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Please find attached comments by ExxonMobil on the U.S. Department of Energy study submitted on behalf of Theresa Fariello, Vice President, ExxonMobil Washington Office. Thank you.

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## **COMMENTS OF EXXON MOBIL CORPORATION REGARDING 2012 LNG EXPORT STUDY**

Exxon Mobil Corporation (ExxonMobil) offers the following comments in response to the “Notice of Availability of 2012 LNG Export Study and Request for Comments” issued by the Office of Fossil Energy, Department of Energy (DOE).

### Executive Summary

The U.S. has a tremendous opportunity to capitalize on the rapid growth in domestic natural gas supply by exporting LNG. Natural gas exports will expand the economy and create new jobs.

The NERA macroeconomic study developed for DOE confirms that natural gas exports will result in overall economic benefits for the U.S.

- The NERA study was comprehensive and rigorous. It examined all sectors of the economy, incorporating a wide range of U.S. natural gas supply and demand outlooks.
- The study’s findings are consistent with the conclusions of numerous other independent studies conducted by economic experts.
- The NERA study concluded that under a wide range of scenarios, exports of LNG yielded positive net economic benefits for the U.S. It also found that the larger the exports, the larger the net economic benefits.
- Although the NERA study is very thorough, we believe it is somewhat conservative in its findings. In our view, the U.S. natural gas resource base is likely even more productive than assumed, and there are added benefits of LNG exports for increasing employment and capital investment during a weak economic recovery in the U.S.

The NERA conclusions reinforce the fact that the U.S. natural gas resource base can support both growing domestic use of natural gas, as well as LNG exports. The enormous resource base allows for domestic natural gas development, the expansion of U.S. manufacturing, increased use of natural gas in power generation, and LNG exports. In fact, as America's largest natural gas producer and a large natural gas consumer, ExxonMobil has interests in all of these areas, including the expansion of its chemical facilities and in exporting LNG.

NERA’s finding that natural gas exports yield net economic benefits for the U.S. is consistent with the fundamental economic principle that free trade leads to national economic growth. Moreover, hindering the free trade of natural gas is in direct opposition to longstanding U.S. free trade principles, World Trade Organization (WTO) agreements, and the Obama Administration’s advocacy for increased U.S. exports.

The NERA study confirms that LNG exports are in the public interest and provides a clear economic basis for DOE to expeditiously approve LNG export applications. In this competitive international marketplace, it is critical that DOE move forward promptly with its approval process. DOE should not restrict exports, and should allow the competitive market to determine which projects can successfully compete.

### NERA Study Concludes U.S. Gains From LNG Exports

NERA's thorough macroeconomic study of U.S. LNG exports arrived at two powerful conclusions in support of U.S. LNG exports: (a) all export scenarios yielded positive net benefits for the U.S. economy; and (b) the larger the LNG exports, the larger the net benefits.

The NERA study is comprehensive and rigorous. It included all sectors of the economy and incorporated a wide range of supply/demand outlooks for natural gas reference cases and scenarios -- some with the U.S. Energy Information Administration's (EIA) *Annual Energy Outlook* (AEO) 2011 reference case and some with more optimistic projections of the cost of additional natural gas supplies, as well as some with more pessimistic projections. The high side supply reference case, "High Economic Ultimate Recovery," included increased natural gas production, lower domestic gas prices and significantly higher domestic consumption of natural gas than in the base reference case. In fact, NERA's high side reference case had total U.S. consumption exceeding the EIA *AEO2013 Early Release* reference case over the 20-year study period. All of the export scenarios, including this higher production/higher domestic consumption reference case, concluded that there were net benefits to the U.S. economy. In fact, the study found that the greater the export levels, the greater the net benefits to the economy.

Not only is the study consistent with the standard economic principle that expanded international trade leads to gains for the exporting country, but its findings also echo the conclusions of numerous other independent research efforts. For example, studies done by economic experts for the Brookings Institution<sup>1</sup> also projected overall positive benefits for the economy from U.S. exports of natural gas.

