


Nicole Pietsch



**Submission by Nicole Pietsch to:  
The Scientific Inquiry into Hydraulic Fracturing in the Northern Territory**

**Attention:  
Hydraulic Fracturing Taskforce**

I submit my key concerns with regard to enabling industrial unconventional gas production in the Northern Territory to the taskforce.

Beyond the environmental impacts from the process of hydraulic fracturing for gas, my overwhelming concern is the impacts of any new fossil fuel ventures, including fracked gas, on climate change.

Gas is being labeled as a 'transition fuel' however as the following report from the scientists of the Climate Council demonstrates, gas can be just as polluting as coal.

<http://www.climatecouncil.org.au/price-of-gas>

**Key Points:**

**1. No new fossil fuel projects can go ahead if we are to meet climate targets for keeping temperature rise to 2 degrees**

97 percent of climate scientists agree that climate change is happening!

80% of known fossil fuel reserves must stay in the ground. This means no new fossil fuel projects, and abandoning some existing ones.

Significant fugitive emissions from fracked gas must be considered.

When considering the 'science' of fracking the impacts of opening up new fossil fuel reserves on climate change **can not be ignored**.

Please consider the information in the following journals and articles as part of the inquiry:

The geographical distribution of fossil fuels unused when limiting global warming to 2c

<http://www.nature.com/nature/journal/v517/n7533/full/nature14016.html>

Hollande: 80% of fossil fuels must stay in the ground

<http://www.climatechangenews.com/2015/07/24/hollande-80-of-fossil-fuels-must-stay-in-the-ground/>

Why We Need to Keep 80% of Fossil Fuels in the Ground

<https://350.org/why-we-need-to-keep-80-percent-of-fossil-fuels-in-the-ground/>

Leave fossil fuels buried to prevent climate change, study urges

<https://www.theguardian.com/environment/2015/jan/07/much-worlds-fossil-fuel-reserve-must-stay-buried-prevent-climate-change-study-says>

NASA - Scientific consensus: Earth's climate is warming

<https://climate.nasa.gov/scientific-consensus/>

Quantifying the consensus on anthropogenic global warming in the scientific literature <http://iopscience.iop.org/article/10.1088/1748-9326/8/2/024024>

2016 – Global Heat Record Broken Again

<http://www.climatecouncil.org.au/uploads/7ce0d94105bf486d5b598d1c928b51ee.pdf>

Cranking up the Intensity: Climate Change and Extreme Weather Events

<http://www.climatecouncil.org.au/uploads/1b331044fb03fd0997c4a4946705606b.pdf>

**2. New fossil fuel infrastructure will make it significantly harder for the NT to meet it's 50% renewable energy targets by 2030 and transitioning to renewable energy.**

100% renewable energy is technically possible, and any future investment into fossil fuel infrastructure impedes the transition to renewable energy.

Please consider the information in the following journals and articles as part of the inquiry:

State of Solar 2016: Globally and in Australia

<http://www.climatecouncil.org.au/uploads/4127a8c364c1f9fa8ab096b04cd93f78.pdf>

100% Renewable Energy In Australia

<http://energy.anu.edu.au/files/100%25%20renewable%20electricity%20in%20Australia.pdf>

**3. There are significant environmental impacts from the process of hydraulic fracturing, which is increasingly being demonstrated by studies from US Shale fields.**

Please consider the information in the following journals and articles as part of the inquiry:

The Urgent Case for a ban on fracking

[https://www.foodandwaterwatch.org/sites/default/files/urgent\\_case\\_for\\_ban\\_on\\_fracking.pdf](https://www.foodandwaterwatch.org/sites/default/files/urgent_case_for_ban_on_fracking.pdf)

Impacts of shale gas and shale oil extraction on human health and the environment

<https://europeecologie.eu/IMG/pdf/shale-gas-pe-464-425-final.pdf>

Please note the following excerpt from this article:

## “ENVIRONMENTAL IMPACTS

### KEY FINDINGS

- Unavoidable impacts are area consumption due to drilling pads, parking and manouvering areas for trucks, equipment, gas processing and transporting facilities as well as access roads.
- Major possible impacts are air emissions of pollutants, groundwater contamination due to uncontrolled gas or fluid flows due to blowouts or spills, leaking fracturing fluid, and uncontrolled waste water discharge.
- Fracturing fluids contain hazardous substances, and flow-back in addition contains heavy metals and radioactive materials from the deposit.
- Experience from the USA shows that many accidents happen, which can be harmful to the environment and to human health. The recorded violations of legal requirements amount to about 1-2 percent of all drilling permits. Many of these accidents are due to improper handling or leaking equipments.
- Groundwater contamination by methane, in extreme cases leading to explosion of residential buildings, and potassium chloride leading to salinization of drinking water is reported in the vicinity of gas wells.
- The impacts add up as shale formations are developed with a high well density (up to six wells per km<sup>2</sup>). “

