



Industrial Energy Consumers of America

The Voice of the Industrial Energy Consumers

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August 16, 2017

The Honorable Rick Perry
Secretary
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Re: Manufacturers Urge DOE to Place Moratorium on LNG Export Approvals for NFTA Countries – Demand Scenarios Demonstrate that 58-71 Percent of All U.S. Technically Recoverable Natural Gas Resources Could be Consumed by 2050

Dear Secretary Perry:

As large manufacturing consumers of natural gas, natural gas feedstock, and natural gas-fired electricity generation, we remain alarmed at the volume of LNG exports that have been approved for periods of 20-30 years, especially to non-free trade agreement (NFTA) countries. The two cumulative demand scenarios presented below provide absolute justification for placing a moratorium on further NFTA applications by the U.S. Department of Energy (DOE). Scenario II below assumes that LNG exports will rise to currently approved applications in the amount of 54 billion cubic feet per day (Bcf/d) by 2050, only 33 years away. Given this cumulative export and domestic demand scenario, the U.S. would consume 71 percent of all U.S. technically recoverable natural gas resources. We also reaffirm our opposition to shipping LNG to NFTA countries, which is inconsistent with President Trump's fair-trade and "America First" policies.

Importantly, the Obama Administration's "public interest" LNG export studies, which are still being used to justify LNG export approvals to NFTA countries, did not consider the "cumulative" export volume to FTA and NFTA countries and how it could contribute to consumption of vast amounts of U.S. natural resources nor its economic impact.

According to the DOE and the Energy Information Administration (EIA), total LNG export approvals to both free-trade agreement (FTA) countries and NFTA countries now equals 71.2 percent of U.S. 2016 natural gas demand. Approved volumes to NFTA countries alone equals 170 percent of total residential demand. Of greatest concern, is that the Administration has said publicly that it will approve more applications to export to NFTA countries.

We recognize that the DOE is still staffing up to properly manage the many important matters that the department handles. And for this reason, we are providing you with a record of IECA communications regarding LNG exports.

- April 13, 2017: IECA responds to the incorrect claims made by the Center for Liquefied Natural Gas (CLNG) (http://www.ieca-us.com/wp-content/uploads/04.13.17_Letter-to-Secretary-Perry_DOE.pdf)
- May 18, 2017: IECA testifies before the International Trade Administration and makes the point that the Obama Administration's LNG export "public interest" studies were terribly flawed; LNG markets are not free or fair markets; the so-called 100-year supply is a myth; that EIA forecasted Henry Hub prices are estimated to increase by 118 percent by 2025 in large part due to natural gas exports. (http://www.ieca-us.com/wp-content/uploads/05.18.17_Cicio-Testimony-Before-DOC-on-Trade-and-LNG.pdf)
- June 28, 2017: This letter to you provides five public interest policy recommendations; provides justification for prudent common-sense consumer safeguards. (http://www.ieca-us.com/wp-content/uploads/06.28.17_Letter-to-Perry_Ross-on-LNG-Policy-Recommendations.pdf)
- July 11, 2017: WSJ story illustrates how Australia LNG exports resulted in a domestic shortage for consumers, despite having vast natural gas resources. Australia never put in place consumer safeguards. IECA urges DOE to put consumer safeguards in place. (http://www.ieca-us.com/wp-content/uploads/07.11.17_WSJ_Australian-LNG-Story-Press-Release.pdf)

Natural Gas Consumption Scenario I

Scenario I assumes the EIA AEO 2017 cumulative net demand for natural gas, which includes exports of LNG and shipments to Mexico (see Appendix, figure 1), and compares it to the EIA technically recoverable U.S. natural gas resources in the lower 48 (see figure 2). The AEO 2017 forecast includes LNG exports rising to 12.1 Bcf/d by 2035. This scenario illustrates that with only 12.1 Bcf/d of LNG exports, 58 percent of all U.S. technically recoverable natural gas resources are consumed by 2050, only 33 years.

