

Written Statement of

The Dow Chemical Company

To

**The United States House of Representatives
Committee on Natural Resources
Subcommittee on Energy and Mineral Resources**

On

*“American Energy Jobs: Opportunities for
American Manufacturing”*

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Introduction

Chairman Lamborn, Ranking Member Holt and Members of the Subcommittee, thank you for the opportunity to testify before the Energy and Minerals Subcommittee. My name is Carol Williams, and I am a Special Advisor to the Dow Chemical Company and a member of the U.S. Department of Commerce Manufacturing Council. I have spent 34 years at Dow, and most recently was the Executive Vice President of Manufacturing and Engineering. I am honored to speak on Dow's behalf on the importance of America's new found natural gas abundance and the resurgence it is powering in the manufacturing sector.

Recent developments in the energy sector have dramatically altered the global energy landscape. Technological advances, mainly in the area of hydraulic fracturing, have unlocked natural gas resources that were once considered inaccessible. The U.S. is at the forefront of a global energy revolution. This new abundance is powering a U.S. manufacturing resurgence that has resulted in domestic and foreign investment and thousands of new jobs.

From both a fuel source and feedstock standpoint, natural gas is vital to America's manufacturers. Manufacturing accounts for roughly 27 percent of all national energy use and industrial uses of natural gas represent more than one-third of all U.S. gas demand. It is used not only as an energy source to fuel power plants and production lines, but also as a raw feedstock for the petrochemical industry. For companies like Dow, natural gas is a critical raw material for our manufacturing processes. It enables us to produce both basic and advanced chemistries that support our quality of life and help to solve the world's most pressing challenges, like delivering safe drinking water to the world's growing population.

The current geopolitical tensions between the West and Russia clearly highlight the basic economic value that natural gas brings to the economies of developed nations. Clearly put, nations with abundant energy resources are poised to realize the greatest economic gains. Given the geopolitical events transpiring around the world and the manufacturing resurgence happening on U.S. shores, a focus on the economic benefits of natural gas is especially timely to ensure that policies moving forward fully consider the impact that natural gas has on the continued growth of the manufacturing sector and the U.S. economy.

Because of its reliance on natural gas as an energy source and as key raw material, U.S. manufacturing requires a sound natural gas policy to remain competitive in today's global markets. With a stable and abundant natural gas supply, U.S. manufacturers will create hundreds of thousands of direct and indirect jobs as investments are realized and manufacturing returns to U.S. shores.

However, the manufacturing resurgence we are experiencing right now because of abundant and competitive natural gas is not guaranteed to last. While the new abundance of shale gas resources

is creating a manufacturing resurgence, it is also leading to new questions and challenges, including how much of it should be liquefied and exported. The current export debate is not an academic exercise. Rather, it will directly affect the competitiveness of American manufacturers going forward. We have the chance to get this right and turn the manufacturing resurgence into a full-blown manufacturing revolution.

But we can also get it wrong if we enact policies that increase costs, introduce volatility in supply, and stifle growth.

Natural gas was an abundant resource from the 1960s through the 1980s and helped to support energy intensive industries such as steel and aluminum with globally competitive power prices. During this time, the petrochemical industry grew significantly and provided jobs and exports for the nation. In the early 1990s, the supply-demand balances for natural gas became challenged because of coal power plant conversions and limited drilling that led to an inadequate and volatile supply, and high prices. The petrochemical industry, for example, had very little new investment for almost 20 years (ACC (2013) Shale Gas, Competitiveness, and New Industry Investment).

There is no simple solution to the question of domestic demand and a strong pull to export to world markets, but the approach we take as a country will undoubtedly affect the competitiveness of American manufacturing going forward.

Impact of Abundant Natural Gas on Manufacturing

An abundant natural gas supply is already powering a tremendous resurgence in U.S. manufacturing. Companies that wrote off expansion in the U.S. just a decade ago are now making significant new investments and creating high-paying manufacturing careers in America. Dow Chemical is making a \$4 billion investment in natural gas that would have been unthinkable 10 years ago.

