

# Transatlantic Cooperation Could Lead to a Worldwide Shale Gas Revolution

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Shale gas has been a controversial topic in both the United States and the European Union. While many tout shale gas as an important source of energy independence, others are more concerned about the potential environmental and social impacts that “fracking” – one of the techniques used to bring gas trapped in shale formations deep underground to the surface – could have. In the United States, the shale gas “revolution” is running full steam ahead while EU member states range in opinion from Poland, which is actively exploring for shale gas deposits, to France, which has all but banned fracking throughout the country. Despite environmental concerns, shale gas is a particularly salient issue for many EU member states that currently find themselves uncomfortably dependent on Russian gas. At this time, the EU-27 receives 34% of its gas imports from Russia.<sup>1</sup>

Europe’s energy security now depends heavily on just a few suppliers, including Russia, Norway and Algeria. Libya was also an important supplier for some Southern European countries, but the recent turmoil there has reduced output. Because there are so few suppliers, a supply shock in just one of these countries – for instance, the 2006 and 2009 Russia/Ukraine gas crises – can have a significant impact on Europe’s energy security. Domestic sources of natural gas, combined with the completion of the internal market, can help mitigate these shocks. Europe is home to some of America’s most important allies, and it is important that the U.S. work with Europe to increase both regional and global energy security.

It is impossible to predict whether Europe will be able to achieve the same kind of success that the U.S. has experienced with its shale gas industry. Although there is much interest both inside and outside Europe in exploiting domestic shale gas reserves, most European and developing countries have very little experience with oil and gas production. Closer transatlantic cooperation, however, can help overcome this constraint and be a vital element in developing the shale gas industry in Europe and around the world. Leveraging the

transatlantic partnership has other benefits in that it can also help ensure that the global shale gas industry develops in a profitable yet environmentally responsible way.

## An American Success Story

Originally developed in the U.S., the techniques used for the extraction of shale gas have been controversial on both sides of the Atlantic. Shale gas is extracted through the use of horizontal drilling and hydraulic fracturing (fracking). Once a well has been drilled to the appropriate depth, drilling is then extended sideways into narrow shale gas deposits. Fracking fluid, which is primarily water but also contains sand and other chemicals, is then pumped into the wellbore at high pressure to break up rock formations which trap gas underground. The freed gas is then pumped up through the well.

Fracking has been controversial due to a variety of environmental concerns associated with the practice. There have been concerns, for instance, that fractures might extend upward into groundwater supplies and contaminate drinking water. Additional concerns include the fear that the casing which surrounds the wellbore will fail, or that the accidental spill of fracking fluid will contaminate surface water supplies. Recently, the U.S. Environmental Protection Agency (EPA) questioned its own preliminary findings in a groundwater contamination investigation in Pavilion WY, and is now working with the U.S. Geological Survey to ensure that the science and sampling practices are sound before drawing conclusions about the impacts of fracking.<sup>2</sup>

Though fracking has been used in the American energy industry since the 1940s, it has only been applied to shale gas extraction over the last decade. “As late as 2000, shale gas was just 1% of American natural-gas supplies. Today, it is about 25% and could rise to 50% within two decades.”<sup>3</sup> In the U.S., the development of shale gas deposits has had a number of beneficial impacts for American and other consumers. For instance, it is responsible for

reversing “the decline in U.S. natural gas production and lowered natural gas prices in the U.S. to \$4 per mcf from as high as \$9 per mcf during 2005-2009.”<sup>4</sup> Because the U.S. no longer imports large quantities of liquefied natural gas (LNG), supplies have been dumped onto European and other gas markets, reducing spot prices for consumers worldwide.

The U.S. has been successful in developing its shale gas industry partly because it already had a well developed domestic oil and gas industry and possessed the supporting infrastructure which includes “roughly 38,000 miles of gathering pipelines, 85 BCF/d of natural gas processing capacity, 350,000 miles of transmission pipelines and 4.5 TCF of natural gas storage to serve the over 450,000 existing natural gas wells as of 2008.”<sup>5</sup> The U.S. oil and gas industry also has a long history of working with federal, state and local entities, all of which have some regulatory authority. Finally, U.S. mineral rights belong to land owners rather than the state, providing an economic incentive for land owners to engage in exploration and production activities.

