

By Patrick Graves

Most anyone who's lived in Texas for a while — at least long enough to weather some of the boom-and-bust cycles of the energy industry — remembers the bumper stickers. “Please, God, send us another oil boom. We promise not to screw it up this time.”

Today, after decades of declining production, it seems as if those tongue-in-cheek prayers may have been answered.

Due largely to the production of previously inaccessible oil and gas from “tight” shale formations, Texas is seeing what could be sustained growth in energy production. Coupled with recent activity in North Dakota and elsewhere, Texas “shale plays” could propel America into a position it hasn't occupied in generations: the world's leading energy producer.

“For the first time since 1949, the U.S. has become a net petroleum product exporting country and has edged out Russia as the world's largest refined petroleum exporter,” said Citibank analysts in a lengthy report published last March. They added that America is the fastest-growing oil and natural gas production area on the planet.

According to Citibank, production in Canada and Mexico will combine with that of the U.S. to give North America a higher

Abundant oil and gas could fuel no less than what Citibank calls “the re-industrialization of America.”

production growth rate than that of the Organization of Petroleum Exporting Countries' (OPEC's) during the next decade. The International Energy Agency echoed these findings in its most recent annual energy forecast, released in November 2012.

Could these developments mean that the U.S. could finally attain the long-cherished dream of true energy independence? Maybe. But the implications of rising domestic production are definitely significant and far-reaching.

Current Market Dynamics

Several trends have emerged in recent domestic energy production:

Our reliance on foreign crude oil is declining and will continue doing so.

In 2005, energy imports accounted for 30 percent of America's total energy consumption. By 2011, this share had fallen to 19 percent, according to the U.S. Energy Information Administration (EIA). EIA projects the import share at just 9 percent by 2040.

The decline is attributable largely to increased domestic production, mostly from shale formations that have come online due to the increasing use of hydraulic fracturing ("fracking") and horizontal drilling.

Total U.S. crude oil production rose by 12.5 percent in 2012, averaging 6.4 million barrels per day (bbl/d), EIA reports. If the average rises to 7.9 million bbl/d by 2014, as EIA projects, we could see the highest annual total since 1988.

We're also producing more natural gas than we need, enough to sell it abroad. EIA expects the U.S. to become a net exporter of liquefied natural gas (LNG) in 2016, and an overall net exporter of natural gas by 2020. The EIA projects U.S. cumulative net LNG exports to rise by 69 percent from 2011 through 2035.

We probably won't see a similar export trend for any surplus crude we produce, though. Under current federal law, U.S. oil cannot be exported without special permission from the Commerce Department.

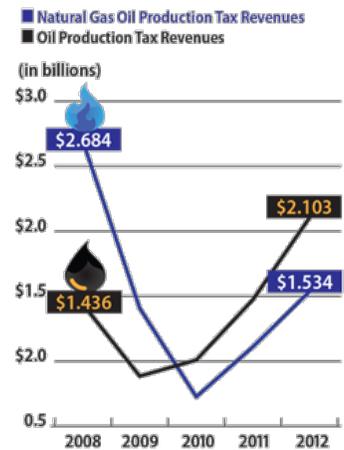
Gasoline is going to get cheaper, but not by a lot.

Lower crude oil prices mean lower average retail prices for regular gasoline. EIA expects the price at the pump to fall from an average of \$3.63 per gallon in 2012 to \$3.34 by 2014.

Lower imports of foreign oil won't necessarily translate into substantially lower costs, however. The shale boom relies on relatively high oil prices because the production technologies

State Oil and Gas Taxes Swing Upward

The shale boom and the economic recovery have produced a sharp uptick in the state's oil and gas production taxes.



[View the data.](#)

involved are expensive; any substantial drop in the price per barrel would sharply curtail domestic production, once again increasing our reliance on foreign oil.

Texas is the most important player in America's energy renaissance.

Texas is the nation's largest producer of energy, accounting for 30 percent of natural gas production and, driven by shale activity, recently delivering up to 32 percent of total U.S. oil production. The state has abundant reserves of oil and natural gas in shale and sand formations, and the ability to benefit from LNG exports as well as by-products and spinoffs such as petrochemicals and manufacturing associated with energy production.

