

INTRODUCTION

As conventional fossil fuels are depleted the current economic system has been resorting to increasingly extreme energy extraction techniques (e.g. Tar Sands). Unconventional Oil and Gas (colloquially known as "Fracking") is the British equivalent of the Tar Sands! This campaign is all about three new extraction methods; Fracking for Shale Oil and Gas, Coal Bed Methane (CBM) and Underground Coal Gasification (UCG).

This briefing sheet is intended to develop the Five Key Messages and work in conjunction with campaign materials. This briefing and all of the campaign materials are available in electronic format with links to further reading.

They can be downloaded and printed from www.frack-off.org/resources, email: outreach@frack-off.org if you have any unanswered questions or need assistance.

UNCONVENTIONAL GAS IN THE BRITISH ISLES

Fracking for Shale Oil & Gas

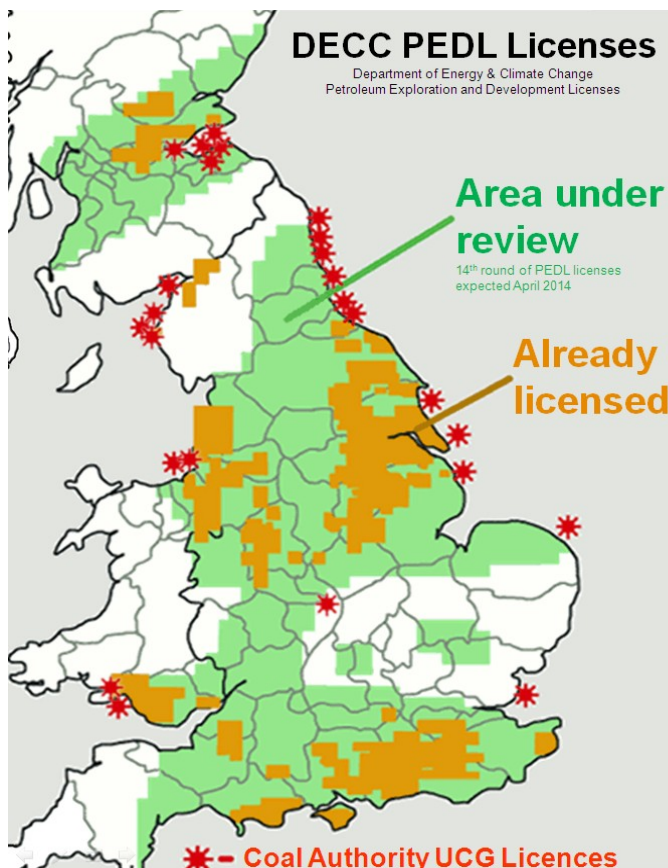
Shale Oil & Gas is the same stuff as the conventional oil and gas that we have been using for about 100 years. However it is trapped in impermeable shale rock deep underground, unlike conventional oil and gas which has migrated into permeable rocks, such as sandstone. The gas cannot flow through the shale so it has to be released using brute force. Horizontal drilling is used to gain access to large areas of shale and hydraulic fracturing is used to smash the rock apart. High pressure pumps are used to inject millions of gallons of fresh water and chemicals. The chemicals make the water slippery and gelling agents are used to carry large volumes of sand into the fractures. When the pressure is released the sand holds the fractures open letting the gas flow out. Up to 70% of the water and chemicals flow back up laced with toxins and radiation from the shale. [Read more...](#)

Coal Bed Methane (CBM)

To extract methane trapped in coal seams underground a similar process is used, drilling a well down and then sideways through the coal. The ground water that is trapping the methane gas has to be pumped out continuously so that the gas can come to the surface. About 10% of coal seams are fracked to stimulate the flow of water and gas. [Read more...](#)

Underground Coal Gasification (UCG)

UCG is a process for exploiting un-mineable coal. A pair of wells are drilled into the coal seam and then the coal is set on fire. By controlling the amount of oxygen injected through one well the coal is partially burnt and a stream of carbon monoxide, hydrogen and methane are brought up to the surface through the second well. This gas can be burnt in power stations or used to make plastics and liquid fuels. This process is experimental, there is no large scale UCG production anywhere in the world. [Read More...](#)



MASSIVE SCALE

The amounts of gas that the industry boasts is available would require the drilling of 10,000s of wells (plus associated pipelines, compressor stations and processing plants) industrialising thousands of square miles of countryside.

Unprecedented intensity of drilling and fracking...

Over the last 100 years only 2000 onshore oil and gas wells have been drilled in Britain and of these only 200 were gas wells. To produce a significant quantity of shale gas at least 500 - 1,000 horizontal wells would need to be successfully drilled and fracked *each* year. However the UK Government is proposing an increase in gas use and a fleet of new gas fired power stations. Our calculations show that around 90,000 wells would need to be drilled by 2040 to power these new stations and replace lost production from the North Sea. At a density of 8 wells per square mile this would cover a land area 1.5x that of Wales. [Read more...](#)

Pipelines & heavy vehicles...

