



Can U.S. LNG Meet European Energy Demand? The Case to Limit Natural Gas Exports

Testimony of Tyson Slocum, Energy Program Director, Public Citizen, before the U.S. Senate Energy & Natural Resources Committee

September 13, 2018

Twitter @TysonSlocum • tslocum@citizen.org

I am Tyson Slocum, and I direct the Energy Program at Public Citizen. Public Citizen is a national consumer advocacy organization with more than 400,000 members and supporters across the country. I serve on two advisory committees to the U.S. Commodity Futures Trading Commission (Energy and Environmental Markets Advisory Committee, and the Market Risk Advisory Committee), and am a faculty member at the University of Maryland Honors College.

Testimony summary:

- The campaign to justify expanded LNG exports prioritizes the financial interests of natural gas producers and LNG exporters at the expense of U.S. households and American value-added manufacturing.
- Natural gas producers, frustrated by stubbornly low domestic prices, understand that the easiest path to increase prices—and their profits—is globalizing U.S. benchmarks, which ramping up LNG exports will accomplish.
- LNG exports serving as a foundational economic policy sounds like a Qatari model of growth, latching U.S. GDP to volatily-priced finite natural resources. What sets America apart is not our aptitude at exporting raw natural resources, but the value-added of our manufacturing and high tech innovation—the very sectors threatened by higher prices exports will cause.
- The ability of LNG exports to increase American influence for geopolitical ills, such as countering Russian natural gas supply to Europe, is limited. Such *commodity diplomacy* ignores the fact that LNG export destinations are determined not by the U.S. Secretary of State, but by whoever will pay the highest price.
- Australia offers an important cautionary tale for the United States. Australia committed to unfettered LNG exports, launching the country to becoming the 2nd largest LNG exporter in the world. But it came at a massive cost: domestic gas prices have skyrocketed, forcing the country to pass a law to attempt to limit exports. In the meantime, four LNG *import* terminals for the east coast have been proposed to alleviate the supply and price emergency.
- The trend of LNG exports shifting away from long-term, fixed price contracts and towards spot and short-term sales amplifies that LNG export destinations will be determined by whichever market is the most expensive. Nations where gas demand is growing and LNG import facilities are near capacity (Asia) will feature higher prices than those regions where demand is falling and LNG import terminals are operating under capacity (Europe).
- European natural gas demand is projected to significantly contract in the coming years, in part because of policies promoting low-cost renewable energy. Shrinking European gas demand is in sharp contrast to where natural gas will continue to

boom: China and Asia. In addition, European LNG import terminals are currently operating at only about 25% capacity due to low demand.

- Chinese gas demand is projected to continue to skyrocket and its gas growth is being primarily driven by increased industrial demand—which means U.S. LNG exports will serve to fuel China’s manufacturing industry, at the expense of our own.
- America will remain one of the largest areas of projected natural gas demand growth, and so increasing LNG exports while domestic demand is projected to increase is a recipe for higher domestic prices for households and manufacturers.
- Increasing LNG exports will lead to higher domestic natural gas production, and, absent strong federal methane and climate change regulations, will cause significantly higher greenhouse gas emissions.

FERC and Department of Energy responsibilities

FERC and DOE have jurisdiction over LNG exports.¹ The Department of Energy has responsibility under the Natural Gas Act to regulate the import and export of natural gas, and determine whether the proposals are consistent with the public interest. Amendments in Section 201 of the Energy Policy Act of 1992 [PL 102-486] directed that the “importation of such natural gas [from countries with Free Trade Agreements with the U.S.] shall be deemed to be consistent with the public interest,” but there was no language on *exports*. The Energy Policy Act of 2005 [PL 109-58] added Section 311 applying the entire chapter “to the importation or exportation of natural gas in foreign commerce.” Eighteen nations have FTAs requiring national treatment for trade in natural gas with the U.S.²

