The Heritage Foundation

BACKGROUNDER

No. 3361 | NOVEMBER 5, 2018

Increasing Export Efficiency for Liquefied Natural Gas Is a Win for the U.S. and Global Economies

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Abstract

With plentiful reserves and innovative technologies that unleashed an American energy renaissance, the U.S. has become the world's leading natural gas producer. Domestic production has also expanded opportunities for companies to export liquefied natural gas (LNG). Increased energy trade will have substantial, long-lasting economic and geopolitical advantages for the U.S. and its allies. As companies increase shipments abroad and grow their export capacity, Congress and the Administration should implement reforms to stimulate investment in U.S. energy markets and provide greater choices for energy consumers around the world.

In a recent speech before the United Nations General Assembly (UNGA), President Trump offered up U.S. energy exports as relief from dependence on politically manipulated energy markets. The President rightly noted, "Reliance on a single foreign supplier can leave a nation vulnerable to extortion and intimidation."[1] The European energy market's dependence on Russian natural gas exemplifies such extortion. Diversification will loosen Russia's grip on the energy market, and American liquefied natural gas (LNG) exports can be an integral source for Europeans pining for energy freedom.

The U.S. and its allies stand to receive substantial, long-lasting economic and geopolitical advantages from the liberalization of energy markets. President Trump emphasized in his UNGA speech that U.S. companies "stand ready" to export abundant natural gas to America's allies.[2] The Administration has taken productive action to expedite small-scale natural gas exports and relieve the permitting backlog at the Federal Energy Regulatory

Key Points

- The United States is the world's leading oil and natural gas producer; in the near future, it could add another accolade to its impressive energy accomplishments: largest liquefied natural gas (LNG) exporter in the world. The U.S. energy industry has significantly expanded its LNG export capabilities, providing affordable, reliable, and clean energy to customers all over the world. Through July 2018, U.S. LNG companies exported to 30 different countries across five continents.
- With its LNG exports, the U.S. can be of critical support to governments and companies around the world eager to diversify and secure stable sources of energy. As these countries and companies invest in new LNG import infrastructure and expand existing capabilities, U.S. supplies of LNG can diversify the energy market and effectively loosen Russia's energy grip on Europe.
- Increasing efficiency to export LNG will only enhance the U.S.'s role as the world's energy powerhouse. Higher levels of exports will generate economic growth both domestically and globally.

This paper, in its entirety, can be found at **http://report.heritage.org/bg3361**

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Commission (FERC), but steel tariffs and potential LNG import tariffs, as well as a lengthy permitting process, threaten opportunities to maximize energy export potential.

As companies increase both foreign shipments and export capacity, Congress and the Administration should implement reforms to stimulate investment in U.S. energy markets and provide greater choices for energy consumers around the world. Specifically, reform should expedite permit applications and completely remove the Department of Energy (DOE) from the application process.

The Present and Possible Future of LNG Exports

With plentiful reserves and innovative technologies, the U.S. has become the world's leading natural gas producer. The substantial increase in supply has saved households and businesses tens of billions of dollars in lower energy bills and generated new jobs and investment across the country.[3] Domestic production has also expanded opportunities for companies to export natural gas to America's allies around the world. February 2016 marked the first time in more than 50 years that a company in the contiguous U.S. exported LNG; in 2017, the U.S. became a net exporter of natural gas. Through the first half of 2018, natural gas exports increased 58 percent from the 2017 average and are up 25 fold since 2015.[4]

Eager to diversify and secure stable sources of energy, foreign governments and companies are investing in new LNG import infrastructure and expanding existing capabilities. Through July 2018, U.S. LNG companies exported 1,476.4 billion cubic feet (Bcf) to 30 different countries across five continents.[5]

- Europe has 28 large-scale LNG import terminals with several others planned, committed, or under construction.[6]
- The European Union co-financed a number of LNG projects, including in Lithuania, Poland, and Malta, and committed 120 million euros ($138.3 million) to a 250 million euro ($288 million) project in Croatia.[7]
- Asian markets serve as American companies' top LNG customers. South Korea, China, and Japan are, respectively, the second through fourth largest importers of U.S. LNG.[8] India, the sixth largest importer, is another key strategic partner of the U.S. that is diversifying its energy portfolio with eleven more LNG import terminals.[9]
- Canada and Mexico have been reliable energy trading partners. U.S. natural gas exports to Mexico (via pipeline) were more than double the total of U.S. LNG exports, and Mexico has emerged

