THE DEPARTMENT OF ENERGY'S STRATEGY FOR EXPORTING LIQUEFIED NATURAL GAS

HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY POLICY, HEALTH CARE AND ENTITLEMENTS

OF THE

COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM

HOUSE OF REPRESENTATIVES

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CONTENTS

THE DEPARTMENT OF ENERGY'S STRATEGY FOR EXPORTING LIQUEFIED NATURAL GAS

Tuesday, March 19, 2013,

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENERGY POLICY, HEALTH CARE AND ENTITLEMENTS,
COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM,
Washington, D.C.

The subcommittee met, pursuant to notice, at 3:10 p.m. in room 2247, Rayburn House Office Building, Hon. James Lankford [chairman of the subcommittee], presiding.

Present: Representatives Lankford, Gosar, McHenry, DesJarlais, Farenthold, Massie, Issa, Speier, Horsford, Lujan Grisham, and Cummings.

Also present: Representatives Turner, Meadows, and Fleming.

Staff Present: Ali Ahmad, Majority Communications Advisor; Molly Boyl, Majority Parliamentarian; Joseph A. Brazauskas, Majority Counsel; Sharon Casey, Majority Senior Assistant Clerk; Drew Colliatie, Majority Legislative Assistant; Brian Daner, Majority Counsel; Linda Good, Majority Chief Clerk; Tyler Grimm, Majority Professional Staff Member; Ryan M. Hambleton, Majority Professional Staff Member; Frederick Hill, Majority Director of Communications and Senior Policy Advisor, Christopher Hixon, Majority Deputy Chief Counsel, Oversight; Mark D. Marin, Majority Director of Oversight; Scott Schmidt, Majority Deputy Director of Digital Strategy; Jaron Bourke, Minority Director of Administration; Jimmy Fremgen, Minority Legislative Assistant; Nicholas Kamau, Minority Counsel; Chris Knauer, Minority Senior Investigator; Adam Koshkin, Minority Research Assistant; Safiya Simmons, Minority Press Secretary and Mark Stephenson, Minority Director of Legislation.

Mr. LANKFORD. Let us begin this hearing by saying the Oversight's mission statement.

We exist to secure two fundamental principles. First, Americans have the right to know that the money Washington takes from them is well spent. Second, Americans deserve an efficient and effective government that works for them.

Our duty on the Government Oversight and Reform Committee is to protect these rights. Our solemn responsibility is to hold the government accountable to taxpayers because taxpayers have a right to know what they get from their government. We will work tirelessly in partnership with citizen watchdogs to deliver the facts to the American people and bring genuine reform to the federal bureaucracy.

This is the mission of the Government Oversight and Reform Committee.

Today we are here to discuss the Department of Energy's strategy and process in reviewing applications to export liquefied natural gas, LNG, specifically to non-free trade agreement countries.

For countries with which we have a free trade agreement covering the Natural Gas Act of 1938, and obviously amended multiple times since then, the Department of Energy is required to grant applications to export LNG. Such export is deemed to be consistent with the public interest and the authorization must be granted without modification or delay.

For countries with which we do not have a free trade agreement covering natural gas, the Natural Gas Act presumes the Department of Energy will grant the application to export LNG unless the Department finds the proposed exportation will not be consistent with the public interest.

The issue we are here to discuss today is not if we should export natural gas. The U.S. has exported natural gas via pipeline to Canada and Mexico since the 1930s. We are also not here to discuss if we should export liquefied natural gas. The U.S. has exported LNG from the Kenai Peninsula in Alaska since 1969.

Again, by statute, the Department of Energy must approve LNG exports to FTA countries and the default position is it exports to non-FTA countries unless DOE finds that it is not consistent with the public interest.

Finally, we are not here to discuss if we should export liquefied natural gas to non-FTA countries. Again, the U.S. has exported to Japan, which is not an FTA country, from Alaska since 1969. In the lower 48 in May 2011, the Department of Energy granted the first permit to export LNG to a non-FTA country. That facility is currently under construction in southwest Louisiana and will begin exporting LNG within two years.

We are not even here to discover for the first time the economic impacts of LNG export. DOE has already commissioned and released the results of a two-part study. The first part was conducted by the U.S. Energy Information Administration and the second part was conducted by NERA, Economic Consulting. Dave Montgomery of NERA was invited to testify today as well, but due to a last minute scheduling conflict, has submitted written testimony for the record for which I will ask unanimous consent to put into the record.

Mr. LANKFORD. The DOE studies concluded that for every one of the market scenarios examined, net economic benefits increased as the level of LNG exports increased and that exports of natural gas will improve the U.S. balance of trade and result in a wealth transfer to the U.S.

Two additional studies on LNG have also been commissioned by Brookings and Deloitte, which will testify here today on the risks and potential gains for our economy and global relationships.

As a Nation, we have already decided exporting is consistent with our public interest and we will continue to export natural gas by pipeline and LNG to FTA and non-FTA countries. The only issue here is how and when the Department will process the approximately remaining 20 LNG export applications. Every other

applicant is now significantly behind the first permit holder which was permitted almost two years ago. It is essential that the process moves fairly and expeditiously.

Today's question is really a narrow and simple set of process questions, although each answer has enormous implications for our international economic relationships and capital investments at home. When will DOE make its determination of public interest and what are the specific criteria in that decision, especially since the law encourages a default yes answer to exports.

The two DOE-requested studies are complete. They both show a favorable gain for our nation when we export LNG. Now the comment period and replies are also complete. Will the DOE seek to limit the number of billion cubic feet that can be exported per day? Has DOE already set a certain amount of LNG to export and if so, how was that limit chosen? Will DOE seek to limit the number of export facilities permitted and thus allowed to compete and explore for contracts worldwide? What role will the market or geopolitical goals play in this decision? When can potential exporting companies begin competing for those contracts?

There are not an infinite number of contracts that can be acquired worldwide. If we delay making a decision on permitting, other countries with a more efficient bureaucracy will beat us. The U.S. has a great head start in terms of technology, experience, pipeline infrastructure and processing. We have developed financial and legal systems to support gas development. These advantages will not last forever.

There are massive shale gas fields around the world. China and India have invested in the Marcellus Shale in order to learn more about our technologies and currently Australia has eight LNG export facilities under construction. We have one. The demand window is open. We can step through it or we can delay until the window closes.

If DOE intends to delay the decision to export to reduce the opportunity for global contracts, that is also something we should know. I don't believe that is the Administration's intent. In December 2012, President Obama said to Time Magazine, "The United States is going to be a net exporter of energy because of new technologies and what we are doing with natural gas and oil."

The President also recognizes these energy developments could have huge geopolitical consequences. For decades, energy has been used as a diplomatic tool against the U.S. Now with LNG, the U.S. has the potential to flip that and be in the position to use energy as a tool to benefit our Nation's strategic interest.

Now that DOE has completed the first permit and developed a system, what will be the timing and systems to permit the remaining applicants? With billions of private capital at stake, how can we make the process neutral, fair and expedited? How quickly can that process be released and how can we complete the process so that our nation can move forward with energy exploration, jobs, construction, midstream jobs and the narrowing of our trade deficit?

Uncertainty destabilizes a free market economy. It is time to provide timelines and decision-making criteria ensuring fairness of the

process for everyone involved. I look forward to those answers on all these key issues today.

Mr. LANKFORD. With that, I would like to recognize the distinguished Ranking Member, the gentlelady from California, Ms. Speier, for her opening statement.

Ms. SPEIER. Thank you, Mr. Chairman. Thank you for holding today's hearing. I look forward to an informative discussion on the Obama Administration's process for reviewing the export of liquefied natural gas.

New technologies in horizontal drilling and hydraulic fracturing have led to significant increases in U.S. natural gas production and a huge growth in our domestic gas supplies. For the first time in modern history, America has the opportunity to become dramatically more energy independent.

As USAID Today reported last year, energy independence is no pipe dream. The U.S. is already the world's fastest growing oil and natural gas producer. Counting the output from Canada and Mexico, North America is the new Middle East. Furthermore, at our current pace of production, the Energy Information Administration predicts that the United States will slash its dependence on foreign oil to as low as 36 percent by the year 2035, down from some 49 percent in 2010.

Many have called natural gas a bridge fuel to a clean energy future due to its lower emissions compared to other fossil fuels. Right now the natural gas producing and transporting industry wants to cross that bridge in part by exporting U.S. natural gas to foreign countries. Those foreign countries will pay a higher price for natural gas than is currently sold domestically. That means higher profits, more investment and more jobs for the oil and gas industry.

Many gas consuming industries, including many businesses who "are making it in America," want to cross that bridge in a different way. These are companies that use gas as a fuel and as input to make a variety of products ranging from chemicals to cars. They want U.S. natural gas to be sold into the domestic market at current prices which will enable them to make higher profits and invest in more job creation.

The domestic manufacturing industry warns that if we permit the export of large volumes of our domestic natural gas supply, prices for natural gas in the U.S. will increase. It is unclear what the consequences of a rush to export would be for American manufacturing jobs, as well as for many middle class and lower income Americans.

I look forward to hearing from today's witnesses about the importance of natural gas to our manufacturing sector and whether those benefits have been overlooked or under assessed in the debate over liquefied natural gas.

We are balancing two very important interests, those that want to export and those that want to retain the natural gas in the United States for consumers and companies that make it in America. The Federal Government should proceed deliberately and carefully on LNG export. In fact, the Federal Government is legally bound to determine what degree of LNG exports is in the "public interest" before moving ahead on permitting new export facilities.

Currently, the Department of Energy is fulfilling its duty under the Natural Gas Act of 1938 to evaluate the cumulative impacts of allowing the natural gas industry to export U.S. natural gas. The Department of Energy commissioned two reports from the Energy Information Administration and NERA Economic Consulting and is now reviewing more than 200,000 public comments on those reports, including many that are highly critical of the reports' methodologies and conclusions.

I would like to hear from our witnesses today whether they feel that the EIA and NERA's report conclusions are comprehensive or leave important questions unanswered or inadequately addressed.

I do not believe it is the job of DOE or the Federal Government to choose sides in the natural gas marketplace. This is not what the Natural Gas Act requires. However, it is the job of the Department to hear all sides and determine, on balance, how much liquefied natural gas export is permissible within the "public interest" and to make sure that its decision is informed by the best data and analysis.

Today's hearing should not be read as an opportunity to influence the DOE's process or to push on the scales of what is in the public interest. The Department is considering all views as it is charged to do by statute.

Thank you again, Mr. Chairman, for holding this hearing. I look forward to hearing from our witnesses.

Mr. LANKFORD. Thank you.

I now recognize the Chairman of the full committee, Mr. Issa, for an opening statement.

Mr. ISSA. Thank you, Mr. Chairman.

On the screen, I have a slide that I think sets of something of interest for us to bear in mind throughout the hearing. The two circles drawn around areas are areas of major production, one of oil and natural gas at Eagle Ford, the other one of almost all oil but with enough natural gas being flared today that it practically looks like New York City. That is the effect, in no small part, of artificially low natural gas.

I think one of the points we have to make here today is that when natural gas falls too low, you end up with it becoming essentially waste fuel. That is not our goal. This is a valuable and clean energy. This is an energy that produces not just the methane we think of as burnable natural gas, but the ethylene that we so often think of for plastics and other uses; the propane, a highly portable fuel that on which America counts. All of this and more in the way of byproducts are part of what we are hoping to get to.

The other thing is, for those who talk in terms of clean energy and exports, I just want to point out that in 2012, the United States exported 126 million short tons of coal, a great deal of it to China, our largest partner in that. If you could visualize that, it is 1.4 million railcars of coal.

To a great extent, what we are trying to do is export a cleaner fuel, both in its raw form and of course if we burn it in the U.S. and use it in the U.S., in the form of exported product. I believe there is enough fuel, and the studies show there is, to do both.

Additionally, today, with a roughly $3.90 cost of a million BTUs, that is about $21 equivalent to a barrel of oil. It is so cheap that

Burlington Northern has announced a $2 billion investment to convert diesel locomotives to work on natural gas. For many who find that interesting, let us make something more interesting. We are going to burn natural gas to haul coal to China. That is the reality of what we are doing and that's how plentiful it is.

I support all of the use of both liquefied and compressed natural gas because, in fact, it is a clean fuel, a plentiful fuel and an inexpensive fuel. It is going to be part of reducing our trade deficit.

Mr. Chairman, in 2012, in spite of increased exports, we had our largest trade deficit since 2008, a whopping $475 billion. Converting to using more natural gas, producing more oil as we are in North Dakota, all of this comes together to reduce our imports, increase our exports and make America more competitive.

For those who view, as they should, the lower a fuel stock gets, the lower a raw material gets, the better for domestic business, I concur. However, there comes a point at which a decision has been made by many companies that at $5.77, which is our 10-year average price for natural gas, they are going to bring those jobs to America because that is so much lower than the global price, that, in fact, American businesses remain very competitive with this low cost fuel, still half the cost of using comparable oil.

If you look to Japan where they compete with us often, they are looking at nearly $20 equivalent to our $3.95. They pay a lot. They are an important ally.

Mr. Chairman, one of the most important things you are bringing about today is a discussion on our NATO allies who find themselves being held hostage both by the Middle East and by Russia and our Asian allies who find themselves simply paying a very high price and feeling fuel is part of their diplomatic decisions.

The ability to export at least, in part, a portion from the United States, along with Australia and other countries who are also going to be increasing exports, makes us better neighbors diplomatically and better allies. Last but not least, you pointed out very clearly if we deliberately delay the ability to compete 20 year-plus contracts will go to other nations and will not go to the United States. We are not dealing with whether we do it today or tomorrow, we are dealing with whether delay is working to the detriment of our long term ability to compete in this important fuel.

Last but not least, for those who say natural prices will rise, when I have looked at the nature of export contracts, if we get back to the $12.69 peak in 2008 or above, the liquefied natural gas exporters will simply shut that down because it won't be worthwhile. There is a natural stop point on all of this.

For all of us who have viewed energy as an important tool of our national defense, as an important tool of our economy, we have a windfall. We need to make sure we have enough of the windfall that we do not flare gas for lack of the price to support infrastructure development.

I thank the Chairman for this important hearing.

Mr. LANKFORD. I would like to recognize the Ranking Member of the Full Committee, Mr. Cummings for an opening statement.

Mr. CUMMINGS. Thank you very much, Mr. Chairman. Thank you for holding this hearing.

I have not reached conclusions; I am coming here today to hear the witnesses so that I can be better informed. Today's hearing focuses on a very important energy policy question. Is it in the public interest to export increasing amounts of natural gas to foreign markets overseas? That is the question.

Because of new drilling techniques and other technology advancements, the United States is now able to produce natural gas in geological formations that were once impossible to tap. This new technology has given rise to an emerging industry that is transforming parts of our nation. This recent boom has reduced the price of natural gas and has saved consumers money on their electricity bills and is fueling a resurgence in the domestic manufacturing. Our natural gas has become a competitive advantage in a global market.

Because so much natural gas is being produced, paradoxically, it may be placing the natural gas production industry and the jobs in that sector at some risk. As prices fall, some producers may be faced with the prospect of suspending operations or even going out of business. To address that concern, some companies are now seeking to export gas to foreign markets.

While that could be a very good thing for United States producers, it raises questions that must be addressed. First, will exports drive up prices for domestic U.S. manufacturers and consumers? Multiple studies have shown that they will. That will mean higher gas prices for consumers, higher prices for manufacturers who want to support and potentially higher prices for goods and services for everyone.

The producers contend that increasing exports will increase jobs. That too must be a consideration. By converting import terminals to export terminals, there is likely to be an increase in the number of jobs in certain sectors. God knows, we need more jobs.

We also need to understand whether we will be supporting this set of jobs, those in the energy sector, at the expense of another set of jobs in United States manufacturing that rely heavily on natural gas in their operations.

Another question we must answer is whether exporting natural gas will more quickly deplete U.S. supplies just as the Country is moving toward greater energy independence. For years, we have heard that the United States must reduce its dependence on foreign energy sources. By increasing gas exports, are we trading part of that independence for short term profits?

Third, complex environmental questions regarding some of the techniques used in gas production have not been resolved. I believe it is critical that we give ample attention to how increased production may exacerbate those concerns.

Mr. Chairman, as we hear today it is the Department of Energy's job to determine whether exporting more natural gas is in our Nation's best interest, but we will also hear today that studies commissioned by the Department are subject to debate. Some believe that recent studies demonstrate a clear benefit from gas exports while others believe the studies point to the opposite conclusion.

Although we may begin to answer some of these important questions at today's hearing, I believe we will also learn that there are a number of key questions that need to be studied more carefully.

I want to thank you for holding this hearing and with that, Mr. Chairman, I yield back.

Mr. LANKFORD. Thank you.

All members will have seven days to submit opening statements for the record.

I will now recognize our panel. Mr. Tom Choi is the National Practice Leader, Gas, Deloitte MarketPoint LLC; Mr. Paul Cicio is President, Industrial Energy Consumers of America; Dr. Charles Ebinger is Director, Foreign Policy, Energy Security Initiative, Brookings Institute; and Mr. Chris Smith is Acting Assistant Secretary for Fossil Energy, U.S. Department of Energy.

Thank you all for being here.

Pursuant to committee rules, all witnesses are sworn before they testify. Please rise and raise your right hand.

Do you solemnly swear or affirm that the testimony you are about to give will be the truth, the whole truth, and nothing but the truth?

[Witnesses respond in the affirmative.]

Mr. LANKFORD. Thank you.

Let the record reflect that the witnesses answered in the affirmative.

In order to allow time for discussion, I would ask you to limit your testimony to five minutes. Watching our clock, we expect votes somewhere around the next 15 minutes, so that would be perfect. We will try to get through all of our testimony and will start with questioning time. If votes call us, then we will put temporarily pause, come back and continue questioning from there.

Depending on time and the questioning, as soon as two of us get back, I would like to start questioning again and try to finish as quickly as we can to honor your time as well.

Mr. Choi, you are at bat first. We are pleased to receive your testimony.

WITNESS STATEMENTS

STATEMENT OF TOM CHOI

Mr. CHOI. Good afternoon, Chairman Lankford, Ranking Member Speier and members of the subcommittee. Thank you for inviting me to testify this afternoon.

My name is Tom Choi. I am the National Gas Practice Leader for Deloitte Marketpoint.

Deloitte Marketpoint has worked for a number of clients across different industries to help them better understand energy markets. In particular, we have utilized a World Gas Model to help LNG companies seeking objective and in-depth economic analysis of global gas and LNG markets. The key results of our model and our analysis form the basis for my comments this afternoon.

The World Gas Model computes prices and quantities based on established microeconomic theories. It has been used by leading energy companies and institutions for over 20 years. Vital to this analysis, the World Gas Model represents natural gas producers' decisions regarding when and how much gas to develop given a producer's resource endowment and anticipated forward prices.

The supply-demand dynamic is particularly important in analyzing the impact of demand changes, including LNG exports. Without a proper representation, the results would likely under estimate producer response and over estimate the price impact. It would be tantamount to assuming that the markets would be surprised or unprepared for the volume of exports and in effect, would have to ration fixed supplies to meet export, as well as domestic demand.

Our findings show that the price impact to the U.S. is likely to be modest. The impact of 6 Bcfd of U.S. LNG exports on average U.S. prices is projected to be only $.15/MMBtu from 2016 to 2030. Abundant North American gas resources, coupled with the market's demonstrated ability to respond to market changes, mitigate the price impact of exports.

Since there is some uncertainty about the magnitude of the potential impact of LNG exports on domestic prices, an examination of the fundamental economic factors might be helpful. I think it is important to separate the timing issue, that is how quickly new supplies can be brought online from the resource depletion issue, how increased demand affects future production costs and prices.

Can the U.S. natural gas production keep pace with projected gas demand, including potential LNG exports? If history provides any indication, the answer appears to be yes. In just four years, from 2008–2012, the U.S. dry gas production has increased by over 10 Bcfd a day, demonstrating just how dynamic the U.S. natural gas industry is.

Hence, if export volume can be properly anticipated and productive capacity made available when needed, then the price impact will likely be determined by how increased demand affects resource depletion and future production costs. Moreover, it is not just the gas fields feeding directly into LNG export terminals that respond, but rather, the entire highly interconnected North American gas system.

Since there is a large quantity of domestic gas available at similar production cost levels, U.S. exports are projected to increase the price of domestic gas not by very much, because it is not likely to change the future production cost by very much.

Our model also projects that natural gas prices will likely be greater in importing countries than in the U.S. As prices in the U.S. firm and prices in export markets soften, their price spread will narrow. Hence, markets will check the volume of U.S. LNG imports, even in the absence of policy restrictions.

Furthermore, U.S. LNG exports are unlikely to cause prices to rise to levels of importing regions. The cost of liquefaction, shipping and regasification form a large price wedge between prices in the U.S. and those in import markets. Exports will only occur if large price spreads prevail, implying that sectors of the U.S. economy that compete in global markets will not likely see their price advantage significantly diminished as a result of LNG exports.

In summary, given the dynamic nature of the North American gas market and the abundance of U.S. gas supplies available at similar cost levels, our model projects modest price impacts at our assumed export volumes.

Thank you for this opportunity. I look forward to addressing your questions.

[Prepared statement of Mr. Choi follows:]

Testimony before the House Committee on Oversight and Government Reform Subcommittee Chairman on Energy Policy, Health Care, and Entitlements on "Economic Impact of LNG Exports from the US"

Mr. Thomas Y. Choi
National Gas Practice Leader
Deloitte LLP
March 19, 2013

Good morning Chairman Lankford, Ranking Member Speier, and members of the Subcommittee. Thank you for inviting me to testify this afternoon. My name is Tom Choi and I am the national gas practice leader for Deloitte MarketPoint LLC, a wholly owned subsidiary of Deloitte LLP.

Deloitte MarketPoint has worked for a number of clients across different industries to help them better understand energy markets. In particular, we have helped LNG (liquefied natural gas) companies seeking objective and in-depth economic analysis of global gas and LNG markets. We used our World Gas Model to project the impacts of various assumed volumes of US LNG exports. The key results from the model and our analysis form the basis for my comments this afternoon.

The World Gas Model (WGM) is a model of global gas markets based on economic fundamentals. It has been used by leading energy companies and institutions for over 20 years to help them understand markets and make better decisions. The model computes prices and

quantities based on rigorous adherence to established microeconomic theories. It includes disaggregated representations of natural gas supply and demand in North America and global markets, including their linkages through LNG trade or export pipelines.

Vital to this analysis, the WGM represents natural gas producer decisions regarding when and how much gas to develop given a producer's resource endowments and anticipated forward prices. The supply-demand dynamic is particularly important in analyzing the impact of demand changes, including LNG exports. Without proper representation of market dynamics, the answer will likely under-estimate the producer response and result in a misalignment of supply and demand causing over-estimation of the price impact. It would be tantamount to assuming the market will be surprised or unprepared for the volume of exports and, having failed to sufficiently expand supply, the market would then have to in effect, ration fixed supplies to meet export volumes, as well as domestic demand.

Our findings show that the projected price impact to the US is minimal. Abundant North American gas resources coupled with the market's demonstrated ability to respond to market changes mitigate the price impact of exports. The impact of 6 Bcfd of US LNG exports on US citygate prices is projected to be only $0.15/MMBtu (million British thermal units) on average from 2016 through 2030. The price impact is a little greater at the Henry Hub and other locations in the Gulf of Mexico region, where most of the proposed LNG export terminals are planned to be built, and a little less in distant downstream markets, such as Chicago and New York. Although the Henry Hub is the world's most liquid gas trading point, focusing on just Henry Hub prices will likely overestimate the US price impact.

Since there is some debate on what the price impact might be, an examination of the fundamental economic assumptions might be helpful.

The price impact will be largely determined by market dynamics and North American natural gas resources. In analyzing the impact of LNG exports on domestic prices, I think it is important to separate the timing issue, that is, how quickly new supplies can be brought on line, from the resource depletion issue, that is, how increased demand affects future production costs which drive future prices. The combination of both factors will influence the price impact.

If gas productive capacity lags behind demand, then the price impact will be determined by the tightness of the supply-demand balance at each point in time. On the other hand, if export volumes can be properly anticipated and productive capacity made available when needed, then the price impact likely will be determined by how increased demand affects resource depletion and future production costs.

Even without LNG exports, US natural gas demand will likely experience robust growth over the coming decades. Can supply keep pace with demand growth including potential LNG exports? If history is any indicator, the answer appears to be yes. Indeed, the past several years have demonstrated how dynamic the US gas market is. US dry gas production has increased by over 10 Bcfd from 2008 to 2012, a four year time span which is less than the time required for the first proposed US LNG export terminal to go from the application phase to ultimate construction. Given the public DOE and FERC approval processes and long construction lead time, suppliers have plenty of notice and time to make necessary supplies available.

If supplies can be developed in time for LNG exports, then the price impact will be determined by the how the incremental demand affects the rate of resource depletion and future production costs. Furthermore, it is not just the cost of production of fields feeding directly into LNG export terminals, but rather the entire North American gas market, which is highly interconnected. With regards to the potential impact of LNG exports, the absolute price is not the driving factor but rather the shape of the aggregate supply curve which determines the price impact. The massive domestic shale gas resources have essentially flattened the US supply curve. Given that there is a large quantity of domestic gas available at similar production costs, the export of LNG is not projected to increase the price of domestic gas very much because it is unlikely to have a large impact on the incremental production cost.

Global markets can determine the economically viable volume of LNG exports.

As prices in the US firm and prices in export markets soften, the margins between the US and global markets will narrow. Our study found that the impact on natural gas prices will likely be greater in importing countries than in the US. Furthermore, as in any commodity market, there are a number of competitors vying to enter the market and other gas suppliers are likely to capture LNG markets if the US exports are delayed or restricted. Hence, global gas markets will likely limit the volume of economically viable US LNG exports even in the absence of policy restrictions.

US LNG exports are unlikely to cause US prices to rise to levels of importing regions. Just because US markets are connected to import markets does not mean that US prices will rise to the level of import countries. The cost of LNG liquefaction, shipping, and regasification provides a large price wedge between prices in the US and import markets. Or stated differently, the price of natural gas in foreign markets needs to be about twice the current US price in order for LNG exports to be economically viable. Exports will only occur if wide price spreads persist, implying that sectors of the US economy that compete in global markets will not likely see their gas price advantage significantly diminish as a result of LNG exports. If large price spreads between markets begin to narrow, the economic quantity of US LNG exported would likely be reduced.

