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U.S. ENERGY ABUNDANCE: EXPORTS AND
THE CHANGING GLOBAL ENERGY LANDSCAPE

TUESDAY, MAY 7, 2013

House of Representatives,
Subcommittee on Energy and Power,
Committee on Energy and Commerce,
Washington, D.C.

The subcommittee met, pursuant to call, at 10:05 a.m., in Room 2123, Rayburn House Office Building, Hon. Ed Whitfield [chairman of the subcommittee] presiding.

Present: Representatives Whitfield, Scalise, Hall, Shimkus, Pitts, Terry, Burgess, Latta, Cassidy, Olson, McKinley, Gardner, Pompeo, Kinzinger, Griffith, Barton, Johnson, Upton (ex officio), Rush, McNerney, Tonko, Engel, Green, Capps, Doyle, Barrow, Matsui,

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Castor, and Waxman (ex officio).

Staff Present: Nick Abraham, Legislative Clerk; Charlotte Baker, Press Secretary; Matt Bravo, Professional Staff Member; Allison Busbee, Policy Coordinator, Energy & Power; Tom Hassenboehler, Chief Counsel, Energy & Power; Jason Knox, Counsel, Energy & Power; Ben Lieberman, Counsel, Energy & Power; Nick Magallanes, Policy Coordinator, CMT; Brandon Mooney, Professional Staff Member; Mary Neumayr, Senior Energy Counsel; Chris Sarley, Policy Coordinator, Environment & Economy; Jeff Baran, Minority Senior Counsel; Alison Cassady, Minority Senior Professional Staff Member; and Caitlin Haberman, Minority Policy Analyst.

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Mr. Whitfield. I would like to call this hearing to order this morning. Today we are going to have a hearing on the U.S. energy abundance, exports and changing global energy landscape. And at this time I would like to recognize myself for 5 minutes for an opening statement. And I will be introducing members of the panel, but I will probably yield a few seconds to my friend from Ohio, Mr. Johnson, to introduce one member of the panel from his district.

But this is an exciting day, a very important hearing. And we do thank the witnesses for being here with us today. We look forward to your testimony. All of you have had unique experiences in this area, and we know that your testimony will be quite valuable.

America's growing energy production is a game changer, and today's hearing, entitled "U.S. Energy Abundance: Exports and Changing Energy Landscape," explores the geopolitical benefits of the U.S. becoming a world leader in energy production and exports.

As we have discussed in previous hearings, America's energy abundance is creating employment opportunities and growth at a time when little else in the economy is going as well, and that alone is enough reason to support domestic energy production. But while this energy abundance is a source of jobs at home, it can also be a force for good and competition around the world, and it is this potential

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that we hope to address today.

Until a few years ago most of us assumed that the U.S. was well past its peak in terms of domestic energy production and that we would become increasingly dependent on imports, particularly oil imports from OPEC nations. Many feared the same thing was happening with natural gas, and some even worried about an emerging OPEC-like natural gas cartel dominated by Russia and Iran. This committee held many hearings discussing the grave geopolitical consequences of global energy markets dominated by nations that do not necessarily share our values and who are not shy about using energy exports to exert leverage over other countries.

But now the tables are turning, thanks to American innovations in hydraulic fracking and directional drilling that is expanding the supply of domestic oil and natural gas. Instead of being beholden to energy exporting nations, we are fast becoming one ourselves.

Perhaps nowhere is the reversal more stark than with natural gas. Debates about natural gas used to center around whether to permit facilities to import supplies of liquid natural gas from abroad to help make up for dwindling domestic production. But now these would be import terminals are being repropoed as export terminals. The reason for this reversal is that domestic natural gas production is now rising so fast that there is more than enough to meet domestic demand affordably and export the surplus to nations that need it, such as Japan

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and Great Britain. By taking advantage of these expert opportunities we can help our own economy and at the same time strengthen our ties with key allies.

I might add that the benefits of energy exports also apply to coal, and I would like to draw your attention to a May 1st Wall Street Journal article that chronicles how U.S. coal exports to Eastern Europe are helping to displace Russian natural gas and neutralize Russian influence. And even Bulgaria was able to get a 20 percent reduction in price for natural gas its buying from Russia because of additional coal that they are using.

Not only should we be focused of course on natural gas and oil and coal, but we need also to focus on pipelines, port facilities, and other infrastructure investments necessary to make full use of our energy abundance.

So this is a vitally important hearing, and as I said, we are going to look forward to your testimony because we are at a threshold of great opportunity in this Nation to be energy independent.

[The prepared statement of Mr. Whitfield follows:]

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Mr. Whitfield. At this time, I recognize the gentleman from Ohio, Mr. Johnson, for the purpose of an introduction.

Mr. Johnson. Thank you, Mr. Chairman. I do consider it a distinct honor. You talk about energy abundance and job creation through domestic energy production, nowhere in the Nation is that happening any more prevalently than in eastern and southeastern Ohio. We sit on top of the Marcellus and the Utica shale, and so many, many opportunities are coming our way.

No one knows that better than one of our own county commissioners, Mr. Michael Halleck from Columbiana County. Commissioner Halleck is a stalwart believer in accountable, responsible government. He has got a track record that proves that. Every time that I go into Columbiana County to talk about energy production, to meet with oil and gas companies, to talk with business owners who are working hard to create jobs and make ends meet for the residents of our district, you can find Michael Halleck close by. He is engaged. I am very honored to have him with us today. I think you are going to enjoy his testimony.

Mr. Chairman, I yield back. Thank you.

Mr. Whitfield. My time has expired. Thank you very much.

At this time, I recognize the gentleman from California for a 5-minute opening statement, Mr. Waxman.

Mr. Waxman. Thank you, Mr. Chairman.

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Today's hearing is the subcommittee's first opportunity to focus on liquefied natural gas or LNG exports. I think it is an important topic and I am glad we are having this hearing. There is no question that a significant energy transition is underway here in the United States. State and Federal renewable energy policies are paying off. We have doubled our capacity to generate renewable electricity from wind and solar just in 4 years. Cheap natural gas is also helping to transform our electricity sector. This market reality is driving a shift away from the use of polluting coal to generate electricity.

These changes are positive developments, and we will hear a lot about the geopolitical implications of America's energy abundance. We will also talk about the impacts on America's economy, American jobs, and America's balance of trade.

But I want to address a different issue: the relationship between U.S. energy markets and climate change. Climate change is the biggest energy challenge we face as a country. We can't have a conversation about the global consequences of America's energy policy without also having a conversation about climate change. In November, the International Energy Agency concluded that if the world does not take action to reduce carbon pollution before 2017, then it will be impossible to prevent the worst effects of climate change because of the carbon dioxide emissions that would be locked in by energy infrastructure existing at that time. That means that the energy

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policy decisions that we make today will have a real and direct impact on whether we can prevent the worst impacts of global climate change in the future.

It is through this lens that we need to examine whether we should export LNG to other countries. LNG export terminals are huge multibillion-dollar infrastructure investments that will last for decades. We should understand the climate impacts before these facilities are built, not after.

I have an open mind about LNG exports. There is a case to be made that exports of LNG may allow other nations to move from coal to natural gas. That could lead to reduce carbon emissions. In addition, a number of studies predict that LNG exports would have generally positive economic effects. There is also a case to be made that free trade in natural gas may help our allies in Europe and Asia who are currently dependent on higher-priced natural gas imports from Russia and the Middle East.

But we also need to consider the impact LNG exports could have on domestic greenhouse gas emissions. Liquefying and transporting natural gas is an energy-intensive process that would generate significant carbon pollution. LNG exports would increase the domestic price of natural gas, which could increase U.S. carbon emissions as a result of a shift back to coal for electricity generation. And methane itself is a potent greenhouse gas. It is 25 times more potent

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than carbon dioxide in warming the planet. Exports would stimulate more domestic natural gas production, which can emit substantial amounts of methane if not controlled.

As the Department of Energy considers the pending application to export LNG, I hope they will develop concrete answers so that we can understand the climate impacts of moving in this direction.

I thank the witnesses for being here, and I look forward to there testimony. And I would be pleased to yield a minute that I have left to any member on the Democratic side who wishes to use it.

Mr. Green, I yield back the balance of my time.

[The prepared statement of Mr. Waxman follows:]

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Mr. Green. Thank my ranking member, and I want to welcome our panel. I appreciate particularly our two former Senators working with you as a House Member years ago.

I come of a district in Houston that actually is a large petrochemical complex, so we are concerned about exporting because we have seen expansion of our chemical industry substantially over the last 2 or 3 years. But I still think there is a possibility we can share with the world some of not only our expertise in drilling, but also our natural gas. In fact, we were on a committee trip, or at least a trip a few weeks ago, and some members on the Republican side were there. The German Chancellor asked if we would be able to export natural gas to Germany, and I know one of my Pennsylvania colleagues said they would like to send Pennsylvania and Ohio gas. I told her we would be glad to send Texas gas, too, but it needs to be done in a reasonable manner.

And, my Ranking Member, thank you again for yielding to me.

[The prepared statement of Mr. Green follows:]

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Mr. Whitfield. The gentlemen's time has expired. At this time I recognize the chairman of the full committee, Mr. Upton of Michigan, for 5 minutes.

The Chairman. Well, thank you, Mr. Chairman.

Today's hearing continues the subcommittee's look into what is becoming a welcome theme: how American energy abundance is rewriting the playbooks for all levels of energy policy. This new strategy is a reality, resulting from advancements in innovation and technology, has game-changing potential for America's energy future with more jobs, lower prices, and, yes, less volatility, as we will hear today, has far-reaching implications abroad as well.

As we learned at our February hearing, U.S. energy resources are vastly abundant and growing, with technology continuing to evolve and new areas of the country becoming centers for exploration and production. It is not just Texas, Alaska, and Louisiana anymore, but places like Illinois, Ohio, Michigan, even California who are in the process of developing or considering developing new oil and gas resources from domestic shale.

This diverse geographic abundance is helping to ease the volatility of the recent past, where prices were becoming increasingly vulnerable to hurricanes and geopolitical turmoil, to create a new North American gas market that is becoming the envy of the world.

America's natural gas movement is creating competitive

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opportunities domestically for manufacturing and technology, as well as international opportunities to help our allies reduce their reliance on geopolitically unstable regions of the world. And I believe that our abundance means that we can have both new jobs from a renaissance in the energy and manufacturing sectors, along with new diplomatic strength from using these resources to reinforce our ties to important allies and trading partners. Our changing energy landscape will in fact produce both economic growth and real gains.

To think that America in just a short period of time would be at such a strategic advantage to use our natural resources to not only help our country domestically with new jobs in energy and security, but to also influence Russia's ability to wield an energy weapon over its European customers, is truly remarkable. Yet as today's witnesses will tell us, that is exactly what is beginning to happen.

This hearing should also remind us that we must remain steadfast in our support for efforts to maximize use of our energy resources. As American shale production expands from natural gas to oil, we have to embrace our newfound capability to lift and shift the power structure with Venezuela, Russia, and the Middle East back to our favor and strive to avoid needless litigation or bureaucratic delays that threaten this realignment.

We are in the midst of a budding success story about American prosperity, jobs, and national power. We are continuing to produce

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valuable energy resources safely and responsibly around the country. But the benefits do not stop there, as emissions also continue to decline.

I look forward to the testimony today, including Senators Johnson and Dorgan. You have been good friends and we respect your valuable expertise, and I look forward to that, and would yield to our Republicans on our side.

Mr. Barton.

[The prepared statement of The Chairman follows:]

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Mr. Barton. Thank you, Mr. Chairman. And thanks to Chairman Whitfield for holding this hearing. It is good to see Senator Johnson and Senator Dorgan. I worked with them in the past, and it is good to see you here at the witness table.

This is an important hearing. I don't think it is a secret that I am a supporter of free markets and a robust American energy policy. Currently our oil and gas sector is creating about 9 million jobs a year and sending in taxes more than \$30 billion to the Federal Treasury every year.

We have the blessing of the Lord on our side in the United States that the latest estimates, although it is difficult to estimate, we think over 2,000 trillion feet of natural gas resides beneath our lands in the United States, 2,000 trillion feet. Because of past laws, we give the Department of Energy the right to make a decision on exports and natural gas, if it is not to a country where we already have a free trade agreement. There are currently 19 of those applications pending, one has been approved. It would be my hope that several more are approved in the near future.

If you believe in free markets this is a win-win. You only make an agreement if it benefits the seller and it benefits the buyer. In this case the seller is the American economy and the jobs that are created in America. And the winner overseas is the increased economic prosperity because they get natural gas from the United States that

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is orders of magnitude less expensive than it is from any other supplier.

