

# Energy Revolution Could Supercharge U.S. Manufacturing, Hurt China

By [John Manzella](#) • Friday, November 23, 2012 | Topic: [Manufacturing](#)

A Persian Gulf may lie beneath North Dakota and Montana, says a Harvard study. And the Marcellus shale alone may hold 141 trillion cubic feet of natural gas reserves, an amount equal to total world consumption in 10 years, the U.S. Energy Information Administration (EIA) reports. Advances in drilling and extraction, combined with these newly discovered massive energy resources, could supercharge American manufacturing and hurt China.

## Technology at Work

The combined use of horizontal drilling and hydraulic fracturing has enabled American companies to exploit untouched domestic unconventional energy resources, such as shale gas, shale oil and tight oil, once considered too difficult to extract. In turn, due to improved recovery rates, assessments of these obtainable reserves have skyrocketed, even in already tapped fields.

Technical developments in horizontal drilling allows vertical drilling systems to turn 90 degrees to steer in various directions well below the Earth's surface to reach areas not easily accessible. Hydraulic fracturing, also known as hydrofracking or fracking, is a process that injects mostly water, some sand and chemical additives into the ground to create fissures in shale or other rock. In turn, shale gas is released and captured, while shale oil and tight oil seep back through the cracks and are extracted.

This process cannot be easily replicated in other areas of the world—at least in a short period of time, according to Harvard Kennedy School report, *Oil: The Next Revolution. Why?*

The United States has an edge over other countries for a variety of reasons. These include the huge resource base of shale/tight oil plays existing in the United States, the nature of private ownership of mineral rights, the presence of thousands of independent drilling companies, large numbers of drilling rigs, and strong capital markets that fund new ventures.

But obstacles remain. Stated by the Harvard study, both an inadequate U.S. oil transportation system and refining infrastructure could slow progress. And environmental doubts about hydraulic fracturing from shale could put the energy revolution on hold.

The study notes, however, there have been more than one million hydraulic fracturing operations in the United States since 1947 and very few accidents have occurred. This risk “can be managed with appropriate best practices and adequate enforcement, rather than by over-regulating activity,” the study remarks.

### **American Energy Resources Significantly Expand**

The U.S. shale/tight oil boom in the United States is the most important revolution in the oil sector in decades, and a “paradigm-shifter for the oil world,” the Harvard study says. What’s more, in August 2012 the EIA said proved reserves of U.S. oil and natural gas have risen by the highest amounts ever recorded since the EIA began publishing estimates.

Consequently, U.S. dependence on foreign energy suppliers will decrease well into the future. In fact, some analysts indicate the United States may have the capacity to become a net exporter of oil and gas by the end of this decade.

What does this mean? Stated by the EIA, 45 percent of U.S. petroleum demand was imported last year. This share alone, which does not include other energy imports, amounted to \$439.3 billion or 20 percent of all U.S. imports in 2011, the U.S. Census Bureau indicates. No doubt, this money would be better served in the hands of American workers, companies and communities.

Many other benefits are anticipated to accrue due to the American energy revolution. According to a new study by IHS, a leading global source of information and insight, “employment in the entire upstream unconventional oil and gas sector on a direct, indirect, and induced basis will support nearly 1.8 million jobs in 2012, 2.5 million jobs in 2015, 3 million jobs in 2020, and nearly 3.5 million jobs in 2035.”

In addition, IHS says “unconventional energy activity will contribute \$237 billion in value-added contributions to GDP in 2012, a figure that will increase to \$475 billion annually in 2035.”

### **U.S. Manufacturers To Increase Competitiveness**

For decades it was assumed U.S. energy prices would climb, increasing the cost of domestic manufacturing. However, based on the current scenario in the American energy sector, this is no longer the case.

According to a BlackRock Investment Institute study, a division of the world’s largest asset manager with \$3.67 trillion under management, the U.S. is awash in gas and this is helping to “knock down U.S. prices to record lows.” BlackRock estimates U.S. energy reserves are likely to last a century.

