BEFORE THE UNITED STATES DEPARTMENT OF ENERGY

In Re: 2015 LNG Export Study

COMMENTS BY THE CENTER FOR LIQUEFIED NATURAL GAS

The Center for Liquefied Natural Gas (CLNG) respectfully files these comments in response to the 2015 LNG Export Study, commissioned by the U.S. Department of Energy (DOE) and prepared by Oxford Economics and the Center for Energy Studies at Rice University's Baker Institute.

CLNG requests that its 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 (FTA) providing for the national treatment for the trade in natural gas (non-FTA countries).

Introduction

CLNG represents LNG producers, shippers, terminals operators, and project developers. CLNG's mission is to promote fact-based discussions of LNG, support public policies that permit LNG exports and imports to be a part of the U.S. energy mix and the global LNG market, and to ensure the safe, secure, and environmentally responsible development and operation of LNG facilities in the United States. On January 19, 2016, CLNG and the Natural Gas Supply Association announced the completion of the merger of the two organizations.

CLNG supports the 2015 LNG Export Study, which finds that increased LNG exports will result in overall net economic benefits to the United States. Key findings of the study 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.[1]

[1] 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., pg. 8.

- Increasing LNG exports above 12 Bcf/d would create between 9,600 and 35,200 jobs annually, on average from 2026 to 2040.[2]
- The overall economic impacts of LNG exports beyond 12 Bcf/d are positive, with more exports delivering greater benefits: "When U.S. LNG exports rise to their market determined level (rather being held to 20 Bcf/d), the macroeconomic dynamics are the same as highlighted above but with a slightly larger overall impact, reflecting the higher level of U.S. gas exports, production, and associated investment."[3]
- Greater LNG exports effectively add demand for U.S. natural gas, which facilitates expansion in the gas-producing domestic upstream sector, stimulating the economy and creating jobs.

With the results of the 2015 LNG Export Study and other previous studies that clearly demonstrate the benefits of LNG exports to the U.S. economy, CLNG urges the DOE to promptly approve all pending LNG export applications to non-FTA countries and avoid further delays that could block the capture of export opportunities and the flow of benefits to the U.S. economy.

Legal Authority

The statutory authority governing the DOE in its deliberations of the pending export applications is Section 3(a) of the Natural Gas Act, which states:

> [N]o person shall export any natural gas from the United States to a foreign country or import any natural gas from a foreign country without first having secured an order of the Commission authorizing it to do so. The Commission shall issue such order upon application, unless, after opportunity for hearing, it finds that the proposed exportation or importation will not be consistent with the public interest.[4]

The Rebuttable Presumption:

[2] Ibid., pg. 17.
[3] Ibid., pg. 15.
[4] Natural Gas Act, 15 U.S.C. 717b(a).

DOE recognizes that Section 3 of the Natural Gas Act 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."[5]

Therefore, each application to export LNG to non-FTA countries creates a high evidentiary burden for those who oppose it. As DOE said in the Sabine Pass case, citing a previous proceeding, "in order to overcome the rebuttable presumption favoring export authorizations, opponents of an export license must make an affirmative showing of inconsistency with the public interest."[6] Mere conjecture cannot be equated with "an affirmative showing." As noted by DOE in the Sabine Pass case, "[A]lthough the opponents of the requested authorization have alleged potential negative impacts from a grant of the requested authorization, their arguments are not supported by factual studies or analyses…"[7] To date, no opponent in any pending proceeding has filed "factual studies or analyses" to support arguments against the applications: all have merely asserted unsubstantiated speculations.

In the absence of evidence overcoming the rebuttable presumption established by statute, DOE has taken the extraordinary measure of contracting with NERA Economic Consulting, Oxford Economics, and the Center for Energy Studies at Rice University's Baker Institute to provide independent evidence in the form of two macroeconomic studies to inform DOE's decisions on pending applications. Nothing contained in either study overcomes the statutory presumption in favor of the applications. In fact, both studies strongly support approval of applications to export LNG.

Therefore, DOE should grant the pending applications to export LNG to non-FTA countries.

The 2015 Study: Economic Benefits of LNG Exports

The DOE's 2015 study further supports numerous existing arguments for increasing the export of U.S. LNG.[8] As the study concludes, the economic benefits of increased U.S. LNG exports are clear:

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[5] 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.

[6] Ibid., footnote 38, page 28.

[7] Ibid., pg. 30.

[8] 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.

