

**LEGISLATION ADDRESSING LNG EXPORTS AND PURPA
MODERNIZATION**

HOUSE SUBCOMMITTEE ON ENERGY

JANUARY 19, 2018

**TESTIMONY
OF**

**PAUL N. CICIO
PRESIDENT**

**INDUSTRIAL ENERGY CONSUMERS OF AMERICA
1776 K STREET, NW, SUITE 720
WASHINGTON, DC 20006
WWW.IECA-US.ORG**

- **H.R. 4476, PURPA Modernization Act of 2017:** It is essential for manufacturing to preserve the ability to self-generate power and steam to support competitiveness and jobs. Manufacturing PURPA qualifying facilities (QFs) are not in the business of generating and selling power and must be exempted from changes to PURPA proposed by H.R. 4476. The legislation does not exempt a category of QFs called “small power producers.” Manufacturing QFs are not causing market problems, but support grid stability.
- **H.R. 4605, Unlocking Our Domestic LNG Potential Act:** This bill is anti-consumer by removing the Natural Gas Act (NGA) public interest determination, which was wisely put in place by Congress to ensure that LNG export volumes do not damage the economy and jobs. A reasoned volume of LNG exports is good for the economy, but excessive LNG exports will severely damage manufacturing competitiveness long-term and threaten capital investment that is now occurring due to low natural gas prices.
- **The global LNG market is not a “free-market” and can unduly discriminate against domestic consumers of natural gas.** The primary buyers are state-owned enterprises (SOEs) and regulated gas and electric utilities of countries that are not price sensitive, and with automatic cost pass-throughs, and whose highest demand is during the winter, when U.S. demand is at its greatest, thereby increasing the potential for spiking winter prices (see figures 7, 8, & 9).
- **The 2017-18 winter demand is a warning.** If LNG export terminals now under construction had been operating, the U.S. inventories of natural gas would have been insufficient to meet demand.
- **H.R. 4605 is not needed. Excessive volumes have already been approved by the DOE.** The U.S. Department of Energy (DOE) has given final approval to both NFTA and FTA countries equal to 71.2 percent of 2016 U.S. natural gas demand (or 53 billion cubic feet/day (Bcf/d). If this amount were exported, it would have a crushing impact on the U.S. economy.
- **The 100-year supply of natural gas is a myth.** The 2017 Energy Information Administration’s (EIA) Annual Energy Outlook (AEO) demand forecast indicates that 56 percent of all U.S. lower 48 states’ technically recoverable natural gas resources will be consumed by 2050, only 33 years. Importantly, the AEO 2017 forecast includes only 12.1 Bcf/d of LNG demand.
- **Exporting LNG is not a large job creator as compared to manufacturing and threatens jobs long-term.** 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 (see figure 4).
- **EIA already attributes higher natural gas prices to LNG exports.** EIA is forecasting NYMEX natural gas prices to rise 80 percent by 2020 as compared to 2016. The price rise is in large part due to several LNG export terminals becoming operational.
- **Natural gas resources should serve the public good/public interest by maximizing job creation, not the interests of the oil and gas industry.** DOE studies illustrate that the net economic benefits of LNG exports almost exclusively serve the oil and gas industry and the public loses (see figure 6).
- **H.R. 4605 is inconsistent with “America First” policy.** Excessive LNG export approvals by the DOE to non-free trade agreement (NFTA) countries is inconsistent with President Trump’s “America First” and fair-trade policies, and poses a significant long-term threat to energy-intensive trade-exposed (EITE) industries’ competitiveness and jobs.
- **Excessive LNG exports creates 12 winner states and 38 states who will lose.** States that produce natural gas are big winners and all other states are not (see figure 11).

WRITTEN TESTIMONY

Chairman Upton, Ranking Member Rush, members of the Subcommittee, thank you for the opportunity to testify before you on two important energy consumer issues: LNG exports and the Public Utility Regulatory Policies Act (PURPA).

The Industrial Energy Consumers of America is a nonpartisan association of leading manufacturing companies with \$1.0 trillion in annual sales and with more than 1.7 million employees. It is an organization created to promote the interests of manufacturing companies through advocacy and collaboration for which the availability, use and cost of energy, power or feedstock play a significant role in their ability to compete in domestic and world markets.