In summary, if sufficient natural gas supplies can be developed by the time LNG export terminals come into operations, then the price impact in the US will be determined by how the increase in demand changes the future cost of natural gas production. Given how dynamic the North American gas market is and the abundance of US gas supplies available at similar cost levels, our model projects modest price impacts at our assumed export volumes.

Thank you for this opportunity.

I look forward to addressing your questions.

Mr. LANKFORD. Thank you, Mr. Choi.
Mr. Cicio.

STATEMENT OF PAUL CICIO

Mr. CICIO. Thank you for the opportunity to testify before you.

I am Paul Cicio, President of Industrial Energy Consumers of America.

IECA is a nonpartisan association of leading manufacturing companies with $1.1 trillion in annual sales, over 1,000 facilities nationwide, and with more than 1.4 million employees worldwide.

IECA membership represents a diverse set of energy intensive industries including: chemical, plastics, steels, aluminum, paper, food processing, fertilizer, insulation, glass, industrial gases, pharmaceutical, brewing and cement.

IECA member companies are energy-intensive and trade-exposed, EITE. For these industries, the cost of energy can be from 10 to 85 percent of the cost of making their products. Our competitiveness is dependent upon the price of energy relative to our offshore competitors.

The U.S. manufacturing sector is the largest consumer of natural gas, as a fuel and as a feedstock, and natural gas-fired electricity, consuming approximately 40 percent of all U.S. natural gas. We also consume approximately 30 percent of the electricity.

It is important to note that IECA is not opposing LNG exports, although we are very concerned that exports could negatively impact manufacturing competitiveness and jobs. It is for this reason that we urge the DOE to do a better job than what we have seen so far. Even though both DOE-sponsored studies used domestic demand assumptions, I should understated assumptions, the outcome of the study should give public policymakers pause because they confirm one thing, that any level of exports will increase domestic prices for all consumers.

Natural gas prices have both direct and indirect impacts on peoples' lives and their safety for homes, for heating, cooling and electricity, for the Nation's economic growth, exports of manufactured products and jobs. Energy intensive manufacturing industries are especially impacted.

Specifically page 7 of the flawed NERA study confirmed that "Expansion of LNG exports has two major effects on income. It raises energy costs and in the prices, depresses both real wages and the return on capital in all other industries" and from our perspective, with only trivial net benefit to the economy.

My comments today will focus on two issues. First, we urge the DOE to implement a rulemaking process to determine public interest determination criteria that will be used on an application by application basis. Secondly, we also urge the DOE to complete the necessary studies to clarify the implications of LNG exports to consumers, the economy and the manufacturing sector using up to date, domestic demand assumptions.

DOE must include scenarios that consider pending legislative and regulatory actions that could impact natural gas production and spur domestic demand. Special attention is needed to address the impacts to energy intensive trade exposed industries.

The U.S. is at an important crossroads on the subject of LNG exports. If we do this right, the U.S. can export LNG and provide an adequate supply of natural gas at affordable prices to domestic consumers. If we get it wrong, the LNG exports could slow, if not stop, the manufacturing renaissance and every U.S. consumers' price of natural gas and electricity will rise, so much is at stake.

Today, the DOE is considering 24 applications to export LNG. In the modern era, the U.S. Government has not faced the need to determine the public interest in connection with requests to authorize exports as large as this. The DOE has extensive experience in evaluating import applications but has limited experience with export applications. Perhaps not surprisingly, there are no clear established criteria for DOE to apply in determining the public interest with regard to natural gas exports.

IECA supports an approach to such determinations by DOE that are based on objective criteria and metrics, established through a rulemaking process and applied on an incremental case by case basis consistent and balanced in manner. We urge the Congress to embrace this process.

Thank you.

[Prepared statement of Mr. Cicio follows:]

Thank you Chairman Lankford and Ranking Member Speier for the opportunity to testify before you and other Subcommittee Members on this important subject. My name is Paul Cicio and I am the President of the Industrial Energy Consumers of America (IECA).

The Industrial Energy Consumers of America is a nonpartisan association of leading manufacturing companies with $1.1 trillion in annual sales, over 1,000 facilities nationwide, and with more than 1.4 million employees worldwide. It is an organization created to promote the interests of manufacturing companies through advocacy and collaboration for which the availability, use and cost of energy, power or feedstock play a significant role in their ability to compete in domestic and world markets. IECA membership represents a diverse set of energy intensive industries including: chemical, plastics, steel, aluminum, paper, food processing, fertilizer, insulation, glass, industrial gases, pharmaceutical, brewing and cement.

The U.S. Department of Energy (DOE) has received applications to export LNG equivalent to just under 50 percent of U.S. demand. Shipments of this volume have significant implications for all domestic consumers and especially the competitiveness of the manufacturing sector that competes globally. The DOE has sponsored two studies to help understand how LNG exports would impact the U.S. economy and consumers. Both studies are flawed. Among other things, domestic demand assumptions used were understated resulting in understated impacts to the economy. The DOE has approved one LNG export terminal for shipments and another 24 have applied, yet the DOE has failed to establish transparent criteria on how to determine the public interest determination.

IECA Urges the DOE to:

- Complete a study that will provide a comprehensive analysis of LNG export implications.
- Develop guidelines for the public interest determination appropriate for LNG export applications through a formal rulemaking process.

Testimony Outline:

1. IECA position on LNG exports
2. Implications of LNG exports for energy-intensive trade-exposed industries and other manufacturing
3. Two reasons why natural gas is different than other trade products and why it is essential to improve the public interest determination
4. DOE should develop guidelines for the public interest determination through a formal rulemaking process
5. Criteria for public interest determination
6. Study recommendations

1. IECA position on LNG exports

It is important to note that IECA is not opposing LNG exports, although we remain very concerned that exports could negatively impact manufacturing competitiveness and jobs. It is for this reason that we urge the DOE to do a better job than what we have seen so far, and improve the public determination test.

Both DOE sponsored studies (that used understated domestic demand assumptions) should give public policymakers pause because they confirm one thing – that any level of exports will increase domestic prices, and that energy-intensive manufacturing industries are greatly impacted. Specifically, the flawed

NERA study confirmed that LNG exports increase energy costs, lower wages, and lowers the return on capital to "all" industries with only trivial net benefit to the economy.

The volume of exports and the timing of when LNG terminals are approved and begin to ship are important public policy decisions that can negatively impact the manufacturing renaissance that has now begun. LNG exports have the potential to slow or stop the manufacturing renaissance. A lot is at stake.

If export terminals are approved over a longer period of time, the domestic market place may have time to adjust, so as to avoid a price spike for domestic consumers. On the other hand, approval of several terminals and shipments starting all at the same time could shock the domestic market and prices could spike for all U.S. consumers. Under this scenario, prices would increase right away in anticipation of the future demand.

2. LNG exports are an important issue to energy-intensive trade-exposed industries and manufacturers that competes globally

IECA member companies are energy-intensive and trade-exposed (EITE). For these industries, the cost of energy can be from 10 to 85 percent of the cost of making their products *(see Appendix, Chart 1)*. Our competitiveness is dependent upon the price of energy relative to our offshore competitors.

Energy-intensive manufacturers are unique and the only sector which requires globally competitive energy, is natural gas- and/or electricity-intensive, and competes globally in an environment of unfair competition (other countries often subsidize energy and manufacturing). Unlike other sectors, we will relocate facilities offshore to be competitive.

The U.S. manufacturing sector is the largest consumer of natural gas, as a fuel and feedstock, and natural gas-fired electricity, consuming approximately 40 percent of all U.S. natural gas. We also consume approximately 30 percent of all electricity.

Energy-intensive manufacturing companies produce the building block commodity products that are used by "all" other manufacturing to produce their products as illustrated in Chart 2 *(see Appendix)*. Energy-intensive products are essential for U.S. economic growth. Chart 3 and 4 *(see Appendix)* illustrate that all other sectors of the economy are dependent upon these energy-intensive products for the manufacture of a wide array of industries that span defense industries to consumer products.

However, when energy prices rise, domestic energy-intensive products have a difficult time competing with imports. This is what happened when natural gas prices rose and peaked in 2008. U.S. manufacturing facilities shut down and imports increased. *(see Appendix, Charts 5 & 6)*.

The manufacturing sector is a highly valued sector. According to the U.S. Bureau of Economic Analysis, every dollar of manufacturing economic activity returns $1.35 of indirect economic activity *(see Appendix, Chart 7)*. This is the highest return as compared to any other sector of the economy. The average of all other sectors is only $0.75 of indirect economic activity for every one dollar. Lastly, according to NAM, for every manufacturing job created there are five to eight more jobs created in the larger economy.

3. Two reasons why natural gas is different than other trade products and why it is important to get the criteria correct for the public interest determination

Both DOE sponsored studies make it clear that "all" consumers are impacted. Natural gas prices have both a direct and indirect impact on peoples' lives, their safety (heating, cooling, electricity), economic growth, exports of manufactured products, and jobs.

Secondly, natural gas production and demand is highly influenced by public policy decisions. Natural gas production can be highly impacted by federal and state public policy decisions and regulations that can either slow production or make it more expensive. And, domestic natural gas demand is highly impacted by federal environmental regulation, although it could also be impacted by Congressional action.

The fact that natural gas supply and demand is highly impacted by public policy decisions is a critically important distinction. When the DOE approves an LNG export terminal, it does so for as long as 30 years. The terminal owner then secures take-or-pay contracts that are then used to secure financing of the terminal. This "locks" in new demand for long periods of time that will impact domestic prices. A lot can happen in 30 years that cannot be anticipated today. During this 30-year time period, all of the imposed regulatory and legislative risks of slower production or higher domestic demand driven by public policy decisions are shifted to the U.S. consumer – and not the producer of natural gas, the terminal owner or the LNG customer.

Examples of public policy issues that could slow natural gas production which would decrease supply and correspondingly increase costs include:

Intangible Drilling Costs (IDCs) tax provision:
The IDCs allow the oil and gas industry to deduct expenses and generate the cash flow needed to invest in drilling. Congress is considering eliminating this provision. If Congress took this provision away, capital available to drill could drop by up to one-third. Production of natural gas would drop precipitously and prices would rise quickly.

U.S. Department of the Interior, Bureau of Land Management (BLM) proposed rule to regulate hydraulic fracturing on federal lands:
The BLM rule will slow permitting, slow-down drilling and increase costs that will be passed onto consumers.

EPA regulation of hydraulic fracturing on private lands:
EPA is leading an inter-agency task force study that is widely believed will result in regulation of hydraulic fracturing. The primary focus is on water protection and these new regulations could result in sensitive regional watersheds being placed off limits to drilling.

Examples of public policy issues that will result in greater natural gas demand include:

National Ambient Air Quality Standards for:

- Ozone – Proposal due 2013, final due 9/14
- Sulfur Dioxide (SO2) – Final 6/10
- Nitrogen Dioxide (NO2) – Final 2/10
- Particulate Matter (PM) – Final 12/12
- Cross State Air Pollution Rule (CSAPR) – Vacated 8/12, rehearing requested

- GHG Rules – Upheld DC Court of Appeals 6/12
- Endangerment Finding – Rehearing denied 12/12
- GHG Tailoring Rule – Final

New Source Performance Standards for:

- GHG for new power plants – Proposed 4/12, final due 3/13
- GHG for existing plants – Unknown, subject to Consent Decree
- National Emissions Standards for Hazardous Air Pollutants (NESHAP)
- Mercury Air Toxics Standards – Final 2/12, new units in reconsideration
- Coal Combustion Residuals Rule – Proposed 6/10, final due 6/13
- Cooling Water Intake Rule [316(b)] – Proposed 4/11, final due 5/13
- Power Plant Effluent Limitation Guidelines – Proposal 4/13, final 4/14
- Greenhouse Gas NSPS for refineries – Required action by EPA under the CAA
- Greenhouse Gas NSPS for industrial facilities – Required action by EPA under the CAA

4. DOE should develop guidelines for the public interest determination through a formal rulemaking process

Over 70 years ago, Congress recognized that the import and export of natural gas, a finite natural resource, can have critical implications for U.S. prosperity. In the Natural Gas Act, Congress charged the executive branch with regulating the import and export of natural gas in accordance with the public interest.

The DOE has extensive experience evaluating import applications, but it has had limited experience with export applications. Perhaps not surprisingly, there are no clearly established criteria for DOE to apply in determining the public interest with regard to natural gas exporting.

IECA supports expanded exports and trade. However, we also believe it is crucial that DOE have the information and analysis necessary to properly apply the Natural Gas Act requirement that exports be consistent with the public interest. We applaud DOE's recent acknowledgement that an economic study that it commissioned is but one data point in the broad array of considerations that are relevant for a public interest determination. In short, IECA supports an approach to such determinations by DOE that are based on objective criteria and metrics, established through a public process and applied on an incremental, case-by-case basis in a consistent and balanced manner.

Today, DOE is considering 24 applications to export LNG. Since the proposed importing countries do not have a particular type of free trade agreement (FTA) with the United States, these applications are not covered by the statute's presumption that an FTA represents a determination that the application meets the public interest test. After approving one such application, DOE has temporarily suspended the processing of "non-FTA" LNG export applications. Implicitly recognizing that more is at stake than can be resolved through its traditional approach to processing export applications, DOE commissioned a report from a private firm to evaluate the macroeconomic effects of higher LNG exports.

As detailed in IECA's January 24, 2013 submission to DOE, the NERA report is fundamentally flawed and underestimates the potential harmful effects of sharply higher LNG exports. More broadly though, commissioning the report should be the first step in developing policies that will enable DOE to administer appropriate public interest determinations for LNG export applications. No economic study can account for the full profile of U.S. values that should inform a determination of the public interest with regard to natural gas exports.

The outstanding authorization requests present what is essentially a new challenge. In the modern era, the U.S. government has not faced the need to determine the public interest in connection with requests to authorize exports of large volumes of natural gas. Congress should encourage DOE to continue its effort to improve the process for evaluating LNG export applications by providing an opportunity for all affected constituencies and the public at large to comment on how best to assess the public interest as it pertains to exports of natural gas.

Newly discovered sources of natural gas present a great opportunity for the U.S. At the same time, natural gas remains a finite natural resource with important implications for U.S. energy security, energy independence and the environment. Exports can have supply and price effects that have major impacts throughout the country. The economic impact of LNG exports is also likely to vary by geographic region and by business center. Consequently, public interest determinations should be thorough enough to evaluate nationwide implications of LNG exports as well as localized effects.

Unchecked LNG export licensing can cause demand shocks, and the resulting price volatility can have substantial adverse impacts on U.S. manufacturing and competitiveness. In the recent past, the price of natural gas was very high and volatile until the advent of substantial shale gas production. Gas supplies and demand are inherently difficult to predict accurately. Thus, IECA urges a cautious, considered, comprehensive and deliberate approach to assessing the public interest.

Currently, DOE regulations provide for the adjudication of LNG export applications on a case-by-case basis in proceedings that depend on the parties to raise issues relevant to a public interest determination and to support their positions with persuasive evidence. DOE interprets the Natural Gas Act's public interest standard as creating a rebuttable presumption that a proposed export of natural gas is in the public interest. This means that DOE is to approve an application unless those who oppose the application can overcome this presumption.

In its principal order to date authorizing exports of LNG to non-FTA countries, DOE identified certain topics as being relevant to its evaluation of the impact of LNG exports on the public interest:

- the domestic need for the natural gas proposed to be exported,
- whether proposed exports threaten the security of domestic natural gas supplies, and
- any other issue DOE deems to be important, including whether the export arrangement is consistent with DOE's policy of promoting competition in the marketplace by allowing commercial parties to freely negotiate their own trade arrangements.

The topics that DOE has identified for evaluating the public interest are too narrow and vague to capture all of the critical national, regional and local issues at stake with LNG exports or to offer any useful guidance. In response to the economic study it commissioned, DOE has received more than 370 submissions from a broad array of stakeholders covering an equally broad array of topics. The sheer number of submitted comments reflects the depth of interest regarding this issue. Unfortunately, the current process provides no assurance that DOE will consider all aspects of the public interest in any given proceeding. This is inevitable for an administrative process that depends on arguments and evidence submitted by the parties to a specific export application process. These parties are representing their specific interests, and may not adequately represent the totality of the public interest.

A timely DOE rulemaking process to formulate criteria for determining the public interest as it relates to LNG exports could ameliorate some of the shortcomings of the current process. All of the major constituencies affected by LNG exports should have an opportunity to be heard, which could enable

DOE to obtain much broader public input and do so efficiently in a single forum. This would increase the likelihood that all relevant considerations will be identified and that cumulative and national effects will be addressed as well as regional effects. The result of such a rulemaking process—establishment of uniform and actionable criteria with measurable metrics—would facilitate balanced, comprehensive consideration of the public interest by DOE, give parties in individual proceedings advance notice of many of the most relevant considerations, and reduce the risk of inconsistent adjudications across applications. DOE would then apply these criteria and metrics incrementally over time in individual application proceedings, which would assure fairness and uniformity, while allowing DOE to consider changes in circumstances from one application to the next.

More importantly, DOE could adopt a mechanism to balance, in the aggregate, exports and U.S. interests that inform the public interest. A new rule of this kind should generally ensure that DOE is presented with adequate and accurate evidentiary records in each licensing proceeding.

5. Criteria for public interest determination

While criteria for determining the public interest should be developed as part of the rulemaking described above, we believe the list below provides a good starting point for identifying specific, concrete and forward-looking criteria that DOE should evaluate in connection with LNG export applications:

- Domestic manufacturing: How will exports impact natural gas prices and the supply/demand balance? Will natural gas supply be reduced? Will there be less feedstock for announced investment projects? Will the jobs created by increased exports exceed jobs lost by the manufacturing industry? Will additional exports displace U.S. consumption?

- U.S. consumers: Will exports reduce the supply of natural gas available for utilities or affect consumer prices or energy costs? Will utilities decrease fuel switching to natural gas?

- Energy security: Will exports reduce the volume of natural gas available for domestic use or increase the need to rely on imported petroleum?

- Employment: How many new jobs will be created or existing jobs impacted? Are employment gains in the oil and gas sector offset by job losses in other areas of the economy affected by relatively higher natural gas prices?

- International trade: Will exports improve the U.S. balance of trade payments sufficiently to offset falling exports in other value-adding sectors of the economy? As to proposed exports to FTA countries, are the exports destined for consumption in the FTA country or will there be transshipment of natural gas to non-FTA countries? How can export applications be disposed of in a manner consistent with U.S. trade obligations?

- Environmental: What would the proposed exports' environmental impact be?

- Strategic interests: Will the exports support a strategic American ally in a meaningful way and consistent with stated policy priorities? Do proposed importing countries accord the United States reciprocal favorable international trade treatment? What are the implications for any current or proposed FTA negotiations?

- Price and volatility: How is the LNG contract being priced, and is it linked to oil in some manner? What is the expected short and long term impact on natural gas and electricity price volatility?

- Other regulatory impacts: What is the potential impact of other regulatory decisions on natural gas demand or supply and what is the interplay between those impacts and exports of natural gas?

DOE should apply criteria that result from this rulemaking to applications on a case-by-case basis and in an incremental fashion. This would entail evaluating whether approving each individual application is in the public interest, and whether the incremental impact of approving that application, in light of DOE's prior approvals, would be consistent with the public interest. Again, the last ten years have seen great fluctuations in domestic gas prices, and circumstances can change as drilling techniques are improved, sources of consumption are expanded or the condition of the economy evolves.

6. Study recommendations

Among the other things needed to evaluate the impact of LNG exports on the U.S., IECA requests that a redo of the DOE study should take into consideration each of the following items:

1. Proprietary economic models, such as that used by NERA Economic Consultants (NERA), should not be used for public policy decisions. Public policy decisions demand the trust and integrity of economic models that have stood the test of time and been peer reviewed. The Office of Management and Budget "Final Information Quality Bulletin for Peer Review," filed in the Federal Register on January 14, 2005, stipulates that proprietary models/data that are not peer reviewed cannot be used in public policy decision making. NERA's model does not meet that test. We encourage the DOE to use EIA for all modeling. In this way, the public knows that trusted experienced public servants, which do not have an agenda, are conducting the analysis.

2. Compare the economic benefits of consuming the same quantities of natural gas domestically as exported under the study. The public interest test for shipment to non-free trade countries is a public policy decision based on comparisons of how the public will be impacted. The public interest test is incomplete without first comparing impacts/benefits of exports versus impacts/benefits of greater domestic consumption. There is just as much potential new domestic demand that can occur as compared to the exports of LNG.

3. Use up-to-date demand forecasts for the industrial, electric generation and transportation sectors. For industrial demand, use current and prudent publically available data on announced capital investments that will rely upon natural gas in the forecasts and update employment data.

4. For the industrial, electric generation and transportation industries, include scenarios of impacts to natural gas demand due to existing, pending (proposed/courts) and anticipated federal and state regulations.

5. For the oil and gas industry, include scenarios of impacts to natural gas demand due to existing, pending (proposed/courts) and anticipated federal and state regulations on production of natural gas.

6. Given that approval of export terminals permits are for 20- to 30-year time periods, and the difficulty of forecasting supply, demand and price over such a long period of time, we encourage the DOE to use EIA's natural gas price forecasting history data base to provide a plus or minus (+/-) price factor to the

LNG export scenario forecasted prices, a price sensitivity analysis. The EIA has an existing database that compares their history of price forecasting to what really happened. Using a price sensitivity analysis based on past experience can illustrate the degree of potential accuracy of the LNG export price impacts over a 20- to 30-year period and provide great insight into relative price uncertainty.

7. The NERA study concluded that everyone will pay higher prices for natural gas and electricity but that the most vulnerable sector was the energy-intensive trade-exposed (EITEs) industries. NERA then erroneously concluded that EITE industries are not important so it doesn't really matter if those jobs are lost. We urge the DOE to study the economic and job creation "value-chain" of natural gas consumption by the EITE industries, to their domestic customers, and to the export of their finished goods – in comparison to exporting specific volumes of natural gas. In this evaluation, DOE must consider that the economics of these industries has changed dramatically because of favorable domestic natural gas and electricity prices and they have a decided competitive advantage over imports. DOE is to use up-to-date EITE competitive market assessments as part of this work.

8. Both DOE studies failed to evaluate peak demand scenarios and potential regional limitations on storage and pipeline capacity on price. As the DOE re-evaluates price impacts of LNG exports, it needs to include scenarios that consider the impacts of U.S. LNG exports during winter and/or summer peak demand periods. This is a reasonable request given that most of the countries that would import LNG from the U.S. are in the northern hemisphere, which means that their LNG demand will be high during the U.S. winter heating season demand and could cause costly price spikes.

Secondly, regional infrastructure such as storage and pipeline capacity needs to be evaluated. The capacity of such infrastructure on a regional basis can have a significant impact on the natural gas basis pricing as we are experiencing today in the northeast. For example, the EIA reported "spot prices of natural gas for delivery between Saturday, January 19 and Tuesday, January 22 exceeded $14 per million British thermal units (MMBtu) at some Northeast locations. This is about four times higher than the $3.54 price for the same delivery period reported at Henry Hub, the benchmark location for pricing natural gas in the United States." As new natural gas-fired power generation plants, new industrial facility demand and export terminal demand are all dependent upon the same infrastructure, prices will rise and accelerate the potential for price spikes.

In closing, the U.S. is at an important crossroad. If we do this right, the U.S. can export LNG and provide an adequate supply of natural gas at affordable prices to domestic consumers. However, it is very important to develop a public interest determination criteria that balances LNG exports and provides the safeguards needed for domestic consumers.

Thank you.

