

**Testimony of Charlie Riedl, Executive Director of the Center for Liquefied Natural Gas, before  
the U. S. House Committee on Energy and Commerce**  
Subcommittee on Energy  
LEGISLATION ADDRESSING LNG EXPORTS AND PURPA MODERNIZATION

January 19, 2018

Good morning Subcommittee Chairman Upton, Subcommittee Ranking Member Rush, Chairman Walden, Ranking Member Pallone, and Members of the Committee. Thank you for the opportunity to testify today. My name is Charlie Riedl, I am the Executive Director for the Center for Liquefied Natural Gas or CLNG.

CLNG represents the full LNG value chain, including LNG producers, shippers, terminal operators and developers, providing it with unique insight into the ways this abundant and versatile fuel can realize its vast potential, to the benefit of the U.S. economy and global energy security.

We appreciate the hard work of Rep. Johnson and his co-sponsors and encourage members of the Committee to support his legislation to improve the liquefied natural gas permitting process. Rep. Johnson has been steadfast in spearheading legislative solutions to improve the permitting process and the time for action is now. As Rep. Johnson has said himself, *“The window of opportunity for LNG exports will not remain open indefinitely.”*<sup>1</sup> Advancing this legislation will provide greater certainty in the permitting process for LNG facilities, thereby accelerating America’s rise as a world-class exporter of natural gas, creating U.S. jobs, growing our economy, significantly strengthening global energy security all while reducing emissions and pollution.

CLNG advocates for public policies that advance the use of LNG in the United States, and its export internationally. The focus of my testimony will be on LNG and the incredible opportunity we have before us. However, I believe it is critically important to first understand the current and projected supply of natural gas here in the U.S. before speaking further about LNG and LNG exports. CLNG has a deep understanding of the entire U.S. natural gas supply portfolio and rising demand for natural gas both in domestic markets and abroad because of our position as a committee of the Natural Gas Supply Association, a national trade association that has represented top producers and marketers of U.S. natural gas for more than 50 years.

**Abundant supply of natural gas**

Underpinning the economic, security and environmental benefits we can achieve with exports is our abundant supply of natural gas. Technological breakthroughs in the oil and natural gas industry have unleashed an energy renaissance, establishing the United States as the world’s largest natural gas producer – and domestic production continues to grow. We have enough natural gas to supply affordable energy domestically for the foreseeable future as well as to significantly increase U.S. participation in the global market for LNG.

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<sup>1</sup> Rep. Bill Johnson, *The Congressional Record*, [1-28-15](#)

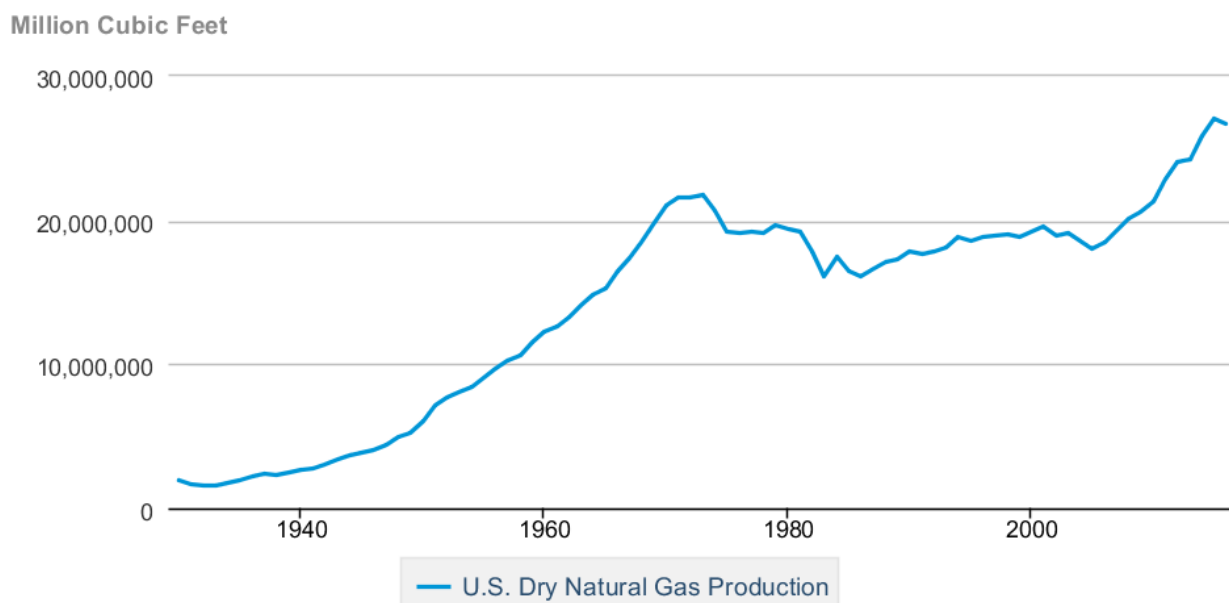
Natural gas companies understand that with this opportunity comes the responsibility to be dedicated stewards of local land, air and water. We are committed to responsible development to help ensure that natural resources are protected, while maximizing this great opportunity before us.

