

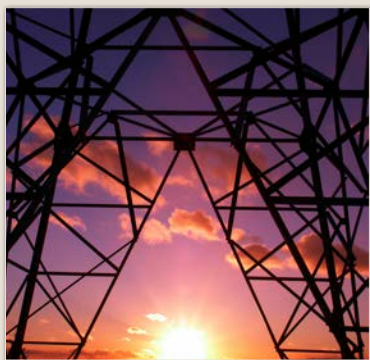
How Fracking Helps Meet America's Energy Needs

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by H. Sterling Burnett

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Crude oil prices are hovering around \$100 per barrel, and the United States is producing oil at a rate not seen since the Alaska pipeline began flowing in the 1970s. At the same time, the growth of natural gas reserves is unprecedented. Just a few short years ago, many analysts argued that oil was nearly tapped out, and that America needed to plan for a post-petroleum future. Now, however, natural gas has taken the stage.



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Hydraulic fracturing, or fracking, has created a revolution in U.S. oil and natural gas production. Fracking is the injection of a fluid mixture of water, sand and a small amount of other additives injected deep in the ground to fracture rock formations. This process releases isolated pockets of oil and gas trapped in the surrounding shale rock that are otherwise inaccessible. Fracking has been used since 1949, but recent high prices drove the development of new technologies to open up shale formations. Advancements, such as horizontal drilling, coupled with increasing global demand for oil and domestic demand for natural gas, have turned shale drilling into a bright spot for the U.S. economy.

Fracking and Natural Gas. Natural gas has become the fuel of choice for generating base load electricity — the minimum amount of power needed 24 hours a day. Gas is still the preferred fuel for peaking power dispatched to the electric grid during times of peak demand. In addition, many bus and commercial truck companies are converting their fleets to natural gas.

Natural gas could not play this role without the vast reserves fracking opens up every day. Just 15 years ago, analysts predicted America had only 60 years of natural gas supplies available at then current rates of use. Today, natural gas consumption is much higher, and fracking has increased estimated reserves to 100 years or more.

Geologists have called the Marcellus formation the Saudi Arabia of natural gas. The Marcellus lies under more than 95,000 square miles of land and stretches south to north more than 600 miles from Tennessee, under Lake Erie, into Ontario, Canada, and west to east from Ohio and Kentucky to the Atlantic seaboard. Estimates vary widely, but all agree that Marcellus Shale reserves are substantial. For instance [see Figure I]:

- The area lying between New York and West Virginia alone may contain 516 trillion cubic feet (TCF) of natural gas, according to State University of New York geology professor Gary Lash.¹
- If just 10 percent of the gas is recoverable — 51 Trillion Cubic Feet (TCF) — it would be enough to satisfy about two years of total U.S. consumption.

How Fracking Helps Meet America's Energy Needs

- In 2012, the U.S. Department of Energy estimated the Marcellus reserve could contain more than 410 TCF.²
- Based on current technologies and 2008 drilling results, the reserve could contain 363 TCF to 1,307 TCF, assuming a 30 percent recovery rate, according to Pennsylvania State University geoscientist Terry Engelder. Even the lower amount would meet present demand for 14 years.³

Note that the Marcellus reserve is just one shale formation. Many more lie across North America, including the Barnett and Eagle Ford formations in Texas; Haynesville and Tuscaloosa in Louisiana; the Utica shale underlying a number of Eastern States and Quebec; the Bakken formation underlying several Midwest states; and California's Monterey Shale. Some of these formations promise more oil than natural gas, but in either case the reserves are plentiful.

Fracking and Oil. Fracking is currently responsible for more than 30 percent of U.S. domestic oil and natural gas reserves, and the National Petroleum Council estimates that 60 percent to 80 percent of all U.S. drilling over the next decade will require fracking.⁴ In just two short years,

oil production from fracking has nearly reversed a 20-year long production decline [see Figure II]:⁵

- In 1990, the United States produced approximately 7.5 million barrels per day of crude oil.
- By 2009, that had dropped to as few as 4 million barrels per day at times.
- Since then, production has returned to about 7.5 million barrels a day.
- Since summer 2011, U.S. crude production has increased 2 million barrels per day.

Due to fracking in the Bakken shale formation, for example, North Dakota has moved past Alaska and California to become the second largest producing state behind only Texas.