Pipelines and massive numbers of trucks will inevitably be used by the industry to transport gas and waste. They create the additional danger of leaks, explosions, spills and accidents. A sprawling temporary gas infrastructure is needed to connect thousands of sites across the landscape and cuts scars across the countryside. Just removing drilling mud and waste from wells will require many tanker/truck movements for each site. This is in addition to construction vehicles and drilling and fracking equipment when the site is commissioned. Because the lifetime of each unconventional gas well is short (2-5 years) this armada of heavy vehicles will roll across the countryside.

Noise and light pollution...

Many wells require many sites which in turn require access roads, foundations, floodlights and enclosures. The drilling and fracking machinery runs 24 hours a day. Flare stacks burn off unwanted gasses on every site and cause noise/light pollution and toxic emissions. This picture shows the effect of intensive drilling in Tara, Southern Queensland, Australia. [Video...](#)



TOXIC NIGHTMARE

Unconventional gas is a toxic (and radioactive) nightmare, which contaminates water and air and produces huge amounts of waste.

Human and animal health impacts...

A wide variety of dangerous pollutants, including ozone, aromatic hydrocarbons and silica dust are produced by the drilling and fracking process. The ozone levels in previously pristine areas of the US are now higher than central Los Angeles. Additional air pollution is created by construction work, drill rigs and machinery. [A study by an Australian doctor](#) has revealed serious health impacts in Queensland. This is bad news for animals too. Fish kills in Pennsylvania have been associated with the contamination of streams, creeks and wetlands by fracking fluid. Symptoms experienced by livestock living near natural gas fracking sites include reduced milk production, gastrointestinal, neurological and urological issues. Sudden death can also occur as catalogued in a recent [peer reviewed study at Cornell University](#).

Huge volumes of toxic & radioactive waste...

Large volumes of liquid and solid waste are created by drilling and fracking. The liquids are contaminated with chemicals used in the fracking process and materials leached from the shale rock and coal seams include heavy metals and radioactive elements. The solid wastes are equally problematic containing hydrocarbon oils used for drilling, and toxic and radioactive materials from the shale, coal and rocks deep below the surface. The volume of waste from a single test well in Lancashire created significant disposal problems. The waste from thousands of new wells each year would be unimaginable.

Methane migration...

In the US methane and other chemicals are contaminating water supplies near gas wells. A recent [Duke University study](#) found that levels of flammable methane gas had risen to dangerous levels in drinking water wells near active gas wells.

All wells leak eventually...

Unconventional gas exploration requires many wells to be drilled. The wells themselves are the most common pathway for toxic emissions. Industry reports show that [6% of gas wells leak immediately](#) and [50% of all gas wells leak within 15 years](#). These wells can never be removed or recycled, the steel and concrete structures plunged deep into the geology decay slowly over time leaking gas and other materials. [Read more...](#)

"In modern shale gas development there are many of the key factors identified by industry researchers as having a negative influence on well structural integrity: the need for horizontal wells, rapid development of a field, the presence of "shallow" high-pressure gas horizons and the disturbance of young cement due to adjacent drilling activities on the same pad."

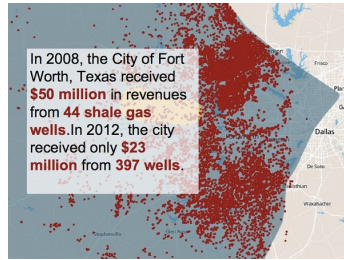
[Dr. Tony Ingraffea, Professor of Engineering at Cornell University](#)

EXTREME DESPERATION

In reality unconventional gas could only ever produce small amounts of very expensive gas for a short time. Sensible measures are needed to reduce wasteful and unsustainable energy consumption rather than delaying the inevitable for a few more years.

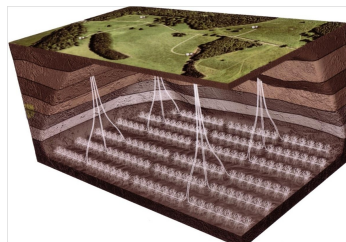
Wells decline very quickly...

The longest experience with shale gas comes from the Barnett shale play under Dallas-Fort Worth, Texas. It peaked in 2009, when over 12,000 wells had been drilled costing US\$2 to US\$4 million each. Production rates were high at first, but declined rapidly, typically down 65% in the first year. [More...](#)



Will raise not lower energy prices...

Unconventional gas wells are extremely expensive to construct. Massive quantities of steel, concrete and equipment are required. These energy production methods are sold as new and improved when in fact they are desperate measures to go after the hardest to reach fossil fuels. At a cost of £5-10 million the construction and fracking of a shale well in the UK comes with no guarantee of success. [Many wells in the US fail to make a return.](#)



Toxic Legacy...

