



Industrial Energy Consumers of America

The Voice of the Industrial Energy Consumers

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March 1, 2018

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

The Honorable Robert Lighthizer
U.S. Trade Representative
600 17th Street, NW
Washington, DC 20508

The Honorable Wilbur Ross
Secretary
U.S. Department of Commerce
1401 Constitution Avenue, NW
Washington, DC 20230

Re: EIA AEO 2018 Cumulative Natural Gas Demand to 2050 Consumes 69 Percent of all EIA Known Technically Recoverable Resources in Lower 48

Dear Secretary Perry, Secretary Ross, and Ambassador Lighthizer:

The U.S. Department of Energy's (DOE) approval of LNG export volumes equal to almost 70 percent of 2016 U.S. demand¹ for periods of 20 to 30 years, cannot possibly be in the "public interest" under the Natural Gas Act (NGA), which raises the question of the legality of further LNG export approvals. Excessive LNG exports pose a real threat to domestic manufacturing, manufacturing jobs, and the economy long-term. We urge a measured approach and metrics to determine public interest which will guide informed short and long-term decision making, and the establishment of prudent consumer safeguards.

The Industrial Energy Consumers of America (IECA) is a nonpartisan association of leading manufacturing companies with \$1.0 trillion in annual sales and with more than 1.7 million employees. IECA membership represents a diverse set of industries who are substantial consumers of natural gas and electricity. Energy-intensive industries consume upward to 80 percent of all energy of the manufacturing sector. Relatively small changes to the price of energy can have relatively large impacts to competitiveness.

IECA and its member companies are highly supportive and grateful to the Trump Administration for the support of the manufacturing sector. However, on this issue, we see a great policy inconsistency that is probably driven by the view that our natural gas resources are large. They are large – but not relative to the size of our domestic consumption. Proponents of exports tout we are the largest producer of natural gas in the world and conveniently neglect to say that the

¹ Summary of LNG Export Applications of the Lower 48 States, U.S. Department of Energy, <https://energy.gov/fe/downloads/summary-lng-export-applications-lower-48-states>

U.S. is also the largest consumer in the world. This fact is what distinguishes the U.S. as an LNG exporter from all other countries exporting LNG. The U.S. has the smallest natural gas resources relative to domestic consumption of any LNG exporter. This is why excessive LNG exports pose an increasing economic risk. What makes LNG exports a unique trade and economic issue is that natural gas is not renewable, and in fact, we are on pace to rapidly consume our natural gas resources.

In the appendix, is a report based on the Energy Information Administration's (EIA) Annual Energy Outlook AEO for 2018² natural gas demand and illustrates that we are on track to consume 69 percent of all natural gas resources by 2050 in the lower 48. The Potential Gas Committee³ report indicates that 58 percent of all natural gas resources are highly uncertain and are classified as "possible resources" or "speculative resources." EIA states that only 17 percent of all resources are proven. Eighty-three percent of all resources are classified as "technically recoverable," which does not mean that they are "economically" recoverable. This is hardly reassuring to manufacturers who invest in facilities that operate for 50 years. Together, these facts clearly illustrate the enormous and growing risks associated with excessive LNG exports to the U.S. economy.

The shortcomings of how the DOE is approaching LNG export application decisions stems from the Obama Administration era and is not an excuse for this Administration. The policy tools for these LNG export decisions require urgent change. For example, the NGA's public interest determination was wisely put into place by Congress to ensure that, in part, LNG export volumes to non-free trade agreement (NFTA) countries do not reach levels that damage the economy and jobs. However, in 2014, the U.S. Government Accountability Office⁴ report stated that the DOE never defined the Natural Gas Act's "public interest." If the public interest has never been defined, how is it that the DOE can make sound decisions on whether to approve or reject applications to ship to NFTA countries?

A reasoned volume of LNG exports is good for the economy, but excessive LNG exports could severely damage manufacturing competitiveness long-term. If the DOE gets it wrong, trillions of dollars of manufacturing assets and the U.S. economy become at risk long-term.

Furthermore, LNG exports of this magnitude are inconsistent with President Trump's "America First" policy. And, shipping LNG to NFTA countries like China, undermines our ability to secure fair trade agreements that provide a level playing field for manufacturing products, and instead reduces their costs, thereby improving their ability to compete with U.S. manufacturing. China is the third largest importer of U.S. LNG. This goes to the heart of why Congress treated LNG exports to NFTA countries differently.

