THE HAMILTON PROJECT

Advancing Opportunity, Prosperity, and Growth

POLICY BRIEF 2012-04

# A Strategy for U.S. Natural Gas Exports

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We believe that today's increasingly competitive global economy demands public policy ideas commensurate with the challenges of the 21st Century. The Project's economic strategy reflects a judgment that long-term prosperity is best achieved by fostering economic growth and broad participation in that growth, by enhancing individual economic security, and by embracing a role for effective government in making needed public investments.

Our strategy calls for combining public investment, a secure social safety net, and fiscal discipline. In that framework, the Project puts forward innovative proposals from leading economic thinkers — based on credible evidence and experience, not ideology or doctrine — to introduce new and effective policy options into the national debate.

The Project is named after Alexander Hamilton, the nation's first Treasury Secretary, who laid the foundation for the modern American economy. Hamilton stood for sound fiscal policy, believed that broad-based opportunity for advancement would drive American economic growth, and recognized that "prudent aids and encouragements on the part of government" are necessary to enhance and guide market forces. The guiding principles of the Project remain consistent with these views.

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# A Strategy for U.S. Natural Gas Exports

*U.S. natural gas production* is booming. New technologies now allow access to natural gas that had been impossible for producers to extract economically only a few years ago. As a result, domestic natural gas prices have plummeted, and the United States has reduced its demand for imported gas. Indeed, ample production and higher natural gas prices in foreign markets have led many to conclude that the United States is in an ideal position to export natural gas overseas. This has led to a flood of applications from firms to the U.S. Department of Energy (DOE) and Federal Energy Regulatory Commission (FERC) for permission to export liquefied natural gas (LNG) overseas.

In a new discussion paper for The Hamilton Project, Michael Levi of the Council on Foreign Relations proposes a six-part framework for policymakers to use in assessing LNG exports and applies it to the decisions currently confronting regulators. Under his proposal, regulators would evaluate applications for exporting natural gas on the basis of macroeconomic, distributional, oil security, climate change, foreign policy, and local environmental considerations. Levi ultimately argues that, with the right steps to mitigate potential downsides, the benefits to the United States of allowing natural gas exports would outweigh the costs of explicitly constraining them. He therefore proposes that the federal government approve applications for exports and for modifications to export terminals barring problems particular to individual projects. He also offers broad recommendations aimed at using U.S. natural gas export policy to advance the nation's foreign policy and trade goals, and hence its broader economic prosperity.

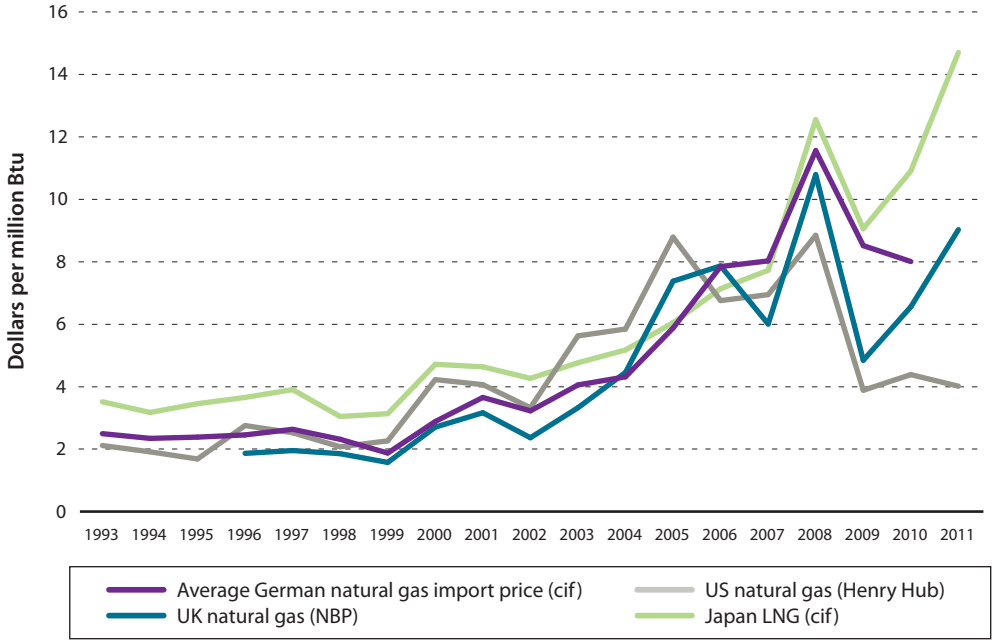
## The Challenge

The divergence of world prices for natural gas appears to have created an opportunity for U.S. firms to sell natural gas overseas at a profit. Until about five years ago, natural gas prices in the United States, Europe, and Asia were closely linked, but with the shale gas revolution in North America, this relationship has been, at least temporarily, broken (Figure 1). In 2012, the spot price for one thousand cubic feet of natural gas fell below $2 in the United States, while the same amount of natural gas sold for $11 in Europe and over $15 in Asia. Relatively high international gas prices and low prices in the United States have made the prospect of exporting natural gas attractive to some American businesses, and several have applied for permits to ship LNG. Less than ten years ago, the United States was expected to be dependent on imports of natural gas indefinitely. Analysts now predict that if exports of natural gas are allowed, the United States could export as much as six billion cubic feet of natural gas per day by the end of the decade.