So, Mr. Chairman, this is a good hearing, and I look forward to the witnesses and then asking them questions. And with that I would yield back to the chairman.

[The prepared statement of Mr. Barton follows:]

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Mr. Whitfield. The gentleman's time has expired. At this time I recognize the gentleman from Illinois, Mr. Rush, for a 5-minute opening statement.

Mr. Rush. I want to thank you, Mr. Chairman, and I want to join with my colleagues in welcoming our expert witnesses, particularly our former Senators, Senator Johnston and Senator Dorgan.

Mr. Chairman, with the technological advances in the area of energy production and the prevalence of shale oil and gas due to hydraulic fracturing, or fracking, today's hearing is both timely and very necessary. Not long ago experts predicted that the U.S. would be forced to rely on increased natural gas imports in order to meet our energy demands. However, today we are seeing a boom in domestic production of oil and natural gas due to fracking and horizontal drilling. And now we must consider whether the U.S. should become a net exporter of natural gas, and, if so, over what period of time.

Between 1990 and 2012, Mr. Chairman, natural gas production in the U.S. increased by 34 percent, and the EIA projects that under existing policies natural gas production will rise by an additional 39 percent by the year 2040. In fact, in a National Journal article dated April 30th, 2013, entitled "The U.S. Has Much, Much More Gas and Oil Than We Thought," it was noted that the U.S. has double the amount of oil and 3 times the amount of natural gas than previously thought stored deep under the States of North Dakota, South Dakota, and Montana.

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And this was according to new data that was released by the Obama administration.

The article went on to note that in just the Bakken and Three Forks plays alone the U.S. Geological Survey estimated that there are 7.4 billion barrels of recoverable oil and 6.7 trillion cubic feet of natural gas waiting to be tapped. While the EIA predicts that under existing policies U.S. total natural gas consumption will increase from 24.4 trillion cubic feet in 2011 to 29.5 trillion cubic feet in 2040, the agency also notes that as domestic production outpaces consumption the U.S. could become a net exporter of natural gas by the year 2020. In fact, Mr. Chairman, President Obama reiterated this fact personally this past weekend during the development forum in Costa Rica where he indicated that he may be close to making a decision on whether or not the U.S. should become a net exporter of natural gas.

In an E&E article published yesterday, on May 6th, entitled, quote, "Obama Says U.S. Likely to Be a Gas Exporter By 2020," end of quote, President Obama is quoted discussing this very same issue. He said, and I quote, "Because of the extraordinary advances in technology that we have made in the U.S., we are likely to be a net natural gas exporter as soon as 2020. I have got to make a decision," he says, "an executive decision broadly about whether or not we export liquefied natural gas at all," end of quote.

So, Mr. Chairman, as this discussion of potentially exporting LNG

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heats up, I join with my colleagues in commending you for convening today's hearing where we will both be able to learn more from our distinguished panel on both the benefits and potential negative impacts of this pertinent issue as it relates to the economy, to jobs, to manufacturing, and to the U.S. trade balance, as well as the impact on climate change. More importantly, Mr. Chairman, I look forward to hearing how LNG exports would impact the pocketbooks of ordinary consumers so that American families are not subjected to adverse consequences, those that are intended and those that are unintended. Mr. Chairman, I look forward to this hearing, and I yield back the balance of my time.

[The prepared statement of Mr. Rush follows:]

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Mr. Whitfield. Thank you very, much Mr. Rush.

And that concludes the opening statements today. So now we get to listen to the opening statements of our distinguished panel. And at this time I would like to introduce the panel members. First, on my left, Senator Bennett Johnston, who is from the great State of Louisiana and had a distinguished career in the U.S. Senate. And one of the many areas that he was certainly involved in was in energy. He is now the chairman of Johnston & Associates.

And, Senator, we are glad to have you here with us today and we look forward to your testimony.

We have Senator Byron Dorgan from the great State of North Dakota. He also had a distinguished career in the U.S. Senate and certainly is a well-versed public policy person on energy issues. And we look forward to his testimony as well. And he is, by the way, also the co-chair of the Bipartisan Policy Center, that recently came out with a document about the energy needs of America and directions that we should be moving.

We have Mr. James Bradbury, who is a senior associate, Climate and Energy Program, at the World Resources Institute.

And we appreciate your being with us.

We have Mr. Michael Breen, who is the executive director for the Truman National Security Project. We have Mr. Mike Halleck, who has already been introduced by Bill Johnson, but Mr. Halleck's the

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President of the Columbiana County Board of Commissioners and certainly has worked a lot on energy issues. And we have Ms. Amy Jaffe, who is the executive director for energy and sustainability, UC Davis Graduate School of Management.

So thank you very much for joining us today.

And at this time I am going to recognize each one of you for 5 minutes, and there is a little box on the table and the red light will come on when your time is up. So you can just be aware of that. And at this time I recognize Senator Johnston for 5 minutes for his opening statement.

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STATEMENTS OF HONORABLE J. BENNETT JOHNSTON, CHAIRMAN, JOHNSTON & ASSOCIATES; HONORABLE BYRON DORGAN, CO-CHAIR, BIPARTISAN POLICY CENTER; JAMES BRADBURY, SENIOR ASSOCIATE, CLIMATE AND ENERGY PROGRAM, WORLD RESOURCES INSTITUTE; MICHAEL BREEN, EXECUTIVE DIRECTOR, TRUMAN NATIONAL SECURITY PROJECT; MIKE HALLECK, PRESIDENT, COLUMBIANA COUNTY BOARD OF COMMISSIONERS; AND AMY JAFFE, EXECUTIVE DIRECTOR, ENERGY & SUSTAINABILITY, UC DAVIS GRADUATE SCHOOL OF MANAGEMENT

STATEMENT OF J. BENNETT JOHNSTON

Mr. Johnston. Thank you, Mr. Chairman, Ranking Member Rush, ladies and gentlemen of the committee. The Department of Energy says we have 100 years of natural gas. They say that by 2020 supply will go up by 40 percent, while demand will go up only 20 percent. The amount of natural gas seems to be growing every week. Just last week The Washington Post reported that Williston Basin has 3 times as much natural gas as they thought. They also said, by the way, that China has 50 percent more natural gas than the United States has.

Now, DOE commissioned to study by the Cambridge Energy Research Associates, a definitive study, which indicates that we can safely export natural gas without any untoward effect on the price -- no price spikes, no difficulty in terms of supply.

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Now, that question is traversed, is argued against by some of the chemical companies, principally Dow Chemical, who says, if you have unfettered exports, then that is going to lead to supply disruptions, price spikes, and other difficulties. So the issue I would like to speak about today is the question of how to allocate this huge beneficence of natural gas in the United States. Is it by regulation or is it by the free market?

Now, people in the market will point out that it takes 5 to 7 years and \$10 billion to \$20 billion to have an export terminal, with the trains and the ships and the D gas facilities on the other end. And don't ever think that all of those who put up a few hundred dollars to apply for their permit are going to be able to make it to the finish line.

In my judgment, and my experience has been that the market is the best way to do that allocation. Let me give you my experience with markets because it is pretty extensive. My first subcommittee was Production and Stabilization of the Banking Committee. We had jurisdiction of President Nixon's wage and price controls. We had hearings that indicated that it was a disaster -- shortages, dislocations, supply disruptions -- and I think our hearings had a lot to do with making the case to suspend those wage and price controls.

Then the Federal Power Commission -- some of you remember the Federal Power Commission -- was regulating the price of natural gas

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in order to protect consumers. The problem was they set the price so low that they dried up the supply. In the cold winter of 1976-1977 hundreds of thousands of employees in the Midwest were out of work because there was no natural gas, the regulators didn't know how to regulate. So in that cold winter we passed in 5 days the emergency natural gas bill -- 5 days we passed that bill.

And we came along the next year with the Natural Gas Policy Act. I think one or two of you were here in this room for that year-and-a-half conference committee. What we did is deregulate the price of natural gas by degrees between 1978 and January the 1st, 1985. It was the most controversial bill you can imagine. All three networks -- we only had three networks at that time -- they were here, and, oh, my gosh, you know, the regulator said it is going to ruin things, the price is going to shoot through the roof, the supply is going to dry up. Guess what? Come January the 1st, 1985, the supply was adequate, the price actually went down, and we proved, absolutely proved that the free market works in commodities and particularly in natural gas.

Then we had the Fuel Use Act of 1978 where they prevented natural gas from being burned under boilers, and that turned out to be a disaster, the Congress didn't know how to allocate the highest and best use of natural gas. And just in case you think that since I left the Senate that the regulators are doing any better job, just look at electric cars. The President says we are going to have a million

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electric cars in a couple of years. We have got less than 100,000 now.

And how about ethanol? We are supposed to have 36 billion gallons of ethanol, over half of that cellulosic ethanol. Right now, according to their estimates, we should be having 500 million gallons of cellulosic ethanol. You know how many we have got? Less than a million gallons, less than 1/500, and the prospects are not any better.

So the question is, does anyone really believe that the Department of Energy years in advance, 5 to 7 years in advance, can really accurately predict supply and demand and predict who is going to be able to come up with billions of dollars and make decades-long supply and demand offtake agreements? They can't do it.

You know, markets are dynamic. There are many factors which are working which change by the month, some change daily, labor rates, interest rates, diesel cost, steel, pipeline capacity, NIMBY risk, regulatory risk, capital availability, technology changes. All of those things are working rapidly. And the way to allocate those, that great beneficence of natural gas, is to let the market do it because it can react faster than the regulators can react.

Thank you, Mr. Chairman.

Mr. Whitfield. Thank you, Senator Johnston.

[The prepared statement of Mr. Johnston follows:]

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Mr. Whitfield. And, Senator Dorgan, you are recognized for 5 minutes.

STATEMENT OF BYRON DORGAN

Mr. Dorgan. Mr. Chairman, thank you very much.

I am here on behalf of the Bipartisan Policy Center. Senator Trent Lott and I co-chaired, along with two others, a major study on energy and have produced this document. This is the executive summary. I would encourage all of you to get it. It is an unbelievably important source book. And we are hoping that the House and the Senate will hold a hearing on this because we have tried to create what we think could represent bipartisan opportunities for policy changes in the area of energy.

I left the House, by the way, in 1992, went to the Senate, spent my next 18 years there. The last time I was in this room in 2007 as an energy conferee, and at that point FERC had said we were running out of natural gas, 2007. So times changes a bit. That is only six years ago, 5-1/2 years ago. We were running out of natural gas. An old Indian chief once said that the success of a rain dance depends a lot on timing. Well, timing is everything, and timing here with respect to where we were in 2007 versus now is unbelievably interesting. So let me talk about four major ways that the energy circumstances have

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changed on the planet.

First of all, U.S. supply. We are producing more, a lot more oil and gas, but also producing more renewable energy. And the oil and gas that comes from innovation in combining horizontal drilling with hydraulic fracturing. So that is all good news. We are producing more, that is good news for our country, and not just more fossil, we are producing more renewable, which is good news for our country.

Efficiency, which is the fifth fuel. A lot of people don't understand how much efficiency has contributed to where we are as a country. And so that is very important, and there are major U.S. benefits as a result of this.

Second significant issue, we add 200,000 people to the planet every single day. We added Dallas, Texas, net to the planet every week. We are headed towards 9 billion people. They are going to want to have refrigerators, washing machines, and air conditioners. They are going to want to drive cars as well that are going to need to stop at a fuel station once or twice a week -- or let's hope once every 2 weeks. My point is the growing demand as a result of increased population will continue.

So number one, we are producing more, that is good for our country. Number two, there is going to be substantial growth in demand on the planet.

Number three, you can't come to the intersection of discussing

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energy without understanding that you have to be concerned about the climate and climate change issues. It is clear to me that the wide consensus will be, is and will be in the future that we need a lower carbon future. That is going to play a role. Deny, as some will, energy policy is linked to environmental issues.

And number four, you can't discuss all this without understanding there remains an oil cartel on this planet that sets international pricing. We need to understand that because that plays a role in our lives as well.

Now, let me talk about the Bipartisan Policy Center's report. The major issues there are diverse sources. We say, yeah, this is great news on oil and gas, it is transformative for our country in lots of ways, good for us. We believe we should continue producing. I offered the amendment in the 2009 bill that didn't get to the floor of the Senate to open up the eastern Gulf. I mean, we should continue producing. But diverse sources means also continue to push renewables as well.

And we also talk about improving productivity. That means transmission, CAFE, transportation fuels, all of those areas. We talk about innovation. Innovation is critically important for our country. We must innovate to succeed.

And then finally governance. We have 20 Federal agencies that have some part of the energy policy. I mean, how do you have an orchestra without a band director? And yet we have 20 different

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agencies that play a role in energy policy.