IECA membership represents a diverse set of EITE industries including: chemicals, plastics, steel, iron ore, aluminum, paper, food processing, fertilizer, insulation, glass, industrial gases, pharmaceutical, building products, automotive, brewing, independent oil refining, and cement.

H.R. 4476, PURPA MODERNIZATION ACT OF 2017

It is essential for manufacturing to preserve the ability to self-generate power and steam to support competitiveness and jobs. Manufacturing PURPA QFs are not in the business of generating and selling power and must be exempted from changes to PURPA proposed by H.R. 4476. The legislation does not exempt a category of QFs called “small power producers.” Manufacturing QFs are not causing market problems, but instead support grid stability.

H.R. 4605, UNLOCKING OUR DOMESTIC LNG POTENTIAL ACT

What is economically dangerous and unique about LNG export policy is that decisions being made today will not be felt for several years. The DOE has already approved excessive LNG export volumes. Once a terminal has been approved, there is no putting the genie back in the bottle. Congress is responsible for assuring implementation of the Natural Gas Act (NGA), and safe-guarding the public

and economy with affordable and reliable natural gas. It is the law of the land. Unfortunately, Congress has failed to provide the necessary oversight of DOE approval volumes. We urge you to do so.

1. H.R. 4605 is anti-consumer by removing the Natural Gas Act's public interest determination that was wisely put in place by Congress to ensure that LNG export volumes do not damage the economy and jobs.

A reasoned volume of LNG exports is good for the economy, but excessive LNG exports will damage manufacturing competitiveness long-term and threaten capital investment that is now occurring due to low natural gas prices and trillions of dollars of existing manufacturing assets.

2. The legislation is not needed to increase exports. Excessive volumes have already been approved by the DOE.

The DOE has given final approval to both NAFTA and FTA countries equal to 71.2 percent of 2016 U.S. natural gas demand (or 53 Bcf/d). If this amount were exported, it would have a crushing impact on the U.S. economy.

3. The 100-year supply of natural gas is a myth.

The oil and gas industry touts that the U.S. is the largest producer of natural gas in the world, but neglects to acknowledge that the U.S. is also the largest consumer in the world. And, we are increasing our dependency to grow manufacturing jobs, investments, and increased consumption by the power sector.

Using EIA AEO 2017 demand, which includes net exports of natural gas, the U.S. has only a 9.5-year supply of proved resources and a 53-year supply of resources that are classified as technically recoverable. Technically recoverable resources does not mean they are economically recoverable. In fact, table 9.2 in the EIA assumptions to the AEO 2016,¹ the resource for the cited data on page 132 it

¹ Annual Energy Outlook 2016, [https://www.eia.gov/outlooks/aeo/assumptions/pdf/0554\(2016\).pdf](https://www.eia.gov/outlooks/aeo/assumptions/pdf/0554(2016).pdf)

states, “Estimates of TRR (Technical Recoverable Resources) are highly uncertain, particularly in emerging plays where few wells have been drilled.” This uncertainty regarding how much of the natural gas can be economically recovered is of critical importance.

Figure 1: 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).

A scenario using the EIA AEO 2017 forecast of only 12.1 Bcf/d would consume 56 percent of all natural gas.

The figure below tells the story as to why the DOE should NOT approve more LNG export terminals. The 2017 EIA AEO demand forecast indicates that 56 percent of all U.S. lower 48 states’ technically recoverable natural gas resources will be consumed by 2050, only 33 years. Importantly, the AEO 2017 forecast includes only a peak demand of 12.1 Bcf/d of LNG demand. The DOE has already approved 53 Bcf/d of exports.

Figure 2: 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

Year	Dry Production*	U.S. Consumption	EIA LNG Exports**	Net Exports to Mexico	Net Exports to Canada	Total Consumption
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
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.

A scenario using all DOE approved export volumes would consume 80 percent of all natural gas.

IECA presents below a second scenario to examine the resource adequacy which includes all DOE approved LNG exports for shipments. Adding the EIA AEO 2017 cumulative volumes from 2016 to 2050, and 41.9 Bcf/d volumes equal to approved applications of 54 Bcf/d, starting five years (time to build new export capacity) from now to 2050 combined, would consume 80 percent of all technically

recoverable resources by 2050. These bookend scenarios expose the seriousness of the implications to the U.S. economy and manufacturing jobs that cannot be understated.

