

BACKGROUND

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U.S. Natural Gas Exports: Lift Restrictions and Empower the States

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Abstract

With the glut of natural gas and low gas prices in the United States, energy producers are seeking to liquefy and ship domestic natural gas to foreign markets. Exporting natural gas would provide a huge boon to the U.S. economy since it would expand market opportunities for American companies, and the higher prices would act as incentives for more exploration and production domestically. Unfortunately, the U.S. Department of Energy has delayed decisions on export licenses, preventing America from realizing its energy export potential. The Heritage Foundation's Nicolas Loris explains how the economic benefits of exporting natural gas are immense, why the economic concerns are exaggerated, and why Congress should lift restrictions on natural gas exports.

This paper, in its entirety, can be found at <http://report.heritage.org/bg2767>

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Technological advancements in directional drilling and hydraulic fracturing have led to an abundance of natural gas production in the United States that is fundamentally changing the energy landscape. The result has been more jobs, economic growth, and consistently low domestic natural gas prices in what has been known to be a historically volatile market. In fact, the current price of natural gas may be too low to sustain the current rate of development, as producers are flaring gas and in some cases not even drilling for new dry gas wells. Many producers are seeking to expand to foreign markets where prices are also much higher.

Unfortunately, the current regulatory regime surrounding natural gas has not adjusted to this huge influx of supply, particularly in the area of export regulations. The Department of Energy (DOE) is delaying decisions to approve applications due to concerns raised by some policymakers and energy-intensive companies that domestic prices will increase and adversely affect American energy consumers.

In reality, the concerns regarding American natural gas exports are unsubstantiated and exaggerated and do not outweigh the broad economic benefits for America. Congress

KEY POINTS

- The abundance of cheap domestic natural gas leads producers to seek opportunities for exporting natural gas to foreign markets where the price is much higher.
- Despite concerns from vested interests that exports will raise natural gas prices domestically, the net economic gains from natural gas exports are overwhelmingly positive.
- Natural gas export applicants must receive authorization from both the Department of Energy (DOE) and the Federal Energy Regulatory Commission. The DOE arbitrarily determines whether the project is in the "public interest."
- The reality is that the DOE's role in permit authorization is causing unnecessary delays. Congress should remove the DOE from the export permitting process and lift restrictions on natural gas recipient countries.
- Congress should also create a framework that empowers the states to manage the environmental review and permitting process, with FERC involvement at the discretion of states.

should remove the DOE's authority for authorizing natural gas export permits, and introduce reform that allows the states to control the environmental review and permitting process for natural gas export facilities.

U.S. Natural Gas: Abundant, Diverse, Great Export Potential

With 2,543 trillion cubic feet (tcf) of technically recoverable natural gas, the United States has more than a century's worth of natural gas beneath its soil at current consumption rates.¹ Natural gas is not only a critical source for electricity generation, providing about 30 percent of America's electricity,² but also for heating and cooling homes, stoves, furnaces, and water heaters. Furthermore, natural gas has a number of industrial applications. Natural gas and hydrocarbons removed from natural gas provide a feedstock for fertilizers, chemicals and pharmaceuticals, waste treatment, food processing, fueling industrial boilers, and much more. More cars, buses, and trucks are running on natural gas as well.

To export natural gas, a company must liquefy the gas at a liquefaction plant at -162 degrees Celsius.³ The liquefied natural gas (LNG) is then shipped from an export terminal and delivered to a re-gasification import terminal to be stored or

distributed by pipeline at the recipient location.

Exporting natural gas would provide a tremendous benefit for the American economy, as it would expand market opportunities. Given the disparity in prices between domestic and foreign markets (Europe, Asia, and Latin America, for instance) those opportunities should prove to be plentiful even with the costs of transport tankers and liquefaction plants. As part of its statutory requirement to determine the public interest of exporting natural gas to non free trade agreement nations, the Department of Energy recently released its second study on the macroeconomic effects of exporting LNG from America. Produced by the economic consulting firm National Economic Research Associates (NERA), the study found net economic benefits: an annual average increase in export revenue from \$10 billion to \$30 billion as well as overall increases in welfare and real household income (up to \$47 billion by 2020).⁴ The Council on Foreign Relations estimates that the U.S. gains from trade would be \$4 billion annually.⁵ Whatever the magnitude, the direction of net economic effect is the same: Americans can expect to benefit directly or indirectly from increasing LNG exports.