As I speak today, U.S. natural gas resources have reached an all-time high, according to the U.S. Potential Gas Committee.<sup>2</sup> Even as U.S. natural gas production continues to grow year over year, our total natural gas resource estimates continue growing as well, due to improvements in our ability to detect and extract natural gas.

In fact, if the Potential Gas Committee’s 1966 estimate of 600 trillion cubic feet (Tcf) had remained static, the U.S. would have run out of natural gas in the 1990s. Instead, estimates doubled by 2002, to more than 1,200 Tcf, and by 2017 had exceeded 2,800 Tcf.<sup>3</sup>

Figure 1

### U.S. Dry Natural Gas Production



 Source: U.S. Energy Information Administration

<sup>2</sup> U.S. Potential Gas Committee, [Biennial Estimate of North American Natural Gas Resource Base](#), July 2017.

<sup>3</sup> U.S. Potential Gas Committee, [Biennial Estimate of North American Natural Gas Resource Base](#), July 2017.

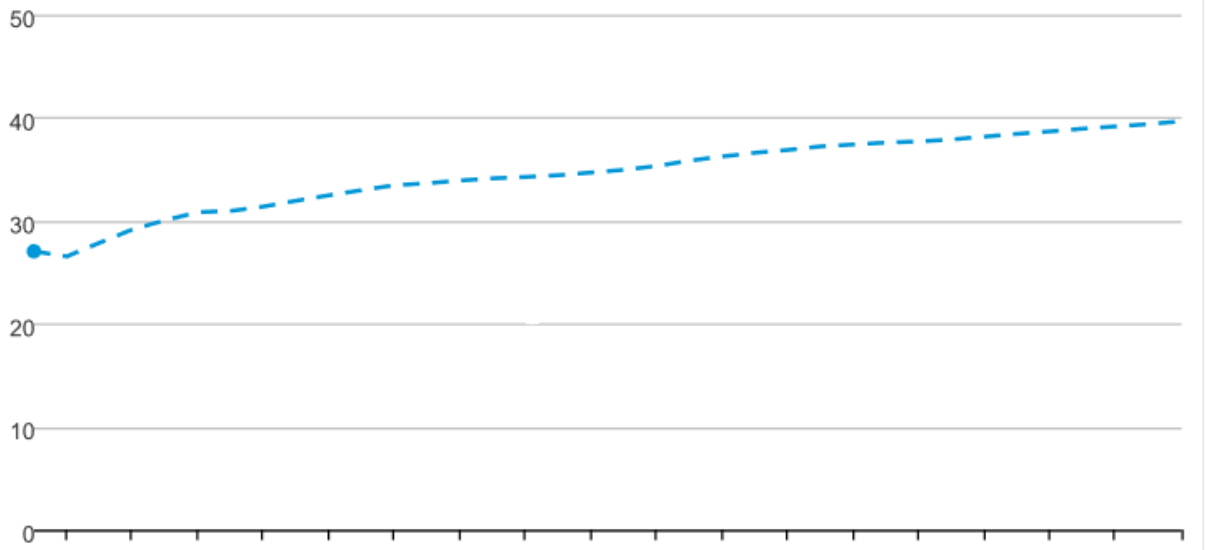
Concurrent with this nearly five-fold increase in the total resource base, U.S. natural gas production has [increased by 68 percent since 2005](#), according to the U.S. Energy Information Administration (EIA). And EIA projects production to continue to grow well through 2035, driven by the shale revolution.