APPENDIX

CHART 1

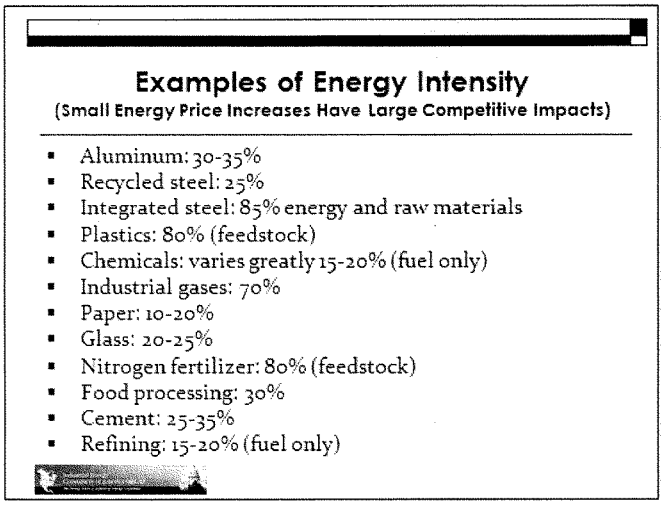


CHART 2

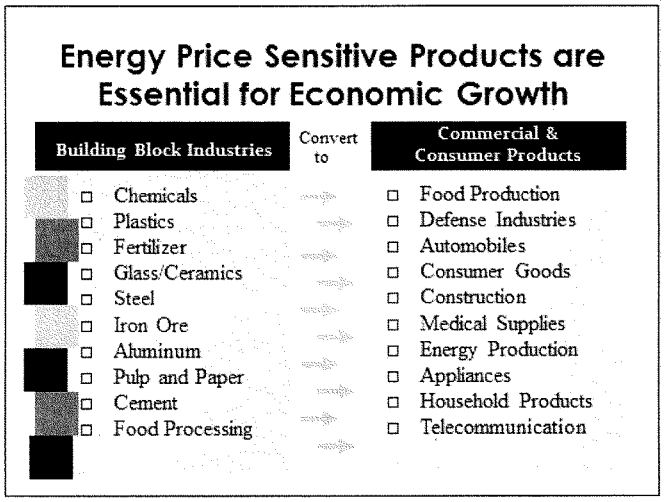


CHART 3

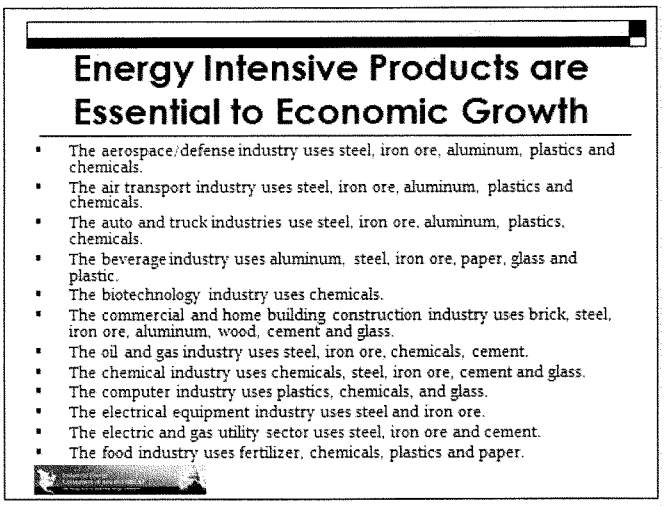


CHART 4

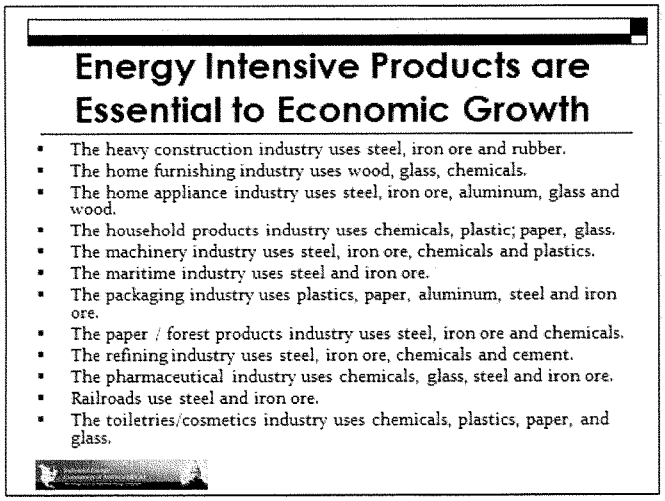


CHART 5

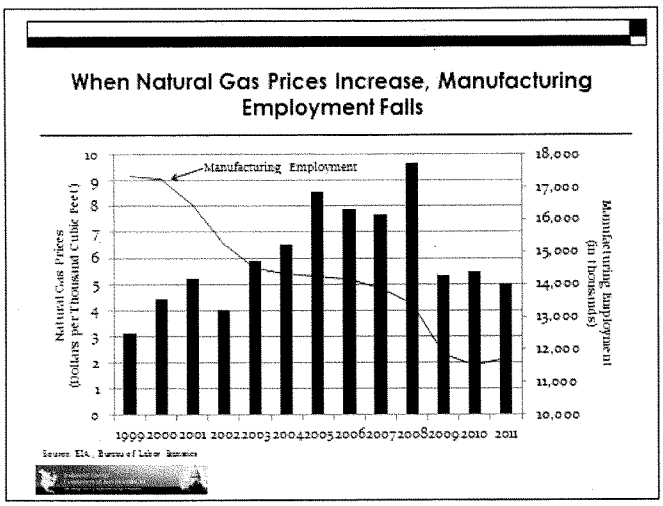


CHART 6

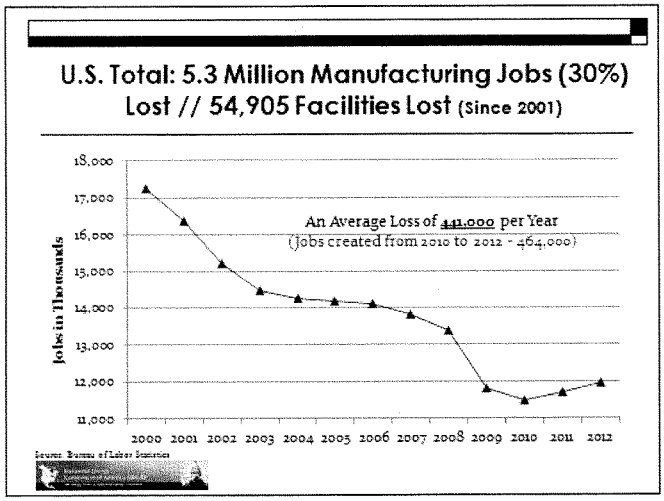
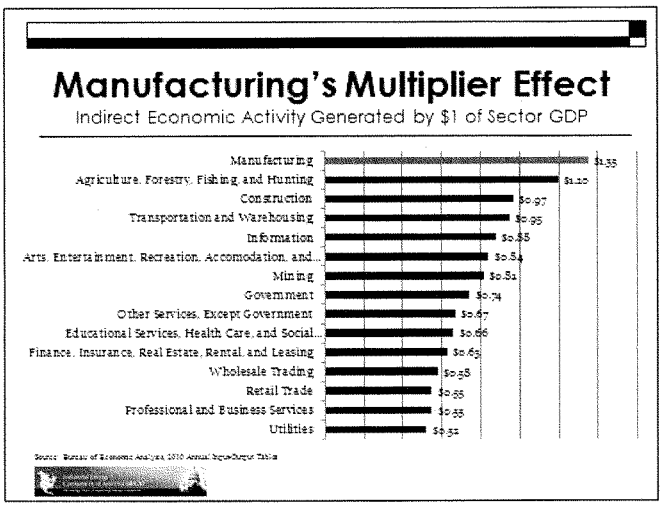


CHART 7


Manufacturing's Multiplier Effect
Indirect Economic Activity Generated by $1 of Sector GDP
Manufacturing
Agriculture, Forestry, Fishing, and Hunting
Construction
Transportation and Warehousing
Information
Arts, Entertainment, Recreation, Accomodation, and...
Mining
Government
Other Services, Except Government
Educational Services, Health Care, and Social...
Finance, Insurance, Real Estate, Rental, and Leasing
Wholesale Trading
Retail Trade
Professional and Business Services
Utilities
$1.35
$1.20
$0.97
$0.95
$0.85
$0.84
$0.82
$0.74
$0.67
$0.66
$0.63
$0.58
$0.55
$0.55
$0.52

Mr. LANKFORD. Thank you.
Dr. Ebinger.

STATEMENT OF CHARLES EBINGER

Dr. EBINGER. Chairman Lankford, Ranking Member Speier and other distinguished subcommittee members, thank you very much for inviting me here today to share my views on U.S. LNG export policy.

My name is Charles Ebinger, Director, Energy Security Initiative, Brookings Institution and not the Director of the Foreign Policy Program, for the record.

The Energy Security Initiative at Brookings has been studying this issue of LNG for the past two years and last March, issued a comprehensive report. In the interest of time, let me say the report had two primary conclusions. First, the negative implications of LNG exports in the lower 48 States are at best marginal and vastly are outweighed by the benefits. Second, as the lynchpin of a globalized economy, the United States must continue to espouse free trade and avoid intervening in a global market.

As we state in our report, "The United States should neither act to prohibit nor to promote export of LNG, but rather let the existing process, with modifications, work its way through."

I will not spend much time talking about the economic implications because I think Tom Choi has done an excellent job of that, but merely say we echo Deloitte's findings and that of other major public reports by ICF, EIA and others that we believe that the impact on domestic natural gas prices arising from exports would only be between 2 and 11 percent than they are today by the year 2035, hardly a massive distress to the American public.

We also believe that LNG exports are likely to have only a modest impact no electricity prices. Again, studies done by a host of leading economic consulting firms have produced a range of estimates but the conclusion is profound. That is that the average increase in electricity prices per megawatt hour might be somewhere between $1.40 to just under $5.00.

To put this in context for those that do not follow megawatt hour pricing, the EIA's annual energy outlook in 2013 estimates that by 2035, the average megawatt price will be $101 a megawatt hour, nearly 95 times bigger than the increase in prices, again hardly devastating to the American consumer.

I firmly disagree with the views of people who say we cannot export because it will hurt the prospects of an industrial renaissance in the United States. Today, the ratio of the price of oil to the price of natural gas in the world market is over 30 to 1, well over the 7 to 1 oil to gas price ratio at which the American Chemistry Council considers the U.S. petrochemical and plastic producers to be globally competitive.

Let me turn quickly to the issue of geopolitics. Already, we have seen the fact that cargoes planned to be destined to the United States, when we were forecast to import up to 40 percent of our natural gas in the near future have had a major transformation in the European market and have proven to be of benefit to our European allies in both western and central Europe.

The advent of LNG coming into that market has reduced the influence of Gazprom, the Russian monopoly on the European gas market and today, rather than dominating the European market, we see a situation where last month nearly 54 percent of the gas that flowed in Europe was under spot contracts, not under long term oil index contracts, saving many of the nations huge quantities of money, particularly some of the more ailing economies in eastern Europe.

Already we have seen the impact that LNG exports can have on alleviating the terrible situations in Asia with index pricing already beginning to come down away from oil and towards natural gas which will be of vital assistance to our major Allies.

Finally, let me turn quickly to say we believe it is a prudent policy to continue to allow exports. We disagree with the two extreme proposals of the volumetric gap or a policy where the U.S. automatically approves all applications.

We do, as we say in our testimony in greater detail, believe there are reforms that may occur in the process and we hope they will be seriously considered, both by our Administration and by members of Congress with oversight on these issues.

Thank you very much.

[Prepared statement of Dr. Ebinger follows:]

BROOKINGS

Dr. Charles Ebinger
Senior Fellow and Director, Energy Security Initiative
The Brookings Institution
Testimony to the Subcommittee on Energy Policy, Health Care, and Entitlements
March 19, 2013

Mr. Chairman, Ranking Member Speier, and distinguished Subcommittee members:

Thank you for inviting me here to share my views on U.S. LNG export policy. My name is Charles Ebinger and I am Director of the Energy Security Initiative at the Brookings Institution. These views are mine alone and do not reflect the views of the Brookings Institution, which does not take institutional positions on any policy issue.

The Energy Security Initiative at Brookings has been studying this issue for the past two years, having published an assessment of the case for LNG exports in May 2012 in our report, *Liquid Markets: Assessing the Case for Exports of Liquefied Natural Gas from the United States.*[1] In that report, we focused on two determinants of whether the U.S. should allow exports of LNG: what is the feasibility of exporting LNG, and what are the implications? After assessing both factors, my co-authors, Kevin Massy and Govinda Avasarala, and I came to two primary conclusions: first, the negative implications of LNG exports from the lower 48 states, which we believe to be technically feasible, are marginal and outweighed by the benefits; second, as the lynchpin of the globalized economy the United States must continue to espouse free trade and avoid intervening in a global market. Ultimately we believe, as we stated in our report, "that the United States should neither act to prohibit nor to promote LNG exports."

In the 10 months since the release of this report, more studies and information—some good, some misleading—have surfaced. More opinions are being voiced. Amid the increased volume of debate, however, my opinion has not changed. I still believe that the benefits of U.S. LNG exports are, on balance, a benefit to the United States; that the United States still has the responsibility and the incentive to be an advocate for free trade; and that the U.S. government should not intervene in what should be a market-driven process.

I applaud this Committee for avoiding another acrimonious debate on the pros and cons of LNG exports by spending more time with both the implications of LNG exports and discussing some specifics reforms that might help rationalize the permitting process while clearly protecting the public interest.

[1] Charles Ebinger, Kevin Massy, and Govinda Avasarala, "Liquid Market: Assessing the Case for Exports of Liquefied Natural Gas from the United States," *The Brookings Institution,* May 2012. (Brookings 2012) (http://www.brookings.edu/research/reports/2012/05/02-lng-exports-ebinger)

Part 1: Implications

Any discussion surrounding the implications of U.S. LNG exports will focus on several considerations including the implications for domestic natural gas and electricity prices, the impact on other consumers of natural gas, and the impact on international prices and geopolitics.

Wellhead Prices

There have been a number of studies that have examined the impact of U.S. LNG exports on domestic prices. When analyzing them, policymakers should identify which study's assumptions most resemble the existing natural gas market and its likely direction, and which models are most reflective of the complex nature of domestic and global natural gas trade. For instance, assuming realistic volumes of natural gas exports as well as a reasonable supply response by natural gas producers are two critical considerations. It is also important to note that the supply curves in the various studies reflect different interpretations of the economics of marginal production.

Under the most reasonable assumptions (in this case assuming 6 bcf/day of exports), most reports forecast that natural gas prices will be between 2 and 11 percent higher in 2035 than if the U.S. did not export LNG.[2] There are a number of factors that insulate domestic prices from dramatic increases in price as a result of exports. First, as will be discussed later, there is a market-determined limit on how much the United States can economically export, depending on domestic prices, the international gas market, and the global market for competing fuels. Second, the size of the resource base is substantial, an important factor because the EIA estimates that roughly 63% of the gas required to meet demand for LNG export will come from increased domestic production.[3] Finally, the domestic natural gas sector is very efficient and producers are able to respond rapidly to marginal increases in the domestic price.

[2] Brookings 2012, pg. 33; Pricing studies include "Effect of Increased Natural Gas Exports on Domestic Energy Markets," Energy Information Administration, January 2012; "Made in America: the economic impact of LNG exports from the United States," Deloitte, December 2011; "Resource and Economic Issues Related to LNG Exports," ICF International, August 17, 2011; "Market Analysis for Sabine Pass LNG Export Project," Navigant Consulting, August 23, 2010.; and "Jordan Cove LNG Export Project Market Analysis Study," Navigant Consulting, January 2012. Note that Navigant Consulting's study of the Sabine Pass LNG project forecasted the pricing implications of 2 bcf/day.

[3] Brookings 2012, pg. 33

Figure 1: Study-by-study comparison of the Average Price Impact from 2015-2035 of 6 bcf/day of LNG exports (unless otherwise noted)

Study	Average Price without Exports ($/MMBtu)	Average Price with Exports ($/MMBtu)	Average Price Increase (%)
EIA*	$5.28	$5.78	9%
Deloitte	$7.09	$7.21	2%
Navigant (2010)** (2 bcf/day of exports)	$4.75	$5.10	7%
Navigant (2012)***	$5.67	$6.01	6%
ICF International***	$5.81	$6.45	11%

* Price impact figure for EIA study reflects the reference case, low-slow export scenario.
** Navigant (2010) did not analyze exports of 6 bcf/day.
*** Navigant (2010 and 2012) and ICF International studies are based on Henry Hub price.
Source: EIA, Deloitte, Navigant, ICF International

Power Sector Implications

LNG exports are likely to have a modest impact on electricity prices as well. In the power sector, natural gas has historically been used as a back up to coal and nuclear base-load generation. For such gas used at the margin, the increase in electricity prices as a result of LNG exports will be limited by its competitiveness relative to other fuels: as soon as it becomes more expensive than the alternative for back up generation, power producers will move away from gas. According to ICF International, a $0.64/MMBtu increase in the price of natural gas will result in an electricity price increase of between $1.66 and $4.97/megawatt-hour (MWh), depending on how often gas is used as the marginal fuel for electricity. Deloitte estimates that the price increase of electricity will not be more than $1.65/MWh. EIA estimates that electricity price impacts will be marginal as well (between $1.40/MWh and $2.90/MWh) except in the "high rapid" export scenario. By contrast, the EIA Annual Energy Outlook 2013 estimates that, in its reference scenario, the average price of electricity (across all fuels) in 2035 will be

$101/MWh, showing clearly the small impact that the rise in domestic electricity prices will have on consumers.[4]

Industrial Sector Implications

I am similarly skeptical about the negative consequences of exports on our industrial sector. Some of the more vocal industry opponents to LNG exports contend that price increases will reverse the trend of manufacturing investment returning to the United States. I firmly disagree with this assessment. For starters, I don't believe that multi-billion dollar industrial investments in factories that will be a part of the capital stock for decades will be rendered unprofitable by single-digit percent changes to natural gas prices. As one analyst put it, "if your margins are so thin that [modest price increases] could break them, then there isn't much benefit to putting up a plant here. Conversely, if it is so beneficial to do it here, then a small change in price probably won't undermine those benefits."[5]

For the petrochemical sector, the picture is even more positive. The prospects of large volumes of new supply suggest that the industrial sector's competitiveness is stable regardless of U.S. export policy. Today the ratio of the price of oil to the price of natural gas is over 25:1. This is well over the 7:1 oil-to-gas price ratio at which the American Chemistry Council (ACC) believes U.S. petrochemical and plastics producers to be globally competitive. European and Asian petrochemical producers use oil-based products such as naphtha as a feedstock, as they lack access to cheap natural gas liquids (NGLs). Increased drilling will likely result in the greater production of the NGLs. This is one of the principal reasons why petrochemical producers are looking to return to the United States, after spending much of the previous decade relocating facilities overseas. According to a March 2011 report by the ACC, a 25 percent increase in ethane—a natural gas liquid—production will yield a $32.8 billion increase in U.S. chemical production.[6] To the extent that increased gas production linked to exports results in increased production of natural gas liquids, they will benefit the petrochemical industry.

International/Geopolitical Implications

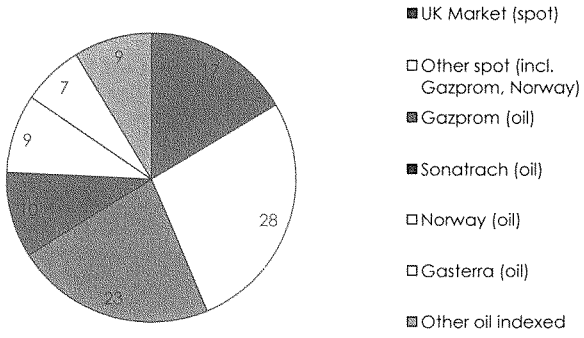
Before diving too deep into the international pricing and geopolitical implications of U.S. LNG exports, it is worth reviewing the structure of the global LNG market, which is informally separated into three markets: North America, the Atlantic Basin (mostly Europe), and the Pacific Basin (including Japan, South Korea, Taiwan, China, and India). These markets are separated because of important technical differences that impact the pricing structure for LNG in each market. The North American natural gas market is competitive and prices are traded in a transparent and open market. The Atlantic Basin is dominated by European LNG consumers such as the United Kingdom, Spain, France, and Italy, and is a hybrid of a competitive U.K. market that was liberalized in the mid-1990s and a Continental European market that is partially dependent on oil-linked, take-or-pay contracts. In recent years, the U.K. hub, the National Balancing Point (NBP), has traded at a premium to the U.S. hub, known as the Henry Hub. The

[4] Brookings 2012, pg. 34.
[5] Comment by Kevin Book, Managing Director, Research, ClearView Energy Partners, at "Liquid Markets: Assessing the Case for U.S. Exports of Liquefied Natural Gas," on May 2, 2012 at the Brookings Institution in Washington, D.C. (http://www.brookings.edu/~/media/events/2012/5/02%20lng%20exports/20120502_lng_exports.pdf)
[6] American Chemistry Council, "Shale Gas and new Petrochemicals Investment," March 2011.

Pacific Basin is a more rigid market that depends heavily on oil-indexed contracts that are more expensive than those used in the Atlantic Basin. While they have no central trading hub, the Pacific Basin consumers such as Japan and South Korea currently import LNG based on a pricing formula known informally as the Japan Crude Cocktail, the average price of custom-cleared oil imports into Tokyo. Many Pacific Basin contracts have a built-in price floor and price ceiling depending on the price of oil.

Without exporting any natural gas, the U.S. shale gas "revolution" has already had a positive impact on the liquidity of global LNG markets. Many LNG cargoes that were previously destined for gas-thirsty U.S. markets were diverted and served spot demand in both the Atlantic and Pacific Basins. The increased availability of LNG cargoes has helped create a more competitive LNG market for other consumers. This in turn has helped apply downward pressure to the terms of oil-linked contracts resulting in the renegotiation of some contracts. In 2010 short-term and spot contracts represented 19 percent of the total LNG market, up from only a fraction one decade earlier. This trend is particularly prominent in Europe, where in 2012 nearly half of its gas supply came on a spot-price basis (see **Figure 2**). As will be discussed later, this trend in the European market towards cheaper oil-indexed rates and increased spot consumption has not only benefited European economies but is also helping loosen the stranglehold of Gazprom, Russia's state gas company, on our east and west European allies and trading partners.

Figure 2: European Gas Supply by Contract Type (%), 2012



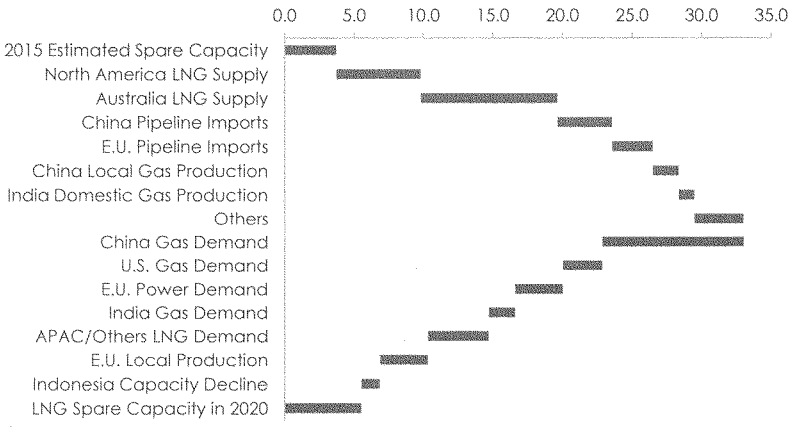
Source: Societe Generale

Although increases in domestic gas production have initiated some changes within the international gas market, any dramatic alterations to the existing structure will depend on the volume that is actually exported. With roughly 37 bcf/day of liquefaction capacity in the global market today, it is unlikely that

the U.S. will export a significant portion of the nearly 30 bcf/day worth of applications currently proposed to the Department of Energy. Building an LNG facility requires billions of dollars in investment and years of planning. Prospective exporters must also undergo an intricate and thorough regulatory process and must be reasonably certain that the economic opportunity for any investment exists for two or more decades.

Given these sobering realities, I don't see very many LNG projects—our estimates predict 4-6 bcf/day's worth—being constructed before their economic opportunity and early-mover advantage is eroded by increased domestic gas prices (resulting from more gas consumption in the electricity and industrial sectors, sources of demand that are emerging faster than export facilities), decreasing international gas prices, and a more balanced global LNG market. This last point about LNG market equilibrium is critical. Our forecast suggests that from 2015 to 2020, the global LNG market will swing to a surplus, mostly aided by the nine Australian projects that already have or are close to reaching final investment decision (see **Figure 3**) as well as other new supplies from East and West Africa. Further, pipeline gas (particularly into China), and a stubborn coal market will also compete with gas in global energy markets, particularly those in Asia. Furthermore, as we move beyond 2025, the possibility of other countries—again, China in particular—developing their own shale gas reserves could begin to have an impact on international gas trade.

Figure 3: Global LNG Supply/Demand Balance, 2015-2020 (bcf/day)



Source: Brookings, IEA, EIA, Morgan Stanley, JP Morgan, Credit Suisse

U.S. LNG exports will therefore have a beneficial but not transformational impact on international LNG prices. The market is still largely dependent on long-term contracts and much of the new liquefaction

capacity emerging in the next decade (largely from Australia) has already been contracted for at oil-indexed rates.[7] The incremental LNG volumes supplied by the United States at floating Henry Hub rates will be small in comparison. Indeed, importing U.S. LNG at Henry Hub rates includes a number of other costs, such as the cost to liquefy the gas and the cost to ship it on specialized tankers. (Depending on the type of contract, regasification is another cost that can be borne by either the buyer or the seller.) These costs range depending on the transportation distance and the size of vessel. As a reference point, it is estimated that shipments of LNG from the U.S. Gulf Coast to Japan will cost $5-6/MMBtu.[8] These additional costs dramatically reduce the arbitrage opportunity available to exporters.

There is also no guarantee that all U.S. exports will be supplied at floating U.S. prices. LNG export facilities are multi-billion dollar investments that require revenue certainty. Moreover, many of the export facilities are owned by producers of natural gas. John Watson, Chevron's Chief Executive, said earlier this week that his company's investments in LNG export facilities does not mean that natural gas will be available to consumers at U.S. rates.[9] Most producers prefer selling long-term supply contracts to reduce the price risk to their investments.

A large increase in U.S. LNG exports will have the potential to increase U.S. foreign policy interests in both the Atlantic and Pacific basins. Unlike oil, natural gas has traditionally been an infrastructure constrained business, giving geographical proximity and political relations between producers and consumers a high level of importance. Issues of "pipeline politics" have been most directly visible in Europe, which relies on Russia for around a third of its gas. Previous disputes between Moscow and Ukraine over pricing have led to major gas shortages in several E.U. countries in the winters (when demand is highest) of 2006 and 2009. Further disagreements between Moscow and Kiev over the terms of the existing bilateral gas deal have the potential to escalate again, with negative consequences for E.U. consumers. The risk of high reliance on Russian gas has been a principal driver of European energy policy in recent decades. Among central and eastern European states, particularly those formerly aligned with the Soviet Union such as Poland, Hungary, and the Czech Republic, the issue of reliance on imports of Russian gas is a primary energy security concern and has inspired energy policies aimed at diversification of fuel sources for power generation. From the U.S. perspective such Russian influence in the affairs of these democratic nations is an impediment to efforts at political and economic reform. The market power of Gazprom, Russia's state-owned gas monopoly, is evident in these countries. Although they are closer to Russia than other consumers of Russian gas in Western Europe, many countries in Eastern and Central Europe pay higher contract prices for their imports, as they are more reliant on Russian gas as a proportion of their energy mixes.

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[7] Brookings 2012, pg. 39

[8] For two estimates, see Ken Medlock, "U.S. LNG Exports: Truth and Consequences," *James A. Baker III Institute for Public Policy, Rice University,* August 10, 2012 (http://bakerinstitute.org/publications/US%20LNG%20Exports%20-%20Truth%20and%20Consequence%20Final_Aug12-1.pdf); and Robert Smith, "Asian Natural Gas: A Softer Market is Coming," Presentation to the U.S. EIA International Natural Gas Workshop, Washington, D.C., August 23, 2012.

[9] Ed Crooks, "Chevron explores first Canada gas exports," *Financial Times,* March 12, 2013. (http://www.ft.com/intl/cms/s/0/aaa61d84-8b3e-11e2-b1a4-00144feabdc0.html#axzz2NeqtOvnR)

In the larger economies of Western Europe, which consume most of Russia's exports, there are efforts to diversify their supply of natural gas. The E.U. has formally acknowledged the need to put in place mechanisms to increase supply diversity. These include market liberalization approaches such as rules mandating third-party access to pipeline infrastructure, and commitments to complete a single market for electricity and gas by 2014, and to ensure that no member country is isolated from electricity and gas grids by 2015.

