



## Environment Centre NT

protecting nature | living sustainably | creating a climate for change

Thank you for the opportunity to comment on the scientific inquiry into hydraulic fracturing and welcome this inquiry and the scope of the Terms of Reference.

The Environment Centre of the Northern Territory (NT) is the peak community sector environment organisation in the Northern Territory.

The mission of the Environment Centre NT is to

- protect and restore biodiversity, ecosystems and ecological processes,
- foster sustainable living and development, and
- cut greenhouse gas emissions and build renewable energy capacity.

The Environment Centre NT (ECNT) works by

- advocating for the improvement of environmental policies and performance of governments, landholders, business and industry;
- partnering on projects and campaigns with conservation and climate organisations, governments, Indigenous organisations, community groups, businesses, and landholders;
- raising awareness amongst community, government, business and industry about environmental issues and assisting people to reduce their environmental impact;
- supporting community members to participate in decision making processes and action;
- recognising the rights, aspirations, responsibilities and knowledge of the Territory's Indigenous peoples; and,
- acknowledging that environmental issues have a social dimension.

We imagine you have many submissions to read and thus endeavour to provide our feedback and information succinctly, addressing the relevant risks according to your framework in the background and issues paper. We have read and endorse the submission from Arid Lands Environment Centre to the scientific inquiry on hydraulic fracturing. In our submission we have raised points that we think are vital or may not be covered in submissions from EDONT, Lock the Gate or Frack Free Darwin.

We request the panel to adopt the following principles:

Precautionary principle, particularly in the absence of a consensus regarding the science related to hydraulic fracturing.

Ecological sustainable development, including inter-generational equity. Please refer to EPA NT's recommendations from their 2006 publication<sup>1</sup>

## **Terms of Reference**

### **7.1 Water**

#### Water quality – Ground Water

With over 90% of the Northern Territory's (NT) water coming from groundwater and around 35,000 water bores<sup>2</sup>, the protection of the NT's groundwater is imperative for health, wellbeing and economic viability.

ECNT does not consider any level of risk to groundwater is acceptable. The proof of burden must be on the industry to prove it is safe rather than on the community proving it isn't. Research from the US confirms that wells fail and methane migrates up into ground water from underlying gas-containing shale<sup>3</sup>.

- Scientific evidence would need to be provided by industry to ascertain that contaminated groundwater could be remediated.
- There needs to be baseline studies to determine existing groundwater methane levels prior to drilling
- Dye tracing needs to be used to determine groundwater movement and the impact in the case of contamination.
- Industry insurance needs to cover land owners and communities in the case of contamination.
- Environmental bonds or other securities need to be paid by hydraulic fracturing proponents to provide for environmental remediation in the event of contamination, noncompliance and insolvency, where insurance does not cover these events
- How does the integrity of wells be monitored over the lifetime?

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<sup>1</sup> [https://ntepa.nt.gov.au/\\_\\_data/assets/pdf\\_file/0005/284900/EPA-Report\\_ESD-in-the-Northern-Territory.pdf](https://ntepa.nt.gov.au/__data/assets/pdf_file/0005/284900/EPA-Report_ESD-in-the-Northern-Territory.pdf)

<sup>2</sup> <https://nt.gov.au/environment/water/groundwater>

<sup>3</sup> Sherwood, O. A., Rogers, J. D., Lackey, G., Burke, T. L., Osborn, S. G. & Ryan, J. N. (2016). Groundwater methane in relation to oil and gas development and shallow coal seams in the Denver-Julesburg Basin of Colorado. *Proceedings of the National Academy of Sciences* 113(30). doi: 10.1073/pnas.1523267113

- We don't not believe there is currently the regulation or the capacity to monitor and enforce compliance to adequately protect the NT's groundwater, thus we are not addressing possible provisions that may protect groundwater. We also believe that industry need to contribute to the costs of monitoring and compliance.
- Minimum no go zones around catchment areas, towns, communities and sensitive areas are established (eg. drinking water catchments, sacred sites or protected areas, groundwater recharging zones, food croplands).

### Surface Water

US studies show that accidental spills of fracking wastewater contaminate soil and surface water and are observed in spill sites up to four years after spill events. Contaminants include radium and lead.<sup>4</sup>

- As above, we believe there is little capacity to independently monitor spill events or penalise companies where there are incidents.

### Water supply and distribution

#### **Volume**

We urge the panel to consider the need for an independent assessment of how much water there is available to meet the competing needs including ensuring healthy flows in our river systems, agriculture, mining & gas requirements including Ichthys LNG project, what is needed to maintain healthy native vegetation and biodiversity. This assessment also needs to consider impacts of climate change, surface-ground water interactions and future needs. Hydraulic Fracturing is a water intensive process, thus localised impacts on surface and groundwater extraction, especially over short periods of time and in consideration of the tropical wet/dry climate, need independent assessment and verification for each project. There are also questions about how water usage can be monitored.

### 7.2 Land

We would like to see mapping that shows current and existing vegetation and landscape images with any hydraulic fracturing proposals mapped superimposed on top of it. This includes showing the full infrastructure of wells, connecting pipelines, processing facilities, roadways etc. ECNT is very concerned about the industrialisation of the landscape, especially as the unique landscape and ecosystems of the NT have not been subject to

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<sup>4</sup> 2 Lauer, N. E., Harkness, J. S., & Vengosh A. (2016). Brine spills associated with unconventional oil development in North Dakota. *Environmental Science & Technology*, 50(10). doi: 10.1021/acs.est.5b06349

extensive development pressures. Providing mapping of this nature will enable the community to visually see the impact of such developments.