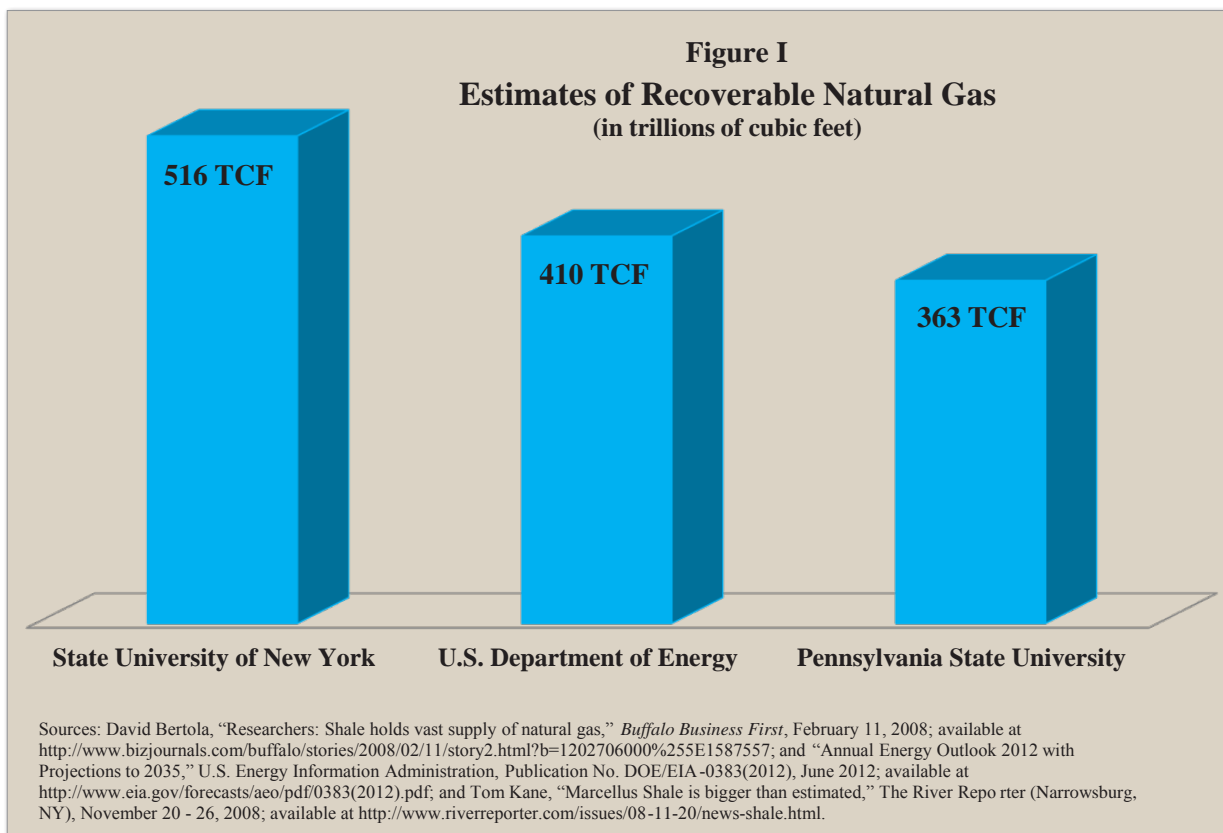
Coinciding with the increase in oil production, consumption has fallen substantially. Indeed, ongoing economic struggles, along with a shift to more fuel efficient vehicles, has led to an 8 percent decline in transportation fuel use since 2007. As a result, U.S. oil imports have declined to the lowest levels since the early 1980s.⁶

Federal Government: Hurting not Helping. The

United States could increase oil and gas production even more, further reducing our need for foreign oil, if the federal government would remove barriers to increased production and avoid erecting new ones.

In his 2012 State of the Union address and in debates against with presidential candidate Mitt Romney, President Obama noted that "oil production has increased to the

Figure I
Estimates of Recoverable Natural Gas
(in trillions of cubic feet)



Sources: David Bertola, "Researchers: Shale holds vast supply of natural gas," *Buffalo Business First*, February 11, 2008; available at <http://www.bizjournals.com/buffalo/stories/2008/02/11/story2.html?b=1202706000%255E1587557>; and "Annual Energy Outlook 2012 with Projections to 2035," U.S. Energy Information Administration, Publication No. DOE/EIA-0383(2012), June 2012; available at [http://www.eia.gov/forecasts/aeo/pdf/0383\(2012\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2012).pdf); and Tom Kane, "Marcellus Shale is bigger than estimated," *The River Reporter* (Narrowsburg, NY), November 20 - 26, 2008; available at <http://www.riverreporter.com/issues/08-11-20/news-shale.html>.

highest levels in 16 years. Natural gas production is the highest it's been in decades."⁷