Section 311 of the Energy Policy Act of 2005 dictates that FERC “shall have the exclusive authority to approve or deny an application for the siting, construction, expansion or operation of an LNG terminal.” This language was aimed at killing a July 2004 lawsuit filed by the State of California claiming that FERC improperly ruled in March 2004 that states have limited jurisdiction over the permitting and siting of LNG facilities inside their borders.³ FERC is also responsible for issuing certificates of public convenience and necessity for LNG facilities,⁴ and is required by the National Environmental Policy Act to determine environmental impacts statements for LNG facilities. FERC recently signed a Memorandum of Understanding with the Pipeline and Hazardous Materials Safety Administration to split jurisdiction over some facets of LNG application reviews.⁵

¹ The U.S. Maritime Agency has jurisdiction over *offshore* LNG.

² www.energy.gov/fe/downloads/information-submitting-lng-export-application

³ FERC Docket No. CP04-58

⁴ Section 7 of the Natural Gas Act.

⁵ www.ferc.gov/legal/mou/2018/FERC-PHMSA-MOU.pdf

Natural Gas Producers' Push For Greater Profits Is the Primary Reason We're Talking About LNG Exports

Fifteen years ago, natural gas prices were at record highs, and the consensus response was reflected by then-Federal Reserve Chair Alan Greenspan, who argued that the U.S. had to make LNG *imports* easier to permit.⁶ Fast forward to today, where fracking has resulted in booming domestic natural gas production, fueling calls to expedite LNG *exports*. Even the smartest among us can fail to predict seismic market changes triggered by technological *disruptive challenges*.

Despite record U.S. natural gas production—America has never produced as much natural gas as we have this year, and no other nation on earth produces more than we do—prices have been low, largely hovering around \$3 per million BTU for the last three years.⁷ Gone are the pre-2008 days of volatile and expensive domestic natural gas that could bring financial windfalls for gas drillers and unease for consumers.

But natural gas producers are frustrated with the low-price environment, as they're not making enough money. Their gas production has been largely trapped in North America, unable to sell for higher prices in parts of the world where demand is growing faster than in the U.S.

A market solution to pushing prices higher would be to either slow production or increase demand. Dawdling drilling isn't an option, because the companies are valued by the acreage they have and the active wells they're completing. And domestic demand growth simply cannot outpace domestic production capacity.

So the natural gas production industry's solution is to create new demand through LNG exports—globalizing the current fractured state of geographically-disparate pricing, and sell landlocked-cheap U.S. natural gas for much higher prices overseas. While the current level of LNG exports hasn't reached the volumes necessary to push domestic prices out of their \$3 cellar, the industry's hope is that a significant expansion of LNG exports will do the trick. Obviously, natural gas producers can't sell LNG exports under the guise that it's needed to increase driller's profits. Instead, alternative justifications are offered to promote expanded LNG exports as beneficial for the public interest.

Increasing non-FTA exports may more than double domestic natural gas prices—in violation of the public interest

⁶ www.federalreserve.gov/boarddocs/testimony/2003/20030710/default.htm

⁷ www.eia.gov/naturalgas/

As of June 2018, the U.S. is exporting roughly 9% of gross natural gas production, with about one-quarter of this total in the form of LNG (the rest is exported via pipeline to Canada and Mexico), out of just two LNG export facilities: Cheniere's Louisiana Sabine Pass facility, and Dominion's Maryland Cove Point.⁸ While LNG exports have gone from virtually nothing pre-2016 to something today, exports remain too small to impact prices.

That's going to change. In the next two years, U.S. LNG export capacity is set to *quadruple* with the additions of Elba Island, Freeport LNG, Cameron LNG and Corpus Christi LNG.⁹ The International Energy Agency estimates that new U.S. LNG facilities approved and under development represent 75% of incremental global LNG exports for the period 2017-2023, placing the U.S. as the 2nd largest LNG exporter in the world by 2023—behind Qatar. This moves the U.S. from having a 4% share of global LNG exports in 2017 to 20% by 2023.¹⁰

Supply and demand dictates that as demand increases (in this case, through LNG exports), there will be an upward pressure on prices. Indeed, the recent U.S. Department of Energy-commissioned study concludes that domestic natural gas prices will likely double by 2040 as a result of LNG exports.¹¹

Despite the study's acknowledgment that exports will give rise to price hikes, the report overstates benefits from exports, alleging advantages to the U.S. economy in terms of the natural gas industry's contribution to GDP and financial benefits to American shareholders of natural gas and LNG export facilities¹²—ignoring the fact that some producers and LNG terminals are privately-owned or controlled by foreign entities.

