of fossil-gas-fuelled gas turbines for peaking would result in a 99.8% renewable system on an energy basis",* this does not necessarily mean that "*new gas is needed to see New Zealand through the transition to a low carbon future*" (as suggested in the first counter-argument).

15. "*The amounts required are relatively small and would decrease over time. More work is needed on replacing other uses of natural gas, but many energy uses can be electrified. Small quantities of natural gas, and ultimately biogas*[xv]*, can be retained for specialist applications, such as professional kitchens*," Ian Mason (pers. comm.).

16. Moreover, **the increase in gas production does not always trigger a decline or displacement of coal or reduction in GHG emission overall**. The IAE (2012)[xvi] gave the example of "*how low-priced natural gas is reducing coal use in the United States, freeing up coal for export to Europe (where, in turn, It has displaced higher-priced gas)*."

17. A 2014 paper published in *Nature* showed that, "***market-driven increases in global supplies of unconventional natural gas do not discernibly reduce the trajectory of greenhouse gas emissions or climate forcing****. Our results, based on simulations from five state-of-the-art integrated assessment models[11] of energy–economy–climate systems independently forced by an abundant gas scenario, project large additional natural gas consumption of up to +170 per cent by 2050. The impact on CO_2 emissions, however, is found to be much smaller (from −2 per cent to +11 per cent), and a majority of the models reported a small increase in climate forcing (from −0.3 per cent to +7 per cent) associated with the increased use of abundant gas. Our results show that **although market penetration of globally abundant gas may substantially change the future energy system, it is not necessarily an effective substitute for climate change mitigation policy**,"* McJeon et al. 2014[xvii].

18. Shearer *et al*. (2014)[xviii] found that, "*Across a range of climate policies… abundant natural gas decreases use of both coal and renewable energy technologies in the future. Without a climate policy, overall electricity use also increases as the gas supply increases. With reduced*

deployment of lower-carbon renewable energies and increased electricity consumption, the effect of higher gas supplies on GHG emissions is small: cumulative emissions 2013–55 in our high gas supply scenario are 2% less than in our low gas supply scenario, when there are no new climate policies and a methane leakage rate of 1.5% is assumed. ... Our results suggest that ***without strong limits on GHG emissions or policies that explicitly encourage renewable electricity, abundant natural gas may actually slow the process of decarbonization, primarily by delaying deployment of renewable energy technologies***."

19. Critically, CJT argues that a gradual "transition" has, for too long, been used as an excuse to delay action. It might have worked 20 years ago, but we don't have time to transition smoothly anymore.

20. "And as the famed climate scientist Michael Mann, director of the Penn State Earth System Science Center, puts it, "There's a huge procrastination penalty when it comes to emitting Carbon into the atmosphere": the longer we wait, the more it builds up, the more dramatically we must change to reduce the risks of catastrophic warming. … Our ongoing and collective carbon profligacy has squandered any opportunity for the 'evolutionary change' afforded by our earlier (and larger) 2°C carbon budget. ***Today, after two decades of bluff and lies, the remaining 2°C budget demands revolutionary change to the political and economic hegemony***" (Naomi Klein, 2014[xix] and Michael Mann, 2014[xx]).

21. Re ECO's second counter argument, CJT argues that **we must not choose between fracking and offshore drilling** (shallow or deep-sea) – the way we don't choose between coal and gas. Both fracking and offshore drilling are risky to the environment, people and the economy. Fracking near homes and schools, near active fault lines and in areas heavily reliant on aquifers are especially risky (PCE, 2014) [xxi]. Deepsea oil drilling is especially risky because of the extremely difficult and sometimes unpredictable physical environment it operates in. Both fracking and offshore drilling prolong the reliance on fossil fuels, add to GHG emissions and exacerbate climate change.

22. **Encouraging "*new gas*" to be made available by fracking may even be considered a violation of human rights**.

23. Grear *et al.* (2014)[xxii] explained, "*An earlier form of fracking has previously been used in the UK (and elsewhere), but the use of directional drilling (horizontal as well as vertical) and the pumping of large volumes of water containing sand and additive chemicals at high pressure to bring about fracturing together pose new challenges and risks. These include a range of potentially adverse and serious effects on health and the environment and, importantly for this Report, on human rights*".

24. *"From farm animals dropping dead overnight to low birth weights in human infants, fracking is becoming synonymous with harm, and the process is seen to harm ecosystems, as well as animal and human health. Often overlooked in the fracking debate is the fact that* ***fracking can breach international human rights law in multiple ways. … and include violations to the right to health, water, food, housing, freedom of information and expression, the rights of children, and the cultural and collective rights of indigenous peoples, ethnic minorities, and peasant communities****"* (Sisters of Mercy, 2015)[xxiii].

25. From a humanitarian angle, providing universal energy access is widely accepted as a key to increasing social equity. The United Nations Decade of Sustainable Energy for All (2014-2024) [xxiv] was launched to promote "*Universal energy access, increasing the use of renewable energy, improved energy efficiency and addressing the nexus between energy and health, women, food, water and other development issues*". Unfortunately, some, including those inside and outside the fossil fuel industry, acknowledged the UN statement but then jumped to the conclusion that as "*the world faces an energy problem with shrinking resources and that natural gas, boosted by hydraulic fracturing or fracking, could be a means of building greener economies*…" (NCWNZ, June 2015)[xxv]. As explained earlier, natural gas cannot be considered "clean" or "green" and its promotion does not necessarily support the transition to sustainable/renewable energy systems. Ironically, the most deprived people will also certainly be the most badly affected by the social and environmental impacts of fracking (e.g. water and land contamination) and climate change (e.g. drought, sea level rise).