The DOE reports that from February 2016 through December 2017,⁵ of the 270 cargos that were shipped, 52.7 percent went to NFTA countries. For example, of the shipments to NFTA countries,

² Annual Energy Outlook 2018, EIA <https://www.eia.gov/outlooks/aeo/>

³ Report of the Potential Gas Committee, Colorado School of Mines, "Potential Supply of Natural Gas in the United States", July, 2017

⁴ U.S. Government Accountability Office, "Federal Approval Process for Liquefied Natural Gas Exports" September, 2014

⁵ U.S. Department of Energy, Office of Oil and Natural Gas

China, Japan, and India represented 47.4 percent of the volume (China 25.7%; Japan 13.7%; India 8%). The manufacturing sector trade deficits with these countries are significant. Increasing exports of LNG to NAFTA countries is completely inconsistent with building and maintaining a thriving U.S. manufacturing sector long-term.

U.S. Manufacturing Trade Deficits: 2017

Country	Exports (\$Billion)	Imports (\$Billion)	Deficit (\$Billion)	% of Total Deficit
China	95.5	495.8	-400.3	57.1
Japan	53.3	132.2	-78.9	11.3
India	21.2	44.5	-23.3	3.3

Source: Global Patterns of U.S. Merchandise Trade, International Trade Administration, U.S. Department of Commerce

Supporting national security and our allies is vital. However, this too needs a recalculation. The DOE has already approved export volumes sufficient to supply nearly all of the EU's capacity to import. And, importantly, they are not buying our LNG. Of the 270 LNG cargos that shipped from the U.S. from February 2016 to December 2017, only 26 LNG cargos or 9.6 percent went to the EU. The point is, further excessive LNG export approvals should not be justified on the basis of national security.

We look forward to meeting with you on this matter. In the meantime, we urge you to not approve further LNG export applications.

Sincerely,



Paul N. Cicio
President

cc: U.S. Senate
U.S. House of Representatives
Senate Committee on Energy and Natural Resources
Senate Committee on Finance
House Committee on Energy and Commerce
House Committee on Ways and Means
House Committee on Natural Resources
Gary Cohn, Director, National Economic Council

APPENDIX

EIA AEO 2018 Cumulative Natural Gas Demand to 2050 Consumes 69 Percent of All EIA Known Technically Recoverable Resources in Lower 48

The Energy Information Administration (EIA), an independent agency of the federal government, released its Annual Energy Outlook (AEO) 2018 projections for energy through 2050, including natural gas. In Figure 1 below, IECA uses the EIA demand forecast and places the various types of demand into six different categories to develop a total cumulative consumption of natural gas by 2050. We use 2015 as a starting year because that is the last year that EIA updated its “Technically Recoverable U.S. Natural Gas Resources” data, which is displayed in Figure 2 below. For additional clarity, Figure 2 only includes natural gas resources in the lower 48. It is assumed that natural gas in Alaska will not be pipelined to the lower 48.

The result is startling. Cumulative demand to 2050 would consume 69 percent of all known technically recoverable resources. Resources labeled as “technically” recoverable does not mean that they are “economically” recoverable. As compared to AEO 2017, the EIA projections of LNG exports and exports to Mexico continue to rise substantially. EIA’s LNG export forecast only includes export facilities that are under construction, which in our view and the view of companies in the LNG export business, greatly underestimates the volume we can expect to 2050.

The same analysis using EIA AEO 2017 concluded that 56 percent of all resources would be consumed. The jump from 56 to 69 percent of all resources is significant. For clarity though, this is a static analysis in that we would expect U.S. natural gas resources to increase. However, examining the Potential Gas Committee report on natural gas resource changes from 2014 to 2016, the EIA demand forecast increases are larger than the PGC resource increases. Therefore, considering the last four years of resource data, demand is outstripping the increases in supply.

Listed below are export volumes which have been given final approval by the U.S. Department of Energy (DOE). Non-free trade agreement (NFTA) and free trade agreement (FTA) countries’ volumes are not additive.