Regardless, the Supreme Court ruled that to give “meaning to the words ‘public interest’ as used in the Power and Gas Acts, it is necessary to look to the purposes for which the Acts were adopted. In the case of the Power and Gas Acts it is clear that the principal purpose of those Acts was to encourage the orderly development of plentiful supplies of electricity and natural gas at reasonable prices.”¹³ The Supreme Court had earlier determined that the “primary aim” of the Natural Gas Act was “plainly designed to protect the consumer interests against exploitation at the hands of private natural gas companies . . . We cannot find in the words of the Act or in its history the slightest intimation or suggestion that the

⁸ www.eia.gov/dnav/ng/ng_move_expc_s1_m.htm

⁹ *Insurgent shale: prospects and perils for US LNG exports*, June 2018, [Platts, plattsinfo.platts.com/rs/325-KYL-599/images/US_LNG_America%20report_June%202018.pdf](http://Platts.plattsinfo.platts.com/rs/325-KYL-599/images/US_LNG_America%20report_June%202018.pdf)

¹⁰ Gas Market Report 2018, page 113-114.

¹¹ *Macroeconomic Outcomes of Market Determined Levels of U.S. LNG Exports*, June 7, 2018, pages 54-56, www.energy.gov/sites/prod/files/2018/06/f52/Macroeconomic%20LNG%20Export%20Study%202018.pdf

¹² *Macroeconomic Outcomes of Market Determined Levels of U.S. LNG Exports*, June 7, 2018, page 67, www.energy.gov/sites/prod/files/2018/06/f52/Macroeconomic%20LNG%20Export%20Study%202018.pdf

¹³ *NAACP v. FPC*, 425 U.S. 662 (1976)

exploitation of consumers by private operators through the maintenance of high rates should be allowed to continue provided the producing states obtain indirect benefits from it."¹⁴

The DOE's 2018 study on the impacts of LNG exports on domestic energy prices was simply the latest in a series of such government reports confirming that exports will result in higher domestic prices. In October 2014, the U.S. Energy Information Administration released *Effect of Increased Levels of Liquefied Natural Gas Exports on U.S. Energy Markets*.¹⁵ The study concluded that LNG exports will lead to higher domestic natural gas prices for residential consumers of between one and five percent.

The Department of Energy contracted a prior macroeconomic evaluation of LNG exports in 2012.¹⁶ The report found that, since U.S. natural gas wellhead prices are significantly lower than prices in export destination countries, domestic gas prices will rise with increased levels of LNG exports.

Australia's Cautionary Tale: Ramping Up LNG Exports Leads to Domestic Price Hikes

Proponents of increasing U.S. LNG exports should look no further than the disaster unfolding Down Under. Australia embarked on an ambitious plan to prioritize unfettered LNG exports. The gambit worked to boost Australia's standing as the 2nd largest LNG exporter in the world. But unregulated LNG exports have come at great cost: domestic natural gas prices, particularly for the more-populated east coast, have skyrocketed. Australia's Federal Resources minister Matt Canavan this week warned the country's LNG exporters that he may need to utilize the Domestic Gas Security Mechanism to force a reduction in LNG exports to address looming domestic supply shortages and price spikes "driven in part by high LNG export levels."¹⁷

In an effort to counteract the price-hiking impact of LNG exports from Australia's west coast, new LNG *import* terminals are planned for the east coast. "Only LNG imports can save the Australian government from a nightmare scenario of having to choose between breaking gas export contracts with Asian buyers or subjecting the east coast to real supply shortages . . . Four LNG import terminals are being proposed along the south-eastern coast,