Natural Gas Consumption Scenario II

Scenario II uses the same assumptions as Scenario I, but includes the volume of LNG export applications equal to 54 Bcf/d that the DOE has already approved (see figure 3). Using EIA's annual average forecasted increases in LNG exports from 2016 to 2020 of 1.58 Bcf/d and using this same growth rate for the years beyond 2020 until LNG export volumes reach 54 Bcf/d, 71 percent of U.S. technically recoverable resources are consumed by 2050.

We are aware that just recently the Potential Gas Committee released an updated assessment of U.S. natural gas resources which increased its estimates by 300 Tcf. Even with this non-governmental assessment, paid for the oil and gas industry, it does not blemish the hard realities of Scenarios I or II. The facts are troubling and as stated earlier give justification to halt further approvals for shipments to NAFTA countries.

The Natural Gas Act (NGA) Requires That LNG Export Applications For Shipment To NAFTA Countries Must Not Be In Conflict With The “Public Interest”

We urge you to review the Obama Administration’s DOE studies on the economic impacts of LNG exports that are being used to justify further export application approvals. As referenced earlier, the Obama Administration did not consider the cumulative export volume to FTA and NAFTA countries when it did its public interest LNG export studies, as IECA has done so, with its two scenarios. Also, you will find that the Obama Administration studies understate impacts to the manufacturing sector and jobs. And, the so-called net economic benefit is so small that it is within error of the economic model output. Below is a direct quote from the October 29, 2015 report, “The Macroeconomic Impact of Increased U.S. LNG Exports” that considers the economic impacts for LNG export levels to 20 Bcf/d. To date, the DOE has given final approval to 20.6 Bcf/d.

“As exports increase, the spread between U.S. domestic prices and international prices narrows. In every case, greater LNG exports raise domestic prices and lower prices internationally. The majority of the price movement (in absolute terms) occurs in Asia (page 8).”

The net effect is that LNG exports, specifically to NAFTA countries lowers our competitors’ costs and increases ours, directly and negatively impacting competitiveness and our ability to justify reshoring.

Producing and Exporting LNG Is Not a Large Job Creator – It Is a Manufacturing Job Destroyer Long-Term

When making a comparison to manufacturing, for example, according to the U.S. Bureau of Labor Statistics, from 2010 to 2016, the entire oil and gas industry created only 21 thousand jobs. During that same time, the manufacturing sector created 820 thousand jobs. Manufacturing can create eight times more jobs using natural gas rather than exporting it.

We look forward to discussing these matters with you.

Sincerely,

Paul N. Cicio
President

cc: Senate Committee on Energy and Natural Resources
House Committee on Energy and Commerce
The Honorable Wilbur Ross, U.S. Department of Commerce
The Honorable Robert Lighthizer, U.S. Trade Representative

APPENDIX

Figure 1: U.S. Natural Gas – EIA AEO 2017 Base Case (Billion Cubic Feet/Day)

