

# Why BusinessEurope is wrong on shale gas

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**The heavy industry lobby group BusinessEurope released a statement on shale gas today that gives the wrong impression about the attractiveness of shale gas. None of their statements are properly referenced, so it is difficult to tell where they come from, if they are being quoted in their proper context, or if their sources are scientific and unbiased. This paper sets the record straight.**

## Regional competitiveness: BusinessEurope says

**Energy prices** in Europe are three times higher than in the US and gas prices are five times higher

And

The US shale gas industry accounts for 2% of GDP and 1.75 million **jobs**

## The reality is

- The US price has been artificially low and cannot be sustained:
  - *“The whole industry is unprofitable today”* - Aubrey McClendon, CEO Chesapeake Energy<sup>i</sup>
  - *“What I can tell you is the cost to supply is not \$2.50. We are all losing our shirts today, we’re making no money. It’s all in the red”* - Rex W Tillerson, CEO and chairman Exxon Mobil Corporation<sup>ii</sup>
- The current breakeven price for US shale gas is estimated at \$8-9/mcf (Thousand cubic feet) but for a series of market and regulatory reasons, the glut of supply continues, driving prices as low as \$1.89/mcf. This has led to a net loss of at least \$9.3bn for all shale gas extraction companies from the extractive activities in 2012 alone<sup>iii,iv</sup>.
- Even in 2009, when US gas prices were significantly higher, a study found that *“half of the horizontal wells drilled were unprofitable, even at 2009 gas price of \$6 per MBtu<sup>v</sup>”*.
- A Deutsche Bank study states: *“those waiting for a shale-gas “revolution” outside the US will likely be disappointed, in terms of both price and the speed at which high-volume production can be achieved<sup>vi</sup>”*.
- IEA publication on the indicative costs of shale gas developments in Europe suggested that the costs will be up to three times higher per unit of gas than in the US and similar to those of conventional gas<sup>vii</sup>.
- The prestigious Zentrum für Europäische Wirtschaftsforschung (German Econ. Research inst.) recently consulted more than 200 gas and industrial experts who predict that shale gas

will only become economically viable if the gas price reaches 15.6 \$/mcf to 19.5 \$/mcf – whilst the current gas price is at 10.5\$/mcf<sup>viii</sup>.

- It is not expected that European shale gas could have a tangible effect on retail gas prices for households and businesses<sup>ix</sup>. Even in the US, where spot prices fell by 70%, this has only translated into a 10% gas price reduction for households<sup>x</sup>.
- The positive impact on economic growth, as proclaimed by the oil and gas lobby group American Petroleum Institute, seems to be much lower in reality: the entire industry has only contributed to 0.6% of economic growth since 2009<sup>xi</sup>.
- To quote KfW: “The decisive question with regard to competitiveness is whether the presented trends in energy costs also mean that US companies produce their goods at a lower cost than German ones. On average this is not the case. The overall producer price indexes have shown a similar trend since 2010 both in the USA and in Germany (each around +10 %) despite the cost advantages US enterprises have in the use of energy. This is due to the relatively low share of energy costs in the total costs of the enterprises.<sup>xii</sup>” According to their analysis, export prices have risen by 8% in Germany and by 12% in the USA since 2010.
- The European Council for an energy efficient economy says:
  - Energy costs are the key variable, not prices. Costs are a function of both price and volume, and effective efficiency measures can offset higher energy prices.
  - Competitiveness is more about quality and value than simply price alone. For a long time Europe has not competed simply on price.

### Import dependency: BusinessEurope says

Without Shale Gas the EU’s **fuel import dependency** will rise because the share of gas in Europe’s energy demand is predicted to rise up to 31% in 2035 and indigenous production is expected to decline 55% by 2030

### The reality is

- According to the European Commission’s Energy Roadmap 2050, all five of the decarbonisation scenarios see a stable share of gas in the energy mix, and a declining absolute consumption of gas, from now.
- The IEA has stated that even in its scenario with the most EU shale gas exploitation (and where emissions are consistent with global temperature rises of 3.5 degrees) “*the upward trend in net gas imports into the EU continues throughout the projection period (to 2035)*”<sup>xiii</sup>.
- Europe could increase its gas infrastructure in order to exploit shale gas. But these supplies are uncertain, as BusinessEurope admits, and will anyway not last for ever. When they run out, either the infrastructure will have to be written off at huge cost, or it will be kept running – fuelled by gas imports.

- Because shale gas well yields decline rapidly, many wells have to be drilled in order to maintain production levels. It has been estimated that meeting 2-3% of European gas demand in 2030 with EU shale gas would require drilling 500-800 wells per year to maintain production levels<sup>xiv</sup>, which is on an unprecedented scale in Europe.
- As BusinessEurope's paper suggests, the size of commercially exploitable EU shale gas reserves are uncertain. However, numerous reports show that estimates are consistently over-optimistic and frequently revised down<sup>xv</sup>. In both Poland and Hungary oil and gas companies have in recent years pulled out of exploration activities citing a lack of commercial opportunities. Rather than investing time and money in an uncertain dirty resource, why not direct it towards proven clean renewable generation?

