

Appendix E

Energy in Brief — What everyone should know about energy

Release Date: June 11, 2008

Is U.S. natural gas production increasing?

Natural gas production in the Lower 48 States has seen a large upward shift. After 9 years of no net growth through 2006, an upward trend began that generated 3% growth between first-quarter 2006 and first-quarter 2007, followed by an exceptionally large 9% increase between first-quarter 2007 and first-quarter 2008.

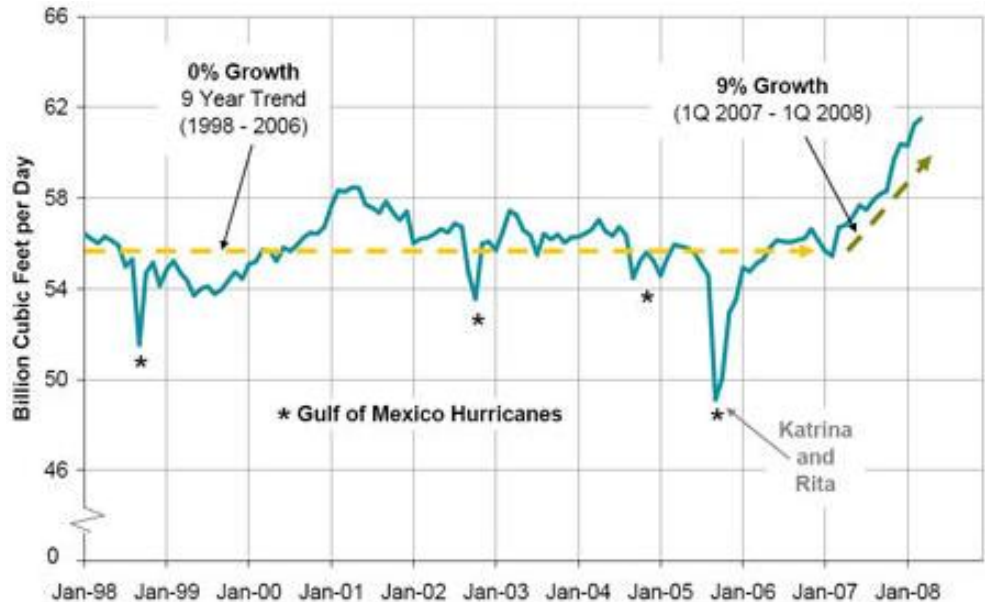


A drilling rig near downtown Fort Worth



Source: Chesapeake Energy, 2007 Annual Report
 Photo by Gary Wilson

Recent Growth in Natural Gas Production in the Lower 48 States Breaks with Historical Trends



Source: Energy Information Administration, Office of Oil and Gas, Form EIA-914 Monthly Natural Gas Production Report

Did You Know?

In 1821, William Hart dug the first well specifically to produce natural gas in the United States in the Village of Fredonia on the banks of Canadaway Creek in Chautauqua County, New York. It was 27 feet deep, excavated with shovels by hand, and its gas pipeline was hollowed-out logs sealed with tar and rags.

Where Are Natural Gas Production Increases Coming from?

The large recent increases in supply came from across the Lower 48 States. But, more than half of the increase in natural gas production between the first quarter of 2007 and the first quarter of 2008 came from Texas, where supplies grew by an exceptionally high 15%. Other contributing regions included Wyoming with growth of 9%, Oklahoma with 6% growth, and Louisiana with 4% growth. Even production from the offshore Gulf of Mexico, which had been declining for years, increased 2% from first-quarter 2007 to first-quarter 2008. The start-up last year of production from the deepwater Independence Hub, with wells in 9,000 feet of water, alone added about 1% to Lower 48 States production. Production in the rest of the States as a group increased by 8%.

Why Is Natural Gas Production Increasing Now?

Improved technology, developed over many years, now allows economic production of resources in deep water and large "unconventional" resources, which are difficult to produce. High and increasing natural gas prices have spurred more natural gas drilling and the trend to move from drilling simpler vertical wells to horizontal wells.