26. The truth is this: It is not fossil fuel or other big corporations' mission to foster human rights or social equity – their sole mission is to make profits and answer to their shareholders. Worldwide, there have been countless examples of communities, especially in poorer nations, devastated by fossil fuel or mineral mining. Many wars have been fought over oil, gas, gold and other resources, though often in disguise. It is technically feasible for everyone to have enough energy for a good quality of life, using only renewable technology. But it will only be possible if the wealthy minority stops over-consuming and allows others to come up to a fair and sustainable level. For the under-privileged majority, renewable energy enables a new, decentralised and more democratic energy system that meets the needs of the many rather than providing profits to the few (New Internationalist, 2015)[xxvi].

27. CJT strongly disagrees with the third counter-argument. For the numerous reasons already mentioned, **fracking is simply NOT acceptable from both environmental and social justice perspectives**. Countless assessments, from scientific research to government / NGO reports and anecdotal evidence, have already been conducted, revealing the wide ranging issues and risks. Where there has not been concrete evidence, it's because there has not been thorough investigations, landowners and physicians have been silenced, or the scale of operations is still small.

28. The Parliamentary Commissioner for the Environment's report (June, 2014) warned, *"The impacts of an individual well are generally small – it is the cumulative effect of many wells on the landscape, on the risk to groundwater, and so on, that matters most. The Resource Management Act has never been well-suited to managing cumulative effects because of the way precedents are created. The straw that breaks the camel's back generally receives consent more readily than the first straw."*

29. The US EPA's recent assessment on fracking did not find evidence of widespread, systemic impacts on drinking water resources, but noted that, "*this finding could reflect a rarity of effects …, but may also be due to … insufficient pre- and post-fracturing data on the quality of drinking water resources; the paucity of long-term systematic studies; the presence of other sources of contamination precluding a definitive link between hydraulic fracturing activities and*

an impact; and the inaccessibility of some information on hydraulic fracturing activities and potential impacts," US EPA, 2015[xxvii].

30. **Realistically, many of the risks and impacts of fracking cannot possibly be avoided or mitigated even with the best assessments and regulations**. Notably the issue of well integrity has not been resolved despite substantial engineering advancement. **About 5% of all oil and gas wells leak immediately because of integrity issues, and in 20 years, more than half of all wells will leak** (Bruffato et al. 2003)[xxviii]. Of over 8,000 wells in the Marcellus shale inspected from 2005 to 2013, 6.3% had integrity failure (Davies *et al.* 2014[xxix]).

31. "*… this problem is neither negligible nor preventable with current technology... Pressures under the earth, temperature changes, ground movement from the drilling of nearby wells and shrinkage crack and damage the thin layer of brittle cement that is supposed to seal the wells. And getting the cement perfect as the drilling goes horizontally into shale is extremely challenging. Once the cement is damaged, repairing it thousands of feet underground is expensive and often unsuccessful. The gas and oil industries have been trying to solve this problem for decades"* (Ingraffea, 2013[xxx]). Fracked wells are more likely to leak than conventional wells (Ingraffea et al, 2014[xxxi]).

32. Well integrity issues have been documented episodically in New Zealand, notably at Cheal-A wellsite since 2007, Cheal-C in October 2013 and Mangahewa-C and E in early 2015 (CJT, 2015[xxxii]). Leaky wells result in methane migration causing groundwater contamination and contribute significantly to GHG emissions.

33. **Both fracking itself and the disposal of fracking wastes and produced water by deepwell injection have been shown to cause, trigger or induce earthquakes** in the US, Canada, UK and the Netherlands (Skoumal *et al*, 2015[xxxiii]; Davies *et al*, 2013[xxxiv]; Ellsworth, 2013[xxxv]; Miles, 2015[xxxvi]).

34. Many nations and regions have declared a ban or moratorium[xxxvii] on fracking, e.g. Germany, France, Wales, Scotland, Tasmania, Victoria, New York State, Maryland, Los Angeles, and some counties in California and Texas.

35. **CJT sincerely asks ECO to thoroughly consider the high risks and irreversible consequences of fracking, from health impacts on local communities to environmental damages and runaway climate change. Please take the precautionary principle and express solidarity to communities and nations suffering from such dire consequences. Please sign and promote the Community Joint Statement, and lobby the government to commit to a nationwide ban on fracking.**

36. We end our submission with the first four core principles of the Earth Charter (2000)[xxxviii], to remind ourselves of the ethical vision and values when making our decisions:

    - Respect Earth and life in all its diversity.
    - Care for the community of life with understanding, compassion, and love.
    - Build democratic societies that are just, participatory, sustainable, and peaceful.
    - Secure Earth's bounty and beauty for present and future generations.

[i] *Community Joint Statement – A Call to Ban Fracking in New Zealand* (March 2015). https://climatejusticetaranaki.files.wordpress.com/2013/03/community-joint-statement-on-fracking-2015-v2-11march2015.pdf

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[iv] PSE Study Citation Database on Shale & Tight Gas Development. http://www.psehealthyenergy.org/site/view/1180

[v] Climate Justice Taranaki submission on New Zealand's Climate Change Target, 3 June 2015. https://climatejusticetaranaki.files.wordpress.com/2013/03/cjt-submission-on-nz-climate-change-target-3june2015.pdf

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