COMMITTEE ON SMALL BUSINESS

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PREPARED TESTIMONY:

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Chairman Graves, Ranking Member Velazquez and distinguished members of the Committee on Small Business, it is an honor to speak with you today about the economic growth and employment opportunities being fueled by our country's unconventional energy revolution.

The United States is in the midst of an unconventional revolution in oil and gas that, it becomes increasingly apparent, goes beyond energy itself. Since 2009, our company has engaged in numerous studies to better understand and accurately quantify the dramatic economic contributions associated with this unconventional revolution. Today, the exploration and production industry driving this unconventional revolution supports 1.7 million jobs across a vast supply chain–a considerable accomplishment given the relative newness of the technology. That number could rise to 3 million by 2020. In 2012, this revolution added $62 billion to federal and state government revenues, a number that we project could rise to about $111 billion by 2020.[2] What is now becoming clear is that the exploration and production industry contributions to the

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[2] IHS, *America's New Energy Future: the Unconventional Oil and Gas Revolution and the United States Economy, vol. 1 National Economic Contributions* (October 2012) and *vol. 2, State Economic Contributions (December 2012).*

economy and the lower costs of energy brought about by this abundant growth in supply is helping to stimulate a manufacturing renaissance and improve the competitive position of the United States in the global economy–further stimulating job creation in the United States.

Where did the unconventional revolution come from?

The unconventional revolution has unfolded rapidly. As recently as just a half-decade ago, during the period preceding the Great Recession, it was widely assumed that a permanent era of energy shortage was at hand. America's demand for oil and natural gas was increasingly focused on non-domestic sources. The country, it seemed, was on a path to spending several hundreds of billions of dollars more every year on imports to meet oil and natural gas demand. How different things look today.

US crude oil output, after a nearly 40 year decline, has increased dramatically–by 46% since 2008.[3] Net petroleum imports have fallen from 60% of total consumption in 2005 to 36% in the first four months of 2013. The decline is due, in part, to moderating energy demand during the slow recovery in the wake of the Great Recession, however, greater fuel efficiency in autos and a slowing of the growth in total vehicle miles will continue to constrain the growth of demand. But, the decline in imports has also been achieved through significant supply side changes resulting from that dramatic increase in U.S. oil production. The largest element of this increase in production comes from what has become the newest major advance in energy development: tight oil. In fact, oil imports in 2012 would have cost the United States around $70 billion more

[3] Energy Information Administration, Monthly Energy Review (May 2013).

and increased our trade deficit a little over 10%–were it not for the increase in production capacity brought about by tight oil since 2008.

With respect to natural gas, in just seven years, US natural gas production has risen from 51 billion cubic feet (bcf) per day to 66 bcf per day – a 27% increase. This rapid rise was driven primarily by shale gas production. In 2000, shale gas accounted for just 2% of total natural gas production. Today, shale gas accounts for nearly 44% of total natural gas production. This rapid rise in unconventional production has also enhanced US energy security. Five years ago, due to constrained production, the United States seemed locked into importing increasing amounts of liquefied natural gas (LNG) and was heading towards spending as much as $100 billion dollars on future imports to meet domestic demand. Now, these newly unlocked resources ensure that the United States will need, at most, minimal LNG imports to balance supply with demand. Instead of debates over US imports, there is the prospect of exporting some of the domestic surplus, as well as the potential for using natural gas in some classes of vehicles.

What is the economic impact of the unconventional oil and gas revolution?

While various states had begun to home in on the economic development aspects of shale gas and tight oil, it was only in last several years that its significance for the national economy started to come into focus. We have undertaken a series of studies to assess the economic impact of the unconventional revolution. The first two–released late last year–examined the national

and state-by-state impacts.[4] We are now extending that study to assess the impact on manufacturing–which will be released in July, 2013.[5]

So far, this unconventional revolution is supporting 1.7 million jobs–direct, indirect, and induced. Looking towards the future, the industry will continue to contribute to strong job growth bringing the total to 3 million workers by the end of this decade. At a time of great concern about the federal budget, it is also important to note the important revenue implications associated with this energy revolution. Total revenues flowing to governments from unconventional activity amounted to $62 billion last year and will rise to $111 billion by 2020. This does not include revenue from traditional oil and gas activity. By 2035, unconventional activity is expected to have generated nearly $2.5 trillion in cumulative government revenues since 2012.

