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U.S. ENERGY ABUNDANCE: MANUFACTURING
COMPETITIVENESS AND AMERICA'S ENERGY ADVANTAGE
THURSDAY, JUNE 20, 2013
House of Representatives,
Subcommittee on Energy and Power,
Committee on Energy and Commerce,
joint with the
Subcommittee on Commerce, Manufacturing, and Trade,
Washington, D.C.

The subcommittees met, pursuant to call, at 11:27 a.m., in Room 2123, Rayburn House Office Building, Hon. Ed Whitfield [chairman of the subcommittee] presiding.

Present from the Subcommittee on Energy and Power:
Representatives Whitfield, Scalise, Shimkus, Terry, Cassidy, Olson,

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McKinley, Gardner, Kinainger, Griffith, Rush, McNerney, Tonko, Green, Matsui, and Waxman (ex officio).

Present from the Subcommittee on Commerce, Manufacturing and Trade: Representatives Terry, Lance, Guthrie, Olson, McKinley, Kinzinger, Bilirakis, Johnson, Schakowsky, Sarbanes, McNerney, Rush, Barro, and Waxman (ex officio).

Staff Present: Charlotte Baker, Press Secretary; Matt Bravo, Professional Staff member; Allison Busbee, Policy Coordinator, Energy & Power; Tom Hassenboehler, Chief Counsel, Energy & Power; Kirby Howard, Legislative Clerk; Jason Knox, Counsel, Energy & Power; Nick Magallanes, Policy Coordinator, CMT; Brian McCullough, Sr. Professional Staff Member, CMT; Brandon Mooney, Professional Staff Member; Gib Mullan, Chief Counsel, CMT; Andrew Powaleny, Deputy Press Secretary; Shannon Taylor Weinberg, Counsel CMT; Michelle Ash, Minority Chief counsel, Commerce, Manufacturing and Trade; Alison Cassady, Minority Senior Professional Staff Member; Caitlin Haberman, Minority Policy Analyst; and Bruce Ho, Minority Counsel.

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Mr. Whitfield. I would like to call this hearing to order, and certainly want to thank those of you who are serving as our witnesses today. And I do apologize that we are, I guess, over an hour and a half late, or close to it, so thank you for your patience.

And as you know, we do have difficulty with controlling time up here, and we were voting on the floor. So we do value your being here, and we look forward to your testimony on this important subject.

Today's hearing is entitled, "U.S. Energy Abundance: Manufacturing Competitiveness and America's Energy Advantage."

So I know that this is going to be extremely disappointing for you all, and I am sorry to say this, but we are not going to have any opening statements up here. So we are going to go right directly to you and listen to your opening statements. So each one of you will be given 5 minutes.

And this is a joint hearing. Mr. Terry and I are both -- our committees are hosting this hearing, our subcommittees.

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STATEMENTS OF PAUL CICIO, PRESIDENT, INDUSTRIAL ENERGY CONSUMERS OF AMERICA; DEAN CORDLE, PRESIDENT AND CEO, AC&S INCORPORATED; PHYLLIS CUTTINO, DIRECTOR, CLEAN ENERGY PROGRAM, THE PEW CHARITABLE TRUSTS; DREW GREENBLATT, PRESIDENT, MARLIN STEEL WIRE PRODUCTS; AND ANDRE DE RUYTER, SENIOR GROUP EXECUTIVE, SASOL LIMITED.

Mr. Whitfield. So Mr. Cicio, we will go with you. You are recognized for 5 minutes for an opening statement.

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STATEMENT OF PAUL CICIO

Mr. Cicio. Thank you, chairmans Whitfield and Terry, Ranking Members Rush and Butterfield. Thank you for the opportunity to be here.

The shale gas revolution and lower natural gas and feed stock costs have launched the start of the manufacturing renaissance with announced manufacturing investments of over \$110 billion. This is the first wave of investment. The second wave will be from our downstream customers who will relocate to be near their suppliers and reduce their costs. The Boston Consulting Group estimates that 5 million new jobs will be created in manufacturing by 2020. Every dollar's worth of natural gas run through our manufacturing economy creates up to \$8 in added value. This is a superior economic use of natural gas than exporting LNG.

The \$110 billion investment will also create new natural gas demand between 7 and 9 Bcf a day, about an 11 percent increase. This is all good news.

The most significant threat to the fulfillment of the manufacturing renaissance will be determined by the speed of LNG export terminal approvals and the volume of its shipments, which brings me

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to the key points of my testimony.

Doing it right can be a win-win for producers and consumers of natural gas. Doing it wrong will result in spiking natural gas and electricity prices and an end to the manufacturing renaissance. We need to avoid what happened in Australia.

IECA is not opposed to LNG exports but warns policymakers that careless due diligence by the DOE on the public interest determination of LNG export applications to non-free-trade countries is a real concern. LNG terminal approvals are for 30 years. A lot can happen in 30 years.

In this regard, we are asking members of these two committees to support your natural gas consumer constituents back home by urging the DOE to do a rulemaking to establish transparent criteria for decision-making for LNG export facilities. The public trust -- just as the DOE did as they dealt with LNG imports a decade ago.

Domestic demand is accelerating and LNG export demand is additive to that demand. For example, just six of the most likely export terminals would increase demand by 16 percent. The export demand would be on top of the AEO 2013 demand increase of 6 percent by 2020. Neither demand number includes the manufacturing renaissance of an 11 percent demand. Combined, this is a 33 percent increase. This is a huge increase in a very short time frame, and this does not include new demand that will occur from the EPA's utility mat and EPA's

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greenhouse gas regulations.

The public interest determination for approval of LNG exports to non-free-trade countries is the law. The public interest test is really important, because it is a safeguard to ensure that decisions are being made correctly and with up-to-date information.

The responsibility for review of LNG export applications resides with the Department of Energy. In this regard, the DOE decision raises questions. On May 17th, in our opinion, the DOE failed in their judiciary responsibility under the Natural Gas Act in the implementation of the public interest determination for the Freeport facility. DOE cites three studies in approving the Freeport LNG export facility. All three use demand assumptions that are 2 and a half years old.

However, we do agree with the comments in the conclusion portion of the approval. This is a quote: "The reasons in support of proceeding cautiously are several. Number one, the LNG export study, like any study based on assumptions and economic projections, is inherently limited in its predictive accuracy. Number two, applications to export significant quantities of domestically produced LNG are a new phenomena with uncertain impacts. And number three, the market for natural gas has experienced rapid reversals in the past and is again changing rapidly due to economic, technological and regulatory developments. The market of the future very likely will not resemble

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the market of today," unquote.

Mr. Chairman, no one in your congressional district wants higher natural gas and electricity prices. We ask for your help in this matter.