So we have put together a set of 50 recommendations. And, again, I hope very much both the House and the Senate will hold hearings on these sets of recommendations on energy policy. It describes how on a bipartisan basis we can make progress in a Congress that seems unbelievably gridlocked. We had an advisor group of 20 people, CEOs from every part of the political spectrum, public policy groups and corporations and so on, as we created this document.

Now let me talk at the end of this with respect to the issue of exports. The export of natural gas, it seems to me, will be continuing to play a significant role. What we decided is we believe the market should make the decision about the exports of natural gas. And I know some are worried, well, if we export natural gas we are going to see increases in domestic prices. Look, we have already doubled our exports of natural gas to both Canada and Mexico. A lot of people don't know that. We are piping natural gas to both of our neighbors and have doubled that since 2007.

I think it is far more likely that domestic prices will affect exports than it is that exports will affect domestic prices. And so we decided in this report that the market should make the judgment about the exports of natural gas.

So, Mr. Chairman, again, I am going to ask the Bipartisan Policy Center if we might provide -- I think I just gave the last copy I had

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to Bennett Johnston, this is the full copy -- but I would love to have all of you have a copy of this. It is an unbelievably good source book for virtually all areas of energy with 50 recommendations that I think could advance the bipartisan interest of this country and this Congress.

Mr. Whitfield. Thank you Senator Dorgan.

[The prepared statement of Mr. Dorgan follows:]

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Mr. Whitfield. I know many of us have copies of it but we would be happy for you all to supply it to the committee so we can make sure everyone has it.

[The information follows:]

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Mr. Whitfield. Mr. Bradbury, you are recognized for 5 minutes.

STATEMENT OF JAMES BRADBURY

Mr. Bradbury. Thank you and good morning. Thank you for the opportunity to contribute to the deliberations of this subcommittee. My name is James Bradbury. I am a senior associate in the Climate and Energy Program at the World Resources Institute. WRI is a nonprofit, nonpartisan think tank that focuses on the intersection of the environment and socio-economic development.

I am pleased to be here today to offer WRI's perspective on the climate implications of U.S. liquefied natural gas exports. I encourage this committee to consider not just the economic and geopolitical opportunities of LNG, but also the environmental, and particularly climate-related implications. In my testimony today I want to emphasize a number of points that are often overlooked in this discussion, in particular fugitive methane emissions and the cost-effective solutions available for reducing them today.

LNG exports will lead to an increase in domestic production of shale gas, which will have important environmental implications, including an increase in U.S. greenhouse gas emissions. One major emission source is leaks from natural gas infrastructure. Methane is the primary component of natural gas and a potent greenhouse gas, with

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a warming effect that is at least 25 times greater than carbon dioxide. These fugitive emissions represent lost product and reduced revenue for companies and governments, with negative consequences for air quality, local environment, and the climate.

In 2011 methane leaks from domestic natural gas infrastructure resulted in more greenhouse gas emissions than all of the direct and indirect emissions from U.S. iron and steel, cement and aluminum manufacturing combined. These upstream emissions, along with emissions associated with the liquefaction, transport, and regasification of LNG, significantly reduce the relevant advantage that exported natural gas would have over coal or oil from a climate perspective. The bottom line is that the projected expansion of domestic oil and gas production increases the risk of higher greenhouse gas emissions if proper protections are not in place.

The impact of LNG exports on global carbon dioxide emissions is expected to be fairly minor. The International Energy Agency estimates that an expanded global market for natural gas would reduce global carbon dioxide emissions by a mere 0.5 of 1 percent by 2035. But these scenarios do not consider associated upstream methane emissions. The U.S. EPA estimated that the scale of leaked methane from global natural gas and oil systems is projected to be 10 times greater than IEA's estimated CO2 reductions resulting from a future with more abundant natural gas.

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Ultimately U.S. policies are needed to reduce these fugitive methane emissions if natural gas and LNG are to be part of the solution to climate change. WRI research has found that such policies are among the most important steps that the U.S. can take today to help meet our greenhouse gas emissions reduction goals.

The good news is that most strategies for cutting leakage are highly cost effective and the EPA's recently finalized rules are already having emissions benefit. But there is more work to be done. By stepping up to address these emissions the United States has an important opportunity to improve our economic and geopolitical standing by showing leadership in addressing global climate change. We can do this through commonsense policies that promote the development, deployment, and export of low-emissions technologies and practices that will allow for the cleaner production and more efficient end use of natural gas here in the U.S. and internationally.

While there are some benefits to increased natural gas production, there are also risks and associated costs. Further expanding our reliance on fossil energy resources exposes us and our allies to the destabilizing effects of climate change. In its 2010 Quadrennial Defense Review the Department of Defense found that climate change could have significant geopolitical impacts around the world, including weakening fragile governments, food scarcity, spread of disease, and mass migration.

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For energy markets to serve the public interest the price of energy must reflect its true cost. Society pays when our health care premiums rise due to the harmful health effects caused by high ozone levels and other air pollution. Taxpayers pick up the tab for climate change when more frequent extreme weather events cause increasing damage to our communities and critical infrastructure.

Yet every day that we take no policy action on climate change we make the policy choice to let climate change run its course. The present course ignores the overwhelming consensus of climate scientists who have been warning for decades that rising greenhouse gas emissions will cause the planet to warm, sea levels to rise, and the weather to become more extreme. It is indisputable that these climate changes are already happening today, in many cases much more quickly than expected. Urgent action is needed.

I would be glad to take questions. Thank you.

Mr. Whitfield. Thank you, Mr. Bradbury.

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[The prepared statement of Mr. Bradbury follows:]

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Mr. Whitfield. Mr. Breen, you are recognized for 5 minutes.

STATEMENT OF MICHAEL BREEN

Mr. Breen. Thank you, Mr. Chairman, Ranking Member Rush, members of the Committee. Thank you for inviting me here today to appear before the committee to discuss the geopolitical and strategic implications of rising U.S. energy production, oil in particular. I serve as the executive director of the Truman National Security Project and Center for National Policy, two organizations dedicated to forging strong, smart, and principled national security policy for America.

As a former Army captain and an Iraq and Afghanistan combat veteran, I am also proud to be one of the leaders of Operation Free. That is a nonpartisan nationwide coalition of more than 5,000 veterans who believe that our dependence on oil poses a clear national security threat to the United States.

To be clear, oil is immensely important to our economy and will remain so for the foreseeable future. Its value goes far beyond its utility as a liquid fuel. Petroleum is a key input in advanced manufacturing, pharmaceuticals, agricultural products, and a host of other applications. Unfortunately, however, a near total dependence on oil as a fuel has eclipsed petroleum's other contributions, which threatens our prosperity and our security.

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Our dependence on oil as a single source of transportation fuel poses a clear national security threat. As things now stand, our modern military cannot operate without vast access to vast quantities of it. Our economy is equally dependent. More than 93 percent of our transportation sector is reliant on oil.

Today oil is a vital strategic commodity, a substance without which our national security and prosperity cannot be sustained. Until and unless we develop alternatives, the United States has no choice but to do whatever it takes in order to obtain a sufficient supply of oil. Oil is a fungible product, traded globally, with prices set on a world market. In other words, global supply and global demand set the market and drive the price, not American supply and American demand alone. When it comes to the price at the pump there is no such thing as foreign oil.

Recent technological advancements, such as horizontal drilling and advanced hydraulic fracturing, are promising. They offer the chance to increase domestic production, allowing us to reach supplies of oil that were until recently too expensive or impossible to obtain. These advances have led some to claim that the United States is suddenly capable of producing enough oil domestically to meet our needs. They believe that this will solve our oil-related economic and national security problems.

Yet, even if U.S. oil imports dropped dramatically, geostrategic

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problems would persist. And though we do not always share the same oil sources as our international partners, our security is put at risk by their volatility. For instance, in December 2011, Iran threatened to close the Strait of Hormuz, a waterway that ships one-fifth of the world's supply of oil. This resulted in global oil prices jumping 2 percent, exceeding \$100 a barrel. Words alone were able to drive up the cost of oil in markets from the Gulf to Asia.

Meanwhile, global demand for oil is rising at a breathtaking pace, with no sign of slowing down in the foreseeable future. While American demand has been very high but relatively static for some time, demand in China, India, and the developing world is skyrocketing. According to the Energy Information Administration, America's oil consumption is expected to grow by 11 percent over the next 2 decades. Meanwhile, in that same timespan, China's oil consumption is expected to grow by 80 percent and India's by 96 percent. And by the end of the decade, China alone is expected to sell more than 30 million cars a year. To put that in perspective, last year about 76 million cars were sold worldwide.

It is unrealistic at best to imagine that increasing production can somehow keep up with such dramatically rising demand. Further, because the price of oil is set on a global market, it is subject to events outside of our control or influence. All of us agree, I am sure, that the United States should not be subjected to the whim of hostile

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or unstable regimes with nationalized oil assets.

The U.S. currently controls and secures the world's most critical shipping routes. Some contend that, producing more at home, we could relinquish many of those responsibilities. Indeed, a recent RAND study estimated that if the military were to stop defending oil supplies and sea routes from the Persian Gulf to the United States, it would save between 12 and 15 percent of the entire defense budget, more than \$90 billion annually.

But imagine if we did disengage from this duty. A number of our adversaries would recognize this is an opportunity and our allies would be faced with serious challenges. Look, for instance, at the Asia-Pacific market. Eighty-five percent of the oil shipped through the Straits of Hormuz today, which supplies one-fifth of all oil traded worldwide, goes toward Asia, not the United States. The oil then transits the Indian Ocean and enters the North Pacific through the Straits of Malacca, a razor-thin chokepoint constantly under threat. According to EIA, if the strait was blocked, nearly half of the world's shipping fleet would be required to reroute. Hostile actors have taken notice. According to documents seized during the raid that killed Osama Bin Laden, Al Qaeda was planning to hijack and destroy oil tankers in the straits.

But more than the security of oil flows is at stake. We have to consider the effect that would occur if the United States pulled out

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of the Pacific and pulled out of the Indian Ocean and who might step in. China would certainly be willing; few others would be capable of doing so.

So it should be no surprise that our military is leading the world in developing next generation energy technologies. Our single-source dependence on oil threatens our national security. Even dramatic increases in domestic oil production will not free us from the global dynamics of the market or relieve us of our global responsibilities.

Fortunately, more advanced energy technologies are available and increasingly viable. We must support their development and continue to lead the world through innovation. Thank you.

Mr. Whitfield. Thank you.

[The prepared statement of Mr. Breen follows:]

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Mr. Whitfield. Mr. Halleck, you are recognized for 5 minutes.

STATEMENT OF MIKE HALLECK

Mr. Halleck. Mr. Chairman, Ranking Member Rush, distinguished members of this committee, thank you for the privilege of appearing before you today. Congressman Johnson, thank you go for your kind introduction. My name is Mike Halleck. I am president of the Columbiana County Board of Commissioners. Columbiana County is located in eastern Ohio, bordering Pennsylvania and West Virginia. We are part of the Appalachian region. Our county is comprised of 540 square miles, with a population of about 110,000.

In the past 2 years our county in particular and surrounding counties in general has transcended into an energy-based economy from a manufacturing one. A little more than 2 years ago our county had an unemployment rate of about 16 percent; today it is about half that. Permit me to address our manufacturing base for a moment. Ohio, and especially northeast Ohio, has been a manufacturing power since the industrial revolution. While in recent decades automobiles and steel were major employers, the advancement of technology and to some extent imports have challenged their future.

However the good news is that eastern Ohio is quickly becoming an energy economy, which has enhanced our manufacturing base even more.

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A few examples would be V&M Steel, a French company that invested \$750 million in our region to manufacture pipe for the oil fields and their pipelines. Another would be a billion-dollar cryogenics plant that separates the different gases for shipments. Just in the past week another announcement was made regarding a \$300 million pipeline and gas processing plant by NiSource, a division of Columbia Gas.

To put all of this in perspective I will share with you a few of the more compelling statistics associated with this. In a few short years there have been over \$7 billion invested in our area. That is about 2.5 times the total value of the real estate as if valued in our county. Over 39,000 jobs created, with projections of 143,000 by 2020; 266,000 by 2035. During 2012 the average wage for manufacturing in Ohio was \$55,000, while the wages for the oil and gas industry average was \$81,000. The oil and gas industry accounted for \$1.5 billion in new tax revenue to the State of Ohio.

To bring a single well online takes about 410 people across 150 different professions. The average well should generate about \$1 billion in revenue. A recent study by Penn State that this Marcellus Utica, quote, "play," unquote, was projected to be the largest natural gas find on Earth, second only to the border region of Qatar and Iran, not necessarily a place that we would want to stake our energy future.

