Researchers: Health evidence against gas and oil is piling up, as governments turn a blind eye

September 4 2023, by Melissa Haswell, David Shearman, Jacob Hegedus and Lisa Jackson Pulver

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We are seeing deadly heat and fires circle the world. The

Intergovernmental Panel on Climate Change warns we are fast running out of time to secure a liveable and sustainable future. Without emergency action to stop mining and burning fossil fuels, the world faces an unthinkable 2.8°C temperature rise.

It's incomprehensible, then, that many of our politicians support "unlocking the Beetaloo Basin" in the Northern Territory and developing another 48 oil and gas projects across Australia.

"Unlocking" means starting large-scale shale gas extraction. After drilling through 3–4km of rock and aquifers, a cocktail of chemicals, sand and water is forced down the well. This process of hydraulic fracturing is commonly known as fracking. This brings to the surface, and then into the atmosphere, carbon that had been securely stored underground for 300–400 million years.

Today we have launched a report that demonstrates the many risks of oil and gas development for human health and well-being in Australia. Based on a review of over 300 peer-reviewed studies, our report provides the public and decision-makers with a summary of the now-extensive evidence of these risks.

What is the evidence against oil and gas?

There is a need to combat widely held misconceptions and repeated misinformation about the safety of the oil and gas industry. We undertook the review at the request of concerned pediatricians in the Northern Territory.

New research clearly shows that "unlocking gas" is at least as harmful to the climate as mining and burning coal. This is largely due to methane leaks at many stages of production. Methane is 86 times more powerful than carbon dioxide at trapping heat in the atmosphere over 20 years.

Doors opened for the 49 planned projects in Australia after state reviews of potential impacts. These reviews are flawed and outdated as the volume of published studies has grown rapidly in recent years. Reviews were undertaken, for example, in New South Wales in 2014, Northern Territory in 2017, South Australia in 2015 and Western Australia in 2018.

Our report synthesizes recent scientific and public health research on five areas of concern about oil and gas operations:

1. threats to biodiversity, water and food security arising from site preparation, drilling, fracking, wastewater handling, gas pipeline transport and processing
2. contributions to the climate emergency
3. a vast array of potentially harmful chemicals
4. contamination of water, soil and air
5. physical, social, emotional and spiritual health impacts near oil and gas fields and their sprawling infrastructure.

Each fracking event to release shale gas uses 6 million to 60 million liters of fresh water. Fracking is often applied many times to each of hundreds to thousands of wells in a region. This puts water security at risk in arid areas.

Each step of gas production creates risks of contamination of surface and ground water. With vast quantities of wastewater, it can happen through spilling, leaking, flooding and overflows. Wastewater can even be deliberately spread for so-called "beneficial uses".

This wastewater contains hundreds of chemicals. Some are naturally occurring. Others are added during drilling and fracking.

These chemicals can include heavy metals, phenols, barium, volatile

organic compounds including benzene, toluene, ethylene and xylene, radioactive materials, fluoride, polyaromatic hydrocarbons, salt and many chemicals of unknown toxicity.

Air becomes contaminated with volatile organic compounds, polyaromatic hydrocarbons, nitrogen oxides, radioactive materials, diesel fumes, hydrogen sulfide, acrolein and heavy metals. Formaldehyde, particulate matter and ground-level ozone are formed and travel long distances, damaging health and agriculture.

What are the health impacts?

People exposed to oil and gas operations experience a long list of harms. These include:

- more severe asthma in children requiring more medical treatment , emergency department visits and hospitalizations
- higher hospitalization and death rates due to heart attacks, heart failure, respiratory diseases and some cancers
- higher injury and fatality rates due to increased heavy vehicle traffic
- increases in depression, anxiety and social withdrawal, especially among young and pregnant women
- increases in sexually transmitted infections associated with the industry's mobile workforces

- reproductive harms and interference with development of unborn babies, including higher risks of low birth weight, pre-term delivery and spontaneous abortion

- higher risk of severe birth defects
- higher risk of acute lymphoblastic leukemia.

Putting Indigenous people and others in harm's way

Many of the 49 planned projects affect Aboriginal land. Some companies have allegedly violated the rights of Traditional Owners to free, prior and informed consent. The massive disruption of Aboriginal Country and life puts people at great risk of physical, social, emotional, cultural and spiritual harm.

The report also issues a loud warning about sexual violence against First Nations Americans and Canadians associated with oil and gas activities. The WA parliamentary inquiry into women's experiences of sexual harassment and sexual violence in "fly in, fly out" (FIFO) mines suggests these risks apply equally in Australia. Yet all government assessments of oil and gas development in Australia completely ignore these risks.

In the United States, the industry has grown so vast within two decades that over 17.6 million people live within a mile (1.6km) of oil or gas wells. By 2016, the estimated cost to the community was US$77 billion. This was the cost of illness, extra health care and premature deaths (7,500) from asthma, respiratory and cardiovascular disease due to air pollution alone.

Our report makes clear any further gas development will have serious impacts on the climate, the people living in or near gas fields and the overburdened health services that serve them.

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