

Germany's Self-restriction in Shale Gas Exploitation: A Missed Opportunity?

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Abstract

Russia's supply stop of natural gas has forced Europe to turn to LNG to meet its energy needs. Rather than locking into a decades-long import dependency on Qatar and the US, it would be more environmentally benign to exploit domestic resources. Germany's substantial reserves of shale gas could make it a major player in Europe's gas market if it were to drop its voluntary ban on shale gas exploitation.

Russia's nearly complete stop of natural gas supplies has revealed the precariousness of Europe's dependence on natural gas imports. Prior to its attack on Ukraine, Russia covered almost 40 percent of Europe's gas consumption. Germany alone lost more than half of the amount that is needed to cover its annual gas demand of about 95 billion cubic meters, almost a quarter of Europe's total consumption. In the short term, these dramatic supply shortages cannot be compensated without large amounts of LNG, as the construction of new pipelines to increase the gas supply from other sources requires many years.

Natural gas scarcity may become even more acute if the prognosis of the International Energy Agency (IEA 2022) concerning winter 2023/2024 proves true, especially if China's energy demand were to increase substantially in the wake of revitalized economic growth. As recently as 2022, Europe could rely, at least in part, on Russian supplies via the Nord Stream pipeline through the Baltic Sea to fill its gas storage facilities. This option is highly unlikely for 2023 and the upcoming years. Hence, according to the IEA, the EU member states could be short of around 27 billion cubic meters of gas, a gap of about 7 percent if total EU consumption of just under 400 billion cubic meters were to be sustained in 2023.

Against this background, and without having any LNG terminals until recently, Germany's government decided to spend billions of euros for the installation of five floating storage and regasification units, the first of which went into operation in December 2022 with an annual capacity of about 5 billion cubic meters. In addition, while private investors have chartered two other floating units, two stationary terminals are foreseen to start operating in 2026. These efforts document how desperately Germany needs LNG in the foreseeable future.

But as important as establishing the recipient infrastructure is at home, it is also vital that sufficient LNG can be procured on the world market and channeled to the EU. The agreement reached with Qatar in December 2022 to supply up to 2.8 billion cubic meters annually for at least 15 years from 2026 is a valuable step,

but relatively insignificant in magnitude. LNG imports from other countries, such as the US, appear to be indispensable.

This increased dependence on LNG will come at high costs for consumers: Prices for natural gas are likely to be higher for the foreseeable future than before Russia's invasion of Ukraine, as the liquefaction of natural gas at temperatures below -160 degrees Celsius and the transport of LNG are very energy-intensive and thus cost-intensive (acatech / Leopoldina / Akademiunion 2022). Estimates by Prognos (2022) assume that natural gas in Europe could be about twice as expensive in the long term as it was before the crisis if deliveries of the previously low-cost pipeline gas from Russia continued to fall. EWI (2022) also expects high prices for natural gas in the foreseeable future and assumes that these will be three times the US prices in 2030 if gas deliveries from Russia are not resumed and natural gas demand does not fall by a third. By contrast, European prices before the energy crisis were "merely" twice the US prices.

In addition to the economic cost, Germany will incur environmental costs from its dependency on imported LNG. LNG imported from the US, for example, is transported to Europe by tanker, resulting in high energy costs both for gas liquefaction and for transportation. Thus, it would be more environmentally benign if Germany were to exploit its own substantial gas reserves through hydraulic fracturing methods (fracking) that extract natural gas from shale rock, as is done in the US. So far, resting on the narrative of a virtually endless supply of Russian pipeline gas, it had been easy to dismiss this idea on the vague notion of residual environmental risks. Now, with Russian pipeline gas being a highly unlikely option for the future, the possibility of domestic production needs to be discussed in earnest.

The Expert Commission on Fracking (2021) established by the German government recently assessed one of the commonly cited risks – that of triggering a damaging earthquake through fracking – as extremely low. Likewise, the Commission assessed the risk to groundwater pollution as low. According to these experts, fracking would pose an acceptable risk if current standards were adhered to. Extracting domestic gas reserves could also contribute substantially to reducing import dependency: According to a study by the Federal Institute for Geosciences and Natural Resources (BGR 2016: 13), Germany's shale gas resources may cover about ten times of Germany's annual gas consumption. This decision would require, however, that Germany abolishes its fracking ban of 2017.

Next to unfounded environmental concerns, critics also fear a lock-in effect: It is true that building up

the infrastructure for shale gas exploitation will take several years, and that once this machinery is set in motion, domestic shale gas will be extracted for a protracted period. But the tremendous energy requirements that will characterize the transition towards climate neutrality will inevitably require the utilization of fossil resources. And among these, natural gas is relatively clean: burning gas comes along with only about half the carbon emissions of burning lignite. To refrain from using this available and comparatively benign energy source is clearly not a viable option for the European economy, as natural gas will either have to be imported or produced domestically. Exploiting its substantial reserves of shale gas could make Germany a significant player in Europe's gas market.

The only serious obstacle preventing lifting the fracking ban thus seems to be politicians' fear that a vociferous minority of the German population would demonstrate against shale gas exploitation via fracking for ideological reasons. This is not sufficient basis for eschewing a rational decision. The exploitation of shale gas in Germany could increase both domestic value added and security of supply, while at the same time

reducing the environmental impact, especially greenhouse gas emissions.

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