

# Fact sheet

## Unconventional gas and health

Unconventional gas is 'natural gas' that is trapped in rock from which it is difficult to extract, requiring specialised mining procedures and often access to large areas of land.

### Types of unconventional gas

- **Coal seam gas** (CSG) is trapped in coal seams, often along with water at high pressure. This is the predominant form in NSW and Queensland.
- **Shale gas** is trapped in shale (soft rock) formations. Large shale reserves exist across Australia and are being actively explored in WA, Qld, NT and SA.
- **Tight sands gas** is trapped in sandstone or limestone (hard rock). In these, the pore spaces are particularly small and the rock is of low permeability, leading to the term 'tight' gas.

### Fracking

Hydraulic fracturing or 'fracking' is one of the specialised mining processes used to extract unconventional gas. This involves pumping, via a drill-hole and well, large volumes of water, sand and other chemical additives at high pressure into the gas-bearing coal or rock, fracturing these seams and providing a pathway for gas to flow back. Extraction of the gas creates depressurisation of groundwater, so that large volumes of water may be released to the surface as a by-product.

### The Health Risks

There are serious threats to human health from unconventional gas at many levels.

They relate to:

1. Land access and degradation.  
Reaching and extracting gas in fossil fuel deposits involves drilling and frequently also hydraulic fracturing of underground rock formations. Fracking may require large volumes of water and vehicular access to extensive areas of land, sometimes prime agricultural land, sometimes treasured natural habitat. This may adversely affect the well-being of farming families using the water and land, the well-being of communities that enjoy the habitats and the ecosystems from clearing of native vegetation.
2. Underground chemical injection: to free gas trapped in shale or coal seams, large volumes of chemical-containing-liquids are forced under pressure into the seams. Most of these chemicals have not been assessed for human health safety and there is a risk of them entering underground aquifers or groundwater, where risks are largely unknown. Water contamination can potentially also affect food and water security for humans (and animals).

3. Air pollution: Volatile organic compounds and hydrocarbons (including the carcinogen benzene) may be released during unconventional gas operations, from venting, holding tanks, ponds, compressors and other infrastructure. Some of these mix with nitrous oxides from diesel-fuelled machinery creating ground-level ozone. This air pollution poses a potential risk to workers and the people living nearby.
4. Global climate: gas (methane) is a potent greenhouse gas that adds to the serious health risks of climate change. The use of gas in power generation has been promoted because it has a significantly lower carbon footprint than coal but when fugitive emissions from well-heads and transit and distribution of gas are measured, the carbon footprint may be little better than coal.

In sum, the risks are so potentially serious, so difficult to manage and so likely to be long-lived, that Doctors for the Environment Australia holds the position that the further development of the unconventional gas industry in Australia has to be seen as unwise and unhealthy.

With these issues in mind, DEA has stated in submissions to Federal and State inquiries that the current level of assessment, monitoring and regulation of CSG exploration and mining activities are inadequate to protect the health of current and future generations of Australians.

These submissions are listed below.

## **DEA Submissions and Official Statements on Unconventional Gas**

### **Victoria:**

[http://dea.org.au/images/uploads/submissions/Unconventional\\_Gas\\_-\\_VIC\\_submission\\_07-15.pdf](http://dea.org.au/images/uploads/submissions/Unconventional_Gas_-_VIC_submission_07-15.pdf)

### **New South Wales:**

Submitted to the Parliament of NSW coal seam gas (Inquiry) submission 412:

<http://www.parliament.nsw.gov.au/prod/parlment/committee.nsf/0/29AE48525CF8A7CCA2578E3001ABD1C>

[http://parliament.nsw.gov.au/prod/parlment/committee.nsf/0/f96d076732225603ca25791b00102098/\\$FILE/Submission%200412.pdf](http://parliament.nsw.gov.au/prod/parlment/committee.nsf/0/f96d076732225603ca25791b00102098/$FILE/Submission%200412.pdf)

[http://dea.org.au/images/uploads/submissions/DEAs\\_Opening\\_Statement\\_NSW\\_unconventional\\_gas\\_operations\\_Inquiry.pdf](http://dea.org.au/images/uploads/submissions/DEAs_Opening_Statement_NSW_unconventional_gas_operations_Inquiry.pdf)

[http://dea.org.au/images/uploads/submissions/NSW\\_SEPP\\_Amendment-CSG\\_2013\\_11-13\\_.pdf](http://dea.org.au/images/uploads/submissions/NSW_SEPP_Amendment-CSG_2013_11-13_.pdf)

[http://dea.org.au/images/uploads/submissions/NSW\\_Mining\\_SEPP\\_Submission\\_08-13\\_.pdf](http://dea.org.au/images/uploads/submissions/NSW_Mining_SEPP_Submission_08-13_.pdf)

### **South Australia:**

DEA Submission to the Inquiry into Unconventional Gas (Fracking) – South Australia. January 2015.