In turn, low-cost American energy will spur manufacturing. Stated by a report published by PricewaterhouseCoopers LLC, "Shale gas has the potential to spark a U.S. manufacturing renaissance over the next few years, boosting revenue and driving job creation."

The report notes that greater investment in U.S. manufacturing facilities will result from more affordable natural gas feedstock. And the savings are large. PricewaterhouseCoopers estimates lower feedstock and energy costs could save American manufacturers \$11.6 billion annually through 2025.

This is very important to energy intensive industries, especially chemicals and heavy manufacturing. Overall, PricewaterhouseCoopers says U.S. manufacturing companies could employ approximately one million more workers by 2025 due to benefits from affordable energy.

Similarly, Boston Consulting, a business management firm, believes the United States is becoming one of the lowest cost producers in the developed world. And lower energy costs, which will boost U.S. competitiveness, is one of several important factors.

Boston Consulting notes that when adjusting for higher American worker productivity, the average labor costs in other big developed economies will be 20 to 45 percent higher than those in the United States by 2015. Plus, since worker pay also is rising in many developing countries, the U.S.-developing country wage gap is shrinking, as well.

Consequently, U.S. firms currently producing or considering producing low technology goods in developing countries to access cheap labor are reworking the math.

### **Backshoring To Accelerate**

In recent years, China has absorbed much of the world's low tech production. But if North American consumers are the primary market destination, as opposed to Chinese or other Asian consumers, the Middle Kingdom is quickly becoming a less attractive manufacturing location.

Chinese labor rates have increased approximately 18 percent annually. If sustained, this, combined with a slow appreciation of China's currency, could result in employment cost increases of up to 25 percent per year, analysts say.

Plus, larger capital outlays associated with longer lead times and bigger inventories further reduce China's low cost advantage. In addition, costs of engineers, purchasing managers and quality control staff traveling to China add up.

As the wage gap shrinks between China and lower-cost American states in the South, current trends in backshoring—the reverse of offshoring or the shifting of U.S. manufacturing activities to China and other developing countries—are likely to strengthen. And now, with the U.S. energy explosion underway, the overall cost differences are shrinking even more. This almost certainly will accelerate backshoring, also known as “reshoring.”

As a result of a projected increase in American manufacturing, U.S. exports are likely to rise. Stated by Boston Consulting, “Before the end of the decade, we project that the U.S. will capture up to \$130 billion in annual exports from other nations. Combined with production work that will likely be reshored from China, these higher U.S. exports could create 2.5 million to 5 million American jobs in factories and related services by 2020.”

### **China To Feel the Pinch**

For decades, China’s economic model has largely been based on its ability to cheaply mass-produce labor-intensive goods for export to the European Union and the United States. This model, no doubt, has been under stress since the Great Recession began in 2008.

Since then, economic demand in both the U.S. and EU has lessened. Plus, the EU has been hit hard by the ongoing economic situation in Greece and other Southern European countries, which has further depressed demand. As a result, both U.S. and EU import growth rates are down.

For example, U.S. import growth declined from an average annual rate of 11.7 percent to 4.8 percent during the periods of 2004-2007 and 2008-2011, respectively; EU import growth rates also dropped, from 15.5 percent to 4.4 percent during the same time period. And since EU and U.S. export markets are China’s largest, China’s average annual export growth rate declined from 29.2 percent to 13.3 percent during the same period.

Weaker U.S. and EU import demand likely will continue well into the future. According to Credit Suisse, a financial services company, the U.S. and major European countries’ share of global private consumption is projected to continue to decline. In addition, new manufacturing activity projected in the United States, instead of in China, may further negatively impact Chinese exports to the U.S.

According to a report published by the World Bank, “China’s economic performance over the last three decades has been impressive. GDP growth averaged 10 percent a year, and over 500 million people were lifted out of poverty.” Importantly, the indicates that moving forward, China’s economic model needs to be revised to accommodate for today’s new challenges.

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