Human health and environmental risks of unconventional shale gas hydrofracking

<http://www.sciencedirect.com/science/article/pii/S0048969715007330>

Toward an Understanding of the Environmental and Public Health Impacts of Unconventional Natural Gas Development: A Categorical Assessment of the Peer-Reviewed Scientific Literature, 2009-2015

<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0154164>

Please note the following excerpt from this article:

“Our results indicate that at least 685 papers have been published in peer-reviewed scientific journals that are relevant to assessing the impacts of UNGD. 84% of public health studies contain findings that indicate public health hazards, elevated risks, or adverse health outcomes; 69% of water quality studies contain findings that indicate potential, positive association, or actual incidence of water contamination; and 87% of air quality studies contain findings that indicate elevated air pollutant emissions and/or atmospheric concentrations.”

## Results

### **Public Health**

Based on our criteria, we included 31 original research studies relevant to UNGD and public health hazards, risks, and health outcomes. Of these 31 studies, 26 (84%) contain findings that indicate public health hazards, elevated risks, or adverse public health outcomes and 5 (16%) contain findings that indicate no significant public health hazards, elevated risks, or adverse health outcomes associated with UNGD (Fig 2). The vast majority of all papers on this topic indicate the need for additional study, particularly large-scale, quantitative epidemiologic research.

### **Water Quality**

Based on our criteria, we included 58 original research studies relevant to shale gas development and water quality. Of these 58 studies, 40 (69%) have findings that indicate potential, positive association, or actual incidence of water contamination associated with UNGD, while 18 (31%) have findings that indicate minimal potential, no association, or rare incidence of water contamination (Fig 2).

### **Air Quality**

Based on our criteria, we included 46 original research studies relevant to questions involving associations between UNGD and air pollutant emissions and atmospheric air pollutant concentrations. Of these 46 studies, 40 (87%) have findings that indicate that UNGD increased air pollutant emissions and/or atmospheric concentrations, while 6 (12%) of the studies contain findings that provide no indication of significantly elevated air pollutant emissions and/or atmospheric concentrations (Fig 2).

“Despite its limitations, our assessment provides a general understanding of the weight of the scientific evidence of possible impacts arising from UNGD that are relevant to environmental public health. It demonstrates that the weight of the scientific literature indicates that there are hazards and elevated risks to human health as well as possible adverse health outcomes.

Finally, it must be understood that all forms of energy production and industrial processing have environmental impacts. Our assessment is only focused on assessing the available science on the environmental and public health dimensions of the development of natural gas from shale and tight formations. We make no claims about the level of impact that should be tolerated by society—these are ultimately value judgments that incorporate more than empirical findings.”

## **4. Lack of any Baseline studies**

It most scientific literature re impacts of fracking, significant gaps in understanding are acknowledged, including lack of baseline data to measure impacts on health and the environment,

As a result of this scientific data can not be the only measure – anecdotal evidence must be considered when addressing the health of communities.

## 5. World Gas glut

It is well documented there is a world over-supply of gas, and in recent Australian media documentation around the fabrication of the east coast gas crisis, as most unconventional gas is being exported.

Gas Companies have manufactured shortage myth economist says  
<https://www.theguardian.com/environment/2017/jan/13/gas-companies-have-manufactured-shortage-myth-economist-says>

Northern Territory Gas Pipeline a White Elephant  
<http://www.smh.com.au/business/energy/northern-territory-gas-pipeline-a-white-elephant-report-20160518-goya2b.html>

Pipe-Dream: A Financial Analysis of the NEGI  
<http://ieefa.org/wp-content/uploads/2016/05/Pipe-Dream-A-Financial-Analysis-of-the-NEGI-MAY-2016.pdf>

World Gas Market Faces a Glut  
<http://www.thenational.ae/business/energy/world-gas-market-faces-glut-says-iaea>

I urge the NT Fracturing Taskforce to listen to the ‘science’ on climate change when considering enabling unconventional gas production in the Northern Territory, and assist in the transition to renewable energy by **recommending banning unconventional gas production in the NT.**

Yours Sincerely.

Nicole Pietsch