## CO<sub>2</sub> emissions: BusinessEurope says

Natural gas offers attractive opportunities to achieve large **carbon emission reduction** relative to other fossil fuels

And

Shale gas will help to **back up intermittent renewables** sources

## The reality is

- While natural gas has a lower carbon footprint than coal, it is in no way a climate friendly fuel. The IEA has warned that two-thirds of existing commercially viable fossil fuel reserves need to stay in the ground if the world is to stay well below the 2C limit<sup>xvi</sup>
- Analysis from Carbon Tracker and the LSE support this: “60-80% of coal, oil and gas reserves of listed firms are unburnable<sup>xvii</sup>” if the world is to have a likely chance of staying below 2C and that the amount of reserves that can be burnt only increases marginally even under an optimistic deployment of CCS scenario
- It is estimated that viable fossil gas reserves may represent about 250 years of present consumption<sup>xviii</sup>. If burnt, this reserve represents 2750 Gt CO<sub>2</sub> – about three times the total amount of CO<sub>2</sub> emissions permitted worldwide in a carbon budget for the 2010-2050 period that would allow us to have just a 50/50 chance of staying below the 2-degree Celsius limit<sup>xix</sup>.
- Exploiting shale gas as an additional fossil fuel can only be done within the limits the EU has set itself on CO<sub>2</sub> emissions if CCS can be commercially rolled out, starting almost immediately. Given this is unlikely now, if ever, going for shale and CCS is extremely risky – with an outcome of either breaking climate commitments or the early retirement hundreds of billions of euros worth of gas assets.
- Shale gas is simply another fossil fuel; without a cap on global emissions it is more likely to add to coal burn than to displace it.

## Safe exploitation: BusinessEurope says

A comprehensive set of European **environmental regulation is already in place** which applies to the exploration and exploitation of shale gas

## The reality is

- The present practice of shale gas exploration needs up to 100 m<sup>3</sup> of water, per well, per Terajoule (TJ) produced. This is up to 100,000 times more freshwater than needed for conventional gas<sup>xx</sup>.
- According to an IEA report, “In areas of water scarcity, the extraction of water for drilling and hydraulic fracturing can have broad and serious environmental effects. It can lower the water table, affect biodiversity and harm the local ecosystem. It can also reduce the availability of water for use by local communities and in agriculture”<sup>xxi</sup>.
- Studies have shown that well integrity issues may affect around 5% or more of wells drilled<sup>xxii</sup> - impacts include subsurface groundwater contamination arising from aquifer penetration by the well, the flow of fluids into, or from rock formations, or the migration of combustible natural gas to water supplies.
- According to the European Commission<sup>xxiii</sup>, there is a high risk of surface and groundwater contamination at various stages of the well construction, hydraulic fracturing and gas production processes, and after well abandonment. Unconventional gas extraction carries a higher risk because it requires high-volume processes per installation and the risks increase with multiple installations.
- When disposing of the fracking liquids, which may include naturally occurring radioactive materials, salt and trace elements<sup>xxiv</sup>, there is significant potential for environmental contamination at surface level if the substances are not properly contained or treatment facilities are inadequate.
- *Air pollution:* air pollution is also likely to arise as a result of shale gas extraction. According to an EU study potential sources include “diesel fumes from fracturing liquid pumps and emissions of hazardous pollutants, ozone precursors and odours due to gas leakage during completion” and “emissions of hazardous pollutants from gases and hydraulic fracturing fluids dissolved in waste water during well completion or re-completion”<sup>xxv</sup>
- *European Environmental law is not fit for purpose to regulate shale gas* – current legislation was agreed prior to the introduction of unconventional fossil fuel extraction technologies. A thorough evaluation, followed by likely amendment, of the Environmental Impact Assessment Directive, the European Waste Directive, and the Environmental Liability Directive is still necessary. EU water legislation (especially the Water Framework Directive and the Groundwater Directive) and Mining Waste Directive (which requires

treatment of flow back water) provide a regulatory framework for water protection and need to be properly implemented and applied by EU Member States.

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- iv <http://www.postcarbon.org/reports/DBD-report-FINAL.pdf>
- v IEA, Golden rules for a Golden Age of Gas, 2012
- vi Hsueh M, Lewis M (2011) European Gas: A first look at EU shale gas prospects
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- xvi IEA, World Energy Outlook 2012
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- xviii IEA, World Energy Outlook, 2011
- xix Own calculation from the IEA’s estimate of a carbon budget of approximately 900 GT to stay below 450 ppm CO<sub>2</sub>e.
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- xxi IEA, Golden rules for a Golden Age of Gas, 2012
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<http://ec.europa.eu/environment/integration/energy/pdf/fracking%20study.pdf>
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