DOE LNG Export Application Approvals (Source: DOE Website)

Non-Free Trade Agreement (NFTA) Countries

- Volume approved: 20.6 Bcf/day, 27.3% of U.S. demand
- Volume pending approval: 0.8 Bcf/day, 1.1% of U.S. demand
- Total applications: 29

Free Trade Agreement (FTA) Countries

- Volume approved: 52.6 Bcf/day, 69.8% of U.S. demand
- Volume pending approval: 6.5 Bcf/day, 8.6% of U.S. demand
- Total applications: 56

Figure 1: U.S. Natural Gas – EIA AEO 2018 Base Case (Billion Cubic Feet/Day)

Year	U.S. Consumption	Net LNG Exports**	Net Exports to Mexico	Net Exports to Canada	Lease and Plant Fuel	Pipeline & Distribution Use	Total Consumption
2015	74.6	-0.2	2.9	-5.3	4.3	1.9	78.2
2016	75.3	0.3	3.8	-5.9	4.4	1.9	79.8
2017	73.1	1.6	4.3	-5.7	4.4	1.7	79.4
2018	77.2	2.8	4.7	-5.5	4.7	1.8	85.7
2019	79.5	5.1	5.5	-4.8	5.0	1.8	92.1
2020	79.5	8.1	5.9	-4.3	5.1	1.8	96.1
2021	79.9	8.4	6.0	-3.9	5.2	1.8	97.4
2022	80.7	9.0	6.5	-3.7	5.3	1.8	99.6
2023	81.5	10.1	6.7	-3.7	5.3	1.8	101.7
2024	81.2	11.4	6.9	-3.4	5.4	1.8	103.3
2025	81.6	12.5	7.0	-3.3	5.5	1.9	105.2
2026	81.8	13.2	7.0	-3.1	5.5	1.8	106.2
2027	82.5	13.9	7.0	-2.9	5.6	1.9	108.0
2028	83.4	14.3	7.1	-2.7	5.6	1.9	109.6
2029	83.9	14.5	7.0	-2.5	5.6	1.9	110.4
2030	84.2	14.5	7.0	-2.3	5.6	1.9	110.9
2031	84.6	14.5	7.0	-2.2	5.7	1.9	111.5
2032	84.8	14.5	6.9	-2.1	5.7	1.9	111.7
2033	85.1	14.5	6.8	-2.0	5.7	1.9	112.0
2034	85.7	14.5	6.8	-1.7	5.7	1.9	112.9
2035	86.1	14.5	6.8	-1.6	5.7	1.9	113.4
2036	86.6	14.5	6.8	-1.3	5.8	1.9	114.3
2037	87.3	14.5	6.7	-0.9	5.8	1.9	115.3
2038	87.8	14.5	6.7	-0.8	5.8	1.9	115.9
2039	88.2	14.5	6.6	-0.5	5.9	1.9	116.6
2040	89.0	14.5	6.6	-0.3	5.9	1.9	117.6
2041	89.6	14.5	6.5	-0.2	5.9	1.9	118.2
2042	90.3	14.5	6.5	0.03	6.0	1.9	119.2
2043	90.8	14.5	6.4	0.2	6.0	1.9	119.8
2044	91.1	14.5	6.4	0.8	6.0	1.9	120.7
2045	91.5	14.5	6.3	1.0	6.0	1.9	121.2
2046	92.0	14.5	6.3	1.3	6.0	1.9	122.0
2047	92.6	14.5	6.2	1.7	6.1	1.9	123.0
2048	93.2	14.5	6.2	2.0	6.1	1.9	123.9
2049	93.6	14.5	6.1	2.2	6.1	2.0	124.5
2050	94.5	14.5	6.0	2.6	6.1	2.0	125.7
Total Consumption	3,064.3	429.5	225.9	-64.77	200.5	67.6	3,923.03

Source: Energy Information Administration (EIA), Annual Energy Outlook (AEO) 2018

*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.

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)	967.1	3,953.2	4,920.3
Lower 48 (Offshore)	24.7	746.0	770.7
TOTAL	991.8	4,699.2	5,691.0

Source: Technically recoverable U.S. dry natural gas resources as of January 1, 2015, report released July 2017, Energy Information Administration (EIA)

<https://www.eia.gov/outlooks/aeo/assumptions/pdf/oilgas.pdf>

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