

# Underground Coal Gasification: burning the ground from under our feet

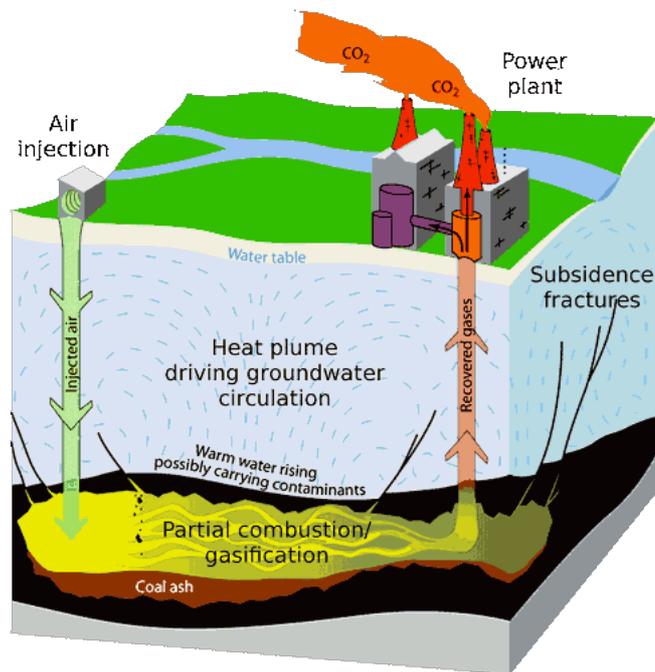
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While fracking continues to dominate the headlines, the extractive industries are pushing forward with yet another extreme and unproven fossil fuel extraction process known as underground coal gasification. Heralded by the industry as yet another way to provide 'cleaner' energy and provide energy security it is in reality a false solution that would continue to lock us into carbon based energy sources.

Not only does climate science demand that we leave these fossil fuels in the ground, the evidence from trials around the world points to inherent and unacceptably high environmental and health risks associated with underground coal gasification. We are calling on the Scottish Government to extend its moratorium on shale gas fracking and coal-bed methane drilling to include underground coal gasification.

## What is underground coal gasification?

Underground coal gasification (UCG) is a process that at its most basic level converts coal into fuel. The technique is used to access coal seams that are too uneconomical to exploit using conventional methods. This is usually because the coal seams are too thin, deep or too low quality.



Pairs of wells are used to access the seams, one to partially ignite the coal using oxygen or steam, and the second to extract the resulting gases. At the surface the gases are separated into carbon dioxide, water, and syngas. Syngas is the combination of hydrogen, methane, carbon monoxide and very often carbon dioxide. It can be used to generate electricity, as transport fuel or industrial feedstock.

## A risky experiment

Underground coal gasification is not a new idea; unsuccessful attempts to get UCG off the ground were made as early as 1912 here in the UK. By the 1950-1960's up to 14 industrial-scale UCG power plants were operating in various locations throughout the Soviet Union. Following the discovery of natural gas, enthusiasm for the technique diminished; more recently the decline in conventional sources of fossil fuels combined with advances in drilling technology has seen renewed interest in UCG and an increase in the number of projects around the world.

Recent trials of UCG have been dogged by pollution incidents and explosions that seriously call into question its safety. Robert Gatliff, Director of Energy and Marine Geoscience, British Geological Survey and member of the Scottish Government's Independent Expert Panel on Unconventional Gas noted in early 2015 that UCG was both: "... a lot more risky" than shale gas fracking and "completely experimental."

## Environmental and public health Impacts

The gasification cavity created by UCG contains gas and liquid pollutants including mercury, arsenic and selenium, coal tars and ethyl benzene, among others, which are well known to present serious public health and environmental risks.

Recent underground coal gasification trial projects have resulted in serious incidents of groundwater contamination and air pollution as well as explosions and other accidents.

UCG company Linc Energy is currently being taken to court by the Queensland municipal government for 'irreversible damage' to the environment from toxic gases produced during the gasification



There are currently six UCG licenses around the Firths of Forth and Solway in Scotland held either by Cluff Natural Resources and Five Quarter Energy Ltd.

Cluff is looking at developing Scotland's first commercial UCG project around the Kincardine area of the Firth of Forth. Cluff plans to drill deep under the seabed to reach the coal seam even though offshore UCG projects have never been tried before in the UK.

Cluff is planning to put in a planning application sometime in the next few years for a UCG site. Though Cluff recently stated that its Kincardine project was on hold until the Scottish political situation became more favourable, Cluff continues to promote Kincardine as its flagship project. The exact location of the future project is currently unknown and could be on either the Fife or Falkirk side of the estuary.

Five Quarter Energy Ltd has one UCG license in the Forth of Solway and two in the Firth of Forth. Five Quarter's future plans are currently unknown.

### **UCG is unnecessary**

Scotland has an abundance of renewable energy resources: 25% of Europe's offshore wind; 25% tidal; and 10% wave potential. Not only is the Scottish Government on track to meet its 100% renewable electricity consumption by 2020 target, but independent research demonstrates that Scotland could meet all our electricity needs from renewable sources and phase out fossil fuel generation by 2030 and have excess to export. The renewables industry in Scotland is a valuable growth area, providing over 12,000 jobs last year, and many thousands more in the pipeline.

The International Energy Agency and other leading commentators such as Deutsche Bank warn that a dash for unconventional gas could prove a serious distraction from badly needed investment in clean renewable energy and energy efficiency, and see us locked into expensive, carbon-intensive infrastructure for years to come.

### **UCG is unwanted**

People around the world and here in Scotland faced with the unconventional gas industry are increasingly aware of its dangers and are opposing its advance. Communities around the Forth and Solway areas are actively resisting underground coal gasification, working together

with communities across Scotland fighting shale gas fracking and coal-bed methane drilling.

### **Our campaign**

In January 2015 four years of campaigning alongside grassroots groups and communities paid off when the Scottish Government announced a moratorium on shale gas and coal-bed methane!

However, the moratorium does not include underground coal gasification. The Scottish Government highlighted that UCG is not under its jurisdiction because the Coal Authority that licences UCG is not being devolved to Scotland. However, Holyrood has the complete powers to place a moratorium on UCG as it controls planning and environmental regulation. It is completely within the Scottish Government's power to stop UCG in the same way it has temporarily halted other types of unconventional gas including fracking and coal-bed methane.

Now our job is to make sure underground coal gasification is included in the moratorium, and work to turn the moratorium into a ban. We are convinced that a full and thorough assessment of the public health, climate and environmental impacts of this industry will lead to the Scottish Government banning unconventional gas extraction. But the industry will be gearing up with the opposite aim in mind. It's very important that the public momentum behind this campaign doesn't stall at this crucial stage, but keeps the pressure up to ensure the most robust assessments and consultation are carried out.

### **What you can do**

- Stay in touch! Sign up for regular email updates about our fracking and unconventional gas campaign
- Visit our website for more information and regular campaign actions
- Write to your MSPs and MPs and ask them to work for a ban now
- Get together with your neighbours and community to declare yourselves an unconventional gas free zone! The Lock the Gate movement in Australia has had huge wins this way. Check out our 'unconventional gas free zone pack' available to download from our website that provides guidance on contacting your local authority, MSP and MP.

**More info:** [www.foe-scotland.org.uk/fracking](http://www.foe-scotland.org.uk/fracking)

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