



## About natural gas from shale

Shale gas is a type of natural gas that is mainly methane, trapped in shale rock layers 1500 metres or more beneath the earth's surface.

To draw out natural shale gas from underground, wells are drilled to between 1500 and 3000 metres deep, through layers of shale rock. To protect important groundwater near the surface, the well is lined with many 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 small cracks in the seam. This is called hydraulic fracturing.

Hydraulic fracturing uses 99 litres of water for every 1 litre of chemicals. The 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 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.

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 may play 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 help communities and the environment.