It is also notable that, owing to the long supply chains, the job impacts are being felt across the United States, including in states without significant shale gas or tight oil activity.[6] That is to say, when it comes to unconventional activity, a state does not need to have a major unconventional play within its geographic boundaries to benefit economically from the activity. In fact, nearly 30 percent of all jobs associated with the unconventional energy revolution are found in states with no appreciable unconventional activity. For example:

[4] IHS, *America's New Energy Future: the Unconventional Oil and Gas Revolution and the United States Economy, vol. 1 National Economic Contributions* (October 2012) and *vol. 2, State Economic Contributions (December 2012).*

[5] IHS, *America's New Energy Future: the Unconventional Oil and Gas Revolution and the Manufacturing Renaissance, vol. 3* (July 2013)

[6] Producing states are defined as those that are part of the 20 largest unconventional oil and natural gas producing plays in the US Lower 48, such as the Bakken and Marcellus Shale plays. Non-Producing states are not part of the 20 largest unconventional oil and natural gas producing plays in the US Lower 48 and are not part of an emerging oil or natural gas play in the 2012 to 2035 forecast horizon. These states may be part of plays that are currently producing oil and/or natural gas, but nevertheless are classified as non-producing states, because current production is relatively small and the prospect for future unconventional production is unknown.

- In Missouri, economic activity associated with supply-chains that supported unconventional activity in 2012 contributed nearly 38,000 jobs to the state and generated almost $290 million in state and local taxes.
- In New York, a state that currently bans unconventional activity, 44,000 jobs along with $1 billion in state and local taxes can be attributed to activities supporting the supply-chain associated with shale gas and tight oil in other states across the country in 2012.

A key reason for the profound economic impact of the unconventional activity is the fact that it combines a capital-intensive industry with a broad domestic supply chain. The United States is a leader in all aspects of the unconventional industry, which means that most of its suppliers are domestically-based, and that means a larger portion of the dollars spent are supporting domestic jobs in trucking, steel fabrication, aggregates, heavy equipment manufacturing, hotels, housing, and restaurants, among others.

But there is now an even bigger positive impact for our economy that is beginning to be recognized. In addition to these specific contributions to the economy, there are larger macroeconomic effects attributed to the savings brought about by lower natural gas prices and corresponding electricity prices. In our study, *The Economic and Employment Contributions of Shale Gas in the United States*, we identified the following two important macro-economic implications stemming from lower natural gas prices:

- For U.S. based industries, the abundance of affordable natural gas means lower input and feedstock prices. As a result, industrial production–the measure of output from manufacturing, mining, and utility industries–will increase 2.7 percent by 2015 and 4.7 percent by 2035.

- For households, these lower prices cascade through the economy, resulting in a $926 increase in annual average disposable income in 2015. By 2035, annual average disposable income per household will have increased by more than $2,000.

Manufacturing Renaissance?

The impact on manufacturing is notable. Several factors are shifting the economics in favor of on-shoring and fueling the resurgence of manufacturing in the US. First, global labor wage rates for many off-shoring locations have significantly outpaced US wage increase, narrowing the wage gap. Second, in an increasingly advanced manufacturing world, technology is shifting the balance away from the importance of low cost labor toward higher skilled workforces. Third, a rapidly evolving energy landscape is fundamentally shifting the traditional economics around supply chains as:

(1) higher oil prices, which have tripled in the last decade have significantly increased the transportation costs making off-shoring less attractive;

(2) the unconventional revolution in the US, which has ushered in a new era of affordable and abundant domestic natural gas, is creating significant competitive advantages for both energy intensive industries and industries that rely upon natural gas derivatives as critical feedstock to production.

As a result, companies are now committing or planning investments that in total appear to range into hundreds of billions of dollars.[7] The US chemical industry is particularly well positioned to capitalize on the benefits of this unconventional revolution. This industry is highly

[7] American Chemistry Council, *Shale Gas, Competitiveness, and New U.S. Chemical Industry Investment—An Analysis of Announced Projects* (May 2013)

energy intensive using energy inputs, mainly natural gas and natural gas liquids, as both the major fuel source and feedstock. The US chemical industry's feedstock prices are now among the lowest in the world. As a result, the US is gaining a decisive competitive advantage in the cost of producing basic petrochemicals like ethylene, ammonia, methanol, and their downstream derivative products.

A large number of chemical companies, for instance, have announced plans to build or expand facilities in North America with capital expenditures totaling close to $100 billion.[8] Will all be built? Time will tell. But what is striking is that, just five years ago, these companies would have scoffed if they had been told that they would be investing back into the United States. The investments are coming both from US based companies, which are "on-shoring" in response to lower energy costs, and from foreign companies.

Conclusion

Altogether, the unconventional oil and gas revolution has already had major impact in multiple dimensions–beginning with U.S. energy supply and costs and now extending to government revenues, manufacturing, and the wider economy. Its significance will continue to grow as it continues to unfold. These hearings provide a very timely opportunity for assessing that impact and significance in its many dimensions, and I am pleased to respond to the committee's questions.

[8] IHS, *Energy and the New Global Industrial Landscape: a Tectonic Shift?* (January 2013), p. 2.