The Benefits of Natural Gas Exports

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Chairman Brady, Vice Chair Klobuchar, thank you very much for inviting me to testify on U.S. natural gas exports. I am a senior fellow at the Manhattan Institute for Policy Research, where I direct the Manhattan Institute's economics portal, Economics21.org, which focuses of ways that America can increase economic growth.

Even with Gazprom, Russia's state-owned energy company, cutting off natural gas supplies to Ukraine last Monday, no one wants to use military force to counteract Russia. President Obama's 2015 Budget will shrink the military still further. But the United States has another weapon at our disposal, liquid natural gas exports. Exporting liquid natural gas would help our allies and hit Russia where it hurts, in the pocketbook. This would make Putin think twice about his next move in Ukraine or about invading another sovereign nation.

The recent turmoil in Iraq shows how even with increased U.S. oil production, global oil prices have the potential to become volatile. This increases the value of natural gas exports. Liquid natural gas can now power trucks more cheaply than diesel. If fighting continues and moves south, Iraq's oil production could be substantially decreased for an extended time period. This would make U.S. natural gas exports even more vital as individuals and businesses around the world look for ways to offset the increase in oil prices.

Of the 18.7 trillion cubic feet of natural gas consumed by Europe in 2013, according to the Energy Information Administration, Russia supplied 30 percent (5.7 trillion cubic feet). The Energy Department estimates that 16 percent (3.0 trillion cubic feet) of the natural gas consumed in Europe passed through Ukraine's pipeline network.[1]

In the past, as much as 80 percent of Russian natural gas exports went through Ukraine, but that has declined to 50 percent to 60 percent due to the Nord Stream pipeline, built in 2011, which provided a direct link between Russia and Germany under the Baltic Sea.

Nearly 12 billion cubic feet of natural gas flows through Ukraine per day in the winter and about 6 billion cubic feet per day in the summer.

Honorable Members of Congress, you could immediately assist Ukraine and other countries by amending the Natural Gas Act to ensure that the Energy Department approves LNG export applications within a short period of time.

[1] Metelitsa, Alexander, "16% of Natural Gas Consumed in Europe Flows through Ukraine," U.S. Energy Information Administration, March 14, 2014.

You could also pass legislation allowing LNG to be exported to all World Trade Organization members, irrespective of whether they have free trade agreements with the United States.

You could go still further, and cease to require approval for LNG exports.

More than half of Ukraine's natural gas, and 30 percent of Europe's natural gas, is provided by Russia. Russia gets about half of its revenue from oil and gas. Natural gas is cheaper in the United States than in Russia, so increasing America's exports of LNG would lower Russia's profits.

Last fall, in a forum hosted on Capitol Hill, Zygimantas Pavilionis, Lithuanian Ambassador to the United States and Mexico, said, "An ability to import natural gas from the U.S., even very small amounts by U.S. standards, would make a huge impact on the Lithuanian gas market and allow the nation to develop a reliable alternative to Russian gas."

And according to Jaroslav Zajicek, the Czech Republic's Deputy Chief of Mission, "We have already seen examples where the Russian negotiating position during contract-renewal talks was weakened thanks to decreasing prices on the markets in Western Europe."

This week natural gas for July delivery was trading at about $4.50 per million British thermal units, compared to over $10.00 per million BTUs in Europe.

America is overtaking Russia as the world's largest oil and gas producer, and could be exporting natural gas abroad. However, companies face barriers because there is substantial red tape in exporting natural gas. Many believe that the United States should keep all its natural gas, rather than exporting it. That is why it takes a long time to get approval to build terminals to export LNG, and to get permits to export LNG to countries without free trade agreements with the United States.

This is misguided. America has massive natural gas expansion capacity, and LNG exports are unlikely to harm U.S. manufacturing's comparative advantage in cheap energy. Even if we export LNG, it will still be less expensive in the United States, because of transportation costs.

If companies want to sell to a country which has no free trade agreement with the United States, they need approval from the Energy Department, which can take years. America has free trade agreements with only 20 countries, and the Energy Department has approved only six LNG export terminal projects since 2011.