Despite these formal efforts, there are several factors retarding the E.U.'s push for a unified effort to reduce dependence on Russian gas. National interest has been given a higher priority than collective, coordinated E.U. energy policy: the gas cutoffs in 2006 and 2009 probably contributed to the acceptance of the subsea Nord Stream pipeline, which carries gas directly from Russia to Germany. Germany's decision to phase out its fleet of nuclear reactors by 2022 will result in far higher reliance on natural gas for the E.U.'s biggest economy. The environmental imperative to reduce carbon emissions—codified in the E.U.'s goal of essentially decarbonizing its power sector by the middle of century—mean that natural gas is being viewed by many as the short-to medium fuel of choice in power generation. Ironically, in the near term the phase out of nuclear power has lead to greater reliance on both domestic coal as well as imported coal from the United States.

Finally, the prospects for European countries to replicate the unconventional gas "revolution" that has resulted in a glut of natural gas in the United States look uncertain. Several countries, including France and the U.K., have encountered stiff public opposition to the techniques used in unconventional gas production, while those countries, such as Poland and Hungary, that have moved ahead with unconventional-gas exploration have generally seen disappointing early results. Ukraine is also at a very early stage in developing its potential shale reserves. Collectively, these factors suggest that the prospects for reduced European reliance on Russian gas appear dim.

The one factor that has been working to the advantage of advocates of greater European gas diversity has been the increased liquidity of the global LNG market, discussed above. Russia's dominant position in the European gas market is being eroded by the increased availability of LNG. Qatar's massive expansion in LNG production in 2008, coupled with the rise in unconventional gas production in the United States as well as a drop in global energy demand due to the global recession, produced a global LNG glut that saw many cargoes intended for the U.S. market diverted into Europe. As mentioned previously, with an abundant source of alternative supply, some European consumers, mainly Gazprom's closest partners, were able to renegotiate their oil-linked, take-or-pay contracts with Gazprom.

Increased LNG exports will provide similar assistance to strategic U.S. allies in the Pacific Basin. By adding supply volumes to the global LNG market, the U.S. will help Japan, Korea, India, and other import-dependent countries in South and East Asia to meet their energy needs. The desire on the part of Pacific Basin countries for the U.S. to become a gas supplier to the region has been underlined by the efforts of the Japanese government, which has attempted to secure a free-trade agreement waiver from the United States to allow exports. As with oil price-linked Russian gas contracts in Europe, U.S. LNG

exports—to the extent they occur on a floating Henry Hub basis, have the potential to weaken the market power of incumbent LNG providers to Asia, increasing the negotiating power of consumers and decreasing the price. As U.S. foreign policy undergoes a "pivot to Asia," the ability of the U.S. to provide a degree of increased energy security and pricing relief to LNG importers in the region will be an important economic and strategic asset.

Beyond the basin-specific considerations of U.S. LNG exports, they will provide a source of predictable natural gas supply that is relatively free from unexpected production or shipping disruption. With Qatar representing roughly one-third of the global LNG market, a blockade or military intervention in the Strait of Hormuz or a direct attack on Qatar's liquefaction facilities by Iran would inflict chaos on world energy markets. While the United States government will be unable to physically divert LNG cargoes to specific markets or strategic allies that are most affected (gas allocation will be made by the market players), additional volumes of LNG on the world market will benefit all consumers. Further still, even if the volumes exported from the United States aren't large, there is an ideological geopolitical benefit to U.S. LNG exports. Exports will provide certainty to allies and economic partners around the world that the United States is a steadfast advocate for free trade.

Part 2: Policy Solutions

In that context, I believe a prudent policy is to continue to allow exports. However, there will be a need to reform the existing rules pertaining to LNG exports in order to reduce the risk and uncertainty that is hurting both producers and consumers.

So what does such a policy look like? For starters, I disagree with the two most extreme proposals of a volumetric cap, or a policy where the U.S. automatically approves all applications. Both are treacherous to implement and may increase, rather than decrease uncertainty. A balanced approach is one that doesn't increase the cost of exporting, but accurately reflects the cost of building a facility at the beginning of the process. I suggest a policy that requires a prospective exporter to have successfully gone through FERC's pre-filing process and have a portion of its supply contracts signed before being eligible to be considered by DoE for an application to export to non-FTA countries. Both requirements are costly and will encourage only serious projects to move forward.

There will also need to be more clarity on the "public interest" determination, which is currently too vague and creates investor uncertainty. One possibility is to allow the "public interest" to be dependent on the aforementioned two stipulations. In other words, if a company completes its pre-filing process and contracts out a given percentage of its capacity, the exports are deemed to be in the public interest.

One final consideration is to have an audit of natural gas export policy every five years. This would be an important information-gathering exercise. Such an audit would identify what happened to domestic natural gas supply, demand, and prices, and international markets during each five-year period.

I would like to thank the Subcommittee for giving me the opportunity to provide my views on this important issue, particularly in helping move the debate forward. I look forward to taking the Committee's questions.

Mr. LANKFORD. Thank you.

After 30 minutes of talking about DOE, it will be great to hear from DOE. We are honored that you are here and glad you are a part of this conversation.

Mr. Smith, we are pleased to receive your testimony.

STATEMENT OF CHRIS SMITH

Mr. SMITH. Thank you very much, Mr. Chairman.

Thank you, Chairman Lankford, Ranking Member Speier and members of the subcommittee. I appreciate the opportunity to discuss the Department of Energy's program regulating the export of natural gas, including liquefied natural gas.

The boom in domestic shale gas provides unprecedented opportunities for the United States. Over the last several years, domestic natural gas production has increased significantly, outpacing consumption growth, resulting in declining natural gas and LNG imports. Production growth is primarily due to the development of improved drilling technologies, including the ability to produce natural gas trapped in shale gas geologic formations.

Historically, the Department of Energy has played a critical role in development of technologies that have enabled the United States to expand development of our energy resources. Between 1978 and 1992, public resource investments managed by the Department contributed to the development of hydraulic fracturing and extended horizontal lateral technologies that spurred private sector investments and industry innovation, unlocking billions of dollars in economic activity associated with shale gas.

Today, domestic natural gas prices are lower than international prices of delivered LNG to overseas markets. As in the United States, demand for natural gas is growing rapidly in foreign markets. Due primarily to these developments, the Department of Energy has begun to receive a growing number of applications to export domestically produced natural gas to overseas markets in the form of liquefied natural gas.

The Department's authority to regulate the export of natural gas arises from the Natural Gas Act which provides two statutory standards for processing applications to export LNG from the United States. By law, applications to export natural gas to Free Trade Agreement nations are deemed to be consistent with the public interest and the Secretary of Energy must grant authorization without modification or delay.

For applications to export natural gas to non-FTA nations, the Secretary must grant the authorization unless after opportunity for hearing, the proposed export is found to be not consistent with the public interest.

The Department's review of applications to export LNG to non-Free Trade Agreement countries is conducted through a publicly-transparent process which includes full public interest review. To date, the Department of Energy has granted one long term application to export domestically-produced, lower 48 LNG to non-Free Trade Agreement countries.

In the Sabine Pass Order, the Department of Energy stated that it would evaluate the cumulative impact of the Sabine Pass authorization and any future authorizations for export authority when

considering subsequent authorizations. Following issuance of that order, the Department undertook a two-part study of the cumulative economic impacts of LNG exports.

The first part of the study was conducted by the Energy Information Administration and looked at the potential impact of additional natural gas exports on domestic energy consumption, production and prices under several prescribed export scenarios. The second part of the study, performed by NERA Economic Consulting under contract to the Department of Energy, evaluated the macroeconomic impact of LNG exports on the U.S. economy with an emphasis on the energy sector and natural gas, in particular.

To date, the Department has received 188,000 initial comments and about 2,700 reply comments on these two studies. Now that all comments are received regarding the LNG export studies, the Department will take into consideration the studies, the comments and the record of the proceedings of the 19 non-FTA LNG export applications. The Department will then make a public interest determination and act on each of these applications on a case by case basis.

Due to the adjudicatory nature of this process, I will be unable to comment today on issues that are presently being addressed in our opinion proceedings. Those issues include but are not limited to the merit of pending applications, the validity of the two-part macroeconomic study, the study's adequacy as the basis for decisions and the appropriate scope of environmental review.

I can, however, speak to DOE's statutory authority, our process to review applications to export LNG to non-FTA countries, our two-part LNG export studies, the comments we have received on those studies and other recent developments in LNG export. With respect to those topics, the Department and I are committed to being as responsive as possible to any questions the committee may have today.

In conclusion, Mr. Chairman, I would like to emphasize that the Department of Energy is committed to moving this process forward as expeditiously as possible. The Department understands the significance of this issue as well as the importance of getting it right.

With that, I would be happy to answer any questions the committee may have.

[Prepared statement of Mr. Smith follows:]

Statement of
Christopher Smith
Assistant Secretary for Fossil Energy (Acting)
Office of Fossil Energy
U.S. Department of Energy

Before the

Oversight and Government Reform Committee
Subcommittee on Energy Policy, Health Care, and Entitlements
United States House of Representatives

The Department of Energy's Program Regulating Liquefied Natural Gas Export Applications

March 19, 2013

Thank you Chairman Lankford, Ranking Member Speier, and members of the Committee; I appreciate the opportunity to be here today to discuss the Department of Energy's (DOE) program regulating the export of natural gas, including liquefied natural gas (LNG).

Recent Developments in LNG Exports

The boom in domestic shale gas provides unprecedented opportunities for the United States. Over the last several years, domestic natural gas production has increased significantly, outpacing consumption growth, resulting in declining natural gas and LNG imports. Production growth is primarily due to the development of improved drilling technologies, including the ability to produce natural gas trapped in shale gas geologic formations.

Historically, the DOE has played a critical role in the development of technologies that have enabled the United State to expand development of our energy resources. Between 1978 and 1992, public research investments managed by the Department contributed to the development of hydraulic fracturing and extended horizontal lateral technologies that spurred private sector investments and industry innovation, unlocking billions of dollars in economic activity associated with shale gas.

Today, domestic natural gas prices are lower than international prices of delivered LNG to overseas markets. As in the United States, demand for natural gas is growing rapidly in foreign markets. Due primarily to these developments, DOE has begun to receive a growing number of applications to export domestically produced natural gas to overseas markets in the form of LNG.

DOE's Statutory Authority

DOE's authority to regulate the export of natural gas arises under section 3 of the Natural Gas Act (NGA), 15 U.S.C. § 717b, and section 301(b) of the DOE Organization Act, 42 U.S.C. §

7151. This authority is vested in the Secretary of Energy and has been delegated to the Assistant Secretary for Fossil Energy.

Section 3(a) of the NGA sets forth the standard for review of most LNG export applications:

> [N]o person shall export any natural gas from the United States to a foreign country or import any natural gas from a foreign country without first having secured an order of the [Secretary of Energy] authorizing it to do so. The [Secretary] shall issue such order upon application, unless after opportunity for hearing, [he] finds that the proposed exportation or importation will not be consistent with the public interest. The [Secretary] may by [the Secretary's] order grant such application, in whole or part, with such modification and upon such terms and conditions as the [Secretary] may find necessary or appropriate.

Section 3(a) thus creates a rebuttable presumption that a proposed export of natural gas is in the public interest. Section 3(a) also authorizes DOE to attach terms or conditions to the order that the Secretary finds are necessary or appropriate to protect the public interest. Under this provision, DOE performs a thorough public interest analysis before acting.

In the Energy Policy Act of 1992, Congress introduced a new section 3(c) to the NGA. Section 3(c) created a different standard of review for applications to export natural gas, including LNG, to those countries with which the United States has in effect a free trade agreement requiring the national treatment for trade in natural gas. Section 3(c) requires such applications to be deemed consistent with the public interest, and requires such applications to be granted without modification or delay.

Free Trade Agreement (FTA) Countries

There are currently 18 countries with which the United States has in place free trade agreements that require national treatment for trade in natural gas for purposes of the Natural Gas Act. These 18 countries include: Australia, Bahrain, Canada, Chile, Colombia, the Dominican Republic, El Salvador, Guatemala, Honduras, Jordan, Mexico, Morocco, Nicaragua, Oman, Panama, Peru, Republic of Korea, and Singapore.

There also are two countries — Israel and Costa Rica — that have free trade agreements with the United States that do not require national treatment for trade in natural gas for purposes of the Natural Gas Act.

Because complete applications under section 3(c) must be granted without modification or delay and are deemed to be in the public interest, DOE does not conduct a public interest analysis of those applications and cannot condition them by the insertion of terms which otherwise might be considered necessary or appropriate.

DOE Process to Review Applications to Export LNG to non-FTA Countries

DOE's review of applications to export LNG to non-free trade agreement countries is conducted through a publicly transparent process. Upon receipt of an application, DOE issues a notice of the application in the *Federal Register*, posts the application and all subsequent pleadings and orders in the proceeding on its website, and invites interested persons to participate in the proceeding by intervening and/or filing comments or protests. Section 3(a) applicants are typically given an opportunity to respond to any such comments or protests and, after consideration of the evidence that has been introduced into the record, DOE issues an order either granting the application as requested, granting with additional terms or conditions, or denying the application.

Under the Natural Gas Act, DOE's orders are subject to a rehearing process that can be initiated by any party to a proceeding seeking to challenge DOE's determinations. Court review is available as well after the rehearing process is exhausted.

Public Interest Criteria for NGA Section 3(a) Applications

For applications requesting authority to export LNG to countries that do not have free trade agreements requiring national treatment for trade in natural gas, DOE conducts a full public interest review. A wide range of criteria are considered as part of DOE's public interest review process, including, inter alia,:

- Domestic need for the natural gas proposed for export
- Adequacy of domestic natural gas supply
- U.S. energy security
- Impact on the U.S. economy (GDP), including impact on domestic natural gas prices
- International considerations
- Environmental considerations

These non-statutory criteria have been developed over several decades and supplemented and refined by subsequent agency adjudication. It is important to emphasize, however, that these criteria are not exclusive. Other issues raised by commenters and/or interveners or DOE that are relevant to a proceeding may be considered as well.

Sabine Pass Authorization

To date, DOE has granted one long-term application to export domestically-produced lower-48 LNG to non-FTA countries. That authorization was issued in *Sabine Pass Liquefaction, LLC*, (*Sabine Pass*) DOE/FE Order Nos. 2961 (May 20, 2011), 2961-A (August 7, 2012), and 2961-B (January 25, 2013). In the first of the *Sabine Pass* orders, DOE stated that it will evaluate the cumulative impact of the Sabine Pass authorization and any future authorizations for export authority when considering subsequent applications.

LNG Export Study

Following issuance of that order DOE undertook a two-part study of the cumulative economic impact of LNG exports. The first part of the study was conducted by the Energy Information Administration (EIA) and looked at the potential impact of additional natural gas exports on domestic energy consumption, production, and prices under several prescribed export scenarios. The second part of the study, performed by NERA Economic Consulting under contract to DOE, evaluated the macroeconomic impact of LNG exports on the U.S. economy with an emphasis on the energy sector and natural gas in particular. The NERA study was made available on December 5, 2012.

On December 11, 2012, DOE published in the *Federal Register* a Notice of Availability of the EIA and NERA studies, and inserted both parts of the study into 15 then-pending LNG export application dockets for public comment. An initial round of comments on the study ended on January 24, 2013, and reply comments were due February 25, 2013. DOE does not take a position regarding the findings from either the EIA analysis or the NERA analysis at this time, and DOE will make no final decisions on currently pending license applications until it has evaluated both the study and the comments.

Comments to the LNG Study

In response to the Notice of Availability, DOE received over 188,000 initial comments and approximnately 2,700 reply comments. Proponents of LNG exports generally endorse the results of the two-part study, particularly the conclusion of the NERA study that increasing levels of exports will generate net economic benefits for the United States. On the other hand, comments filed by opponents of LNG exports have raised a number of issues, including challenges to the assumptions and economic modeling underlying the two-part study and assertions that the two-part macroeconomic study should have further examined regional, sectoral, or environmental issues. DOE continues to review the comments that have been received as part of its public interest analysis of the pending non-FTA LNG export applications and will address those comments when it issues decisions on the applications.

LNG Export Applications Status

Consistent with the NGA, as of March 7, 2013, DOE has approved 23 long-term applications to export lower-48 LNG to free trade agreement countries equivalent to 29.41 billion cubic feet per day of natural gas from 19 new liquefaction facilities.

Most of the applicants seeking authorization to export LNG from proposed facilities to free trade agreement countries have also filed to export LNG to non-free trade agreement countries in the same volume from the same facility to provide optionality on the final destination country. The volumes of the applications to export to free trade agreement countries and non-free trade agreement countries are therefore not additive.

As of March 7, 2013, DOE has approved one long-term application to export lower-48 LNG to non-free trade agreement countries equivalent to 2.2 billion cubic feet per day of natural gas from the proposed Sabine Pass liquefaction facility. DOE also currently has 19 applications

pending to export LNG from facilities, including the 15 that were pending at the time that DOE issued its Notice of Availability of the EIA and NERA studies. These 19 applications seek authority for the export of an additional 26.10 billion cubic feet per day of natural gas to non-free trade agreement countries.

DOE Path Forward

Now that all comments are received regarding the LNG Export Study from the comment period that ended February 25, 2013, the Department will take into consideration the Study, the comments, and the record of the proceedings of the 19 non-FTA LNG export applications. The Department will then make a public interest determination and act on pending applications on a case-by-case basis.

Conclusion

Due to the adjudicatory nature of this process, I will be unable to comment today on issues that are presently being addressed in our pending proceedings. Those issues include but are not limited to the merits of pending applications, the validity of the two-part macroeconomic study, the study's adequacy as a basis for decision, and the appropriate scope of environmental review. However, I can speak to DOE's statutory authority, our process to review applications to export LNG to non-FTA countries, our two-party LNG export study, the comments we have received on those studies, and other recent developments in LNG export. With respect to these topics, the Department and I are committed to being as responsive as possible to any questions you or the Committee may have.

In conclusion Mr. Chairman, I would like to emphasize that DOE is committed to moving this process forward as expeditiously as possible. DOE understands the significance of this issue — as well as the importance of getting it right.

Mr. LANKFORD. Thank you.

I ask unanimous consent to place in the record the statement of Dr. David Montgomery, the Senior Vice President of NERA Consulting. Without objection, so ordered.

[The information follows:]

Prepared Testimony of
W. David Montgomery, Ph.D.
Submitted to the
Committee on Oversight and Government Reform
Subcommittee on Energy Policy, Healthcare, and Entitlements
United States House of Representatives
The Benefits of LNG Exports to the United States
March 19, 2013

Mr. Chairman and Members of the Subcommittee:

I am honored by your invitation to present testimony to the Committee on the economic benefits of free trade in natural gas. I am an economist and Senior Vice President of NERA Economic Consulting. I had the privilege of leading the study of the "Macroeconomic Impacts of U.S. LNG Exports" that was issued by the Department of Energy in December 2012. This was one of the most gratifying experiences of a very long career in policy analysis. I worked with a great team at NERA that developed the model of the U.S. economy and the model of world natural gas markets on which the study was based. I appreciate them but I have that privilege every day. What made this a unique experience was the quality, thoughtfulness, and open-mindedness of the people we worked for in the Department of Energy. They asked us for an objective and independent study and they published exactly what we wrote without spin or alteration. Statements in this testimony represent my own opinions and conclusions and do not necessarily represent opinions of any other consultant at NERA or any of its clients. I do not speak for the Department of Energy, in particular, but only for myself.

Major Findings of the Macroeconomic Study

I will start with a quick summary of the findings of the NERA study, taken largely from what I think was a rather good executive summary.

Across all the scenarios that we examined in which the global market would take exports from the U.S, there were net economic benefits to the U.S. from allowing LNG exports. Moreover, for every one of the market scenarios examined, net economic benefits increased as the level of LNG exports increased. In particular, scenarios with unlimited exports always had higher net economic benefits than corresponding cases with limited exports. There was no "sweet spot," and no point where any "balance" was required to gain the greatest benefits.

In all of these cases, benefits that come from export expansion would more than outweigh the costs of faster increases in natural gas production and slower growth in natural gas demand, so that LNG exports have net economic benefits in spite of higher domestic natural gas prices. This is exactly the outcome that economic theory describes when barriers to trade are removed.

Net benefits to the U.S. would be highest if the U.S. becomes able to produce large quantities of gas from shale at low cost, if world demand for natural gas increases rapidly, and if LNG supplies from other regions are limited. If the promise of shale gas is not fulfilled and costs of producing gas in the U.S. rise substantially, or if there are ample supplies of LNG from other regions to satisfy world demand, the U.S. would not export LNG. Under these conditions,

allowing exports of LNG would cause no change in natural gas prices and do no harm to the overall economy.

U.S. natural gas prices increase when the U.S. exports LNG. But the global market limits how high U.S. natural gas prices can rise under pressure of LNG exports because importers will not purchase U.S. exports if U.S. wellhead price rises above the cost of competing supplies. In particular, the U.S. natural gas price does not become linked to oil prices in any of the cases examined.

Natural gas price changes attributable to LNG exports remain in a relatively narrow range across the entire range of scenarios. Natural gas price increases at the time LNG exports could begin range from zero to $0.33 (2010$/Mcf). The largest price increases that would be observed after 5 more years of potentially growing exports could range from $0.22 to $1.11 (2010$/Mcf). The higher end of the range is reached only under conditions of ample U.S. supplies and low domestic natural gas prices, with smaller price increases when U.S. supplies are more costly and domestic prices higher.

I would like to comment at this point on the findings of the report about resource rents versus changes in capital income and wages. To be very conservative in our analysis, so that any findings about net economic benefits would be as robust as possible, we attributed all the increased income associated with natural gas exports to owners of natural gas resources. But natural gas in the ground is not the only factor of production required to produce and export additional natural gas. Some of what we called resource income would go to workers with the specialized skills required in natural gas exploration and production, and in infrastructure and liquefaction facility construction, in the form of higher hourly wages. Some would go to existing investors in businesses that explore for, produce and transport natural gas, and more broadly to firms that build the facilities needed for expanding the natural gas industry. If we had included these wage increases and higher investment returns it could well have turned out that there was no loss in labor income or the average return on capital, and still a net overall economic benefit.

Basic principles of the economics of international trade make this conclusion inescapable

There should be nothing surprising about the conclusion that the U.S. economy is better off with unrestricted trade in natural gas than with any restrictions. The same specific conclusion is reached in recent studies by Charles Ebinger of the Brookings Institution and Kenneth Medlock of Rice University, despite many differences in details of the level of exports and price impacts. It is also the logical consequence of the basic economic theory of international trade. The economics of international trade are based on the principle of comparative advantage. This principle states that free trade countries will tend to export those goods and services which they are better at producing and will import those that others are better at producing. Extensive and rigorous theoretical analysis and also on observation of economic progress during periods of free trade and periods with major trade restrictions support the finding that free trade leads more robust economic growth.

There are of course some conditions. The major one that matters in this debate is whether a country is subsidizing exports – as China is frequently accused of doing. LNG exports from the United States do not need government subsidies to be desired by just about every country that is

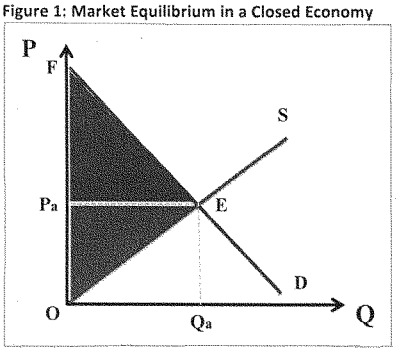
now importing natural gas – natural gas has become so cheap in the United States because of the investment and technical knowhow of our oil and gas industry, which has made previously unusable natural gas resources economic to produce in abundant quantities. Under these conditions, economic theory and practical experience clearly support the conclusion that free trade in natural gas is better for the U.S. economy than any system that restricts natural gas exports.

The textbook exposition of this point is based on a fairly simple diagram or two. To explain the general economic theory of trade it is useful to begin with a simple illustration of the natural gas market with a closed economy where no trade exists. Consumers and producers interact in the natural gas market with demand and supply establishing a market equilibrium that determines the market price and quantity exchanged.

Figure 1 shows a supply and demand diagram where demand for natural gas is represented by a downward-sloping line, D, characterizing decreasing willingness to pay as consumption increases, and supply by an upward-sloping line, S, characterizing increasing marginal cost of production as output increases. For illustrative convenience, we employ straight lines for demand and supply.[1]

Demand and supply cross at point E, which denotes market equilibrium or competitive equilibrium. At the competitive equilibrium, consumers' willingness to pay is equivalent to producers' cost of production. Neither side of the equilibrium is stable. Producers incur losses if they choose to produce additional output, which costs more than consumers' willingness to pay; to the left of the equilibrium, producers can earn more on additional output given that consumers are willing to pay more than what it costs to produce. Therefore, the market stabilizes at the equilibrium with associated equilibrium price P_a and quantity Q_a.

Figure 1: Market Equilibrium in a Closed Economy



Economic surplus refers to monetary gains or "welfare." Consumer surplus denotes the value consumers receive from consumption for which they did not pay. Graphically, this is the red triangle in

[1] Iso-elastic curves characterize demand and supply more realistically. There is always some demand when price is low and marginal cost grows at increasing rate.

Figure 1 which sits above the price and below the demand line. Likewise, producer surplus represents the value producers gain in excess of the cost of production. The area below the price and above the supply line (blue triangle) in

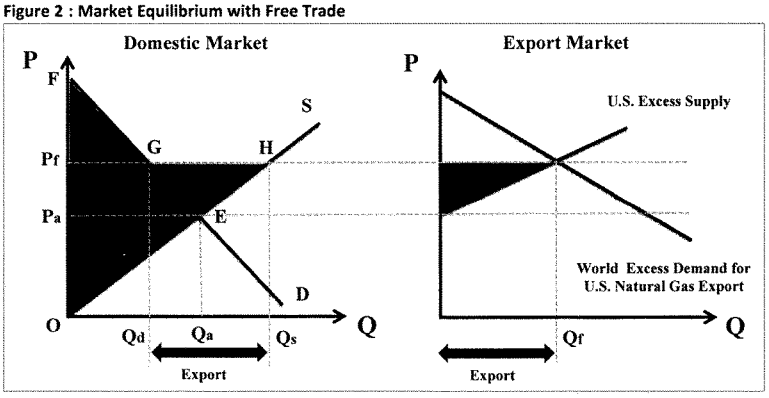
Figure 1 denotes the producer surplus. Total surplus or social welfare is the sum of consumer surplus and producer surplus. Social welfare should also include tax revenue or quota rent, if any is involved.