Before a company is allowed to export natural gas, it must receive approval from DOE, which was mandated by Congress to oversee the application approval process. Applications for exporting to countries with which the United States has an applicable Free Trade Agreement (FTA) are expedited for approval—and permits

FIGURE 1.

### Select Prices of Natural Gas and LNG, 1993–2011




Note: cif represents sum of cost, insurance and freight (average).

TABLE 1.

## Costs and Benefits of Allowing Natural Gas Exports

| | | Benefits | Costs |
|---|---|---|---|
| What macroeconomic consequences would natural gas exports have? | Economic Output | Estimates suggest that the U.S. economy will gain up to $4 billion annually from exports, primarily from overseas sales of increased natural gas production. | Exports raise the cost of natural gas, resulting in less domestic gas consumption, and hence less economic output in some sectors. Estimates suggest that these losses are in the range of $500 million annually, primarily from reduced output in energy intensive industries. |
| | Current Account Balance | Total export revenues could be up to $20 billion higher each year, but the current account balance is likely to be unchanged absent more fundamental shifts in savings and consumption. | |
| | Employment | Exports could create up to 8,000 near-term jobs in export facility construction. In the long run, they could also support up to 60,000 jobs in natural gas production and along the supply chain. | Estimates indicate that approximately 6,000 jobs could be lost in energy intensive industries in the long run due to higher natural gas prices. In the long run as the economy returns to full employment, job gains due to LNG exports will be offset by losses elsewhere in the economy for no net impact on employment. |
| | Price Volatility | Allowing exports could help link U.S. natural gas markets with world markets. This provides a buffer against domestic shocks. | Linking domestic and world natural gas markets could increase U.S. exposure to overseas shocks in natural gas prices. |
| What would the distributional impacts of natural gas exports be? | | None | Exports are projected to slightly raise the cost of domestic natural gas. This would have a disproportionate effect on lower-income households, who would face additional costs that are estimated to be around $50 annually. |
| How would natural gas exports affect U.S. oil security? | | None | Domestic natural gas could in principle be used as a substitute for oil. If exports are constrained, the United States would use marginally less oil in transport. |
| What impact would natural gas exports have on climate change? | | Natural gas exports could displace dirtier coal-fired power overseas. It could also, however, lead to greater energy consumption abroad by lowering energy costs. | Higher domestic prices would marginally weaken the incentive to displace coal-fired power in the United States, but would also lower U.S. electricity demand. |
| What foreign policy consequences might natural gas exports entail? | | U.S. exports could disrupt opaque and politically entangled natural gas markets, potentially reducing revenues to Russia, Iran, and others. Exports also give the United States new leverage in trade negotiations. Finally, allowing exports avoids creating major ruptures in NAFTA and WTO, including in the ongoing U.S. efforts to remove Chinese minerals export quotas. | None |
| What would the local environmental consequences of natural gas exports be? | | None | Increased shale gas production can have negative environmental consequences such as water contamination and local pollution in the absence of appropriate environmental regulation. |

are essentially automatic—which is particularly relevant for the approval of potential exports to South Korea. Applications to export to other countries are less simple. As of May 2012, several companies had submitted applications for permits to export to countries with which the United States does not have applicable FTAs and were awaiting responses.

Following approval from DOE, companies seeking to export natural gas must then obtain approval from FERC to operate or modify export terminals. These special, multi-billion dollar facilities are used to prepare natural gas for overseas transport.

In crafting U.S. policy toward exports, U.S. regulators and lawmakers will inevitably weigh a wide range of concerns and interests. Intense public debate has already made clear that this will not be straightforward: regulators will need to balance the interests of natural gas producers and exporters, concerns that exports of natural gas would drive up energy prices or have adverse environmental impacts, and the interests of the public as a whole. Ultimately, DOE regulators operate under a mandate to only approve exports that are in the public interest.