The Energy Department is sitting on two dozen applications to export natural gas, some from 2011 and 2012. Table 1 shows the details of these companies. In total, potential exports of 29 billion cubic feet per day of natural gas are being held up by delayed review from the Department of Energy. This amount highlights the strength of both domestic supply and international demand for natural gas. Undoubtedly, if the export process were not so onerous, there would be even more companies willing to invest in natural gas exports and apply for export permits.

It is not just in issuing LNG export permits that the federal government is slow. Uncle Sam cannot make any energy decisions rapidly.

According to data collected by the Institute for Energy Research, federal drilling permits have become more difficult to acquire. Between fiscal years 2006 to 2008 and 2009 to 2011, the number of permits approved fell from 20,479 to 12,821. Moreover, between 2005 and 2011, the time it took to acquire such a permit rose from 154 days to 307 days.[2] Even with the decrease in issued permits, the average number of days it took the Bureau of Land Management to process a completed permit application nearly tripled from 2005 to 2013, from 39 days to 95 days.[3]

To get a better idea of how the federal government is slowing down the process, an August study by the U.S. Government Accountability Office found that applications to the Bureau of Land Management for drilling permits declined by 50 percent between 2007 and 2012. Plus, the Bureau said in an internal memorandum that it has not been able to process applications within a month, as is required to do by law.[4]

The economic benefits of exporting LNG include more economic activity and more employment at home. But the geopolitical benefits could be even greater if we care, as we should, about freedom and democracy in Ukraine and other neighbors of Russia that were formerly part of the Soviet Union.

Many reasons are given to prevent more exports of U.S. natural gas. They are practically all wrong, made by people who underestimate the amount of natural gas America has and the potential effect exports could have on the world market.

Russia has swallowed parts of Georgia and Ukraine. No one is proposing that America send soldiers to defend these countries—even though we guaranteed Ukraine's sovereignty in 1994 under the Budapest Memorandum, reaffirmed by President Obama

[2] Institute for Energy Research, "U.S. Oil Production Up, But On Whose Lands?," September, 24, 2012.
[3] U.S. Department of the Interior, "Average Application for Permit to Drill (APD) Approved Timeframes: FY2005 – FY 2013," Bureau of Land Management, March 19, 2014.
[4] Government Accountability Office, "Report to Congressional Requesters: Oil and Gas Development," August, 2013.

in 2009. What we can do is help our allies by diminishing Russia's economic power over them. That power rests on oil and gas.

It is no coincidence that the former head of Yukos, the oil and gas company, Mikhail Khodorkovsky, spent ten years imprisoned by the Russians and that the government effectively took over Yukos, indirectly absorbing it into Gazprom. This shows the importance of oil to Russia's leadership. Oil is one of the few big businesses in Russia, and President Putin is watching us carefully.

America is overtaking Russia as the world's largest oil and gas producer, and we could be exporting natural gas abroad, cutting into Russia's markets. We are producing enough natural gas for ourselves for the foreseeable future, as well as for export to other countries.

In North Dakota, for example, natural gas production has outpaced additions to gas pipeline capacity and processing facilities. The average amount of nonmarketed natural gas output per day through the end of 2013 was 0.31 billion cubic feet, up from 0.16 billion cubic feet a day in 2011. That is an increase of almost 100 percent. Flaring has decreased as a percentage of total production, however, from 37 percent in 2011 to 33 percent in 2013. North Dakota's goal is to reduce its percentage of nonmarketed gas to 10 percent by the fourth quarter of 2020.[5]

Most nonmarketed natural gas is wasted, flared into the atmosphere like an open burner on a gas stove. Flaring gas releases C02 as a byproduct of combustion, so it would be environmentally preferable for the gas to be sold.

Between 2008 and 2012, North Dakota accounted for 0.5 percent of total gross natural gas withdrawals in the United States. At the same time, North Dakota accounted for 22 percent of all natural gas that was flared or vented.