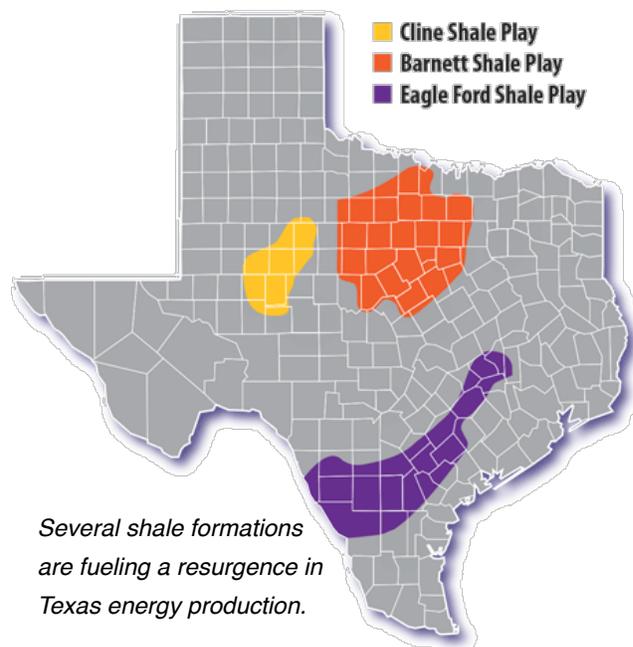
Texas' most recent boom began in 2008, with independent producers working in North Texas' Barnett Shale formation. Unlike previous production spikes, this one looks to last a good while, says Carlton Schwab, president and CEO of the Texas Economic Development Council.

"It's crazy," Schwab says, of current production activity. "The debate is over how long it will be crazy: 10, 15, 20 years?"

The Eagle Ford Shale, a South Texas geologic formation, could sustain production for 10 to 15 years, Schwab says. And the Cline Shale field in the Permian Basin, which has been described as "ten Eagle Ford Shales stacked on top of each other," is even more promising.



State of the Plays



Several shale formations are fueling a resurgence in Texas energy production.

Independence and “Re-industrialization”?

So could the U.S. actually become energy-independent?

“It’s possible we could become self-sufficient in oil,” observed Gürçan Gülen, a research associate at the University of Texas at Austin’s Bureau of Economic Geology. “We already have plenty of natural gas in the United States. I don’t like to use the word ‘independence,’ but we could not have to import oil by 2019 for several years.”

But Gülen dislikes counting oil barrels before they’re pumped, saying there’s no real consensus on how viable U.S. petroleum resources are. He notes that resources in the ground don’t become bankable reserves until they can be produced at today’s prices using today’s tools. The three basic factors of access, price and technology continue to determine energy production.

Beyond increased energy independence, abundant oil and gas could fuel no less than what Citibank calls “the re-industrialization of America.”

“The economic consequences from this supply and demand revolution are potentially extraordinary,” the Citibank report states, estimating an increase of 2 to 3.3 percent in real Gross Domestic Product from the cumulative impact of new energy production, reduced consumption (due to demographic changes, improved fuel efficiency and the commercialization of new technologies) and associated activity; that amounts to anywhere from \$370 billion to \$624 billion (in 2005 dollars).

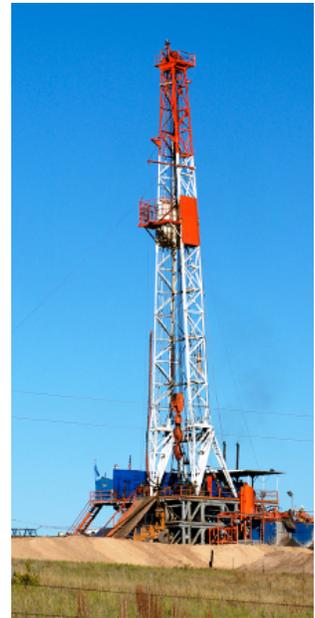
A “Magic Period”

A UT-Austin energy policy expert calls this “a magic period” not seen since the post-World War II era.

Because so much relatively cheap natural gas is commingled with pricier oil in rock formations, especially in Texas, “we’re getting our natural gas for free,” says Michael Webber, a UT-Austin associate professor of mechanical engineering.

America is well situated to take advantage of cheaper natural gas, he says. Worldwide demand for the product is so great that we should be able to sell it at four times our cost.