Figure 2

### Natural Gas: Production: Dry Gas Production

Case: Reference case without Clean Power Plan

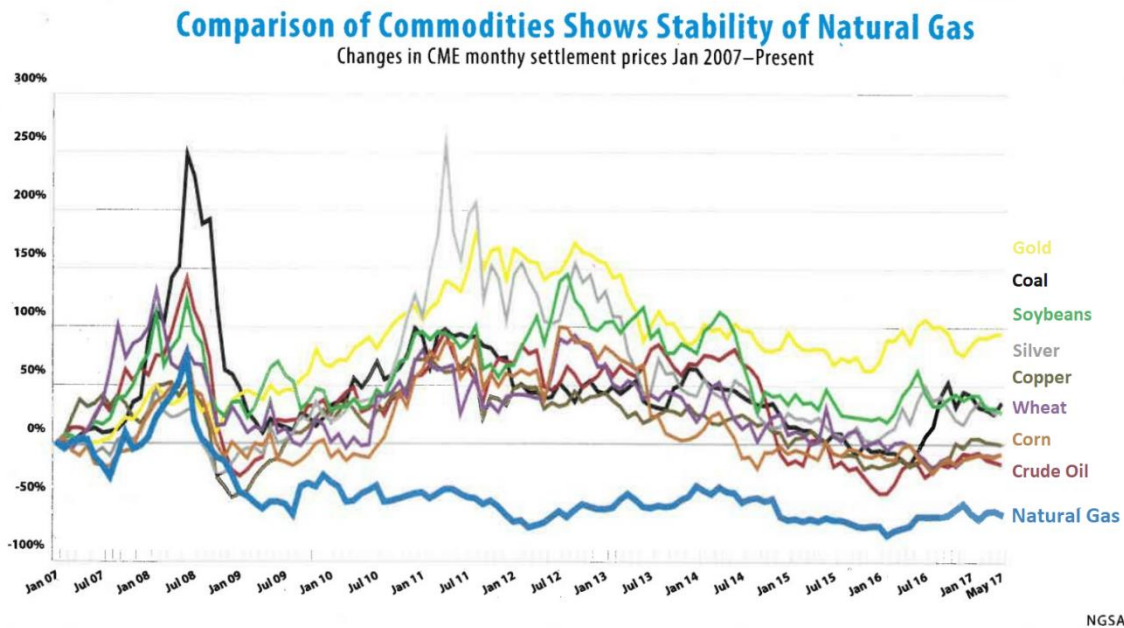
Tcf



Source: U.S. Energy Information Administration

**Because our supply of natural gas is so abundant, exports and export capacity are helping provide stability to the market.** In some regions of the country, gas production has exceeded demand and exports offer an important market for surplus gas, providing the incentive that helps to keep natural gas production steady and predictable. In fact, growth in exports sends market signals to incentivize domestic production, which benefits consumers here at home and benefits industries involved in the natural gas supply chain such as construction and manufacturing, spurring even more economic growth.

Figure 3



NGSA 2017

For example, this dramatic increase in natural gas supply has occurred even as natural gas has enabled an industrial renaissance in the manufacturing sector, with demand for natural gas from that sector projected to reach an all-time high this winter.<sup>4</sup> New domestic supplies of more affordable natural gas and natural gas liquids (NGLs) have created a competitive advantage for U.S. chemical manufacturers, leading to greater investment, industry growth, and new jobs. Companies from around the world are investing in new projects to build or expand their shale-advantaged capacity in the United States. Forty-eight new industrial projects in the petrochemical, fertilizer, steel and gas-to-liquids sectors were completed between 2010 and 2015, representing an investment of \$28 billion. Experts forecast additional industrial investment of \$135 billion to build 59 new projects and 11 expansions between 2017 and 2022.<sup>5</sup>

Perhaps counterintuitively, export facilities have already proven their value in relieving domestic supply constraints in peak demand periods including extreme weather events, where domestic natural gas pipeline capacity has not yet caught up with growing supply and demand. Let me explain how that worked.

Less than two weeks ago, the Northeast was hit by the “Bomb Cyclone,” one of the coldest weather systems to reach our shores in years. Americans from Maine to Georgia cranked up their thermostats in response and several regions in the mid-Atlantic and Northeast reported record-breaking demand for natural gas. And natural gas met record-setting levels of demand admirably.

<sup>4</sup> Energy Ventures Analysis, Inc., *2017-2018 Winter Outlook for Natural Gas*, 2017.

<sup>5</sup> Energy Ventures Analysis, Inc., *2017-2018 Winter Outlook for Natural Gas*, 2017.