Year	Dry Production*	U.S. Consumption	EIA LNG Exports**	Net Exports to Mexico	Net Exports to Canada	Total Consumption
2014	71.0	72.9	-0.1	1.9	-5.2	69.5
2015	74.2	74.8	-0.2	3.0	-5.2	72.4
2016	72.6	75.3	0.2	3.8	-5.8	73.5
2017	76.4	76.3	1.4	3.3	-5.2	75.8
2018	79.7	77.0	2.7	4.4	-4.9	79.2
2019	82.5	76.3	4.9	4.7	-4.1	81.8
2020	84.4	74.8	7.9	4.9	-3.6	84.0
2021	84.9	74.5	8.2	4.9	-3.3	84.3
2022	85.8	74.5	8.5	4.7	-2.7	85.0
2023	87.1	75.1	9.0	4.7	-2.5	86.3
2024	88.8	76.2	9.6	4.9	-2.2	88.5
2025	90.7	77.5	9.9	4.9	-2.2	90.1
2026	92.1	78.6	10.4	4.9	-1.9	92.0
2027	93.2	78.9	10.7	4.9	-1.6	92.9
2028	94.0	79.5	11.0	4.9	-1.6	93.8
2029	95.1	80.3	11.0	4.7	-1.1	94.9
2030	95.6	80.8	11.0	4.7	-1.1	95.4
2031	95.9	80.5	11.2	4.7	-1.1	95.3
2032	96.7	81.4	11.5	4.7	-1.1	96.5
2033	97.3	81.6	11.8	4.7	-0.8	97.3
2034	98.6	82.7	11.8	4.4	-0.8	98.1
2035	100.0	84.1	12.1	4.4	-0.5	100.1
2036	100.5	84.4	12.1	4.4	-0.5	100.4
2037	101.6	85.5	12.1	4.4	-0.5	101.5
2038	102.5	86.3	12.1	4.4	-0.5	102.3
2039	103.0	86.8	12.1	4.4	-0.5	102.8
2040	103.3	87.4	12.1	4.1	-0.5	103.1
2041	104.1	88.2	12.1	4.1	-0.5	103.9
2042	104.7	88.8	12.1	4.1	-0.5	104.5
2043	104.9	89.3	12.1	4.1	-0.5	105.0
2044	105.8	90.1	12.1	4.1	-0.5	105.8
2045	106.6	91.0	12.1	3.8	-0.5	106.4
2046	107.1	91.8	12.1	3.8	-0.5	107.2
2047	107.9	92.6	12.1	3.8	-0.5	108.0
2048	108.5	93.2	12.1	3.8	-0.5	108.6
2049	109.0	93.7	12.1	3.8	-0.5	109.1
2050	110.4	94.8	12.1	3.6	-0.5	110.0

Year	Dry Production*	U.S. Consumption	EIA LNG Exports**	Net Exports to Mexico	Net Exports to Canada	Total Consumption
Total Consumption	3,516.5	3,057.5	356.0	157.8	-66.0	3,505.3

Source: Energy Information Administration (EIA), AEO 2017

*The process of producing consumer-grade natural gas. Natural gas withdrawn from reservoirs is reduced by volumes used at the production (lease) site and by processing losses. Volumes used at the production site include (1) the volume returned to reservoirs in cycling, repressuring of oil reservoirs, and conservation operations; and (2) gas vented and flared. Processing losses include (1) nonhydrocarbon gases (e.g., water vapor, carbon dioxide, helium, hydrogen sulfide, and nitrogen) removed from the gas stream; and (2) gas converted to liquid form, such as lease condensate and plant liquids. Volumes of dry gas withdrawn from gas storage reservoirs are not considered part of production. Dry natural gas production equals marketed production less extraction loss.

**Net LNG exports includes the Sabine Pass, Dominion, Cameron, Freeport, and Cheniere terminals, already approved and under construction.

Figure 2: EIA – Technically Recoverable U.S. Natural Gas Resources (Billion Cubic Feet/Day)

	Proved Reserves	Unproved Reserves	Total Technically Recoverable Resources
Lower 48 (Onshore)	882.7	4,243.6	5,126.3
Lower 48 (Offshore)	23.8	866.3	890.1
TOTAL	906.5	5,109.9	6,016.4

Source: Technically recoverable U.S. dry natural gas resources as of January 1, 2014, Energy Information Administration (EIA) <https://www.eia.gov/outlooks/aeo/assumptions/pdf/oilgas.pdf>

Note: Data does not include Alaska (onshore and offshore).

Figure 3: U.S. Natural Gas – EIA AEO 2017 Base Case w/ IECA Assumptions (Billion Cubic Feet/Day)

Year	Dry Production*	U.S. Consumption	EIA LNG Exports**	IECA LNG Export Assumptions***	Net Exports to Mexico	Net Exports to Canada	Total Consumption
2014	71.0	72.9	-0.1	0.0	1.9	-5.2	69.5
2015	74.2	74.8	-0.2	0.0	3.0	-5.2	72.4
2016	72.6	75.3	0.2	0.0	3.8	-5.8	73.5
2017	76.4	76.3	1.4	0.0	3.3	-5.2	75.8
2018	79.7	77.0	2.7	0.0	4.4	-4.9	79.2
2019	82.5	76.3	4.9	0.0	4.7	-4.1	81.8
2020	84.4	74.8	7.9	1.6	4.9	-3.6	85.6
2021	84.9	74.5	8.2	3.2	4.9	-3.3	87.5
2022	85.8	74.5	8.5	4.8	4.7	-2.7	89.8
2023	87.1	75.1	9.0	6.4	4.7	-2.5	92.7
2024	88.8	76.2	9.6	8.0	4.9	-2.2	96.5
2025	90.7	77.5	9.9	9.6	4.9	-2.2	99.7