1. The White House, "Remarks by President Trump to the 73rd Session of the United Nations General Assembly | New York, NY," September 25, 2018, https://www.whitehouse.gov/briefings-statements/remarks-president-trump-73rd-session-united-nations-general-assembly-new-york-ny/ (accessed October 5, 2018).
2. Ibid.
3. American Gas Association, "Uncovering the U.S. Natural Gas Commercial Sector," January 4, 2017, https://www.aga.org/research/reports/uncovering-the-us-natural-gas-commercial-sector/ (accessed October 5, 2018).
4. U.S. Department of Energy, Energy Information Administration, "U.S. Net Natural Gas Exports in First Half of 2018 Were More than Double the 2017 Average," October 2, 2018, https://www.eia.gov/todayinenergy/detail.php?id=37172 (October 5, 2018), and U.S. Department of Energy, Energy Information Administration, "Liquefied Natural Gas Exports," September 28, 2018, https://www.eia.gov/dnav/ng/hist/n9133us2a.htm (accessed October 5, 2018).
5. U.S. Department of Energy, Office of Fossil Energy, Oil, and Gas, "LNG Monthly (YTD—through July 2018)," https://www.energy.gov/sites/prod/files/2018/09/f55/LNG%20Monthly%202018_0.pdf (accessed October 5, 2018).
6. King and Spalding LLP, "LNG in Europe 2018: An Overview of LNG Import Terminals in Europe," 2018, https://www.kslaw.com/attachments/000/006/010/original/LNG_in_Europe_2018_-_An_Overview_of_LNG_Import_Terminals_in_Europe.pdf?1530031152 (accessed October 5, 2018).
7. News release, "EU–U.S. Joint Statement of 25 July: European Union Imports of U.S. Liquefied Natural Gas (LNG) Are on the Rise," European Commission, August 9, 2018, http://europa.eu/rapid/press-release_IP-18-4920_en.htm (accessed October 5, 2018).
8. U.S. Department of Energy, Office of Fossil Energy, Oil, and Gas, "LNG Monthly (YTD—through July 2018)."
9. Jessica Jaganathan, "India Plans Massive Natural Gas Expansion, LNG Imports to Soar," Reuters, February 7, 2018, https://www.reuters.com/article/indonesia-lng-summit-india/india-plans-massive-natural-gas-expansion-lng-imports-to-soar-idUSL4N1PW5M0 (accessed October 5, 2018).

as a top market for U.S. LNG.[10] U.S. capacity and investment in natural gas stands to become increasingly important for Mexico, as electricity generation and infrastructure are needed to help improve the nation's standard of living. Numerous projects are in the works to expand cross-national and Mexican domestic pipeline infrastructure. The new North American trade deal retains protections for oil and gas investments in Mexico, liberalizes at least part of Mexico's energy sector, and prohibits tariffs on raw oil and gas products.

- The U.S. and Canada's well-established energy partnership spans decades. The two nations have exchanged investments in oil and natural gas, refining, and other necessary materials and services supporting natural resource extraction.

Obstacles to Expanded LNG trade

Both in the U.S. and abroad, a number of legislative, regulatory, and political obstacles threaten LNG trade. Those obstacles include:

The Role of the Department of Energy in Approving LNG Exports. If the U.S. does not have a free trade agreement (FTA) with the country receiving or sending the natural gas, the DOE must make a public interest determination.[11] No concrete definitions exist for public interest determinations. In effect, the DOE could arbitrarily deny a permit if bureaucrats in the agency believe the total volume of natural gas exported is not in the public's interest.

Currently, the DOE's role has not been a major obstacle as nearly half the total of all U.S. LNG exports have traveled to non-FTA destinations. Out of the 30 countries receiving LNG, 22 of them are non-FTA. Nevertheless, natural gas is not a public good nor should it be treated as such.[12] The DOE serves an unnecessary role in the process as a mechanism for the federal government to make decisions better left to the individuals buying and selling the gas.

