

## Unconventional Gas Development

### Preamble

Unconventional gas development (UGD) is the extraction of natural gas which is difficult to access conventionally, from coal seams, shale or other rock formations, using techniques such as directional drilling and hydraulic fracturing (fracking). Hydraulic fracturing involves the pressurised injection of fluids, sand and chemical additives into rock to open up fractures, allowing gas to flow out. The rapid expansion of this industry with little baseline research means there are many unknowns about the impacts of these processes.

While there are significant data and research gaps that limit the ability to thoroughly assess risks from this industry, there is enough information to justify the precautionary principle. This means that those wanting to take an action which may cause harm, need to provide evidence of safety before proceeding.

In many places in Australia assessment, monitoring and regulation of UGD remains inadequate to protect health.

Good health requires not merely the absence of disease, but also clean air, safe food and water, and a stable climate. There is the potential for these determinants of health to be affected by UGD, for example, by chemical exposures, threats to water security and psychological or socio-demographic impacts. Cumulative long-term effects risk damaging the natural systems upon which we rely for our well-being.

More information is needed on the use and mobilisation of potentially hazardous chemicals by this industry for adequate health risk assessments. A major problem is the lack of transparency around the chemicals used, the majority of which have not been adequately assessed for safety.

Despite the recognised increases in methane and volatile organic chemicals entering the air from UGD, and a US risk assessment suggesting greater health risks for people living close to gas wells, there is no adequate regulatory approach to this problem in Australia.

Reported and potential contamination of surface and ground water is of great concern with spills and inappropriate disposal of wastewater, chemical additives used during drilling and hydraulic fracturing, and compounds mobilised during the mining process.

Methane released by unconventional gas mining is a potent greenhouse gas, and therefore poses a risk to a safe climate. Whilst use of gas over coal for energy generation has a climate benefit, this benefit may be negated by fugitive emissions. Investment should be directed to safer cleaner alternate energy sources.

#### **DEA Scientific Committee**

Prof Bob Douglas AO  
Prof David de Kretser AC  
Prof Robyn McDermott  
Prof Hugh Possingham  
Dr Rosemary Stanton OAM

Prof Stephen Boyden AM  
Prof Dave Griggs  
Prof Stephen Leeder AO  
Prof Peter Newman AO  
Prof Lawrie Powell AC  
Dr Norman Swan

Prof Peter Doherty AC  
Prof Michael Kidd AM  
Prof Ian Lowe AO  
Prof Emeritus Sir Gustav Nossal AC  
Prof Fiona Stanley AC  
Prof David Yencken AO

# Position

DEA supports a moratorium on UGD until the health and environmental consequences are adequately understood and the appropriate monitoring and regulations are in place to protect human health.

DEA recommends:

## Chemical safety

- Full mandatory disclosure of all chemicals used in every Australian state and territory and to our national chemical regulator
- Assessment of all fracking chemicals for safety by the national chemical regulator

## Adequate environmental monitoring

- Effective independent monitoring and reporting of waste water produced and methods of disposal
- Independently audited water and air monitoring programs with publicly available results
- Environmental monitoring prior to UGD, throughout the lifetime of development, production and post-production
- Sufficient capacity and resources to effectively oversee compliance
- Full life cycle analysis of greenhouse gas from UGD

## Land use planning

- Exclusion of UGD from agricultural land, water catchments, near aquifers, landscapes with high conservation values, and residential zones
- Setback distances from residences based on health risk assessments

## Adequate health assessment, protection and research

- Health Impact Assessment for all UGD under nationally developed guidelines
- Support for research on potential health effects of UGD independent of industry funding, including long-term prospective health studies
- Health surveillance of persons living and working near major UGD

April 2015