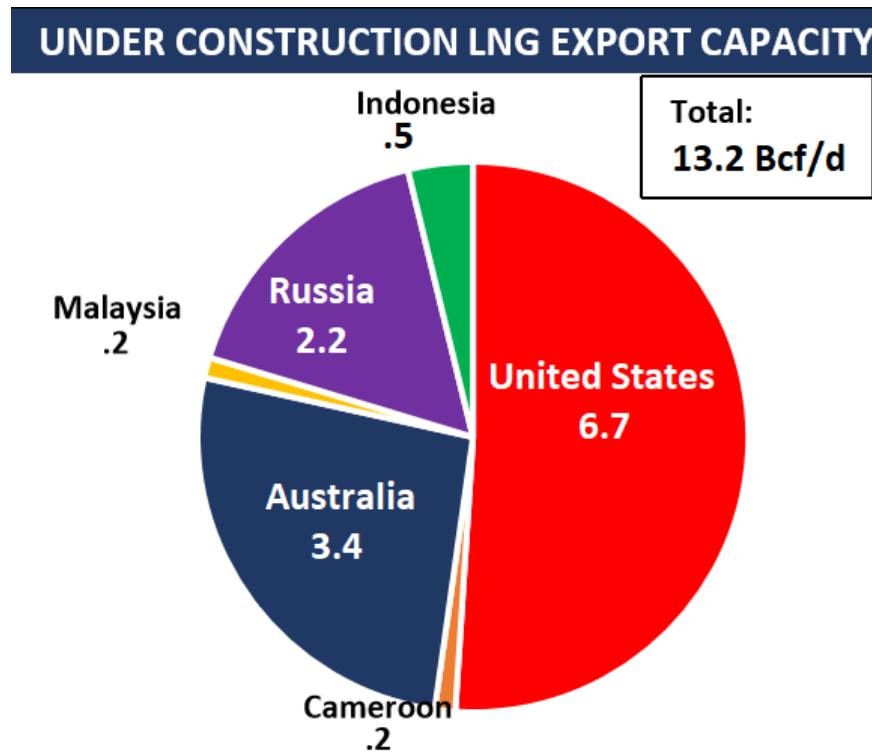
As the Bomb Cyclone moved along the East Coast, the import customers of the Cove Point facility in Maryland responded to price signals and delivered LNG gas to meet domestic consumer demand, demonstrating the flexibility of LNG during a time of increased demand.

Only in the Northeast were there brief price spikes, due to a regional lack of sufficient infrastructure. Abundant Pennsylvania shale gas flows all over the country but is bottlenecked from reaching neighboring states in the Northeast due to a lack of pipelines in New York and New England. Even in the Northeast, although natural gas spot prices temporarily spiked, the price increases were short in duration with limited impact on household and business energy bills.

As you can see, the U.S. is awash with affordable natural gas and as countries look to utilize the many benefits of natural gas, the United States is in a unique position to capitalize on abundant reserves and our excess supply.

**There is a limited window of opportunity for the U.S. to realize its potential as a major international gas supplier.** Worldwide demand for LNG is approximately 37 billion cubic feet per day today, and it is projected to increase to around 60 billion cubic feet per day between 2020 and 2025.<sup>6</sup> Numerous countries are vying to serve the LNG market and it is critical that the United States be positioned to compete on a level playing field for that market.