Natural gas is used not only as an energy source to fuel power plants but also as a raw material feedstock for the petrochemical industry. According to the U.S. Energy Information Agency, industrial uses of natural gas represent more than a third of the U.S. gas demand.

In just the past few years alone, downstream manufacturers, like petrochemicals, have announced more than 120 manufacturing projects valued with a total investment exceeding \$110 billion. An American Chemistry Council May 2013 report examined nearly 100 announced chemical and plastics manufacturing projects totaling \$71.7 billion in potential new investment. By 2020, the projects are expected to create 46,000 chemical industry jobs, another 264,000 jobs in supplier industries and 226,000 payroll-induced jobs in communities where workers spend their wages, generating \$20 billion in federal, state, and local tax revenue. The report also noted that nearly 1.2 million additional, temporary jobs will be created during the capital investment phase that occurs between 2010 and 2020.

At Dow, the natural gas boom is transforming our operations. Our \$4 billion in new production capacity in the U.S. Gulf Coast will capitalize on the abundance of our most important raw material and competitive energy position and bring thousands of short and long-term jobs to the region. Dow's investment is just one of the more than 100 projects we will see as a result of plentiful natural gas.

The U.S. energy advantage is so significant that companies are starting to re-shore foreign operations back to the U.S. A 2013 report by the Boston Consulting Group projected the re-shoring job creation to be 2.5 to 5 million jobs by 2020, which could reduce the unemployment rate by 2 or 3 percent. The report also suggests that by 2015, the U.S. will have an 8 to 18 percent cost advantage over the advanced economies of Europe, mainly driven by cost advantages in natural gas and electricity.

According to a 2013 analysis by Charles River Associates, there is an advantage to the U.S. economy to use our abundant natural gas to export value-added products than to simply export the gas overseas to be burned for fuel. U.S. manufacturing contributes more to GDP, employment, and to the reduction of the trade deficit as compared to natural gas exports at a commensurate level of natural gas use. According to the study, of the more than \$90 billion of gas-intensive manufacturing investment that has been announced, these investments will contribute at least twice as much GDP, more than eight times the amount of permanent jobs, and more than four times the amount of construction jobs relative to exports at the same level of gas consumption.

Natural Gas Exports Can Leave U.S Manufacturing at Risk

There is no doubt that abundant natural gas supplies are driving a manufacturing resurgence in the U.S. To ensure the U.S. fully capitalizes on this opportunity, we need to ensure a balanced and thoughtful approach to exporting liquefied natural gas (LNG).

In slightly more than one year, the Department of Energy approved seven applications to export up to 9.3 bcf/day of LNG to non-free-trade-agreement countries. That is about equal to the export volume of the nation of Qatar, and 50% more than the amount of natural gas that our NATO allies import today.

There are pending applications for another 20 bcf/day. The energy advantage we have today, and the energy advantage that is driving this tremendous resurgence in manufacturing, would be lost as supply further tightens. Manufacturers will pay more for energy, and more for a key raw material. That would create an unsustainable situation for manufacturers similar to what we saw a decade ago.

As a recent example of price volatility, the prolonged cold winter and aging distribution infrastructure contributed to a volatile domestic market in the early part of 2014: prices spiked as high as \$8/MM BTU at Henry Hub, \$13 in Houston, and \$123 in the northeast, where

infrastructure constraints were especially acute. Market forces are also expected to increase natural gas prices. According to JP Morgan, natural gas prices are expected to rise to \$8 per million BTU by 2016, more than double its price in just three years. Volatile prices and decreased gas supply, which would be exacerbated by increasing export demands, could cause significant harm for manufacturers and consumers. The bottom-line is that stably priced and abundantly available natural gas supplies are important as manufacturers make long-term investment decisions.