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
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

Year	Dry Production*	U.S. Consumption	EIA LNG Exports**	IECA LNG Export Assumptions***	Net Exports to Mexico	Net Exports to Canada	Total Consumption
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.

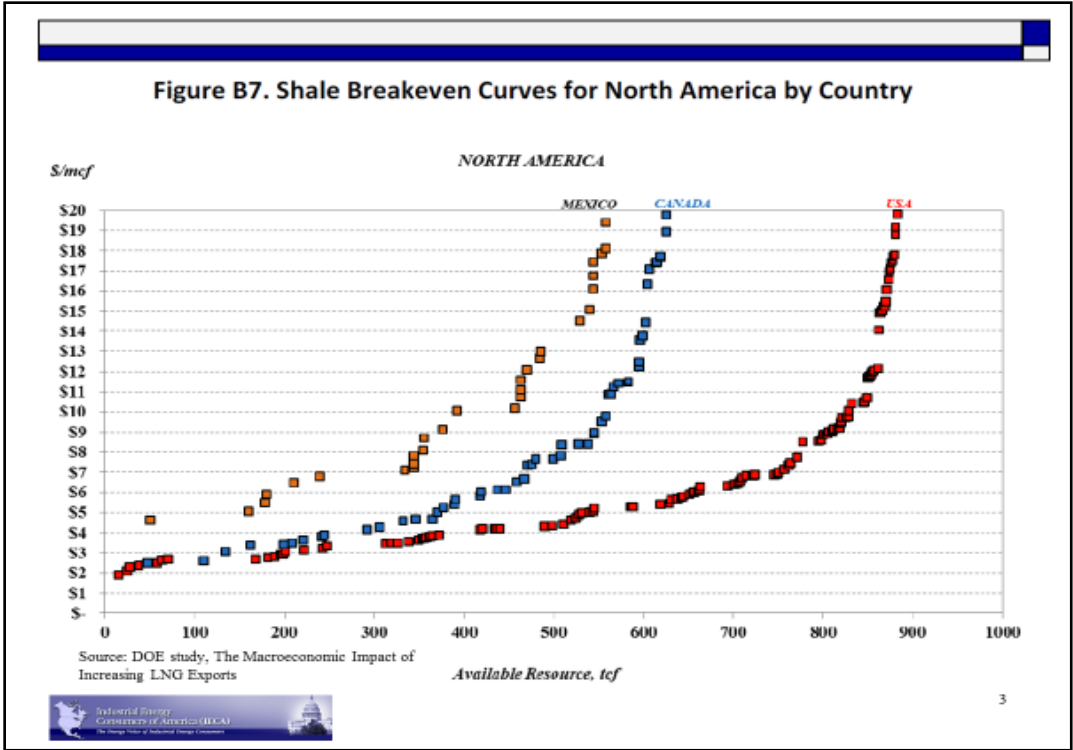
***Net LNG exports includes already approved to FTA countries in the amount of 33.4 Bcf/d and to NFTA countries in the amount of 20.6 Bcf/d, for a total of 54.0 Bcf/d. Starting in 2020, each year there is an increase at a cumulative rate of 1.58 Bcf/d, until it peaks at 54.0 Bcf/d. 1.58 Bcf/d is equal to the average annual forecasted rate of LNG exports forecasted by the EIA from 2016 to 2020.

The EIA AEO 2017 forecast would consume shale gas up to \$20 mcf.

It is also important to consider the higher LNG export demand on the availability of economically recoverable shale natural gas resources. Shale gas resources are usually referred to as the lowest cost resources. Figure 7 is from page B-20 of the DOE report “The Macroeconomic Impact of Increasing U.S. LNG Exports.”² DOE used this report to justify the approval of applications to export to NFTA countries.

The chart below illustrates the shale breakeven cost curves for the U.S., Canada, and Mexico. Using the EIA AEO 2017 net U.S. demand 2016 to 2050, a cumulative volume of 1,227 Tcf of natural gas, and comparing this volume of natural gas to the breakeven cost to produce gas, and without additional LNG exports above the EIA AEO 2017 prediction, would require U.S. shale natural gas supply with a breakeven cost of up to \$20 mcf. Importantly, this exercise assumes the EIA prediction of only 4.4 Tcf per year of LNG net exports. The obvious point is that LNG exports greatly speed up the consumption of our lowest cost natural gas.