Lastly, decisions on LNG export applications need to be done on a case-by-case basis and sequenced to avoid price spikes. These are not unreasonable requests. Thank you.

Mr. Whitfield. Mr. Cicio, thank you.

And I neglected to say who Mr. Cicio is, but he is the president of the Industrial Energy Consumers of America.

And we thank you for your testimony.

[The prepared statement of Mr. Cicio follows:]

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Mr. Whitfield. Our next witness is Mr. Dean Cordle, who is the president and CEO of AC&S, Incorporated, a chemical company.

And we are delighted that you are here, and you are recognized for 5 minutes. Mr. Cordle.

STATEMENT OF DEAN CORDLE

Mr. Cordle. Good morning, Chairman Whitfield and Terry, Ranking Members Rush and Schakowsky, and members of the Subcommittee on Commerce, Manufacturing and Trade, and of the Subcommittee on Energy and Power. Thank you very much for your leadership in holding today's joint subcommittee hearing on United States energy abundance and its tie to our manufacturing competitiveness and advantage.

My name is Dean Cordle, president, CEO of AC&S, a chemical manufacturing facility located in Nitro, West Virginia, appearing on behalf of the American Chemistry Council.

I am pleased to comment on the critical role that abundant and affordable oil and natural gas is playing in revitalizing the competitiveness of the U.S. chemical industry, driving enormous new investments in chemical manufacturing and creating hundreds of thousands of new jobs in the process.

We are a very small company. We have over 40 employees. We started from humble beginnings back in 1988 as a railcar cleaning

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facility. Over the years, we have added chemical manufacturing, and today, we serve the refining, pharmaceutical and agricultural industry in producing intermediates and finished products for them.

This shale gas revolution has transformed our company. We are putting steel in the ground, as we speak, we are nearing completion of a new production unit, and my focus right now on growth opportunities is certainly centered in the oil and gas industry and the downstream derivatives.

The U.S. chemical industry is highly energy intensive. We use energy inputs, mainly natural gas and natural gas liquids as both our major fuel source and feed stock. About 75 percent of the cost of the producing petrochemicals and plastics is related to the cost of energy-derived raw materials. Consequently, our ability to compete in global markets is largely determined by the price and availability of natural gas and gas liquids.

The consulting firm IHS forecasts that the U.S. has a 100-year supply of natural gas. This abundant and affordable supply of natural gas has transformed the U.S. chemical industry from the world's high-cost producer 5 years ago to the world's low cost producer today. As a result, the U.S. enjoys a decisive competitive advantage in the cost of producing basic petrochemicals. For example, it costs less than \$400 a ton to produce ethylene in the United States, whereas it compares \$1,000 a ton in Europe and even more in Japan. As a result

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of this cost advantage, dozens of companies are making plans to invest in new U.S.-based chemical production capacity.

ACC estimates that more than \$72 billion in new capital expenditures will be invested in the U.S. between 2012 and 2020. Roughly half of those investments will come from firms that are based outside of the U.S. The U.S. is emerging as the place to manufacture chemicals now. The supply response from shale gas will directly create tens of thousands of new jobs in the U.S. chemical industry.

Policy will play an important role if we are to optimize our competitive advantage. These policies include implementing a true all-of-the-above energy policy that enables all energy sources, including energy efficiency, to fairly compete in the market. Second, we need to keep oversight of the unconventional oil and gas production in the hands of the States. In addition, we also need to expedite permitting and construction of infrastructure needed to move that gas and gas liquids to market.

In closing, I want to thank this subcommittee for the opportunity to describe how abundant and affordable quantities of natural gas and natural gas liquids are creating a manufacturing renaissance in the U.S. chemical industry. In a few short years, the U.S. chemical industry has moved from an industry in contraction to an industry facing an era of unprecedented expansion.

Thank you, Mr. Chairman.

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Mr. Whitfield. Thank you, Mr. Cordle. We appreciate that.

[The prepared statement of Mr. Cordle follows:]

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Mr. Whitfield. And our next witness is Ms. Phyllis Cuttino, who is the director of the Clean Energy Program at the Pew Charitable Trust.

And we thank you for being with us, and you are recognized for 5 minutes.

STATEMENT OF PHYLLIS CUTTINO

Ms. Cuttino. Thank you, Mr. Chairman, and fellow members of the committee. I am thrilled to be here to discuss clean energy as it relates to the energy transformation in the United States, advanced manufacturing and our competitiveness globally.

Research by the Pew Charitable Trust has shown that clean energy technologies have entered the mainstream of global energy markets. In 2012, \$269 billion was invested and clean energy deployment was a record 88 gigawatts, spurred by dramatic price declines.

Companies and countries are turning to clean energy because it enhances energy security, protects the environment and represents a tremendous economic opportunity. Indeed, there is every reason to believe that private investment will continue to grow significantly as countries prioritize clean energy. In some markets, renewable energy systems are already the cheapest and best options. Even in oil-rich Saudi Arabia, they set a goal to obtain 30 percent of their electricity from solar power.

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The International Energy Agency predicts that clean energy technologies will provide more than half of electric generating capacity added over the next 25 years, and most forecasters expect trillions of dollars to be invested over the next several decades.

In short, clean energy is a significant economic opportunity for U.S. manufacturers, but while the global future of clean energy is bright, U.S. competitiveness in the sector is cloudier. Although we lead in clean energy innovation, we are not manufacturing, deploying or exporting these technologies as we should be. Once the clear worldwide leader, policy uncertainty in this country has had an adverse impact on U.S. standing in the sector. China now leads the world in attracting private investment: \$65.1 billion in 2012. In the same year, the United States, our investment fell to \$35.6 billion. We are now in second place. Simply put, America is underperforming in the clean energy sector.

Last year, Pew organized roundtable discussions in New York, in Ohio, in Colorado, in Georgia, in Mississippi, and in Washington, D.C., with clean energy industry leaders in the areas of finance, manufacturing, innovation and deployment. They identified three key challenges facing the industry and six policies for overcoming them. These challenges are: Policy uncertainty. This was described as the overriding impediment to clean energy investment and progress. The boom and bust nature of U.S. clean energy programs makes it hard for

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companies to succeed and develop the supply chains and business models they need.

International competition was second. It is a tough time for producers, with fierce competition and worldwide oversupply. We should expect some bankruptcies and consolidation to occur, just as they have characterized every emerging sector, from automobiles to computers, but over the long term, this will result in a stronger, more efficient and cost-competitive industry.

Tight credit markets are a third challenge. While not unique to clean energy, it is difficult to raise the capital needed to grow businesses and scale up technologies.