Stable and competitive natural gas prices also incentivize downstream manufacturers to invest and create jobs in the U.S., but unlimited natural gas exports will lead to high natural gas prices, and we know from painful experience that it has an overwhelmingly negative impact on U.S. manufacturers. Dow is calling for a strategic approach that balances domestic demand with an export market. This preserves U.S. manufacturing competitiveness, protects American investments, and provides a strong foundation on which sustainable economic growth can occur.

Dow has experienced natural gas price volatility, and we know first-hand how impactful it is to business and investment strategies and workforce planning. There are several studies that speak to the negative effects of volatility in the natural gas market.

- In January 2013, Purdue University found that whether LNG export levels are at 6 bcf/day or 12 bcf/day (NERA's low and high scenarios), it will result in a decline in GDP and higher electricity prices for all Americans.
- The Purdue study concluded that, "Increased U.S. natural gas exports will reduce energy costs for industry and consumers in foreign countries and increase those costs for the U.S. Thus, U.S. industry will be rendered less competitive compared with foreign industry. This loss of export revenue would be in addition to the GDP loss estimated in this analysis. Moreover, U.S. consumers lose due to higher energy prices, and foreign consumers gain."
- In March 2013, Charles Rivers Associates warned that unchecked exports of U.S. natural gas could lead to a tripling of natural gas prices from current levels by 2030. It also noted that manufacturing is highly sensitive to natural gas prices, and a significant portion of the sector is exposed to impacts from projected price increases.
- In June 2013, the PIRA Energy Group released an analysis showing that unchecked exports will lead to "significantly more" volatility in the U.S. gas market because of exposure to supply, demand, inventory, and pricing issues in other parts of the world.
- The PIRA analysis also concluded that "the Henry Hub price ramifications will be substantial," projecting prices will rise to the \$6-\$8.20 per million Btus range between 2020-2025.

A Balancing Act

The Natural Gas Act requires the Department of Energy to weigh the public interest in evaluating applications to export natural gas to non-FTA countries. Simply put, the Department of Energy must approve an export application unless it finds the project is not in the public interest.

Dow strongly supports the concept of a public interest determination as an important input when export applications are being reviewed. We believe the Department of Energy's evaluation process should be thorough, thoughtful, and that each application should be considered in light of the public interest while considering a full range of criteria. As remaining permit applications are considered, Dow believes the Department of Energy's analysis should also include the cumulative impact of each permit on the overall U.S. economy.

To be clear, there is nothing wrong with liquefying and exporting natural gas – as long as we do it in a prudent, responsible way that recognizes that there is no free and fair market for energy. Cartels, official and unofficial, have long set the parameters of trade. We also must realize that supply shortages increase prices and the risk of price spikes. Importantly, we also must not ignore history. Rising prices over the long term will ultimately put America's significant competitive energy advantage at risk. Over-exporting gas may benefit a few companies in the short term, but it will needlessly burden the 12 million downstream manufacturing employees, tenfold more than exploration and production combined.

Dow also believes that we can and should use America's energy advantage to increase America's global leadership. U.S. natural gas is the biggest bargaining chip U.S. trade negotiators have at their disposal to open closed markets, improve our balance of trade, and remove tariffs and barriers to U.S. products. America's natural gas advantage presents a once-in-a-generation opportunity to create market access opportunities for American companies, exporters, and workers. It is possible to use American natural gas to win new Free Trade Agreements, increase exports of all American goods and services, open markets, create jobs and raise living standards for all Americans.

Conclusion

America's abundance of natural gas is powering a remarkable manufacturing renaissance that has generated more than 120 manufacturing projects valued at \$110 billion of announced investment and created thousands of jobs. To fully capitalize on this resurgence and to turn it into a full-blown manufacturing revolution, we must approach exports thoughtfully and deliberately, carefully considering the benefits of stably priced and abundant supplies to manufacturers and the U.S. economy.

Chairman Lamborn, Ranking Member Holt and Members of the Subcommittee, thank you for the opportunity to provide testimony to the subcommittee on this very important topic, and I look forward to your questions.