Free trade equates domestic prices with world prices. When an economy has a comparative advantage and thus can produce at a lower cost than the rest of the world, moving from a no trade to a free trade position implies an increase in domestic price. Analogously, the domestic price falls when the country becomes an importer and substitutes more costly domestic production with cheaper imports.

For the case of U.S. natural gas industry, we include a diagram for the export market along with the one for the domestic market to illustrate the changes when the U.S. moves from a no trade to a free trade position (see

Figure 2). The export market is represented by the U.S. excess supply of natural gas and the world excess demand for the U.S. natural gas export. The competitive equilibrium in the export market finds a price (P_f) that equates the world excess demand with the U.S. excess supply and at which the excess supply, the amount of natural gas U.S. producers are willing to produce in excess of the amount of domestic consumption ($Q_s - Q_d$), is equal to the equilibrium export in the export market (Q_f).

Figure 2 : Market Equilibrium with Free Trade



Social surplus changes along with the price movement. When a country becomes an exporter, a domestic price increase reduces domestic consumption, resulting in a loss of consumer surplus. In the domestic market diagram of

Figure 2, consumer surplus shrinks from P_aEF to P_fGF. Producers receive more profit on every unit of output sold to both the domestic and world market, generating a gain in producer surplus, which not only offsets the loss in consumer surplus (the trapezoid P_aEGP_f) but also adds a net

gain on each unit sold to the world market (the triangle EHG). From the social welfare perspective, part of consumer surplus transfers to producer surplus and producers gain more profits from exporting. It is worth noting that the net gain, shown as the triangle EHG in the domestic market diagram, is equivalent to the blue triangle in the export market diagram that represents the gain to exporters. It is earned by producers who are able to export and obtain a higher netback price than would be available in the domestic market without exports. These references to producers, consumers and exporters, by the way, should not be taken to imply that these are distinct people – as the NERA report discussed at length, through stock ownership both producers and exporters contribute to the income of households (not to mention paying taxes).

A Natural Gas Theory of Value

The loud dissent from this basic principle that has been heard since December repeats an old and repeatedly exploded economic fallacy. For example, a recent study commissioned by the leading opponent of free trade in natural gas claims that every Btu of natural gas used to manufacture basic chemicals generates 8 times the GDP that is generated by exporting that same amount of natural gas. This is completely bogus, and is so far off base that any refutation sounds like lecturing to first year economics students. So here it goes. Value added in manufacturing is created by the labor and capital at work in the industry, not by physical inputs like natural gas. The value of natural gas is fully captured by the willingness of customers to purchase the natural gas – and if overseas purchasers are willing to pay more for natural gas than domestic producers from whom some gas might be bid away, then clearly natural gas generates more value as an export than when used domestically. That is the basis for NERA's conclusions, and it is true whether or not there was some revolutionary change in the structure of industry over the past few years.

If, indeed, it were only possible to produce enough natural gas to meet domestic needs and natural gas were more valuable here than abroad, then there would be no exports even under free trade because foreign buyers would be unable to bid it away from U.S. suppliers. This is in fact one of the scenarios we discussed in the DOE report – the reference case for global demand combined with low EUR (e.g. low estimated ultimate recovery of natural gas) from EIA's scenario for U.S. supply. Exports were not causing higher prices or problems for the chemicals industry in this scenario, because there were none. However, because of the limited supply natural gas prices were much higher (not due because of exports), and therefore more threatening to the chemicals industry, than they would be with ample supply and free trade. In those cases, there was ample gas for both exports and the chemicals industry at reasonable prices.

The claim that more GDP will be lost in chemical manufacturing than gained from natural gas exports is based on the fallacy that every Btu of gas that is exported will be taken away from the chemicals industry, and that there is a fixed proportion between chemicals output and natural gas input. Neither is true but both types of claims have been made by Cassandras of disastrous shortages since at least the 1950s, where my knowledge of the subject begins. We called this in the 1970s the "energy theory of value," that there was a fixed, lockstep proportion between energy use and GDP. This led to numerous predictions of the collapse of Western Civilization when energy ran out, as the Club of Rome and others were sure it would. Yet somehow we now consume only a fraction of the energy per dollar of GDP that was needed in 1970 and we have more goods and more energy.

Another way to see the fallacy of the proposition that trade in basic materials like natural gas should be restricted in order to provide cheap feedstocks for downstream industries is by asking which downstream industry should be allowed to export freely? Chemicals are intermediate goods – made with natural gas as one component but then used in several subsequent manufacturing steps to make plastics, manufactured goods, and then consumer products like cars, computers, and houses. Since some of those final goods have far greater value added per Btu of natural gas used, why should not trade in all intermediate goods be restricted to maximize the GDP produced by natural gas? The answer is not that there is a sweet spot, but that all restrictions on exports of natural gas will prevent natural gas from reaching its highest valued use and deprive the U.S. economy of the benefits of using its resources in the most advantageous way for the people of the United States.

Trade Restriction is Self-Defeating

The Department of Energy has authority to withhold permission only for exports to countries with which the U.S. does not have a free trade agreement. Canada and Korea are two countries with which we do have free trade agreements, and that fact implies that the only effect of restricting exports to non-Free Trade Area countries will be that the U.S. will bear all the costs of doing so but get none of the benefits. In particular, Canada has just authorized a major LNG export facility in British Columbia and both the Federal and Provincial governments are firmly behind exports. There is no restriction on exports of natural gas to Canada, and indeed at least one pipeline has already been reversed to send shale gas from the U.S. to Eastern Canada. If the U.S. is successful in producing cheap and plentiful natural gas but prohibits LNG exports to non-FTA countries, a most likely outcome is that Canada will ship its domestically produced natural gas west by pipeline and export it to the coveted Asian markets, and import natural gas from the U.S. for its domestic use. This will drive up the price of natural gas in the U.S. just as much as would free LNG exports, but the U.S. will get none of trade advantages of participation in the profits from selling to the higher valued market in Asia.

Korea's discussion of the possibility of creating an Asian hub for LNG trade also suggests that U.S. exports to Korea could through displacement and transshipment also meet a much larger market, with little benefit to the U.S. from the high prices at which it might be sold in Asia.

The administrative nightmare that any attempt to restrict trade would cause should also be seen as a self-defeating outcome for the nation as a whole, if not for the specific industries that would benefit from restricting the ability of their suppliers to sell to higher valued uses. Even if a limit is intended to be non-binding, it will still be necessary for DOE to devise some method of deciding which applicant should get a permit, thus substituting administrative action that will encourage rent-seeking behavior and political influence on the process that has not yet warped outcomes. The result of using administrative action as a substitute for the due diligence of private investors has become quite clear in the failures of the DOE loan guarantee programs. Based on this history, administrative allocation of export licenses would likely lead to politically-significant developers getting permits even if they could not pass scrutiny by private sector investors, leading in turn to project failures, wasted resources, and sacrifice of even the export opportunities that are allowed as U.S export capacity falls further and further behind our competitors for the world LNG market.

Simple Exaggerations

Three of the claims made in opposition to free trade in natural gas are simple exaggerations:

1. The US will not have exports equal to 25 – 50% of domestic natural gas use in the near future

As DOE officials themselves explain, it is easy to apply to DOE for a license and necessary to have one in order to start the approval process at the FERC. But only three projects have officially begun the FERC process, and no expert familiar with the industry expects even a small fraction of the total capacity that has made application to DOE will be built in the next decade. It is an exaggeration that ignores the role of the market to talk about exports on the scale of 25 to 50% of domestic demand by 2030.

2. U.S. prices will not rise to levels now seen in Asian markets, or even to the netback price based on current prices in Asian markets

First, there will always be a difference of $6 to $8 between Asian prices and U.S. prices, since that represents the cost of inland transportation, liquefying, shipping, and regasifying natural gas to get it from the U.S. to Japan or Korea. Asian buyers have no incentive to buy gas in the U.S. if it is not cheaper than their prevailing domestic price by that amount.

Assuming that current, larger LNG pricing differentials will persist in a world in which LNG exports increase at a rapid rate ignores everything we know about supply and demand, and is the fallacy that has led to the demise of many bubbles of energy investment. Increasing LNG exports will exert a downward pressure on Asian prices and raise prices in exporting countries, so that the current premium that Asian buyers now pay is likely to be unsustainable. But even then, prices in exporting countries will be lower than in importing countries by the cost of liquefaction, shipping and regasification. NERA's analysis used a comprehensive model of global natural gas supply and demand to investigate many scenarios for how much LNG could be exported by the U.S. and how the netback to the U.S. would vary with the level of exports. Many competing suppliers are better positioned to serve growing LNG demand in Asia than the United States, and the prices they offer in the future in response to market competition will determine U.S. netbacks. These are the effects that NERA's analysis captures and that are ignored by any comparison to current Asian pricing.

3. Growth of the chemical industry and manufacturing as a whole will not end because of increases in natural gas prices that might be attributable to market-determined levels of LNG exports

Economists who analyze how changes in energy costs affect energy-intensive, trade-exposed industries have reached a consensus that only narrowly-defined segments of manufacturing are at risk from higher energy costs. These sectors have relatively small employment and value added compared to manufacturing as a whole, so that even large impacts on these narrow segments translate into negligible impacts on manufacturing and the U.S. economy as a whole. The only chemical sector that is held out as evidence of widespread harm from higher natural gas prices is the nitrogenous fertilizer industry, which employed approximately 3,920 workers in 2007. This subsector of chemicals is not typical of the chemicals sector as a whole, it is a unique outlier

based on turning cheap natural gas into cheap fertilizer with low profit margins and little significance for the overall economy. It has experienced ups and downs in the past as natural gas prices rose and fell, with no detectable benefit to the rest of the economy when it grew or harm when it declined.

Moreover, claims of the vulnerability of any chemical sector to increased U.S. prices appear to ignore the fact that even with unrestricted trade, U.S. natural gas prices will be lower than in countries that must import natural gas, including Europe, China, India and other Asian economies. The basis differential that will be sustained by the cost of transportation, liquefaction and regasification of LNG will maintain a clear natural gas price advantage for U.S. chemical manufacturers over these competitors.

As to manufacturing as a whole, as prior NERA studies have shown, the real threat for manufacturing is growing government regulation, of which export restrictions would be another part. The one thing about LNG exports that is certain is that they will grow slowly, and that any difference they make will be a small change in the rate at which manufacturing expands. With the possible exception of a very small slice of the chemical industry, there is no chance that LNG exports could turn robust growth into decline.

Natural gas price risks

The scenarios examined in the NERA report that yielded high natural gas prices even without exports remind us that natural gas prices have been volatile and will remain uncertain even under the most restrictive export policy. However, the one thing that we should have learned over the past three decades is that except for localized problems (like the lack of capacity to ship gas to California in 2000) there will not be generalized natural gas shortages. The flip side of price volatility is that markets have the flexibility to respond to and eliminate potential shortages, and that curtailments have not been necessary since we eliminated regulation of the wellhead price of natural gas in the 1980s.

Thus even firm all-events contracts to supply natural gas to foreign buyers are not at all likely to produce natural gas shortages in the U.S., even if some groups are successful in their efforts to prevent us from using our immense shale gas resources. Natural gas price uncertainty will remain, and cannot be removed by banning LNG exports. Prudent investors will consider all the scenarios for how natural gas prices might evolve in evaluating investments in any project whose economics are sensitive to natural gas prices. Fortunately, these investors have the same opportunities to hedge price risks and obtain firm supply commitments as do purchasers of natural gas for export.

Mr. LANKFORD. We have a vote that has been called at this point. It is a single vote, so that makes it rapid to go over and come back. We will take a momentary recess.

I would like to reiterate something Mr. Smith asked, a personal privilege for the members of the committee when they go through the asking of the questions. I would like for us not to get into a specific application from a specific company, where they are in the process, how they can move in the process. I think that is unfair to be able to ask Mr. Smith.

Obviously, each of us can choose what we ask on our own time and on questions, but I would ask that out of respect for DOE for being here to be able to honor them in that, process questions rather than a specific company and whether they are moving a specific permit.

With that, we will stand in recess for a single vote. We will return. As soon as two of us get back here, we will continue with our questions.

[Recess.]

Mr. LANKFORD. Thank you for being able to recess for a short period, have the votes and jump back into it.

I would like to recognize the Ranking Member, Ms. Speier, for a quick motion.

Ms. SPEIER. Thank you, Mr. Chairman.

I would like to ask unanimous consent that the written testimony by the American Public Gas Association be submitted for the record.

Mr. LANKFORD. Without objection.

[The information follows:]

TESTIMONY OF DAVE SCHRYVER

EXECUTIVE VICE PRESIDENT

THE AMERICAN PUBLIC GAS ASSOCIATION

BEFORE THE HOUSE COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM

MARCH 19, 2013

Chairman Issa, Ranking Member Cummings and Members of the Committee, I appreciate this opportunity to testify before you today and I thank the Committee for calling this important hearing on liquefied natural gas (LNG) exports. My name is Dave Schryver and I am the Executive Vice President for the American Public Gas Association (APGA).

APGA is the national association for publicly-owned natural gas distribution systems. There are currently approximately 1,000 public gas systems located in 36 states. Publicly-owned gas systems are not-for-profit, retail distribution entities owned by, and accountable to, the citizens they serve. They include municipal gas distribution systems, public utility districts, county districts, and other public agencies that have natural gas distribution facilities.

As non-profit utilities, public gas systems' primary focus is on providing reliable and affordable service to their customers. As a trade association that represents public gas systems, APGA ultimately represents the interests of natural gas consumers. Our members have a vested interest

in working towards long-term affordable energy prices and allowing citizens to keep their dollars in the community as opposed to flowing upstream via high energy prices.

Overview of Policy Implications of LNG Export Issue

This nation is at an energy policy crossroads. Today, for the first time in a very long time, natural gas prices are affordable and stable, as contrasted with the price volatility experienced for most of the past 20 years during which time prices for natural gas bobbed up and down from $15 to $5 to $10, with little rhyme or reason in terms of market fundamentals. Our nation now has a unique opportunity to eliminate that price volatility and to pursue a longstanding goal – energy independence – with optimism. Today, for the first time in almost forever, the United States has an opportunity to be able to foresee the day when it can conduct foreign policy without being preoccupied by Middle East oil and hence Middle East politics.

Why is our nation in this most fortuitous situation and what can we do to realize these obtainable goals?

The key reason we are in this posture is that suddenly, due to advances in technology relating to the acquisition of gas reserves from shale rock, it appears reasonable to prognosticate that the United States will not have to look abroad for natural gas supplies to supplement waning gas reserves in this country. This has obvious ramifications for natural gas policy; but even more importantly, it has huge potential ramifications for national energy policy (and therefore our national security) and for domestic manufacturing (and hence jobs).

Pursuing energy independence means dramatically reducing our reliance on foreign oil. The major reason for oil imports into the United States is our use of oil and its derivatives in all forms of transportation – cars, trucks, busses, planes, and the like. By converting our transportation sector to greater reliance on alternative energy sources – including Compressed Natural Gas (CNG), electricity, hybrid vehicles using CNG or LNG, and the like – we can reduce oil imports dramatically to the point where foreign oil no longer dictates events in this country – be it foreign policy or consumer grousing about skyrocketing prices at the gas pump.

What other benefits will this nation reap from substituting natural gas for oil products? One answer, of course, is greatly reduced CO2 emissions. While natural gas is a fossil fuel and not to be confused with renewable energy sources, it is far superior to oil in terms of its impact on the environment. In addition, natural gas in fast-ramping power plants is essential for reliable power supply in connection with renewable resources such as wind and solar due to their intermittent nature.

What is the single greatest threat to the scenario just described? Assuming that the shale gas revolution is real, a subject we will address in our comments below, and assuming that substantial amounts of natural gas can be extracted from shale rock deep in the earth in an environmentally acceptable fashion, which seems a reasonable assumption based on experience to date, the only road block to success is that the natural gas that we should be using domestically for transportation, enhanced residential, commercial and industrial use, and power plants, is exported abroad and that we become part of a global and unstable natural gas market,

just as we have with oil. What seems clear beyond cavil is that if we export significant quantities of natural gas (in the form of LNG), in order for short-term profits to be made by the affected producers and exporters, we will become part of an international market for natural gas, just as we are today part of an international market for oil. Long-term the effects will be predictable and disastrous – the price increases and price volatility of the past will return, and our opportunity to displace foreign oil will be forfeited – all for the short-term profits of a few in the producing sector. You must not permit that result; but without action by Congress, that is the almost inevitable result of current Department of Energy (DOE) policy on LNG exports.

Natural Gas Supply

Over the past several years, technological advances in natural gas drilling techniques have made access to vast domestic natural gas reserves possible. In 2000 shale gas provided only 1% of U.S. natural gas production; by 2010 it was over 20%; and the Energy Information Administration predicts that by 2035, 46% of the United States' natural gas supply will come from shale gas. The price response to this supply-side development has been dramatic: gas prices have stabilized at under $4/dth. The energy landscape of the U.S. appears to have been forever altered.

APGA certainly hopes that the prospects for shale gas in this country are as bright as have been reported. However, as stated by EIA, there remains "considerable uncertainty about the ultimate size of the technically and economically recoverable shale gas resource base in the onshore lower 48 States and about the amount of gas that can be recovered per well, on average, over the full

extent of a shale gas formation."[1] EIA notes that some of the uncertainties associated with shale gas formations include the fact that "most shale gas wells are only a few years old, and their long-term productivity is untested" and that "[i]n emerging shale formations, gas production has been confined largely to 'sweet spots' that have the highest known production rates for the formation," which means that "[w]hen the production rates for the sweet spot are used to infer the productive potential of an entire formation, its resource potential may be overestimated."[2] Articles appearing in the national press indicate that there may be other troubling concerns at EIA about the shale gas phenomenon that are not being advertised in EIA's formal publications.[3]

In addition to the technical issues noted by EIA, there are serious environmental concerns being raised at the state and national level about the technology associated with hydraulic fracturing, now commonly known as "fracking." While these concerns do not affect EIA's projections, which are based on technical and economic data, they should not be ignored by those making policy decisions on applications that depend *entirely* for their viability on ample future natural gas from shale formations. While it is true that there has been much extreme rhetoric on both sides of the "fracking" issue,[4] there can be no doubt that the affected states and the Federal

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1 EIA, *Annual Energy Outlook 2011*

2 *Id.*; *see also*, Rodney White, *Professor: NY Shale Reserves May Disappoint*, Gas Daily (July 7, 2011) (reporting that Marcellus Shale gas reserves in New York may not be nearly as lucrative as already developed locations in Pennsylvania).

3 Ian Urbina, "Behind Veneer, Doubt on Future of Natural Gas," N.Y. Times, June 26, 2011; http://www.nytimes.com/2011/06/27/us/27gas.html?_r=2&hp

4 The newspapers are replete with articles chronicling the uncertain future of shale gas exploration. *See, e.g.,* Ian Urbina, *Regulation Lax as Gas Wells' Tainted Water Hits Rivers*, N.Y. Times Online (Feb. 26, 2011); Ian Urbina, *Wastewater Recycling No Cure-All in Gas Process*, N.Y. Times Online (March 2, 2011); Ian Urbina, *Pressure Limits Efforts to Police Drilling for Gas*, N.Y. Times Online (March 4, 2011); Darryl Fears, *Sitting Atop Huge Gas Reserve, Md. Debates Drilling Practice*, Washington Post Online (March 28, 2011); Ian Urbina, *Insiders Sound an Alarm Amid a Natural Gas Rush,* N.Y. Times (June 25, 2011). Contrary views also abound: *e.g., http://johnhanger.blogspot.com/2011/06/statement-about-todays-nyt-front-page.html*.

Government are taking the health-related issues seriously.[5] The outcomes of those investigations are not now known, and will not be for some period of time. Thus, to draw any policy conclusions based on the "shale gas revolution," as some call it, would be a mistake of immense proportions – especially when those decisions have the very real potential to affect our national security.

The history of the fossil fuels industry is replete with miscalculations regarding supplies. For example, not too long ago many of the corporate parents of those now pursuing LNG export approvals predicted that the U.S. natural gas market would benefit significantly from the *import* of LNG.[6] Billions of dollars were spent on projects that are now charitably referred to as white elephants. In addition, the nation's first LNG export facility in Kenai, Alaska is slated to terminate exports sooner than expected because drilling activity in Alaska's Cook Inlet has not offset declines in production rates, making it unfeasible to continue LNG exports.[7]

If the U.S. has less recoverable gas reserves than projected, it certainly should not exacerbate the situation by approving export applications premised on a domestic over-supply. Additionally,

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[5] In its Fiscal Year 2010 Appropriation Conference Committee Directive to EPA, the U.S. House of Representatives ordered the EPA to conduct a study of hydraulic fracturing. That study is currently underway. Seehttp://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/index.cfmhttp://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/index.cfm.; On May 5, 2011, U.S. Secretary of Energy Stephen Chu impaneled a group of environmental, industry, and state regulatory experts to study and make recommendations to "improve the safety and environmental performance of natural gas hydraulic fracturing from shale formations." See http://www.energy.gov/news/10309.htm. Platt's Gas Daily for July 14, 2011, contains an article entitled "DOE Panel Questions Fracking's SDWA Exemption."

[6] *See, e.g.*, *BG LNG Services, LLC*, Application of BG LNG Services, LLC for Long-Term Authorization to Import Liquefied Natural Gas from the Federal Republic of Nigeria, Docket No. FE 03-76-LNG (November 3, 2003) (application for import authority through the Lake Charles LNG terminal related to 20-year LNG purchase agreement).

[7] Isabel Ordonez, *Conoco to Stop LNG Exports from Kenai Plant in Alaska*, Wall Street Journal Online (Feb. 10, 2011).

lower than projected amounts of recoverable gas would worsen exponentially the risks inherent in tying U.S. natural gas prices to volatile international markets.

LNG Export

To date, 25 applications have been filed for the export of domestic LNG from the contiguous United States to Free Trade Agreement (FTA) or non-FTA Nations. Many of those applicants own or are affiliated with companies that own existing or previously planned LNG import terminals. The total export capacity applied for to date is 29.69 Bcf/d and 28.30 Bcf/d to FTA and non-FTA Nations, respectively. Total marketed natural gas production was approximately 66 Bcf/d in the U.S. in 2011; therefore, based on current marketed production data, the total applied-for export capacity would have the effect of increasing the demand for natural gas by approximately 45%. This level of exports would have serious adverse implications not only for domestic consumers of natural gas but also for U.S. national security.

When applications are filed at DOE, there is a public interest test that must be met – but not by the applicants. In cases where the application is specific to identified countries with which the U.S. has a free trade agreement, the application is deemed to be consistent with the public interest and granted without modification or delay. In cases where an application is seeking exportation of LNG to countries with which the U.S. does not have free trade agreements, the burden is on those ***opposed*** to the application to demonstrate that the application is not consistent with the public interest. The structure of this process under which opponents of an export must

prove a negative is counter-intuitive on its face and makes it extremely difficult, if not impossible, for opponents to defeat an application for the export of LNG. APGA supports the passage of legislation that places the burden of proof where it should be, on the applicant to demonstrate to DOE how the approval of that application is in the public interest. Legislation was recently introduced in the House of Representatives, entitled *The American Natural Gas and Consumer Protection Act,* that would help establish a thorough public interest review process by the DOE. APGA strongly supports this legislation.

It is also important to note that shale gas formations are not unique to the United States – this is not a U.S. phenomenon; it is a world-wide phenomenon.[8] The State Department launched the Global Shale Gas Initiative ("GSGI") in April 2010 in order to help countries identify and develop their unconventional natural gas resources.[9] To date, partnerships under GSGI have been announced with China, Jordan, India, and Poland.[10] The big energy players, including

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8 E.g., "Shale Gas: Global Game Changer," by Dallas Parker, *Oil and Gas Financial Journal* (Feb. 8, 2011), http://www.ogfj.com/index/article-tools-template/_printArticle/articles/oil-gas-financial-journal/unconventional/shale-gas__global.html; "Worldwide Gas Shales and Unconventional Gas: A Status Report," Vello A. Kuuskra and Scott A. Stevens ("The final segment of this "paradigm shift" - - the worldwide pursuit of gas shales and unconventional gas - - has only just begun, with Australia, China and Europe in the lead. Europe's gas shale geology is challenging, but its resource endowment and potential are large.") http://www.rpsea.org/attachments/articles/239/KuuskraaHandoutPaperExpandedPresentWorldwideGasShalesPresentation.pdf. Debajyoti Chakraborty, *Asia's First Shale Gas Pool Found Near Durgapur*, Times of India Online, (January 26, 2011); Hillary Heuler, *Shale Gas in Poland Sparks Hope of Wealth, Energy Security*, Voice of America Online (June 11, 2011) (Reporting on efforts by U.S. and other western gas companies to develop gas from shale deposits). "The Shale Gas Run Spreads Worldwide," by Mark Summor IPS, Deccan Herald (Aug. 1, 2011)(" Recent discoveries of deeply buried oil shale layers containing natural gas or oil are being reported in Australia, Canada, Venezuela, Russia, Ukraine, Poland, France, India, China, North Africa and the Middle East. Taken together, say some energy analysts, these 'plays' could become a game-changer, making Australia and Canada into new Saudi Arabias.").

9 See http://www.state.gov/s/ciea/gsgi/

10 *Id. see also*, Rakteem Katakey, *India Signs Accord with US to Assess Shale-Gas Reserves*, Bloomberg News (November 8, 2010) (The US signed a memorandum of understanding with India to help it asses its shale gas

ExxonMobil, Chevron, Shell, BP, etc. are spending billions world-wide to pursue shale gas plays.[11] The point to be made, of course, is that the United States, which is at the forefront technologically of the development of shale gas reserves, should be exporting its technology and expertise – not spending billions of dollars to build facilities in order to export a commodity that can play such a vital role in contributing to our national well-being and that also may be abundant world-wide before the LNG export facilities can even be completed.