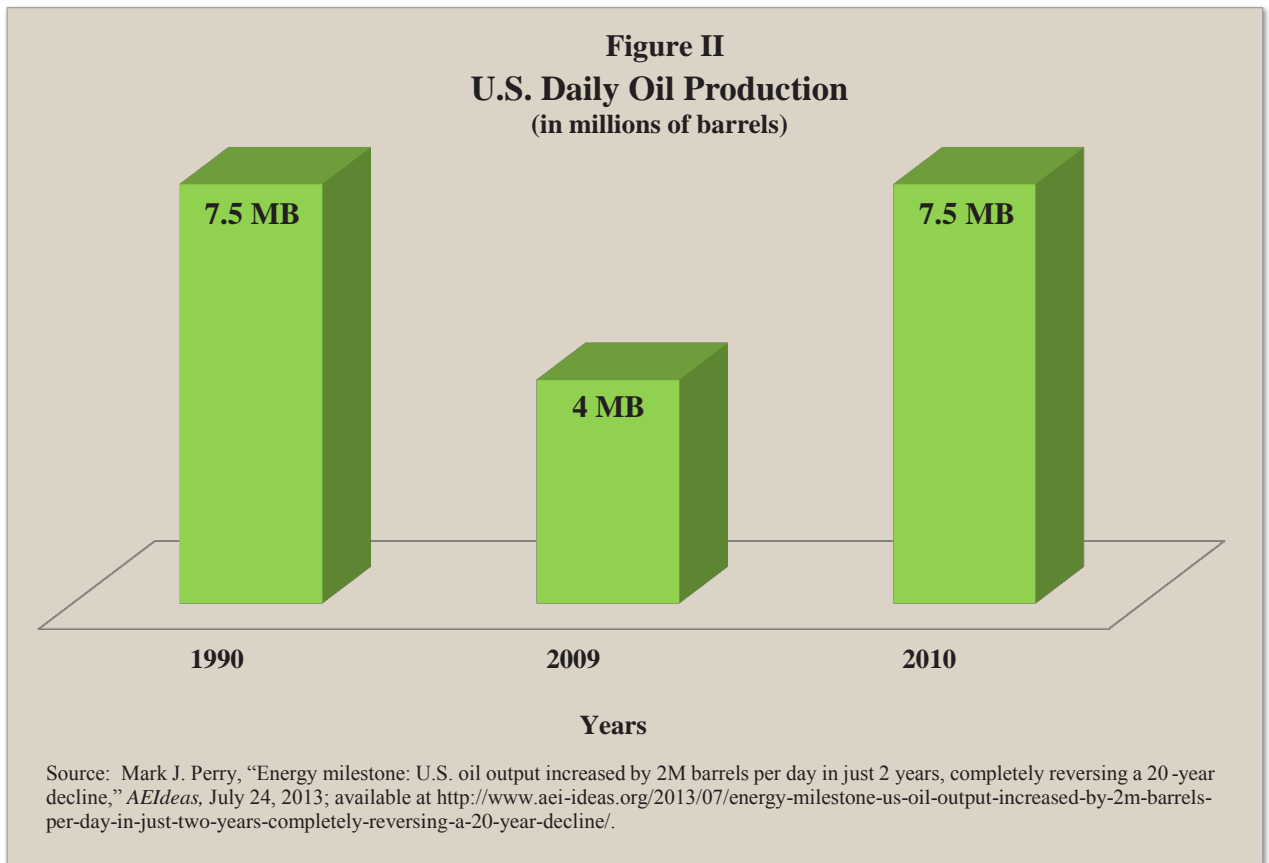
While the President is correct that oil and gas production levels have increased during his term in office, little to none of the credit is due to his policies.

Almost all the increased oil and gas production has occurred on private or state lands. For instance, natural gas production from federal areas has declined while natural gas production overall has increased considerably. Both new leases and acreage of federal lands leased have declined, while oil production from existing leases has increased 13 percent over the past four years.⁸ Oil production on existing leases increased due to high oil prices, which made it profitable to develop previously uneconomic reserves of oil. The oil and gas industry warns that this increase might halt if newly proposed and already approved Obama-administration regulations on oil and gas leasing and production take effect. Some of these regulations would impose new environmental rules and restrictions on fracking operators on public land. Others would layer additional federal regulations on top of current state regulations, increasing the amount of paperwork and number of approvals required for operations on private land.