¹⁴ *FPC v. Hope Nat. Gas Co.*, 320 U.S. 591 (1944)

¹⁵ www.eia.gov/analysis/requests/fe/pdf/lng.pdf

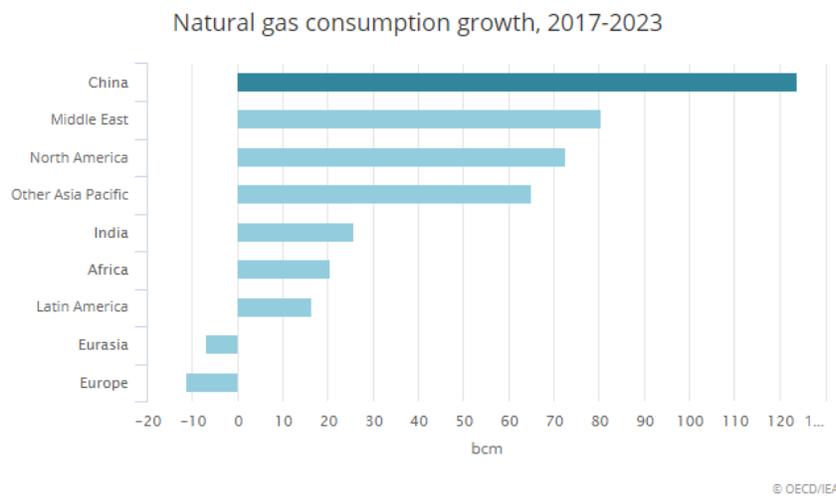
¹⁶ http://energy.gov/sites/prod/files/2013/04/f0/nera_lng_report.pdf

¹⁷ Cole Latimer, "Canavan warns industry gas export trigger on the table," *The Sydney Morning Herald*, September 12, 2018.

drawing criticism about the absurdity of importing gas at the same time as the country is becoming one of the world's biggest exporters.”¹⁸

Utilization of LNG Exports for *Commodity Diplomacy* to Meet European Energy Demand Conflicts with Market Forces That Point to China and Asia As Destinations

Fracking has transformed America into the largest natural gas producer in the world, so it is understandable that some believe our new natural gas export opportunities can be utilized as a form of *commodity diplomacy* to strengthen alliances while containing our adversaries' efforts do the same. But we are in an area of disruptive challenges for the entire energy sector that mutes the importance of control over fossil fuel supplies compared to two generations ago.



Let's take Europe, the subject of today's hearing. Europe is one of only two regions in the world forecast to have negative growth in natural gas demand over the next five years. One of the driving factors curtailing natural gas demand is the EU's decision to reduce the number of carbon allowances available under the region's greenhouse gas emissions control program, thereby establishing an increase in the carbon floor price. This has the policy effect of promoting renewables while requiring fossil fuels to include a price on their emissions.¹⁹

Indeed, 75% of the capacity of Europe's existing LNG import terminals is unused, reflecting low demand.²⁰ Granted, this is also attributed to utilization of pipeline capacity from the Caspian Sea region of producers, and from Russia, but even at projected U.S. gas prices, it

¹⁸ Angela Macdonald-Smith, "Only LNG imports can save east coast gas market," *Australian Financial Review*, July 24, 2018.

¹⁹ IEA Gas Market Report 2018.

²⁰ *An Overview of LNG Import Terminals in Europe*, King & Spalding, 2018.

will be nearly impossible for U.S. LNG to compete with in-service pipeline capacity. There is legitimacy to U.S. efforts to oppose Russia's Nord Stream 2 pipeline through the application of sanctions, but existing pipeline capacity still carry significant financial advantages compared to U.S. LNG.

