



**Friends of
the Earth
Europe**



Fact Finder

The truth about gas

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Fact finder – The truth about gas

Abstract

- Gas, often referred to as “natural gas”, is a fossil fuel that we use as a source of energy (for heating, cooking, electricity, transport, etc). Gas is contained in deep underground rocks.
- Conventional gas refers to gas that has been extracted by conventional means. A well is drilled under the ground to release and drain the trapped gas. Water and gas injections can be used to boost production.
- Unconventional gas refers to forms of gas (such as shale gas, coal bed methane and tight gas) that are located in more impermeable types of rocks and that are extracted by unconventional means (high-volume hydraulic fracturing or “fracking”, underground coal gasification, etc).
- Liquefied natural gas, commonly referred to as LNG, is gas (conventional or unconventional) that has been converted to liquid form.

Main Observations:

↳ *Gas is not a clean fossil fuel*

When taking CO₂ and methane (which are both greenhouse gases) into consideration, and not only CO₂ as it is too often done, gas is very comparable to coal in terms of impact on climate. There is no such thing as a “clean” fossil fuel. Like oil and coal, gas **is** a fossil fuel, which drives climate change and which we need to move away from urgently.

↳ *Fracked gas and natural gas are bad for our climate and our environment.*

Conventional and unconventional gases both emit greenhouse gases, which drive the changes in our climate. While fracked gas directly impacts the local environment and local citizens, all forms of gas impact our climate, the global environment and citizens of the world*. This is mostly due to the significant losses of methane, a highly potent greenhouse gas, all along the gas lifecycle.

↳ *There is still a strong need to be concerned about fracking in Europe*

Many grassroots groups across Europe have successfully fought to put in place a ban or a moratorium on fracking. However, the EU is actively encouraging non-European countries to export their gas to Europe. The gas that is being sent from the US to Europe contains a considerable amount of fracked gas.

↳ *The EU still supports the construction of new fossil fuel infrastructure*

Under the narrative that gas is a “clean” fossil fuel, the EU is supporting politically and financially new gas infrastructure in Europe. This support is leading to disastrous consequences on our climate, and redirecting crucial resources away from renewable energy and efficiency measures. It is extremely unlikely that we will remain under a 1.5°C temperature increase if we do not rapidly stop building fossil fuel infrastructure.

* Specifically, citizens living in the Global South will be more affected by climate change, as climate change will be more impactful in certain geographic locations, and due to the ineffective political assistance.

What is gas?

Conventional gas, unconventional gas, shale gas, coal bed methane, fracking, pipelines, liquefied natural gas... understanding what gas is about is far from being an easy task.

Gas, often referred to as “natural gas”, is a fossil fuel that we use as a source of energy (for heating, cooking, electricity, transport, etc). Gas is contained in deep underground rocks. It comes from geologic formations where sediments accumulated in multiple layers all over the world and where, after millions of years, the organic matter contained in the sediments has been transformed into gas.



Different terminology is used to reflect the way the fuel is made accessible:

Conventional gas refers to gas that has been extracted by conventional means. A well is drilled under the ground to release and drain the trapped gas. Water and gas injections can be used to boost production.¹

Unconventional gas refers to gas that is located in specific types of rocks (very porous but much more impermeable than conventional rocks²) and that is extracted by unconventional means.

Unconventional gas mainly refers to **shale gas** (located in shale rock layers), **coal bed methane** (located in coal seams) and **tight gas** (located in impermeable rock, usually limestone or sandstones). These types of gas are difficult to access and require specific extraction methods.

High-volume hydraulic fracturing, better known as “**fracking**” is the only method known to extract unconventional gas. Once a well has been drilled, a mixture of water, sand and chemicals is injected into the rock at high pressure. This creates fractures in the rock, which allows gas to flow out. This technique has been highly criticized for leaving chemicals in groundwater, contaminating drinking and agricultural water supplies, and creating local earthquakes, amongst other reasons.³

Once gas is made accessible, it is usually transported through **pipelines** to be delivered to the final consumers. **Liquefied natural gas**, commonly referred to as ‘LNG’, is gas (conventional or unconventional) that has been converted to liquid form. This allows gas to be transported more easily across long distances (usually across oceans). LNG is loaded on cargoes at LNG liquefaction terminals. Once cargoes reach their final destination, the LNG is regasified at LNG regasification terminals and the gas is usually sent to consumers via pipelines.

