

Our local matters



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Fact Sheet: About natural gas from coal seams.

AGL Upstream Gas
July 2014

What is coal seam gas?

Coal seam gas is natural gas found in coal seams deep below the earth's surface. The gas is formed as a by-product of the conversion of plant material to coal, and is trapped in the structure of the coal seams. It primarily consists of methane, which is a naturally occurring, non-toxic gas that is present in the atmosphere in low concentrations.

NSW imports more than 95 percent of the gas we use from other states, leaving us open to supply shortages and price increases. AGL's coal seam gas projects can deliver around 20 percent of NSW's gas needs by 2018.

Coal seam gas is an energy source.

Like conventional natural gas, coal seam gas is a source of energy that can be used domestically in household stoves, heaters and hot water systems. It is also used for a range of industrial processes and for electricity generation.

Electricity generated from coal seam gas produces up to 55 percent less greenhouse gas emissions and uses up to two thirds less water than conventional coal-fired electricity generation. Coal seam gas will therefore become an increasingly important energy resource as Australia transitions to a lower carbon economy.

Coal seam gas is of particular interest on Australia's east coast for two reasons. Firstly, our existing conventional gas supply from South Australia's Cooper Basin is in decline. Secondly, coal seam gas is plentiful in the coal seams of Queensland and New South Wales, so it's much closer to east coast markets than alternative gas supplies like the Western Australia Northwest Shelf.

Coal seam gas is natural gas we use every day.

- > More than a million NSW homes, communities and businesses use natural gas every day.
- > It's a safe and reliable energy source that is used in homes, schools, hospitals and businesses.
- > NSW sources more than 95 percent of its gas from other states – AGL's coal seam gas projects will deliver gas from NSW, for NSW.

AGL's Rosalind Park Gas Plant at Camden.



Meeting the highest standards.

Our operations are subject to two New South Wales Government Coal Seam Gas Codes of Practice (2012) that set out best practice controls for exploration and production. AGL conducts all of its operations in accordance with these Codes of Practice.



AGL's Waukivory Pilot location at Gloucester.

Producing coal seam gas.

Natural coal seam gas is held within coal seams by water pressure. The gas can be released by drilling into the coal seam and removing enough of the water to reduce the pressure and allow the gas to flow. The water removed from the coal seams comes from a source much deeper than and independent of, shallower beneficial aquifers. This water is very old and quite salty, and typically has no beneficial use in an untreated state.

Some coal seams require physical stimulation or advanced drilling techniques to enable the gas to flow, such as hydraulic fracturing.

When hydraulic fracturing is used, the gas in coal seams is stimulated by pumping a mixture of sand, water and a small amount of additives at high pressure into the coal. The pressure opens natural cleats and creates new fractures within the coal. The sand acts to hold these flow paths open and thus improves gas flow. The amounts of sand, water and additives to be used in our hydraulic fracture fluid are published on AGL's website.

Hydraulic fracturing allows gas to be released from coal seams in a way, very controlled without impacting beneficial aquifers or water sources. The process is carefully managed so there is minimal impact on rock layers above and below coal seams.

Hydraulic fracturing has been used on 126 wells at AGL's operations in NSW without any adverse impacts. We have the technology to monitor fractures in real time and see the direction, height and length of fractures as they grow, giving us the ability to adjust or stop operations if needed.



Rehabilitated well site, Camden.

Well construction.

A coal seam gas well site is likely to take two to three weeks to construct. The well will then take about a week to drill to final depth. Coal seam gas wells are lined with steel casing which is cemented into place to seal off any beneficial aquifers which have been intersected by the well, and stop gas moving from one rock layer to another.

Once a coal seam gas well is completed and is ready for operation, the well site area is reduced to an area of about the size of a caravan. After a well is drilled and cased, hydraulic fracturing operations will take another week or so to complete. Gas and water lines are placed below the surface and surrounding areas are rehabilitated.

The operational life of a coal seam gas well is generally expected to be between 10 and 20 years.

After production is finished, the well is sealed off below ground level and the area rehabilitated to a state as good or better than before the operation began, or to the specifications agreed with the landholder.

Join AGL's online community

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