In the same way that large nationalised industries and the public sector are being broken up and sold in pieces, Unconventional Gas extraction is asset stripping on a massive scale. Hydrocarbons are taken from the land at the expense of clean air and water. [Resources that we all need for life.](#)

WRONG DIRECTION

We cannot afford to burn more than a small fraction of conventional fossil fuel reserves without triggering catastrophic climate change.

Climate threat...

"Carbon dioxide from burning this new source of fossil fuel could take up over a quarter of a global emissions budget that offers a reasonable chance of avoiding 2 degrees Celsius warming. In the UK, if just 20% of the reserves identified under Lancashire were to be extracted and burnt, this would result in emissions of over 2,000 million tonnes of carbon dioxide, representing around 15% of the Government's greenhouse gas emissions budget through to 2050."

[Source: Tyndal Centre](#)

Road to nowhere...

CBM production in the US has already peaked and shale gas production as a whole is unlikely to keep increasing for much longer. Extreme Energy methods are not solutions to the exhaustion of energy resources. They are simply the desperate last gasps of a system addicted to fossil fuels. Each new, more extreme (and costly) extraction process also requires more energy to run, so the 'net energy' or energy return on energy invested (EROI) is progressively declining. The system is having to run harder and harder just to stand still. These new extreme energy processes barely offset declines in conventional fossil fuels. Given that extreme energy is also destroying the ecosystems we rely on for our survival, people cannot stand by and let their futures be sold just to delay changing a system that no longer works. [Watch...](#)

Short term boom, long term bust...

This industry does not create long term or sustainable job's; in fact it destroys more jobs than it creates. Areas turned into gasfields in the US and Australia have been decimated by the industry and it's impacts. An elite of managers and specialists surf the wave of industrialisation hiring and firing short term labour to do the dirty manual work and drive the toxic tankers. With over 1m under 25's unemployed in the UK this is not the kind of industry that will provide meaningful long term employment for our young people. [Watch...](#)

Corporate profits vs Community costs...

One only has look at the jump in the share prices of fracking companies like IGas and Dart Energy to see that Unconventional Gas is a massive bubble. It is no different from the 2008 crash. Like any bubble it feeds off hype. Fracking companies and their friends in government are busy trying to feed it. However just because fracking is a bubble, it doesn't mean that it can't do vast amounts of damage as it plays out. Concerted action by local communities can bring fracking companies down to earth, as has recently happened in New South Wales, Australia. [Read more...](#)

COMMUNITY RESISTANCE

This threat is uniting communities to fight for their future...

At a time when many people do not know their neighbours, resisting this industry has become a uniting cause. When planning permissions appear on telegraph poles and drill rigs appear in fields near peoples houses, people do start talking to their neighbours. Many communities have realised that they have no choice but to stop this industrialisation themselves and have rediscovered their community at the same time. [Watch...](#)

Immediate and long term threats to communities...

Companies and Governments come and go but communities (people, plants and animals) will always live on the land. Turning the country into a gasfield creates immediate impacts for the community. As time passes and wells fail, gas and other materials will migrate up from the low geology polluting the land, water and air for hundreds of years. [Watch...](#)

Saying no to this opens up many alternatives...

Many areas of Britain are just recovering from the impacts of extractive industries and are rebuilding their natural assets and reputations. Local food production, recreation, agriculture, tourism and small scale manufacturing. The future does not have to be dominated by big companies and centralised power production. Unless we make some bold changes now we are always going to end up with a system that looks like the one we already have. Saying no to Unconventional Gas and Extreme Energy makes change possible. Saying yes or sitting back and allowing it to happen just means that the same people continue to control and benefit. In the future we will face the same problems with energy supply but with even less choices and fewer alternatives. [Best Film Ever...](#)

Unconventional gas projects are being stopped around the world...

Across the planet, people understand the threat of unconventional gas. Bans and moratoriums have been demanded by the people in France, Romania, Fribourg in Switzerland, Northrhine-Westphalia in Germany, Bulgaria, Czech Republic, Cantabria in Spain, Netherlands, Denmark, Quebec, Vermont and New York. New South Wales, Australia has established a 2km exclusion zone for residential areas and Ireland has a 2-year moratorium on fracking. [More...](#)

We can beat it here too...

Cuadrilla's plan for Lancashire was to have 13 operational wells by 2013, they have none thanks largely to community resistance. When Dart Energy applied for planning approval for CBM production at Airth near Falkirk, the community objected in such huge numbers that the planning authority were overwhelmed and felt unable to return a decision. With their plans in limbo for a year Dart are now forced to appeal to the Scottish government for permission. [Read...](#)

In areas threatened by these industries, communities armed with information and with the conviction to oppose the industry are already winning. Dozens of local groups have started since the threat of extreme energy arrived in Britain and with your involvement this campaign could start hundreds more. Strong well organised communities are the best defence against this industry. [Films...](#)

If you don't want a Fracked Future for you or your family get involved today...



If you have any unanswered questions email: outreach@frack-off.org

This briefing, campaign materials and loads more info are available at:

www.frack-off.org