Finally, yes, there are billions and soon to be trillions of cubic feet being harvested as we speak, and, yes, there could and already

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has been a suppression of gas prices. What do we do next? While lower prices are welcome domestically, we should not in my view make the prices so cheap through too much supply that we force the producers to lower production. Better yet, why not pursue exportation to countries that we have open trade with? It would seem to me that not only would this stabilize price, but give the United States a different standing in the world and make a statement of energy independence.

A recent report by Secretary Chu and the Energy Department seemed to suggest something along this same line of thinking. Several Members of Congress seemed to share the same school of thought in a recent letter to Secretary Chu. And it was refreshing to see the nonpartisan signatures on this letter. After all, energy independence is not and should not be a partisan issue.

While I am certainly not an expert in this field, much less an economist, common sense would tell me that if we are exporting more product abroad there will be a need for more production. Thus more workers would be needed for this production.

Again I thank you for this privilege, and in particular Congressman Johnson for inviting me here today. I would be happy to answer any questions. Thank you.

Mr. Whitfield. Thank you, Mr. Halleck.

[The prepared statement of Mr. Halleck follows:]

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Mr. Whitfield. Ms. Jaffe, you are recognized for 5 minutes.

STATEMENT OF AMY JAFFE

Ms. Jaffe. I want to thank you for this opportunity, and also thank the committee for bringing to the fore the subject of the international implications and U.S. foreign policy implications of U.S. energy exports. I would submit that our discussion on energy exports, in particular on LNG exports, has been too focused, 100 percent on the domestic market consequences, whether that is a job consequence or a price consequence. And I believe that we need to not take these decisions in a vacuum, that the context of U.S. foreign policy needs to be taken into account in the discussion of our export policy for both natural gas and other products.

The context is that for the last 3 decades the United States has had an active foreign policy to promote free trade, open trade, and energy exports in investment. That is important not only to the United States, but to the global economy. Why do we want free trade in energy? As has been mentioned by many of your committee members and by my fellow panelists, we have operating in the global market an effective oil cartel that keeps the price of oil much higher than it would be without those artificial restrictions. And those restrictions are developed through energy trade, so countries like the Middle East and so forth

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organize to restrict exports of oil or natural gas in a manner to raise the price internationally and they also restrict open investment in oil and gas exploration.

We send our diplomats to countries like Russia, China, and the Middle East to discuss with them having better and more open-access rules for the investment in oil and gas. It is this lack of investment in oil and gas abroad in recent years that has caused us to have the kinds of financial crises that have revolved around sharp increases in energy prices that we saw not only in the 1970s, but also in 1990 when Iraq invaded Kuwait, also more recently in 2007 and 2008 when we saw energy prices for all businesses in our country hurt American consumers, hurt average Americans.

So it is important to have the United States have an open and assertive policy in trade policy globally, that we do not favor, that we promote free trade, that we do not -- that we object to restrictions in investments and trade in oil and gas. Because that is our standing foreign policy and an important foreign policy because we don't want other countries that produce a lot of oil in the Middle East and other places to hold and restrict their exports, we cannot ourselves then have a policy where we choose to restrict our exports, because therefore we would move into a world where energy becomes possibly a political weapon or an economic weapon, and that is not in the vital interests of the United States.

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The best way to prevent the kind of global imbalances in energy supply that affects our jobs and hurts every American is to have a policy, a foreign policy that promotes trade and open markets. If the United States doesn't have an open-market policy then we cannot advocate it for other countries.

When we consider LNG exports we need to put that export debate in the context of our own free trade agreements. Our free trade agreements have to be meaningful because otherwise why would anybody want to have economic agreements with the United States and important trade relations. We export natural gas to Mexico. Last year we exported 1.69 bcfd of natural gas to Mexico under the NAFTA agreement. That is an advantage of trade.

We hold a free trade agreement with South Korea. South Korea would desire to buy liquid natural gas from the United States from the new proposed export terminal. We cannot supply natural gas under a free trade agreement with Mexico and turn to South Korea and tell them that we are not going to honor our agreement with them. Once we honor our agreement with South Korea, how are we going to turn to Japan, a country that would like to buy our LNG exports, and tell them even though they have been a staunch ally of the United States for decades, we are going to export our LNG to South Korea under a free trade agreement but we are not going to provide these resources to Japan.

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DCMN HERZFELD

[11:05 a.m.]

Ms. Jaffe. So the best way to protect consumers from the kinds of seasonal problems that could erupt from having exports is to have a mandate for minimum inventories in the United States as they have in Europe and Japan.

Thank you.

Mr. Whitfield. Thank you, Ms. Jaffe.

[The prepared statement of Ms. Jaffe follows:]

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Mr. Whitfield. And thank all of you for your testimony and for taking time to be with us today.

Now we will have a question period and answer, and I will recognize myself for 5 minutes for the first set of questions.

First of all, I am happy to hear that many of you support a free-trade, open-market system on the export and in the entire energy sector. I read your testimony, Senator Johnston, and I was thinking back about all these Federal policies that you referred to, like the Fuel Use Act, the wage and price controls and others, and the unintended consequences that came about as a result of those government policies. And so I was -- and Mr. Dorgan talked about -- in the publication that they were involved in, he specifically said restricting international trade in fossil fuels is not an effective policy to reduce global greenhouse gas emissions, and I agree with that as well.

Mr. Breen, one question I did want to ask you, you talked a lot about oil policy today, and do you have a position on the export of energy from America, liquid natural gas as an example?

Mr. Breen. Sure. My position is that there may be some advantages to that. I am 100 percent in favor of the idea of a free market, a global free market in energy. My concern focuses around oil, primarily because the United States is single-source-dependent on oil for transportation.

So the good news on electrical energy production and industrial

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energy productions is it is diversified. Natural gas is part of it. There are other renewables.

In the case of transportation, 93 percent plus is totally dependent on oil, and so that is why I focused on it. It is --

Mr. Whitfield. But on the natural gas, did you say you do or you don't have a position on that?

Mr. Breen. My position is that it is probably not a bad thing. I think natural gas is a great bridge fuel --

Mr. Whitfield. Okay.

Mr. Breen. -- from a climate perspective.

Mr. Whitfield. Okay.

Mr. Breen. And certainly Russia's use of it geopolitically is --

Mr. Whitfield. Thank you.

Senator Johnston, you talked about, as I had said earlier, about the adverse policies of the government trying to dictate what will and will not be done. I was just curious, can you imagine any sensible way that we can actually try to restrict exports of natural gas that would be an effective government policy?

Mr. Johnston. Mr. Chairman, I have thought a lot about that, and if you made me come up with a policy, I don't know what it would be. I mean, if you did it chronologically as to who first files for the permit, I think there are some 16 permits now pending, that would not make any sense, because, you know, it just costs a couple of hundred

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dollars, I think, to file one of these things, and it doesn't tell you who has the best application, or who will be able to -- you know, you have got to have a decades-long supply agreement, and a decades-long off-take agreement, and many billions of dollars, and that first application just doesn't tell you who is going to be able to do that.

So I don't think there is a way to do it. I think it would be just as disastrous as the Federal Power Commission trying to set the price of natural gas.

Mr. Whitfield. Do you have an opinion on that, Senator Dorgan?

Mr. Dorgan. Yeah. I generally agree with that. You know, we currently have in law a restriction with respect to the export of oil, as you know.

Mr. Whitfield. Right.

Mr. Dorgan. That has been there since the 1970s.

And let me make a point in response to what Mr. Breen said as well. It is the case that the additional production, for example, of oil and natural gas is really good news for our country, really good news, but it is also the case that 70 percent of the use of oil in this country is used in transportation, and 90 percent of transportation fuels are oil-based. And so is that worrisome? Should we be trying to diversify? The answer to that is yes, of course we should.

Mr. Whitfield. All right. Thank you.

You know, Mr. Bradbury, you talked about the climate change

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issue, which certainly is important, but I think here in America we do need to take credit for the steps that we have made to improve our environment. Our CO2 emissions are down lower than they have been in 20 years. And when you think about the immediate impact, for example, when the Russians stopped the supply of gas into the Ukraine, when they stopped the supply of gas into Bulgaria, and they were without gas for 4 or 5 days, when you think about the immediate impact on the lives of people because they can't get adequate energy sources, and then you compare that to the long-term climate change issue that is out there, trying to balance immediate needs versus long-term needs is something that we all, I think, struggle with.

But you don't even have to comment on that. My time is actually expired, so I will recognize Mr. Rush for 5 minutes.

Mr. Rush. Thank you, Mr. Chairman.

We have had some interesting testimony and testimony that has touched on LNG exports from a myriad of perspectives. And all these perspectives are quite important, but I would like to hear a little bit more about how exporting LNG impacts the U.S. consumer.

Unlike oil, which is set on -- whose prices are set on the global market, natural gas prices are set under a regional scale or a North American and Europe and also in Asia. And today we are paying reasonably low prices for natural gas, less than \$4 for a gallon, but when you compare to Europe, they are paying \$10 per gallon, and in East

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Asia it is \$12 to \$16 per gallon, and experts expect these prices to increase over the coming years. As a matter of fact, the EIA estimates that Henry Hub's spot prices for natural gas will increase by 2.4 percent as producers begin drilling more oil, and especially in more difficult terrain.

So the question that I have is how will this exporting LNG impact the cost of natural gas for America's families and consumers and the manufacturers? Will this impact be significant, and will it be widespread in the various and different sectors of our economy? Will there be an overall gain or loss in manufacturing jobs and other types of employment if we started exporting LNG? And so the impact on the American consumer is where I center my question. And anyone on the panel. Maybe, Senator Johnston, if you would be so kind to start it out.

Mr. Johnston. Thank you, Mr. Rush.

That is a very key question, and it was the subject of the Cambridge Energy Research Associates' study: What was going to be the effect on consumers? And they examined the question from many different aspects and determined that it would not have an adverse effect on American consumers. The reason is that demand begets supply. The more demand you have, the more supply you have.

Now, in my home State of Louisiana, now, we have got what we call the Haynesville shale, some of the most prolific of the dry shale plays

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in America, but it is, for the most part, not being developed now because the price is a little bit too low. Now, you don't need a huge price to develop a Haynesville or some of the Texas shales, but you need more than you have got right now.

So what Cambridge said, and what other studies have shown, is that demand will produce more supply, and that the price effects will not be bad, that they will be good for the country.

Mr. Dorgan. There is a Brookings study on that point. There is a Council of Foreign Relations study on that point. And, you know, it is interesting. As we are talking here, one of the most significant oil plays on the face of the planet is in the Bakken in North Dakota. There is a substantial amount of natural gas. Most of it is being flared. I mean, if you fly over that place at night, it looks like another giant American city, because the price of gas at this point is not high enough to suggest to them they want to build the pipelines to gather it. The price of sweet light crude is where they are going to make profit up there, not collecting low-price natural gas. So we are burning a lot of natural gas at this point.

But my point was that there are studies that have been done, three of which I have looked at, that suggest export of natural gas would have rather minimal impact on the U.S. consumer.

Now, on the positive side, of course, it will reduce our trade deficit. There are a series of positive things that will come as a

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result of it.

Mr. Rush. Ms. Jaffe.

Ms. Jaffe. So my organizations have studied that issue as well. I would say that over time the natural gas market -- we are currently studying that market together with Harvard -- the natural gas market is going to look more like the oil market. In other words, the United States will probably not be that isolated a market.

And if we do not export LNG from the United States, what will happen is gas from Canada will be exported through different projects that would be proposed of Canada. So you are going to have natural gas exports from North America one way or the other, and that will affect sort of a global effect on the price where in the end the price in Asia that you cited will come down over time as natural grass projects in Australia and other places come online.

We have a global surplus of natural gas. It will assert itself more and more over time, and I do believe that that would give protection to U.S. consumers.

You know, the oil industry is a cyclical industry, and, as many members of the panel have mentioned, sometimes when the price gets too low, companies stop drilling because they don't have profitability in a particular field, and that causes some volatility for consumers. But overall there is so much natural gas supply that it is hard to foresee we would go back to a condition that we saw several years ago where

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the price of natural gas in the United States was \$10. It would take something very extreme to produce that kind of result.

Mr. Whitfield. The gentleman's time has expired.

At this time I recognize the gentlemen from Louisiana Mr. Scalise for 5 minutes.

Mr. Scalise. Thank you, Mr. Chairman. I appreciate you having this hearing.

We have had a number of hearings in this committee about the new technologies, what technology has done to increase the supply. You know, years ago people thought there were short limits on how much oil we had left, of natural gas, and, of course, with the advancements in technology and then the Deepwater in Louisiana, Senator Johnston knows we have experienced even larger finds of large reserves of fossil fuels with the shale plays, as you mentioned in the Haynesville play. And I have been up there myself and seen just the job creation that it has created, but also the energy independence. And I have toured the Cheniere facility in southwest Louisiana, the first of those 20 facilities that are either looking to export LNG or, as Cheniere is, in the process of doing.

