Though skeptical not long ago, the industry now is increasingly confident about the size of reserves in Europe, where shale deposits underlie most of the European Union’s 27 states. “It’s gone from people saying, ‘You’re crazy, why are you moving to Poland?’ to ‘Oh, that is the hottest play in Europe,’” says John Buggenhagen, head of exploration at Dublin-based San Leon Energy, which has several concessions in Poland.

According to the International Energy Agency, Europe could hold 35 trillion cubic meters (tcm) of so-called “unconventional gas,” which is dispersed in various rock formations rather than in reservoirs. Europe’s total current demand is roughly 580 billion cubic meters annually.
Cuadrilla says there are “no officially documented case[s] of frac[k]ing causing leakage of hyrdocarbons of frac[k]ing fluid into shallow water contamination, Miller says the cases are either unproven, or the result of poor drilling practices.

groups like WWF say UK authorities should not allow shale gas development until more research has been done into exactly what is causing the water contamination issues. “We don’t have anything like the history of drilling that they have in the U.S.,” says Jenny Banks, energy and climate change policy officer for WWF UK. “We don’t even know that the shale rock here is suitable for drilling. So there is a massive amount of uncertainty.” The UK’s shale formations, which differ somewhat from those in the U.S. in their structure and porousness, may generate their own environmental issues, she says. Apart from the impact of the chemical mixture that developers put in the ground, there is also the possibility of releasing contaminants in the rock, including benzenes and radioactive isotopes.

Unhappily for Cuadrilla, it is setting up shop just as controversy over shale gas is gaining momentum. The Oscar-nominated documentary, Gasland, which shows how shale gas has affected households across the U.S., has provided a hook for TV and press reports, and the company has become a lightening rod for shale gas critics.

Chief executive Mark Miller says Cuadrilla is avoiding many of the chemicals used in U.S. production, some of which would undoubtedly be illegal on European soil. He blames Halliburton, which developed fracking in 1949 as a way of extending the life of conventional gas wells, for failing to disclose toxic substances in its fracking fluids, and thus giving the rest of the industry a bad name. As for evidence of widespread, are related to unconventional gas drilling. “It starts to finger-point stronger and stronger to the source somehow being related to the gas development,” Nathan Wiser, an EPA expert on hydraulic fracturing, told ProPublica.

Miller says fracking itself is unlikely to cause contamination because it takes place as much as 5,000 feet below the surface, with fractures never coming higher than 300 feet from the initial fracking point. “There is nothing in shale that makes groundwater any more vulnerable than drilling in sandstone,” he says. “What makes it vulnerable is poor cement jobs and poor casing design.”

Despite the efforts of firms like Cuadrilla to assure the public, however, the exploration boom is sparking protests in several countries, notably in France and Germany, foreshadowing what developers could be up against in coming years. Earlier this month, the French Ministry of Ecology called a halt to shale gas drilling throughout the country while it assesses the environmental issues. Its report is due in June.

Other governments are more supportive. Ahead of a EU Energy Summit this month, Poland inserted language into the official declaration calling for unconventional gas development, Poland is keen to reduce its dependence on Russian supplies, which currently account for two-thirds of its demand. And over the last three years, Poland has granted 79 concessions, becoming a magnet for energy executives and
It may have been a transition fuel 20 years ago, but we simply don’t have the space for it to be a transition fuel now," says one expert.

Several factors make Poland attractive to foreign energy firms, according to Grzegorz Pytel, energy expert at the Sobieski Institute, a think tank in Warsaw. Under current regulations, producers pay only a 1 percent tax on the volume of hydrocarbons produced, plus a 19-percent corporation tax — both low rates by international standards. Also, concession contracts are for longer periods of time than in other countries and cover larger geographical areas.

Andrzej Kassenberg, president of the Warsaw-based Institute for Sustainable Development, says shale gas could help reduce Poland’s need for coal-derived electricity (currently 92 percent of production) and serve as a “transition” energy source on the way to a more renewable future. But he is concerned that shale gas drilling could spoil the landscape and exacerbate water shortages in some areas. “There are going to be thousands of drilling towers and lots of new roads and pipelines, and that could cause social problems,” says Kassenberg.

The largely unanswered question, though, is how producers are going to sell the gas once it is extracted, Pytel says. Polish demand is 14 billion cubic meters a year a year, with 10 billion of that coming from Russia’s Gazprom. To export excess natural gas produced in Poland, Pytel says Polish gas companies will probably have to strike a deal with Russia, which effectively controls pipelines running through Poland.

Experts also disagree about shale gas’s role in cutting carbon emissions. Though industry officials say that burning natural gas emits just over half the CO2 per unit of energy, compared to coal, several researchers say “fugitive” methane emissions from shale gas production offset the benefits. (Methane is a powerful greenhouse gas.) Cornell professor Robert Howarth has argued that the lifecycle greenhouse gas emissions of shale gas are worse than coal and fuel oil when considered over a 20-year period.

The Tyndall Centre, meanwhile, says there is a little evidence from the U.S. that shale gas has been used as a substitute for coal. Instead, it has been burned in addition to it. The same thing is likely to happen in Europe, according to Tyndall.

Kevin Anderson, who leads the Tyndall Centre’s research on energy and carbon emissions, also is worried about the effect on renewable energy development. “Shale gas might help with energy security and help meet climate change targets in the short-term,” he says. “But then we have the problem that we haven’t developed the renewables which we have plenty of potential for in the UK.”

To meet the UK government’s target of reducing CO2 levels by 34 percent below 1990 levels by 2020, Anderson believes it will be impossible to include shale gas in the mix. “It may have been a transition fuel 20 years ago,” he says. “But we simply don’t have the space for it to be a transition fuel now.”

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