Complex Regulatory and Permitting Process for LNG Export Facilities and Increase in Applicants. In recent testimony, FERC Chairman Kevin McIntyre spoke to the challenges that FERC faces in completing applications for constructing LNG facilities, noting that the number of applications increased from four in 2007 to 14 in 2018.[13] Chairman McIntyre also emphasized that the size and complexity of new LNG facilities is growing and a greater number of facilities means more on-site constructing inspections conducted by the regulators.[14]

The environmental reviews for LNG facilities are comprehensive and involve multiple federal agencies. The Natural Gas Act of 1938 grants FERC the authorization to conduct environmental assessments for both import and export facilities.[15] States can veto any approval decision by FERC by denying the facility's environmental permits. The applicant must also satisfy requirements under the Maritime Transportation Security Act of 2002 as well as the Department of Transportation's (DOT) Office of Pipeline Safety requirements. The Pipeline and Hazardous Materials Safety Administration (PHMSA) is a cooperating agency in the siting process, establishing and enforcing safety standards for onshore LNG facilities, including standards governing conversion, transportation, and storage of liquefied natural gas.[16] The U.S. Coast

10. U.S. Department of Energy, Energy Information Administration, "U.S. Natural Gas Exports and Re-Exports by Country," October 2017 to July 2018, https://www.eia.gov/dnav/ng/ng_move_expc_s1_a.htm (accessed October 5, 2018).
11. 15 U.S. Code § 717(b) (1938).
12. Nicolas Loris, "Right Reforms for Accessing U.S. Outer Continental Shelf Resources and Unleashing U.S. Energy Production," Heritage Foundation *Backgrounder* No. 3297, March 26, 2018, https://www.heritage.org/sites/default/files/2018-03/BG3297.pdf.
13. Kevin J. McIntyre, "Written Testimony," Committee on Energy and Natural Resources, U.S. Senate, June 12, 2018, https://www.ferc.gov/CalendarFiles/20180612100441-testimony-McIntyre-06-12-18.pdf (accessed October 5, 2018).
14. Ibid.
15. In accordance with existing statutes including NEPA, the Clean Water Act (Sections 401 and 404), the Coastal Zone Management Act (Section 307(c)), the National Historic Preservation Act, the Endangered Species Act, and the Clean Air Act (Section 502).
16. U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, "LNG Plant Requirements: Frequently Asked Questions," July 25, 2018, https://www.phmsa.dot.gov/pipeline/liquified-natural-gas/lng-plant-requirements-frequently-asked-questions (accessed October 5, 2018), and U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, "Jurisdiction of LNG Plants: Federal Oversight of LNG Value Chain," January 31, 2018, https://www.phmsa.dot.gov/pipeline/liquified-natural-gas/jurisdiction-lng-plants (accessed October 5, 2018).

Guard (USCG) oversees the safety of LNG vessels and the marine transfer area for waterfront LNG facilities. The USCG also manages the navigation safety and port security from LNG ship traffic.[17]

Despite delineated roles and responsibilities among the different agencies and stated goals of efficient interagency coordination, the intricacy of the approval process is inhibiting the ability of U.S. companies to export LNG. Failed interagency coordination, a dearth of resources and technical expertise, administrative bottlenecks, and duplicative processes all contribute to regulatory delays.[18] According to a July 2018 article in *Bloomberg*, the permit-approval process could be delayed by 18 months.[19] Moreover, as the CEO of Commonwealth LNG remarked, it could take 18 months to two years to conduct an environmental impact assessment compared to the six to eight months it used to take on these projects.[20]

Anti-competitive Trade Policies. The Trump Administration's anti-competitive trade policies weaken U.S. companies' competitive advantage to export LNG. Steel and aluminum tariffs increase the cost of pipelines, LNG terminals, and other energy infrastructure. After the Trump Administration imposed a 10 percent tariff on another $200 billion of Chinese imports, the Chinese Ministry of Commerce retaliated with its own 10 percent tariff on 3,571 goods, including LNG.[21]

European Dependence on Russian Gas. In Europe, the cost differential between imported LNG and Russian gas is shrinking. Mark Mills, a Senior Fellow at the Manhattan Institute, underscored this point in recent testimony:

> [I]t bears noting that based on the current price spread between U.S. LNG and Russian natural gas, even if Europe were to use all of its idle LNG import capacity to buy American gas, Europe's overall annual energy import costs would rise by less than 10%. In the long run, that could be the cheapest resilience hedge EU leaders could buy.

Existing LNG terminals scattered throughout Europe and newly constructed and planned facilities in places like Poland, Lithuania, Malta, and Croatia will provide strategic geographic diversity.

However**,** industrial and household customers in Europe should have concerns about trading dependence on Russian natural gas for dependence on state-owned energy projects. The latter is certainly preferable to the former, and government financing may be necessary to overcome Russia's ability to undercut the price to make non-Russian energy projects uneconomical. Yet state-managed financing and ownership should be narrow in scope in order to foster competition and choice among energy projects and suppliers. Free markets should be the rule and exceptions should only be made in limited circumstances for credible national security needs.