You know, there are so many opportunities for us to become energy independent within 10 years. It is a very realistic possibility if we get the policy right here in Washington. And unfortunately, as our hearings in the past have shown us, the policies have not always matched

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the goal of having energy independence. You know, for those of us who want an all-of-the-above strategy, which includes wind and solar, but being realistic about their limitations, and understanding the demands of a manufacturing economy, we are going to need to continue advancing the technologies that we have for fossil fuels as well.

I want to start with you, Senator Johnston, and then first thank you for your 24 years of service to the great State of Louisiana and to our country --

Mr. Johnston. Thank you.

Mr. Scalise. -- for serving in the Senate, and especially for your leadership on the Senate energy committee. You know very well the challenges that we face.

In your testimony you talk about some of the times where the Federal Government gets it wrong. And probably all the times where the Federal Government tries to go and predict, whether it is with renewable fuel standards, and, you know, you cite the 2007 Congress projections that are now so far off that are our refineries are telling us they are hitting the blend wall. You know, you talk about the President's own predictions of I think it was, what, a million electric cars on the road by 2015, and today we have 87,000 electric and hybrids.

So the government hasn't really been good at picking winners and losers. In fact, you know, we had the hearings here in this committee about Solyndra and that scandal, and where the government literally

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came and tried to pick winners and losers, and just ends up picking losers, and the taxpayers foot the bill.

If you can just expand on some of the things you talked about in your testimony about what would be a good strategy, as you cite Adam Smith and Wealth of Nations; and, you know, is government regulation versus a free market approach the right way to go. And, of course, history has a lot of indicators for which way is the better path.

Mr. Johnston. Well, thank you very much, Mr. Scalise.

There are huge opportunities for natural gas and for other fossil fuels around the world. Qatar is a huge producer, Indonesia, Australia. Chevron has a facility in Australia they are spending \$81 billion on, and they will be exporting all over.

In addition to that, you know, if the price did get too high, and I mentioned this to Mr. Whitfield, you can use coal to make chemicals. My son and I are involved in a plant in Lake Charles now which will make chemical precursors out of pet coke, which is essentially the same thing as coal. So there are huge opportunities for energy, and the market will sort those out. It is --

Mr. Scalise. Do you --

Mr. Johnston. You know --

Mr. Scalise. Do you think it is an achievable goal. When those of us who talk about energy independence within 10 years -- again, if we get smart policy, if we get the policy right out of Washington, do

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you think it is achievable that we can be an energy-independent Nation --

Mr. Johnston. Absolutely.

Mr. Scalise. -- to secure that future for our country?

Mr. Johnston. Absolutely. You know, they are drilling down in the Gulf of Mexico now below 30,000 feet, and they think there are huge, huge -- a huge new undiscovered basin down there.

There are just tremendous opportunities if we just get the regulators out of the way. And, you know, we need regulation for a lot of things, for safety, et cetera, but when you are regulating the supply and demand of commodities, government just can't do that very well. You know --

Mr. Scalise. Unfortunately the history has shown --

Mr. Johnston. -- on ethanol, they still haven't gotten it right. You know, we have known for years that they weren't producing any cellulosic ethanol, but they are still requiring it, and you would think the regulators would learn at some point.

Mr. Scalise. We are going to keep pushing them to get there. So I appreciate all of your testimony, but, again, Senator Johnston for your leadership to our State.

And I would be happy to yield back the balance of my time, Mr. Chairman.

Mr. Whitfield. Thank you.

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At this time I recognize the gentleman from California
Mr. McNerney for 5 minutes.

Mr. McNerney. Thank you, Mr. Chairman. Thank you for holding this hearing. I have enjoyed all of your testimony, so it is a great choice of panelists this morning.

I don't think there is really that simple of answers on these questions. We are producing more oil and gas, and that has some real benefits in terms of national security, which was brought out clearly; in terms of prices, which encourages manufacturing in this country, which we need to do. It encourages other benefits, too, employment, and that was brought out by Mr. Halleck.

But there are also some disadvantages: gas leakage into the environment, which is a global warming problem, perhaps more of a problem than the coal production that we are trying -- that gas might displace. There is groundwater contamination. But it seems that the disadvantages could be mitigated with high standards for the wells and also with requirements for transparency for fracking and horizontal drilling.

Mr. Bradbury, would you comment on that, please?

Mr. Bradbury. Sure. Well, thank you, Mr. Congressman, for the question.

Well, absolutely. I think -- well, this is one of the good-news stories of the past year with EPA finalizing their New Source

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Performance Standards for well completions, requiring green completions for all new natural gas wells. Those standards, it would be useful and I think a commonsense measure to have those applied also to natural gas liquids and oil wells with associated gas. To have --

Mr. McNerney. Especially with regard to the leakage.

Mr. Bradbury. This would address leakage at the well as you are starting the production. You are doing the well, finishing the development, the well completion of the well.

Mr. McNerney. Thank you.

Mr. Bradbury. And so that is a commonsense standard that could be expanded beyond what is there.

Mr. McNerney. Thank you.

Mr. Bradbury. But there are also a number of other technologies that could be used --

Mr. McNerney. Thank you, Mr. Bradbury.

Mr. Bradbury. -- not just for wells, but across the spectrum.

Mr. McNerney. Senator Johnston, I appreciate your comments about regulation of supply and demand is not necessarily a good place for us to go, but do you agree that we could use higher standards with regard to wells to prevent leakage and to prevent contamination of groundwater? Do think that is a good place for us to go here as a part of our policymaking?

Mr. Johnston. Yes, Mr. McNerney. I think no one cares more or

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has more to lose than the oil companies, oil and gas companies, about leakage and pollution, and so I think that they are working hard, I really do believe, to have the highest standards.

One of the problems is that some of the smaller producers have yet to adopt the high standards. We need to adopt the highest standards, particularly for fracking, because public support of fracking is very, very important. I think it deserves public support, and I think that they will be able to do it safely. That was the conclusion of a study done by John Deutch, and Ernie Moniz was part of that study. They said we need to have the highest safety standards, but we need to produce through fracking.

Mr. McNerney. I think you made an excellent point there, then. Public acceptance is absolutely critical. Based on past performance, there are problems. Communities are going to be reluctant to allow fracking in their areas without the right transparency and assurances that this is a safe process, and I don't feel we are quite there yet.

But I am going to go on to, Mr. Breen, I appreciate what the Truman National Security Project is doing with regard to the implications of our national policies in terms of national security, our national energy policies. How much work has the Truman Project done with regard to the implications of global warming on our national security?

Mr. Breen. Thank you for the question. It is good to see you. We have done quite a bit of it, as has, much more importantly,

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the Pentagon and the intelligence services. The consensus is that this poses a serious national security threat. The Natural Security Advisor Tom Donilon just gave a speech to that effect a couple of weeks back, saying that national security is threatened by climate.

Recently the commander of our forces in the Pacific was asked what his top national security concern was, which I think is an interesting question, given that he is responsible for China, North Korea and a whole host of other issues in the Pacific, and his answer was climate.

If you look at the accelerants of instability and the threats that come from this, with regard to terrorism, but also with regard to mass population migrations, terrorist recruiting, all kinds of issues, it is pretty clear that we are going to be dealing with this. And, as General Zinni likes to say, we can pay down now, and the cost will be in treasure, or we can pay down later, and the cost will be treasure and blood.

Mr. McNerney. Okay. I was going to ask, Ms. Jaffe, for your input on that, but I am running out of time, so I will have to yield back at this point. You were shaking your head, so I couldn't resist.

Mr. Chairman, go ahead.

Mr. Whitfield. Have you yielded back? Okay.

At this time I recognize the gentleman from Texas Mr. Barton for 5 minutes.

Mr. Barton. Thank you, Mr. Chairman.

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I have got a photo on -- several photos on my wall down in my office, and one of them has myself and Senator Johnston standing behind the first President Bush at the White House when he signed a bill that repealed the Natural Gas Policy Act.

Mr. Johnston. I have got the same picture on my wall.

Mr. Barton. Yeah. And I was chairman of the conference committee in 2005 that Senator Dorgan was a part of, and we did meet in this room. Both of those bills were bipartisan bills. Both of those bills -- the Energy Policy Act in 2005, over half the Senate Democrats voted for it, and a third of the House Democrats voted for it. So for these young folks on the second row here in front of me, there is hope. We might actually burst out in bipartisanship on LNG exports.

I would ask Mr. Bradbury, I listened to your comments, and if I interpret them correctly, my understanding is if we handle this fugitive methane emissions issue, at least your environmental group would support an LNG export bill; is that correct?

Mr. Bradbury. Well, the World Resources Institute doesn't take a particular position on this specific issue, but certainly by reducing these upstream methane emissions, we could ensure that natural gas is lower-carbon-emitting -- or lower-greenhouse-gas-emitting than coal or oil when oil and diesel fuel is used for transportation. If you get --

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Mr. Barton. You know, it wouldn't be the end of the world if the environmental community broke down and actually supported a positive energy-production bill. I mean, if we can meet the environmental standards, I know some of my friends on the Democratic side would be interested in being supportive. Former Chairman Waxman, if I heard him in his opening statement, said he has an open mind. And I know unless the minority leader Mrs. Pelosi has changed her mind, she has been a supporter of natural gas as a fuel. So we really do have some hope here.

I would ask Senator Johnston, on these pending permits what would be wrong with setting some standards, some guidelines for the Department of Energy in terms of environmental protection and perhaps capital reserves, and then approve them all if they meet those standards, and then let the market determine which of them actually gets the contracts to do the exporting? What would be wrong with that approach?

Mr. Johnston. Well, as you know, for onshore facilities, FERC approves those, and they must meet those standards. That does not give them an export permit, but they must get a FERC permit or a NOAA permit for offshore facilities. So that takes care of the safety, and they must have the high standards there.

Now, the law provides that -- it is an old law, it hasn't been updated and doesn't have a lot of standards, but it does say that DOE

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shall approve unless the national interest is against it. In other words, the preference is for approving, and I think that is proper. In other words, I think that the permit should be granted unless the case can be made against it.

Mr. Barton. See, I don't think we are going to build 19 LNG export facilities. I don't think there is a world market. You are probably going to have one or two on the west coast, and one or two on the east coast, and one or two in the Caribbean, but if you let the market work, the market will sort, in my opinion, those types of things out.

The gentleman that talked so much about oil as a strategic, do you oppose natural gas being used for a transportation fuel, Mr. Breen?

Mr. Breen. Absolutely not. No. I think in cases where natural gas is viable as a transportation fuel, particular medium and heavy trucking or garbage trucks, things like that, municipal fleets, we should be embracing any opportunity to lower the single-source dependence of our transportation sector on oil. I think that is good.

I think -- I am also in favor of other technological approaches as well. I think the more diversity there is in that sector, the better off we are.

Mr. Barton. Okay. And finally, Mr. Halleck, as the person who is living in the real world in Ohio, what is the long-term expectation to the local economy in your area because of the Marcellus drilling activity? Is it positive, negative, short term, or is the expectation

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that it is going to create a stable employment base for decades to come?

Mr. Halleck. Well, Congressman, we have been told that it is certainly 20 to 25 years. There have been some that has told us it is as much as 50, but I think conservatively 20 to 25 years. And it has certainly been a game changer in our area. And for the first time in -- I was a commissioner back in the 1990s as well -- we are not struggling like we used to to balance our budget.

Mr. Barton. We have the Barnett shale down in my part of Texas, and we think another 50 years. And it is not nearly as big a reserve base as the Marcellus is.

Mr. Halleck. Yes.

Mr. Barton. With that, Mr. Chairman, I yield back. Thank you.

Mr. Whitfield. At this time I recognize the gentleman from New York Mr. Tonko for 5 minutes.

Mr. Tonko. Thank you, Mr. Chair. And welcome to our panelists.

Virtually all of you have addressed the question of whether we should or should not export LNG, and most have testified in favor of the government allowing exports of LNG. Senator Johnston noted that an LNG facility takes some 5 to 7 years to build at an investment cost of some \$10- to \$40 billion. A facility has to secure those long-term contracts for supplies, obviously, of the gas to export and from customers to sell it to.

I observed that there are markets at all scales, and the interest

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in exports appears to be driven primarily by a desire to maintain or expand production here in the United States, to ignore or override the signal our national market is providing to the gas-production industry, the low price indicating an excess of demand over supply and the market signal to reduce production.

The other benefits we may achieve nationally by exporting LNG would not drive this debate alone, so I expect we will export LNG. I am wondering whether you have opinions about what the right level of exports might be? How much exporting should we allow and from which areas?

