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To the Fracking Inquiry Panel,

My name is Katherine (Katie) Hobbs and I am first generation Australian. My parents come from Scotland, a country that has after “overwhelming public opposition and little economic justification for the industry” (Carrell, 2017) banned fracking. I am writing to you as I want to make it clear that Western Australia feels the same as Scotland does. We want a ban on fracking. I am a trained primary school teacher and a very concerned Australian citizen. We are at a time in the world’s history where we can either change the world for the better and listen to the science, or we can stick our heads in the sand and hurtle the earth into catastrophic climate change. We don’t have much time. Either of these options will happen soon depending on our actions right now. In this submission I would like to talk about three, out of the countless issues surrounding the fracking industry and the potential (known effects) that we will face if fracking is allowed in WA. Climate change, water contamination and landscape degradation are going to be my main points, however, please be aware that I could write endlessly about fracking and its dangers, but the science is there, I have linked you to a number of very valuable sources, please read them.

Human made Climate Change

In 2018 I will turn 30. I have spent my whole life in a world where scientists have known about human made global warming. The 90’s were a time when the evidence really started stacking up and people started acting on the fact that if we didn’t start to change, we would destroy the world we were living in. Decades later we are still fighting for change and it is incredibly scary how much the fossil fuel industry powers, and has power over our governments, even with nearly 100% of scientists knowing and speaking out that fossil fuels are the cause of our climate change. As a country, Australia and especially WA needs to change.

“As a Paris Agreement signatory, Australia - and thus by extension Western Australia - need to reduce their greenhouse gas emissions to be in line with the climate treaty’s long-term objective to hold global temperature rise to “well below” 2°C above pre-industrial levels and pursue efforts to limit it to 1.5°C. The world has warmed by 1°C since the Industrial Revolution and even at this level of warming Australia is already experiencing severe climate impacts – from coral reef loss to devastating bushfires linked to increasingly long and intense heat waves and

droughts. Limiting warming to 1.5°C is particularly important to Australia as it represents a chance to avoid much worse climate impacts.” (Hare et al, 2018 pg 1.)

Over my life time I have witnessed massive coral bleaching of the Great Barrier Reef, climate refugees (fleeing from war due to drought and sea level rise), droughts, floods, wildlife extinction at a rate only ever seen during mass extinctions and the destruction left behind by the fossil fuel industries. I am watching as our governments take huge donations from the largest fossil fuel industries to ensure these industries can continue to be subsidised and invested in while the world slowly heats up. Fracking is the newest extraction method for getting to the fossil fuels, never accessed due to how deep and hard they are to get to underground. Methane gas is our enemy here.

“Methane, which leaks from all parts of the natural gas extraction and distribution system, is a powerful greenhouse gas that traps 86 times more heat than carbon dioxide over a 20-year time frame. According to the best available evidence, fuel-switching that replaces coal with natural gas to generate electricity offers, at best, no clear climate benefits and may well represent a step backwards. As is now documented in many studies, fugitive methane emissions from U.S. drilling and fracking operations, storage, and ancillary infrastructure are higher than previously supposed. A significant proportion of these leaks are not preventable through engineering fixes. Total methane emissions increased by more than 30 percent between 2002 and 2014. All together, these studies disprove the claim that natural gas is a transitional “bridge” fuel that can lower greenhouse gas emissions while renewable energy solutions are developed. As both satellite and ground measurements reveal, U.S. methane emissions are responsible for 30-60 percent of the recent upsurge in global atmospheric methane concentrations.” (Concerned Health Professionals of New York (CHPNY), 2018, Pg. 171)

These are awful statistics which should be major red lights when considering if WA should start the fracking industry here. Please see the following quotes from the Climate Analytics Report (2018):

“We show in this report that any new gas development in Western Australia based on unconventional resources – globally significant by their sheer scale – would undermine both Australia’s and the world’s efforts to meet the Paris Agreement’s climate goals.” (Hare et al, 2018 pg 1.)

“The domestic carbon footprint from Western Australia’s unconventional gas resources is about three times what Australia is allowed to emit in order to comply with the Paris Agreement. The carbon footprint of Canning Basin resources alone is equivalent to about double this budget.” (Hare et al, 2018 pg 3.)

“The domestic carbon footprint from unconventional gas resources would fundamentally undermine Western Australia and Australia’s contribution to global efforts to limit warming to 1.5°C.” (Hare et al, 2018 pg 3.)

The fossil fuel industry does not care about global warming and their direct creation of it. There are massive lies being told by industry.

“Using planes, an international team of researchers measured regional airborne methane and ethane emission rates from the Alberta oil and gas fields in Canada. They compared these results to emissions reported by the industries themselves, as part of an accounting system that requires operators to report flaring and venting volumes, and found large discrepancies. Based on the amounts of methane and ethane detected in the atmosphere above the oil and gas fields, the reported industry emissions in this region should be 2.5 ± 0.5 times higher. Such large discrepancies between actual methane emissions and industry-provided data represent a “reporting gap” and present a critical challenge when determining policy. Proposed regulations in Canada currently call for reducing methane emissions from Canadian fracking operations by 45 percent. However, these data indicate that most of the methane emissions from these operations arise from fugitive leaks that are not being measured at all and/or from episodes of unreported venting.” (Johnson et al, 2017)

We can not trust the fossil fuel industry, they are willing to do anything to get the gas out of ground and there are no regulations strong enough to ensure our safety. We must stop releasing methane into the atmosphere now to stop catastrophic climate change. Fracking can not stop methane being released, the technology is flawed and there is no system to stop leaks and well breakdowns.

