

The Underground REVOLUTION

Europe could advance energy security by extracting natural gas from shale deposits



By *per* Concordiam Staff

In the winter of 2013, beside a highway near the city of Augsburg in Bavaria, solar panels blanketed in snow and ice extended to the horizon under leaden skies. Once-in-a-half-century cloud cover, combined with plentiful snow, reduced solar-power generation to a relative trickle in a country that has invested billions of euros in the renewable energy source.

Five hundred kilometers away in Mecklenburg-Vorpommern, brown lignite coal, the soft smoky hydrocarbon that used to blacken shirt collars in the days of the Eastern Bloc, pours from conveyors into a Communist-era power plant owned by the Swedish company Vattenfall. The fuel is cheap, effective and unperturbed by lack of sunshine.

Germany – and by extension many of its European Union neighbors – is getting a lesson in energy reality:

The “greenest” sources of power are often the most unreliable, and the dirtiest are widely and cheaply obtainable. But an increasing number of experts insist Europe’s greatest potential for energy security, a security that combines reliability and lower costs, lies with natural gas trapped in layers of shale under much of the Continent.

The United States has embarked upon its own “shale gas revolution” using a process called fracking. It involves pumping water, sand and chemicals underground with high pressure to release methane from the porous rock. Not only has the innovation created tens of thousands of jobs, it has reduced the country’s reliance on imported energy. “In the U.S., shale gas didn’t exist in 2004. Now it represents 30 percent of the market,” Dieter Helm, an energy expert at Oxford University, told the *Guardian* in November 2012.

Many Europeans are eager to exploit their own



THE ASSOCIATED PRESS

A man walks past solar panels covered with snow in Germany in February 2013. Despite massive investments in renewable energy, the country gets only 5 to 6 percent of its electricity from solar generation, which has left officials exploring the possibility of drilling for domestic natural gas sources.

prospective gas reserves but face stiff resistance from environmentalists fearful that the extraction process will contaminate the earth. France, the Netherlands, the Czech Republic and Bulgaria have all placed moratoriums on exploring and drilling for shale gas. In Germany, Europe's largest energy consumer, the moratorium story is mixed.

"Attempts to do the same in Germany were defeated in parliament in December. But North Rhine-Westphalia, the country's most promising region for shale gas, suspended fracking last September pending research on the risks involved," *The Economist* wrote in February 2013. "In Austria the cost of complying with environmental regulations makes shale gas uneconomic."

Domestic European gas production offers many

benefits. For one thing, compared to coal, burning it produces only half the amount of carbon dioxide, the gas blamed for helping warm the planet. European investments in wind turbines and solar panels suffer from a reliance on fickle weather: Absence of sun and wind can play havoc with power delivery if backup supplies of electricity are unavailable. Another relatively clean alternative, nuclear power, is dwindling in popularity, particularly in Germany, after the 2011 tsunami-instigated disaster in Fukushima, Japan.

Europe gets much of its gas from Russia's state-controlled energy company Gazprom. Despite falling worldwide prices for gas, thanks in part to the shale gas streaming from the U.S., Europe remains locked into pricy purchase agreements with the Russian producer. Nevertheless, *Der Spiegel* reports that many countries have gained new leverage in bargaining with suppliers. "Europeans are reorienting themselves," the magazine wrote in early 2013. "In the first three quarters of 2012, Gazprom sales fell by 43 percent in the Netherlands, 30 percent in Slovakia and 20 percent in France."

The ability for fracking to change the world's balance of economic power was a topic at the 2013 Munich Security Conference. EU Commissioner for Energy Günther Oettinger suggested Europe should produce enough domestic shale gas to reduce reliance on outside suppliers. He singled out Poland, Great Britain, Ukraine and the Baltic states for sponsoring "demonstration projects" that could prove the effectiveness of domestic fracking and urged the rest of Europe to remain open-minded about an extraction process the EU will pursue only to the highest environmental standards.

Such diversification of the European gas market is one way to ensure that international political disputes won't upset the Continent's energy supplies, Nicholas Redman, senior fellow at London's International Institute for Strategic Studies, told the *Guardian* newspaper in a story from November 2012. "Europe doesn't want to get into deeper reliance on Russia," he said. "They are looking at other options."

Yet at the moment, much of the Continent seems seized by environmental anxieties that are still being assessed in countries where shale gas extraction has become commonplace. For countries such as Germany that are wary about producing either shale gas or nuclear power, coal remains the likely fallback option, particularly when winters curtail solar power generation. More than a few commentators have pointed out the irony: Europe's leader in renewable energy relies disproportionately on the dirtiest of fossil fuels.

"The amount of electricity generated from coal is rising at annualised rates of as much as 50% in some European countries," *The Economist* wrote in January 2013. "Since coal is by the far the most polluting source of electricity, with more greenhouse gas produced per kilowatt hour than any other fossil fuel, this is making a mockery of European environmental aspirations." □