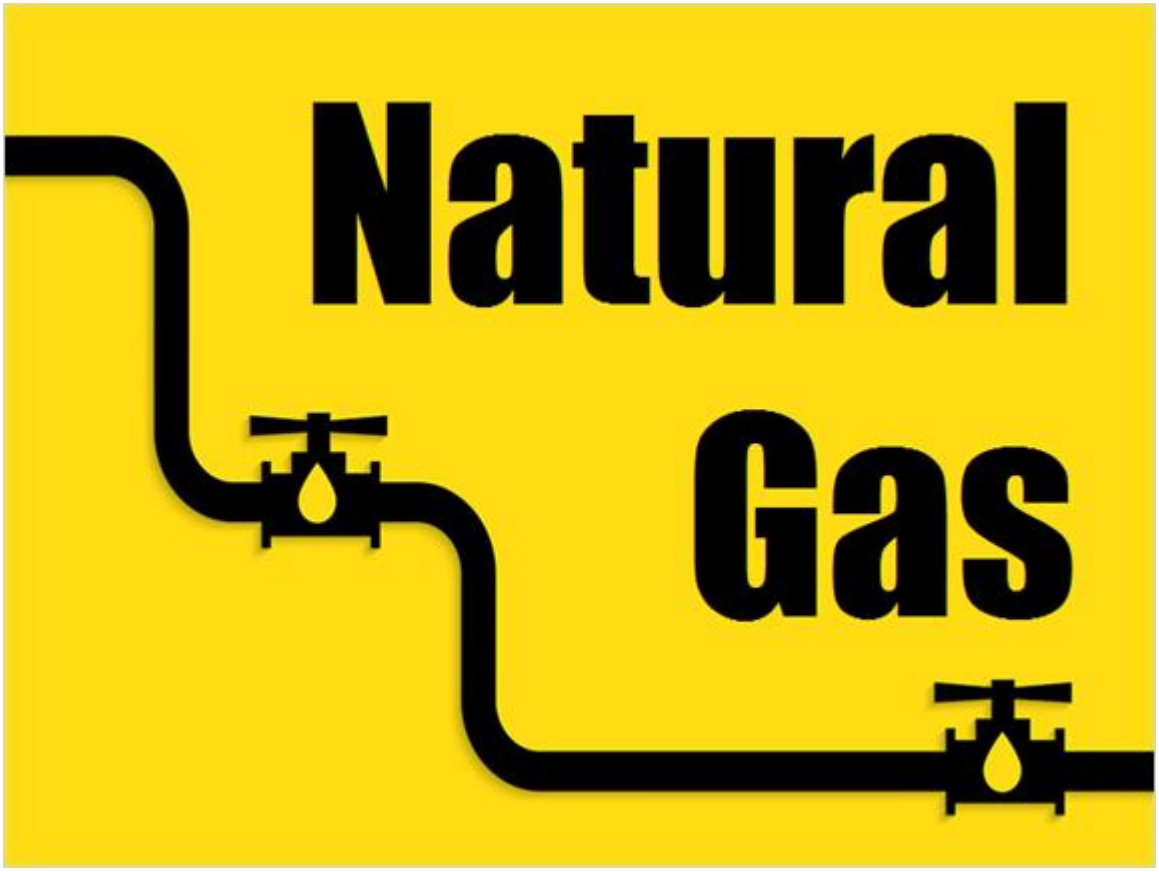
Module 10: Resources and Virginia Geology
Topic 2 Content: Natural Gas Notes



Natural Gas

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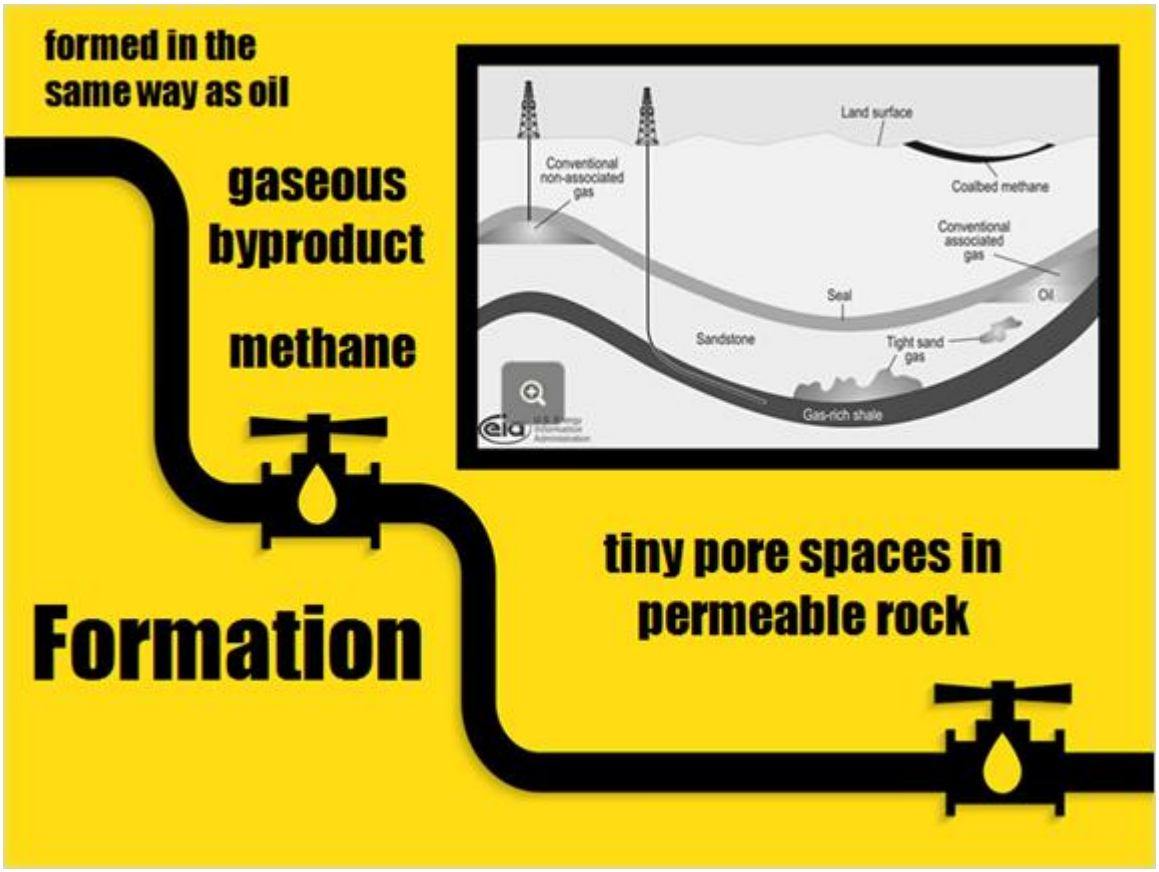