Figure 4

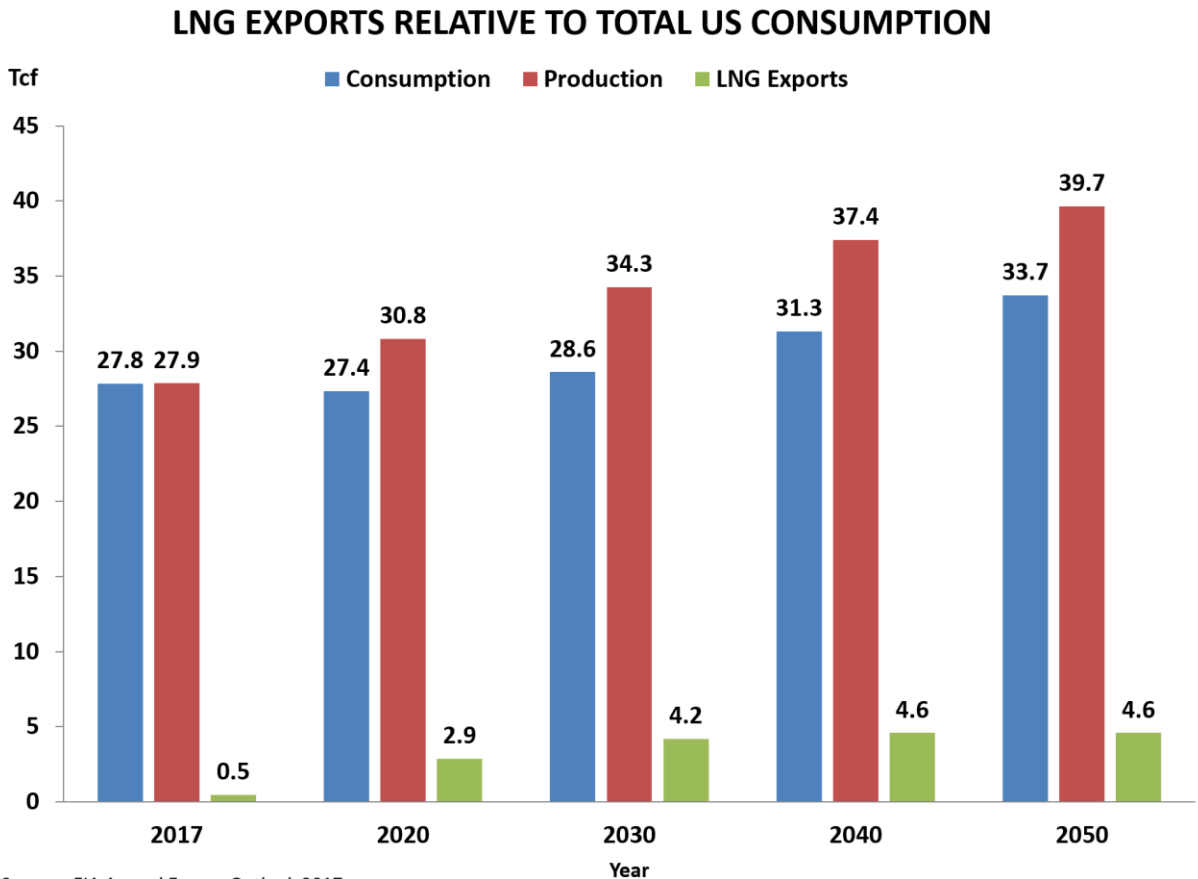


Source: EVA Quarterly LNG Outlook

<sup>6</sup> American Petroleum Institute, [U.S. Liquefied Natural Gas Exports](#).

**Domestic gas supply can support increases across all sectors, with LNG exports and manufacturing living harmoniously.** Because of our enormous domestic natural gas resource base, the U.S. is uniquely positioned to compete on a global level for LNG markets, while still providing an affordable and environmentally-advantageous fuel source for American manufacturers.

Figure 5



Source: EIA Annual Energy Outlook 2017

**As study after study has shown, exports drive economic growth here at home, particularly in natural-gas producing regions.** Most recently, in-depth research by the U.S. Department of Energy (DOE) in 2015 found that exports are a net benefit to the U.S. economy. The DOE study determined that increased natural gas demand from exports will spur increased investment in domestic natural gas production, driving job growth in areas where production grows. This is an important point. Export demand will not be met by existing production but rather be met almost entirely by additional production. That increased production will drive investment in natural-gas producing regions and support thousands of additional jobs.<sup>7</sup>

<sup>7</sup> [DOE, The Macroeconomic Impact of Increasing LNG Exports, October 2015](#)

More recently, a study from this past September conducted by ICF for the American Petroleum Institute showed that exports could generate more than 450,000 jobs and more than \$73 billion for the economy by 2035.<sup>8</sup>

Finally, DOE's study showed that exports will result in an increase in U.S. households' real income and welfare that exceeds any potential impact that could come from marginally higher natural gas prices.<sup>9</sup>

**Exports also represent a tremendous geopolitical opportunity for the United States.** LNG exports are already supporting our national security interests by strengthening the energy security of our allies and weakening those nations who use natural gas exports as geopolitical leverage. For example, Europe remains highly dependent on Russia for natural gas, which supplies 34% of its total natural gas imports. For countries in Central and Eastern Europe (like Czech Republic, Hungary, Bulgaria, Greece), that share is much higher. Russia has demonstrated its willingness to use energy as a political tool, cutting off natural gas supplies to European consumers several times over the last decade, with Eastern European countries most harmed by Russian manipulations.

Fortunately, U.S. LNG exports provide an opportunity to diversify our allies' supply choices and expand the global natural gas market. Lithuania and Poland, for example, have already signed deals to import U.S. LNG. As Lithuanian President Dalia Grybauskaitė wrote recently, "U.S. gas imports to Lithuania and other European countries is a game changer in the European gas market. This is an opportunity for Europe to end its addiction to Russian gas and ensure a secure, competitive and diversified supply."<sup>10</sup>

Figure 6

### **Shipments of domestically produced LNG delivered (Cumulative starting from Feb. 2016 through Jan. 2018)**



<sup>8</sup> <http://www.api.org/~media/Files/Policy/LNG-Exports/API-LNG-Update-Report-20171003.pdf>

<sup>9</sup> DOE, *The Macroeconomic Impact of Increasing LNG Exports*, October 2015

<sup>10</sup> Agnia Grigas, *Foreign Affairs Magazine*, "[U.S. Natural Gas Arrives in Lithuania](#)," September 12, 2017

**Furthermore, exports reinforce our commitment to open trade.** By allowing the open trade of U.S. LNG, we are sending an important signal to other commodity exporters. A commitment to unencumbered exports promotes U.S. leverage in trade negotiations, particularly with other commodities.<sup>11</sup> In contrast, artificially limiting LNG exports could undermine this commitment and the establishment of open, competitive markets. For an example of the unintended consequences of imposing artificial export limits, we have only to look to 2010, when China imposed strict rare earth mineral export quotas. Prices of these essential commodities soared by several hundred percent. The United States, the European Union and Japan brought a case in front of the World Trade Organization and won. Choosing to artificially limit U.S. LNG exports under the guise of protecting U.S. manufacturers and consumers would be grounds for precisely the type of trade case against the U.S. that we brought against China in 2010.