### Replicating the Shale Gas Revolution?

Discussions have taken place at the EU level regarding the Union-wide regulation of shale gas extraction and positions among member states vary widely. Though Poland, which has granted over a hundred concessions for exploration to companies such as Chevron, ENI and Exxon, originally supported EU regulation of shale gas, it reversed its position based on the fear that joint regulation would lead to restrictions on fracking.<sup>6</sup> The UK supports Poland’s position, and has also been actively exploring for shale gas deposits. Bulgaria, by contrast, has called for European level regulation which would protect both the environment and local populations.<sup>7</sup> Despite the controversy, one thing is certain: EU-wide regulation of shale gas production is inevitable over the long-term. Closer transatlantic cooperation can help ensure that regulation will spur the development of European shale gas deposits in an environmentally sustainable way and pave the way for the responsible development of the industry globally.

Although many countries both within and outside the EU hope to replicate the success that the U.S. has had in reversing the decline of its gas industry,

this will probably not happen in the EU as a whole. At this time, there is no EU-wide regulatory framework and member states are allowed to choose whether or not to explore this option as a part of their national energy mixes. Though under the Lisbon Treaty energy policy is an area of joint competence, member states continue to retain complete sovereignty over their domestic resources and national energy mixes. This means that regulation will also be implemented at the member state level. Regulation is likely to vary significantly between countries, making it difficult for companies

to navigate the regulatory process. Furthermore, some member states either do not possess shale gas deposits, or do not possess deposits that are economically feasible to recover. This may change, though, as gas becomes both scarcer and more profitable.

Europe also faces a number of constraints that differ from those in the U.S. For instance,

the EU does not yet have a fully integrated pipeline or transportation network. This makes getting gas supplies from some parts of the Union to others, particularly in the East, difficult. This will prevent some member states from experiencing the lower costs associated with a European shale gas revolution. If, however, the internal market in gas is completed as called for by the 3<sup>rd</sup> Energy Liberalization Package, the development of the shale gas industry in just a few member states could have significant benefits in reducing both prices and dependence on Russia. Europe also has a population that is significantly more environmentally conscious than that of the U.S. Climate change has been a more salient issue for Europeans and the EU has been a world leader in this policy area. For this reason, environmental concerns about the impacts of fracking will carry more weight with citizens and member state governments than they have in the U.S. Europe faces a number of other constraints as well, which include a lack of experience with domestic oil and gas production, a lack of supporting industries that produce equipment for exploration and drilling, and mineral rights laws which differ among member states. Other nations seeking to develop their shale gas deposits are also likely to face some, if not all, of these constraints. If the transatlantic partnership can develop policy proposals to overcome these constraints, then this will pave the way for other nations to follow.

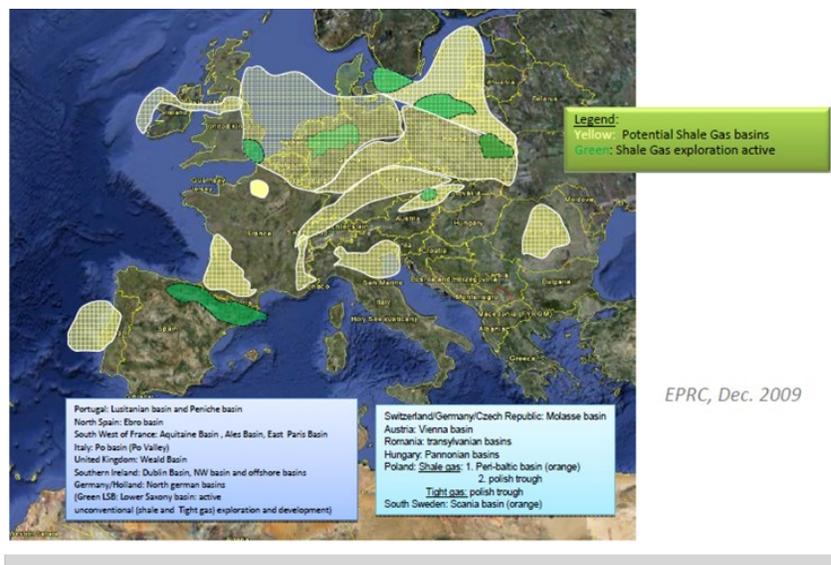
Regardless of these constraints, some member

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states still hope to initiate their own shale gas revolutions. Right now, Poland and Great Britain are actively involved in exploring for shale gas deposits. In fact, “an area in northwest England may contain 200 trillion cubic feet of shale gas, putting it in the same league as some of the vast shale gas plays that have transformed the U.S. energy industry.”<sup>8</sup>

Poland has also been identified as a country with significant shale gas deposits. Other member states are also exploring for shale gas deposits, including Bulgaria, Sweden, Denmark, Romania and Germany. Figure 2 to the right indicates the location of potential shale gas plays in Europe.