Now, Congress has numerous options for addressing these challenges and bolstering U.S. competitiveness. Our roundtable participants identified six priorities for you all to consider. First, set a clear, consistent and long-term goal for the deployment of clean energy, thereby providing the certainty needed for inventors to invent, investors to invest and manufacturers to produce.

Second, support energy R&D at higher levels and continue recent initiatives like ARPA-E and energy innovations hubs in order to maintain the pipeline of ideas and innovations for driving down the costs and ratcheting up the performance of advanced energy technologies. This is critical to U.S. competitiveness.

Third, renew the production and investment tax credits for a few

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more years. Congress has provided incentives to incumbent technologies. The four permanent tax incentives in the code are for oil, gas and nuclear power. Our industry participants would welcome a multiyear but time-limited extension of clean energy tax credits to help ensure full market maturation.

Fourth, level the playing field by addressing the barriers that impede industry progress. For example, pass the proposed MLP Parity Act, which would allow clean energy to qualify for the same tax treatment that is open to investments in the oil and gas infrastructure.

Fifth, support manufacturing through advanced energy manufacturing tax credit and the Department of Energy's clean energy manufacturing initiative.

And finally, sixth, strengthen and expand trade promotion for exports of American-made clean energy technologies to growing and emerging markets.

In conclusion and in view of current and projected investment trends, U.S. competitiveness in clean energy warrants public and private sector priority and partnership.

Mr. Chairman, policy matters. Encouraging innovation, deployment, manufacturing and trade of clean energy technologies through policy will help ensure America capitalizes on the substantial opportunity for the Nation's economic, environmental and national security prospects.

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We at the Pew Charitable Trust look forward to working with you and Congress to pass these policies and realize these goals.

Mr. Whitfield. Thank you very much.

[The prepared statement of Ms. Cuttino follows:]

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Mr. Whitfield. Our next witness is Mr. Drew Greenblatt, who is the president of Marlin Steel Wire Products.

And we appreciate your being with us, and you are recognized for 5 minutes.

STATEMENT OF DREW GREENBLATT

Mr. Greenblatt. Thank you. Good morning.

The USA has hit the lottery. This energy blessing will create a lot of jobs. This is not controversial. This should be a unifying thing for our country to get behind.

My name is Drew Greenblatt. I am the president of Marlin Steel. We are based in Baltimore, Maryland. Marlin Steel is the leading manufacturer of custom-made wire baskets, wire forms and precision sheet metal fabrications. We make 100 percent in the USA in Baltimore City.

We are a fast growing company. We have grown 7 years in a row, despite the recession. As a matter of fact, we are number 162 of all manufacturers, according to Inc. Magazine.

We use entirely recycled steel. And we export -- and this is pretty cool -- to China. We make it all in Baltimore. We use steel made in Illinois, made in Pennsylvania. And the thing I am most proud about is that we have gone 1,650 days without a safety incident.

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Twenty percent of my employees are mechanical engineers. And we succeed through innovation, investment. We have a wonderful team.

I am representing today the National Association of Manufacturers. One in six private sector jobs are in manufacturing. These are great jobs; \$77,000 a year on average, including benefits. And this is much better than most -- than the average American employee makes.

I bought Marlin Steel in 1998. We had \$800,000 in sales and 18 workers. Last year was our most successful year ever. We had over \$5 million in sales, and now we employ over 29 people.

One of the primary reasons for this growth is because of domestic energy production and these lower energy prices. There has been a lot of talk about economic growth out in the shale boom in North Dakota, Ohio, Pennsylvania, Texas, but this is starting to impact and trickle down to places that are not generating oil and petroleum, places like mine. Manufacturers across the country are benefiting from these lower energy prices and this increased industrial activity. We fulfill many orders that ship to the gas industry.

How has the boom helped us specifically? Two ways. Number one, lower costs. We are paying less money for the energy to heat the factory, for example. We are paying less money for powder coating, so we are more competitive when we compete head to head against China, when we compete head to head against Japan and Germany and Canada.

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The second way is that it has increased our revenue; higher revenue. Higher revenue means more jobs. We are selling material handling solutions from steel wire baskets and sheet metal products to Schlumberger, Halliburton, Timken and Caterpillar. This is what has propelled our growth.

We are also aware of recently President Obama visited one of our colleagues a mile away, Ellicott Dredges. They are doing great because of the boom as well. They are making dredges for the Canadian oil sands.

Think about it. There is a new steel pipe plant being built in Youngstown, Ohio. When was the last time a steel mill has been built in Youngstown, Ohio? Something is going on, and it is great, and we should be embracing this.

For us, what happens is we hire unemployed local steel workers. We buy more robots. One of our robot makers is in Chicago; a second one is in Connecticut. We buy our steel from Illinois, from Indiana. We buy our steel from Pennsylvania. So it is -- we are all in it together, and we are all growing together because of this wonderful fortune our Nation is blessed with.

In conclusion, abundant low-cost energy is changing the landscape of the global marketplace. It is well positioning us U.S. manufacturers for years to come. We are increasing production. We are expanding our employees. We are hiring more people. And these

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workers are buying things, and this is having a positive ripple effect throughout the economy. With continued production and the right policies in place, U.S. manufacturers will continue to be the drivers of economic growth and prosperity. Thank you.

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

[The prepared statement of Mr. Greenblatt follows:]

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Mr. Whitfield. And our final witness today is Mr. Andre de Ruyter, who is senior group executive for Sasol Limited.

And thank you for being with us, and you are recognized for 5 minutes.

STATEMENT OF ANDRE DE RUYTER

Mr. de Ruyter. Chairman Whitfield, Chairman Terry, Ranking Member Rush, Ranking Member Schakowsky, members of the committee, thank you very much for the opportunity to be here today and present testimony. It is an honor.

Sasol is an integrated international energy and chemicals company. We employ about 34,000 people in 38 countries worldwide. We operate large-scale fuel and chemical plants throughout the world, and we are listed on the Johannesburg and New York stock exchanges.

We are not a stranger to the U.S. We have been doing business here for the past 20 odd years. We have headquarters based in Houston. We have also operations in that city, and furthermore, operations, plants in Arizona, in Louisiana, and also in the State of California.

The U.S., and Louisiana, in particular, offer a business-friendly climate with a predictable regulatory structure. More importantly, though, the U.S. shale gas revolution has created attractive opportunities for Sasol's investment into the U.S. market.

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Sasol is uniquely positioned to monetize U.S. natural gas through our gas-to-liquids, or GTL, technologies, and consequently, Sasol announced in December 2012 that it was going to move forward with the next phase of investing in a world scale ethane cracker and gas-to-liquids facility in Westlake, Louisiana. It is estimated that the combined investment comprised by these two projects will amount to between 16 and 21 billion U.S. dollars. This will make it one of the largest foreign direct investments into manufacturing in the U.S. in history.