While natural gas demand constricts in Europe, appetite for gas in the Asia and the People's Republic of China is growing at an astronomical level. *Half* of global gas demand over the next five years will come from Asia, with *one-third of total global gas demand growth* through 2023 coming from China alone. The demand increase has been so great it forced the Chinese government to take emergency action to avoid supply shortages over the last year.²¹

While some of China's massive demand growth is attributable to its "Blue Skies" clean air initiative, the single largest source of demand growth over the next five years will be from the industrial and manufacturing sectors.²²

This stark trend—constricting demand in Europe, booming demand in China and Asia—comes at the same time as financing changes for LNG export markets. As the *Financial Times* reports: "An increasingly significant factor for US LNG exporters is the shift in the global market away from long-term contracts towards flexible short-term sales. Last year 27 percent of LNG worldwide was sold on a spot basis or on a contract of four years or less, up from 19 percent in 2010."²³ This means that LNG exporters are more sensitive than ever to price changes—and regions with high demand will feature the highest prices.

Indeed, from February 2016 through May 2018, 45% of U.S. LNG exports were delivered to Asian markets, in part due to the more "flexible" market structure of U.S. LNG.²⁴ "China's LNG demand is expected to outstrip growth in contracted LNG obligations over the next five years, leaving about a quarter—17 million mt—uncontracted. This implies much greater reliance on spot trade. Chinese LNG demand will become a major factor in global LNG price formation."²⁵

While some believe trade tensions between the U.S. and China may threaten current and future U.S. LNG exports to China—citing China's decision last month to include U.S. LNG on a

²¹ Gas Market Report 2018, IEA, Pages 23-25.

²² *A Natural Gas Giant Awakens: China's Quest for Blue Skies Shapes Global Markets*, Columbia Center on Global Energy Policy, June 2018.

²³ Ed Crooks, "US prepares for next wave of LNG exports," June 21, 2018.

²⁴ Platts, plattsinfo.platts.com/rs/325-KYL-599/images/US_LNG_America%20report_June%202018.pdf

²⁵ *The Chinese Dream: Energy and commodities in an era of change*, S&P Global/Platts, May 2018, Page 23, <https://secure.viewer.zmags.com/publication/fd6eaeaa#/>

new list of goods subject to a possible 25% punitive tariff²⁶—many observers see the recent inclusion of U.S. LNG on the list as a negotiating tactic. After all, China has few affordable options to meet its demand without U.S. LNG, and President Trump has a pretty big incentive to preserve U.S. access to China’s LNG market: Trump supporter and former “special advisor to the President on Regulatory reform” billionaire Carl C. Icahn²⁷ controls nearly 14% of Cheniere Energy, the only major firm holding long-term sales agreements announced so far between a U.S. exporter and a Chinese buyer.

U.S. LNG Exports to China Will Largely Fuel Its Manufacturing Sector—at the Expense of America’s

It’s no secret that the Chinese economy—particularly its manufacturing sector—is the biggest economic competitor to the United States. Because of a series of key decisions by the Chinese national government, the Chinese manufacturing industry is the nation’s largest source of current and future gas demand. In June 2017, China’s National Development and Reform Commission and National Energy Administration issued its 13th Five-Year Plan for natural gas, focusing on a transition away from industrial coal-fired boilers to natural gas, essentially setting a compound average annual growth rate for gas of 15.5% through 2020. “China’s LNG imports over the first five months of 2018, up around 55% compared to the same period last year, provide indication that this target is likely to be achieved and could be exceeded . . . Natural gas in the [Chinese] industrial sector is used in various furnaces (drying, heating, hot treatment, roasting and smelting furnaces). The manufacturing industry, including raw chemical materials, chemical products and construction materials (e.g. glass) are currently the main industries with natural gas demand.”²⁸

The Chinese plan to rely more heavily on access to affordable natural gas is the cornerstone of its future manufacturing growth. So too with the United States: facilitating LNG exports forces natural gas price-sensitive industrial customers to compete with foreign markets for US produced gas, undermining their current competitive advantage.