- 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.[9]
- Increasing LNG exports above 12 Bcf/d would create between 9,600 and 35,200 jobs annually on average from 2026 to 2040.[10]
- The overall economic impacts of LNG exports beyond 12 Bcf/d are positive, with more exports delivering greater benefits: "When U.S. LNG exports rise to their market determined level (rather being held to 20 Bcf/d), the macroeconomic dynamics are the same as highlighted above but with a slightly larger overall impact, reflecting the higher level of U.S. gas exports, production, and associated investment."[11]
- Greater LNG exports effectively add demand for U.S. natural gas, which facilitates expansion in the gas-producing domestic upstream sector, stimulating the economy and creating jobs.

In addition, the study finds increased exports would boost domestic manufacturers along the natural gas supply chain by stimulating demand for the equipment, machinery, raw materials, and workforce needed to support higher levels of natural gas production and export.[12] As the construction and operation of a liquefaction facility requires pipes, turbines and other materials that must be manufactured, purchased, and installed, a single LNG facility will create a long manufacturing value chain.

For those reasons, representatives of U.S. manufacturers such as General Electric,[13] Caterpillar,[14] the National Association of Manufacturers,[15] the Energy Equipment and Infrastructure Alliance[16] and the Gas Processors Association,[17] as well as labor unions such as AFL-CIO,[18] the

[9] Ibid., pg. 8.
[10] Ibid., pg. 17.
[11] Ibid., pg. 15.
[12] Ibid, pg. 66-7.
[13] General Electric, letter to the House Committee on Energy & Commerce, April 28, 2014, http://energycommerce.house.gov/sites/republicans.energycommerce.house.gov/files/letters/hr6/20140428GE.pdf.
[14] Caterpillar, "Caterpillar Opposes Efforts To Ban LNG Exports," January 24, 2013, http://www.lnglawblog.com/wp-content/uploads/2013/05/Caterpillar.pdf.
[15] National Association of Manufacturers, comment on 2012 LNG Export Study, January 24, 2013, http://www.fossil.energy.gov/programs/gasregulation/authorizations/export_study/ross_eisenberg_em01_24_13.pdf.
[16] Energy Equipment and Infrastructure Alliance, letter to the House of Representatives, June 24, 2014, http://energycommerce.house.gov/sites/republicans.energycommerce.house.gov/files/letters/hr6/20140624EEIA.pdf.
[17] Gas Processors Association, letter to the House of Representatives, March 25, 2014, http://energycommerce.house.gov/sites/republicans.energycommerce.house.gov/files/letters/hr6/20140325GPA.
[18] Cole Stangler, "Angering Environmentalists, AFL-CIO Pushes Fossil-Fuel Investment," *In These Times*, February 4, 2014, http://inthesetimes.com/article/16221/angering_environmentalists_afl_cio_pushes_fossil_fuel_investme.

Laborers International Union of North America,[19] the National Association of Waterfront Employers,[20] the Washington, D.C. Building Trades Council,[21] and the United Association of Plumbers, Fitters and HVAC Techs,[22] all support increased LNG exports.

Price Impacts

The study makes clear that potential negative domestic market effects of LNG exports are limited and ultimately outweighed by the net benefits. The Executive Summary states, "Across the domestic cases, the positive impacts of higher U.S. gas production, greater investment in the U.S. natural gas sector, and increased profitability of U.S. gas producers typically exceeds the negative impacts of higher domestic natural gas prices associated with increased LNG exports."[23]

The report emphasizes that the benefits of increased LNG exports to domestic manufacturers, especially those along the natural gas supply chain, will exceed potential negative impacts on other manufacturing sectors, leading to a "manufacturing sector [that] in aggregate is little impacted." The study clearly states that the negative impacts of "[h]igher natural gas prices in the United States associated with greater U.S. LNG exports are outweighed by gains in manufacturing industries that benefit from increased investment in the natural gas sector and increased construction activity, such as metals, as well as industry gains attributable to the increase in overall demand (i.e., consumer products, food, etc.)."[24] The report also specifies that "even in the energy-intensive sectors—such as glass, cement and chemicals—the impacts are small compared with the expected growth in output through 2040."[25]

America's abundant natural gas supply is able to accommodate growth in domestic manufacturing and expanded LNG exports. U.S. natural gas proven reserves set a new record in 2014 at 389 trillion cubic feet.[26]

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[19] David L. Mallino, testimony before the House Subcommittee on Terrorism, Non-Proliferation, and Trade, April 25, 2013, http://docs.house.gov/meetings/FA/FA18/20130425/100776/HHRG-113-FA18-Wstate-MallinoD-20130425.pdf, pg. 4.

[20] National Association of Waterfront Employers, letter to the House Committee on Energy & Commerce, May 7, 2014, http://energycommerce.house.gov/sites/republicans.energycommerce.house.gov/files/letters/hr6/20140507NAWE.pdf.

