



July 27, 2018

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U.S. Department of Energy  
Office of Regulation and International Engagement  
Office of Fossil Energy, Forrestal Building  
1000 Independence Avenue, S.W.  
Washington, D.C. 20585

RE: Study on *Macroeconomic Outcomes of Market Determined Levels of U.S. LNG Exports*

Dear Ms. Sweeney:

On behalf of the Center for Liquefied Natural Gas (CLNG), I write in support of the U.S. Department of Energy's (DOE) study, *Macroeconomic Outcomes of Market Determined Levels of U.S. LNG Exports* (2018 LNG Export Study or Study) commissioned by the DOE and prepared by NERA Economic Consulting. CLNG requests that these reply comments be considered in all pending proceedings before DOE and in subsequent filings in which the various applicants seek authorization from DOE to export liquefied natural gas (LNG) to countries with which the United States has not entered into a free trade agreement providing for the national treatment for the trade in natural gas (non-FTA countries).

#### I. Statement of Interest

The CLNG advocates for public policies that advance the use of LNG in the United States, and its export internationally. A committee of the Natural Gas Supply Association (NGSA), CLNG represents the full value chain, including LNG producers, shippers, terminal operators and developers, providing it with unique insight into the ways in which the vast potential of this abundant and versatile fuel can be fully realized.

#### II. Preface

The DOE has now commissioned five studies to better inform its public interest review under section 3(a) of the Natural Gas Act (NGA). The fundamental statutory and regulatory requirements under the NGA place the burden of proof on the opponents to the applications to produce evidence that the applications are inconsistent with the public interest. The burden of proof having not been met by any opponents to the applications, whether through regulatory comments or litigation, and because of the positive nature of DOE's five LNG export studies,

CLNG believes that DOE is fully armed to approve the remaining applications for export and should do so without delay.

### III. Background

The DOE has commissioned five studies to examine the effects of U.S. LNG exports on the U.S. economy and energy markets.<sup>1</sup> The results of all these studies clearly demonstrate the benefits of LNG exports to the U.S. economy. Key findings for the previous DOE studies include:

- “The incremental gain to the U.S. economy and consumers when exports increase above 12 billion cubic feet per day (Bcf/d) amounts to between \$7.7 billion and \$20.5 billion in average annual GDP growth over the period of 2026 to 2040.”<sup>2</sup> (2015 study)
- “Added U.S. LNG exports result in higher levels of economic output, as measured by real gross domestic product as (GDP). Increased energy production spurs investment, which more than offsets the adverse impact of somewhat higher energy prices when the export scenarios are applied.”<sup>3</sup> (2014 study)
- “In all of the scenarios analyzed in this study, NERA found that the U.S. would experience net economic benefits from increased LNG exports. [. . .] U.S. economic welfare consistently increases as the volume of natural gas exports increased. This includes scenarios in which there are unlimited exports.”<sup>4</sup> (2012 study)
- “Natural gas markets in the United States balance in response to increased natural gas exports largely through increased natural gas production.”<sup>5</sup> (2012 study)

Section 3(a) of the NGA establishes “a rebuttable presumption that a proposed export of natural gas is in the public interest, and DOE must grant such an application unless those who oppose the application overcome that presumption.”<sup>6</sup> Therefore, each application to export LNG to non-FTA countries creates a high evidentiary burden for those who oppose it. To date, no opponent has been able to support arguments against the applications, and DOE’s application approvals have been upheld when litigated. Therefore, this fifth Study only adds to the already robust

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<sup>1</sup>The first study, *Effect of Increased Natural Gas Exports on Domestic Energy Markets*, was performed by the U.S. Energy Information Administration (EIA) and published in January 2012. The second study, *Macroeconomic Impacts of LNG Exports from the United States*, was performed by NERA and published in December 2012. The third study, *Effect of Increased Levels of Liquefied Natural Gas Exports on U.S. Energy Markets*, was performed by EIA and published in October 2014. The fourth study, *The Macroeconomic Impact of Increasing U.S. LNG Exports*, was performed jointly by the Center for Energy Studies at Rice University’s Baker Institute and Oxford Economics and published in October 2015. The fifth study—subject to this Notice—the 2018 LNG Export Study was performed by NERA.

<sup>2</sup> Oxford Economics and Rice University, “*The Macroeconomic Impact of Increasing U.S. LNG Exports*,” October 29, 2015, [http://energy.gov/sites/prod/files/2015/12/f27/20151113\\_macro\\_impact\\_of\\_lng\\_exports\\_0.pdf](http://energy.gov/sites/prod/files/2015/12/f27/20151113_macro_impact_of_lng_exports_0.pdf), pg. 8.

<sup>3</sup> U.S. Energy Information Administration, “*Effect of Increased Levels of Liquefied Natural Gas Exports on U.S. Energy Markets*” October 2014, <https://www.eia.gov/analysis/requests/fe/pdf/lng.pdf>, pg.12.

<sup>4</sup> NERA Economic Consulting, “*Macroeconomic Impacts of LNG Exports from the United States*,” December 2012, [https://www.energy.gov/sites/prod/files/2013/04/f0/nera\\_lng\\_report.pdf](https://www.energy.gov/sites/prod/files/2013/04/f0/nera_lng_report.pdf), pg.6.

