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European Greens say NO to shale gas extraction (fracking) in Europe

Introduction

Hydraulic fracturing is a process of injecting chemicals, water and sand at extremely high pressure into gas wells in order to fracture rocks and release methane gas. The process takes place over 2 to 5 days, requires an average of 5.5 million gallons of fluid and may be repeated multiple times on the same well over the course of the potential 25 to 40 year lifetime. Many of these chemicals are toxic and have known adverse health effects, which may be apparent only in the long term¹. Recently, in many EU countries, shale gas extraction became a very hot topic as mining companies are searching for new locations to apply hydraulic fracturing² (or 'fracking') to obtain gas from the ground. In some countries these activities have been prohibited by national authorities (France, Bulgaria), but in some others, mining companies are receiving permits to continue with prospecting and even commercial mining. In these countries, reaction from local environmental activists and NGOs is matching that from member parties of the European Green Party. Therefore a reaction and set of recommendations for coordinated EGP activities are urgently needed; to support measures on the EU, national, regional and local levels.

State of play

Although the first hydraulic fracturing was performed in 1947, the development of new technology, including horizontal directional drilling, multi stage fracturing and slick water. Has resulted in an intensive process of fracking characterized by high frack fluid volume and multi well pads with cluster drilling. The European Green Party recognizes that gas pads, which incorporated all of these characteristics, were first developed in 2007³. In some countries they have already succeeded in getting permits for exploration, in others this form of extraction has been banned. For example, in Poland major pressure from mining companies is now being applied. In the Czech Republic, four major areas are identified for possible extraction and several permits for prospecting were awarded. However, this has created a strong reaction from NGOs and there now exists a national coalition against fracking in the Czech Republic.

The European parliament has ordered a study on "Impacts of shale gas and shale oil extraction on the environment and on human health", to provide an indication of gaps existing in the regulation of hydraulic fracturing and make recommendations on what additional regulation is required.

¹ <http://psehealthyenergy.net>

² Hydraulic fracturing is a method used for shale gas extraction, where several vertical and horizontal shafts are drilled into stony areas of gas deposits. Within the stone layers, explosives are used to create small fractures. These fractures are then artificially widened by filling them with pressurized water. Once the pressure is reduced the waste-water reflows to the surface including the gas, chemicals and materials from the rock formation.

³ Lecture by Cornell University Professor Ingraffea: <http://www.youtube.com/watch?v=mSWmXpEkEPg>

Environmental concerns

A number of potentially harmful chemicals are used in the fracking process, including hydrochloric acid, methanol, formaldehyde amine, benzene and naphthalene.⁴ Many of the chemicals used in hydraulic fracturing can cause eye, skin and respiratory problems and can also affect the brain, nervous system and gastrointestinal system.⁵ Despite the significantly lower population density in the USA than in Europe, the expansion of unconventional gas extraction in the USA has resulted in adverse environmental contamination and significant exposure to local populations. Numerous incidents of environmental contamination have been recorded.⁶

The following concerns have been raised regarding the process:

- Air pollution and consequential associated respiratory disorders as a result of the release of harmful levels of methane, sulphur dioxide, volatile organic compounds and oxides of nitrogen into the atmosphere as a result of flaring.⁷
- Contamination of local water supplies with the thousands of gallons of chemicals mixed into the fracking fluid and/or with the produced water (the fluid after it has picked up toxic heavy metals underground) due to uncontrolled gas or fluid flows from blowouts or spills, leaking fracturing fluid, and uncontrolled wastewater discharge.⁸
- The release into the environment and exposure of people and animals to naturally occurring radioactive materials, present in shale such as thorium, benzene and uranium, which can become concentrated due to pressure and/or temperature changes during the process.⁹;
- The negative impact of the extraction of shale gas on greenhouse gas reduction targets. Through its lifecycle shale gas is estimated to release greenhouse gasses with a global warming potential equivalent to that of hard coal.¹⁰
- The multiplied risk of an accident occurring given the intensity of the process and the required number of gas wells to extract from shale rock (up to six well pads per km²).¹¹
- The high level of recorded violations of legal requirements which amounts to around 1-2% of all drilling permits in the USA.¹²
- The release of methane into groundwater resulting in fires and in extreme cases the explosions of residential buildings.
- The impacts add up as shale formations are developed with a high well density (up to six wells per km²).
- The proven link between hydraulic fracturing and seismic activity which, even if

⁴ <http://www.cieh-nireland.org/WorkArea/showcontent.aspx?id=1142>

⁵ <http://www.cieh-nireland.org/WorkArea/showcontent.aspx?id=1142>

⁶ For examples of incidents of contamination see: <http://earthjustice.org/features/campaigns/fracking-across-the-united-states>

⁷ <http://www.cieh-nireland.org/WorkArea/showcontent.aspx?id=1142>

⁸ A new study has now proven that it is possible for frack fluid to migrate to aquifers within years of being injected -

<http://catskillcitizens.org/learnmore/Fracking-Aquifers.pdf>

⁹ <http://www.cieh-nireland.org/WorkArea/showcontent.aspx?id=1142>

¹⁰ <http://www.sustainablefuture.cornell.edu/news/attachments/Howarth-EtAl-2011.pdf>

