



## About natural gas from shale

Shale gas is a type of natural gas that is mainly methane, trapped in shale rock layers 1,500 metres or more beneath the earth's surface

### Drawing out natural gas from shale

To draw out natural shale gas from underground, wells are drilled to between 1,500 and 3,000 metres deep, through layers of shale rock. To protect important groundwater near the surface, the well is lined with cement and steel casings.

Once the well is deep enough, drilling continues sideways to free more gas. This means less wells on the surface. To get more gas, the company uses water, some chemicals and sand under high pressure to make cracks in the seam. This is called hydraulic fracturing.

### Hydraulic fracturing

Hydraulic fracturing uses 99 litres of water for every 1 litre of chemicals. Sand holds the cracks of the rock open to let the gas flow into the well. The chemicals get rid of bacteria, dissolve some minerals and help the gas to flow more freely. Gas, water and chemicals are pumped back up to the surface where they are to be treated.

Natural shale gas that comes out of the well is captured and sent to be used for energy by homes and businesses in Australia and overseas. The water pumped to the surface can be used again for hydraulic fracturing or treated and there are Northern Territory (NT) Government rules guiding this.

### Impacts on the environment

Natural gas development from shale can have some impacts on the environment. Like in other industries, water is used – each well can use about eight community swimming pools of water. If water, chemicals or gas leak or spill, the industry must contain and repair the area under rules set by the NT Government. Also, methane is a greenhouse gas and plays a role in climate change.

CSIRO is studying the potential impacts of natural shale gas development in the NT. It is important to measure and understand the impacts, and how to manage them to best support communities and protect the environment.

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**This fact sheet was prepared by GISERA, a national collaboration between CSIRO; commonwealth, state and territory governments; and industry.**