Mr. Johnston. My point really is that the market should determine that. And, you know, there are all of these market signals that are changing day to day. I mentioned some of those: the price of labor, the price of interest rates, diesel, steel, technology, capital availability, regulatory delay, et cetera. All of these are market signals which are changing month to month, day by day, and those are going to restrict the amount of LNG that you can export. And there are also these worldwide competitors: Australia, Indonesia, Qatar. All of these are going to be working simultaneously. And I don't think that any regulators, not this committee, not myself, not anybody, can determine a proper level.

I think the better way to do it is to let the market do it. The market is not perfect, but I think it is better than regulators would

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be.

Mr. Tonko. Any other one? Any other panelists have an opinion?

Yes, Ms. Jaffe.

Ms. Jaffe. I think that what you are going to find is that, first of all, it takes a long time, as the Congressman said, to build these facilities. And there are some regions that the cost of producing gas is going to be higher or lower than others. So, for example, in northwest Canada, the natural gas there is stranded.

So if we were to choose not to build, not to allow LNG exports from the U.S. Gulf of Mexico, those facilities, the economics would be that that gas would go out in that direction, that would raise the overall prices of North America to the small amount that would happen. So this idea that somehow if we were to block the Gulf Coast, that would help some manufacturer in my State of California and other places, that is not likely to happen, because there will be exports from North America when the market demands it.

But as I mentioned, there is so much natural gas in other places that I really do think that it probably would be a very small amount of exports that will come from the United States.

And if we had an export facility, one of the things that would happen is if I was a producer in another market, and I had a reason to seasonally store my LNG, because the United States has such giant saltstone storage for natural gas, we might find that producers would

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bring their natural gas here and store it and then have the opportunity to export it at a later date. So we might find that we provide what I call hub services, where the United States would be a focal point for export of natural gas globally in storage. And so we might actually benefit from having our facilities be used in a way that would help the international market, and we might have gas actually flowing here just as a storage facility.

Mr. Tonko. Well, I believe DOE has applications for some 30 facilities. How do they approach this? Do they -- should they move forward?

Ms. Jaffe. Let me speak to that. As you know, we have more than a dozen LNG import facilities that were built that are going to be empty for the foreseeable future, maybe for, you know, 20 to 30 years. And obviously if the industry could forecast correctly how many facilities we need for export or import, we wouldn't have all these bankrupt facilities now that are sitting empty for importation.

So I think the fact that companies applied for a license is really pretty insignificant. What you really need to know is that there is one company, Cheniere, that has made a commitment to build a facility, and that facility will likely go.

In the natural gas business, there is something we call the first mover advantage. The first facility that gets built will be the profitable facility, if any facility will be profitable. I might

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question whether or not even any facility will wind up being profitable over the long term, but the point is if I am first, I am much more likely to make a business out of it than if I am fifth or tenth.

And so people put their licenses in. Thirty people might put their licenses in. Some of it is gaming: I want to get everybody else to be discouraged to do this, because there are so many of us. Right? And then maybe only the first one or two or three will ever get built. And if you think of how many facilities were built here in the United States to import, and how many of them got approved, and how many of them are going to remain empty, you can think about the fact that those 30 applications are really meaningless.

Mr. Tonko. Mr. Chair, I yield back.

Mr. Whitfield. The gentleman's time has expired.

At this time I recognize the gentleman from Texas Mr. Hall for 5 minutes.

Mr. Hall. Thank you, Mr. Chairman.

And I also thank the two Senators there that I worked with for many years, both great leaders. And I enjoyed, Senator Johnston, following you and Lloyd Bentsen. You were simply great. And thank you for coming here today. And to you others, I appreciate the time you put into it and the time you have given us here with your testimony.

Joe, I was with you out there when we went West to sign the last good energy bill that this Congress has passed. And I well remember

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Bush giving some of us pins, but I well remember him, in good nature, turning to me and saying, Ralph Hall is with us because he likes the coffee on Air Force One. What he didn't know was I had six of his mugs in my briefcase at that time.

But, you know, Senator Dorgan, you are exactly right on your fine energy past, and history and support, and you are right when you say we must understand climate change. And we get a lot of that from the other side, too, and, of course, we should.

And we must understand, though, that we have also spent \$34 billion and had very little change, climate change, very little effect on it. I just think that it is obvious that we have an administration that is antienergy. And the environmentalists did say don't drill on little ANWR, it is just 19 million acres there.

And I well remember we had, I think, 22 bills over to the Senate, and we had Senator Frist, I believe, Doctor, was the chairman then at that time. And he thought more like a businessman than he did about energy, in my opinion, because one of those bills got through, and Clinton vetoed it. And the Bushes had a shot at, I think, the other 20. And someone would get up to filibuster it, and the Senator would pull it down because I think he didn't want to waste the Senate's time. I really think he should have burned them down, let those who wanted to filibuster filibuster, and we would have some drilling on ANWR that we don't have now.

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They say don't drill on little ANWR, it is just 19 million acres. If we don't want to drill on, what, a couple of thousand acres or a thousand acres there for 60, maybe 50 years of energy, I think we ought to be doing that.

I guess it is obvious that we do have an antienergy administration, and my question to you, I guess, Senator Johnston, do you believe that our national energy policy is still mistakenly based on the belief that we are somehow in an age of energy scarcity?

Mr. Johnston. You know, I don't really believe in energy scarcity. I think new supplies are pulled up all the time. They are based on technology like fracking. I well remember -- you know, it wasn't very many years ago that we had almost not heard of shale gas. George Mitchell, down in your State, old friend of mine, you know, he went in with some DOE money and created that new technology, which has revolutionized America. Bakken oil and the Bakken shale has revolutionized certainly my colleague's home State.

So I think there is not the scarcity that some talk about. I think we can be energy independent in this country, and I think it is a goal we should pursue.

Mr. Hall. And we talk about free market versus regulation. Of course, that is an easy choice for me, but if I would come down on the side of regulation, I would have some concern about the EPA and their regulation, their lack of science that they take into consideration

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as they --

Mr. Johnston. Well --

Mr. Hall. They really damaged the energy thrust.

Mr. Johnston. Well, I disagree with the EPA on some things, agree with them on others. Certainly we need the highest environmental standards, which I think we can, consistent with energy independence.

One of the things that neither EPA nor any other agency can do is allocate resources, and that really is the heart of my point today, that government regulatory bodies just can't allocate resources. Let them make safety rules, but don't try to allocate resources.

Mr. Hall. Thank you.

And I will just close with the fact that jobs are hurting us, and they are hurting for 18-, 19-year-olds, and graduates who want jobs and are seeking jobs. There are fewer jobs, and unless we change some things up here, we are not going to have very many employers a year from now. The most important word in the dictionary today other than "prayer" for young people is the word "energy."

And I thank you both, and I thank this panel for your input.

I yield back.

Mr. Whitfield. At this time I will recognize the gentleman from California Mr. Waxman for 5 minutes.

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

We have heard a lot lately about U.S. carbon dioxide emissions

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being at their lowest levels since 1994. The implication is that no further action to address climate change is necessary, and that is simply not the case.

As a result of increased renewable energy generation, a shift from coal to natural gas generation and the economic recession, U.S. emissions have dropped in recent years, but what matters most is whether U.S. emissions are on track to decline in the future by the amount needed to prevent dangerous climate change, and I am not aware of any reputable expert who believes this to be the case.

Scientists tell us that our emissions need to decline by at least 80 percent below 1990 levels by 2050 to avoid a dangerous level of warming. The latest projections by the Energy Information Administration shows that the U.S. carbon dioxide emissions for fossil fuel combustion actually will be 13 percent higher than 1990 levels in 2040, the last year in EIA's model. There is an enormous gulf between what these emissions will be without additional action and what they need to be to avert catastrophic warming.

Senator Dorgan, you cochaired a bipartisan panel that issued recommendations for our energy policy. Was there agreement that climate change is a serious issue, and that additional policies will be necessary to reduce greenhouse gas emissions?

Mr. Dorgan. Congressman Waxman, we did at the front end of this report indicate that we felt climate change was an issue that needed

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attention, it needed policy direction. We did not attempt in this report to create a policy framework for how we might address climate change, but we did indeed say that, well, we are going to cover a lot of energy issues, that climate issues were important and needed to be addressed.

Mr. Waxman. Thank you.

We need to think about LNG exports through the lens of climate change if the U.S. is going to export LNG. If we are going to make long-term multi-billion-dollar infrastructure investments, it is important for those exports to produce a climate benefit.

Methane emissions from the natural gas industry are a challenge in that regard. Methane is a potent greenhouse gas, and it is crucial that we reduce those emissions.

Mr. Bradbury, are there measures that can be taken to reduce methane emissions from the U.S. natural gas sector using existing technology?

Mr. Bradbury. Yes. Absolutely, Congressman. There are -- in a report we recently published, we identified a total of eight technologies that would cut these upstream greenhouse gas emissions by more than 50 percent. In my testimony includes more detailed analysis of that and through a couple of different scenarios.

Mr. Waxman. These measures are cost-effective as well?

Mr. Bradbury. They are. And all eight that we looked at are

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definitely cost-effective.

Mr. Waxman. How long, Mr. Bradbury, would it take for these measures to generate enough savings to cover the cost of implementing them?

Mr. Bradbury. The payback period -- thank you for the question. The payback period, we found, is up to 3 years at most for each of these measures and technologies, sometimes only a few months. So we are talking about wasted energy in addition to a powerful and potent greenhouse gas, so it is much like energy efficiency, can be very cost-effective.

Mr. Waxman. What is a reasonable target for methane leakage? If we took the cost-effective steps you described, would we meet the target?

Mr. Bradbury. Yes. There are a couple targets you would want to shoot for. For natural gas to be less greenhouse-gas-emissions-intensive than coal, you want your emissions levels to be -- your methane leakage levels to be below 3 percent of total production. Right now, according to the recent EPA inventory, we are below 2 percent. So we are in a pretty good zone in that regard.

And a better target, I think, for total leakage would be 1 percent leakage as a portion of total production, which we can get to with these technologies and measures that I mentioned. At the 1 percent leakage point, that is where you are at break even with respect to diesel. If

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you are going to switch from natural gas to diesel, and you want there to be an immediate -- diesel fuel for long-haul trucks, for example, if you want to have an immediate climate benefit.

Mr. Waxman. Thank you very much. I appreciate it.

I am obviously looking at this whole question before us from the perspective of climate change, but I know that there is a lot of focus on the exports, and I think Ms. Jaffe, who I am happy to see again, has made a very powerful case. I am open to that issue, I want to think about it. But as usual, you are very astute in your expression of things that we ought to take note of, and I thank you so much for your testimony, and all the other witnesses as well, especially my two former colleagues, who have such a distinguished record in the energy field.

Thank you, Mr. Chairman.

Mr. Whitfield. At this time I recognize the gentleman from Illinois Mr. Shimkus for 5 minutes.

Mr. Shimkus. Thank you, Mr. Chairman.

I am going to try to get to four questions in 5 minutes, so if I ask it concisely, and I get somewhat a concise response, maybe I can get that done.

I want to start with Mr. Bradbury there. Are you or any of your organization invested in any energy enterprises?

Mr. Bradbury. No.

Mr. Shimkus. Actually have skin in the game --

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Mr. Bradbury. No.

Mr. Shimkus. -- to be able to make a financial projection of whether there is a 3-year-to-1 payback on all this stuff? These are just theoretical, right? You are not putting real money into this?

Mr. Bradbury. No, we are not putting our own money.

Mr. Shimkus. Okay. That is -- thank you.

Senator Dorgan, 2005, I was here, too. It was one of the great energy conferences where we actually debated amendments. I wish we could get back to that era, because it was a great debate in this committee room.

I did look at the executive summary. I didn't read the whole report. You do in the executive summary have a bullet point on transmission, but it kind of -- you are really referring to the transmission pipeline for transportation of either natural gas or liquid transportation fuels; is that correct? Or are you talking about the electricity?

Mr. Dorgan. Mostly the electricity when we refer to that, but, you know, when you talk about transmission, you also want to be --

Mr. Shimkus. I think it is something we really have to focus on, because what we see going on right now -- and I just read an article today about Canada and Maine, and the market will move a product, and it will -- there is -- it is dislocating other types unless we have a very good policy of incentivizing the building of more pipelines.

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Mr. Dorgan. We do have -- we have electric transmission problems and issues of stranded energy --

Mr. Shimkus. Right.

Mr. Dorgan. -- because we can't transport to the load centers --

Mr. Shimkus. Correct.

Mr. Dorgan. -- where you get wind or store --

Mr. Shimkus. Especially with the green.