**LNG exports offer clear environmental benefits to overseas consumers. A 2014 study conducted by DOE found that LNG exports could reduce global greenhouse gas emissions by displacing more carbon intensive fuels in importing nations.**<sup>12</sup>

This was the conclusion of a study conducted by DOE in 2014 and current events support that finding. Today China has overtaken South Korea as the world's second largest LNG importer and U.S. LNG cargoes are already making their way to Chinese import terminals. As the Chinese aim to reduce their reliance on other fossil fuels, they are rapidly expanding their use of natural gas.

When President Trump visited China this fall, LNG took center stage in trade negotiations and a deal was signed between China Petrochemical Corp, China Investment Corporation, Bank of China, the State of Alaska and the Alaska Gasoline Development Corporation for the development of LNG export capacity in Alaska. The three state-owned Chinese companies would invest \$43 billion into the project.

India too wants to ramp up its use of natural gas. U.S. export cargoes have already made their way to India and the first commercial cargo from Dominion Energy's Cove Point facility in Maryland is expected to be taken early this year by GAIL India Ltd, the country's largest natural gas utility.

Greater use of natural gas in importing nations will help reduce carbon emissions but it will also help reduce traditional pollutants as well – burning natural gas creates little to no emissions of sulfur dioxide, nitrogen oxides or particulate matter that can lead to smog.<sup>13</sup> Providing our trade partners with access to a cleaner-burning energy alternative reinforces our commitment to environmental progress.

#### **LNG is Cutting Emissions in the Transportation Sector.**

LNG has further benefits to the United States. The expanded use of natural gas as a transportation fuel, whether in the form of LNG (or CNG), can help reduce air pollution and carbon emissions from the transportation sector, whether in the marine industry or in cars and fleet vehicles.

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<sup>11</sup> Michael Levi, [A Strategy for U.S. Natural Gas Exports, Council of Foreign Relations](#),

<sup>12</sup> Department of Energy, National Energy Technology Laboratory, [Lifecycle Greenhouse Gas Perspective Report on Exporting LNG from the United States](#), 2014.

<sup>13</sup> Leidos, Inc., [A Comparison of Emissions from Major Fuels Used to Generate Electricity in the U.S.](#), 2016.



In the maritime sector, for example, strict new emissions standards for ships, in addition to the low cost of natural gas compared to more conventional fuels, have encouraged the use of LNG as a fuel by the shipping industry in recent years. This growth is expected to continue since LNG emits significantly lower levels of nitrogen oxide, sulfur oxides, particulate matter and carbon dioxide compared to oil-based alternatives currently used for marine fuel.<sup>14</sup>

As a result of LNG's comparatively low emissions, the U.S. is projected to almost double its current fleet of LNG-fueled tankers from 2016 to 2019<sup>15</sup>, led by shipping investments made by Harvey Gulf and Tote, according to the U.S. Energy Information Administration. Worldwide, the global fleet of LNG-powered ships is expected to grow more than 40-fold to almost 1,800 vessels by 2020, according to DNV GL.<sup>16</sup>

On a well-to-wheel lifecycle basis, vehicles powered by natural gas emit between 13 and 21 percent fewer greenhouse gas emissions compared to gasoline and diesel-powered vehicles<sup>17</sup>. Natural gas powered vehicles can also improve local air quality as they emit approximately and 50 percent less NOx gas and other pollutants. According to the Alternative Fuels Data Center<sup>18</sup>, there are more than 130 LNG stations for heavy duty trucks in operation or under construction and another 50 planned.

Continued growth in the use of natural gas as a vehicle fuel – the number of natural gas vehicles around the world increased by an estimated 300 percent between 2006 and 2014<sup>19</sup> – will help improve air quality and reduce carbon emissions. And more rapid growth is expected.

**The situation is urgent, and legislation is needed.**

LNG projects are multiyear, multi-billion dollar efforts – investments of this magnitude shouldn't be held hostage by changing politics. There's a tight window to capture market share; providing regulatory and legislative certainty will help U.S. exporters claim our share of the global market from competitors. We are competing with other exporting nations for investment, and if we don't provide regulatory certainty and streamline our approval process, investment will go to other nations that will.