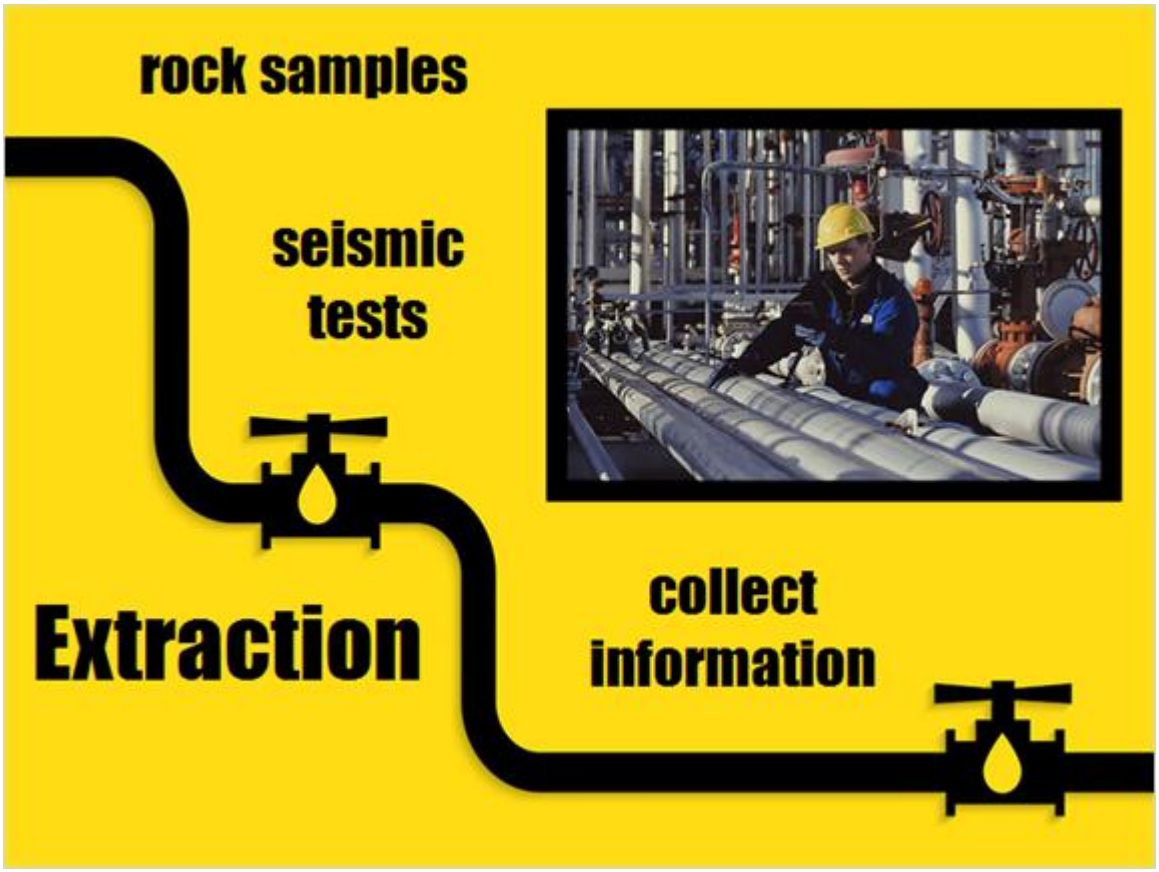
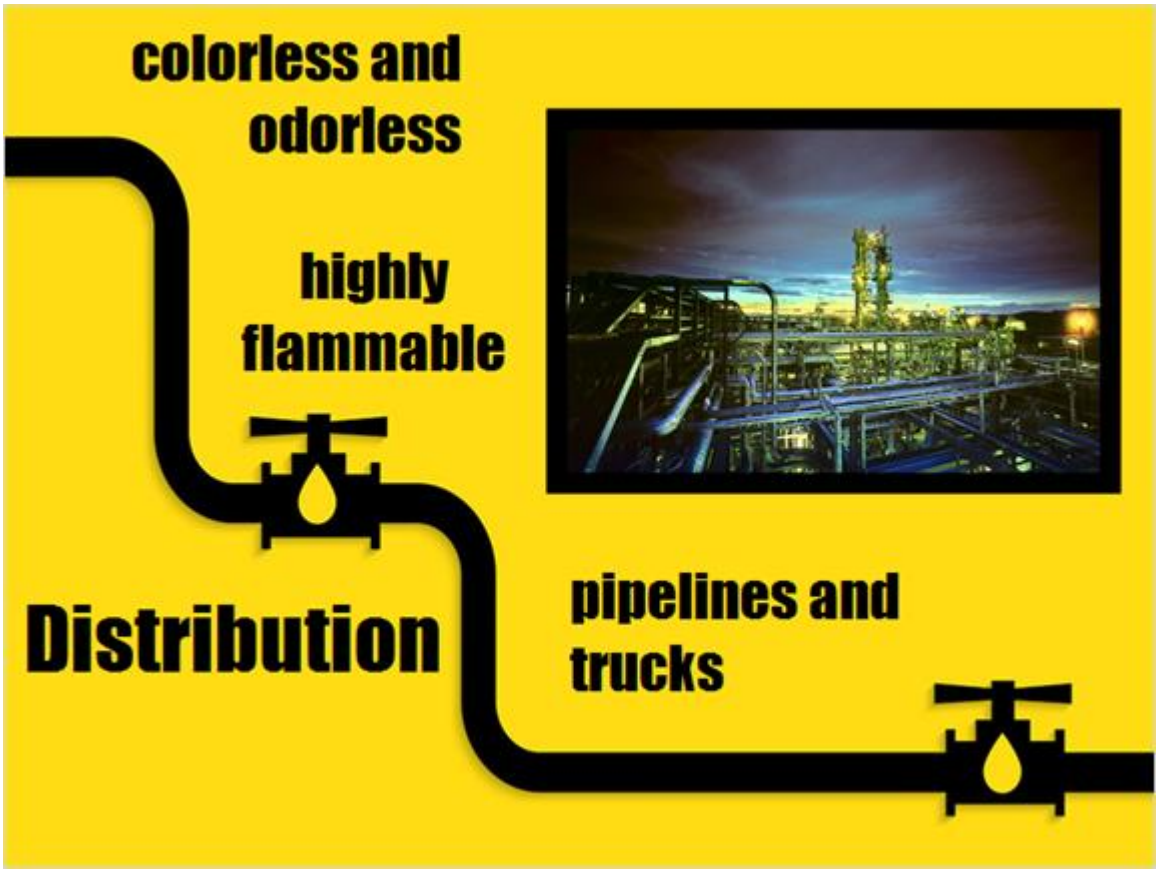


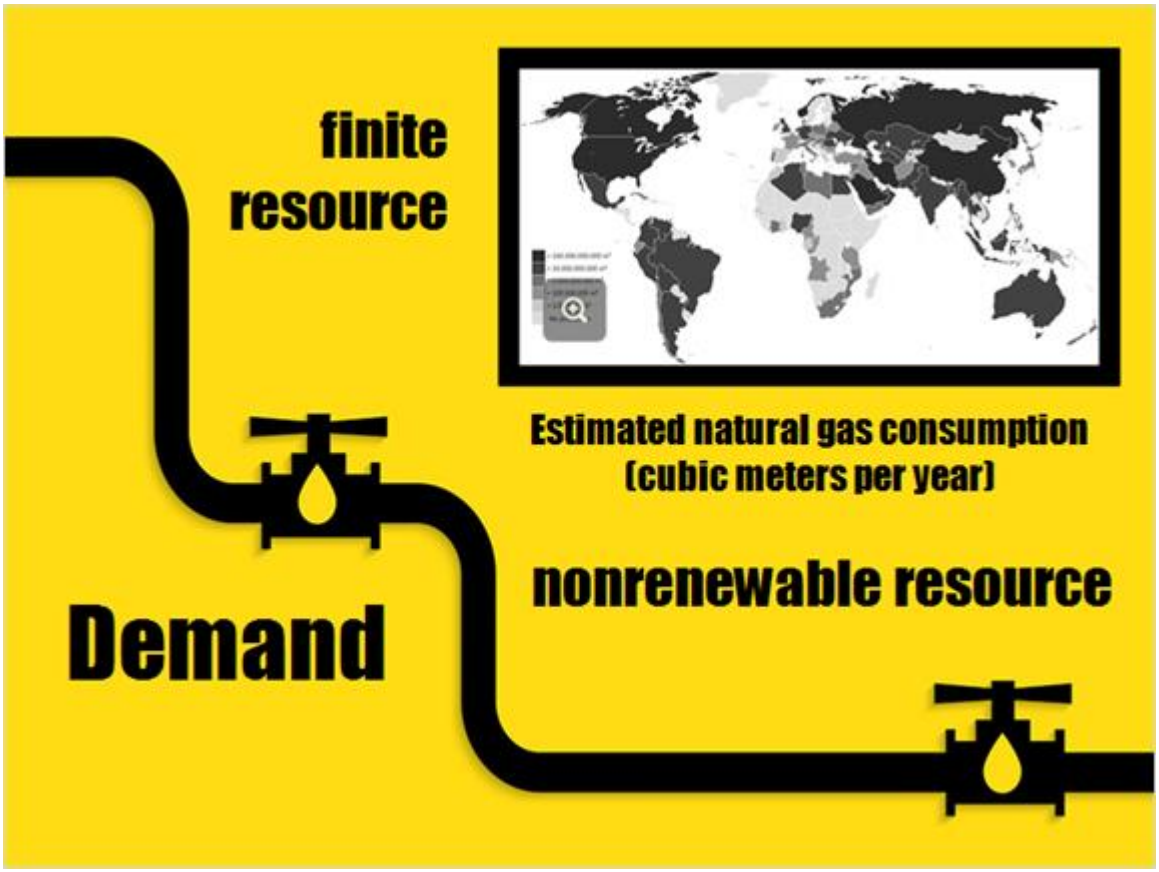
Even though natural gas is a very different substance from oil, scientists believe it formed in the same way. The remains of the same algae and plankton that formed oil deposits created natural gas deposits. In order for oil to form, bacteria broke down these organisms and produced a gaseous byproduct made mostly of methane. There are also deposits of natural gas in some areas without oil reserves. In these cases, the natural gas exists in tiny pore spaces in permeable rock. Click on the image to view different types of natural gases deposits. You can see that one is associated with trapped oil.