Economically Misguided Concerns

Politicians and energy-intensive manufacturers have raised concerns that exporting natural gas will raise prices, hurting American businesses and energy consumers, and is therefore not a prospect in the best national interest. Business leaders whose companies rely heavily on natural gas and have a vested interest in low natural gas prices argue that there is more value added to the American economy in keeping natural gas domestic and using the cheap natural gas as an input to export more expensive goods. Another argument is that the more natural gas the U.S. exports, the higher the likelihood that natural gas becomes a commodity like oil, and therefore prices will rise to the foreign levels. These assertions are economically misguided and take a static view of how markets function.

Setting the record straight:

- **LNG exports will raise domestic prices only minimally, and producers will respond by increasing extraction and development.** Exporting natural gas could increase domestic prices but only marginally: The consulting firm Deloitte found that exports would raise domestic prices only 1.7 percent over 20 years.⁶ The Energy Information Administration projected that, depending on the

1. U.S. Energy Information Administration, Assumptions to the Annual Energy Outlook, 2011.

2. U.S. Energy Information Administration / Monthly Energy Review, January 2013, Table 7.2a, http://www.eia.gov/totalenergy/data/monthly/pdf/sec7_5.pdf (accessed February 6, 2013).

3. International Energy Agency, "FAQs: Natural Gas," <http://www.iea.org/aboutus/faqs/gas/> (accessed February 2, 2013).

4. Range depends on a low export case versus a high export case. National Economic Research Associates, "Macroeconomic Impacts of LNG Exports from the United States," December 3, 2012, http://www.fossil.energy.gov/programs/gasregulation/reports/nera_lng_report.pdf (accessed February 6, 2013).

5. The Hamilton Project, "A Strategy for U.S. Natural Gas Exports," *Policy Brief* No. 2012-4, June 2012, http://www.hamiltonproject.org/files/downloads_and_links/O6_exports_levi_brief.pdf (accessed February 6, 2013).

6. Deloitte Center for Energy Solutions and Deloitte MarketPoint LLC, "Made in America: The Economic Impact of LNG Exports from the United States," 2011, http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/Energy_us_er/us_er_MadeinAmerica_LNGPaper_122011.pdf (accessed February 6, 2013).

growth of exports, end-use consumers in residential, commercial, and industrial sectors combined would pay, on average, an increase of 3 percent to 9 percent from 2015 to 2035 for natural gas bills compared to a scenario with no exports. Electricity bills by end users would increase on average from 1 percent to 3 percent over the same time period.⁷

While LNG exports would raise domestic prices, those higher prices would act as incentives for more exploration and production, offsetting some of the price increase, or even keeping prices as low as they are now, since the gas is still profitable to produce at a low price in some regions of the country. Providing other countries with cheaper energy would not only lower the prices of products that the U.S. imports (because businesses could make the products more cheaply), it would also promote economic development in those countries so that they import more American goods. Simply put, the gains from free trade far outweigh any losses incurred. With respect to natural gas, the NERA study confirms this by concluding, “Across the scenarios, U.S. economic welfare consistently increases as the volume of natural gas exports increased. This includes scenarios in which there are unlimited exports.”⁸ Higher natural gas prices also open up

opportunities for producers of other electricity sources, such as coal, nuclear energy, wind, or solar power. If natural gas prices rise to a point where other power sources are competitive, the result will be more competition and innovation within the energy sector.

- **Markets should direct natural gas toward its highest valued use.** Another argument made against LNG exports is that the federal government should keep the natural gas locked here so that manufacturers can use it as a cheap input for a manufactured, more expensive product, such as steel, chemicals, or paper and then export those goods. Unsurprisingly, it is those in the chemical industry making this argument to protect against their prices rising.⁹ Should the performance plastics that are produced at the chemical company and used for the automotive industry be restricted from export so that American car manufacturers have a leg up to sell their assembled good? Should the federal government prevent the state of Hawaii from exporting pineapples and only sell them to American bakers who turn them into pineapple upside-down cake at a higher price? A producer could make that argument about any good sold in the United States.