[21] Vance Ayros, testimony before the U.S. Federal Energy Regulatory Commission, October 9, 2012, http://www.ferc.gov/EventCalendar/Files/20121026111343-PF12-16-10-9-12-pm.pdf, pg. 45.

[22] Center for Liquefied Natural Gas, "CLNG, Small Business and Labor Leaders, Dominion, and GE hold Joint Staff Briefing to discuss Support for LNG Exports," January 24, 2013, http://lnginitiative.org/2013/01/24/clng-small-business-and-labor-leaders-dominion-and-ge-hold-joint-staff-briefing-to-discuss-support-for-lng-exports/.

[23] Oxford Economics and Rice University, pg. 16.

[24] Ibid., pgs. 66-7.

[25] Ibid., pg. 15.

[26] U.S. Energy Information Administration, "U.S. oil and natural gas reserves both increase in 2014," November 30, 2015, https://www.eia.gov/todayinenergy/detail.cfm?id=23932.

Large Body of Existing Research

DOE's latest study supplements a substantial body of existing research which makes clear the economic value of U.S. LNG exports. For example, the 2012 macroeconomic report commissioned by DOE concluded, "[F]or every one of the market scenarios examined, net economic benefits increased as the level of LNG exports increased. In particular, scenarios with unlimited exports always had higher net economic benefits than corresponding cases with limited exports."[27]

Similarly, Brookings Institution,[28] Small Business & Entrepreneurship Council,[29] Deloitte,[30] NERA Economic Consulting,[31] IHS,[32] IHS Energy,[33] and ICF International[34] have all published reports noting that LNG exports would make domestic economic growth more robust. These benefits include that

- On a macroeconomic level, expected net GDP from LNG exports will range from $15.6 billion to $73.6 billion per year on average between 2016 and 2035.[35]
- Employment from LNG exports is expected to create or support between 73,100 and 452,300 jobs between 2016 and 2035. 7,800 to 76, 800 of those jobs will be in manufacturing, with 1,700 to 11,400 specifically in the refining, petrochemicals and chemicals sectors.[36]
- Unconventional natural gas development will support more than 2.4 million jobs by 2035 and contribute a cumulative total of almost $1.5 trillion in federal, state, and local tax and royalty revenue.[37]

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[27] NERA Economic Consulting, "Macroeconomic Impacts of LNG Exports from the United States," December 3, 2012, http://energy.gov/sites/prod/files/2013/04/f0/nera_lng_report.pdf, pg. 1.

[28] Brookings Institution, Energy Security Initiative, "Liquid Markets: Assessing the Case for U.S. Exports of Liquefied Natural Gas," May 2012, http://www.brookings.edu/~/media/research/files/reports/2012/5/02%20lng%20exports%20ebinger/0502_lng_exports_ebinger.pdf.

[29] Small Business & Entrepreneurship Council, "The Benefits of Natural Gas Production and Exports for U.S. Small Businesses," May 2013, http://www.sbecouncil.org/wp-content/uploads/2013/05/BenefitsofNatGasSBECouncil.pdf.

[30] Deloitte, "Made in America: The economic impact of LNG exports from the United States," http://www2.deloitte.com/content/dam/Deloitte/us/Documents/energy-resources/us-er-made-in-america.pdf.

[31] NERA Economic Consulting, "Updated Macroeconomic Impacts of LNG Exports from the United States," March 24, 2014, http://www.nera.com/content/dam/nera/publications/archive2/PUB_LNG_Update_0214_FINAL.pdf, pg. 114.

[32] IHS, "The Economic and Employment Contributions of Unconventional Gas Development in State Economies," June 2012, http://www.anga.us/media/content/F7D4500D-DD3A-1073-DA3480BE3CA41595/files/state_unconv_gas_economic_contribution.pdf.

[33] IHS Economics, "Supplying the Unconventional Revolution: Sizing the unconventional oil and gas supply chain," September 2014, http://www.eeia.org/post/IHS_UnconvSupplyChainStudy_Sept2014_ExecSum.pdf.

[34] ICF International, "U.S. LNG Exports: Impacts on Energy Markets and the Economy," May 15, 2013, http://www.api.org/~/media/Files/Policy/LNG-Exports/API-LNG-Export-Report-by-ICF.pdf.

[35] Ibid.

[36] Ibid.

[37] IHS, pg. 1, v.