### NERA Study Understates Benefits from LNG Exports

Although the NERA study is very thorough, in our view the U.S. natural gas resource base is likely even more productive than assumed, and there are added benefits of LNG exports for increasing employment and capital investment during a weak economic recovery in the U.S.

Because the NERA model assumed full employment for the economy, it did not identify the positive impact LNG exports would have on jobs. Yet the economy is far from full employment. Government forecasts<sup>2</sup> in 2012 show the unemployment rate above a "full employment" level through most of this decade. In reality, the economic stimulus of LNG exports, with investments stretching beyond the current period of slow economic recovery, would have positive employment impacts for the economy for most of this decade. In other words, by exporting LNG, the U.S. economy can reach full employment faster than it can without exports.

<sup>1</sup>Charles Ebinger, Kevin Massy, & Govinda Avasarala, *Liquid Markets: Assessing the Case for U.S. Exports of Liquefied Natural Gas*, Policy Brief 12-01, Energy Security Initiative at Brookings (May 2012).  
Michael Levi, *A Strategy for U.S. Natural Gas Exports*, Discussion Paper 2012-04, The Hamilton Project, Brookings (June 2012).

<sup>2</sup>Congressional Budget Office (CBO), "An Update to the Budget and Economic Outlook: Fiscal Years 2012 to 2022," Aug. 2012, at 33-41, 56.  
Office of Management and Budget (OMB), "Fiscal Year 2012: Mid-Session Review Budget of the U.S. Government," Sept. 1, 2012, at 8-12.

The lingering effects of the recession also mean that capital is underutilized today. Government forecasts<sup>3</sup> made in 2012 predicted that the path of actual U.S. GDP will remain below the long-run potential path of GDP through most of this decade. Again, the stimulus of LNG exports would move the country toward its long-run GDP potential at a faster pace than without exports, something that NERA's analysis did not capture. When there is significant slack in the economy, there is no automatic trade-off between jobs in one sector versus another.

In addition, many experts believe the U.S. natural gas resource base to be significantly larger than previously thought. Estimates of the resources made by EIA, National Petroleum Council, the Potential Gas Council, academia and private sector experts<sup>4</sup> have grown significantly in recent years. In contrast, the EIA AEO2011 supply curve (measuring the supply-price relationships), which is the basis of the data NERA used, is much more conservative. Even NERA's "high resource" case is likely conservative compared to other forecasts. In fact, the EIA's later outlooks (AEO2012 and preliminary AEO2013) show more natural gas production and lower domestic natural gas prices than the forecast used in the NERA study. In summary, the 2011 EIA outlook used by NERA likely overestimated the domestic natural gas price impact of LNG exports and, thus, underestimated net economic benefits.

Lastly, the NERA study did not take into account the likely increase in natural gas liquids (NGLs) that would accompany the increased natural gas production needed for export. Those additional NGLs will be of benefit to chemical plants in the U.S. that will likely take advantage of increased NGL supplies at lower prices – something that the NERA study did not capture.

Although somewhat conservative, the NERA study is rigorous and sound in its conclusions. The NERA study provides a clear economic basis for a determination by DOE that U.S. LNG exports are in the public interest and that limits on exports would not be in the public interest.

#### Growth in Natural Gas Resource Base Underpin NERA Conclusions

The driver behind the increase in U.S. natural gas production stems from unconventional resources recently unlocked by new technology. Sources of natural gas once considered "uneconomic" or "inaccessible" are rapidly becoming reliable resources. The EIA's preliminary AEO 2013 projects a 44 per cent growth in U.S. natural gas production by 2040. Almost all of this increase in domestic natural gas production is due to projected growth in shale gas production. The *World Energy Outlook 2012*<sup>5</sup> issued by the International Energy Agency is consistent with EIA findings.

Across the globe today, the use of natural gas is growing significantly as the world's energy mix is transformed by new supplies. This shift carries enormous benefits in terms of environmental effects, cost-effectiveness, reliability and efficiency. Expanded trade of natural gas is an important part of this dynamic, including the global push toward less carbon-intensive electricity generation. The U.S. has an opportunity to play a significant role in this key trend.