The short answer is no. Goods and services should be allocated to their highest-valued use, and that is determined by who is willing to pay most for them. Importers are willing to pay for U.S. natural gas, and while domestic users of natural gas could be adversely affected by higher prices, their willingness to pay for more expensive natural gas will indicate how much they value its use in the products they create. If gas leads to greater added value in chemical production than in gas exports, the chemical companies will be willing to pay more for the gas. This is how markets direct resources to the highest valued use. In any case, the overall wealth created by opening up markets far outweighs the negative effects on impacted domestic users.

- **Exporting natural gas will not elevate domestic gas prices to a globally set, higher level.** No global price for natural gas exists, and approving LNG export facilities in the U.S. is unlikely to result in the natural gas becoming a commodity price. As the Deloitte study highlights: “Natural gas, unlike oil, is highly unlikely to ever have a world price. The cost of transportation, on a unitized energy basis, is much higher for gas than it is for oil. Therefore, global gas markets will remain partially interconnected regional markets

7. U.S. Energy Information Administration, “Effect of Increased Natural Gas Exports on Domestic Energy Markets (as Requested by the Office of Fossil Energy),” January 2012, http://www.fossil.energy.gov/programs/gasregulation/reports/fe_eia_lng.pdf (accessed February 6, 2013).

8. National Economic Research Associates, “Macroeconomic Impacts of LNG Exports from the United States.”

9. Jennifer A. Dlouhy, “Manufacturers Pushing Hard Against LNG Exports,” FuelFix, December 6, 2012, <http://fuelfix.com/blog/2012/12/06/manufacturers-pushing-hard-against-lng-exports/> (accessed February 6, 2013).

with prices within each region determined by regional supply and demand balances.”¹⁰

Unlike crude oil, natural gas must be processed first at a cost that drives a wedge between domestic and foreign prices. Since building the terminal, liquefying the natural gas, and shipping across the ocean is a costly process, there will need to be a substantial gap between domestic prices and foreign prices to make it worthwhile for the U.S. to export natural gas to foreign markets. If that gap shrinks, it will no longer be profitable to export.

Onerous Regulations, Not Exports, Are the Problem

A much more realistic threat to affordable domestic natural gas is the federal government’s intervention in natural gas extraction, specifically the hydraulic fracturing process. One of the reasons why hydraulic fracturing in the U.S. has been successful in promoting oil and gas development for decades, while maintaining a strong environmental record, is the state regulatory regime. States in which fracturing takes place each have comprehensive regulation that ensures that oil and gas companies operate safely and in an

environmentally responsible manner, and administer fines and implement punitive measures to correct wrongdoing.

In November 2011, the Environmental Protection Agency’s (EPA) Lisa Jackson acknowledged the states’ role: “States are stepping up and doing a good job. It doesn’t have to be EPA that regulates the 10,000 wells that might go in.”¹¹ But states are not just now stepping up—states have effectively regulated oil and gas production and hydraulic fracturing for decades. In Pennsylvania, fracking has been taking place since the 1960s, with nearly 100,000 oil and gas wells fracked and no instances of contamination of groundwater. The same clean record is true for Ohio, where over 70,000 oil and gas wells have been fracked since the 1960s. The Interstate Oil and Gas Compact Commission has compiled statistics for all 50 states, each of which has a flawless record when it comes to fracking and groundwater protection.¹²

Despite the states’ regulatory effectiveness, the federal government is pursuing costly and duplicative regulations. In April 2012, the EPA announced its first air-emission rules for hydraulic fracturing. The EPA contends that the regulations are necessary to reduce emissions

of volatile organic compounds and hazardous air pollutants. However, the EPA quantifies only environmental benefits from regulating methane, clearly indicating this rule was more about regulating a greenhouse gas. The EPA’s rule miserably fails the cost-benefit test—the agency’s own analysis projects \$745 million in annual costs and just \$11 million to \$19 million in environmental benefits. Moreover, the EPA has grossly overestimated methane emissions from the wells.¹³

