

Everything you ever needed to know about fracking

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Fracking machinery at a site in Colorado, USA

Image: AP Photo/David Zalubowski

FRACKING HAS BEEN the subject of huge controversy in the US and internationally. It is the subject of a critical documentary, has been banned in France, and campaigners are already [warning of the possible environmental consequences if it begins in Ireland](#). But what exactly is it and why is it such a big deal?

Fracking, short for 'hydraulic fracturing', is a method of extracting natural gas from pockets in underground rock. It has been used in the oil industry for decades. However, it is only in the last few years that developments in drill technology have made it viable as a technique for tapping gas reserves dispersed through shale rock strata – such as those in Ireland's Lough Allen basin.

"Within the last decade or so, something called shale gas has been recognised as being really important," explains Professor Pat Shannon of the UCD School of Geology. "There's a very significant amount out there, so everybody is now chasing shale gas. It could make a very significant difference."

Why the frack?

Typically, fracking is used when shale rocks contain gas trapped in numerous small pockets. “It’s where you know that there is oil or gas but it can’t get out because those spaces aren’t connected,” explains Prof Shannon. “Fracking opens new fractures in the rock so you can connect those little bits together” and efficiently collect the gas.

How it works

First you drill down thousands of metres to the level of the gas reserves, then sideways along the rock seam. Then you pump in what is known as ‘fracking fluid’ – a mixture of “water, a gelatinous material and something like tiny ball bearings, usually made of plastic”, Prof Shannon says. “Often tens of thousands of gallons. You pump this in under pressure, using jet turbines, and the rock will fracture.”

The chemical gelatinous material and ball bearing-like particles then hold the fracture open, allowing the pressurised water to escape again – along with the gas.

The problems

The main problem raised by environmental activists is the disposal of the fracking fluid, which arrives back at the surface in large quantities and contains chemicals which can be harmful. “You pump a lot of water down, and then that water comes back out,” Prof Shannon says. “That is not fresh, so how do you dispose of that?”

The issue is complicated by the fact that the fracturing of the rock itself is unpredictable. “When you fracture a rock, you don’t know which direction the fractures will go in or how many you will get. Fractures may go up into water systems, into freshwater aquifers.”

Resource:

http://www.thejournal.ie/everything-you-ever-needed-to-know-about-fracking-170359-Jul2011/?utm_source=shortlink