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<sup>3</sup>CBO, *Id.* OMB, *Id.*

<sup>4</sup>National Petroleum Council, *Prudent Development: Realizing the Potential of North America's Abundant Gas and Oil Resources*, Sept. 15, 2011, see Fig. ES-2 at 10, Executive Summary for natural gas resource estimates from NPC, EIA, Potential Gas Committee, MIT, ANGA and others; see NPC Executive Summary for an overview of these natural gas resource estimates.

<sup>5</sup>International Energy Agency, "World Energy Outlook 2012," Nov. 2012.

The historic shift to natural gas carries not just economic advantages. Gas is cleaner burning than other major, carbon-intensive energy sources, which will help meet goals for reduced emissions and environmental stewardship.

#### The Resource Base Provides Opportunity for Manufacturing Growth and LNG Exports

Because of the size and productivity of the U.S. natural gas resource base, manufacturing growth and LNG exports can both occur. As Michael Levi, the author of a 2012 study on LNG exports for the Hamilton Project launched by Brookings, noted:

In [the export opponents'] view of the world, every cubic foot of natural gas that's exported is a cubic foot that would otherwise have been used in industry. That's wrong: most natural gas that would be exported will instead stay in the ground if exports aren't allowed. Meanwhile, the gains in manufacturing that are being spurred by abundant natural gas will largely materialize regardless of whether exports are allowed... [Opponents also ignore] the massive amount of manufactured content that goes into producing natural gas. Any discussion of the manufacturing impacts of allowing natural gas exports that doesn't include this dimension is incomplete.<sup>6</sup>

Increased natural gas production to supply the gas for the liquefaction facilities will generate additional demand for equipment, piping, trucks, chemicals and other materials manufactured in the U.S. According to a 2012 study by IHS:

Upstream unconventional oil and natural gas activity, on average, demonstrates one of the larger employment multipliers placing it ahead of such notable industries as finance, construction, and many of the manufacturing sectors. This is the result of two primary factors that drive the industry's indirect and induced job creation. First, unconventional oil and natural gas activity is capital intensive, with nearly 50% of the revenues generated spent on construction, fabricated metals, and heavy equipment suppliers. Additionally, their operating expenses span a broad range of other materials and service sectors such as legal and financial services.

Another critical reason is the strength of domestic suppliers—the United States is a world leader in all aspects of the unconventional oil and natural gas activity. Unlike other industries in this country, there is an extensive domestic supply chain, which means a larger portion of the dollars spent here stay here and support American jobs.<sup>7</sup>

Additional natural gas production generates high-paying jobs and those high-paying jobs will generate additional growth in other sectors. According to IHS:

...[one] can compare BLS Average hourly wage rates for production workers in the oil and natural gas extraction sector, where it is \$35.15 per hour, to other industries – it is

<sup>6</sup>Michael Levi, "Rebutting the IECA Attack on My Natural Gas Exports Study", Energy and Security Climate, Council of Foreign Relations blog (July 20, 2012).

<sup>7</sup>IHS, *America's New Energy Future: The Unconventional Oil and Gas Revolution and the US Economy*, Volume 1: National Economic Conditions, October 2012 at 26-27.

more than the hourly wage in the general economy (at \$23.07 per hour) and more than wage rates paid in manufacturing (at \$23.70 per hour), wholesale trade, education and many other industries. This creates a larger multiplier and induced impact because more income is spent on general goods and services by workers in unconventional oil and natural gas activity than in other industries or in the economy in general.<sup>8</sup>

In addition to the impact of LNG exports on additional natural gas production, a liquefaction facility with an export capacity of 2 billion cubic feet per day (bcfd) will also require huge capital investments of approximately \$10 billion or more. For the NERA scenarios of 6 bcfd and 12 bcfd of exports, new investments could total \$30 billion to \$60 billion or more. These facilities will stimulate manufacturing demand because they require equipment, specialty piping and other goods produced in the U.S. Once operational, these facilities become value added industrial operations turning natural gas into a higher valued product for export just like chemical facilities, for example, use natural gas to produce higher valued products for export.