While LNG export terminals take years to develop and build, many planned facilities have already advanced detailed engineering plans and started negotiations toward long-term sales agreements with international consumers. These agreements are essential for project developers to secure the financing they need to construct LNG terminals. It is extremely difficult for projects to make final investment decisions and arrange funding when the approval process for a project's export application could change at a moment's notice. The LNG industry is ready to create jobs and help supply global demand for natural gas, but it needs regulatory certainty and a clear timeline for action on exports applications to do so.

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<sup>14</sup> U.S. Dept. of Transportation Maritime Administration, [Liquefied Natural Gas Bunkering Study](#), 2014

<sup>15</sup> LNG World News, "[EIA: LNG Fueled Vessels on the Rise in the U.S.](#)" 2016.

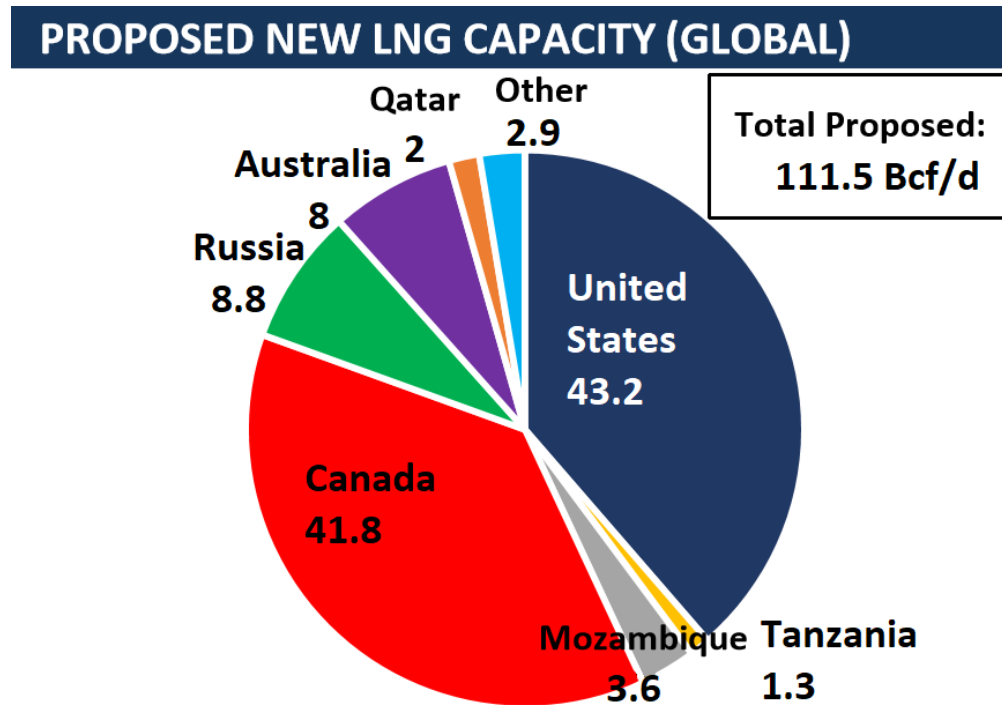
<sup>16</sup> DNV GL, "[In Focus – LNG As A Ship Fuel](#)," 2015

<sup>17</sup> NGV America, [Environmental Benefits of Natural Gas Vehicles](#), 2018.

<sup>18</sup> U.S. Dept. of Energy, [Alternative Fuels Data Center](#)

<sup>19</sup> U.S. Dept. of Energy, [Clean Cities Webinar Presentation](#), 2014.

Figure 7



Source: EVA Quarterly LNG Outlook

**We know exports are in the national interest. Further DOE approval of export applications is unnecessary.**

Under current law, exporting natural gas requires authorizations from the Department of Energy's Office of Fossil Energy and from the Federal Energy Regulatory Commission (FERC).

Generally, DOE has been tasked with deciding whether an LNG export application would be consistent with the public interest, while FERC is responsible for authorizing the siting and construction of LNG facilities, and preparing environmental assessment or impact statements for proposed LNG facilities. DOE automatically deems exports to Free Trade Agreement (FTA) countries to be consistent with the public interest. The U.S. currently has FTAs with 20 countries. However, applications to export LNG to non-FTA (NFTA) countries require an additional step: case-by-case certification from DOE that exports are in the public interest.

**Until recently, it has been unnecessarily difficult for DOE to grant NFTA export permits.** DOE has also been inconsistent in the time taken to grant NFTA export permits to applicants, some of whom have spent millions of dollars and waited hundreds of days for DOE to act. While this situation has improved somewhat, without legislation, the permitting process remains vulnerable to changes in personnel and the political views of future Administrations.

