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L&P Energy Insights

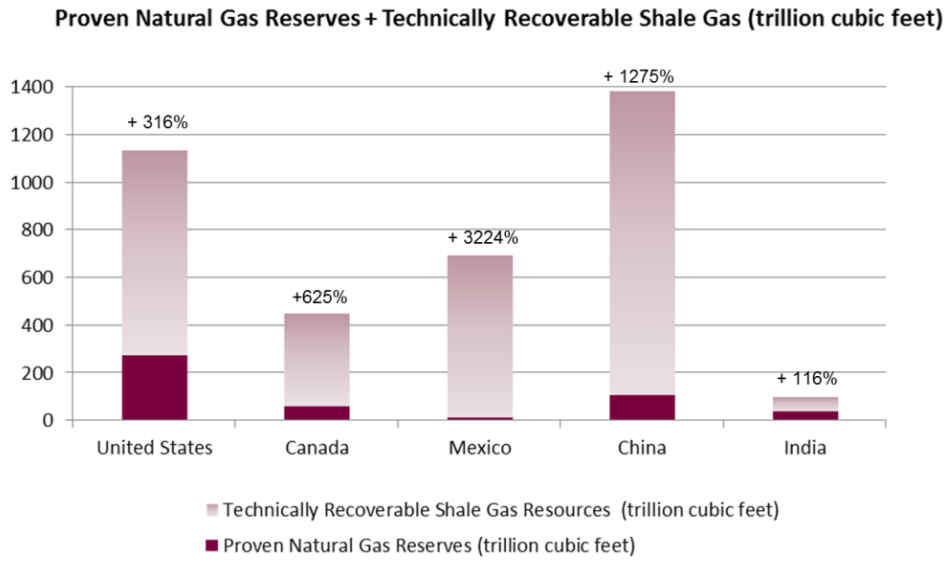
Shale gas and the fracturing of global gas market structures

Shale gas is natural gas trapped within shale formations that is changing long standing structures of the global gas market. Using a technique called hydraulic fracturing, or "fracking", this gas can be extracted. Since its commercial birth in Texas in the 1990's, fracking has started to revolutionize the world gas market. Shale gas offers the possibility of higher energy independence for the U.S. and Europe.

Global shale gas reserves are estimated at the equivalent of ~6,600 trillion cubic feet, roughly the same amount as the world's proven gas reserves. The sheer quantity apart, it is the location of the reserves which is changing the direction of the world's gas flows; large quantities can be found in the U.S. and Europe; regions that are historically large gas importers. Gas imports in these regions comes mainly from the Gulf region and Russia.

Import volumes to the U.S. were - until quite recently - predicted to increase; large investments in harbor capacity were made in order receive and to regasify over 100 billion cubic metres (bcm) of imported liquefied natural gas (LNG). Shale gas has changed this. In 2011 American LNG imports were less than 10 bcm. Regasification terminals are being converted into liquefaction facilities, in order to export LNG. The result has been lower gas prices for business and consumers over North America.

Table 1: Conventional Gas Reserves and Shale Gas Reseves of Large Countries

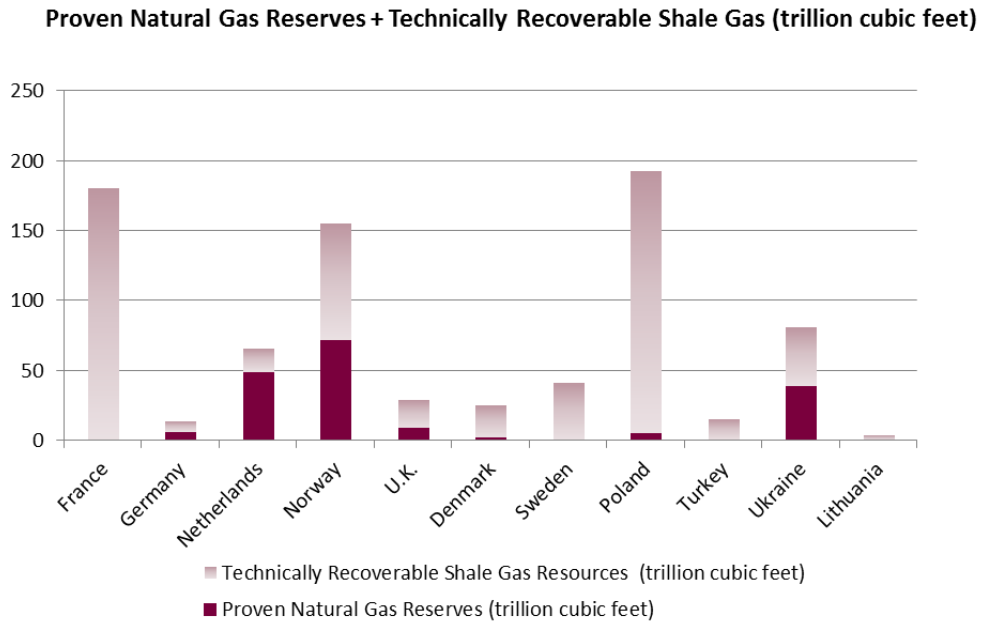


Europe has a similarly large potential to decrease its gas independence from Russia. To take an example, France's shale gas reserves could make it gas self-sufficient for 100 years. The potential gains for European consumers and businesses are large. Gas

customers have for a long while been at the mercy of gas producers, of which the largest is Russia. Gazprom, the Russian state-owned gas monopoly, controls a fourth of the European gas market and is predicted to grow to control a third by 2020. It has declared it will raise prices by 8% during 2012. Most customers will have to put up with this. With shale gas lying in the ground, there is little reason they should have to.

It is therefore concerning that European politicians have taken such a negative stance to shale gas. The French government has nationally banned shale gas extraction. Other European governments are skeptical. It is true that there are environmental risks with shale gas extraction. Environmental groups point to the risk of greenhouse gas emissions - notably methane - , earthquakes and ground water contamination as the drill shaft passes through the ground water level in its journey to the gas-rich depths. But the risks are overstated and are manageable. If venting is eliminated, then greenhouse gas emission can be kept to a minimum. Modest earthquake risks are also always present in conventional oil-and-gas exploration and can be mitigated via monitoring. And so long as well-shafts are properly sealed, there is hardly any risk that fracking will poison the groundwater. Applying all the necessary safety precautions to a well adds ~7% to the total cost, according to the International Energy Associations – a small price to pay for lower gas prices across the board and more energy independence.

Table 2: Conventional Gas Reserves and Shale Gas Reseves of Selected European Countries



Apart from the safety issues, there are also many institutional challenges facing shale gas exploration in Europe. For one, Europeans property owners do not have the immediate ownership rights of underlying natural resources that their American peers

enjoy; this stunts exploration. Europe's gas network is not as integrated or efficient as the U.S. one. This should be addressed for the sake of efficiency in the European energy supply.

Shale gas is here to stay and will play a growing role in global energy markets in the coming years. In Europe it could contribute to lower energy prices if given the opportunity.

To learn more about the energy future and what it could mean for your company, please feel free to contact Lagerkvist & Partners.

Sources: L&P Research; IEA, FT, EIU