## Six Key Considerations for Policymakers

Participants in the debate over LNG exports often focus sharply on one or two dimensions of the problem. Some emphasize the primacy of free trade; others worry about natural gas prices; some focus on national security; and others emphasize environmental risks and benefits. Levi argues that, rather than picking some considerations over others, policymakers should adopt a holistic approach to assessing the prospect of LNG exports. He identifies six dimensions that are typically discussed as critical to considered analysis: macroeconomic (including economic output, jobs, and balance of trade), distributional, oil security, climate change, foreign and trade policy, and local environment. Levi argues that estimates of the net impact of U.S. decisions on LNG exports along all six dimensions should form the basis of ultimate judgments on U.S. policy. Levi estimates the potential costs and benefits within each area, which could serve as useful information for regulators as they process applications; the broad contours of his analysis are summarized in Table 1. The colors in the table correspond to each category's net effects, with green indicating that the benefits outweigh the costs, and purple indicating the opposite. Stronger shades indicate items where the imbalance between cost and benefit is more pronounced.

Considering the six dimensions outlined above, Levi finds that the benefits of allowing exports of natural gas outweigh the costs, given appropriate environmental regulation of shale gas production. He therefore proposes that the DOE approve all currently pending applications to export natural gas to non-FTA countries (with exceptions for applications that are inconsistent with other DOE rules and regulations). He also observes that the DOE is required to determine whether allowing exports is in the public interest, and proposes that a similar framework to the one presented in his paper could be used for that. In issuing approval, he argues, DOE will be acting in accordance with its Congressional mandate to approve exports in the public interest.

The second step in the export-approval process is that FERC must also approve any changes made to terminal facilities. Levi recommends that FERC does so, again with exceptions for applications that are inconsistent with other rules and regulations. It is important to note that the completion of these suggested steps will require no new funding, staffing, or legislation.

Levi also provides further policy recommendations and points to opportunities created by U.S. exports of natural gas. He argues that tax revenues from increased natural gas production due to export demand could be used to mitigate cost increases for low-income consumers and emphasizes that improved industry practices and more effective regulations are essential to ensuring that exports do not create unacceptable increases in environmental risk.

### Roadmap

When assessing the wisdom of natural gas exports, policymakers—both regulators at the U.S. Department of Energy and lawmakers who might consider imposing limits on exports—should adopt a holistic approach that thoroughly considers six major questions:

- What macroeconomic consequences would natural gas exports have?
- What would the distributional impacts of natural gas exports be?
- How would natural gas exports affect U.S. oil security?
- What impact would natural gas exports have on climate change?
- What foreign policy consequences might natural gas exports entail?
- What would the local environmental consequences of natural gas exports be?

In each case where the national benefits of natural gas exports outweigh the costs, the Department of Energy should approve pending applications for natural gas exports.

The Federal Energy Regulatory Commission should then approve modifications to natural gas export infrastructure to allow for exports of LNG.

## Learn More About This Proposal

This policy proposal is based on The Hamilton Project discussion paper, A Strategy for U.S. Natural Gas Exports, which was authored by:

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Council on Foreign Relations

## Additional Hamilton Project Proposals

### Modernizing Bonding Requirements for Natural Gas Producers

LUCAS DAVIS

Existing legislation requires natural gas producers to post a bond prior to drilling, to help ensure that funds are available for clean-up when accidents occur, and to motivate producers to work hard to avoid environmental damages. For drilling done on federal lands, current minimum bond amounts were last set in 1960. Today, they provide inadequate protection because they have not been updated for inflation and because hydraulic fracturing and other technological advances in drilling raise new environmental concerns. This proposal would increase federal minimum bond amounts to account for inflation and the risks associated with fracking, and encourage states to adopt similar minimum bond amounts for drilling on private lands. In addition, the proposal would eliminate provisions that currently allow companies to meet their bonding requirements by posting a single "blanket" bond.

### Leveling the Playing Field for Natural Gas in Transportation

CHRISTOPHER R. KNITTEL

Petroleum dominates the U.S. transportation sector, but growing concerns about U.S. energy security and about the environmental effects of oil have increased pressures to find alternative sources of energy for transportation. Domestic natural gas is cleaner than oil, cheaper than oil, and contributes to energy security, making it an increasingly attractive and practical alternative. This paper offers a set of policy proposals designed to remove obstacles that prevent increased utilization of natural gas in transportation. The paper proposes that policymakers should provide support for natural gas refueling infrastructure and should create incentives for natural gas use that are aligned with its environmental and energy security benefits.

Levi also proposes that the possibility of allowing further exports to non-FTA countries should be used as leverage in trade negotiations. In particular, he recommends that the United States utilize export possibilities as leverage during Trans-Pacific Partnership talks with Japan and when emphasizing the benefits resulting from continuing the FTA with Korea.

Finally, Levi recommends that the government should take steps to promote transparency and market-based pricing in LNG markets. A more open market could benefit U.S. exporters as well as free countries from dependence on politically entangled contracts for natural gas from the current small group of natural gas producing countries. In order to accomplish this task, Levi recommends that, if forced to choose among applications, the DOE give preference to export permit applications from companies that are likely to base future export contracts on natural gas spot market prices rather than the more common oil-linked prices. The DOE would be able to give such a preference while remaining consistent with Levi's first proposal due to the fact that evaluating applications in this manner would follow the mandate that the agency only approve exports that are in the public interest.