² “The Macroeconomic Impacts of Increasing U.S. LNG Exports,” U.S. Department of Energy, October 29, 2015, http://energy.gov/sites/prod/files/2015/12/f27/20151113_macro_impact_of_lng_exports_0.pdf.



4. Exporting LNG is not a large job creator as compared to manufacturing and threatens jobs long-term.

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.

Figure 4: U.S. Employment

Year	Manufacturing (thousands)	Oil & Gas Extraction (thousands)
2010	11,528	158.7
2011	11,726	172.0
2012	11,927	187.4
2013	12,020	193.5
2014	12,185	197.7
2015	12,336	193.4
2016	12,348	180.0
Jobs Added	820	21.3

Figure 5: Stated Future Employment by LNG Export Terminals

Export Facility	Permanent Jobs
Sabine Pass Liquefaction	580
Freeport LNG Expansion and FLNG Liquefaction	300
Lake Charles Exports	250
Dominion Cove Point	175
Jordan Cove Energy	150
Cameron LNG	185
Gulf Coast LNG Export	250

5. Sound natural gas and industrial policy should emphasize using natural gas to maximize job creation, not LNG exports. Long-term, you cannot have both.

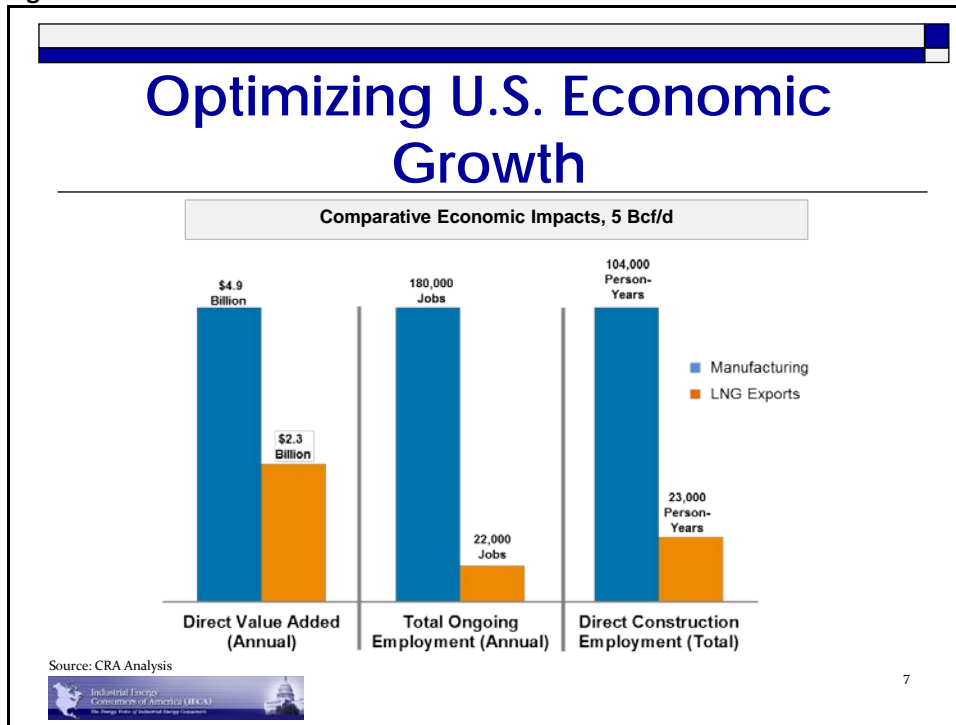
A study by Charles River Associates³ compared the economic benefit of using natural gas in manufacturing versus exporting it (see figure 6). The study concludes that using natural gas in manufacturing creates eight times more jobs, twice the direct value added per year and 4.5 times the direct construction employment than exporting the natural gas. In contrast, if excessive LNG exports increase domestic natural gas prices long-term, it will result in manufacturing job destruction. This is what happened from 2001 to 2008 when natural gas prices increased and manufacturing jobs decreased.

Low-cost natural gas is the driver behind the 264 chemical industry-related projects that represent over \$161 billion in new investment announced since 2010. According to the American Chemistry Council, the projects are estimated to create 426,000 high paying jobs and \$301 billion in economic output.⁴ This can continue long-term, but not without low-cost globally competitive natural gas.