Impact on Consumers

U.S. natural gas prices are now among the lowest in the developed world. The large-scale export of natural gas via LNG will play havoc with the current supply/demand situation and hence the price of natural gas. Even supporters of LNG exports acknowledge that such exports will increase prices and price volatility in the domestic natural gas market.[12]

Exporting domestically produced LNG will tie U.S. natural gas prices to international markets that, today, yesterday and likely for the foreseeable future, will demand higher prices and undermine current domestic natural gas price stability. In Europe and Asia, natural gas markets are less liquid and prices are higher and often indexed to international oil markets, which are

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reserves and prepare for its first shale gas auction at the end of this year.); Kate Andersen Brower and Catherine Dodge, *Obama Says US, Poland Will Cooperate on Economy, Energy*, Bloomberg News (May 28, 2011) (Reporting on President Obama's pledge to share U.S. shale gas extraction expertise and technology on a recent trip to Warsaw); *see also*, *Energy in Poland: Fracking Heaven*, The Economist (June 23, 2011).

[11] "Big Oil Betting on Shale Gas," by Ken Silverstein, *EnergyBiz* (July 31, 2011)

[12] *See, e.g.*, The BWMQ Energy Advisory, Volume 7, Issue 1 dated October 2011 (at page 4): "As we return to the world market, consumers will have to pay the higher world price because that is the minimum price that U.S. producers can get by offering their entire supply to the world market. The higher price will also increase price volatility. More exports will result in a tightening of domestic natural gas supplies in the future."

substantially more volatile and less transparent than our domestic market. Exporting domestically produced natural gas from the United States in any real quantities will link domestic commodity prices to international fluctuations.

The current domestic natural gas market is competitive, liquid and transparent while simultaneously, since it is a North American market, less susceptible to unstable regimes, rapacious cartels, and distant events than foreign natural gas markets, which are tied to the global energy market.[13] At present, the U.S. natural gas market benefits from the security and political stability in North America. United States policymakers should act to preserve rather than undermine the stability of domestic commodity markets

In addition to tying U.S. natural gas prices to international volatility, LNG exports would inflate demand and prices by forcing U.S. consumers to compete with end-users in other nations that are required to pay more for natural gas. This would incontrovertibly increase the price for natural gas in the domestic market, especially in times of supply shortfall and further undermine efforts to maintain domestic gas prices at competitive levels.

Job Creation

Because of the high unemployment rate in this country today, some LNG export advocates argue that their projects are in the public interest because they will create jobs. However, what we

[13] *See* IFandP Newsroom, *Commodities: Oil Price Volatility Up On Libya Rumours, US Natural Gas Continues its Slide*, Industrial Fuels and Power Online (March 3, 2011) (reporting on rising prices and volatility in the international market for crude oil and unperturbed, declining prices for domestic natural gas).

should be looking for is real, durable job growth in the transportation sector due to infrastructure construction and related activities, rather than ephemeral job growth in a sector (LNG exports) that will likely disappear almost overnight when foreign countries begin to exploit their own shale gas reserves, making our LNG export facilities as potentially useless as our LNG import facilities.

APGA respectfully submits that any national plan for durable job growth should prioritize investment in the domestic use of natural gas in the U.S. transportation fleet, in manufacturing and in electric power generation. The U.S. transportation fleet is almost wholly dependent upon petroleum, which imperils our energy and national security. APGA submits that domestic investment in transforming our transportation fleet to CNG vehicles will provide significant job creation while also improving our national security.

Energy Security

A government that has the pursuit of energy independence as its declared national policy should not authorize exportation of a valuable commodity whose value at home is incalculable and whose supply is unknown with any degree of certainty at this point in time. Policymakers should seize this window of opportunity to implement our long-declared (but never seriously pursued) policy of striving towards energy independence. The pursuit of energy independence requires that the United States wean itself off of imported oil, which accounts for approximately 50% of our domestic use.

The two major consumers of foreign oil in the United States are the transportation sector and the industrial sector. Instead of exporting domestic natural gas, the United States should maximize its use domestically in order to displace the current reliance on imported petroleum products and on carbon-intensive coal. For instance, as the Secretary of Energy has made crystal clear, domestic natural gas should play a much larger role as a transportation fuel.[14] Currently, the U.S. imports billions of dollars worth of oil from around the globe, a great deal of which is used for gasoline to fuel vehicles. The replacement of current gasoline-powered fleets with natural gas vehicles (and support infrastructure) would significantly reduce U.S. dependence on foreign oil, and thereby enhance U.S. security and strategic interests and reduce our trade deficit.

Policymakers should also encourage the direct use of natural gas for residential and commercial end uses such as space heating, water heating, and the like where the greater efficiency and lower emissions of natural gas (on a source to site basis) has been amply demonstrated.[15]

Manufacturing

The U.S. should promote policies to continue the manufacturing renaissance that has been driven by stable and affordable natural gas prices. Using natural gas for manufacturing provides a value-added benefit to the economy because industry multiplies the value of every dollar it

[14] "The most direct way to reduce our dependency on foreign oil is to simply use less of it, starting with the cars and trucks we drive. Nearly 70 percent of our oil use is for transportation, and more than 65 percent of that amount is for personal vehicles... energy independence means changing how we power our cars and trucks from foreign oil to new American-made fuels and batteries." Nobel Physicist Steven Chu, U.S. Secretary of Energy, *Pulling the Plug on Oil*, Newsweek, April 4, 2009.

[15] *Review of Site (Point-of-Use) and Full-Fuel-Cycle Measurement Approaches to DOE/EERE Building Appliance and Energy Efficiency Standards*, National Academies of Sciences (May 27, 2009) available at http://www.nap.edu/catalog.php?record_id=12670.

expends on natural gas for energy or as a raw material. Rather than investing in natural gas exports, which squeeze out investments from other sectors of the economy, the U.S. should pursue policies that allow industry to invest in natural gas dependent manufacturing. Energy and natural gas-intensive manufacturing produces chemicals, metals, cement and other materials that may be low-value adding but create positive ripple effects up the value-chain and throughout the economy. Rather than exporting natural gas as a raw natural resource, the U.S. could export processed materials, such as steel, or higher value-added goods at more competitive prices, with greater benefits to the U.S. job market and GDP.

Electric Generation

Moreover, given its clean burning nature, it is logical to assume that natural gas will also play a role in distributed and other power generation to decrease reliance on coal and complement clean, albeit intermittent, energy sources such as wind and solar. APGA observes that most electric generation built since 2000 is fueled with natural gas, and the EIA projects that most new electric generation plants will be fueled by natural gas,[16] which has obvious significance for the demand for natural gas in the immediate and long-term future. Finally, APGA observes that increased use of natural gas domestically in lieu of oil imports will benefit the U.S. economy by reducing our trade deficit.[17]

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[16] EIA, *Annual Energy Outlook 2011* at 41 (Finding that in each cost scenario considered by the EIA, the majority of new electric generation capacity will be natural gas-fired.); *see also*, Mark Watson, *Gas Generation to Double by 2020: Report*, Electric Power Daily (July 12, 2011) (Reporting on an ICF International forecast that coal plant retirements, increased reliance on intermittent power sources, and the availability of shale gas will cause gas-fired electric generation to more than double between 2010 and 2030).

[17] For example, as recently reported, "[t]he trade deficit in the U.S. widened in May to the highest level in almost three years, reflecting a surge in the cost of imported crude oil. The gap grew 15 percent to $50.2 billion, exceeding all forecasts of 73 economists surveyed by Bloomberg News and the biggest since October 2008, Commerce Department figures showed today in Washington." Alex Kowalski, *Trade Deficit of US Unexpectedly Surges on Increase in Crude-Oil Imports*, Bloomberg News, (July 12, 2011).

However, to accomplish our goal of energy independence, natural gas in the United States must remain plentiful and reasonably priced. Today U.S. consumers enjoy natural gas prices that are the product of both the new available supplies of natural gas and the fact that our natural gas market is largely limited to North America. If this trend is permitted to continue, then there is light at the end of the energy independence tunnel. The export of large quantities of domestic gas threatens our ability to obtain this goal because the key to greater use of natural gas in all sectors is that it remains affordable and avoids the volatility pitfalls of the past. That will only happen if we remain de-linked from the international market. We know that from experience; we should learn from that experience. The cost of ignoring that experience will be a lost opportunity to advance this Nation's essential energy independence and national security goals.

Conclusion

APGA is not against free trade, but when important policies collide, nations must make choices. U.S. policymakers must carefully consider and prioritize the use of domestic resources according to the national interest over both the short and long-terms. APGA submits that the decision to export LNG should be thoroughly vetted in the context of a national energy policy, and the wise policy choice by our elected officials, at this critical time in our history, is to limit exports of natural gas so that we may realistically pursue the greater goal of energy independence. Those who argue that this matter is not an either-or situation are wagering our long-term national well-being on short-term profits. We urge the Committee to carefully consider the adverse impact

that exporting LNG will have on millions of homes and natural gas consumers in the U.S. who will feel the impact of higher prices resulting from exposure to the global export market. We thank you for the opportunity to submit testimony and look forward to working with the Committee on this important issue.

Mr. LANKFORD. I would like to recognize myself for five minutes of questioning. Then we will move back and forth and allow members to ask questions. If we have an opportunity, schedule allowing, we would like to be able to do a second round if time permits for both the witnesses and us as well.

We are at a 14 year low of actually gas well producing rigs and 1999 was the last time we had this small a number of rigs out there producing natural gas. It is an interesting dynamic to see very little production coming into the stream but because we have so much currently being produced in the wells that are out there and makes this conversation about the cumulative impact and the decision is very difficult for DOE.

The first export facility has been permitted. They are in the process of construction and will be done some time in two years from now. When you begin to evaluate, from the DOE perspective, cumulative impact, how will that work process-wise? Because obviously we have one facility and will not really know the impact of that truly for maybe four or five years as we go through the process. You have the two studies in hand, now what on determining cumulative impact?

Mr. SMITH. Thank you, Mr. Chairman, for that question.

Essentially the way the Department has handled this, when we issued the permit for Sabine Pass, in that permit we noted for future applications, since we were looking at queue of applications that were building up, we would have to consider the cumulative impact of each of those applications and going through our public interest determination.

The first step we did was to commission a study. The first part was conducted by EIA and the second part was conducted by NERA Economic Consulting. The idea of doing the studies and offering the studies for public comment was to provide some sort of analytic rigor to looking at what the production capability of the natural gas industry in the United States and the capability of the global gas market to absorb gas in the United States.

That was the process we undertook. The NERA study is now back and has been put out for public record. We have entered a public comment and reply comment period and have received responses. It is our job now to evaluate not only the study we received, which was done for the Department, but also the cumulative comments that we received from stakeholders and individuals interested in the process.

Mr. LANKFORD. How does that work from here? Is the cumulative impact an economic impact, a forecasting, is it a matter of they have to function for a while before that is determined or can you do that off the study and the responses?

Mr. SMITH. That is the process we are going through right now. We have something around 200,000 comments and reply comments that we are evaluating. Our job is to take the studies that have been provided, that have been put out for public comment, evaluate the rigor of the studies and also the opinions we received from the stakeholders.

Mr. LANKFORD. I understand. Once it comes back, is the issue really just the evaluation from the studies or will you have to wait to permit numbers two, three or whatever may be, if you permit

two and three, until after the existing facility that is under construction is done and is actually exporting? When will that decision be made? Will it be before the export begins two years from now or after?

Mr. SMITH. The answer to that question is going to be determined by the analysis we are currently undergoing. The reply comment period just ended three weeks ago. We are now looking at a tremendous amount of information we just received.

Mr. LANKFORD. That is the reply on the initial. You had the initial that went out, all those comments went out and then there was reply. That is really the second phase of it, correct?

Mr. SMITH. There were two periods. The reply was 45 days and the reply comment was 30 days.

Mr. LANKFORD. The question in making the decision is do you forecast the decision, what to do with applications to and on after the facility under construction is already exporting or before?

Mr. SMITH. That is going to be determined by our analysis of the comments.

Mr. LANKFORD. It could be four years from now before the second decision is made? Is there a time period you are looking at of when to make the next decision or is it that wide open, could be ten years or two years?

Mr. SMITH. I am not in a position to opine on something that is going to be based on a determination or analysis we are currently conducting.

Mr. LANKFORD. Does DOE feel at all an economic pressure of what happens globally on these contracts? By the way, I do not intend to pressure DOE. I am just trying to figure out what is going on with this one way or the other.

Globally, the contracts are going out. As I mentioned, there are eight export facilities being constructed currently in Australia and other countries are ramping up for this. There is a limited amount of time that we have to be able to compete in the global market and be able to fulfill contracts that are out there.

If this is going to be ten years before the next facility is constructed, that is a significant lag to try to get those contracts. The guess is where do we go as a nation? How big is that window you anticipate before a decision is made?

Mr. SMITH. Again, Mr. Chairman, I am not in a position to put out a timeline for making decisions because that timeline is going to be based on the very analysis that we are in the middle of right now.

Mr. LANKFORD. When do you think you will have concluded your analysis? As you go through all the comments, you are in the second phase of that, do you think that is another 45 days, another six months, another year? Give us a best guess on how that moves.

Mr. SMITH. Mr. Chairman, it would be inappropriate and irresponsible for me to make a guess.

Mr. LANKFORD. I would have to disagree, it is inappropriate to have an indefinite period of time to decide when you are going to decide. At some point, there has to be something in your forecasting to think we are going to decide by this point and then the decision will be out from there.

Mr. SMITH. The comment period ended three weeks ago. We are currently going through an immense volume of input. Many of the commenters have made comments very consistent with the points you are making, so I understand the sense of urgency and the importance of this decision.

Mr. LANKFORD. It has to be right.

Mr. SMITH. But we have to make the decision in a way that is consistent with public interest and that withstands the scrutiny it is certainly going to receive.

Mr. LANKFORD. Thank you.

I will recognize Ms. Speier for five minutes.

Ms. SPEIER. Thank you, Mr. Chairman.

Mr. Smith, let us get to what your challenge is, which is to determine whether or not approving or authorizing the process to move forward for liquid natural gas to be exported is consistent with the public interest. Can you be more specific about the criteria you have to include in that evaluation?

Mr. SMITH. The statute essentially creates a rebuttable presumption that exports are in the public interest. It is our job to look at each application to make that determination. The law gives the Department of Energy considerable latitude in determining what that means. In fact you opined that when the law was written, one was not envisioning the export of natural gas from shale gas resources. That was just not something that was on the horizon.

Our job has been to come up with a standard which we are going to have to defend when we write the order. We are looking at a wide range of factors that Americans care about, everything from balance of trade, creation of jobs, GDP, impact of prices on consumers and American families, impact of prices on American industry, energy security and environmental issues. We have a wide range of factors we have to consider.

For me, it is illustrative to be sitting next to Mr. Ebinger, Mr. Cicio and Mr. Choi, all professionals whose work I am familiar with outside of this hearing, but all who have somewhat divergent views on what this means.

Ms. SPEIER. Let me ask, Mr. Cicio, in your statement you said any level of exports will increase cost of natural gas for consumers. That was pretty blanketed in that statement. Can you express that more specifically?

Mr. CICIO. I am referring to the two studies, the EIA study done in January of last year and the NERA study. Both of them used a broad number of volume of exports. Under every scenario, prices of natural gas rose. That is where our comment came from.

Ms. SPEIER. Mr. Choi, you make evaluations based on whether or not they are good investments for the oil and gas industry, is that correct?

Mr. CHOI. We have a model that looks at producer decisions based on a profit maximization objective for the producer.

Ms. SPEIER. When you speak up, you are speaking from a perspective of it being advantageous for the producers as opposed to whether it is advantageous for domestic manufacturers or the domestic consumers, correct?

Mr. CHOI. Yes. We have a model of the NASR gas industry in which we represent producer decisions and also consumer deci-

sions. Our model is different from most other models in that we represent the individual incentives by each of the parties. It is not purely looking at the incentives for one particular sector but rather, representing the industry by looking at how each individual agent would make decisions.

Ms. SPEIER. Dr. Ebinger, I actually read your report. One of the things you stated in the report is that there would be harm or impact, I should say, to low income consumers with the exportation of LNG and that there should be some set aside of whatever sales tax or revenue the Federal Government gets to make sure low income people would have some form of subsidy because of the increased cost to consumers, is that correct?

Dr. EBINGER. Yes. We did not go into great detail in looking at what that real impact would be but it was certainly our conclusion that low income consumers would have some price impacts. Again, I would like to emphasize that taken in the wide sweep of the benefits of exports, however those needs are met for the low income consumers, we believe overall, the nation would be much better off with exports.

Ms. SPEIER. I will yield back, Mr. Chairman, until the second round.

Thank you.

Mr. LANKFORD. Dr. Gosar.

Mr. GOSAR. Thank you, Mr. Chairman.

Mr. Cicio, the rates are artificially low right now, are they not?

Mr. CICIO. Natural gas prices are low, yes.

Mr. GOSAR. So we are not really being truthful to the American public, as the Ranking Member mentioned. We are going to see a natural increase because if we do not, we are not going to see production, true?

Mr. CICIO. That is true. In fact, the NIMEX price between now and 2020 increases 44 percent.

Mr. GOSAR. Mr. Ebinger, you just heard Mr. Smith's comments about timelines. How do you view that timeline from your perspective?

Dr. EBINGER. I view that timeline as very deleterious to the U.S. natural gas industry because, according to our analysis by 2020, if you are not in the marketplace by one of our first few LNG plants, you are going to have very serious competition. The Chairman has mentioned the projects coming out of Australia. By the early 2020s, we will see major new gas projects arising in east Africa, Algeria, Angola and many other places.

We also remind people in our report that in the Asian power market, coal remains extremely competitive with LNG and despite our efforts to curtail global warming, we see massive new coal deposits coming into the international market. Coal is going to be competing directly against gas.

As we move into the 2020 period, particularly the ten year time frame that was potentially mentioned, I think we can assume there will be at least a handful of additional countries that come up with their own shale gas development, be that in China, South Africa or Argentina. We are going to have more shale gas, more LNG with the prospect of big pipelines coming from eastern Siberia and Russia to the Asian market which will also compete against LNG.

It is not going to be easy to finance a big LNG project when the competition is so great and you have to get your buyer to take a huge proportion of the sales in order to get the project financed.

Mr. GOSAR. From what you have seen of our previous history in this country about getting projects like this online, give me an estimate of getting it online by 2020. My dad is a geologist, so 30 days, 60 days, 90 days, 120 days, three months, six months. They all come at cost and within the bureaucracy of government. What is your best estimate of getting it done?

Dr. EBINGER. I think it is an impossible question to answer because DOE and FERC do have statutory responsibilities.

Mr. GOSAR. Isn't there a way to streamline the process?

Dr. EBINGER. I would certainly think we could have some additional plants in the market by 2020, 2022, if we were able to get the process moving beyond the first Cheniere project that we could probably see two or three projects in the marketplace by 2025, say. I think anybody who thinks we are going to have more or the fearmongers that list all the projects before DOE and FERC argue that all these were built, we would collapse the international LNG market. We see no scenario where that is going to happen.

Mr. GOSAR. I agree.

Do you see, Mr. Smith, in regards to the protocol? Looking at timelines, it is very, very frustrating to America, by not having a timeline that is equivocally pretty close to an outline. Does that make sense?

Mr. SMITH. I appreciate that Congressman. One think I would like to emphasize is it is our job to get to a defendable, transparent a decision as expeditiously as possible. We have a tremendous sense of urgency for this process. Many of the points that have been made by members of the committee and by my friends on the panel have certainly been made multiple times on both sides of the fence in the numerous comments we have received in our public comment period.

Our job is to move forward as expeditiously as possible, but in a way that is open, transparent and which yields a decision which will withstand the scrutiny that it is certain to receive. A point we emphasize as we go through our own internal adjudication is that a decision that does not withstand scrutiny is not going to be useful for the concerns you have and it will be a wrong decision for the country.

This is something that is important. We are talking about a period of analysis that we discussed here but this is infrastructure that will be in place, if built, for decades. These are long term decisions and are going to lead to long term investments that will be important for our economy. We have to get this right.

Mr. GOSAR. That is only if you do them within the time frame that makes it economically feasible. If you don't, you are done.

Mr. SMITH. On that, I would state I spent 11 years in industry before I came to the Department of Energy. I actually worked at Chevron when Chevron was working on the LNG import terminal at Sabine Pass and I worked on that terminal. I did a lot of that commercial work.

Industry will move forward to build what it decides to build. Certainly falling into a window where you think the market is open

sometimes is good for the shareholders of that company, sometimes it is not. It is not our job to opine on what the company should be doing.

We have to make sure that our process is managed in the public interest to make sure we are looking out for the public interest of American businesses and families, that it is consistent, open, transparent and will withstand scrutiny.

Mr. GOSAR. Thank you.

Mr. LANKFORD. Mrs. Lujan Grisham.

Mrs. LUJAN GRISHAM. Thank you, Mr. Chairman.

I am actually going to reverse my order of questions because this is what happens when you are nearly last on a panel.

Mr. Smith, given your now testimony and description of a pretty in-depth process to make sure we get it right in terms of the public interest and considering that we have trade agreements with our Allies and we are mindful and watchful about those compliance issues, are you reaching out to those other federal agencies and stakeholders when you are talking about those folks you are working with in the public interest to get this right?

Mr. SMITH. We are trying to be as open and transparent as possible, so we like input from a diverse field of stakeholders.

Mrs. LUJAN GRISHAM. I appreciate that, but are you also reaching out? Are you in a position to maintain objectivity where you are waiting for people to come to you?

Mr. SMITH. The process works such that we have an open comment period, 45 days for entities to make comments and there is a reply comment period. Anything we are going to consider as part of the adjudicatory process has to be entered in the public record, so that is our primary vehicle for making sure we have an open and diverse group of stakeholders who are opining on the process.

Mrs. LUJAN GRISHAM. I would just encourage you on that note that without interfering with the due process required here and to get it right, and I am mindful and appreciative of the fact that the public interest issues are paramount and get this right so that we make the right decisions going forward, that you are also reaching out and coordinating with our other administrative partners who are going to have similar issues and interests. I appreciate that and encourage you within the context of that process to do that.

Mr. Choi, I am from New Mexico and very excited about the positive potential here for natural gas and exporting liquid natural gas. In my home State, it accounts for one-tenth of the U.S. total and the San Juan and Permian Basins, neither of which by the way are in my district, but create really the economic foundation for our State.

Unfortunately, as you all have indicated, the low price of natural gas has led to a drop off in natural gas production and it has negatively impacted many parts of New Mexico's economy, especially our State tax revenues that depend heavily on severance taxes and other revenue raisers from gas production.

In the context of difficult economic times, the prospect that we can increase natural gas exports and increase economic activity and create jobs in my State is particularly encouraging. As you discussed, we need to examine the issue carefully and ensure that we

are protecting consumers, domestic manufacturing jobs and the environment as we consider exporting our surplus natural gas.

Without reading the rest of that statement, the issue I am getting to, you talked about in the short term, I am really interested, given the low price of natural gas today and the supply and demand influences, I want you to talk to me a bit about whether the processes we are undertaking today can bring stability in the long term for natural gas in terms of the price indexes?

Mr. CHOI. Are you talking about the regulator process or the market process?

Mrs. LUJAN GRISHAM. Both.

Mr. CHOI. I am more familiar with the market process, having worked with a number of companies. I can tell you that they are undergoing a very deliberate and careful process because a lot of the companies seeking to export LNG are the same companies that have been burned by building import terminals in this country. They are not going to rush towards anything that puts their investments at risk.

Part of the interest in exporting LNG is the abundance of natural gas that we have in this country. U.S. gas production has continued to increase. You might have seen a bit of decline in your home State because some of the production has shifted from dry gas areas to more liquid rich areas. The total U.S. production continues to grow.

At the present time, I believe the market is more demand constrained than it is supply constrained. There are wells that have been completed but not yet connected just because there is a lack of demand or possibly because of lack of infrastructure to take the gas away to markets. I believe the market is well equipped to determine how much LNG export would be economic.

There could be some increase in price, but according to economic theory, any increase in demand will have some increase in price. Just because there is a price increase is really a pretty innocuous statement; the question is how much of a price increase will there be? According to our study, that price increase will be fairly modest because of how dynamic the market is and because of how much domestic resources we have in this country.

Mrs. LUJAN GRISHAM. Given the huge fluctuations in the market, it would be nice if there was a sense given that the potential here for broadening our exports, that we might be able to have a little more long term stability in the market by the appropriate effort between the two, market supply and demand, a response and an appropriate regulatory environment so that you do not have these huge fluctuations. You could then get to a place where we can do consumer protection by some other model if necessary in that case.

Mr. CHOI. I agree with that. Just because we have exports, I don't believe necessarily means that price volatility would increase in this country. In addition to exporters securing long term markets through long term supply contracts, they would also have supply contracts or supplies that are ready to support their export terminals. The supply will respond to the increase in demand.

Mrs. LUJAN GRISHAM. Thank you. I yield back.

Mr. FARENTHOLD. [Presiding]. Thank you very much.

At this point, I think I am next on the list right at the time I take the center chair, so perfect timing for me. I will now recognize myself for five minutes.

Mr. Choi, you talk about an abundance of natural gas and not a whole lot of price volatility with the addition of exports. Can you give us an idea just how much natural gas we think there is in some of these new shale finds?

Mr. CHOI. It is not just shale finds, it is the total domestic resource base which includes conventional supplies, shale gas, coal bed methane and other types.

Mr. FARENTHOLD. Assuming projected growth in world demand, how many years supply are we looking at?

Mr. CHOI. By most accounts, we have over 2,000 bcf of natural gas in the United States. At our current production levels, that is equivalent to about 100 years.

Mr. FARENTHOLD. In shale gas, we only recover with our fracking technology about a third of what is there with today's technology?

Mr. CHOI. The technology is constantly improving and we are able to recover more. The shale gas comprises a growing share of our total U.S. production.

Mr. FARENTHOLD. Mr. Smith, are you familiar with the concept of being in the right place at the right time? That is where you want to be, right?

Mr. SMITH. You would have to clarify that question.

Mr. FARENTHOLD. I guess what I am getting at is I don't know whether it is coincidence or divine providence or whatever, but to me it looks like our technology in the energy industry is pulling this country out of a recession kicking and screaming. I am going to mix my metaphors here, strike while the iron is hot. If the blacksmith industry had to go through a burdensome regulatory process while the tire industry was developing, we would miss the ability sell a lot of horseshoes because cars come into existence.