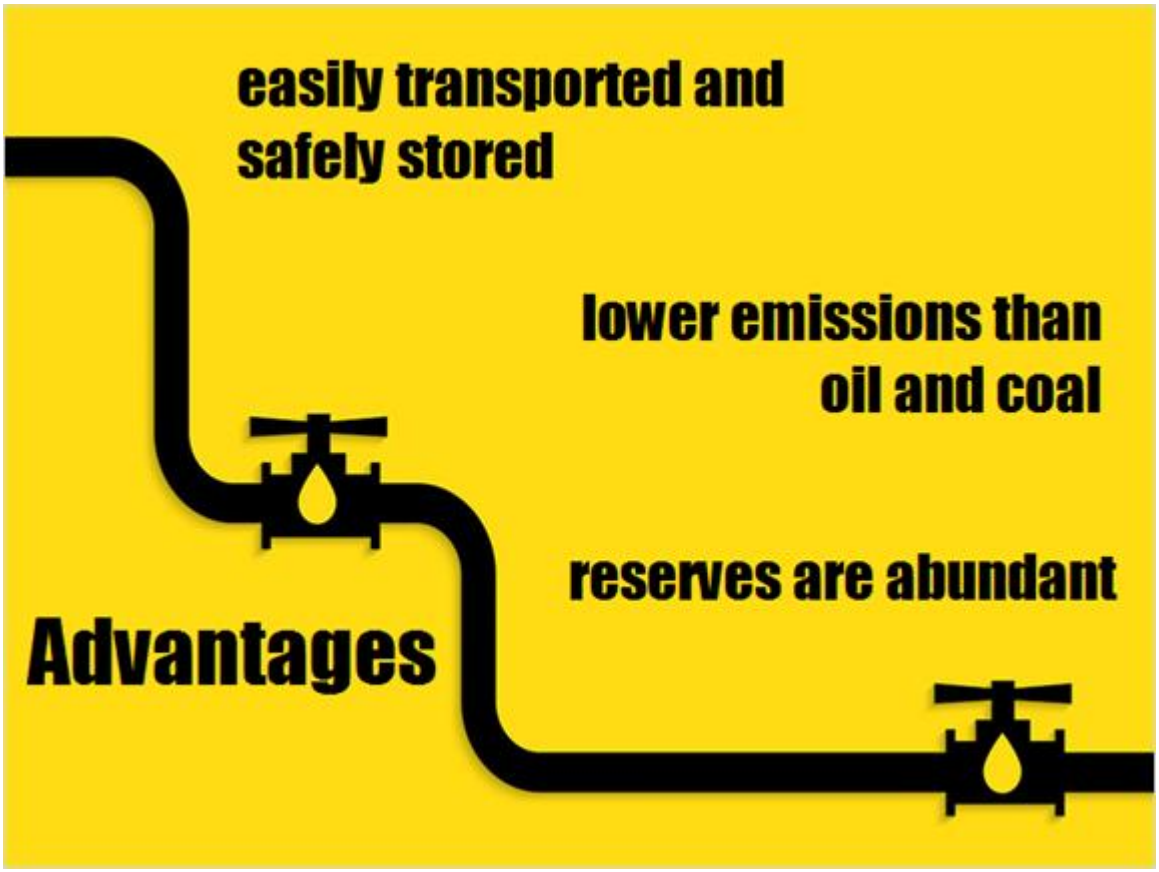
It takes a team of geologists and engineers to search for natural gas deposits. Geologists start by identifying the type of rock likely to be near gas and oil deposits. They take rock samples, conduct seismic tests, and collect as much information as possible to determine the best placement for drilling wells.