Figure 2: Potential Shale Gas Deposits in Europe<sup>9</sup>



organizing and coordinating working groups which address relevant topics for legislative development, such as environmental protection and industry technological developments.

The U.S. should also partner with member states because regulation in the EU will not just take place at the European

### Moving Forward: Policy Proposals for Europe and Beyond

The U.S. has been sharing its expertise in shale gas exploration and production with other nations that hope to develop their own shale gas resources. Both the EU and individual member states are in a prime position to take advantage of this and learn from both U.S. successes and mistakes. In this vein, talks have been taking place at the transatlantic level. The fledgling EU-U.S. Energy Council, a coordination group established in 2009 that is meant to increase cooperation between the transatlantic partners on energy issues, met in November 2011 to discuss this and other important energy policy topics. Though there has been some criticism of this body because it has not addressed the thorny issues surrounding shale gas, there is awareness among the partners that this is an important area for future dialog.<sup>10</sup>

According to the Atlantic Council, “the U.S. government and industry is in an excellent position to assist other countries in sorting through the issues and regulations needed to safely and responsibly develop unconventional resources.”<sup>11</sup> Despite the differences in opinion among member states, it is inevitable that the European Commission will develop proposals for Directives which regulate the shale gas industry. The

exchange of information via working groups of experts from the U.S. and their counterparts in the EU would be useful in bringing EU policymakers up to speed on regulatory issues that must be addressed to ensure the responsible development of the shale gas industry in the EU. The EU-U.S. Energy Council can play an important role in

level. The U.S. State Department’s Global Shale Gas Initiative (GSGI) was created to bilaterally assist other countries in developing their shale gas industries.<sup>12</sup> Poland is currently participating in this program, which leverages U.S. federal and state government expertise to help partner countries develop their shale gas industries. This program is doubly important because most regulation of shale gas in Europe will be conceived and implemented by member state governments. The U.S. should expand this program to other European countries which are interested in developing their shale gas potential.

Cooperation is also taking place unofficially at the corporate and academic levels, allowing American firms to bring best practices developed over a decade in the U.S. to Europe. This, combined with appropriate regulation, can prevent some of the environmental and public relations problems that shale gas has faced in the U.S. Unofficial cooperation should be coordinated, supported and encouraged by U.S. and EU institutions and, if effective, integrated into formal bilateral and multilateral programs such as the GSGI and the EU-U.S. Energy Council.

American successes have also inspired many countries outside the EU to explore for their own shale gas deposits. As energy costs and global demand continue to increase, the transatlantic

partnership should promote the responsible development of shale gas resources around the world. Countries like China, Argentina, India, Turkey and Ukraine are now in the process of exploring for shale gas reserves. Although production is a decade away, the time is right for the transatlantic partnership to emphasize that shale gas production should be regulated in a way that maximizes production and minimizes environmental damage. Combining American expertise in shale gas production and Europe's environmental regulatory expertise can help ensure that future shale gas development is both profitable and safe.

The U.S. and EU working together as partners will also put more political weight behind global environmental concerns. The EU is now a world leader in dealing with environmental issues like climate change. If the U.S. were to also emphasize the environmental aspects of shale gas extraction, the combined weight of the transatlantic partnership is more likely to influence other nations. Working together will provide additional policy options for the transatlantic partners. These might include making technical or development assistance contingent upon the adoption of a strong regulatory framework.

## Conclusion

Transatlantic cooperation can have two major global benefits. First, if Europe is able to successfully develop its shale gas industry it will help increase energy security throughout the EU, not simply in the countries that choose to exploit their gas deposits. If properly developed, shale gas has the potential to be a source of cheap and secure energy which is less carbon intensive than oil or coal and which reduces

Europe's reliance on troublesome foreign suppliers. Cooperation with the U.S. government and the American shale gas industry can help ensure that the development of Europe's shale gas regulatory systems at the EU, member state and local levels is well-balanced and allows extraction to take place responsibly and with as little damage to the environment and public opinion as possible. If Europe tries to do this alone, however, regulation could prove to hinder the industry rather than advance it, closing off shale gas as an important opportunity to improve Europe's energy security.

Additionally, the U.S. and Europe together will be more successful in promoting the responsible development of shale gas deposits worldwide. Though shale gas production will reduce gas prices, this should not come at the expense of the environment. The U.S. and Europe can combine their respective areas of expertise as world leaders in shale gas production and environmental regulation and pass this knowledge on to other countries seeking to develop their domestic resources. □

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## NOTES

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