¹ More details here about the difference between the extraction of conventional and unconventional gas: <http://www.2b1stconsulting.com/conventional-oil-and-gas/>

² <http://www.geomore.com/porosity-and-permeability-2/>

³ <http://www.foeeurope.org/foee-unconventional-and-unwanted-the-case-against-shale-gas-sept2012>
<http://concernedhealthny.org/compendium/>

Gas is not a clean fossil fuel

Oil, gas and coal emit different amounts of carbon dioxide (the most commonly emitted greenhouse gas) when burnt. **This difference in CO₂ emissions has allowed the oil and gas industry to introduce the concept of “clean” and “dirty” fossil fuels.** Once burnt, gas only emits about ½ as much CO₂ as coal, which is why it has been branded as “clean”.

This ranking of “clean” and “dirty” fossil fuels only analyses the difference in CO₂ emission and only during the consumption phase. However, fossil fuels also emit other greenhouse gases. Gas, in particular, emits considerable amounts of methane during its lifecycle. Methane has a particularly important global warming potential (86 times higher than CO₂⁴). **When taking CO₂ and methane into consideration, gas is very comparable to coal in terms of climate impact.** In the case of fracked shale gas, the methane leakages are more important, resulting in shale gas impacting even more negatively our climate than coal.

The urgency of climate change, which has been stressed in the Paris agreement, requires a rapid decarbonisation of our system away from fossil fuels. The decisions that we take before the end of this decade are decisive in reaching our globally agreed goal of remaining “well below” a 2 degree increase in temperature. Promoting, investing and encouraging the use of any fossil fuel is no longer acceptable.

There is no such thing as a “clean” fossil fuel. Like oil and coal, gas is a fossil fuel, which drives climate change and which we need to move away from urgently.

Fracked gas and conventional gas are bad for climate & environment

Fracked gas refers to different forms of gas (shale gas, coal bed methane, tight gas) that has been extracted through unconventional methods (such as high-volume hydraulic fracturing, or underground coal gasification⁵). Conventional gas refers to forms of gas that has not been extracted by fracking but by less impactful and invasive well stimulation techniques.

Fracked gas affects directly the environment and local citizens surrounding the drilling, by contaminating with chemicals and radioactive compounds groundwater, agricultural water supplies, drinking water and triggering earth tremors. In Europe, many countries have decided to ban the technique, stop its development temporarily or to impose strong environmental impact assessments.

The direct threat of fracking and necessity to strongly mobilise against it has left a vacuum for natural gas to be implicitly considered as better, if not outrightly good.

Conventional gas and fracked gas both emit greenhouse gases, which drive the changes in our climate. While fracked gas directly impacts the local environment and local citizens, all forms of gas impact our climate, the global environment and citizens of the world⁶.

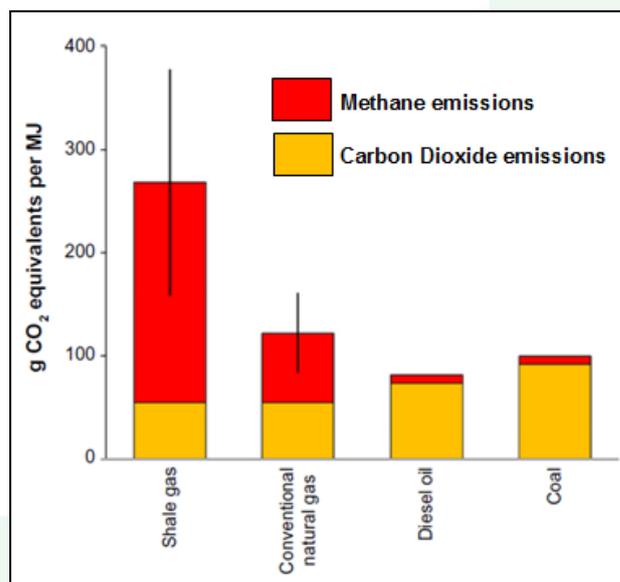


Figure 1: Greenhouse gas footprints of shale gas, conventional gas, oil, and coal (in g CO₂ equivalents per MJ of heat produced)

⁴ https://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_Chapter08_FINAL.pdf

⁵ <http://www.foei.org/resources/publications/unconventional-coal>

⁶ Specifically, citizens of developing countries will be more affected by climate change, as climate change will be more impactful in certain geographic locations, and due to the ineffective political assistance.