³ Charles River Associates: “US Manufacturing and LNG Exports: Economic Contributions to the US Economy and Impacts on US Natural Gas Prices”, February 25, 2013
http://www.crai.com/sites/default/files/publications/CRA_LNG_Study.pdf

⁴ American Chemistry Council, 2016, “Economic Impact of Shale Gas Investments and the Chemical Industry”

Figure 6



6. The global LNG market is not a “free-market” and can unduly discriminate against domestic consumers of natural gas. The primary buyers are state-owned enterprises (SOEs) and regulated gas and electric utilities of countries that are not price sensitive, and with automatic cost pass-throughs whose highest demand is during the winter, when U.S. demand is greatest, thereby increasing the potential for spiking winter prices.

SOE entities that buy LNG do so with the financial backing of their government. If the LNG market were tight, they would be able to buy-away U.S. gas from the domestic consumer.

Both production and consumption of LNG globally is largely controlled by SOEs. And, LNG exporters continue to meet and discuss cartel topics. Figure 9 lists exporters of natural gas of which the vast majority are SOEs. IECA has begun to assemble lists of SOE LNG buyers and SOE utilities (see figures 7 & 8).

The LNG cartel continues to meet. The 4th Gas Summit of the Gas Exporting Countries Forum convened in Santa Cruz, Bolivia on November 24, 2017. The Gas Exporting Countries Forum (GECF)⁵ is a gathering of the world’s leading gas producers and was set up as an international governmental

⁵ Homepage, Gas Exporting Countries Forum (GECF), <https://www.gecf.org/>

organization with the objective to increase the level of coordination and strengthen the collaboration among member countries. Members include: Algeria, Bolivia, Egypt, Equatorial Guinea, Iran, Libya, Nigeria, Qatar, Russia, Trinidad and Tobago, United Arab Emirates and Venezuela. Azerbaijan, Iraq, Kazakhstan, the Netherlands, Norway, Oman, and Peru. The GECF's potential rests on the enormous natural gas reserves of the member countries all together accumulating 67% of the world proven natural gas reserves.

Figure 7: Natural Gas – SOE producers and buyers of natural gas

Country	State-Owned Enterprise (SOE)
Algeria	Sonatrach
Argentina	YPF
Bangladesh	Oil, Gas and Mineral Corporation (Petrobangla)
Bangladesh	Petroleum Corporation (BPC)
Brazil	Petrobras
China	Jereh Group
China	Kunlun Energy Company
China	National Offshore Oil Corporation (CNOOC)
China	National Petroleum Corporation (CNPC)
China	PetroChina
China	Sinochem
China	Sinopec
Colombia	Ecopetrol
Egypt	Natural Gas Holding Company (EGAS)
Georgia	Oil and Gas Corporation (GOGC)
Ghana	Ghana Oil Company
Ghana	National Petroleum Corporation (GNPC)
Greece	Energean Oil & Gas
India	Bharat Petroleum Corporation
India	Gujarat State Petroleum Corporation
India	Hindustan Petroleum Corporation Ltd.
India	Oil and Natural Gas Corporation
India	ONGC Videsh Ltd. (OVL)
Indonesia	Perusahaan Gas Negara (PGN)
Iran	National Oil Company
Iran	Pars Oil and Gas Company
Iran	Petropars Ltd.
Iraq	Kuwait Petroleum Corporation
Iraq	North Oil and Gas Company
Kazakhstan	KazTransGas
Kenya	National Oil Corporation of Kenya
Lithuania	Klaipėdos nafta
Malaysia	Petroleum Nasional Bhd. (PETRONAS)
Mexico	Pemex

Country	State-Owned Enterprise (SOE)
Nigeria	Nigerian National Petroleum Corporation
Norway	Statoil
Pakistan	State Oil (PSO)
Papua New Guinea	Oil Search Ltd.
Philippines	National Oil Company
Poland	PGNiG
Qatar	Qatar Petroleum
Romania	Romgaz
Russia	Gazprom
Russia	Lukoil
Russia	Rosneft PJSC
South Africa	PetroSA
Saudi Arabia	Oil Corporation (Aramco)
South Korea	Gas Corporation
Syria	Syrian Petroleum Company
Thailand	PTT Public Company Ltd.
Turkmenistan	Turkmenistan Natural Gas Company
UK	Oil and Gas Authority
Ukraine	Naftogaz
Uruguay	ANCAP
Venezuela	PDVSA
Vietnam	Petrolimex
Vietnam	Petrovietnam