Research from the Tyndall Centre in the University of Manchester calculated that extracting and burning just 15% of the estimated reserves of shale gas in Lancashire alone would equate to 20% of the UK's carbon budget up to 2050. See:

http://www.tyndall.ac.uk/sites/default/files/coop_shale_gas_report_update_v3.10.pdf

¹¹ <http://europeecologie.eu/IMG/pdf/shale-gas-pe-464-425-final.pdf>

¹² <http://europeecologie.eu/IMG/pdf/shale-gas-pe-464-425-final.pdf>

minor, could result in damage to the cement around the borehole and allow methane and fracking fluid does not migrate to the intermediate and upper areas¹³

- The impacts on the land nature and biodiversity in addition to the visual impacts resulting from the construction of clusters of high density of gas pads and serviceable roads.
- The impacts associated with increases in traffic and accidents due to the need to transport equipment and the millions of gallons of fluids.
- Methane leakage ('fugitive emissions') from extraction sites area a serious problem that cannot be addressed: recent research into the field by the University of Colorado showed that the methane losses are about 4%. European Greens are convinced that these concerns must be seriously taken into consideration, especially by those who are in charge of awarding permits for exploration on the national level.
- Water scarcity is the main challenge for the shale gas industry, since the hydraulic fracturing process requires between 10 and 15 million litres of water for each fracturing. Meanwhile droughts are occurring in Europe earlier each year, We can replace energy sources, but not water.
- Potential environmental impacts must be considered an argument for introducing a strict ban on shale gas extraction within the EU. The integrity of wells is the Achilles heel of the industry.
- All these impacts are also imposed during just the *exploration* for shale gas, and this must be considered when drafting regulations.

We as European greens are convinced that the high probability of environmental contamination as a result of hydraulic fracturing must be considered in any assessment of whether fracking ought to be permitted in the EU and is a strong argument against permitting the process.

Energy policy /security of supplies

Many lobbyists, who are often working on behalf of oil and gas companies, claim that the extraction of shale gas through the use of hydraulic fracturing will be a 'game changer' for Europe and will result in lower energy prices. Such assessments, however, are disputed by organisations such as Deutsche Bank who recognize that the higher costs associated with operating in Europe and the higher population density will mean that the effect of shale-gas production on EU gas prices will not be anywhere near as great as has been the case in the US.

Even if shale gas were able to deliver the promised gas yields, exploration and extraction and burning of the gas combined would make it impossible for Europe to meet it's greenhouse gas emission reductions, considering the amount of energy involved in these practices.

We European Greens believe that the focus of European energy policy ought to be the

¹³ Any seismic activity in the vicinity of gas wells could result in damage to the cement around the borehole which is vital for ensuring that methane and fracking fluid does not migrate to the intermediate and upper areas.
<http://og.decc.gov.uk/assets/og/ep/onshore/5075-preese-hall-shale-gas-fracturing-review.pdf>



reduction in demand through energy efficiency rather than continually exploring more extreme forms of supply. We recognise that improvements in energy efficiency have the ability to enhance the resilience of the European economy by lowering our dependency on foreign sources of energy, reduce energy bills for consumers, improve our balance of trade, reduce our carbon emissions and improve the prospect of meeting our energy requirements from renewable technology.. Any support of shale gas extraction (as a non renewable source of energy) is also in contradiction with the needs for a modern energy policy for Europe, which requires a quick transition to renewable energy. European Greens perceive shale gas extraction as a 'dead end' energy policy. We recognize that any new supply of gas will lower relative price of gas to renewables and will therefore make investment in renewables less likely will only increase Europe's dependency on fossil fuels in the medium-long run.

European Greens say NO to shale gas extraction in Europe

As hydraulic fracturing cannot be proven to be safe, is not compatible with the pressing need to reduce greenhouse gas emissions and is not compatible with our attempts to develop renewable energy, We European Greens are saying a firm NO to any further development of shale gas extraction in Europe We are firmly of the mindset that Europe should put a halt on all unconventional hydraulic fracturing operations and restrain from any future development of hydraulic fracturing in order to protect our environment, drinking water and the health of European citizens. Given the power of multinational oil and gas firms and their ability to apply pressure on national and regional governments, and, given the fact that Europe's water is a shared resource, we strongly believe that the European Institutions must take an active role in regulating this industry.

European Greens are urging the European parliament to take steps to immediately implement EU wide regulation of the shale gas extraction (and the controversial hydraulic fracking technology) and provide member states with assistance in their efforts to regulate or ban the procedure.

Next steps to be taken by EGP

We as European Greens also support the following steps to be taken in the future to achieve the goals mentioned above:

- Request that the European Commission conduct a comprehensive and fully independent study of the impact of hydraulic fracturing and other forms of extreme energy on the environment, human & animal health and on the impact on climate change.
- Establish an EGP working group on shale gas extraction (to include MEPs, representatives of affected countries etc.);
- Request, with the cooperation of green MEPs, that the EP provide a comprehensive and detailed analysis of the European regulatory framework concerning shale gas;
- Coverage of the water framework Directive should be re-assessed with special focus on possible impacts on surface water;
- It should be assessed whether the use of toxic chemicals for injection should be banned in general;
- The threshold for Environmental Impact Assessments to be carried out on hydraulic fracturing activities is set far above any potential industrial activities of this kind, and thus should be lowered substantially.

Our ultimate goal is to put an immediate halt on all hydraulic fracturing operations in the European Union as soon as possible, and the transition to sustainable energy.