There is still a strong need to be concerned about fracking in Europe

Many grassroots groups across Europe have successfully fought to put in place a ban or a moratorium on fracking. In other European countries fracking is authorized but companies have abandoned their plans due too strong environmental impact assessments or poor results during explorations. The UK, Spain, Hungary, Germany and Poland remain the few European countries that (may) still face fracking domestically.

While these concerns have been raised, **the EU is actively encouraging non-European countries to export their gas to Europe.**

Liquefied Natural Gas, “LNG”, is a method used to transport gas across oceans by transforming it into liquid form and loading it on vessels. **The gas that is being sent from the US to Europe on LNG vessels contains a considerable amount of fracked gas.** While it is impossible to know the exact proportion of unconventional gas contained on an LNG vessel, it is certain that LNG vessels loaded in the US will contain fracked gas, as fracked gas makes up for more than half of the overall US gas production.

The first LNG vessels loaded with US fracked gas have started arriving in Europe in 2016. Once it is delivered to Europe, the LNG is regasified and sent via pipelines around the continent to consumers. **Sending fracked gas from the US to Europe is in complete incoherence with many national decisions to ban the technique domestically.** While the EU (almost) no longer needs to handle the concern of its citizens or the impacts on its environment, it is enthusiastically encouraging the damage to be happening elsewhere and benefiting from it.

The EU still supports the construction of new fossil fuel infrastructure

The EU has pledged to cut its greenhouse gas emissions by 80-95% by 2050⁷, to respect its engagement in the Paris Agreement to limit climate change to “way below” 2 degrees⁸, and to end fossil fuels subsidies by 2025⁹. The decisions that are taken this decade will critically affect if we are successful in reaching these targets. **Building new fossil fuel infrastructure would therefore brutally contradict these commitments, directly tie our energy consumption to fossil fuels until 2060 and create a dangerous carbon lock-in.**

Under the narrative that gas is a “clean” fossil fuel, the EU is however supporting politically and financially new gas infrastructure. It is promoting the construction of new gas pipelines (for example the mega-pipeline linking Azerbaijan to Italy called Southern Gas Corridor) and new LNG terminals (terminals that can receive liquefied gas). Gas, through its CO₂ emissions and methane leaks, is a key driver of climate change, and we must rapidly move away from it (*see myth 1*).

Beyond its climatic impact, new gas infrastructure would rapidly become a stranded asset: there is no demand for this new infrastructure (gas demand in Europe has reduced by 23% since 2010) and the current gas infrastructure is not used at full capacity (existing LNG terminals are only used at 25% of their capacity).

The main reason hiding behind this new gas infrastructure hype lies on the idea that Russia, considered as an unreliable supplier, should stop being the EU's main gas supplier. But many recent reports¹⁰ have proved that Europe is energy secure and can face potential energy crises without the construction of new gas infrastructure. **This geopolitical reasoning is having disastrous consequences on our climate and is already redirecting crucial political and financial resources away from renewable energy.**

⁷ <https://ec.europa.eu/energy/en/topics/energy-strategy/2050-energy-strategy>

⁸ <http://www.consilium.europa.eu/en/press/press-releases/2016/04/22-paris-agreement-global-climate-action/>

⁹ <https://www.theguardian.com/environment/2016/may/27/g7-nations-pledge-to-end-fossil-fuel-subsidies-by-2025>

¹⁰ European Climate Foundation, “Energy Union Choices: A Perspective on Infrastructure and Energy Security in the Transition”: http://europeanclimate.org/wp-content/uploads/2016/03/EUC_Report-WEB.pdf

E3G, “More security, lower cost: A smarter approach to gas infrastructure in Europe”: <https://www.e3g.org/library/more-security-lower-cost-a-smarter-approach-to-gas-infrastructure-in-europe>



**Friends of
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Friends of the Earth Europe campaigns for sustainable and just societies and for the protection of the environment, unites more than 30 national organisations with thousands of local groups and is part of the world's largest grassroots environmental network, Friends of the Earth International.