The ethane cracker is anticipated to produce some 1.5 million metric tons of ethylene per annum, with associated downstream ethylene products produced, and the GTL plant will be producing gas-to-liquids diesel as well as associated chemical products.

While natural gas is a major energy source for global power generation, it has up to now lacked the versatility to embrace transportation needs. With our proven GTL technology, we can fundamentally alter the chemistry of natural gas so that we can convert it to approximately 100,000 barrels per day of gas-to-liquids diesel for use in transportation, thereby maximizing in-country value add. And this contrasts with the technology of LNG, which essentially repackages natural gas for export to other countries as a form of energy.

Unlike other alternative fuels, GTL diesel is fully fungible with

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conventional diesel and requires no adjustment to engine technology or to distribution infrastructure. GTL diesel's high quality makes it highly suitable for use as a blend stock by crude oil refineries to upgrade their products into high quality fuels; however, when gas-to-liquids diesel is used neat, it has the added benefit of leading to lower emissions of particulates and other pollutants as a result of the fact that it contains essentially zero sulfur and very low aromatic compounds. And this helps to improve air quality and meet emission mandates.

Although this GTL gas-to-liquids facility will be the first of its kind in the U.S., it is important to emphasize that this is not an experimental technology; this is not new. Sasol has been manufacturing fuel using essentially the same technology for more than 60 years. And together with our partner, Qatar Petroleum, we have produced more than 45 million barrels of diesel fuel for export into the international market since the commissioning of our ORYX gas-to-liquids facility in Qatar in 2007.

When we proceed with these projects, it will have a very substantial impact on the U.S. economy. We anticipate that we will create more than, 200 direct jobs, with an average annual salary of \$88,000; 7,000 construction jobs will be created during peak construction. And this will in turn lead to thousands of indirect jobs.

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Our commitment, however, goes beyond these projects and extends into the local communities, where we intend to continue to be a good neighbor and to conduct our business in a safe and socially and environmentally responsible manner.

The U.S. will also see increased tax revenues and GDP and an improved balance of trade.

Sasol's U.S. projects are a compelling example of how bilateral trade between Africa and the U.S. can yield substantial foreign direct investment into the U.S., which represents a win-win for both the U.S. and also the South African economies, and we are proud to be driving the next phase of our growth into the U.S. And we encourage Congress to continue to promote policies that stimulate the development of natural gas, and we really look forward to taking advantage of this opportunity.

Thank you, Mr. Chairman. I will take any questions.

Mr. Whitfield. Mr. de Ruyter, thank you very much.

[The prepared statement of Mr. de Ruyter follows:]

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Mr. Whitfield. And thank all of you for your testimony.

We have the farm bill on the House floor today, and we are going to be going to vote again soon, so we are going to allocate to every member 3 minutes for questions only. And so I would like to start my 3-minute time now. I am going to recognize myself for 3 minutes, but I am -- before I -- and on my questioning time, I am just going to make a few comments.

First of all, this is a very important hearing. We are seeing this renaissance of manufacturing in America, and we know that it is caused primarily because of low cost energy that has come about of the shale gas and shale oil finds that we have recently had. So, in order to keep this going and to address the job and the sluggish economy we have in the U.S., and I notice today the Federal Reserve board yesterday, I guess, said they are going to kind of stop our easy money policy, so we may see interest rates start edging up soon.

So the policies that the U.S. Government adopts is going to have a dramatic impact on the cost of energy. And energy costs are a key component for continuing to grow our manufacturing base and create jobs. And so when we talk about that, we are talking about the regulations, we are talking about an all-of-the-above energy policy, which many of you talked about specifically in your testimony, but I would remind everyone once again that the Obama administration says an all-of-the-above, but they systematically are trying to eliminate

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some fossil fuels, particularly coal.

And I notice -- I was reading the Federal Register footnotes on the proposed greenhouse gas new source performance standard for new electric generating units. And in the register, it says the Department of Energy National Energy Technology Laboratory estimates that when that rule becomes final, that the technology that the coal industry would have to use to meet the emissions standards would add 80 percent to the cost of electricity; that one standard, 80 percent increase.

So we are all excited now and we feel good about these low energy costs, but as we move forward, we have to think about the policies and the impact, because I, for one, as many of you said in your testimony, do believe we need all of the above. Green energy alone is not going to get it done.

So thank you very much for your testimony. I look forward to working with all of you as we move forward.

And at this time, I would like to recognize the gentleman from Illinois, Mr. Rush, for 3 minutes.

Mr. Rush. I want to thank you, Mr. Chairman.

We do have an incredible opportunity here to address both the threat of climate change and to secure U.S. leadership and U.S. jobs in a clean energy industry worth trillions of dollars.

Today's witnesses testified about how low-cost natural gas benefits the economy and is leading to a manufacturing renaissance in

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the U.S., but natural gas, Mr. Chairman, is not the only domestic energy source creating good manufacturing jobs in this country. Last year, the U.S. wind industry employed more than 80,000 Americans, including more than 25,000 in manufacturing jobs. The solar industry employed more than 119,000 U.S. workers, including more than 29,000 in manufacturing sectors. Many predict that the clean energy sector will be the most important energy industry of this century.

And my question is directed to Ms. Cuttino.

Ms. Cuttino, how large is the global clean energy market, and how much is it anticipated to grow in the future?

Ms. Cuttino. Well, thank you, Mr. Ranking member. Mr. Rush, most forecasters are saying that there will be between \$5.9 trillion and \$7 trillion that will be invested over the next 10 to 15 years in the sector. The International Energy Agency predicts that 50 percent of all new capacity additions across the world are going to be renewable. Other estimates are that it is as much as 70. Here in the United States, last year, 49 percent of the new installed capacity was renewable; 30 percent was gas. So together, these two things actually work very well.

So I think it represents a very significant opportunity, particularly as a country that has invented these technologies and can ship and export them and sell them around the world. Thank you.

Mr. Rush. What role should Federal funding for advanced energy

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technology development play in rebuilding America's competitive advantage in clean energies innovation, and where should we focus our investment?

Ms. Cuttino. Well, Mr. Rush, that is a very good question. We -- in talking to clean energy leaders across the country, business leaders, have said time and time again that policy uncertainty is an impediment to their progress. It is the single largest factor that chills greater investment and deployment, export and manufacturing. This committee has heard many times business talk about uncertainty as it relates to regulations and policy, and clean energy is no different. It is just another form of technology.

So if we want to support this sector, and we should, we need to put together a long-term policy signal that will give investors the signal they need to invest, to move capital off the sidelines and for manufacturers to scale up and produce those technologies that we can sell around the world.

Mr. Rush. Thank you.