Environmental Benefits of LNG Exports

In addition to enhancing the domestic economy, exporting LNG could also reduce global greenhouse gas emissions. Natural gas is the cleanest burning fossil fuel. As the U.S. Energy Information Administration (EIA) explained, "Natural gas, when burned, emits lower quantities of greenhouse gases and criteria pollutants per unit of energy produced than do other fossil fuels. This occurs in part because natural gas is more easily fully combusted, and in part because natural gas contains fewer impurities than any other fossil fuels."[38] EIA has also explained how the environmental benefits of natural gas encourage increased use of the fuel in electricity generation: "These clean burning properties have contributed to the increased use of natural gas for electricity generation…"[39] Indeed, when U.S. energy-related carbon dioxide emissions fell to an 18-year low in 2012, EIA attributed the decline in emissions to the increased use of natural gas in electricity generation: "Lower natural gas prices resulted in reduced levels of coal generation, and increased natural gas generation—a less carbon-intensive fuel for power generation, which shifted power generation from the most carbon-intensive fossil fuel (coal) to the least carbon-intensive fossil fuel (natural gas)."[40]

With the demand for natural gas expected to grow rapidly in developing economies, U.S. LNG represents an opportunity to help support that growth in an environmentally sustainable way. According to the International Energy Agency's (IEA) *World Energy Outlook 2015*, which presents energy demand and supply trends through 2040, countries outside the Organization for Economic Co-operation and Development (OECD) will account for seven out of every eight additional units of electricity demand.[41] Furthermore, IEA expects natural gas to be the "fastest-growing of the fossil fuels" as it "replaces more carbon-intensive fuels or backs up the integration of renewables," with consumption of natural gas increasing almost 50%.[42]

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[38] Energy Information Administration, *Natural Gas 1998: Issues and Trends*, April 1999, http://www.eia.gov/pub/oil_gas/natural_gas/analysis_publications/natural_gas_1998_issues_trends/pdf/it98.pdf, pg. 49.

[39] Energy Information Administration, "Natural Gas Explained: Natural Gas and the Environment," http://www.eia.gov/Energyexplained/?page=natural_gas_environment.

[40] Energy Information Administration, "Energy-related carbon dioxide emissions declined in 2012," April 5, 2013, https://www.eia.gov/todayinenergy/detail.cfm?id=10691.

[41] International Energy Administration, *World Energy Outlook 2015*, Executive Summary, http://www.iea.org/publications/freepublications/publication/WEB_WorldEnergyOutlook2015ExecutiveSummaryEnglishFinal.pdf, pg. 5.

[42] Ibid., pg. 4.

Not only can U.S. LNG help developing economies grow more sustainably, but it can also play an equally important role in helping countries meet air quality and emissions standards by displacing more carbon-intensive fuels. A recent report commissioned by CLNG found that if five countries – Germany, Japan, South Korea, China, and India – used coal instead of U.S.-sourced LNG to generate electricity, their greenhouse gas emissions from power generation would be between 92 and 194 percent higher.[43] Specific findings relating to electricity generated from U.S.-produced LNG versus the continued use of coal in these five markets indicated that:

- An efficient new-build coal plant emits about 92 percent more greenhouse gases than the most intensive (High GHG) LNG scenario, with emissions from the average existing coal-fired plant being about 139 percent to 148 percent higher;[44] and
- An efficient new-build coal plant typically emits 106 percent more greenhouse gases than the least intensive (Low GHG) LNG scenario, with emissions from an existing coal facility being about 117 percent to 194 percent higher.[45]

Conclusion

DOE's study supports LNG exports as an opportunity to continue U.S. economic growth. With this study in hand, DOE should promptly act on the pending applications seeking authorization to export LNG to non-FTA countries without limitation based upon the following: 1. The Natural Gas Act creates a rebuttal presumption that applications are consistent with the public interest, and no opponent has offered evidence to the contrary; 2. Granting the authorizations is consistent with DOE's established policies and previous decisions, as well as U.S. free trade principles; 3. A plain reading of 10 CFR Part 590 clearly shows that upon the expiration of the time period set forth in the Federal Register, DOE's regulations do not contemplate predicating when DOE will render a decision based upon when an applicant files with another federal agency; and 4. The general agreement among studies, including the 2015 LNG Export Study, indicates that LNG exports will provide net benefits to the U.S. economy and thus are in the public interest.

[43] Pace Global, "LNG and Coal Life Cycle Assessment of Greenhouse Gas Emissions," October 2015, http://www.paceglobal.com/wp-content/uploads/2015/10/LNG-and-Coal-Life-Cycle-Assessment-of-Greenhouse-Gas-Emissions.pdf.
[44] Ibid., pg. 8.
[45] Ibid.

Respectfully submitted,

Charlie Riedl
Executive Director
Center for Liquefied Natural Gas
1620 Eye St., N.W. Suite 700,
Washington, D.C. 20006
(202) 326-9300
Charlie.Riedl@ngsa.org
www.lngfacts.org