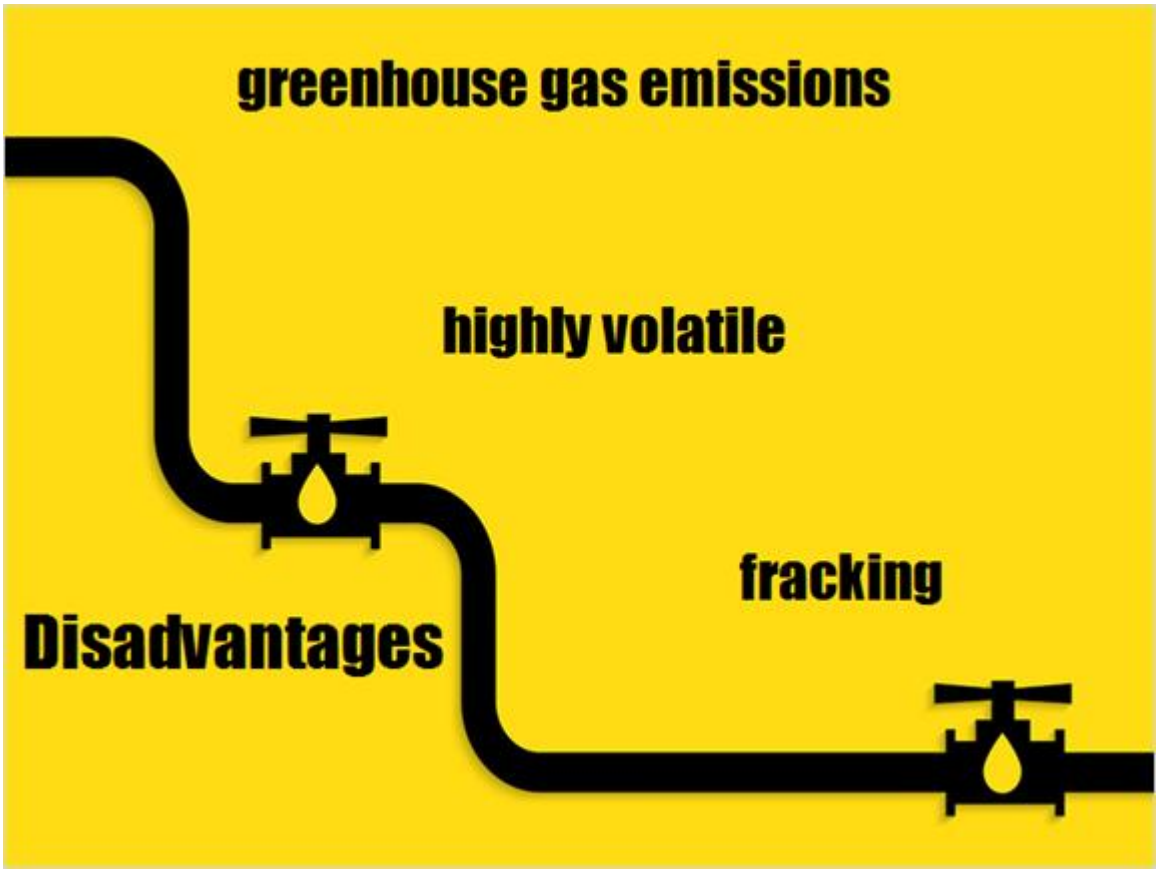
Once gas is found, it is collected by pipelines and transported to processing plants where the gas is cleaned until only methane remains. Natural gas is colorless and odorless, so a smell is added to the gas so that it can be detected in case of a leak. This is important because natural gas is highly flammable and can cause an explosion if ignited. The processed gas is distributed by a pipeline to nearby location, or the gas can be condensed into liquid form and transported by truck. Gas companies collect natural gas in storage tanks above or below ground and distribute it to customers using local pipelines.



The demand for natural gas has increased dramatically worldwide in recent years. To see how countries around the world consume natural gas, click the image to enlarge it. The major producers of natural gas worldwide are Russia, the United States, and Canada. Just as it is difficult to predict how much oil there is on Earth, there is also no way to know precisely how much natural gas exists. Because of the length of time natural gas takes to form, it is a nonrenewable resource and will eventually run out if not properly managed.



The use of natural gas has both advantages and disadvantages. The biggest benefit of natural gas is that it is easily transported through pipelines and safely stored in containers. Even though natural gas is a fossil fuel, burning natural gas produces lower emissions when compared to oil and coal. Natural gas reserves are abundant. There are large quantities of natural gas to pump out of reserves at the current price.



Burning natural gas does have environmental consequences. The use of natural gas creates greenhouse gas emissions. Natural gas is also highly volatile. An undetected gas leak could be devastating. In addition, the mining of natural gas can include the use of hydraulic fracturing, or "fracking." Fracking consumes large amounts of water, uses harmful chemicals, which can contaminate groundwater and the air, and leaves behind harmful waste.