Further, the Department of the Interior released a draft rule on public disclosure of chemicals on federal lands despite the fact that states have successfully managed chemical disclosure.¹⁴ Congress has also introduced legislation that would regulate fracking fluids under the Safe Drinking Water Act (SDWA) despite the fact that the 2005 Energy Policy Act codified that Congress never intended to regulate fracking (except when using diesel oil in the fracking process under SDWA).¹⁵ Hydraulic fracturing had been safely regulated for a quarter century before Congress enacted SDWA in 1974.

The EPA is conducting a study on the effect of fracking on drinking water and groundwater; the agency expects to release a draft report in 2014.¹⁶ While the study itself does

10. Deloitte, “Made in America.”

11. Interview with Lisa Jackson, “The Rachel Maddow Show,” November 22, 2011, <http://video.msnbc.msn.com/the-rachel-maddow-show/45395747#45395747> (accessed February 2, 2013).

12. Interstate Oil and Gas Compact Commission, “Hydraulic Fracturing: State Progress,” <http://groundwork.iogcc.org/topics-index/hydraulic-fracturing/state-progress> (accessed February 2, 2013).

13. Terri Shires and Miriam Lev-On, “Characterizing Pivotal Sources of Methane Emissions from Unconventional Natural Gas Production,” American Petroleum Institute and America’s Natural Gas Alliance, June 1, 2012, <http://www.anga.us/media/249160/anga%20api%20survey%20report%201%20june%20final.pdf> (accessed February 2, 2013).

14. U.S. Department of the Interior, “Oil and Gas: Well Stimulation, Including Hydraulic Fracturing, on Federal and Indian Lands,” Draft Rule, May 4, 2012, <http://www.doi.gov/news/pressreleases/loader.cfm?csModule=security/getfile&pageid=293916> (accessed July 26, 2012).

15. Energy Policy Act of 2005, Public Law 109-58.

16. Environmental Protection Agency, “EPA’s Study of Hydraulic Fracturing and Its Potential Impact on Drinking Water Resources,” January 29, 2013, <http://www.epa.gov/hfstudy/> (accessed February 2, 2013).

not pose a threat, the EPA's guilty-until-proven innocent approach is cause for concern. The EPA accused companies of contaminating water supplies in Pennsylvania, Texas, and Wyoming, and thus far the EPA has found no evidence of drinking water contamination; in the case of Wyoming, however, the EPA published faulty data with speculative and heavily contested conclusions. A legitimate fear is that the 2014 report will do the same.¹⁷

The facts and history of hydraulic fracturing indicate that many of the fears associated with the process are exaggerated or unsubstantiated. Entrepreneurs created an energy boom and state regulators have been ensuring that energy production occurs in an environmentally sensible way. In this manner, responsibility is allocated to land managers who have local knowledge and the most to gain from proper management and the most to lose from mismanagement.¹⁸ Congress should keep it that way.¹⁹

The Federal Government's Role in LNG Exports

In order to export natural gas from the United States, companies

must obtain approval from both the Federal Energy Regulatory Commission (FERC) and the Department of Energy's Office of Fossil Energy. The Natural Gas Act of 1938 grants FERC the authorization to site both import and export facilities in accordance with the National Environmental Policy Act (NEPA) and existing statutes to satisfy environmental requirements including 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). States have the authority to veto any approval decision by FERC by denying the facility's environmental permits.²⁰ The applicant must also satisfy requirements under the Maritime Transportation Security Act (MTSA) of 2002 as well as the Department of Transportation's Office of Pipeline Safety requirements. FERC will approve the project if the agency believes the facility is in the public's interest.²¹

Section 3 of the Natural Gas Act also gives the Department of Energy's Office of Fossil Energy (FE) a say in the decision to export

natural gas.²² After a company files an application with the DOE, the agency must determine whether the project is in the public's interest. The DOE can arbitrarily deny a permit if the agency believes the total volume of natural gas exported is not in the public's interest. A facility is automatically authorized if the country the U.S. is exporting to is a recipient nation that has a free trade agreement (FTA) with the U.S.²³ If the importing country does not have an FTA, the Energy Department must then publish the notice in the *Federal Register* for a comment period, and ultimately determine if the facility is in the public's interest.