<sup>5</sup> The U.S. Energy Information Administration, “*Effect of Increased Natural Gas Exports on Domestic Energy Markets*,” January 2012, [https://www.energy.gov/sites/prod/files/2013/04/f0/fe\\_eia\\_lng.pdf](https://www.energy.gov/sites/prod/files/2013/04/f0/fe_eia_lng.pdf), pg. 6.

<sup>6</sup> Department of Energy, Order No. 2961, Sabine Pass Liquefaction, LLC, FE Docket No. 10-111-LNG, pg. 28, [http://www.fossil.energy.gov/programs/gasregulation/authorizations/Orders\\_Issued\\_2011/ord2961.pdf](http://www.fossil.energy.gov/programs/gasregulation/authorizations/Orders_Issued_2011/ord2961.pdf).

evidence that LNG exports are in the public interest. In fact, the 2018 LNG Export Study states that:

- “Throughout the entire range of scenarios, this study finds that overall U.S. economic output is higher whenever global markets call for higher levels of LNG exports, assuming that exports are allowed to be determined by market demand.”<sup>7</sup>
- “Increasing U.S. LNG exports under any given set of assumptions about U.S. natural gas resources and their production leads to only small increases in U.S. natural gas prices.”<sup>8</sup>
- “Available natural gas resources have the largest impact on natural gas prices. Therefore, U.S. natural gas prices are far more dependent on available resources and technologies to extract available resources than on U.S. policies surrounding LNG exports.”<sup>9</sup>
- “For each of the supply scenarios, higher levels of oil and gas supply and LNG exports in response to international demand consistently lead to higher levels of GDP. [. . .] Consumer welfare, expressed in dollar terms, is also higher when there is greater domestic oil and gas supply, and higher levels of LNG exports.”<sup>10</sup>

This Study clearly adds to the record that exports are in the public interest. Given the mounting evidence in support of LNG exports, DOE should approve exports without delay.

#### IV. Natural Gas Supply

The Study assessed a probabilistic analysis of 54 different scenarios that included a more likely range of LNG exports in 2040 from 8.7 to 30.7 billion cubic feet per day (Bcf/d) and found that “overall U.S. economic output is higher whenever global markets call for higher levels of LNG exports, assuming that exports are allowed to be determined by market demand”.<sup>11</sup> Further, the Study found that the available natural gas resources have the largest impact on the price of natural gas. Therefore, U.S. natural gas prices are far more dependent on available resources and technologies to extract available resources than any other factor. The scenarios where the U.S. reaps the most economic gains at the lowest price from exporting LNG are those where our supply of natural gas is highest. We believe that the United States is more than capable of continuing to meet high production and supply expectations.

Currently U.S. natural gas resources have reached an all-time high, according to the U.S. Potential Gas Committee.<sup>12</sup> Even as U.S. natural gas production continues to grow year over year, our total natural gas resource estimates continue growing as well, due to improvements in our ability to detect and extract natural gas.

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<sup>7</sup>biERA Economic Consulting, “Macroeconomic Outcomes of Market Determined Levels of U.S. LNG Exports,” June 7, 2018, <https://www.energy.gov/sites/prod/files/2018/06/f52/Macroeconomic%20LNG%20Export%20Study%202018.pdf>, pg. 14.

<sup>8</sup> Ibid., 55.

<sup>9</sup> Ibid.

<sup>10</sup> Ibid., 18, 20.

<sup>11</sup> Ibid., 14.

<sup>12</sup> U.S. Potential Gas Committee, [Biennial Estimate of North American Natural Gas Resource Base](#), July 2017.

In fact, if the Potential Gas Committee's 1966 estimate of 600 trillion cubic feet (Tcf) had remained static, the United States would have run out of natural gas in the 1990s. Instead, estimates doubled by 2002, to more than 1,200 Tcf, and by 2017 had exceeded 2,800 Tcf.<sup>13</sup> And of these reserves, ICF estimates that more than 1,798 Tcf of natural gas is available at \$5.00/MMBtu (2016\$) or less in the Lower 48 plus Canada.<sup>14</sup> Concurrent with this nearly five-fold increase in the total resource base, U.S. natural gas production has increased by 68 percent since 2005, according to the U.S. Energy Information Administration (EIA).<sup>15</sup> And EIA projects production will continue to grow.<sup>16</sup>

## V. Benefits of LNG for Manufacturing

A robust LNG export market increases the competitiveness of many U.S.-based manufacturers. Growth in LNG exports sends market signals to incentivize domestic production, which benefits consumers here at home and benefits industries involved in the natural gas supply chain, such as construction and manufacturing, spurring even more economic growth.

The dramatic increase in natural gas supply has enabled an industrial renaissance in the manufacturing sector, with demand for natural gas from that sector reaching an all-time high this past winter.<sup>17</sup> By encouraging more natural gas production through the demand for U.S. LNG exports, greater production of the associated natural gas liquids (NGLs) is incentivized, creating a competitive advantage for U.S. chemical manufacturers leading to greater investment, industry growth, and new jobs.