I guess what I am getting at is the Federal Government is spending a lot of money on alternative energies. I think a breakthrough in battery technology makes a whole lot of alternative energies work a whole lot better. Are we not possibly at a unique time in history where we have a lot of natural gas, there is a market for it and we could make some money off it if we did something now?

Mr. SMITH. Congressman, what I can say is that there are certainly a large number of commenters of the 200,000 comments we are going through now that have made exactly the point you are making. We certainly have a sense of urgency to as expeditiously as possible get to a open and transparent.

Mr. FARENTHOLD. I know that Chairman Issa showed this slide where you can actually see in the dark the Balkan field and the Eagle Ford Shale in Texas which I am blessed to have touch the district I represent.

I am also going to show you a map, a Baker Hughes map, that shows all the rigs currently in production. The red ones are gas, the blue ones are oil. There is no gas being produced in the Balkans because there is no market for it and at the current prices, they cannot afford to build a pipeline. They basically are just burning it. It is a huge waste of what potentially is a very valuable resource.

We are seeing gas prices that are just above $3.00, $3.25 or so, in Texas. It is great for us. We have steel plants coming in, we have plastic plants coming in, we have LNG companies looking to come in and export. We have some red ones because we have the pipeline infrastructure to do it and market.

What we hear from producers is in addition to having to get pipelines, which are expensive to build and another regulatory burden, I only need say the word Keystone, that is a problem.

Then you zoom in down here and see there are also gas wells offshore in Louisiana. These are traditional, horizontal wells. You are not seeing the development of the gas wells because you cannot produce a horizontal gas well at $3 gas. The gas we are getting out of these horizontal wells is being produced along with oil or other liquids. It is not economical to even pursue it. We could lose this boom if we do not get a market. I guess I want to make sure you all are aware of the urgency of getting this done.

Then you look at what is going on now in Japan after the terrible tragedy there, they are looking to decommission their nuclear facilities and go with natural gas. Wouldn't it be cool to actually have something to sell back to them for all those electronics we are bringing over here to get the balance of trade? This is the time. I just want to make sure you guys understand that. There really is that sense of urgency.

Mr. SMITH. Thank you for those comments, Congressman. Those are all factors we are considering. I grew up in Ft. Worth, Texas in the Labar Neck Shale. I have seen firsthand the difference that some of these developments can make.

We also understand all the other balancing factors. We want to make sure we make a good public interest determination and we need to move forward as quickly as possible in a way that is open and transparent.

Mr. FARENTHOLD. I appreciate that. I am a relatively newcomer in Washington but I do know one of the best ways to kill something is delay. I hope any delay we are doing is necessary and not intentional.

My time has expired. Mr. Horsford, you are next for five minutes.

Mr. HORSFORD. Thank you, Mr. Chairman. Thank you to the panelists for being here today.

I am from Nevada and we also have natural gas facilities in our State. It is both a blessing and a curse. On the one hand, prices are at an all time low. These low prices have benefitted the manufacturers, the consumers and household users. On the other hand, these low prices are at adversely affecting many producers of natural gas.

Going forward, as policymakers, we have difficult questions to answer. One of the areas I feel we have to address beyond corporate profitability also pertains to our security, jobs and households. I would like to ask the panel, Mr. Cicio, you say in your testimony your organization is not opposing LNG exports but you "remain very concerned that exports could negatively impact manufacturing competitiveness and U.S. jobs." Why is that and is there a way to calculate how many U.S. manufacturing jobs could be lost or not created if LNG exports are allowed to proceed?

Mr. CICIO. It is difficult to answer the second part of you question. What I can do is tell you that these prices have clearly started the manufacturing renaissance. There are upwards to $95 billion of new capital investments by chemical companies, nitrogen fertilizer for plastics, steel, glass and these new facilities are going to create upwards to six to eight bcf a day. With those announcements, we are talking about a 10 percent increase in demand for natural gas.

Every month, there are new announcements. In our view when I talk to my companies, in my view this is the first wave. The commodity, as we call them, the building blocks, the kind of companies I mentioned they supply energy intensive block products to every manufacturer in the country. As this new capacity for this building block material—the plastics, chemicals and nitrogen fertilizer—comes on stream, our customers will be expanding.

We are quite optimistic about the demand side, but it is very difficult, other than to do a study much like the DOE has done, to determine what negative impact it would have at a specific price going forward.

Mr. HORSFORD. As we have heard, those in the oil and gas sectors believe that failure to permit foreign exports of LNG could severely undermine that industry and would ultimately affect current and future jobs. Do they have a valid concern, do you think?

Mr. CICIO. Manufacturers have a valid concern, yes, they do. Higher prices, just from 1999, natural gas prices doubled, then tripled and peaked in 2008. In that time period, I saw almost 55,000 manufacturing facilities shut down. A lot of it was related to high prices of natural gas. There is an absolute relationship between the price of natural gas, the price of electricity and manufacturing competitiveness.

Mr. HORSFORD. Is there the proposition of you said the kind of winner take all where it is to the benefit of one sector and to the detriment of another?

Mr. CICIO. No.

Mr. HORSFORD. Can there be a balance?

Mr. CICIO. That is correct. Our testimony bears this out. If we have a process at the Department of Energy that takes into consideration the public interest and balances, we should be able to export and we should be able to provide affordable prices of natural gas for domestic consumers.

Mr. HORSFORD. Mr. Choi, what do you say about that?

Mr. CHOI. First of all, I think we need to realize that between 2004 and 2008, U.S. natural gas prices rose to unprecedented sustained levels. Prices during that time ranged from about $7 to $10 per mmbtu. Nobody I am aware of is saying exports will bring prices up to those levels.

The advent of the shale gas revolution, which used the hydraulic fracturing and horizontal drilling to make vast amounts of shale gas economical, has fundamentally changed the picture. Even with exports, we are not going to see prices at that level in the future.

Mr. HORSFORD. Thank you, Mr. Chairman. I will wait for additional questions.

Mr. FARENTHOLD. Thank you. It is interesting where we see this side of the aisle agreeing with the DOE and Brookings and not always with the industry.

At this point, I need to ask for unanimous consent for the gentleman from Louisiana, Dr. Fleming to sit as a member of this subcommittee. Without objection, so ordered.

Up next is Mr. Turner. Mr. Turner, you are recognized for five minutes.

Mr. TURNER. Thank you, Mr. Chairman.

I appreciate our panelists because it is certainly an important discussion as we look to the issue of job creation and energy policy. In Ohio alone, it is expected that Utica Shale would have a $5 billion economic impact and create or supply nearly 66,000 jobs in Ohio by 2014. I appreciate the discussion that we have great opportunity to export and that the price spikes we had in the past were the result of the fact we did not have the access to or the abundance of supply that we are now seeing.

Dr. Ebinger and Mr. Choi, in your reports you both touched on the issue of the geopolitical implications of exporting U.S. natural gas. I would like to speak to that for a minute and ask you a question.

When we look to the U.S. interests and certainly domestic economic benefits, we also need to look to the issue of the geopolitical implications of our being able to export. As both of you have noted, Russia has a major role as a supplier of natural gas and is a nonreliable exporter to the European countries. They use it as a political tool, punishing our European allies, especially eastern Europe, and use it to try to divide the EU and NATO countries as they put pressure on individual countries to adopt policies favorable to Russian positions.

I have a bill, H.R. 580, the Expedited LNG for American Allies Act, that would expand the ability to export LNG to our NATO partners and to Japan to allow expedited approval for that export. This is a bill that initially had been championed by Senator Lugar. It is a bipartisan and bicameral piece of legislation. I think it would be very important to give that expedited opportunity, not only increasing our markets, lowering the overall bureaucratic process for export, but also have an impact in the Pacific region with respect to Russia's export.

Dr. Ebinger and Mr. Choi, would you please elaborate on your positions and thoughts as to the geopolitical effects of U.S exports to those regions?

Dr. EBINGER. Thank you, Congressman.

Yes, I would thoroughly agree with your characterization of what LNG cargoes diverted from the U.S., since we no longer need them, have played in the European market. The big reason for that is that in most of the world outside the United States, petrochemicals are derived from naphtha, an oil-based product, rather than from natural gas, making them much more costly.

We have seen LNG cargoes allow the Europeans, as some of their longstanding contracts with Gazprom have come up for renegotiation, to use the availability of natural gas to delink a large portion of their supply from Russia and in some cases, get significant price concessions from the Russians.

My only concern about your bill, I think it is very admirable and we certainly support our NATO and European allies, is that one has to be very careful because having just returned from a significant gas conference in Amsterdam, it does appear, listening to the Europeans, that they believe for the next ten years the European gas market is saturated.

Part of that is, of course, the depressed economic condition prevailing in Europe, which obviously can switch around at some point in time, we hope, but I will only caution that if we were to direct U.S. LNG cargoes there, it might be good that we could drive prices down further but it might not necessarily be good for our own exporters if they found that to penetrate that very glutted market, they had to significantly redirect it.

Mr. TURNER. The bill doesn't redirect it, but streamlines the bureaucratic process for those who are doing that.

Mr. Choi?

Mr. CHOI. In our latest paper, we looked at the global implications of U.S. LNG exports. In order to understand what the impacts would be, you have to look at each market and examine what the marginal source is. The marginal source might not be just what is currently being exported, it could also be future supplies. These supplies could be marginal either because they have high production costs or high transportation costs, or possibly because of political hurdles that make these supplies effectively more costly to come to market. I am talking about the supplies such as from Iran or possibly Venezuela.

You mentioned Russia. Russia is the largest gas exporter to Europe. They are vulnerable, according to our study, because not only do they have the largest volumes, but they are also the highest cost contract supplied to the European market. We believe if the U.S. exports to Europe, which is one of our scenarios, Russian supplies would be vulnerable.

Mr. TURNER. Thank you, Mr. Chairman.

Mr. FARENTHOLD. Thank you, very much.

We will now recognize the gentleman from Louisiana, Dr. Fleming, for five minutes.

Mr. FLEMING. Thank you, Mr. Chairman. I thank the committee for allowing the courtesy today to sit in and I appreciate the panel here today.

I come from the 4th District of Louisiana which has the Haynesville Shale. The Haynesville Shale, as you know, in the period around 2007 to 2008, we had nothing less than a revolution in marrying the old technology of hydro-fracking and the new technology of horizontal drilling, which has released tremendous wealth and economic activity which has really sustained my district through difficult economic times.

We are victims of our own success, unfortunately. As a result of that, as you know, the price has been well displayed here, and has been depressed because of all of the production, so we have gone from excessive demand and little supply to excessive supply and relatively the same demand, which is kind of interesting because our friends on the other side of the aisle assure us the high cost of gasoline and oil has nothing to do with supply and demand, it is speculation.

We would like to have a little speculation in natural gas if that would be okay with you gentlemen just to get that price up a little bit because we have had a number of actual drilling sites that we have not moved forward on because it is just not economically viable.

The other piece is in Lake Charles, we have the Cheniere plant which is an incoming supply depot for LNG because we have been net importers. Now they are spending $10 billion to make it a net export facility and we are glad about that. We will be well positioned for the future not only to take care of our own needs, but to take care of the needs of the world when it comes to this revolution.

I have a couple of questions today. Mr. Smith, what are the criteria for approving one terminal over another? Is geography a factor, a region already has a facility or other projects that may be less advantageous? How do you decide about that because we are waiting on final permitting and approval with our plant?

Mr. SMITH. As you are aware, and as you stated in your comments, we have already approved one export facility and that is the Sabine Pass facility in Louisiana. Subsequent to that, now that we are looking at cumulative impact of another additional 28.2 billion cubic feet a day of potential exports, one of the things we have announced as we go through our process is we do have a queue, we have a sequence we are going to use in order to determine the order in which we are going to evaluate the export opportunities.

We took all of the applicants before the Department and divided them into two categories, ones which had submitted their FERC pre-filing application, the process where you start spending more significant quantities of money, and those who had no filed for prefiling. Within those, it is on a first come, first serve basis.

There is a list. There is a pdf on the DOE website and you can see the next applicant we are going to consider and you can see the last applicant. We are going to work through that queue looking at all the factors we have announced as part of our public interest determination, everything from jobs, balance of trade, economic impact on consumers, prices, impact on industry, international issues, economic and environmental issues, a wide range of factors we are going to use in order to evaluate each one of those applicants.

Mr. FLEMING. Do you do some en bloc or are they all one on one?

Mr. SMITH. We are compelled by statute to evaluate each of these on an individual basis.

Mr. FLEMING. What about the non-FTA countries? What is the policy towards them? Are they still in the queue?

Mr. SMITH. The law breaks up applicants into two categories, FTAs and non-FTAs. Free Trade Agreement countries essentially are approved without delay or modification by the Department. There is no discretion that is exercised, under statute, by the Department. Those are being approved as we receive them. It is the non-FTA applicants we are evaluating.

Mr. FLEMING. Is that there to say there is going to be difficulty in approving them? What are going to be the challenges in getting approvals for them?

Mr. SMITH. There is a process. As I mentioned earlier, it is illustrative that even on this panel you have individuals who think

should be approved immediately and all of them should be approved; there are a lot of voices who think there are concerns with exporting LNG in terms of rising prices. There are lots of arguments being made.

We received somewhere on the order of 200,000 comments in addition to the studies we received, some of which we requested. It is our job to look at all the factors so that as expeditiously as possible as transparently as possible and as quickly as possible, we get to a public interest determination that is going to inspire the right type of confidence in terms of its ability to withstand the scrutiny it is certain to attract. That is the process we are in right now.

Mr. FLEMING. I certainly want to underscore that we should encourage approval of non-FTA countries as well. It will be good for the global economy, it will help our prices. You just heard that we have more natural gas now than we ever thought we had in the past and probably with newer technologies coming online, we will have even more in the future.

It is not that we want to drive up prices; we want prices to be at real market rates. That is going to be the sweet point for consumers and for jobs.

With that, I yield back and again, I thank you for your courtesy.

Mr. FARENTHOLD. Thank you very much.

At this point, we will start a second round of questioning. I will recognize myself for five minutes and then move across the aisle.

Mr. Cicio, the gist of your concern is that as we start to export natural gas, there will either be a shortage or an increase in cost of natural gas that is used either as a raw material or feedstock for domestic manufacturing and to keep domestic electricity prices low as natural gas, certainly in Texas, is a major source of energy. Is that a reasonable summary of what you are saying?

Mr. CICIO. No. Natural gas is different. That is what makes this public interest determination so critical. Natural gas is very influenced by the public process. There is legislation and regulation that can impact the access to natural gas in terms of whether it is in a moratorium or not, and Congress can deal with the intangible drilling cost tax benefit and that is going to change the economics.

Mr. FARENTHOLD. Intellectual property is highly regulated and with music, their ability to profit is determined almost entirely on government regulation of copyright. We could go in and regulate almost any other industry.

Mr. Choi, do you agree with that characterization that natural gas is unique over any other product or commodity?

Mr. CHOI. No, I would not. First, I would note that at the margin, there are some regulations that affect the amount of drilling, but for the most part, we have deregulated the supply markets and the market determines how much to produce.

Mr. FARENTHOLD. Thank you.

Mr. Cicio, let me ask you this. As we get more natural gas through pipelines to our ports doesn't that make the liquids that are oftentimes produced with natural gas more available to your industrial customers to use for other products?

Mr. CICIO. Drilling for natural gas, drilling for oil, it increases potentially natural gas liquids, so the answer would be yes.

Mr. FARENTHOLD. Using your argument that natural gas is special, does that mean we should add regulations to the export of other basic chemicals like ethylene and propylene?

Mr. CICIO. I will say it again, natural gas is different because let us say if DOE approves a terminal, they are approving it for up to 30 years. The terminal operator then negotiates long term contracts that are mostly take or pay. That locks in demand for a 30 year time period. Meanwhile, consumers are exposed to the risk of public policy on the production side and on the demand side of natural gas.

Mr. FARENTHOLD. Can any consumer, whether an electric company generating for the public, negotiate a long term contract the way exporters can?

Mr. CICIO. No.

Mr. FARENTHOLD. Why not?

Mr. CICIO. There are very, very few long term natural gas contracts negotiated.

Mr. FARENTHOLD. At $3.00 and something, I might be negotiating long term ones myself.

Mr. CICIO. We would like to do so.

Mr. FARENTHOLD. Mr. Ebinger, would you like to comment on this line of questioning?

Dr. EBINGER. Congressman, I would only say I am old enough to remember when we could not burn natural gas in industrial boilers or powerplants because "it was a noble fuel" and we should not do that. We have made major disastrous decisions through the years whenever we tried to not allow market forces to work. It is precisely for that reason that in our analysis, we see plenty of NGOs being available for the American industrial renaissance and used the dry gas for export.

As I said in my formal testimony, I think we have to be careful because this idea that Dr. Fleming seems to think, and I would agree with you, sir, I would love to see more natural gas exported but we think the realities of the marketplace are not going to allow all these projects before DOE to ever be developed in any time frame any of us can reasonably foresee here.

As a result, we find some of the arguments put forth by the petrochemical industry and others to be somewhat spurious to the realities of the marketplace.

Mr. FARENTHOLD. Let me ask, Mr. Choi, you studied this, what is the environmental impact of this? It seems to me as we have low cost natural gas that is cleaner burning than oil and in most cases, coal, isn't it a positive net environmental to get more people burning clean natural gas?

Mr. CHOI. Yes, it is. If you look at the carbon emissions in the United States, we are at I believe the lowest point we have been in the past decade. Most of it is because we are burning more natural gas than we ever have.

One other comment I would like to make is that just because there is a rush to apply for DOE approval to export doesn't necessarily mean that all these applications, if approved, would be built.

Mr. FARENTHOLD. Thank you very much. I apologize for cutting you off but I am out of time. As a courtesy to my colleagues, we do need to keep moving.

I will now recognize Mr. Horsford for five minutes and turn the Chair back over to Chairman Lankford.

Mr. HORSFORD. I want to get back to this issue of who should be involved in this process. Mr. Choi, would you agree that all interests, those of the producers and those of the consumers, should be considered by the Department of Energy in their determination of what is a public interest?

Mr. CHOI. I would rather not speculate on the role of the Department of Energy but I can say that the market does consider interests of all parties.

Mr. HORSFORD. Mr. Cicio, from what I understand, you are here representing some very large companies that use natural gas as an energy source and as an input in their production process. What is your view on being able to have a say in this process?

Mr. CICIO. Absolutely. All interested parties impacted on the producing and consumer sides. Let us take a look at when the DOE was confronted with dealing with determination on imports. They did a rulemaking process to develop the criteria and allowed for all parties to comment, both verbally and in writing, to help develop that criteria. It was done in a very transparent way.

My comments earlier today were that there has not been any rulemaking that has allowed for a set of criteria for exports. That is what we believe is the best process to move forward.

Mr. HORSFORD. The fact that your report accurately estimates the impact of exportation on your member companies is a concern?

Mr. CICIO. It is interesting. The NERA report said that energy prices go up, wages go down and the return on capital of all industries are impacted in a negative way.

Mr. HORSFORD. Mr. Chairman I think this hearing demonstrates, at least to me, that there are many sides to the question of allowing LNG exports on a scale never before considered in U.S. history. The law requires the Department to do what is in the public's interest. I know none of us want to be motivated to pushing the Administration into picking winners and losers and it is something that of course the majority has talked about, not only in this committee, but in others and has objected to that type of consideration.

The last Congress I know is in the past but I would hope we would not do anything to try to push the Administration into selecting winners and losers in this process.

At this hearing, which concerns something the oil and gas industry wants, federal permission to export LNG and thereby raise gas prices and profits, I get the feeling that some members of the majority want the Administration to go in this direction so long as oil and gas are the winners. I hope we have the public's interest in mind rather than merely just one industry's welfare or profit.

Thank you.

Mr. LANKFORD. [Presiding] I would recognize myself for the next line of questioning.

Mr. Horsford, I would agree, this shouldn't benefit one group or another, but there are tens of thousands of jobs on the sidelines currently that in a 7.6 percent unemployment rate for the Nation,

we would love to see. The jobs that are happening take an area like North Dakota, an area where there are a lot of jobs that are $80,000 and above as a starting position for a high school education. It would be great to see this promulgated across the country. A lot of families would enjoy that kind of benefit to see that in the days ahead.

I apologize that I had to slip out for a moment. I need to come back to several things on this. I am still trying to process through how we make the decision and how we move forward in timing on this.

Mr. Smith, is DOE anticipating setting a numeric number of bcf to export a day? Is that an expectation, there will be some moment or some decision to be made to say we are going to find a magic number of bcf, we are going to limit that?

Mr. SMITH. I thank you for the question Mr. Chairman. The Department has not made any determination about a volumetric limit or cap or any sort of quantified figure, so that is not a determination the Department has made.

Mr. LANKFORD. That decision has not been made or that decision is irrelevant, it is going to be market-based? I am trying to figure out will this be centrally determined, that someone in DOE will determine we can do up to 6 bcf a day but that is all we can do economically based on studies or will the market decide?

Mr. SMITH. The market has made no determination about the imposition of any cap, quantification, the calculation of any caps. That is not a decision the Department has made. We have not come to that conclusion.

Mr. LANKFORD. You have made a decision at least 2 bcf are going to happen a day because the existing export facility has that capability of 2 bcf a day, correct?

Mr. SMITH. We have decided to permit 28.2 bcf per day.

Mr. LANKFORD. I am trying to figure out where does this go from here. Is it a situation where we have 19 applicants, we are going to let the market decide what is appropriate or will there be some decision to say we have two to permit, we are going to allow two more, then wait a couple years, allow two more, wait a couple years or is there going to be a decision we think eight is the limit and try to figure out some process to get us to eight?

Mr. SMITH. Mr. Chairman, we simply have not made that determination. We are in the process right now of making this determination. The comment period literally closed three weeks ago, so there is a very large volume of analysis the Department still has to do.

Mr. LANKFORD. I do have to have some concern on the large volume because there 186,000 individuals. My understanding is that was about 300 actual comments and they all came in in the thousands. Am I right or wrong on that because 300 comments you are working through, just a large quantity of the same 300 comments?

Mr. SMITH. There were a total of almost 200,000 comments. Many of those were letter writing campaigns but you also have to go through those because any campaign, people write things. You have private citizens who are voicing their opinion.

Mr. LANKFORD. I definitely understand that. We get letter writing campaigns, I assure you, but the comments, as they come in,

as far as in your decision-making, you have 300 unique comments really there, you have thousands to reply to, but as far as your decision-making process, you are really filtering through 300, is that correct?

Mr. SMITH. I do not want to characterize the 300 as being unique from the other very large volume because we have to go through all those comments.

Mr. LANKFORD. I understand. I am just trying to figure out the decision-making process. As we are trying to process through this, the assumption was the decision has been made we are going to exports on non-FTA. That decision is done, it is behind us. We are going to do it. Now it is how many additional facilities. What will be the process and time? That is all that is left at this point to determine. We have already determined we are going to export.

I am trying to figure out is the timing because there are a lot of contracts globally that depend on this, there are a lot of jobs here in America scattered across the country. Mrs. Lujan Grisham mentioned before, there are areas in New Mexico and other areas all across the country that are dependent on job development increasing.

With a 14 year low in production of natural gas happening right now, that is a lot of jobs sitting on the sideline that turn around almost immediately if production begins to increase for export if there is some sort of advance planning, if we know the timing. I am trying to figure out what is the timing and what is the process.

Mr. SMITH. I can say a couple things, Mr. Chairman. First, we are committed to dedicating resources, dedicating personnel, lawyers, to move as quickly and expeditiously as possible to get to a transparent and defendable decision.

Mr. LANKFORD. You still don't know whether that is a month from now or ten years from now?

Mr. SMITH. Mr. Chairman, we are in the middle of the analysis right now. I could opine on that but I would be making something up that is trying to foresee the outcome of the analysis we are currently doing.

Mr. LANKFORD. Do you have an expectation when you make a decision, will they be made one at a time or based on a set of merits where you will say this is the criteria. If your permit application meets this set of criteria, we are going to permit you and let the market decide or will this be, whatever system it was, we are going to permit this company and then three years, six months later or whatever it is, we are going to permit another one? Will it be that order or will it be open it up and let them go pursue capital, see who gets the capital and who gets contracts? How will that work?

Mr. SMITH. Again, that would be, to a large extent, prejudging the analysis we are doing now. I can say we have announced an order, we know what the next applicant is going to be, what the subsequent applicant is going to be.

Mr. LANKFORD. How was that determined as far as the order, the next one that is going to go down?

Mr. SMITH. In the Sabine Pass Order, we stated we had to look at the cumulative impact of LNG export, since we are looking at a total of 28.2 bcf with the number of applicants.

Mr. LANKFORD. There is no way they are going to build that much. There is not that much capital to build that.

Mr. SMITH. That is not the argument I am making. I am just saying that is the total quantity of export applications we are looking at. We took the applicants on a first come, first serve basis, with priority given to those that have started the FERC pre-filing process. You can go to the DOE website, you can download a pdf that shows you the list and the order. That is the order in which we will proceed.

Mr. LANKFORD. So it is a first come, first serve if they have gone through the pre-application. That is fine in some semblances and I am sure for the company that is number two, they are excited about that process and the company that is number 19 is probably not as excited.

I know from being in a high school history class, when tests were turned in on Friday, the first person turning in their test didn't always get the highest grade. A process that says whoever got his application request in first and started with FERC has the highest priority seems to pull out some merit issues.

Again, I am saying that and probably the number two company is furious I am saying but there seems to be some need for merit. Do they have the capital, do they have contracts, have they had communication on this, can they actually fulfill it, is this going to economically benefit the Nation?

If we make the determination to do it, then we need to have some economic benefit immediately coming back to America, that we know they are actually going to be able to fulfill it and get it done. Does that come into play on this at all?

Mr. SMITH. I appreciate the comment. First of all, in order to get a permit before the Department of Energy, you need $50 and a fax machine, we get the application and it goes into the docket. One of the ways we tried to emphasize or measure seriousness or probability of outcome was to first do those applicants that have a prefiling before FERC. That is when you start to spend very large quantities of dollars. We pushed those to the front of the queue, the rest to the back of the queue.

There are any number of algorithms one could try to come up with to say this company is more serious than that one or they have a better project than this one. We opted not to do that. We said we were not going to try to judge the seriousness of companies, or their business model or the probability of financing because that is not our job.