I yield back.

Mr. Terry. [Presiding.] Thank you, Mr. Rush.

Now I recognize myself for my 3 minutes. I appreciate all of you being here.

Since 2008, during the great recession, we lost over 5 million American manufacturing jobs. We are seeing an uptick. We have

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had -- 500,000 new jobs were created within the last year to 2 years, and a lot of them are in the industries that are heavy energy users, particularly natural gas. So it is interesting -- or that is the purpose of having the hearing here. We want to see, A, is it the low cost of natural gas that is generating this resurgence in manufacturing jobs? Are there other reasons? And so I am going to kind of flip it over, the question here, and flip it over to the other side of the coin and ask, we have had the testimony about pro natural gas. What are the other obstacles that you have observed in your expansion within your own industry of any barriers, speed bumps or whatever that maybe we can address?

Mr. Cicio, you go first, and then we will just go from my left to right. And make it quick.

Mr. Cicio. Speed bumps for energy-intensive manufacturers are many, including regulations. Regulations, for example, the industrial boiler mat. Hugely expensive. Manufacturers in terms of the next speed bump are concerned about what happens to electricity costs as a result of EPA regulations on the electric utility sector that is forcing coal to gas, but the costs of those environmental regulations all get pushed onto us. In the future, regulations of greenhouse gases.

Mr. Terry. Mr. Cordle.

Mr. Cordle. Well, I will just echo the previous gentleman. I

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think regulations are an important part of something that we need to address. Drilling permits on Federal lands, onshore and offshore, we need to make sure that those are expedited and streamlined, as well as leaving the regulations of the extraction to the States. Thank you.

Mr. Terry. Mrs. Cuttino, do you have anything? It is a little bit out of --

Ms. Cuttino. Well, I would offer something positive, which is I think everyone on the panel and I would agree that one thing that our manufacturers need is support for industrial energy efficiencies, such as combined heat and power or waste heat recovery. This, as you know, reduces the cost of energy, and they are installed here in America by American labor, and they spur tremendous private investment as well as making all the products more competitive around the globe. So I think that is something that this committee could certainly support, is combined heat and power industrial energy efficiency.

Mr. Terry. Mr. Greenblatt.

Mr. Greenblatt. I agree with all the impediments that were just mentioned. Another big impediment is that it is a global economy, and we are competing against Canada. We are competing against Germany and Japan, and our tax rates are not competitive. We are in the 40 something percent, 70 -- 40 percent tax bracket, and we are competing against Canada, which is at 15 percent. That is hard to welcome. We need your help to get a level playing field so we can grow jobs in

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Baltimore.

Mr. Terry. Mr. de Ruyter, I am going to cut you off, because my time is gone, but I am only doing so because I know Mr. Scalise is very anxious to just talk to you.

At this time, I recognize the gentlelady from Illinois for her 3 minutes.

Ms. Schakowsky. Thank you, Mr. Chairman.

I wanted to ask you, Ms. Cuttino, there has been a lot of talk about all of the above, but in terms of Federal investment, how does, how do clean energy technologies compare to fossil fuel investments?

Ms. Cuttino. Well, we have seen that certainly for incumbent technologies, there are permanent tax incentives in the code, some more than 100 years old, some more than 50 years old. By contrast, the investments or the tax incentives we have seen for clean energy technologies have been episodic at best, uncertain. And, you know, certainty is a word that everyone on this panel has said is critically important, leveling the playing field, reducing barriers. All of these issues apply for clean energy as well. So we need to have the same assurances for clean energy as we do for the incumbent energy technologies.

Ms. Schakowsky. Thank you. I just want to use my remaining time in saying that this panel actually frightens me a bit and the discussion frightens me a bit. There will come a time in the future history not

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yet written of our planet where we say, whoa, when we had an opportunity to move toward clean energy, not just for the competitiveness of the United States or for the advantages of manufacturing, but for the ability of human life to survive on our planet, that we had an opportunity to really do something about this in a significant way.

The world can afford to burn, we are told, about 565 gigatons of carbon dioxide over the next 50 years before we reach 2-degree Celsius increase and disaster that could follow. And we already have, in terms of proven coal and oil and gas reserves, about 2,795 gigatons of carbon dioxide; in other words, about five times as much as we can actually afford to put into the atmosphere.

And I feel an obligation at this moment in history to my children and my grandchildren and future people on this planet that we need to shift toward clean energy technologies to prevent calamitous consequences in this world.

So, Mr. Greenblatt, I am happy that you have the jobs in Illinois, and I am happy that you embrace the idea that Ms. Cuttino talked about that we could be more energy efficient, but this idea now, hooray, we have got all of this, you know, natural gas, this abundance, we can be an exporter of fossil fuels to the world; we can be an exporter, make a lot of money by developing and exporting clean technologies, which are the technologies of the 21st century, I hope.

And I yield back.

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Mr. Terry. Thank you.

And now we recognize the -- Mr. Scalise, you are recognized for 3 minutes.

Mr. Scalise. I am sure you meant to say the gentleman from Louisiana, right, Mr. Chairman?

Mr. Terry. The gentleman from --

Mr. Scalise. I appreciate you yielding. And let me start by saying this panel excites me. I think the fact that we are here in a committee hearing in Congress talking about how technology and energy is revolutionizing our country, and not only creating tens of thousands of really good high-paying jobs, which is something that we ought to be focused on every single day, but also allowing our country to be independent of energy. Here is one case where we have got the opportunity to reduce our dependence on, in many cases, Middle Eastern countries who don't like us, where we are spending billions of dollars to countries who use that money against us, to kill Americans in many cases. And so the revolution in energy is, I think, one of the most important things if we want to get our economy back on track, get our country moving again, create jobs and create the energy security I think that Americans expect and deserve. And so I think it is important that we talk about just what is happening in the real world with some of these new technologies in energy.

And, again, it is exciting to see what has happened. I know in

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my State of Louisiana, we have seen it in these shale plays and up at Haynesville shale, up in -- north Louisiana, you drive up and down the interstates and you see trucks moving pipe, you see people working, you see very low unemployment, and we are creating American energy.

And again, I mean, if we want to have an economy, you know -- if we want everybody to live in squalor and poverty, you know, then we go with the old economy. If we actually want to create jobs and manufacture, make things in this country so that we can create jobs and increase everybody's lifestyle, not just in America, but in other countries, it starts with energy, and safe and secure energy, and that is what this is all about.