Figure 8: Government Controlled Natural Gas & Electric Utilities

Country	
Algeria	Sonelgaz
Australia	Power and Water Corporation
Azerbaijan	Azerenerji
Bulgaria	Bulgarian Energy Holding
Bulgaria	NEK EAD
Canada	BC Hydro
Canada	Yukon Energy
Denmark	Orsted
France	Électricité de France
France	ENGIE
Ghana	Volta River Authority
India	NHPC Limited
India	North Eastern Electric Power Corporation
India	NTPC
India	SJVN Limited
Indonesia	PT Perusahaan Listrik Negara
Israel	Electric Corporation
Italy	Edison
Jamaica	Public Service (JPS)
Kenya	Kenya Electricity Generating Company
Malaysia	Sabah Electricity

Country	
Malaysia	Tenaga Nasional
Nigeria	Power Holding Company of Nigeria
Norway	StatKraft
Pakistan	K-Electric
Pakistan	National Electric Power Regulatory Authority
Pakistan	Punjab Thermal Power Ltd.
Poland	Polska Grupa Energetyczna
Qatar	General Electricity and Water Corporation
Russia	Inter RAO
Russia	OGK-2
Russia	Rosseti
Tanzania	TANESCO
Thailand	Electricity Generating Authority of Thailand
Uruguay	Administration of Power & Electrical Trans.
Venezuela	Electricidad de Caracas
Vietnam	Vietnam Electricity

Figure 9: Net Exporters of Natural Gas, 2016

Net Exporters	Billion Cubic Meters	% of Total
*Russia	205	23.6
*Qatar	117	13.5
*Norway	115	13.2
Canada	61	7.0
*Algeria	54	6.2
*Turkmenistan	53	6.1
Australia	41	4.7
*Indonesia	34	3.9
*Malaysia	24	2.8
*Nigeria	23	2.6
Others	142	16.3
Total	869	100.0
Total SOEs	625	71.9

Note: Net exports and net imports include pipeline gas and LNG.

Source: International Energy Agency (IEA)

7. EIA already attributes higher natural gas prices to LNG exports.

EIA is forecasting NYMEX natural gas prices will rise 80 percent by 2020 from 2016. The price rise is in large part due to several LNG export terminals becoming operational.

8. Natural gas resources should serve the public good/public interest by maximizing job creation, not the interests of the oil and gas industry.

The NERA study entitled, “Macroeconomic Impacts of Increased LNG Exports from the United States” illustrates that the net economic benefits of LNG exports almost exclusively serve the oil and gas industry and the public loses.

The report said that there was net economic benefit, but that net economic gain was only \$20 billion by 2020 at its peak, and would decline every year. Given that the U.S. is a \$19 trillion economy, a \$20 billion gain is less than one hour of GDP work and is within error of the model’s capability. It also said that the gains were concentrated in the oil and gas industry.

The NERA report concludes that “expansion of LNG exports has two major effects on income: it raises energy costs and, in the process, depresses both real wages and the return on capital in all other industries.”⁶

Depressing real wages on the total U.S. population and a reduction of return on capital on all U.S. industries would conclude that increasing LNG exports cannot possibly be in the public interest. Also, the study used outdated information on EITE industries, the largest consumers of natural gas, our contribution to GDP, and how many people we employ. Because of this, the study underreported the negative impacts to the economy and jobs.

9. H.R. 4605 is inconsistent with “America First” policy.

Excessive LNG export approvals by the DOE to NAFTA countries is inconsistent with President Trump’s “America First” and fair-trade policies, and poses a significant long-term threat to EITE industries’ competitiveness and jobs.

Shipping LNG to countries that do not have a free trade agreement undermines our ability to secure a bilateral fair-trade agreement with countries that would result in a level playing field for

⁶ NERA: Macroeconomic Impacts of Increased LNG Exports from the United States

manufacturing goods. From February 2016 to October 2017, 51.7 percent of U.S. LNG was shipped to countries that do not have a free trade agreement with the U.S. (see figure 10).

The U.S. should never agree to ship LNG to countries that subsidize their manufacturing sectors and power plants.