Houston-based Cheniere Energy filed an application with the DOE in September of 2010 to export LNG to non-FTA countries, and the EPA conditionally approved the permit in May 2011. Cheniere submitted its review process to FERC in December 2011 and FERC approved the project in April of 2012.²⁴ However, after FERC completed its review in 2012, the Sierra Club asked the DOE to reconsider the permit, arguing that the environmental review was incomplete. The DOE then delayed a decision to stay the permit but

17. Senator David Vitter, "Vitter, Inhofe Call EPA's Report on Hydraulic Fracturing in Wyoming a Failure," January 17, 2013, http://www.vitter.senate.gov/public/index.cfm?FuseAction=PressRoom.PressReleases&ContentRecord_id=4980333a-f0ac-2c03-cd6f-2b9427f5f513 (accessed February 6, 2013).

18. Romina Boccia, Jack Spencer, and Robert Gordon, "Environmental Conservation Based on Individual Liberty and Economic Freedom," Heritage Foundation *Backgrounder* No. 2758, January 4, 2013, <http://www.heritage.org/research/reports/2013/01/environmental-conservation-based-on-individual-liberty-and-economic-freedom>.

19. Nicolas D. Loris, "Hydraulic Fracturing: Critical for Energy Production, Jobs, and Economic Growth," Heritage Foundation *Backgrounder* No. 2417, April 28, 2012, http://www.heritage.org/research/reports/2012/08/hydraulic-fracturing-critical-for-energy-production-jobs-and-economic-growth#_ftn23.

20. Federal Energy Regulatory Commission, *Laws and Regulations: States' Rights in Authorization of LNG Facilities*, <http://ferc.gov/industries/gas/indus-act/lng/state-rights.asp> (accessed February 2, 2013).

21. Federal Energy Regulatory Commission, "Project Review Process," June 28, 2010, <http://ferc.gov/industries/gas/indus-act/lng/rev-proc.asp> (accessed February 6, 2013).

22. Natural Gas Act, Section 3, 15 U.S. Code § 717(b) (1938).

23. *Ibid.*

24. Cheniere, "Corpus Christi Liquefaction Project: Federal Energy Regulatory Commission Process," http://www.cheniere.com/corpus_christi/ferc_process.shtml (accessed February 2, 2013).

ultimately dismissed the Sierra Club's request.²⁵ Even without the Sierra Club's obstruction, the DOE review process needlessly added a year to the review process.

Wasting Time Wastes Opportunity

Thus far, the DOE has only granted one permit out of the 17 applications the EPA received to export domestic LNG. All applications have FTA-approval but are under DOE review for approval to export to non-FTA countries.²⁶ A number of countries around the world already have LNG export terminals, and are expanding their export capacity. In fact, 46 LNG export terminals exist worldwide, with Qatar being the world's largest exporter, and Algeria, Australia, Indonesia, and Malaysia all substantial exporters as well.²⁷ Of the 13 LNG export projects currently under construction, eight of them are in Australia.²⁸ Excluding the terminals proposed in the United States, there are more than 20 planned in other countries.²⁹

As the Department of Energy wavers on approving LNG terminals, other countries are pursuing this valuable opportunity. Of course, natural gas exports are not a zero-sum game. Companies in other countries expanding their LNG exporting capacity do not necessarily negate opportunities for companies in the U.S. to do the same. If, however, a slow permitting process needlessly

delays export terminals, the economics could change as exports from other countries lower prices in regions the U.S. wishes to engage. If exporting LNG from U.S. ports is no longer economically viable as a result of international competition, companies will not seek to build more terminals. But they should not be forced out of opportunities by an unnecessarily slow DOE.