[http://dea.org.au/images/uploads/submissions/Inquiry\\_into\\_Unconventional\\_Gas\\_SA\\_-\\_01-15.pdf](http://dea.org.au/images/uploads/submissions/Inquiry_into_Unconventional_Gas_SA_-_01-15.pdf)

### **Tasmania:**

DEA Submission to the Review of Hydraulic Fracturing (Fracking) in Tasmania. December 2014.

[http://dea.org.au/images/uploads/submissions/Review\\_of\\_Hydraulic\\_Fracturing\\_%28Fracking%29\\_in\\_Tasmania\\_12-14.pdf](http://dea.org.au/images/uploads/submissions/Review_of_Hydraulic_Fracturing_%28Fracking%29_in_Tasmania_12-14.pdf)

### **Northern Territory:**

DEA Submission to the Hydraulic Fracturing Inquiry Northern Territory. May 2014.

[http://dea.org.au/images/uploads/submissions/DEA\\_Hydraulic\\_fracturing\\_in\\_NT\\_inquiry\\_final.pdf](http://dea.org.au/images/uploads/submissions/DEA_Hydraulic_fracturing_in_NT_inquiry_final.pdf)

### **Western Australia:**

DEA Submission to the Inquiry into the Implications for Western Australia of Hydraulic Fracturing for Unconventional Gas. September 2013.

[http://dea.org.au/images/uploads/submissions/WA\\_Inquiry\\_into\\_Hydraulic\\_Fracturing\\_-\\_UG\\_Submission\\_09-13.pdf](http://dea.org.au/images/uploads/submissions/WA_Inquiry_into_Hydraulic_Fracturing_-_UG_Submission_09-13.pdf)

### **National:**

Murray Darling Basin

[http://dea.org.au/images/uploads/submissions/MDB\\_unconventional\\_gas\\_operations\\_Senate\\_submission\\_June\\_2011.pdf](http://dea.org.au/images/uploads/submissions/MDB_unconventional_gas_operations_Senate_submission_June_2011.pdf)

[http://dea.org.au/images/uploads/submissions/CSG\\_and\\_large\\_coal\\_mining\\_impacts\\_on\\_water\\_resources\\_submission\\_07-13.pdf](http://dea.org.au/images/uploads/submissions/CSG_and_large_coal_mining_impacts_on_water_resources_submission_07-13.pdf)

[http://dea.org.au/images/uploads/submissions/NICAS\\_08-12.pdf](http://dea.org.au/images/uploads/submissions/NICAS_08-12.pdf)

Select Committee on Unconventional Gas Mining March 2016

[http://dea.org.au/images/uploads/submissions/Select\\_Committee\\_on\\_UG\\_Mining\\_Submission\\_03-16.pdf](http://dea.org.au/images/uploads/submissions/Select_Committee_on_UG_Mining_Submission_03-16.pdf)

## **More information and links**

'Gas as a replacement fuel: Discussion paper on the health aspects of gas' can be found at;

[http://dea.org.au/images/general/Gas\\_and\\_Health\\_Report\\_01-2012.pdf](http://dea.org.au/images/general/Gas_and_Health_Report_01-2012.pdf)

An article in Viewpoint magazine by DEA member Dr Marion Carey is an excellent summary of the issues we are concerned about [http://dea.org.au/images/general/viewpoint\\_issue\\_8\\_CSG.pdf](http://dea.org.au/images/general/viewpoint_issue_8_CSG.pdf)

And a video clip of Dr Helen Redmond (NSW Physician who has spoken extensively at public forums over the last few years on CSG's potential health implications) can be viewed:

[http://dea.org.au/resources/file/csg\\_undermining\\_our\\_food\\_bowls\\_dr\\_helen\\_redmond](http://dea.org.au/resources/file/csg_undermining_our_food_bowls_dr_helen_redmond)

Other media articles that may be of interest:

[http://dea.org.au/news/article/behind\\_the\\_seams\\_whos\\_asking\\_questions\\_about\\_coal\\_seam\\_gas\\_and\\_health](http://dea.org.au/news/article/behind_the_seams_whos_asking_questions_about_coal_seam_gas_and_health)

[http://dea.org.au/news/article/coal\\_seam\\_gas\\_health\\_effects\\_need\\_more\\_scrutiny](http://dea.org.au/news/article/coal_seam_gas_health_effects_need_more_scrutiny)

<http://theconversation.edu.au/coal-seam-gas-could-be-a-fracking-disaster-for-our-health-1493>

<http://theconversation.edu.au/food-or-fuel-how-will-governments-solve-the-coalseam-gas-dilemma-2887>

<http://theconversation.edu.au/bubbling-to-the-surface-csg-impacts-and-the-condamine-7384>