North Dakota has recently taken a number of steps to increase its ability to bring more natural gas to market. A new Garden Creek processing plant was built in Watford City, processing plants in the northwestern part of the state are now linked to the Northern Border Pipeline which runs from Canada to other Midwest states, and construction of the Tioga Lateral Pipeline from Tioga, North Dakota to the Alliance Pipeline which flows to Chicago was authorized. General Electric has developed a new system for compressing and cooling natural gas, called CNG In a Box.

The productivity of oil and natural gas wells is increasing across many places in the United States because horizontal drilling and hydraulic fracturing are becoming more

[5] Ford, Michael and Neal Davis, "Nonmarketed Natural Gas in North Dakota Still Rising Due to Higher Total Production," U.S. Energy Information Administration, March 21, 2014.

precise and efficient. Drilling activity in U.S. shale is generally producing more oil and natural gas than in the past.

Of the six U.S. shale plays tracked by the EIA Drilling Productivity Report, five have seen increases in oil and natural gas production per rig over the past few years.[6]

The Eagle Ford Shale in Texas has the most increased production of oil per rig. Each drilling rig in the Eagle Ford Shale will contribute 400 barrels of oil per day more in April 2014 than it would have in the same formation in January 2007, an increase of over 800 percent.

The Marcellus Shale has the most increased production of natural gas per rig. A Marcellus Shale well completed in April can produce over 6 million cubic feet of natural gas per day more than a well completed in 2007, an increase of 1,200 percent.

Here are four reasons for not exporting natural gas, and why they are wrong.

Myth 1: Exporting Natural Gas will Increase Prices. According to Massachusetts Senator Ed Markey, exporting natural gas will increase prices by $2.50 per thousand cubic feet. In a press release he stated, "U.S. energy consumers could be facing as much as $62 billion per year in higher energy costs as a direct result of exporting."[7]

This is misguided. America has massive natural gas expansion capacity, as I described above. The price might rise, but not by much—between three and six percent in 2025, according to estimates by Stanford University's Energy Modeling Forum.[8] Over the past five years, as exports have increased, prices have declined. This can be seen in Figure 1.

Natural gas exports are unlikely to harm U.S. manufacturing's comparative advantage in cheap energy. Even if the United States exports natural gas, it will still be less expensive in the United States than elsewhere because it is costly to transport. Energy-intensive multinationals will still face a cost advantage locating in the United States. Yet foreign consumers will benefit from our exports, which, even with transportation costs, will be less expensive than what they are paying Russia now.

Drilling efficiency has substantially increased over the past seven years. Productivity of oil and natural gas wells is increasing across many places in the United States because horizontal drilling and hydraulic fracturing are becoming more precise and efficient.

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[6] Krohn, John and Mike Ford, "Growth in U.S. Hydrocarbon Production from Shale Resources Driven By Drilling Efficiency," U.S. Energy Information Administration, March 11, 2014.
[7] Markey, Ed, "New Natural Gas Export Approval Crosses Cost Threshold for American Consumers, Businesses," March 24, 2014.
[8] Energy Modeling Forum, "Changing the Game?: Emissions and Market Implications of New Natural Gas Supplies," Stanford University, September, 2013.

According to the Energy Information Administration's Annual Energy Outlook forecasts, natural gas production will increase 56 percent through 2040.[9]

Exports stimulate the economy and result in more jobs, rather than fewer, because foreign customers buy U.S. products. With increased natural gas exports more people would be employed in its production and transportation. Over 1.1 million people are already directly employed and about 9 million are indirectly employed in the oil and gas sector, the vast majority from small and mid-size companies.[10]

Myth 2: Actions Today Won't Increase Exports Until It Is Too Late. There is no point in exporting natural gas, according to naysayers, because we do not have the infrastructure in place. To export gas, we need more pipelines to get gas to shipping terminals, and more shipping terminals. That could take as much as five years.

However, this disregards the role of expectations. Announcements about our intentions to build infrastructure to export send signals to futures markets, which affect prices today. President Putin is watching our intentions carefully.