Companies from around the world are investing in new projects to build or expand their shale-advantaged capacity in the United States. Forty-eight new industrial projects in the petrochemical, fertilizer, steel and gas-to-liquids sectors were completed between 2010 and 2015, representing an investment of \$28 billion. Experts forecast additional industrial investment of \$135 billion to build 59 new projects and 11 expansions between 2017 and 2022.<sup>18</sup> However, suppressing LNG exports will limit natural gas production and thus limit the overall economic benefit and the opportunity to continue to grow our manufacturing sectors that benefit from increased supplies of natural gas.

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<sup>13</sup> U.S. Potential Gas Committee, [Biennial Estimate of North American Natural Gas Resource Base, July 2017](#).

<sup>14</sup> ICF, "Impact of LNG Exports on the U.S. Economy: A Brief Update," September 2017, <http://www.api.org/~media/Files/Policy/LNG-Exports/API-LNG-Update-Report-20171003.pdf>, pg. 14.

<sup>15</sup> U.S. Energy Information Administration, "Natural Gas Gross Withdrawals and Production," [https://www.eia.gov/dnav/ng/ng\\_prod\\_sum\\_a\\_EPG0\\_FPD\\_mmcfc\\_a.htm](https://www.eia.gov/dnav/ng/ng_prod_sum_a_EPG0_FPD_mmcfc_a.htm).

<sup>16</sup> U.S. Energy Information Administration, "Annual Energy Outlook 2018," <https://www.eia.gov/outlooks/aeo/data/browser/#/?id=13-AEO2018&sourcekey=0>.

<sup>17</sup> Energy Ventures Analysis, Inc., *2017-2018 Winter Outlook for Natural Gas*, 2017.

U.S. Energy Information Administration, U.S. Natural Gas Industrial Consumption, <https://www.eia.gov/dnav/ng/hist/n3035us2m.htm>.

<sup>18</sup> Energy Ventures Analysis, Inc., *2017-2018 Winter Outlook for Natural Gas*, 2017.

## VI. Environmental Benefits of LNG

The use of natural gas here in the United States has helped reduce our carbon emissions in the electric sector, which are the lowest they have been since 1985.<sup>19</sup> Exporting our LNG can help countries around the world reduce their emissions as well. The 2014 study conducted by DOE found that LNG exports could reduce global greenhouse gas emissions by displacing more carbon-intensive fuels in importing nations.<sup>20</sup> Further, while greater use of natural gas will help reduce carbon emissions, it will also help reduce traditional pollutants – burning natural gas creates little to no emissions of sulfur dioxide, nitrogen oxides or particulate matter that can lead to smog.<sup>21</sup>

Natural gas exports have enabled nations without sufficient indigenous supplies of natural gas to import LNG as fuel not only for power generation, but also transportation, industrial manufacturing, and other applications, thus gradually displacing less environmentally-friendly fossil fuels and decreasing the environmental impacts of carbon dioxide emission on the world scale. Increasing U.S. LNG exports can enable other nations to use natural gas to decrease their emission profile, thus aggregating the global environmental benefits. U.S.-exported LNG provides our trade partners with access to a cleaner-burning energy alternative and reinforces our commitment to environmental progress.

## VII. Energy Security Benefits

The U.S. has an unprecedented opportunity to be a world leader in setting and driving global energy policy. Just as the trade of any commodity promotes domestic jobs and economic growth, so too will the trade of natural gas. Moreover, U.S. LNG exports will expand global natural gas markets, enhancing U.S. influence to encourage transparency, fair market rules, and strengthen relationships with our allies.

U.S. LNG exports have already provided greater leverage to countries negotiating new contracts with existing suppliers, including Russia. Allowing U.S. Henry Hub indexed exports will help sustain lower pricing over the long-term and provide an alternative to oil-linked gas contracts. Strong U.S. natural gas exports will send a powerful signal that the U.S. is dedicated to supporting the energy security of its strategic allies. In short, LNG exports from the U.S. will help prevent geopolitically induced supply disruptions.<sup>22</sup>

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<sup>19</sup> U.S. Energy Information Administration, "Monthly Energy Review," June 2018, <https://www.eia.gov/totalenergy/data/monthly/pdf/mer.pdf>.

<sup>20</sup> Department of Energy, National Energy Technology Laboratory, [Lifecycle Greenhouse Gas Perspective Report on Exporting LNG from the United States](#), 2014.

<sup>21</sup> Leidos, Inc., [A Comparison of Emissions from Major Fuels Used to Generate Electricity in the U.S.](#), 2016.

<sup>22</sup> David L. Goldwyn, "Refreshing European Energy Security Policy: How the U.S. Can Help," Brookings Institution (2014). Pg. 1.

## VIII. Conclusion

CLNG fully supports DOE's 2018 LNG Export Study. We believe that this Study shows that LNG exports offer the opportunity to continue U.S. economic growth and provide a net benefit to the U.S. economy, making LNG exports squarely in the public interest. Given the findings of this Study, as well as the previous DOE LNG studies, we believe that DOE has more than enough evidence to approve LNG exports without delay.

Respectfully Submitted,



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