ECNT is also concerned about the impact that a fracking industry will have on successful existing Aboriginal fire management programs. These innovative programs administer early dry season burn offs, thus reducing carbon emissions and impacts of late season wildfires and provide economic benefits from carbon abatement. Fire management is also an important part of management of National Parks, pastoral properties, and freehold land.

The location of fracking drill site infrastructure and vicinity of highly inflammable and potentially explosive gas wells in remote locations poses several serious risks in the case of bushfire and may it difficult to continue to do safe controlled burning. This may threaten the cultural and economic benefits of these innovative systems.

We believe it is imperative that the panel considers the impact of an expanding fracking industry will have on the Indigenous Ranger Program and Aboriginal Land Management programs.

### **7.3 Air**

#### Climate Change

We endorse and support Climate Action Darwin's submission regarding impacts of the fracking industry on climate change. We also encourage the panel to seek information regarding methane emission from the Melbourne Energy Institute Report 'A review of current and future methane emissions from Australian unconventional oil and gas production'<sup>5</sup>

Climate change is an increasingly important and pervasive pressure on all aspects of the Australian environment. It is altering the structure and function of natural ecosystems, and affecting heritage, economic activity and human wellbeing<sup>6</sup>

Climate change will result in location-specific vulnerabilities, and people who are socially and economically disadvantaged are most sensitive to climate change.

Evidence shows that the impacts of climate change are increasing, and some of these impacts may be irreversible.

Entry into Paris agreement brings the horizon forward for action on climate change. There are reliable signals that policy changes will occur as large greenhouse gas emission

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<sup>5</sup> Accessed from <http://energy.unimelb.edu.au/articles/a-review-of-current-and-future-methane-emissions>

<sup>6</sup> From the 'State of the Environment' produced by the Department of Environment and Energy tabled on the 7<sup>th</sup> March 2017 see <http://www.environment.gov.au/science/soe>

reductions are critical to achieve goals of the Paris agreement; net zero greenhouse gas emissions by 2050

It has been suggested fracked gas could be a 'transition fuel'. Investing in the gas industry presents risks to investors with carbon emissions pricing likely in the future. This could mean a situation where fracked shale gas becomes too expensive resulting in asset stranding, especially by the time the industry gets up and running.

Any major government incentives for and investments in shale gas production and gas generation may lock-in significant carbon emissions for many decades to come. They could also impact negatively on innovation in and the development and deployment of the even lower-carbon options, including renewables and energy efficiency innovations, required to limit climate risks.

The current US administration have clearly said that will pursue a vigorous program of fossil fuel extraction. We have a choice in Australia and NT – to follow this self-interest or hold the needs of the entire planet and future generations at the centre of our strategies of resource use. NT has abundant sun, strong currents – an opportunity to lead the way in innovation and development in an expanding renewables industry.

Whilst we may not have a federal government willing to act on climate change, there are very loud signals from the financial<sup>7</sup> and insurance industry<sup>8</sup> that a transition to a net zero emissions economy is required and climate related risks need to be managed. This is reaching company AGM's as investors call for information on how climate risk and opportunities are being addressed. We believe the social licence for fossil fuel industry development will soon be revoked, which will have a major impact on any potential fracking developments in the NT.

## **7.7 Economic**

In looking at economic assessments we urge the Panel to conduct the research to assess viability of the industry under the following conditions – separately and cumulatively: With a domestic gas reservation policy, an emissions trading policy, extensive technological development to measure and reduce methane emissions throughout the whole production/processing cycle and industry contribution to regulatory systems.

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<sup>7</sup> See Westpac's newly released Climate Change Position Statement accessed from <https://www.westpac.com.au/content/dam/public/wbc/documents/pdf/aw/sustainability/WestpacCCEActionPlan.pdf>

<sup>8</sup> <http://www.apra.gov.au/Speeches/Pages/Australias-new-horizon.aspx>

We strongly believe as the costs of renewables decrease and the burden and requirement to factor in externality costs, extracting gas via hydraulic fracturing will not be economically viable. Given the industry is planning a production for 40-50 year's and in this time we will need to be at zero emissions, there is a strong likelihood of fracking gas wells and infrastructure being stranded assets. Please consider the information and recommendations in the newly released report from the Climate Council 'Pollution and Price: The cost of investing in gas'<sup>9</sup>

**Cumulative impacts** – The 'big picture' cumulative impacts of a possible fracking industry in the NT need to be held and considered, these include; potential aquifer contamination, landscape and ecosystem fragmentation, greenhouse and other emissions to the atmosphere, potentially adverse social impacts, impacts on other industries including tourism, agriculture, cultural land management and the burden of regulatory costs. These cumulative impacts also need to be put in the context of some urgency to move towards ecologically sustainable practices that ensure future generations can thrive on planet earth with clean air and water and healthy ecosystems.

Environment Centre NT acknowledges the immensity and responsibility being undertaken by the Panel in reviewing all the scientific (including social science) evidence being reviewed in this inquiry. If we can be of any assistance or provide clarity regarding references, please let us know.

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<sup>9</sup> Accessed from <https://www.climatecouncil.org.au/price-of-gas>