On a broader note, Levi also suggests that, if necessary, the United States support ongoing efforts to widen the Panama Canal, since doing so would allow easier access to Asian markets, resulting in a closer connection between world markets and greater profits for U.S. exporters. Lastly, the State Department and DOE should seek opportunities to promote transparent global markets. These efforts could include funding studies by the International Energy Agency on the benefits of open natural gas markets or engaging in dialogue with exporters and importers around the world.

# Conclusion

The question of whether to export American natural gas to foreign markets has become controversial. The United States produced only 89 percent of the amount of natural gas that it consumed in 2010, but it is now set to produce 105 percent of the amount of natural gas that it will consume in 2035. While recognizing that allowing exports involves tradeoffs and risks, Michael Levi recommends that the U.S. government embrace this unexpected production growth and allow markets to determine export quantities. At the same time, he argues that allowing exports would increase the importance of strengthening prudent environmental protection for areas affected by natural gas development—even if increased costs of safe operation undermine the economics of exports at the margin. The national benefits that exporting will bring to the American economy, trade negotiations, and efforts to combat climate change are too significant to ignore—and the downsides of blocking exports for U.S. trade arrangements, and hence for U.S. consumers and workers more broadly, are too important to cast aside.

# Questions and Concerns

## 1. Where will the exported natural gas come from?

The Energy Information Administration projects that, in the most likely case, roughly 20 percent of exports would be drawn from natural gas that would otherwise be produced for domestic consumption, while roughly 80 percent of exported natural gas would come from new production. The 20 percent drawn from natural gas that would otherwise be used domestically would mainly have been used for power and industrial consumption.

## 2. How will allowing exports affect natural gas prices in the United States? Since prices are so much higher in Asia, would U.S. producers choose to ship their gas abroad, leading to reduced supply in domestic markets?

Domestic natural gas prices would rise but likely not substantially. It costs roughly $5 to move one thousand cubic feet of natural gas from U.S. to Asian markets; as a result, as long as exports are economic, U.S. prices will remain well below their overseas counterparts. In addition, Asian prices will likely fall as a result of U.S. and other exports, further constraining the possibility of export-driven domestic price increases.

## 3. Will exports contribute to government revenues?

The federal government would see increased revenue from increased taxable output in natural gas production. Levi estimates that the federal government could see an increase of more than $1 billion each year if a full six billion cubic feet of daily natural gas exports was realized. In addition, increased levels of production due to exporting would contribute increased corporate and severance tax revenue to state governments.

## 4. Would allowing exports result in faster depletion of U.S. natural gas reserves?

Exports would not deplete U.S. reserves to a significant degree. If the level of U.S. natural gas exports were to reach the very high end of estimates, the increased production would mean that the United States would deplete in 19 years the same amount of natural gas that it otherwise would have in 20 years.

## Highlights

Michael Levi of the Council on Foreign Relations weighs the economic and other benefits of liquefied natural gas (LNG) exports against the costs, and argues that the upsides of allowing LNG exports outweigh the downsides, providing that the U.S. government takes steps to mitigate risks to the local environment and low-income consumers. Levi proposes that the United States should allow exports of LNG, and offers recommendations for using access to exports to advance U.S. foreign and trade policy goals.

## The Proposal

**Apply a broad framework to assess the wisdom of liquefied natural gas exports.** Federal regulators and lawmakers can determine the potential impacts of applications for natural gas exports by considering the following six questions:

- What macroeconomic consequences would natural gas exports have?
- What would the distributional impacts of natural gas exports be?
- How would natural gas exports affect U.S. oil security?
- What impact would natural gas exports have on climate change?
- What foreign policy consequences might natural gas exports entail?
- What would the local environmental consequences of natural gas exports be?

**Unlock the gains from trade created by natural gas exports.** Allowing LNG exports will allow U.S. producers and workers to extract additional natural gas and sell it overseas at higher prices, bringing economic benefits to the United States. Blocking exports could have consequences for broader U.S. access to foreign markets, damaging U.S. growth. Therefore, the Department of Energy should approve current applications to export LNG, and the Federal Energy Regulatory Commission should approve applications to build or modify export terminals.

## Benefits

Using his framework, Levi estimates that allowing exports of LNG could result in roughly $4 billion in gains from trade annually, and bolster U.S. leverage in trade negotiations. Pushing for more transparent natural gas markets could reduce international dependence on the small group of countries that currently provide most natural gas. Finally, allowing exports of LNG would enhance ongoing U.S. efforts to promote access for U.S. firms and workers to other markets.

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