Unshackling Europe from Russian gas dependence is of utmost priority. European governments should make a concerted effort to subject their energy companies to the rigors of the marketplace. Technology and energy source-neutral competition in energy markets allow innovative, entrepreneurial companies to meet customer needs and preferences and also protect customers from unwise investments. Conversely, a subsidy-dependent or state-owned company profits less by understanding and meeting customer needs and more by influencing politics to protect its narrow interests. A state-owned energy company can similarly manipulate energy prices (either upward or downward) to maintain control and crowd out private-sector competition. Granted, government-controlled energy enterprises still respond to the incentives of generating revenue streams in order to bring money into the

17. U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, "Jurisdiction of LNG Plants: Federal Oversight of LNG Value Chain."
18. Jennifer A. Dlouhy, Rachel Adams-Heard, and Ryan Collins, "Shale Gas Export Projects Face U.S. Permit Delays," *Bloomberg*, July 11, 2018, https://www.bloomberg.com/news/articles/2018-07-12/u-s-natural-gas-export-projects-are-said-to-face-permit-delays (accessed October 5, 2018).
19. Ibid.
20. Ibid.
21. Oceana Zhou and Sambit Mohanty, "China Says to Impose 10% Tariff on US LNG from Sep 24; Keeps US Crude Oil Off List," S&P Global Platts, September 18, 2018, https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/091818-china-says-to-impose-10-tariff-on-us-lng-from-sep-24-keeps-us-crude-oil-off-list (accessed October 5, 2018).

government's coffers. However, because they do not operate in an influence-free market environment, state-owned oil and gas companies suffer from economic inefficiencies, reduced foreign investment, higher rates of pollution, wasteful spending, less technological innovation, and aging infrastructure. Furthermore, governments that rely on energy sales to fund other sectors of the economy end up diverting resources that otherwise would be available to invest in new energy technologies or potential new areas of energy exploration and development.[22]

Actions for Congress and the Trump Administration

Republican and Democratic Members of Congress as well as top officials from foreign governments have pleaded for a more efficient permitting process for LNG exports.[23] In response, the Trump Administration has reduced the regulatory burden of LNG companies. However, Congress and the Administration can and should take additional steps to provide an efficient system, absent unnecessary bureaucratic impediments, for LNG exports. Concrete reforms include:

- **Eliminating the DOE's role in the authorization process and prohibiting any federal agency from determining natural gas exports based on so-called public interest.** In July 2018, the DOE finalized a rule that deemed small-scale exports of natural gas (51.75 Bcf per year of natural gas) to be in the public interest.[24] Therefore, small-scale natural gas exports that qualify for a categorical exclusion under the National Environmental Policy Act (NEPA) no longer have to be subject to DOE consideration.

  Given the economic and geopolitical benefits of LNG exports, the DOE should apply similar regulatory relief to all LNG export applicants. The DOE, FERC, or other federal agency should not be responsible for determining what amount of exported natural gas is in the public's interest. Energy producers should be able to benefit from economic opportunities with LNG-recipient nations if they deem it in their interest. The DOE's authorization requirement is a pointless obstacle to the permitting process and Congress should eliminate it altogether.

- **Improving and codifying regulatory streamlining.** FERC has taken action to relieve the backlog of applicants and resource strains the agency currently encounters. On August 31, 2018, FERC and PHSMA signed a Memorandum of Understanding (MOU) to "maximize the exchange of relevant information, avoid duplication of efforts, and provide for an overall increase in the efficiency and effectiveness of the LNG application review process that will reduce expenses for LNG project applicants and operators and the U.S. taxpayer."[25] FERC hired additional LNG experts, contracted with third parties to conduct parts of the assessment that include non-proprietary information, and moved to allow electronic sharing and issuing of documents—all of which will reduce the time schedule for an applicant without jeopardizing environmental protection.[26]

  Rachel A. Meidl, a fellow at the Center for Energy Studies at Rice University, contends that simply shifting resources and responsibilities from