Indeed, according to a 2012 Energy Department study:

- Sales of oil from federal areas fell 14 percent from 2010 to 2011, and sales of natural gas fell 9 percent, largely due a moratorium on offshore drilling.⁹
- The official moratorium lasted from May through

Figure II
U.S. Daily Oil Production
(in millions of barrels)



Source: Mark J. Perry, "Energy milestone: U.S. oil output increased by 2M barrels per day in just 2 years, completely reversing a 20-year decline," *AEIdeas*, July 24, 2013; available at <http://www.aei-ideas.org/2013/07/energy-milestone-us-oil-output-increased-by-2m-barrels-per-day-in-just-two-years-completely-reversing-a-20-year-decline/>.

October 2010, but by February 2011, no new drilling permits had been issued.

- By July 2011, offshore permits had declined 71 percent from their historical monthly average and shallow water permits were down 31 percent.¹⁰

Natural gas production on federal land is declining because drillers have found reserves under several states that are cheaper to access, due partially to the increased federal regulatory burden.

Current restrictions on offshore oil production and on public lands across the west and in Alaska prohibit the exploration and production of billions of barrels of oil and trillions of cubic feet of natural gas. Production from these reserves would increase supplies, reduce prices and imports, and provide high-paying jobs to Americans.

The federal government is considering more stringent regulations, despite study after study indicating that fracking has few, if any, negative environmental consequences. The Environmental Protection Agency (EPA) has already tried to halt a number of operations, only to back down when challenged in the courts.

Some states are also hindering development of U.S.

oil and gas resources through an explicit or de facto moratorium on drilling, as in New York.¹¹ Other states, such as Vermont, have an outright ban on fracking. These actions are based on the same flawed understanding of the risks of fracking as impending federal restrictions.

Conclusion. If fracking cannot definitively be linked to a persistent, widespread, inherent problem, the federal government should accept the mountain of evidence that fracking is safe. The federal government should streamline the permitting and leasing process on public lands — leaving regulation on private land to the states — in order to reap the fiscal, economic and energy bounty of fracking. If problems become manifest, regulations can be tailored as narrowly as possible to address issues relevant to specific geographic sites.

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Endnotes

¹ David Bertola, “Researchers: Shale holds vast supply of natural gas” *Buffalo Business First*, February 11, 2008; available at <http://www.bizjournals.com/buffalo/stories/2008/02/11/story2.html?b=1202706000%255E1587557>.

² “Annual Energy Outlook 2012 with Projections to 2035,” U.S. Energy Information Administration, Publication No. DOE/EIA-0383, June 2012; available at [http://www.eia.gov/forecasts/aeo/pdf/0383\(2012\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2012).pdf).

³ Tom Kane, “Marcellus Shale is bigger than estimated,” *River Reporter* (Narrowsburg, N.Y.), November 20 - 26, 2008; available at <http://www.riverreporter.com/issues/08-11-20/news-shale.html>.

⁴ National Petroleum Council, “Prudent Development: Realizing the Potential of North America’s Abundant Natural Gas and Oil

Resources,” September 15, 2011.

⁵ Mark J. Perry, “Energy milestone: US oil output increased by 2M barrels per day in just 2 years, completely reversing a 20-year decline” *AEIdeas*, July 24, 2013; available at <http://www.aei-ideas.org/2013/07/energy-milestone-us-oil-output-increased-by-2m-barrels-per-day-in-just-two-years-completely-reversing-a-20-year-decline/>.

⁶ John Miller, “Why Have U.S. Oil Imports Declined in Recent Years?” *Energy Collective*, September 19, 2012; available at <http://theenergycollective.com/jemillerep/114236/why-have-us-oil-imports-declined-recent-years>.

⁷ ABC News, “Second Presidential Debate Full Transcript,” October 17, 2012; available at <http://abcnews.go.com/Politics/OTUS/2012-presidential-debate-full-transcript-oct-16/story?id=17493848&page=2>.

⁸ Sterling Burnett, “President Obama on Oil and Gas Production,” National Center for Policy Analysis, Reality Check, October 27, 2012; available at <http://realitycheck.ncpa.org/president-obama-on-oil-and-gas-production/>.

⁹ Ibid.

¹⁰ Robert Bluey, “One Year After Oil Spill Was Stopped, Drilling Permits Down Sharply,” *Scribe*, July 15, 2011. Available at <http://blog.heritage.org/2011/07/15/one-year-after-oil-spill-was-stopped-government-issuing-few-drilling-permits/>.

¹¹ Karen DeWitt, “NY Fracking Moratorium Enters 6th Year,” North Country Public Radio, July 24, 2013; available at <http://www.northcountrypublicradio.org/news/story/22414/20130724/ny-fracking-moratorium-enters-6th-year>.

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