And so I want to shift it over to you, Mr. de Ruyter. You know, following the lead from my distinguished chairman, Mr. Terry, and he knew I had a number of questions, but I want to first thank you for the commitment that you have made to Louisiana and to America, because you could have put this plant, this liquefaction plant, the cracker in another country, too. You decided to do it in America; \$21 billion of investment; those are great jobs, over a thousand jobs. And when you see what this all can do for our country, I want to ask you about the process right now. How is it going, and are there any impediments that are placed before you in the regulatory process that Congress can help remove so that you can get these jobs created quicker, so you can create this energy in America quicker?

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Mr. de Ruyter. Thank you, Mr. Scalise.

I think the two potential impediments that we see is, as some of the other panelists have remarked, is the need for regulatory certainty. We need to have a stable regulatory regime that is predictable and that we can anticipate to remain stable for the long term. Once we have that, I think we will be in a very good position to make these very large investment decisions.

I think as well what would be very useful is to the extent that we are dependent on various authorities for the granting of permits, we would like our applications -- and I must stress that we are not asking for any waivers or exemptions. We intend to fully comply with all the environmental legislation, but we would like our permits to be considered and approved, to the extent that they comply, in an expeditious manner.

Mr. Scalise. I think those are very reasonable requests, and we are fighting in this committee to try to create that certainty so that your company and so many others throughout this country can go and create those jobs and create that American energy. So thanks for what you are doing, for all of you on the panel.

And I yield back the balance of my time.

Mr. Terry. Thank you, Mr. Scalise, or the gentleman from Louisiana.

At this time the chair recognizes the full committee ranking

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member, Mr. Henry Waxman. The gentleman from California is recognized for 3 minutes.

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

The United States pioneered many of the clean energy technologies being deployed around the world today, but in 2012, China attracted more clean energy investment than any other country. In the United States, private investment in the clean energy market actually fell.

The clean energy technology market will be pivotal as the world moves toward a lower carbon global economy. It seems like the United States, once a leader in this market, is losing ground.

And Ms. Cuttino, your organization held a series of roundtable discussions with industry and experts that discussed impediments to clean energy investment in the U.S. What did these experts identify as the overriding impediment?

Ms. Cuttino. Thank you, Mr. Waxman.

Their overriding concern was the policy uncertainty that they face in the current policy environment. They talked about a number of things, but that really was the biggest impediment to them being able to raise private capital, being able to scale up to manufacture. And, frankly, they have said, look, energy is a place where Congress has set goals in the past and --

Mr. Waxman. What makes China a safer bet than the United States right now in terms of clean energy investment?

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Ms. Cuttino. China leads the world in not only installed capacity, sir, but they also lead the world in terms of attracting private investment. This is -- America used to lead the world, frankly. We created many of these technologies. And in a study that we conducted looking at the U.S.-China trade relationship, there are clear advantages that the United States has, advanced manufacturing, innovation, while China's advantages are really low cost assembly.

Mr. Waxman. But it all comes down to the uncertainty, the lack of consistent clean energy plan, and investors can't rely on policy to provide direction? Is that --

Ms. Cuttino. Yes, sir.

Mr. Waxman. -- what you found? Now, in your roundtable discussions with industry, did the participants identify EPA regulations as an impediment to investment in the United States?

Ms. Cuttino. They did not.

Mr. Waxman. What about setting a carbon cap or putting a price on carbon? Would that provide clean energy investors with greater certainty about the purpose and direction of our energy policy? What were their views on that?

Ms. Cuttino. That is certainly one policy that would provide certainty, sir.

Mr. Waxman. That is one. What else?

Ms. Cuttino. Well, setting some kind of a clean energy or

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renewable energy standard. Opening up private pools of capital to clean energy the way that oil and gas can capitalize on them. This is Master Limited Partnerships, a real estate investment trust. Certainly providing longer term tax incentives to the production tax credit or the investment tax credit, the same kind of certainty that we have given to other incumbent technologies. And then investing, frankly, in energy R&D. As you know, this country has invested significantly in defense and health, but energy R&D is woefully low.

Mr. Waxman. Thank you very much.

Thank you, Mr. Chairman.

Mr. Terry. Thank you, Mr. Waxman.

Now the chair recognizes the gentleman from Kentucky,
Mr. Guthrie.

Mr. Guthrie. Thank you, Mr. Chairman.

First of all, as to the carbon cap, I think would be more certainly for clean energy, because it would make incumbent energy more expensive, which is kind of what we are discussing here today, how America's energy boom has helped in manufacturing.

My family is in manufacturing, and I can tell you from firsthand experience, my father walked into a Ford plant as a union operator and ended up owning his own business. The pathway to the middle class for our family and for most families is right through the manufacturing floor. I mean, we have seen it throughout.

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And in Kentucky, we have seen two -- we are the number one aluminum State in the country and we used to be one of the top textile States in the country. And textiles in the 1990s moved offshore because it was high labor intensive. Aluminum has stayed in Kentucky, because it is high energy intensive. So our competitive advantage is, for the aluminum industry anyway, which is what my family is a part of, is that fact that we have cheap energy rates. Particularly in Kentucky, as a coal state. So I don't have coal in my district. I don't think I have a lump of coal in my district, but 94 percent of Kentuckians get their power from coal, and that has attracted the investment and jobs that pay \$65,000 to \$70,000 a year for hourly workers in the aluminum industry. And so it is very serious when we talk about raising the price.

And I would love to see clean energy be as competitive. And equalizing the tax and incentives, if one group gets it, I think that is a fair point to make. But raising the price of incumbent energy to get some other type of energy to be competitive is something that would concern me.

And I don't know if anybody wants to talk on specific regulations that you have dealt with, I know we had kind of in general with Mr. Terry, that you have dealt with that has actually -- the EPA has done this, and it has raised the cost of your energy and made you less competitive.

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Mr. Cicio. As a matter of fact, aluminum, about 35 percent of the cost of producing aluminum is the cost of electricity or energy. Relatively small changes to the price of electricity has an immediate impact on their competitiveness. And in Kentucky, for example -- well, Kentucky or anywhere else, you find coal-fired power plants, you will find lots of manufacturers. Why? Because coal provides low cost BTU power. And we compete globally with all types of companies, including companies that are owned by sovereign states. So costs are everything. And EPA regulations on these coal-fired power plants and the proposed regulations, greenhouse gas regulations on new and existing facilities are of great concern.

Mr. Guthrie. And I know companies that looked at Mexico to invest, but the difference in energy did not make up for the differences in labor. So they are able to pay people higher wages because they are driven more by energy costs than they are by labor costs. And that is -- anybody else have -- I have only got 7 seconds. I guess I will yield back.

Mr. Terry. The gentleman yields back. And we recognize Mr. McNerney, the gentleman from California, for 3 minutes.

Mr. McNerney. Thank you, Mr. Chairman.