Mr. Dorgan. And we also pipeline transmission issues.

Mr. Shimkus. Right.

Mr. Dorgan. Although we have built a lot of pipelines in the last 10 years, natural gas pipelines.

Mr. Shimkus. Right. There are stories about us -- as reverse flowing now natural gas from the plays to maybe the LNG terminals and stranding refined product along the path of the old stranded -- I would hope that is something we can look at, and I will look through your report to see. I think it is a big issue. I know of two areas where retailers are now being stranded by their product because of LNG movement.

Mr. Johnston. Let me mention to you on oil, every day in the Bakken in North Dakota, they are transporting 500,000 barrels of oil a day by train; not by pipeline, by train.

Mr. Shimkus. Right.

Mr. Johnston. Burlington Northern has --

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Mr. Shimkus. Well, to address the greenhouse gas issue, what is a better ability if you are worried about this, I am personally not, but would be by pipeline; not by trucks, not by train, but by pipeline. So I would hope the environmental community -- and we see what they are doing with Keystone XL, they are not helpful -- they would understand that moving commodity products through pipeline is the most efficient, safest way, and actually in the greenhouse gas arena, it is a tremendous savings.

Mr. Halleck, I have got an article here from a local paper, southern Illinois paper, which is where I am from, and I just want a quick response to these two statements I have highlighted in this article.

Some envision the kind of economic boon they have heard about in other States: tens of thousands of workers drilling for oil and gas, local businesses barely keeping up with demand, and many municipal coffers flush with cash.

Is that what you have observed?

Mr. Halleck. I would concur with that, though, while we are in much better financial --

Mr. Shimkus. Yeah. This is poor southern Illinois. I represent 33 counties. And so there is -- you know, we have got a play coming, and so there is this whole debate, and you have lived it.

The other part that says, others are spooked by stories of housing

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shortages, towns overrun with strangers, torn-up roads, and claims of polluted water, and worry that drilling would forever alter the serenity, beauty and very character of an area they consider special.

Has that happened to your county?

Mr. Halleck. That is not really a concern. The technology today is such that we actually have rigs that have been on site, and they are gone in 30 days. So that is no problem.

Mr. Shimkus. Great. Thank you.

And if the staff would put up this slide for Ms. Jaffe.

I also chair the Baltic Caucus. And I hope this comes up right. I have a picture here.

So that is a proposed LNG terminal that will go in in Lithuania. Also, I think there is one being proposed for Poland. I deal with Eastern European issues, democracy movements. I have been very focused in Russia does extort their neighbors through energy.

If we have the ability to export liquefied natural gas, what does that do to two things: the ability of Russia to extort their neighbors, and the ability of the local Eastern European countries and allies, most of all who are NATO now, they are all in the EU, what does it help with their economy?

Ms. Jaffe. Well, I think it is very important. You raised an extremely important point, because, number one, we don't want Russia to use the threat of a cutoff of natural gas to create a wedge between

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us and our allies in Europe. We want everyone in Europe to feel a strong alliance, economic and otherwise, with the United States and not have to worry about their energy supply being curtailed by Russia.

Secondarily, you can imagine how positive it would be if the Russians threatened to cut off one of our allies in Europe, and an American company could supply them with natural gas through an export terminal from the United States.

Mr. Shimkus. You all did great. Thank you very much.

I yield back, Mr. Chairman.

Mr. Whitfield. At this time I recognize the gentleman from Texas Mr. Green for 5 minutes.

Mr. Green. Thank you, Mr. Chairman. And I said in my minute my ranking member gave me, but, again, I want to welcome our two Senators, and appreciate your leadership on energy for many years.

Senator Johnston, my only concern is that the one LNG export facility, Cheniere, it is on the Sabine side of Louisiana instead of on the Texas side, but the company actually is a Houston company, so we have worked together across that Sabine River for many years.

And, Senator Dorgan, it goes without saying, some of the success in the Bakken shale and the report that you just did, and I will have some questions in a minute.

Ms. Jaffe, I want to -- we miss you in Houston at the Baker Institute at Rice University, but I know at UC Davis you are much closer

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to the wine country there, although we still have some Texas wine we are working on.

But I represent one of the largest petrochemical complexes in the world in east Harris County, and I got some pushback a few years ago for supporting LNG exports, because I also represent a lot of folks who work in the fields, whether they be in south Texas or west Texas or anywhere else. But I support the exports, not just from the free-market perspective, because we need the additional incentives for production in certain parts of the country. And producers in south Texas are still producing dry gas, natural gas, simply because they get liquids. And when I drive through south Texas, I see the amount of flaring of the dry gas. It hurts me, because I know those -- one, it is bad for the environment, but all those producers would love to be able to have a market for that gas instead of sending it in the air. So our chemical industry and our utility sector want stable, low prices, but we need to ensure that the market will still be there and incentivize it.

Senator Dorgan, you testified that after reviewing several recent studies on the impacts of LNG exports, the Bipartisan Policy Center and Energy Board concluded that domestic gas prices are more likely to drive export levels than exports are likely to determine domestic prices. This is an important point, because I think it is a fear that we have 19 export applicants that could end up constructing export

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terminals. I just don't see our market allowing 19 of them. But why do you think the domestic gas prices more likely will drive the export levels than exports are likely to drive the domestic prices? Why do you think that is going to happen?

Mr. Dorgan. Well, first of all, I don't think any of us really understand very well the economics of moving liquefied natural gas from our country after recovering it and moving it halfway around the world. I don't think anybody fully understands the economics of it, but I do think that, you know, if natural gas prices were to rise in this country in any significant way, that would have an impact on whether it would be economical to continue that practice.

The studies suggest that there would be an impact, but it is very, very modest. And, you know, just how little we knew 5 years ago about where we are today describes how little we know today about what might or might not happen. All we can do is use an antenna for guidance on what should be the best practices and what should represent the best interests of our country.

Mr. Green. Well, and my colleague from Illinois, I was proud to be on the committee, we did the 2005 energy bill, and at that time Congressman Tierney and I actually had an amendment to that bill that federalized importing, because I have a chemical industry, and we were getting our lunch eaten by Rotterdam, and the North Sea gas is cheaper, so we wanted to import it. And now the good example of the Cheniere

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there in Sabine River, they built an import facility, but now they are investing another \$2 billion to build an export facility. So you are right, our crystal ball just doesn't work as well as we would like to it do.

Ms. Jaffe, you mentioned the U.S. Asian allies, Japan and South Korea, are seeking flexible U.S. Gulf Coast LNG contracts for reasons of economic and geopolitical. Can you elaborate on their geopolitical calculation for wanting this LNG, particularly, obviously, Japan, because of their decision to downgrade nuclear, and they are buying that LNG from anybody who can sell it to them? So could you just elaborate on that?

Ms. Jaffe. Yeah. I think that it is important in the context of the Arab Spring, and also, of course, in the past history with Russia, that these countries want to be able to buy natural gas from a market where there is a multitude of competitive players so the gas is not controlled by a state monopoly, they don't have to worry about there being a change of power in the country and suddenly their contract isn't honored, or that there is some leverage, geopolitical leverage, that is at -- you know, brought to bear in the discussion of supply.

So the great thing about the United States market is that through innovation and competition, we have, you know, dozens and dozens and dozens of companies, and we have a very competitive market. We have what we call natural gas-on-gas pricing; so in other words, we don't

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have an artificial price tied to oil or some other commodity.

So by allowing some amount of exports, what it means is countries like Japan or South Korea can ask for a natural gas price tied to a market price and not be subject to sort of artificial constraints, not have to worry about cutoff of supply. It just makes a big difference, makes a more dynamic market.

And I do think that what is going to happen over time, though, you know, one can never have a crystal ball, is that as the United States market is more connected with the global market, then what you are going to see is oil-linked price contracts imposed by a Russia or by a Middle East country will not be able to stay up, because there will be so much supply, and you have a global market, and you will have more flexible competitive markets, more projects will compete into different markets.

We have the industry developing these technologies where they have ships that can be moved from place to place to do production, or to have even a ship that can be a receiving terminal, and we will get to have a very commoditized market in natural gas where countries like Japan will not have to worry about their supply.

Mr. Green. Mr. Chairman, I know I am out of time. I had a question for Mr. Bradbury. I would like to submit it.

[The information follows:]

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Mr. Green. But I am glad we are at 2 percent leakage on methane, and that is below the 3. Believe me, every producer that I know would love to get down to 1 percent, because they would like to have that methane being sold on the market to somebody instead of releasing it into the air.

So again, thank you, Mr. Chairman.

Mr. Whitfield. At this time I recognize the gentlemen from Texas Mr. Olson for 5 minutes.

Mr. Olson. I thank the chair.

And welcome to our panelists. Special welcome to our two Senators, Senator Johnston, Senator Dorgan; and Ms. Jaffe, who spent some time at the Baker Institute at my alma mater, Rice University, in Houston, Texas.

I am going to focus on the national security implications of LNG exports. Having deployed to the Persian Gulf and the Strait of Hormuz from June of 1994 until November of 1994, I have seen firsthand how important that region is to the global economy and, by extension, U.S. national security.

This new U.S. energy renaissance gives our country a once-in-a-lifetime chance to minimize the direct impacts on our economy from the Persian Gulf and to develop strong diplomatic relations and increase our national security. One way to do that, I think, is exporting LNG.

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We have talked about benefits with Japan's recovery from the earthquake, tsunami, South Korea. I want to focus on the world's largest democracy, India. One of six human beings lives in India, over 1 billion people. That is a huge market potential for American companies. And I am blessed to have a consulate from the Indian Government in Houston, Texas, who just reported on board this past fall. I spent 3 hours having lunch with him, 30 minutes talking about their need for U.S. LNG. He said basically to keep their economy growing, they have to have more sources of oil and gas, because they don't have much domestic sources at all.

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[12:05 p.m.]

Mr. Olson. They are not getting pipelines built from the west, not going to come through Pakistan. Obviously they don't get along together. To the north, the Himalayas. If you can get a pipeline through the Himalayas, God bless you, 20,000-foot altitude, man, oh, man. That is the eighth wonder of the world. And to the south is a region of the world that is quickly destabilizing, which seems like all terrorists are moving down towards Myanmar, that part of the world. And again they need, they want our gas. So, Ms. Jaffe, could you care to comment on giving India natural gas? Benefits to the United States? Cons?

Ms. Jaffe. I think the point that we really warrant to focus on is that the United States has this ability, which we have never had before, sort of like the opposite of Russia being able to cut people off, right? We might have the ability to supply our allies or to supply other countries. As we become more energy independent, and I really believe the combination of our improving efficiency of automobiles, combined with deep water and combined with the shale play, we are probably going to get to the point where we are not going to be -- I mean, the imports we are going to have are going to be from Canada,

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or Saudi Arabia, is going to be bringing oil to the refineries it owns in the United States. And when we get to that point, we are going to have a lot of opportunities. We are going to have the opportunity to step up to the plate and we be the swing producer to the global market like the United States was in the 1960s. So we will have the opportunity if we have an ally that is having an energy problem, we will have the opportunity to offer energy aid through sales of exports. And indeed we might be able to use our Strategic Petroleum Reserve more flexibly if we have an ally that has a supply disruption.

So if you think about it, during Hurricane Rita and Katrina, how did we get past our terrible shortages in Houston and other cities is we were able to borrow gasoline from the emergency stockpile of Europe. And we, the United States, could wind up being in a position to be able to be a key supplier. We will be able to use our energy relationships to strengthen our national power. And when we have a better trade balance it will make us stronger in the global economy, we will be able to stand up to China in a different way because we are going to be an energy exporter when they are an energy importer. They are going to have the energy dependence that we have been talking about for 30 years and we are going to be a major energy supply source.

So we really have a tremendous potential here to get it right. And you are already seeing yourself with improved relationships with India, that they care about the United States from an energy point of

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view, and that is exactly the opportunity we have in front of us.

Mr. Olson. Yes, ma'am.

Senators, either one care to comment about that, India LNG benefits for America?

Mr. Dorgan. Make a point: I would not want us to be talking about using SPRO in this country to help an ally.

Mr. Olson. Oh, yeah. This is pure exports.

Ms. Jaffe. Only if we didn't need imports at all. If we don't need any imports then we don't need the international tool. Our imports are not needed (off mike) our domestic production supply all our requirements.

Mr. Olson. And I am on the negative side of my time, so I yield back the balance.

Mr. Whitfield. Thank you very much. At this time I recognize the gentleman from Pennsylvania, Mr. Doyle, for 5 minutes.

Mr. Doyle. Thank you, Mr. Chairman. And welcome to all our witnesses, especially our two distinguished colleagues from the Senate. We appreciate your testimony.