The breadth of the U.S. natural gas resource base means that the U.S. can continue to meet growing domestic industrial, power and other demand while also exporting LNG. With respect to the chemical sector, some have grossly exaggerated potential impacts on the U.S. chemical industry. First, as noted above, the NERA study also did not take into account the increased NGL production which translates into additional chemical feedstocks. Second, LNG exports should not affect the international competitiveness of chemical producers. According to a 2012 study by Ebinger, Massy and Avasarala of the Brookings Institution:

...the evidence suggests that the competitive advantage of U.S. industrial producers relative to its competitors in Western Europe and Asia is not likely to be affected significantly by the projected increase in natural gas prices resulting from LNG exports. As European and many Asian petrochemical producers use oil-based products such as naphtha and fuel oil as feedstock, U.S. companies are more likely to enjoy a significant cost advantage over their overseas competitors.<sup>9</sup>

The NERA study concluded that in none of the wide range of scenarios examined did natural gas prices become linked to oil prices. This is consistent with the Brookings finding that U.S. chemical and other manufacturers will continue to have a competitive advantage over foreign competitors when there are U.S. LNG exports.

#### ExxonMobil's Business Strategy Reflects U.S. Resource Abundance

As the largest producer of natural gas in the U.S. as well as a major consumer of natural gas, ExxonMobil understands the potential that the U.S. natural gas resource base holds.

For example, the availability of an abundant resource of natural gas creates great opportunity for chemical production expansion. This is another area in which ExxonMobil has core expertise and is planning new investments in its chemical facilities.

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<sup>8</sup>IHS, *Id* at 28.

<sup>9</sup>Ebinger, et. al., *Id* at 35.

ExxonMobil has filed permit applications for a multi-billion dollar world scale petrochemical plant expansion at Baytown, Texas complex. This proposed project includes a new ethane cracker and two new high performance polyethylene lines at the nearby Mont Belvieu Plastics Plant. The expansion would make ExxonMobil one of the largest chemical manufacturers in the U.S. ExxonMobil is also investing \$200 million to expand its Baton Rouge petrochemical and lubricants plants to increase capacity. New facilities will include synthetic base stocks manufacturing and finished lube blending and packaging.

In addition to ExxonMobil's planned expansion its U.S. chemical capacity, Golden Pass Products, in which we are a partner, has submitted applications for an approximately \$10 billion proposed project to build liquefaction facilities and export LNG. We are also assessing LNG export opportunities for Alaska's North Slope natural gas. Our overall investment plans are consistent with numerous external studies that show the U.S. natural gas resource base can support growing U.S. production and consumption as well as LNG exports.

### Benefits of Free Trade

Whether it is U.S. exports of wheat, computers, automobiles, or natural gas, the overall national economy benefits from expanded trade. Producers and manufacturers that are involved in global exports recognize the many benefits of trade. In fact, the National Association of Manufacturers has reiterated its support for free trade in relation to natural gas.<sup>10</sup> The National Foreign Trade Council and the Emergency Committee for American Trade have likewise stated support for the free trade of natural gas.<sup>11</sup>

These groups understand the domestic and international opportunities provided by the U.S. resource base. They also understand that the international trading system breaks down when countries implement artificial trade barriers to benefit specific domestic business interests at the expense of the broader national economy.

The simple truth is that free trade encourages more investment and leads to mutual benefits and progress, both domestically and internationally. The opportunities available through natural gas exports will attract significant capital and new players and, in turn, lead to even higher levels of production that would support jobs and economic activity across the U.S. economy.