Mr. Cordle, briefly, if you would, just to satisfy my curiosity, how is the natural gas mostly used? Is it used as a chemical, as a solute? Is it used to create heat through burning, or is it used to

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create electricity? Just curiosity, so if you could give a brief answer, I would appreciate it.

Mr. Cordle. In two primary ways. We use natural gas to fire our steam boilers in our chemical production facility.

Mr. McNerney. Right.

Mr. Cordle. And the overall lowering of that cost has certainly helped us dramatically. In the overall chemical manufacturing industry, it is a raw material, it is an ingredient in what we make in terms of our products.

Mr. McNerney. So is that what most of the natural gas is used, as an ingredient in the product?

Mr. Cordle. Well, the natural gas, when it comes out of the ground, it has several components. It has ethane, propane, a few other things. And the ethane is the key raw material that is cracked and turned into ethylene, ethylene oxide, and then eventually it comes into polyethylene in the plastics that we use every day.

Mr. McNerney. Thank you.

Ms. Cuttino, I am very sympathetic to your comment about predictability. I was in the industry for many years and I saw boom and bust cycles because the production tax credit and so on. We would lay off people and our suppliers would go away, and you would have to rebuild every cycle, all your suppliers. It is a very difficult -- so I sympathize with that. I think we need to be sensitive to that here

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in the committee.

Could you tell me what advantages, what policy advantages that the fossil fuel industry has that the renewable industry does not have?

Ms. Cuttino. Certainly. A couple of things. One, they have enjoyed the benefits of permanent tax breaks in -- or tax incentives in the Tax Code.

Mr. McNerney. Specifically?

Ms. Cuttino. Oil and --

Mr. McNerney. Specifically.

Ms. Cuttino. Specifically? Oil and gas.

Mr. McNerney. Tax breaks, which ones.

Ms. Cuttino. Tax incentives. For oil and gas, it has been more than 100 years, for nuclear power --

Mr. McNerney. What do the incentives look like? What specifically do the incentives look like?

Ms. Cuttino. In total? More than \$500 billion --

Mr. McNerney. Let me --

Ms. Cuttino. -- or what some estimates have been.

Mr. McNerney. What do they look -- what form do they take? What do the incentives look like?

Ms. Cuttino. They take the form of tax incentives. I am sorry.

Mr. McNerney. Right. Are they production tax incentives, or are they depletion --

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Ms. Cuttino. Yes. Yes. I am sorry. Exploration for extraction, yes.

Mr. McNerney. Andre de Ruyter, on the GTL process, what is the energy balance of the GTL liquids; that is, energy in your product, divided by energy into the process and energy in the natural gas? What does the balance look like?

Mr. de Ruyter. Thank you, sir. We use about 9.5 Bcf per day to produce 100,000 barrels of diesel per day. So you could work out the balance from that.

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[12:23 p.m.]

Mr. McNerney. You don't have a number -- a balance number.

Mr. de Ruyter. It is a ratio between gas -- natural gas in and diesel out on the other side of the process.

Mr. McNerney. Plus, energy into the process.

Mr. de Ruyter. Well, that includes the consumption of the energy.

Mr. McNerney. Mr. Chairman, I ran over already.

Mr. Terry. Thank you.

Now the chair recognizes the gentleman from West Virginia, Mr. McKinley.

Mr. McKinley. Thank you, Mr. Chairman.

In 3 minutes, we are going to have to run pretty quickly through this.

Ms. Cuttino, just quickly, with a question to you -- and I like your comments about the clean energy technology and research. And you know, with National Energy Technologies Laboratories, they have been very focused on trying to make that accomplished. But yet you are aware that their research budget was cut by 41 percent. So when the President did that, would you agree with that?

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Ms. Cuttino. I think it is our opinion and the opinion --

Mr. McKinley. It is a yes or a no. Would you agree with the President to slash research, R&D, on fossil fuels?

Ms. Cuttino. On fossil fuels or clean energy? We think --

Mr. McKinley. Well, it is all one in the same. I am going to take that as a no.

Mr. Cicio, if we could run down with you quickly with this. In the 112th Congress, the EPA continually talked about during their hearings that they thought that more regulations were actually going to help the manufacturing industry. They suggested that for every million dollars spent in more comprehensive regulations, for each million, it created 1 and a half jobs. Would you agree that there are 1 and a half jobs created for every million dollars in new regulation?

Mr. Cicio. No. And I don't think any manufacturer would.

Mr. McKinley. Mr. Cordle, your thoughts.

Mr. Cordle. No, I wouldn't agree with that.

Mr. McKinley. From yours, from Marlin Steel.

Mr. Greenblatt. It would be a big job loser.

Mr. McKinley. Thank you.

How about from Sasol?

Mr. de Ruyter. I can't support that statement.

Mr. McKinley. I am sorry?

Mr. de Ruyter. I cannot support that statement that it will

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create more jobs.

Mr. McKinley. Back also on uncertainty, we are trying to find a level of certainty. I agree. As a small business owner myself, we were always searching for that. But now we have the issue of Obamacare coming upon us in our manufacturing.

Mr. Cordle, with 40 employees, you are faced with if you cross over 50, you are going to be meeting new guidelines or new requirements. How is your company adjusting to Obamacare?

Mr. Cordle. Well, certainly, the cost of health care has gotten to the point it has been very difficult to make ends meet. I think right now a family plan costs over \$3,000, and our company carries about 80 percent of that on behalf of the employee. And we have been seeing anywhere from 10 to 30 percent increases on an annual basis. I met last week with our insurance company for our union side -- we employ steelworkers -- and they are frustrated because they don't even have the rates.

Mr. McKinley. Weren't you told it was going to decrease insurance costs?

Mr. Cordle. I don't know how that relates to Obamacare, Mr. Congressman, but I can just tell you from my experience that health care costs in general are going to become very difficult on a small business.

Mr. McKinley. My time is expired. I am sorry. Thank you very

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much.

Mr. Terry. Thank you.

The chair recognizes the gentleman from Maryland for his 3 minutes.

Mr. Sarbanes. Thank you, Mr. Chairman.

I want to thank the panel. I want to acknowledge Drew Greenblatt, who has a very successful business that he has described in Baltimore, and we are very proud of the work he has done in manufacturing.

There are a lot of issues that are packed in here. And, of course, we have less time than usual to address them all.

But the boom in natural gas exploration and production, of course, is presented as a real opportunity. Everything is relative when it comes to energy and the impact it has on our economy and on our public health and so forth. I had embraced the idea that natural gas is an important bridge from traditional fossil fuels, dirtier fossil fuels, toward a clean energy, renewable energy future.

The challenge is that the boom has produced now a scenario that is being embraced by many that this is sort of the end of our problems. That it will allow for ultimate energy independence for the country, and we may be less motivated to get across that bridge now to the other side in terms of a renewable energy portfolio in the future.