Lucian Pugliaresi, president of the Energy Policy Research Foundation, has testified before the Energy and Power Subcommittee of the U.S. House Energy and Commerce Committee, "If we open up our resources for development, we can open up the opportunity to shift long-term expectations on domestic supply and receive the benefits of lower prices even before the supplies come to market."[11]

This can be seen by the speed with which events influence current prices. When war breaks out in the Middle East, or a hurricane is forecast to blow through the Gulf states, or when a refinery is shut down due to an accident, prices climb on the news—even though supply has not changed. Prices climb not due to the disruption in supply, which as not yet occurred, but due to expected disruption in supply, and to a change in futures prices.

This works in the opposite direction too. An announcement that oil will be released from Strategic Petroleum Reserve sends prices down before they are released. Futures prices change, affecting current prices.

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[9] U.S. Energy Information Administration, "Annual Energy Outlook 2014 Early Release Overview," December, 16, 2014.
[10] Mills, Mark P., "Where the Jobs Are: Small Businesses Unleash America's Energy Employment Boom," Manhattan Institute for Policy Research, February 2014.
[11] Pugliaresi, Lucian, "Testimony Before the Subcommittee on Energy and Power, U.S. House of Representatives Committee on Energy and Commerce," Hearing on the American Energy Initiative, March 17, 2011.

Myth 3: Exporting Natural Gas Will Increase Production and Emissions. The environmentalists take a different approach. Rather than forecasting that exports will result in less supply for Americans, they admit that exports mean more production—which, by the way, will keep price levels stable and raise the numbers of Americans employed. Environmentalists are opposed to increased usage of natural gas because they are concerned that greenhouse gas emissions will rise.

It is likely that American natural gas would displace not only Russian gas, but also some coal use. To the extent that natural gas displaces coal, greenhouse gases will be reduced. And energy production in Asia (and Africa) is far dirtier than in America, so our gas exports would lower global emissions even more. Increased production of cheaper gas could reduce world prices and lead to greater consumption, which would lower greenhouse gas emissions.

Over the past decade, imports of natural gas have declined, exports have increased, and prices have declined. That is because American withdrawals of natural gas have grown from 24 trillion cubic feet to 30 trillion cubic feet. In 2013, about 15 percent of natural gas withdrawals were not marketed.[12] This amounted to 4.5 trillion cubic feet per day, most of which was wasted. Exporting 15 percent of natural gas would not raise the price substantially.

Myth 4: America Is Incapable of Using Economic Power to Promote Our Strategic National Interest. Perhaps this is the most dangerous myth of all, that America is helpless in the face of its adversaries, and that we just have to let Russia gobble up and abuse its neighbors without being able to retaliate. It is false.

The slow approval process for exporting natural gas and the ban against exporting to non-free trade agreement countries stand in the way of us using our vast natural gas resources to help friendly allies. Congress and President Obama should embrace international markets and end this harmful policy that limits American economic and geopolitical power.

Most important, we should take a hard look at ourselves. Instead of seeing a helpless country incapable of assisting itself or its friends, we would then see the greatest economic power in the world. Instead of seeing ourselves paralyzed by weakness, we would see the possibilities that free enterprise and free trade can provide. Instead of seeing a perennial loser rudderless in a hostile sea, we would see a country capable of exercising commercial example and moral authority—but rarely having to use it because other countries recognize that capability as well.