The editorial boards of the *Wall Street Journal*, *New York Times* and *The Washington Post*<sup>12</sup> have expressed support for LNG exports and free trade. As *The Washington Post* editorial board noted, "When countries can buy and sell to each other, their economies do what they are best at, producing more with less and driving economic growth."<sup>13</sup>

There are serious consequences to hindering free trade in natural gas. Limits on U.S. LNG exports would cause the U.S. to forgo the economic benefits that the NERA study projected

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<sup>10</sup>National Association of Manufacturers, "Banning LNG Exports Will Hurt Jobs and Economy," Jan. 15, 2013.

<sup>11</sup>National Foreign Trade Council, "The National Foreign Trade Council Re: LNG Exports," Jan. 16, 2013. Emergency Committee for American Trade, "ECAT Highlights Potential Benefits of Exporting LNG," Jan. 15, 2013.

<sup>12</sup>*Energy Economics in One Lesson*, Editorial, Wall St. Journal, Dec. 6, 2012.

*Sending Natural Gas Abroad*, Editorial, N.Y. Times, Dec. 15, 2012.

*Natural Gas Exports: A Boon to the Economy*, Editorial Board, Washington Post, Dec. 7, 2012.

<sup>13</sup>Washington Post, *Id.*

under every scenario considered. Limited or even delayed U.S. exports will allow other producing countries to capitalize on opportunities for international sales of LNG and reap billions of dollars in economic benefits that the U.S. economy would otherwise have received.

Expanded LNG exports without artificially imposed limits are consistent with longstanding U.S. free trade principles, World Trade Organization (WTO) agreements, and the Administration's advocacy for increased U.S. exports. The U.S. has been a strong advocate of WTO action to remove artificial barriers to the export of natural resources by other countries. The WTO decision in January 2012 requiring China to remove export barriers to key minerals needed by U.S. manufacturers was hailed by Ron Kirk, U.S. International Trade Representative:

"Today's report is a tremendous victory for the United States – particularly its manufacturers and workers," Ambassador Kirk said. "The Obama Administration will continue to ensure that China and every other country play by the rules so that U.S. workers and companies can compete and succeed on a level playing field. .... Today's decision ensures that core manufacturing industries in this country can get the materials they need to produce and compete on a level playing field."<sup>14</sup>

Ambassador Kirk also noted the WTO dismissed China's arguments that its export barriers were necessary to protect the environment and conserve scarce resources. As his press release indicated, the barriers were in place in large part to give firms located in China an advantage over those located elsewhere, and domestic favoritism is a violation of the WTO agreements.<sup>15</sup>

A decision by DOE to put a limit on exports runs counter to and weakens the position that the U.S. has taken in the WTO on export barriers by other countries. It would not be in the public interest for the DOE to try to carve out an exception for a limit on LNG exports when U.S. policy is for every country to follow free trade principles.

#### LNG Exports Are in the Public Interest

Allowing natural gas exports is consistent with the Natural Gas Act. The NERA study provides a clear basis that exports are "not inconsistent with the public interest" since they will lead to positive net benefits for the U.S. economy. Government policy toward the natural gas industry has been predicated on market forces, including free trade, as the best means to ensure sustained economic and job growth. The DOE used market principles to guide its LNG import decisions in the past. The nation's interests will be best served if it continues to let competition and free markets drive the volume of natural gas imports and exports.

LNG exports do not require government subsidies, but they do require that the DOE allow companies to compete for global customers. Not all the proposed U.S. LNG exports projects will be built. The market will help determine which project sponsors have the technical, financial and marketing capability to succeed in the very competitive international LNG marketplace.

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<sup>14</sup>Press Release, Office of the United States Trade Representative, "U.S. Trade Representative Ron Kirk Announces U.S. Victory in Challenge to China's Raw Materials Export Restraints," (Jan. 25, 2012).

<sup>15</sup>Office of the United States Trade Representative, *Id.*

### DOE Should Approve LNG Export Applications

The DOE should expeditiously evaluate and act upon LNG export applications, and allow the competitive market to direct investment and capital expenditures. We encourage the DOE to adhere to its tradition of embracing free trade principles by avoiding artificial limits on U.S. exports of LNG. This will allow for the businesses to create a durable, international value chain that will lead to jobs and economic benefits for the U.S. for decades to come.