Reforms Needed to Increase Access to Markets

The current system is too onerous to allow American LNG exports to reach the market in a timely manner. The DOE's role in permit authorization is completely unnecessary and U.S. producers should be allowed to export LNG to any country they see fit. Further, Congress should return jurisdiction to the state governors by allocating authority to state regulators to conduct the environmental review and provide the permit to construct an LNG facility. Given the large volume of LNG export applications, not only could this take some of the burden off FERC, it could also spawn an efficient review process that allows these projects to come online more efficiently. In that vein, Congress should:

- **Lift restrictions on LNG-recipient countries.** The distinction that exports to FTA countries are in the "public interest" while others are not is on the whole an

arbitrary one. There are numerous non-FTA nations with which the U.S. trades regularly. Natural gas should be no different and should be treated as any other good traded around the world.

- **Remove all decision rights from the Department of Energy and prohibit any federal agency from determining natural gas exports based on public interest.** It should not be up to the Department of Energy, FERC, or any federal agency, to determine what amount of natural gas to export is in the public's interest. Energy producers should be able to capture economic opportunities from LNG-recipient nations if they believe it is in their interest. If the DOE was sincere in its role to protect the public interest, it would have accepted its own analysis that exporting as much LNG as possible is an overall benefit to economic welfare. The DOE's authorization requirement is a pointless obstacle and should be removed immediately.
- **Empower state regulators to manage the environmental review and permitting process of the export facility while allowing FERC to stay involved.** States already have the authority to veto LNG terminals. Rather than take an advisory role to FERC, states should play a more

25. United States Department of Energy, Office of Fossil Energy, "Opinion and Order Denying Request for Rehearing of Order Denying Motion for Late Intervention, Dismissing Request for Rehearing of Order No. 296 1-A, and Dismissing Motion for a Stay Pendente Lite," January 25, 2013, http://www.fossil.energy.gov/programs/gasregulation/authorizations/Orders_Issued_2013/ord2961-B.pdf (accessed February 6, 2013).

26. Department of Energy, "Applications Received by DOE/FE to Export Domestically Produced LNG from the Lower-48 States," January 11, 2013, http://fossil.energy.gov/programs/gasregulation/reports/summary_lng_applications.pdf (accessed February 2, 2013).

27. International Energy Agency, "FAQs: Natural Gas."

28. LNG Insight, World LNG Exporters, http://www.petroleum-economist.com/pdf/LNGInsight_April/LNG%20Exporters.pdf (accessed February 2, 2013).

29. Ibid.

predominant role in authorizing the construction of the terminal. A state's environmental review and permit approval would satisfy the federal permits necessary to build an LNG terminal.³⁰ The state permit approval would satisfy all other necessary approvals required under the National Environmental Policy Act. A state regulator can pull in FERC technical or safety expertise as necessary. Export applicants would also need to meet Coast Guard security standards and the requirements under the MTSA, as well as the Department of Transportation's Office of Pipeline Safety requirements.³¹

However, if the state in which the facility is built deems it in the state's and the facility's best interest to move forward with the FERC review because it is already in process, or even start the FERC review, the state should be permitted to grant that authority to FERC. All new LNG export applicants would fall under the state's jurisdiction.

Who's Down with LNG?

One of the bright spots in America's economy over the past few years has been natural gas production, and it could be even brighter. The economic potential for natural gas exports is massive and the economic concerns are unfounded. Unfortunately, the anemic permit authorization from the Department of Energy is preventing exporters from realizing the potential. Congress should remove the decision-making power from the DOE and create a framework that allows states to control their own exporting destiny. Doing so would not diminish the environmental review and permitting process, but establish a more efficient system that maximizes economic opportunity and protects the environment.

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30. Federal Energy Regulatory Commission, "Laws and Regulations: States' Rights in Authorization of LNG Facilities," June 28, 2010, <http://ferc.gov/industries/gas/indus-act/lng/state-rights.asp> (accessed February 2, 2013).

31. U.S. Department of Transportation, Pipeline & Hazardous Materials Safety Administration, "Siting LNG Plants," http://primis.phmsa.dot.gov/comm/LNG_Siting.htm (accessed February 7, 2013).