We wanted something in terms of fairness to say we think generally the idea that the company first in the queue should go first. It was only fair.

Mr. LANKFORD. Did they know that in advance, that this was going to be first come, first serve?

Mr. SMITH. There was no process in place. This is brand new ground.

Mr. LANKFORD. If someone did more research and took more time to fill out their application, they ended up in the back of the line. They just didn't know at that point?

Mr. SMITH. Again, this is a new process that we are creating.

Mr. LANKFORD. You have a difficult job in this and I completely appreciate this. I know you are working expeditiously but at the end of the day, everyone, all of us on the dais, you, everyone is going to have to determine and be able to say to people this was a fair process that worked as expeditiously as possible.

I have gone well over time on this. I would like to recognize Ms. Speier.

Ms. SPEIER. Thank you, Mr. Chairman.

Let me say to both you, Mr. Smith and you, Mr. Chairman, you have done yeoman's work on behalf of each of your interests here this afternoon, you, Mr. Smith, in terms of recognizing that it is a judicial process and you cannot really offer a lot of information about particular applications and Mr. Lankford for pitching for his constituents as well. I compliment both of you.

Let me just say though on your point about winners and losers and whether or not someone has the ability to actually take this approval and move forward, it appears they have done just that. If you have put them in two categories, those that have already done some precertification through FERC, they are in the front of the queue you just said, is that correct?

Mr. SMITH. Yes, that is the case. Those are being considered first. Again, that is not a capricious determination. Those were the companies already spending millions and millions of dollars on feed and pre-feed and all the other things they have to do in terms of determining environmental impact. Those are companies making a real investment. They are spending dollars now.

As I said, we didn't try to grade each company but we did create two categories and we thought that was a fair way to approach it.

Ms. SPEIER. Let me also ask this question. There are many folks in the oil and gas industry that will go out, get the permits and just sit on them. That is not what I think any of us are interested in. How do we prevent that from being part of this extended evaluation as to the merits of how much is eligible to be exported versus not?

Mr. SMITH. The Department has some flexibility and some leeway in the way it writes its Orders. One thing we emphasize is that when we write an Order, when we say yes or no, we don't write yes or no on a sticky and say that is a decision. There is actually a hundred-plus page Order the Department comes out with that goes through in a very open, transparent and dependable way, the rationale the Department has gone through to get to that Order. Also, we have the flexibility and the discretion to put in qualifications or requirements for the companies.

If you look back to how we managed the Sabine Pass Order for Cheniere, there was a requirement that by a certain date, they had to have first gas going through the terminal which essentially prevents a company from going in for a relatively low price.

Ms. SPEIER. Fifty dollars?

Mr. SMITH. Yes, $50, and obtaining an application which they can sit on ad infinitum. That is not in the public interest; that is not what we wanted to accomplish. That is how we managed that.

Ms. SPEIER. Mr. Cicio, you have been very helpful and have raised some interesting issues. Can you list out some of the companies that you represent?

Mr. CICIO. Actually, no. We do not list our companies on our website, we do not publish them. The reason why is that we work on some very delicate environmental issues and many of our companies have retail profiles. We try to protect them from having that exposure. IECA represents a trade association and the cumulative views and the consensus of those companies. We speak as an organization, not speaking on behalf of a company.

Ms. SPEIER. I understand that, but for us to evaluate the impact on companies making it in America, you talked about the American renaissance of manufacturing which we all embrace. We want products made in America. I do a Make It in America forum in my district every year. I just want to get a sense of how many employees are we talking about, are these Fortune 500 companies. Play 20 questions with me.

Mr. CICIO. Our companies have over $1 trillion in revenues, they employ 1.4 million people, have some of the largest manufacturing facilities in the United States. These are large companies. They produce steel, aluminum, chemicals, plastics, nitrogen, fertilizer, glass, cement, food processing companies, these are all name brand companies.

Ms. SPEIER. You said how many employees?

Mr. CICIO. It is 1.4 million.

Ms. SPEIER. You also indicated that while the export contracts typically are for 30 years, that is not the case for manufacturing companies within the United States. Could you elaborate on that?

Mr. CICIO. Manufacturing companies would love to lock in long term, particularly fixed or advantaged natural gas prices but for the most part, that is not happening. They are having to buy natural gas prices on the spot market.

Ms. SPEIER. Typically that is a decision being made by the actual utility that is offering you the gas?

Mr. CICIO. No. This is a negotiation that can occur between a manufacturing company and a natural gas producer or marketer. Utilities are not part of the equation.

Ms. SPEIER. So this is a producer basically saying no, we are not going to lock in a 30 year contract to you but in an export setting, they could?

Mr. CICIO. When I referred to 30 years earlier, I was referring to the DOE approving an application, the terminal owner then is going to secure long term contracts and they have that ability for 30 years. The point I was trying to make earlier is that creates demand that is going to impact domestic consumer prices for a period of 30 years.

My point is still the same. Natural gas is different than other trade products because it can be drastically impacted by public policy, by Congress and by the EPA and by the Bureau of Land Management that can impact the production over that 30 years and/or drive consumption such as the EPA on utilities, on the industrial sector, controlling greenhouse gas emissions or the industrial boiler mac. Public policy does drive demand and can impact supply.

Ms. SPEIER. Mr. Chairman, my time has expired. I just want to thank all of the witnesses for their testimony. It has been, I think, a very enlightening hearing. I think what is coming of it, for me certainly, is this is a process that has to be done carefully, one that

probably in my mind should provide for some level of export but not to the detriment of manufacturing here in this country or consumers in this country.

Unfortunately, Mr. Chairman, I have to depart to give a speech. I thank you.

Mr. LANKFORD. Dr. Fleming, do you have another series of questions?

Mr. FLEMING. Thank you, Mr. Chairman.

I will say parenthetically before I get to my question, EPA government policy can have impact on any of these natural resources. Certainly coal is a great example where that is happening today. Again, I have difficulty seeing where natural gas is unique.

Mr. Smith, NERA issued a result of their study. I understand DOE received that this summer, is that correct?

Mr. SMITH. That is correct.

Mr. FLEMING. However, it was released from DOE in December. Can you account for that delay?

Mr. SMITH. First of all, I certainly would not characterize that as a delay. This is the NERA study here in my hand. This was a significant and substantial economic study looking at quantifying the impact of an unprecedented activity in the United States in terms of exporting hydrocarbons in the form of liquefied natural gas.

This study was received by the Department, as requested by the Department, as something to be responsive to our need to be judicious about quantifying public interest so we did need some numbers.

Once it was received, there was an intense process to understand the study, to ensure that it was clear and transparent, to ask clarifying questions to make sure this study, once entered in the public record, would be clear and responsive to the types of things we need to understand as part of the public interest determination.

Mr. FLEMING. Who made the decision when to actually release it?

Mr. SMITH. I made that decision.

Mr. FLEMING. Nothing that happened perhaps in November could have had any impact on that decision at all?

Mr. SMITH. No. The study was released when I was prepared to release it and when we had done the work we needed to do within the Department of Energy to make sure it was appropriate.

Mr. FLEMING. Mr. Ebinger, how do the transportation costs of LNG affect the price in the world market compared to domestic prices?

Dr. EBINGER. Transportation costs are, of course, extremely high. Right now, if we are looking at what could we deliver gas for example if we were ready to export into the Japanese market, the actual transportation costs would be somewhere in the neighborhood of $5 to $6 per million BTU, that added on to the Henry Hub price plus the cost of gasification and regasification, I think most analysts would agree we would probably be able to deliver gas to Japan today if we could export somewhere between $9.50 to $10 per million BTU, significantly lower, of course, than the Japanese price.

Mr. FLEMING. How would that compare to other forms of energy for Japan? Would that be a favorable price for them?

Dr. EBINGER. At that price, it would be very favorable for Japan because otherwise Japan imports almost everything and since the

Fukushima accident, the closing of the nuclear powerplants has added roughly 4 bcf a day to Japanese demand, killing them because they are importing into a very high cost market.

Mr. FLEMING. Obviously it is a very marketable concept to sell natural gas to Japan up to and including all the delivery costs that go with that?

Dr. EBINGER. The concern would be, however, the longer we take to get some of our projects into the marketplace. I think some of the others at the table have different views on this, but if you believe the long run implications of any U.S. LNG going to market will be to begin to bring further competition, that the existing prices in Japan will begin to fall.

They will not fall down to probably $10 but they might fall to $12 or $13, so the competitiveness of the U.S. while still probably reasonable is not going to be as great the longer we take to get LNG projects into the marketplace.

Mr. FLEMING. How does that affect U.S exporters compared to competitors and the U.S. exports compared to competitors in Qatar or African countries?

Dr. EBINGER. The big loser in this competitive LNG market down the road may be Australia, although most of the big projects they have coming in they have long term contracts for, but they are an extremely high cost producer. It is anticipated Qatar is the low cost producer bar none. Although Australia will be volumetrically larger than Qatar when all the projects come in, it is anticipated the new fields in East Africa will be extremely competitive into the Far Eastern market and even some of the West African projects in Nigeria and Angola will probably find a competitive market there.

The big question in my mind is will the Chinese and the Russians do some very, very large pipeline deals because that would be extremely competitive in the Far Eastern market against any LNG.

Mr. FLEMING. What I am really hearing is that we are seeing a tremendous worldwide opportunity in natural gas that will allow the growth of economies around the world where they will have very competitive energy prices, that they can be good producers for export/import which will be good for consumers, would that be a correct assumption?

Dr. EBINGER. It will not only be good for consumers, but for those of us that do believe in climate change, it offers a unique opportunity to at least use a cleaner fossil fuel. It is not an answer clearly for the long run because it is still a CO2 emitting fuel but we do get some breathing space on the carbon front.

Mr. FLEMING. It is my understanding that just in the last three years, carbon emissions have dropped 15 percent across the U.S. That is due directly to the conversion to natural gas. Really this is a win-win-win. We get better environment on CO2 emissions, we get better prices for manufacturing and production so we get better job environment, higher paying jobs and consumers get a better deal on the cost of energy. I cannot imagine what could be better for this Nation or this world.

Dr. EBINGER. I would agree. The irony is that for those opposed to the U.S. signing the Kyoto Protocol, which we did not sign, ironically because of gas backing out; coal, we have actually met the

reduction targets we would have been obligated to meet had we signed the Kyoto Protocol.

Mr. FLEMING. Thank you, sir.

Mr. LANKFORD. Gentlemen, thank you for being here. I know this was a long afternoon. We got interrupted a couple different times by votes and other things. I appreciate you coming here and the conversation you have had.

I would like to enter into the record the EIA, the NERA, the Deloitte and the Brookings study. Mr. Cicio, we had your study already attached to your testimony, correct?

Mr. CICIO. My written testimony.

Mr. LANKFORD. I wanted to make sure that was added. I want to be able to add the other studies into the record.

Mr. LANKFORD. The issue that we have today is we have around $40 to $50 billion of private money on the sideline that our economy desperately needs. The best gift we can put into our economy is certainty, to know the rules and to fulfill those rules, so there is some gift of predictability as we walk through the process.

Mr. Smith, you have a tall order as we have talked about multiple times and a delicate balancing act. You have somewhere between 300 and 186,000 different comments that have come in that we have to sort through, make a decision and predict what the future economy is going to be based off that. That is no simple thing.

We understand that but dates of when the decisions will be made, then a date for how that decision is going to be done and a process to expeditiously work through that is a huge difference. It is every company that has applied into and how we work through the process, whether it be number 2, 19 or 1 to 19 or whatever it may be, to know they are not six years behind the other one because they were two days behind them in submitting an application, to know there is some sort of process that is really fair to everyone but is also clearly defined.

We don't envy you in that process but we are grateful you are taking it on and do look forward in the days ahead to hearing a clear timeline and a clear process so we will be able to receive that. At any point, if you need to communicate with this committee or we can help you in any way, we want to be an asset to you because of that responsibility.

Did you have a final statement?

Mr. SMITH. I was just going to say I appreciate that comment. We are moving forward with all due haste. We understand that sense of urgency.

Mr. LANKFORD. Thank you.

With that, we are adjourned.

[Whereupon, at 5:36 p.m., the subcommittee was adjourned.]

Congressman Jim Jordan Opening Statement
Subcommittee on Energy Policy, Health Care and Entitlements
"The Department of Energy's Strategy for Exporting Liquefied Natural Gas"

Thank you, Chairman Lankford, Ranking Member Speier, and members of the Committee for holding this hearing to discuss the Department of Energy's proposal for Liquefied Natural Gas (LNG) exports.

The department's plan for exporting LNG would have significant ramifications in Ohio, one of the largest LNG exploration states in the Eastern US. With technology and drilling improvements in recent years, we have seen a jump in our production of LNG, which helps reduce our dependence on foreign sources of energy. Utica Shale development in Ohio is creating high-paying jobs throughout the state in a wide variety of industries.

Expanding LNG production also allows for new trade opportunities and the jobs associated with these opportunities. While the Natural Gas Act of 1938 allows for unfettered LNG exports to Free Trade Agreement (FTA) countries, exports to non-FTA nations are more cumbersome. I support any and all plans to expand exports of LNG to non-FTA countries if these plans are found to be in the public's best interest. Opening new overseas markets to American goods leads to economic growth at home and brings us closer to the goal of doubling our exports by 2015.

As our supplies of LNG increase, it is only reasonable that we streamline our export process, leveling the field for domestic energy producers and supporting hundreds of thousands of jobs in the US. Engagement via free enterprise remains one of the best routes to peaceful, stable, and prosperous societies ever devised.

Thank you again, Mr. Chairman, for calling this hearing and for your work on this issue.

March 19, 2013

House Committee on Oversight & Government Reform
Subcommittee on Energy Policy, Health Care and Entitlements
Hearing on Department of Energy's Strategy for Exporting Liquefied Natural Gas
Chairman James Lankford
Opening Statement

Today we are here to discuss the Department of Energy's strategy and process in reviewing applications to export Liquefied Natural Gas (LNG), specifically to non-Free Trade Agreement countries.

For countries with which we have a Free Trade Agreement covering natural gas, the Natural Gas Act of 1938 requires the Department of Energy to grant applications to export LNG. Such export is deemed to be consistent with the public interest and the authorization must be granted without modification or delay.

For countries with which we do not have a Free Trade Agreement covering natural gas, the Natural Gas Act still presumes the Department of Energy will grant the application to export LNG, unless the Department finds the proposed exportation will not be consistent with the public interest.

The issue we are here to discuss today is NOT if we should export natural gas.

- The US has exported natural gas via pipeline to Canada and Mexico since the 1930s.

We are also NOT here to discuss if we should export liquefied natural gas.

- The US has exported LNG from the Kenai Peninsula in Alaska since 1969
- Again, by statute, the Department must approve LNG exports to FTA countries and the default position of exports to Non-FTA countries is a yes, unless DOE finds such export would not be consistent with the public interest.

And finally, we are NOT here to discuss if we should export liquefied natural gas to non-FTA countries.

- Again, the US has exported LNG from Alaska to Japan, which is not an FTA country, since 1969.
- And in the Lower 48, in May 2011, the Department of Energy granted the first permit to export LNG to Non-FTA countries. That facility is currently under construction in Southwest Louisiana and it will begin exporting LNG within two years.

We are not here even to discover for the first time the economic impacts of LNG exports.

- DOE has already commissioned and released the results of a two-part study. The first part was conducted by the US Energy Information Administration (EIA), and the second part was conducted by NERA Economic Consulting. David Montgomery of NERA was invited to testify today, but due to a last minute scheduling conflict, has submitted written testimony for the record.
- The DOE studies concluded that "for every one of the market scenarios examined, net economic benefits increased as the level of LNG exports increased" and that "exports of natural gas will improve the US balance of trade and result in a wealth transfer into the US."
- Two additional studies have also been commissioned on LNG by Brookings and Deloitte which will also testify today on the risks and potential gains for our economy and global relationships.

As a nation, we have already decided exporting is consistent with our public interest and we will continue to export natural gas by pipeline and LNG to FTA and Non-FTA countries.

So really, the only issue here is how and when the Department will process the approximately 20 remaining LNG export applications in the queue. Every other applicant is now significantly behind the first permit holder, which was permitted almost 2 years ago, and it is essential that the process moves fairly and expeditiously.

Today's question is really a narrow and simple set of process questions, although each answer has enormous implications for our international economic relationships and capital investments at home.

When will DOE make its determination of "public interest" and what are the specific criteria in that decision, especially since the law encourages a default yes answer to exports? The two DOE requested studies are complete. They both show a favorable gain for our nation when we export LNG, now the comment period and replies are also complete;

Will the DOE seek to limit the number of billion cubic feet (bcf) that can be exported per day? Has DOE already set a certain amount of LNG to export, and if so how was that limit chosen? Will the DOE seek to limit the number of export facilities permitted and thus allowed to compete and explore for contracts worldwide? What role will the market or geopolitical goals play in these decisions?

When can potential exporting companies begin competing for contracts? There is not an infinite number of contracts that can be acquired worldwide, if we delay making the decision on permitting, other countries with a more efficient bureaucracy will beat us. The US has a great head start in terms of technology, experience, pipeline infrastructure, and processing. We have developed financial and legal systems to support gas development. But these advantages won't last forever. There are massive shale gas fields around the world. China and India have invested in the Marcellus Shale in order to learn more about our technologies. Currently, Australia has eight LNG export facilities under construction. We have one. The demand window is open, we can step through it or delay until it is closed. If DOE intends to delay the decision to export to reduce the opportunity for global contracts, that is also something we should know. But I don't believe that is the Administration's intent. In December 2012, President Obama said to TIME Magazine, "The United States is going to be a net exporter of energy because of new technologies and what we're doing with natural gas and oil." The President also recognized that these "energy [developments] could have a huge geopolitical consequence." For decades energy has been used as a diplomatic tool against the US. Now with LNG, the US has the potential to flip that and be in a position to use energy as a tool to the benefit of our nation's strategic interests.

Now that DOE has completed its first permit and developed a system - what will be the timing and system to permit the remaining applicants? With billions of private capital at stake, how can you make the process neutral, fair and expedited? How quickly can that process be released and how can we complete the process so our nation can move forward with energy exploration jobs, construction jobs, Midstream jobs and the narrowing of our trade deficit?

Uncertainty destabilizes a free market economy. It is time to provide timelines, decision making criteria and show the fairness of the process to everyone involved. I look forward to the answers to the key issues today.

Opening Statement of Rep. Jackie Speier, Ranking Member
Subcommittee on Energy Policy, Health Care, and Entitlements
Subcommittee Hearing: "The Department of Energy's Strategy for Exporting Liquefied Natural Gas"
Committee on Oversight and Government Reform
March 19, 2013

Thank you, Chairman Lankford, for holding today's hearing. I look forward to what I hope will be an objective and informative discussion of the Obama Administration's process for reviewing the export of liquefied natural gas.

New technologies in horizontal drilling and hydraulic fracturing have led to significant increases in U.S. natural gas production, and a huge growth in our domestic gas supply. For the first time in modern memory, America has the opportunity to become dramatically more energy independent.

As USA Today reported last year: "[Energy independence] is no pipe dream. The U.S. is already the world's fastest-growing oil and natural gas producer. Counting Canada and Mexico, North America is "the new Middle East." Furthermore, at our current pace of production, the Energy Information Administration predicts that the United States will slash its dependence on foreign oil as low as 36% by the year 2035, down from 49% in 2010.

Many have called natural gas a "bridge fuel" to a clean-energy energy future, due to its lower emissions compared to other fossil fuels. Right now, the natural gas-producing and transporting industry wants to cross that bridge in part by exporting U.S. natural gas to foreign countries. Those foreign countries will pay a higher price for natural gas than it currently sells for domestically. That means higher profits, more investment, and more jobs for the oil and gas industry.

But many natural gas-consuming industries, including many businesses who are "Making It in America," want to cross that bridge in a different way. These are companies that use gas as a fuel and as an input to make a variety of products, ranging from chemicals to cars. They want U.S. natural gas to be sold into the domestic market at current prices, which will enable them to make higher profits, and invest in more job creation.

The domestic manufacturing industry warns that if we permit the export of large volumes of our domestic natural gas supply, prices for natural gas in the U.S. will increase. It is unclear what the consequences of a rush to export would be for American manufacturing jobs, as well as for many middle class and lower-income citizens. The federal government should therefore proceed deliberately but cautiously on LNG exports.

In fact, the federal government is legally bound to determine what degree of LNG export is in the public interest before moving ahead full throttle on permitting new export facilities. Currently, the Department of Energy is fulfilling its duty under the Natural Gas Act of 1938 to evaluate the cumulative impact of allowing the natural gas industry to export U.S. natural gas. The Department of Energy commissioned two reports, from the Energy Information Administration and NERA Economic Consulting, and is now reviewing more than 200,000 public comments on those reports, including many that are highly critical of the reports' methodologies and conclusions.

I don't believe it is the job of DOE or the federal government to choose sides in the natural gas marketplace. That is not what the Natural Gas Act requires. However, it is the job of the Department to hear all sides and determine, on balance, how much liquefied natural gas export is permissible within the public interest, and to make sure that its decision is informed by the best data and analysis.

I hope that no one will view today's hearing as an opportunity to influence the DOE's process or to push on the scales of what is in the public interest. The Department is considering all views, and I would hope that is the interest of the Oversight Committee as well. Thank you, and I yield back.

DEI Opening Statement
OGR Subcommittee: "The Department of Energy's Strategy for Exporting Liquefied Natural Gas"

- America's natural gas boom has revolutionized our energy and economic outlook. In just a few years, dismal projections of decline have been replaced by enthusiasm and optimism.

- This acceleration in availability is helping lead a transition from a time of energy scarcity to a time of energy security.

- A recent study by Price-Waterhouse-Coopers found that the shale gas boom has led to a renaissance in U.S. manufacturing.

- The study specifically concluded that increased domestic gas production could result in the creation of one million manufacturing jobs by 2025.

- Unlike many other areas in our economy, cost advantages have resulted in manufacturers actually moving plants back to the United States from overseas.

- The natural gas boom will help us achieve two of our most important national economic goals – deficit reduction through economic growth, and increased competitiveness in the global economy.

- This is a reality that is being acknowledged government-wide.

- A study commissioned by the Department of Energy found that increased domestic natural gas production will support both domestic manufacturing and practical exportation.

- In his 2010 State of the Union Address, President Obama committed to double our exports, and open up new markets by 2015.

- The President can realize this goal if his bureaucracy enacts the policies necessary to unlock all of this potential and move forward and partner with those who can help us fully capitalize on the resource advantage created by our enormous domestic production of natural gas.

- The economic reality is if we don't, others will.

- Australia and Canada are also eager to begin exporting LNG, and are already building terminals and negotiating contracts. If we lose our home-field advantage to other nations, we risk losing out on all the benefits of exportation.

- America competes in the international economy by capitalizing on two of our greatest strengths – the talent and productivity of workforce, and our ability to leverage energy.

- We have a rare opportunity to achieve this. We shouldn't waste it.

Opening Statement
Rep. Elijah E. Cummings, Ranking Member
Hearing on "The Department of Energy's Strategy for Exporting Liquefied Natural Gas"

March 19, 2013

Mr. Chairman, thank you for having this hearing.

Today's hearing focuses on a very important energy policy question: Is it in the public's interest to export increasing amounts of natural gas to foreign markets overseas?

Because of new drilling techniques and other technology advances, the United States is now able to produce natural gas in geological formations that were once impossible to tap. This new technology has given rise to an emerging industry that is transforming parts of America.

This recent boom has reduced the price of natural gas, it has saved consumers money on their electricity bills, and it is fueling a resurgence in domestic manufacturing. Our natural gas has become a competitive advantage in a global market.

Because so much natural gas is being produced, paradoxically it may be placing the natural gas production industry and the jobs in that sector at some risk. As prices fall, some producers may be faced with the prospect of suspending operations or even going out of business.

To address that concern, some companies are now seeking to export gas to foreign markets. While that could be a very good thing for the U.S. producers, it raises questions that must be addressed.

First, will exports drive up prices for domestic U.S. manufacturers and consumers? Multiple studies have shown that they will. That will mean higher gas prices for consumers, higher prices for the manufacturers we want to support, and potentially higher prices for goods and services for everyone.

The producers contend that increasing exports will increase jobs, and that too must be a consideration. By converting import terminals to export terminals, there is likely to be an increase in the number of jobs in certain sectors. But we also need to understand whether we

will be supporting this set of jobs—those in the energy sector—at the expense of another set of jobs in U.S. manufacturing that rely heavily on natural gas in their operations.

Another question we must answer is whether exporting natural gas will more quickly deplete U.S. supplies just as the country is moving towards greater energy independence. For years, we have heard that the United States must reduce its dependence on foreign energy sources. By increasing these gas exports, are we trading part of that independence for short-term profits?

Third, complex environmental questions regarding some of the techniques used in gas production have not been resolved. I believe it critical that we give ample attention to how increased production may exacerbate those concerns.

Mr. Chairman, as we will hear today, it is the Department of Energy's job to determine whether exporting more natural gas is in our nation's best interests. But we will also hear today that the studies commissioned by the Department are subject to debate. Some believe that recent studies demonstrate a clear benefit from gas exports, while others believe the studies point to the opposite conclusion.

Although we may begin to answer some of these important questions at today's hearing, I believe will also learn that there are a number of key questions that need more careful study. Thank you again for holding this very important hearing.

The following reports submitted during the hearing can be found at the following sites:

The U.S. Energy Information Administration "Effects of Increased Natural Gas Exports on Domestic Energy Markets" as requested by the Office of Fossil Energy:

http://www.eia.gov/analysis/requests/fe/pdf/fe_lng.pdf

Deloitte Center for Energy Solutions "Made in America The Economic impact of LNG exports from the United States":

http://www.deloitte.com/view/en_US/us/Services/consulting/9f70dd1cc9324310VgnVCM1000001a56f00aRCRD.htm#

Brookings Energy Security Initiative "Liquid Markets: Assessing the Case for U.S. Exports of Liquefied Natural Gas":

http://www.brookings.edu/~/media/research/files/reports/2012/5/02%20lng%20exports%20ebinger/0502_lng_exports_ebinger

NERA Economic Consulting "Macroeconomic Impacts of LNG Exports from the United States:

http://www.fossil.energy.gov/programs/gasregulation/reports/nera_lng_report.pdf

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