Figure 10: U.S. Shipments to NFTA and FTA Countries (Feb. 2016-Oct.2017)

NFTA Country	Number of Cargos	Volume Exported (Bcf/d)	% of Total U.S. LNG Exports
China	23	0.21	10.5%
Japan	14	0.14	6.9%
Argentina	11	0.09	4.5%
India	8	0.08	3.8%
Kuwait	8	0.07	3.7%
Brazil	9	0.07	3.7%
Spain	9	0.07	3.5%
Turkey	7	0.06	3.2%
Portugal	6	0.05	2.7%
UAE	5	0.05	2.3%
Egypt	3	0.03	1.4%
Italy	3	0.03	1.3%
Lithuania	2	0.02	0.9%
Taiwan	2	0.02	0.8%
Poland	1	0.009	0.5%
UK	1	0.009	0.5%
Pakistan	1	0.009	0.4%
Thailand	1	0.008	0.4%
Netherlands	1	0.008	0.4%
Malta	1	0.002	0.1%
Barbados	1	0.0005	0.0%
Totals	117	1.04	51.7%
FTA Country	Number of Cargos	Volume Exported (Bcf/d)	% of Total U.S. LNG Exports
Mexico	47	0.42	21.1%
South Korea	29	0.27	13.5%
Chile	17	0.14	7.1%
Jordan	12	0.11	5.4%
Dominican Republic	3	0.02	1.2%
Totals	108	0.96	48.3%

Source: U.S. Department of Energy (DOE)

10. Creates 12 winner states and 38 states who lose.

States that produce natural gas are big winners and all other states are not.

Figure 11: State Natural Gas Use, 2016

State	Dry Production (MMcf)	Total Consumption (MMcf)	Balance
California	193,872	2,177,467	-1,983,595
Florida	496	1,381,502	-1,381,006
New York	13,446	1,300,377	-1,286,931
Illinois	2,141	1,024,788	-1,022,647
Michigan	99,149	891,798	-792,649
New Jersey	0	764,699	-764,699
Indiana	6,205	738,142	-731,937
Georgia	0	707,299	-707,299
Alabama	159,816	697,763	-537,947
North Carolina	0	522,349	-522,349
Mississippi	48,244	546,870	-498,626
Wisconsin	0	481,987	-481,987
Minnesota	0	450,276	-450,276
Massachusetts	0	433,439	-433,439
Virginia	120,241	541,620	-421,379
Arizona	47	358,355	-358,308
Iowa	0	329,505	-329,505
Tennessee	3,328	329,380	-326,052
Washington	0	305,071	-305,071
Nevada	3	303,221	-303,218
South Carolina	0	275,392	-275,392
Missouri	1	265,866	-265,865
Connecticut	0	247,175	-247,175
Oregon	937	235,980	-235,043
Maryland	34	218,683	-218,649
Kentucky	86,393	276,415	-190,022
Nebraska	531	163,909	-163,378
Delaware	0	108,333	-108,333
Idaho	4,440	106,970	-102,530
Rhode Island	0	86,429	-86,429
South Dakota	469	81,223	-80,754
New Hampshire	0	57,817	-57,817
Maine	0	53,177	-53,177
Kansas	225,557	268,917	-43,360
Montana	46,283	76,957	-30,674
Vermont	0	12,093	-12,093
Alaska	320,472	324,579	-4,107
Hawaii	0	3,040	-3,040
Utah	351,833	239,101	112,732
Louisiana	1,700,320	1,571,640	128,680
North Dakota	409,813	100,555	309,258
Ohio	1,369,454	930,253	439,201
Arkansas	822,812	310,828	511,984
New Mexico	1,160,988	249,841	911,147
West Virginia	1,276,033	171,100	1,104,933
Colorado	1,586,078	473,751	1,112,327

State	Dry Production (MMcf)	Total Consumption (MMcf)	Balance
Wyoming	1,607,513	124,122	1,483,391
Oklahoma	2,294,087	701,366	1,592,721
Texas	6,374,847	4,029,949	2,344,898
Pennsylvania	5,245,581	1,309,598	3,935,983
Totals	25,531,464	27,360,967	-1,829,503

Source: Natural Gas, Energy Information Administration (EIA), <https://www.eia.gov/naturalgas/>

Thank you for the opportunity to testify and I look forward to your questions.

Sincerely,

Paul N. Cicio
President