“Noting that the speed of ice sheet melting and sea level rise are difficult to predict, the authors assert that targets for limiting global warming should aim to keep global temperatures close to the preindustrial Holocene range rather than allow them to rise to those found during the prior

Eemian period, when sea levels were 6-9 meters higher than today. A delay in taking these measures to minimize irreversible climate impacts means that the next generation will be required to undertake risky, expensive, large-scale CO2 extraction practices, such as carbon capture. "If high fossil fuel emissions continue, a great burden will be placed on the young. . . . Continued high fossil fuel emissions unarguably sentences young people to either a massive, implausible clean-up or growing deleterious climate impacts or both." (Hansen et al, 2017)

Fracking around the world is already having a hugely dangerous and deadly affect on the planet. WA needs to ban this practice permanently. It has no place in our future. All the peer reviews, non-industry evidence points to how it should be banned.

Water contamination

WA has serious problems with sustaining and providing its population with water. We already struggle to get enough water, with our farmers facing devastating droughts and metro populations limiting gardening water use. How is it possible then, to propose allowing the fracking industry to come into WA and use extortionate amounts of potential drinking water, which will be mixed with deadly chemicals and used to blast sand down at high pressure into the ground to release gas which has the potential to contaminate the underground and surface water resources nearby. This seems totally ridiculous and completely short sighted.

"Substantial evidence shows that drilling and fracking activities, and associated wastewater disposal practices, inherently threaten groundwater and have polluted drinking water sources, as confirmed by the 2016 final report of the U.S. Environmental Protection Agency (EPA) on the impacts of fracking on the nation's drinking water. Repudiating industry claims of risk-free fracking, studies from across the United States present irrefutable evidence that groundwater contamination occurs as a result of fracking activities and is more likely to occur close to well pads. In Pennsylvania alone, the state has determined that more than 300 private drinking water wells have been contaminated or otherwise impacted as the result of drilling and fracking operations over an eight-year period. As determined by the U.S. Agency for Toxic Substances and Disease Registry (ATSDR), the chemical contamination of some private water wells in Dimock, Pennsylvania posed demonstrable health risks, rendering the water unsuitable for drinking." (Concerned Health Professionals of New York (CHPNY), 2018, pg. 48)

“Nevertheless, of the more than 1,000 chemicals that are confirmed ingredients in fracking fluid, an estimated 100 are known endocrine disruptors, acting as reproductive and developmental toxicants. Adding to this mix are heavy metals, radioactive elements, brine, and volatile organic compounds (VOCs), which occur naturally in deep geological formations and which can be carried up from the fracking zone with the flowback fluid. As components of the fracking waste stream, these toxic substances also pose threats to surface water and groundwater. A 2017 study found that spills of fracking fluids and fracking wastewater are common, documenting 6,678 significant spills occurring over a period of nine years in four states alone. In these states, between 2 and 16 percent of wells report spills each year. About 5 percent of all fracking waste is lost to spills, often during transport. Spills and intentional discharges of fracking waste into surface water have profoundly altered the chemistry and ecology of streams throughout entire watersheds, increasing downstream levels of radioactive elements, heavy metals, endocrine disruptors, toxic disinfection byproducts, and acidity, and decreasing aquatic biodiversity and populations of sensitive fish species, such as brook trout. New studies documenting changes in the bacterial flora in groundwater following drilling and fracking operations represent an emerging area of concern.” (Concerned Health Professionals of New York (CHPNY), 2018, pg. 48)

These excerpts from the Compendium of Scientific are startling. Fracking is hugely risky and unnecessary. How can we put the safety of our water at a lower value than gas extraction, meant for export? It's like pooping where you sleep or eat, it doesn't stack up.

The science is clear, there is no safe way to frack. Unconventional hydraulic fracturing is dangerous and will push us into catastrophic climate change, making it not just dangerous but also deadly. There is no way to stop gas leaks, and with this that means there is no way we can allow fracking to become an industry as we have international agreements we must stick to. We must make decisions for future generations, not just people of today. Fracking is unsustainable, the gas will run out and we will be left with a devastated landscape.

“Where fracking has occurred elsewhere, it is accompanied by the development of a relatively dense network of roads, tracks and so on. To date, the impact of linear infrastructure has been poorly incorporated into environmental impact assessments (Alamgir *et al.*, 2018). And yet, studies from a range of locations in Australia and elsewhere clearly indicate that linear infrastructure can have significant impacts in terms of landscape fragmentation, reduced habitat

suitability for key fauna species, altered surface hydrology and other features (see Raiter *et al.* (2014) for a review and examples).” (Hobbs, 2018).

There are endless reasons to ban fracking, in WA and around the world. There are the micro reasons and there are the incredibly massive reasons. Our governments must be leaders, we need governments who look into the future and protect us for generations to come, not just until the next election. We need environmental protection authorities who protect the environment and don't stand for anything less. We need an education system that puts value in a healthy earth and teaches its citizens how to care for the only planet we have.

Fracking has no place in WA. The science is clear. Don't let fracking in. Keep WA gas field free, please.

Please help us stop this.

Yours truly,

Katie Hobbs – Primary School Teacher with a conservation biology background.

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