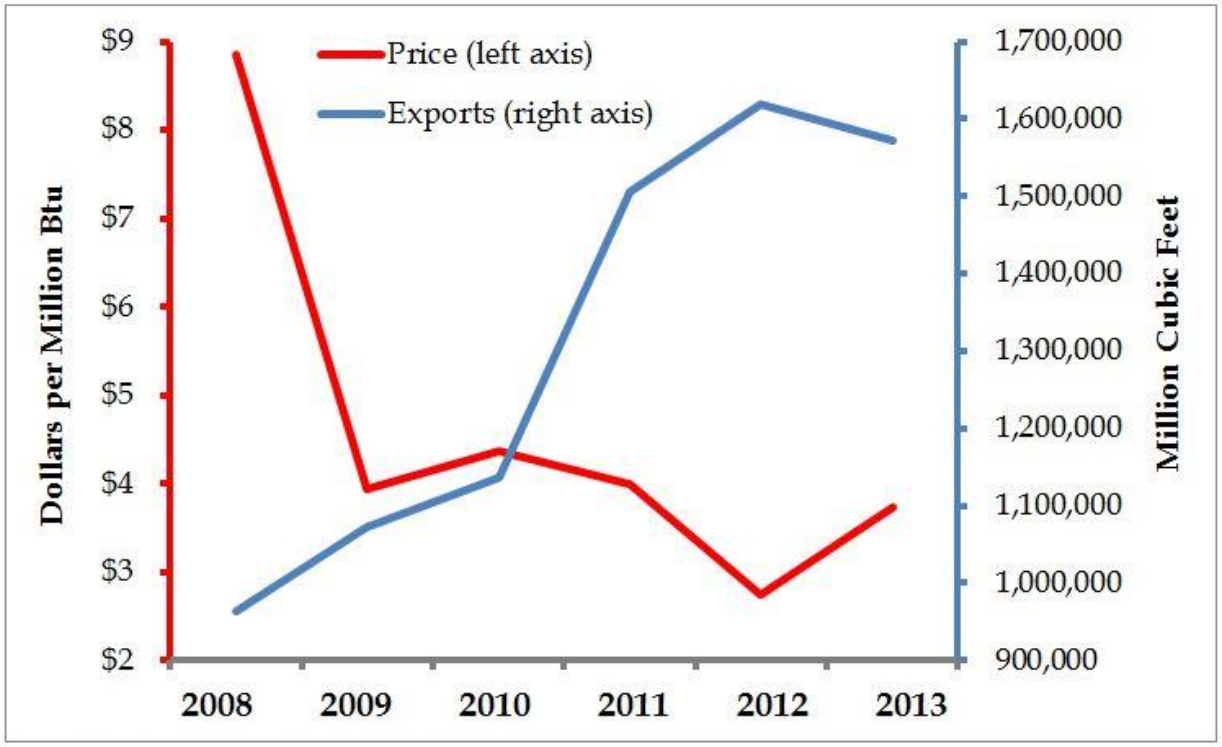
[12] U.S. Energy Information Administration, "Natural Gas Gross Withdrawals and Production," March, 31, 2014.

Table 1: Non-Free Trade Agreement Liquid Natural Gas Applications Under U.S. Department of Energy Review

Company	Quantity (billion cubic feet/day)	Application Submission Date
Carib Energy (USA) LLC	0.01	10/20/2011
Gulf Coast LNG Export, LLC	2.8	1/10/2012
Gulf LNG Liquefaction Company, LLC	1.5	8/31/2012
LNG Development Company, LLC	1.25	7/16/2012
Southern LNG Company, L.L.C.	0.5	8/31/2012
Excelerate Liquefacation Solutiions I, LLC	1.38	10/5/2012
Golden Pass Product LLC	2.6	10/26/2012
Cheniere Marketing, LLC	2.1	8/31/2012
CE FLNG, LLC	1.07	9/21/2012
Waller LNG Services, LLC	0.19	11/26/2013
Pangea LNG Holdings, LLC	1.09	12/19/2012
Trunkline LNG, Export, LLC	2	1/10/2013
Gasfin Development USA, LLC	0.2	12/23/2012
Freeport-McMoRan Energy LLC	3.22	2/22/2013
Sabine Pass Liquefaction, LLC	0.28	2/27/2013
Sabine Pass Liquefaction, LLC	0.24	4/2/2013
Venture Global LNG, LLC	0.67	5/13/2013
Eos LNG LLC	1.6	8/23/2013
Barca LNG LLC	1.6	8/23/2013
Sabine Pass Liquefaction, LLC	0.86	9/10/2013
Delfin LNG LLC	1.8	11/12/2013
Magnolia LNG, LLC	1.08	1/15/2013
Texas LNG LLC	0.27	12/31/2013
Louisiana LNG Energy LLC	0.28	2/18/2014
Total	**28.59**	

Source: U.S. Department of Energy, "Applications Received by DOE/FE to Export Domestically Produced LNG," March 24, 2014.

Figure 1: Natural Gas Exports Rise, Prices Decline



Source: Energy Information Administration