The U.S. chemical sector accounts for 44% of total industrial demand in 2017. Three new ammonia production facilities—OCI in Iowa, Koch Fertilizer in Oklahoma and Simplot’s Wyoming facility—require access to inexpensive natural gas. In addition, America’s four major methanol facilities—including OCI’s Texas facility and Louisiana’s IGP Methanol, G2X Energy and Yuhuang Chemical facilities—are expected to significantly increase natural gas

²⁶ www.spglobal.com/platts/en/market-insights/latest-news/oil/080318-china-adds-us-lng-to-list-of-products-for-potential-25-import-tariff

²⁷ www.citizen.org/sites/default/files/icahn-complaint-march-2017.pdf

²⁸ Gas Market Report 2018, IEA, Pages 26-28.

demand.²⁹ Paradoxically, increased LNG exports could harm the economics of China Energy Investment Corp's planned multi-billion dollar petrochemical manufacturing complex in West Virginia.

Expanding LNG Export Capacity Absent Federal Climate Change Regulations, GHG Lifecycle Analysis for Proposed Facilities and Improved Federal Oversight of Fracking Is Reckless

For the first time in history, Natural gas passed coal as the second largest source of energy-related greenhouse gas emissions in the United States, behind only petroleum.³⁰ While in the short term natural gas' replacement of coal in the electric power sector has resulted in reduced GHG emissions, the lack of any effective federal regulations on both CO₂ and methane emissions from natural gas production, transportation, consumption and export risk increases in U.S. greenhouse gas emissions, threatening the climate.

The Trump Administration unfortunately just moved to repeal methane emissions for the oil and natural gas industry. In unveiling the methane emission rollback, the EPA admitted it would result in an increase in the equivalent GHG emission of putting an extra 260,000 cars on the road.³¹ Methane, the principle component of natural gas, is far more potent a greenhouse gas than carbon dioxide: 84 to 87 times worse than CO₂ after 20 years from when it enters the atmosphere, and 28 to 36 times greater after 100 years, and methane emissions from oil and gas operations are likely 60% higher than official government estimates.³²

Furthermore, FERC's environmental reviews of natural gas infrastructure, including LNG export facilities, fail to include a lifecycle GHG emission analysis.³³

Failure to account for the significant, unregulated climate impacts of reviewing the need for new natural gas infrastructure including LNG export facilities is inconsistent with the public interest; with the EPA's requirement under the 2007 Supreme Court decision *Massachusetts v EPA* to regulate harmful pollutants under its existing Clean Air Act authority; and with FERC's responsibilities under NEPA.

Increasing LNG exports directly correlates to increases in domestic gas production, mostly through hydraulic fracturing. There are considerable, well documented problems with

²⁹ Gas Market Report 2018, IEA, Page 42-43.

³⁰ www.eia.gov/todayinenergy/detail.php?id=36953

³¹ www.epa.gov/newsreleases/epa-proposes-oil-and-gas-targeted-improvements-package-advance-president-trumps-energy

³² Ed Crooks, "Gas leaks worse for climate than thought, study says," *Financial Times*, June 21, 2018.

³³ www.ferc.gov/media/statements-speeches/glick/2018/06-15-18-glick.asp

hydraulic fracturing's impacts on water resources, seismic activity associated with fracking fluid wastewater wells,³⁴ and human health contamination from exposure to chemicals and other pollutants associated with fracking. There is a need for effective federal regulatory oversight over all of these public health risks posed by fracking.

Recommendations

1. LNG exports should be deemed to be in the public interest only if such exports will not raise prices for American consumers. Supreme Court interpretations of the Natural Gas Act's public interest criteria discount alleged indirect benefits from larger natural gas industry profits or contributions to GDP.
2. New LNG export terminals cannot be approved absent federal regulations of natural gas industry greenhouse gas emissions. Furthermore, additional federal oversight is needed for environmental and public health problems associated with natural gas hydraulic fracturing production.

³⁴ <https://earthquake.usgs.gov/research/induced/overview.php>