Year	Dry Production*	U.S. Consumption	EIA LNG Exports**	IECA LNG Export Assumptions***	Net Exports to Mexico	Net Exports to Canada	Total Consumption
2026	92.1	78.6	10.4	11.2	4.9	-1.9	103.2
2027	93.2	78.9	10.7	12.8	4.9	-1.6	105.7
2028	94.0	79.5	11.0	14.4	4.9	-1.6	108.2
2029	95.1	80.3	11.0	16.0	4.7	-1.1	110.9
2030	95.6	80.8	11.0	17.6	4.7	-1.1	113.0
2031	95.9	80.5	11.2	19.2	4.7	-1.1	114.5
2032	96.7	81.4	11.5	20.8	4.7	-1.1	117.3
2033	97.3	81.6	11.8	22.4	4.7	-0.8	119.7
2034	98.6	82.7	11.8	24.0	4.4	-0.8	122.1
2035	100.0	84.1	12.1	25.6	4.4	-0.5	125.7
2036	100.5	84.4	12.1	27.2	4.4	-0.5	127.6
2037	101.6	85.5	12.1	28.8	4.4	-0.5	130.3
2038	102.5	86.3	12.1	30.4	4.4	-0.5	132.7
2039	103.0	86.8	12.1	32.0	4.4	-0.5	134.8
2040	103.3	87.4	12.1	33.6	4.1	-0.5	136.7
2041	104.1	88.2	12.1	35.2	4.1	-0.5	139.1
2042	104.7	88.8	12.1	36.8	4.1	-0.5	141.3
2043	104.9	89.3	12.1	38.4	4.1	-0.5	143.4
2044	105.8	90.1	12.1	40.0	4.1	-0.5	145.8
2045	106.6	91.0	12.1	41.6	3.8	-0.5	148.0
2046	107.1	91.8	12.1	41.9	3.8	-0.5	149.1
2047	107.9	92.6	12.1	41.9	3.8	-0.5	149.9
2048	108.5	93.2	12.1	41.9	3.8	-0.5	150.5
2049	109.0	93.7	12.1	41.9	3.8	-0.5	151.0
2050	110.4	94.8	12.1	41.9	3.6	-0.5	151.9
Total Consumption	3,516.5	3,057.5	356.0	771.1	157.8	-66.0	4,276.4

Source: Energy Information Administration (EIA), AEO 2017

*The process of producing consumer-grade natural gas. Natural gas withdrawn from reservoirs is reduced by volumes used at the production (lease) site and by processing losses. Volumes used at the production site include (1) the volume returned to reservoirs in cycling, repressuring of oil reservoirs, and conservation operations; and (2) gas vented and flared. Processing losses include (1) nonhydrocarbon gases (e.g., water vapor, carbon dioxide, helium, hydrogen sulfide, and nitrogen) removed from the gas stream; and (2) gas converted to liquid form, such as lease condensate and plant liquids. Volumes of dry gas withdrawn from gas storage reservoirs are not considered part of production. Dry natural gas production equals marketed production less extraction loss.

**Net LNG exports includes the Sabine Pass, Dominion, Cameron, Freeport, and Cheniere terminals, already approved and under construction.

***Net LNG exports includes already approved to FTA countries in the amount of 33.4 Bcf/d and to NAFTA countries in the amount of 20.6 Bcf/d, for a total of 54.0 Bcf/d. Starting in 2020, each year there is an

increase at a cumulative rate of 1.58 Bcf/d, until it peaks at 54.0 Bcf/d. 1.58 Bcf/day is equal to the average annual forecasted rate of LNG exports forecasted by the EIA from 2016 to 2020.