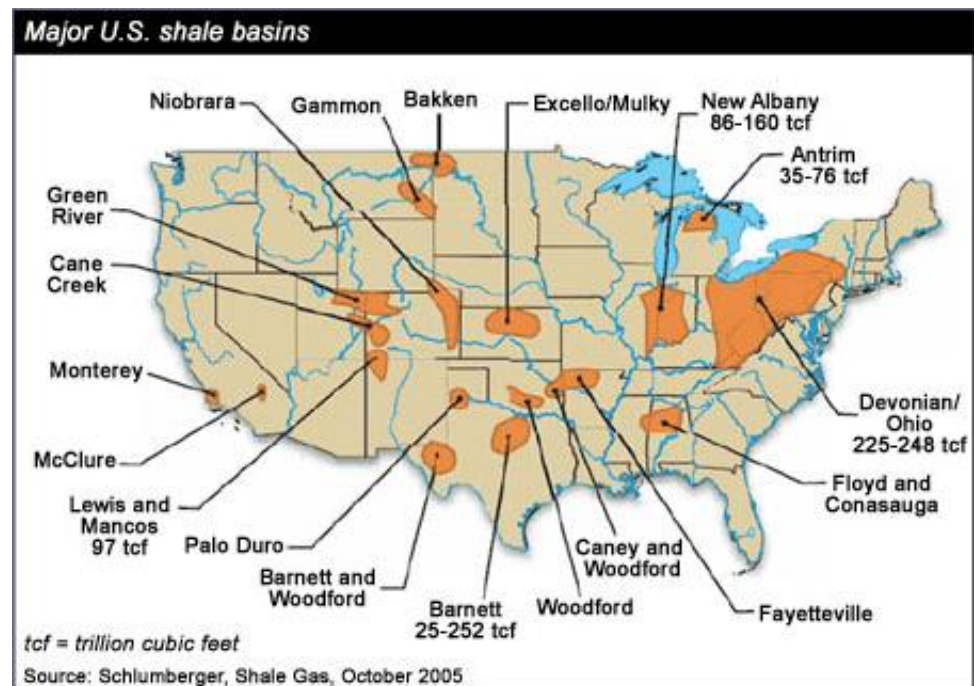
One indicator of the transition from conventional to unconventional production is the number of rigs drilling "horizontal wells." In the late 1990s, about 40 drilling rigs, or 6%, were drilling horizontally. As of May 2008, the number of rigs drilling horizontal wells has grown to 519 rigs, or 28% of the total. Horizontal wells don't simply go straight down, but also have one or more horizontal sections. In the Barnett Shale, the wells goes down about a mile and a half, make a turn and go horizontally about a mile, running through the rocks that hold natural gas.

Horizontal drilling is fast becoming the primary method used to produce gas from geologic formations like shale. Drilling and completing a horizontal well through shale has required improved technology, but these wells have become essential to the rapid economic development of unconventional resources in the United States.

Texas' Barnett Shale Is a Major Unconventional Resource

Texas accounts for one third of the nation's natural gas production. Spearheading Texas' recent rapid growth has been horizontal drilling in a geologic formation known as the Barnett Shale. The Barnett Shale contains a vast amount of natural gas, but its rock is so dense that wells drilled into this formation cannot produce gas at high rates without extensive additional efforts, even beyond horizontal drilling.

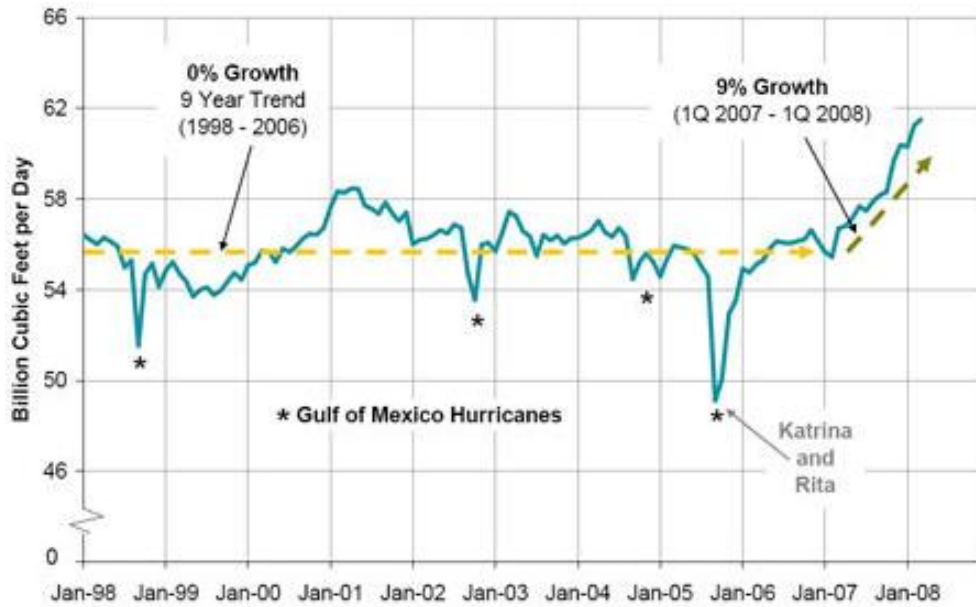
Much of the Barnett Shale is located beneath the city of Fort Worth and surrounding suburbs, a highly urbanized area that adds to the challenges of field development. Advanced drilling technologies, including horizontal drilling, are being used to reduce the "footprint" of drilling and allow production from the area without disrupting surface activity. Drilling rigs are already located on the Dallas/Fort Worth airport, and inside the Fort Worth city limits, and are headed toward downtown.



Will Natural Gas Production Continue To Increase in the Lower 48 States?

Most likely, production will continue to increase for the next few years if demand and prices stay high, though possibly not at the same rate as in 2007. There will be some ups and downs in monthly production. Fluctuations in monthly production are often known to come from hurricanes, winter storms, or new projects. The new Independence Hub project was offline all of May for some repairs which should cause a noticeable dip in production.

Total U.S. proved natural gas reserves – resources that have been identified and tested and either have been or will be developed – have increased for the last eight years, and in 10 of the last 11 years. Recent drilling trends indicate continued growth, with a stronger concentration on unconventional resources like shales. Shale formations in the lower 48 States are widely distributed, large, and contain huge resources of natural gas. They are just starting their full development. Already, the production from just one Barnett Shale field in Texas contributes more than 6% of production from the lower 48 States, which is more than from the large producing State of Louisiana.



Source: Energy Information Administration, Office of Oil and Gas, Form EIA-914 Monthly Natural Gas Production Report