In the Lone Star State, the rush is on. Magellan and Occidental plan to open a new 300,000 bbl/d oil pipeline from Colorado City to the Houston area by 2014. A billion-dollar LNG conversion plant is being built at Sabine Pass, with others contemplated elsewhere along the Gulf Coast. German steelmakers may build factories here because it’s more cost-effective than importing U.S. gas, Schwab says.



In West Texas, attention is focused on the Permian Basin’s Cline Shale, with an estimated 3 million barrels of oil per square mile.

In the shale boom counties, one-red-light towns are swelling with “man camps” and being overrun with truck traffic. Wages are up, unemployment is down, stack lots and shop buildings are proliferating and housing, affordable or otherwise, can be mighty hard to come by.

State revenues have benefited as well, with collections from the oil and natural gas production taxes more than doubling in just a few years.

In West Texas, attention is focused on the Permian Basin’s Cline Shale, with an estimated 3 million barrels of oil per square mile. Improved extraction techniques have meant steady growth for the region since 2001, but some economic development officials in Odessa, no stranger to boom cycles, are describing the recent influx as “incredible” and “awesome.”

In Big Spring, a center for Cline Shale production, hotel-motel taxes are skyrocketing, and December sales tax revenue was up 34 percent from a year ago.

“Every day we get more indications that this is viable,” said Terry Wegman, executive director of the Big Spring Economic Development Corporation.

But can we avoid “screwing it up” this time?

Both Webber and Gülen caution that best-case scenarios depend on stable oil prices going forward. If they drop due to factors such as another global recession, the production boom will slow down, perhaps drastically.

And, as always in the oil patch, the danger for communities and local governments is becoming overly dependent on energy revenues. Although “the day after” may be 20 years from now, Gülen says it’s essential to plan ahead for the inevitable slowdown.

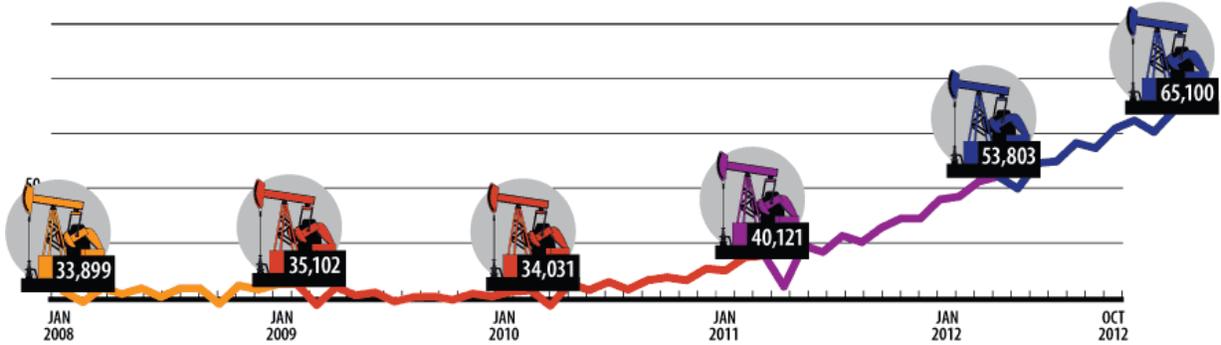
“You would hope that revenue is invested smartly, so [economic growth] is sustained after the boom is gone,” he says.

There will be environmental tradeoffs and other challenges, Webber predicts, as well as localized downturns, because shale plays tend to run out faster than others. Warning against overdependence on oil and gas revenues, he says, “Smart cities will manage for the future.” **FN**

Texas Oil Production Soars

Since the beginning of the shale boom, Texas' production of crude oil has nearly doubled.

Texas Crude Oil Production, 2008-2012 (in Thousands of Barrels)



Source: U.S. Energy Information Administration

[Download the data.](#)

Published Mar. 19, 2013.

State Oil and Gas Taxes Swing Upward

Tax Revenue

Year	Oil Production	Natural Gas Production
2008	\$1,436,879,156	\$2,684,647,510
2009	\$884,510,773	\$1,407,739,109
2010	\$1,008,664,357	\$725,538,388
2011	\$1,472,846,659	\$1,109,718,098
2012	\$2,103,268,285	\$1,534,630,438

Source: Texas Comptroller of Public Accounts

[Resume article.](#)