**Unfortunately, there is a history of regulatory uncertainty.** The NFTA permit review procedure has changed three times in two years, and, without legislation, could well be changed again:

- 1) August 2012: DOE conditionally approved Cheniere Energy’s application to export LNG to non free-trade agreement (NFTA) countries, pending the completion of Federal Energy Regulatory Commission (FERC)’s review of the project’s compliance with the National Environmental Policy Act (NEPA).[2]
- 2) December 2012: DOE announced that it would review applications on a case by case basis, in the order they were received and only after they had pre-filed with FERC. [3] Department of Energy, LNG Export Study, 12-5-12.
- 3) August 2014: DOE once again amended the process, this time stating that it would act on applications only after FERC’s NEPA review had been completed. [4] Federal Register, Vol. 79, No. 158, 8-15-14.

As a further case in point, from 2011-2016, DOE paused approvals while it conducted macroeconomic analyses of LNG exports twice – with both studies ultimately determining that LNG exports would benefit the U.S. economy.

**Legislation is needed to address these concerns, thereby improving regulatory certainty and encouraging project development of LNG export facilities.**

To that end, we support Rep. Johnson’s H.R. 4605 and 4606. Allowing the United States to export natural gas after completing the FERC review process, as proposed in H.R. 4605, the Unlocking Our Domestic LNG Potential Act, creates a more certain regulatory process and accelerates the realization of important benefits for the U.S. This enables projects to avoid waiting unnecessarily for DOE’s additional stamp of approval, while projects would still undergo FERC’s rigorous multi-year project review.

H.R. 4605, the Unlocking Our Domestic LNG Potential Act makes the review process more consistent and predictable. The length of time for the DOE review process has varied widely. A full 107 days elapsed between the FERC approval and the DOE approval for Freeport LNG’s proposed terminal in Freeport, Texas<sup>20</sup> – compared to 220 days for Dominion’s terminal in Cove Point, Maryland.<sup>21</sup> Even more egregiously, the first six approved projects had to wait an average of 2.6 years to complete the permitting process.<sup>22</sup>

Additionally, Rep. Johnson’s Small Scale LNG Act helps to smooth the exports of smaller volumes of natural gas, a boon to small locales in the Caribbean, Central America and South America who look to us to meet their natural gas needs.

We desperately need legislation to ensure that LNG applications are processed in a timely manner to provide project developers with a degree of certainty before they invest billions of dollars in the U.S. economy.

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<sup>20</sup> [FERC records](#) , FERC approved July 31, 2014; [Department of Energy approval of Freeport LNG](#), November 14, 2014

<sup>21</sup> [FERC records](#) , FERC approved September 29, 2014; [Department of Energy approval of Cove Point LNG, May 7, 2015](#)

<sup>22</sup> [FERC and DOE records](#)

Legislation providing greater regulatory certainty would also allow the U.S. to capture a unique window of opportunity to export LNG internationally and it would send a strong signal to our trading partners that the U.S. is committed to its role as a global energy leader.

### **Conclusion**

The promise of more LNG facilities in the United States also brings the promise of a new era benefiting the U.S. economy and our global allies. Our enormous natural gas resource base ideally positions the United States to compete on a global level for LNG market share while still providing an affordable and environmentally advantageous fuel source for U.S. customers.

Free and open trade of U.S. LNG sends the important signal of unencumbered exports to the global market. Artificially limiting LNG exports could undermine commitments to free and open markets as well as lead to complaints in international trade cases in the future.

A legislative solution to the situation would give companies awaiting an export permit greater regulatory certainty and a clear timetable for moving forward with capital intensive projects – resulting in a boost to the American economy. A concrete regulatory process also signals to the rest of the world that the United States is ready to meet the growing demand for natural gas in the coming months and years.

The United States enjoys an enormous domestic natural gas resource base, and is uniquely positioned to compete on a global level for LNG markets, while still providing an affordable and environmentally-advantageous fuel source for American manufacturers, businesses and individual consumers. Streamlining the approval process for LNG export applications from the United States can create tens of thousands of American jobs and reduce global greenhouse gas emissions, while preserving a competitive advantage for American manufacturers and benefiting the U.S. economy.

In closing, we commend Rep. Johnson for his leadership and steadfastness in championing LNG legislation over the course of several years. His legislation would ensure consistency and timeliness in the review process without sacrificing rigor or thoroughness, all to the benefit of the U.S. and our allies.

Thank you for the opportunity to testify on behalf of CLNG and NGSA and our members. We are committed to helping to find solutions to address our energy needs and look forward to working with the Committee on securing passage of this important legislation.