Mr. Chairman, I have been engaged on this issue for quite some time now and been particularly interested in the role the Federal Government takes in permitting LNG export facilities. And unlike some of my colleagues on this committee, I have actually been pleased with the careful consideration DOE has given to the issue. You know, it

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wasn't that many years ago when companies were building LNG import facilities, making bets on the need for imported LNG to meet our energy demand. Who would have guessed in less than a decade these same companies would now be petitioning DOE to turn those import facilities into exports facilities? So I don't fault DOE for taking a cautious and careful approach to approving these permits.

By submitting a two-part study on the effects of LNG export on the U.S. economy and reviewing the hundreds of public comments submitted to those studies, DOE has taken the proper action to under the issue. But that study showed us that in every scenario modeled LNG exports offer a net gain to the U.S. economy. This really shouldn't surprise any of us, the fact that economies gain from allowing trade is not new, but as a guy from Pittsburgh who has witnessed the effects of trade on the local economy I think what we should be concerned with is who gains, how much do they gain, and at what cost to the environment.

And while I remain convinced that LNG exporting should be both allowed and supported by the Federal Government, I don't think believe a careless blanket approval of all pending permits would serve the purpose of the American people.

Let me asked my two distinguished colleagues, you both indicate your support for LNG exporting whether by allowing the free market to act or by opposition to any kind of export ban, and I agree with that. Do you believe, though, that the Department of Energy does have a role

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to play, a proper role to play in the permitting of LNG export permits as determining it is in the public interest?

Mr. Johnston. (Off mike) A preference is to issue the permit, I think that is a proper role and I agree with you they did the proper thing in commissioning the study, the SPRO study which indicated in all of the different scenarios that it is in the national interest of consumers.

Mr. Doyle. Yes, Senator Dorgan, you agree with that?

Mr. Dorgan. And I think, you know, I think ultimately there will be far fewer facilities built than the numbers that are being tossed around these days.

And let me before I leave here today, Mr. Chairman, have the record show my great restraint as an author of the renewable fuel standard in 2005, my great restraint sitting next to my friend Senator Johnston without responding to a bit of it.

Mr. Johnston. We don't grow corn in Louisiana.

Mr. Doyle. And to both my colleagues, you believe DOE currently has the sufficient information to act on these remaining permits?

Mr. Johnston. I believe so.

Mr. Doyle. Yeah. Thank you.

I want to will also ask Mr. Bradbury. First, I want to say welcome back to the committee, Mr. Bradbury, it is a pleasure to see you here. And as some of my colleagues on the committee may recall,

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Mr. Bradbury was instrumental in developing a mechanism in the Waxman-Markey bill, which later became called the Doyle-Inslee provision, which offered protection for energy-intensive and trade-exposed industries. It seems like you are back here today with some equally impressive work.

While I note my support for LNG exporting, I take seriously the concerns you have raised about methane leakage and life cycle emissions. As you know, EPA just lowered its estimates of methane leaks during natural gas production by almost 20 percent from what they had previously reported. Nonetheless, if concerns about methane leakage remain, it is important, I think, that we address them if we are going to support export of this resource to other countries.

So to that end, Mr. Bradbury, could you please help us understand how the technologies you cite in your testimony work? Can they really significantly reduce fugitive methane emissions while being cost effective and have payback periods of 3 years and less? Could you give us some detail on that? And then secondly, if these technologies help company retain their product by not letting it escape into the air, why aren't gas companies making the investment in them?

Mr. Bradbury. Well, thank you for the question. I will do my best to respond as quickly as possible. And to the first question also, I think as a partial response to Mr. Shimkus' question earlier, which is that our projections of payback period for these technologies are

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actually not theoretical, they are based on published estimates from actual experience with these technologies, which you can find on Natural Gas STAR Web site and other sources as well.

So as I noted earlier in response to Mr. Waxman's question, it really is, this is analogous to energy efficiency. You are not wasting product and so there is a benefit economically over time. More details on these technologies to some extent are in my testimony, but also in a full report, which I would be happy to share with you and discuss afterwards.

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Mr. Bradbury. A couple technologies I mentioned initially. So green completions I also mentioned earlier, which is very cost effective and now required for gas wells. There is the use of plunger lift systems for liquids unloading, it is essentially to remove liquids from a well so that gas can flow more freely. These systems avoid venting that is unnecessary when you are cleaning these wells up that could be used more widely. And just simple leak detection and repair, so sending people out to these sites to identify the leaks and then repair them. Of course it puts people to work doing that and you can get a good payback as well.

And there is a final point I really would like to emphasize. The reason that companies aren't doing this in some cases, there are a couple of different answers. It is similar to why companies don't always have the most efficient systems in terms of energy efficiency, is there are competing priorities for investment and there is also market structure issues. The production company that owns the gas is often not the same as the service company or midstream company that processes the gas or the pipeline companies through which the gas flows. And FERC has authority over that to set tariffs and rates, but sometimes they are structured so that this is just a pass-through cost. So while it would be beneficial for the environment and to consumers to reduce these leaks, it is not necessarily aligned properly through the market structure in terms of business interest.

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Thanks for the question, and great to see you again and great to be back. Thanks for your remarks.

Mr. Whitfield. The gentleman's time has expired. At this time I recognize the gentlemen from Ohio, Mr. Johnson, for 5 minutes.

Mr. Johnson. Thank you, Mr. Chairman. And I, too, would like to thank the rest of our distinguished panel for being with us today to talk about this important topic.

Mr. Halleck, you and I come from a region of the State of Ohio and a region of America where people are struggling. Unemployment is still excessively high. Many Americans struggle to provide their children with the clothes and supplies that they need to go to school. The average median income is well below the national average. Double-digit unemployment through much of our region. What is happening in oil and gas in Ohio is a big deal to the people that live there.

In your testimony you talked about the astounding blessing that gas production, oil and gas production has meant to our county. Can you illustrate for us a little bit about what this transformation has been? What was it like prior to oil and gas development?

Mr. Halleck. Well, Congressman, what brought me initially some 30 years ago to Ohio, formerly I was in the clothing business. And I have watched the steel mills in our area, the automobile industry, I have watched a lot of things over the past 30 years, some through

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automation, but importation, just an overall decline in the economy in that part of our State. And there is really nothing to replace that. Someone asked me the other day about, what do you know about oil and gas, and I said really not much other than what I watched on the Beverly Hillbillies growing up. And I say with all due respect to our constituents, there is actually some of that today that is going on.

I have been told we have over 200 new millionaires just in the county I represent. It is conservative by nature so you wouldn't always know that, but I can just tell by looking at the percentage that our general fund budget in terms of our sales tax, property taxes, and others has drastically improved. But it has been a game changer and it has given opportunity certainly to those that aren't only about I think 8, 10 percent of our communities went on to higher education. And this gives these folks that would lean more towards vocational training some, really some \$100,000-a-year jobs that normally they would never have.

Mr. Johnson. Sure. Let's talk a little bit about LNG exports. As you know, I have been a staunch supporter of LNG exports as well. We live in a manufacturing corridor. You talked about the steel mills. Manufacturing is an industry that is very important to the economy of our region. Can you talk a little bit about how important you think it is that we open up the lines for exporting liquid natural gas?

Mr. Halleck. Well, if the estimates, and I am sure a lot of the

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reports have been maybe overly optimistic, but even if they are just optimistic, they are overwhelming in terms of the supply that we would have. In fact, Senator Johnston and I were talking earlier, in my humble opinion it would seem to me that if -- we were talking about flaring -- if we get to the point where natural gas is too cheap, then, for lack of a better term, they would turn off the spigot. I think it not only would stabilize prices, but certainly give us a sense of energy independence.

Mr. Johnson. Do you see increased exporting of liquid natural gas as a threat to a manufacturing resurgence in Ohio or do you think it would help?

Mr. Halleck. No, I think it would help. I don't see it as a threat.

Mr. Johnson. Great. Great.

We often hear from Hollywood and from opponents of oil and gas development that the only people that are benefiting from the oil and gas boon in places like eastern and southeastern Ohio is some CEO of a distant oil and gas corporation. How widespread has the benefit been? You talked about the new crop of millionaires that have been created, can you expand on that a little bit?

Mr. Halleck. Well, it is certainly a trickle-down affect. Just in our county the other day we asked, there was a parcel of property that we own, or the county, I should say, and they wanted to use because

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it was close by a small stream for water. Just in a 2-week period it brought in almost \$40,000. Now, that would not be a lot of money in Los Angeles, but that would be a lot of money in Lisbon, Ohio. That is just one small example.

If you look at the farm equipment, because we are an agricultural community, which is not taxed, there has been literally tens of millions of dollars through the royalties that have been spent on people that were leasing land. So it is far reaching, and it is a trickle down certainly.

Mr. Johnson. Well, thank you very much.

Mr. Chairman, thanks for letting me participate and I yield back.

Mr. Whitfield. The chair recognizes the gentleman from New York, Mr. Engel, for 5 minutes.

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

Several years ago I founded the Oil and National Security Caucus, and one of the reasons I have an open mind about all of this is that I think that we cannot really be free with our policies as long as we rely on foreign oil. And so anything that can ramp up production of domestic resources for energy is something that I think we should look at, albeit there are some safety concerns, there are some environmental concerns. But I think it is something that we need to look at.

So I have been focused on North American energy independence, and the increase in natural gas supplies obviously are a boon to this

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possibility. Can someone speak, I want to piggyback on the exporting of LNG, will we hurt our long-term energy security? Can someone speak to the long-term impact of exporting LNG? I know there is a rush to say that we should export it, but, you know, I am wondering should we not try to keep more for domestic purposes.

Ms. Jaffe. I think the one thing you need to bear in mind, because of course markets change, and I know there is a concern, first people are telling us we don't have enough resource and then suddenly we have this hugely abundant supply. I think the point is that nothing is irreversible. So we can allow LNG exports, they can bring a benefit to our trade balance and our international stature. And if some later date 30 years from now or 20 years from now we find that that policy no longer fits we might have different circumstances, we can revisit it. I don't see that it is necessarily going to be a threat to our energy security.

There is a lot of opinion about how much resource we have. I do believe that the resource is so extensive that we probably could export a substantial amount from several terminals and have it actually not affect prices all that much except maybe occasionally seasonally. And I think that one of the impacts, I mean the reason that a Japan or an India or a South Korea are lining up to buy these exports is because they actually see a price advantage. In other words, they are paying very high-priced oil-linked prices for natural gas. If they could at

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least have our market integrated, we have what we call gas-on-gas pricing, then they could move the market to a more competitive footing where natural gas prices would trade based on natural gas prices and not based on instability in the Middle East.

There is great advantages to having all the oil globally in the system move to natural gas. Japan is burning crude oil and oil for both electricity, and also China uses oil in their petrochemical industry. Just for both environmental reasons and for strategic reasons we would want to see the world moving more away from oil in those industries and even maybe in transportation to natural gas because it is so much more plentiful and so less controlled by artificial forces like Russia or OPEC.

So I think that it is important at this time when we have the luxury of having abundance to make a statement as the United States that we favor free trade, we are going to honor our free trade agreements, we export natural gas to Mexico. I don't think we can turn around and tell South Korea, that we also have a free trade agreement with, but somehow we are not going to provide them with the same opportunities.

So I think that we really have to look at the balance of our strategic and foreign policy and understand that at least in the immediate term chances are these exports are not going to affect domestic consumers, right? And, you know, again I want to emphasize this is sort of a topic for another time. When we export refined

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products in this country we are going to export LNG. The way to ensure that consumers are not harmed in a case where we have a sudden seasonal change in temperature or we have a sudden refinery accident and there is a disruption, the way to do that is to ensure that we have minimum inventory standards for companies operating in this country, which they have in Europe and they have in Asia. We can say that you have to hold a certain number of days of your customer supply. And the reason we have volatile prices in this country is that we don't do that, even though if we did we would not have to worry about the impact on consumer prices of being part of a global market.

Mr. Engel. Well, thank you. I had another question but I guess all my time is used. I just want to welcome back our colleagues Mr. Dorgan, Mr. Johnston.

Good to see both of you. Thank you all.

Mr. Whitfield. Thank you, Mr. Engel.

And thank the witnesses once again. We genuinely appreciate your being here with us to talk about this important subject matter. And I want to ask unanimous consent that we enter into the record a letter from Congressman Michael Turner on this issue, the mayor of Youngstown, Ohio, and the Cato Institute. And the record will remain open for 10 days for any additional submissions.

[The information follows:]

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Mr. Whitfield. Do you have a comment, Mr. Rush.

So with that, today's hearing is concluded, and we look forward to working with all of you as we move forward. Thank you.

[Whereupon, at 12:30 p.m., the subcommittee was adjourned.]