22. For more information, see David Victor, David R. Hults, and Mark C. Thurber, eds., *Oil and Governance: State-Owned Enterprises and the World Energy Supply* (Cambridge: Cambridge University Press, 2014).
23. News release, "Cassidy, Murkowski, and Colleagues Seek Answers from FERC on Pending LNG Export Applications," Office of Senator Lisa Murkowski, August 21, 2018, https://www.murkowski.senate.gov/press/release/cassidy-murkowski-and-colleagues-seek-answers_from-ferc-on-pending-lng-export-applications (accessed October 5, 2018), and John Siciliano, "Europeans Look to Cut the 'Red Tape' from Trump's Natural Gas Deal," *The Washington Examiner*, August 18, 2018, https://www.washingtonexaminer.com/policy/energy/europeans-look-to-cut-the-red-tape-from-trumps-natural-gas-deal (accessed October 5, 2018).
24. U.S. Department of Energy, "U.S. Department of Energy Finalizes Rule to Expedite Approval for Small-Scale Natural Gas Exports," July 25, 2018, https://www.energy.gov/articles/us-department-energy-finalizes-rule-expedite-approval-small-scale-natural-gas-exports (accessed October 5, 2018).
25. U.S. Department of Energy, Federal Energy Regulatory Commission, "Memorandum of Understanding Between the Department of Transportation and the Federal Energy Regulatory Commission Regarding Liquefied Natural Gas Transportation Facilities," August 31, 2018, https://www.ferc.gov/legal/mou/2018/FERC-PHMSA-MOU.pdf (accessed October 5, 2018).
26. News release, "FERC Issues Environmental Schedules for 12 LNG Terminal Applications," U.S. Department of Energy, Federal Energy Regulatory Commission, August 31, 2018, https://www.ferc.gov/media/news-releases/2018/2018-3/08-31-18.asp?csrt=10786925661945336364#.W7ZJS6ZKi71 (accessed October 5, 2018).

one agency to another through an MOU will not solve the underlying problems that contribute to a regulatory backlog.[27] Meidl offers practical next steps:

> One of the first tasks in determining the process boundaries, ownership, and responsibilities should be a high-level evaluation and mapping of the overall FERC/PHMSA review process where overlap, redundancies, delays, deficiencies, and insufficient staffing exist. This should be coupled with a needs assessment to identify resource and capability gaps and generate a roadmap that explains how weaknesses will be managed and which agency is best.[28]

Once FERC and PHMSA develop an efficient and transparent pathway that reduces bureaucratic obstacles to permit approval, Congress should codify the streamlined process. Doing so will have enduring effects in liberalizing energy markets and prevent future administrations from stalling applications for political purposes.

- **Providing alternative pathways for regulatory review.** To relieve LNG applicant congestion, Congress should empower state regulators to manage the environmental review and permitting process of offshore and near-shore export facilities, while maintaining FERC involvement. States should play a predominant role in authorizing the construction of LNG terminals, rather than simply holding veto authority (as is their current status). Congress should specify that a state's environmental review and permit approval satisfy all NEPA and other federal environmental requirements for an LNG project. Authorizing state regulatory departments to conduct the environmental assessment would ease the resource constraints faced by FERC and could lead to innovative process reforms that the federal government or other state regulatory bodies could replicate.

  Empowering a state environmental agency would not necessarily eliminate federal involvement. A state regulator could request technical or safety expertise from the FERC as necessary. In addition, state regulators could work in conjunction with the Coast Guard for its maritime safety and security assessment as well as the DOT's Office of Pipeline Safety requirements.[29] However, the state in which the facility is built should be permitted to defer to FERC, if such a step is in the state's and the facility's best interest. Deepwater offshore projects should remain under the jurisdiction of the Maritime Administration and the Coast Guard.

Conclusion

Increased efficiency to export LNG will enhance the U.S.'s role as the world's leading natural gas producer. Higher levels of exports will generate economic growth both domestically and globally. Furthermore, LNG exports would bolster U.S. national security and the security of America's allies by reducing the ability of any one nation to use its control of energy resources to threaten U.S. interests. Opening energy markets to both imports and exports fosters innovation as companies encounter more competition and meet challenges to retain or expand their market share. The result is competitive businesses, high-quality products, and an improved standard of living for Americans and citizens around the world.

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27. Rachel A. Meidl, "FERC and PHMSA Sign Memorandum of Understanding: Is It the Silver Bullet to Expedited LNG Application Reviews?" Baker Institute for Public Policy, Rice University, October 1, 2018, https://www.bakerinstitute.org/media/files/files/8bc35e0a/bi-brief-100118-ces-ferc.pdf (accessed October 5, 2018).
28. Ibid.
29. U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, "Jurisdiction of LNG Plants: Federal Oversight of LNG Value Chain."