So I think that is where some of the anxiety from the boom comes from. Having said that, I certainly appreciate that the manufacturing

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sector sees a real benefit in the lower prices that are being generated from this and maybe as between having those prices increase, because we turn to an export strategy for that versus having them increase maybe because we move to some better way of capturing the impact of that on our environment, or we put more safety standards in place with respect to the industry. I guess most would choose the former.

But let me ask you, Mr. Greenblatt, you are certainly benefiting from the natural gas boom and the impact that is having. But I would imagine you also over the long term aspire to take advantage of clean energy and renewable energy opportunities that may be able to be inputted into your operation. Maybe the pricing isn't there yet. But you are innovative enough and creative it. I imagine you have got that on the horizon. I thought you might want to talk about that.

Mr. Greenblatt. We have explored it. It is something we would love to do. We have looked at putting solar panels on our roof. The math isn't there yet. It would be a wonderful thing for it to occur. But we are not there yet.

Mr. Sarbanes. My hope, as I yield back my time, is that we can strike the right balance so that it is cost effective to pursue a number of these different opportunities and that we can safeguard, as I said, public health and other concerns that we have.

With that, I yield back.

Mr. Terry. Thank you.

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The chair recognizes the gentleman from Ohio, Mr. Johnson.

Mr. Johnson. Thank you, Mr. Chairman. I am going to move quickly here because I have got several topics I would like to address.

Mr. Cicio, I notice that you have a list of new projects listed in your testimony that could be at risk if the U.S. approves applications to export liquid natural gas to non-free-trade agreement countries. I was surprised by some of these companies that you listed, but one in particular caught my eye, and that is the Vallourec and Mannesmann factory, or V&M Star, expansion in Youngstown, Ohio. So my first question is, do you know what they make there?

Mr. Cicio. Of course.

Mr. Johnson. Okay. They make the very steel and the tubes that are going to be used to transport liquid natural gas to market. They are going to benefit from the exporting of liquid natural gas. Why would you suggest that they are going to be hurt by the exporting of liquid natural gas?

Mr. Cicio. Well, my testimony, I guess is not clear enough, but it says we are not opposing exports. It is how the DOE --

Mr. Johnson. Why do you list that company as one that is going to be hurt by the exporting of liquid natural gas?

Mr. Cicio. Because if you export a lot of natural gas, it increases the price of domestic natural gas and electricity.

Mr. Johnson. But the companies that make the materials that

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export the natural gas, they are going to benefit from this.

Let me move on. Because I don't want to get into a debate here. We have a fundamental disagreement.

Let me ask you this. You list a number of chemical projects that will actually benefit from increased natural gas production in your testimony. A recent ICF study projected that employment in the chemical sector would actually increase with LNG exports due to the need to process greater natural gas liquids. Do you agree or disagree with the ICF study and conclusions?

Mr. Cicio. We disagree.

Mr. Johnson. You disagree.

There are a lot of ethane cracker plants being planned all across the country. If all of the cracker plants get built, wouldn't the rest of the natural gas users see increased prices for natural gas and ethane?

Mr. Cicio. If there is increased production of ethane, it doesn't -- you will get residual increases of supply of natural gas, but not necessarily higher prices.

Mr. Johnson. I will take that as a yes.

There is a nearly an almost limitless supply of natural gas, if the Federal Government doesn't mess up the opportunity, and from a manufacturing perspective, if we aren't forced to use gas for power generation instead of cheaper coal. You mentioned that a little

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earlier. I would just suggest that your time and the time of your members would be better spent helping us make sure that the administration doesn't stamp out the coal industry, which is the most cost affordable, reliable form of energy on the planet.

With that, I yield back.

Mr. Terry. Thank you, Mr. Johnson.

At this time, I ask unanimous consent that each side has one more set of questions. So the next person on both sides will be the last. Then we will close, gavel the hearing.

One more each side. Unfortunately, you got beat out by one, Gene.

Unless Ms. Matsui wants to split it with you.

Mr. Green. No, I don't want to take Doris' time. But I also know some of us have been here, and obviously, it is an important panel.

Mr. Waxman. Mr. Chairman, I object to the unanimous consent.

Mr. Terry. The alternative is we will come back at 2:30.

Mr. Waxman. Let's go with the questions and see if we can get it done.

Mr. Terry. Ms. Matsui, you are recognized.

Ms. Matsui. Thank you, Mr. Chairman, and thank the witnesses for being here today.

As we continue the broader debate on energy exports, we must not overlook clean energy technologies and the strong role they will play in transitioning our country to a clean energy economy, mitigating

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climate change, and strengthening our national security. While exporting LNG is certainly an issue worth delving further into, I want to assure that it is just one piece of a larger export strategy, a strategy that also includes clean energy technology exports.

My home district of Sacramento is home to over 220 clean technology companies, many of which are small and medium-size, who are exploring ways to expand their businesses by exporting their products to foreign markets. However, unlike large companies, small businesses simply do not have the resources, time, and manpower to effectively promote their products abroad. They need proper assistance to compete in the international marketplace.

To this end, I have introduced the Clean Energy Technology Manufacturing and Export Assistance Act. This legislation would create an export assistance fund to help clean technology manufacturers navigate foreign markets. Additionally, it would develop and implement a national clean energy technology export strategy.

Ms. Cuttino, included in your testimony is a policy recommendation to expand markets to U.S. clean energy goods and services. Do you believe developing a national clean energy technology export strategy would help achieve this goal, and what do you believe are factors that should be considered in any sort of export strategy and why?

Ms. Cuttino. I absolutely think we ought to have a national

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strategy to export clean energy goods. Mr. Scalise earlier talked about American-made energy in Saudi Arabia or countries in the Middle East. We can export to these countries. Saudi Arabia is going to spend a hundred billion dollars on solar. And they ought to buy American-made solar. So there is a huge opportunity to do that. And I think any strategy ought to be to open up markets and to ensure that small businesses have the same access that large businesses do.

Ms. Matsui. Thank you. So do our international competitors help their small- and medium-sized clean tech businesses facilitate exports to the United States?

Ms. Cuttino. Yes, they do.

Ms. Matsui. How can U.S. clean energy exports benefit the quality of life for people in emerging economies?

Ms. Cuttino. One-third of the world's population is without electricity. And we are seeing a very aggressive push in many areas around the world. Distributed energy is already the best and cheapest option in many of these locations. We know that there is going to be a compound growth in areas of Africa, Latin America, and Asia, in terms of energy growth and clean energy investment. So we should be there and exporting to these emerging markets.

Ms. Matsui. Thank you.

I think I yield back whatever I have.

Mr. Terry. Thank you.

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At this time the chair recognizes the gentleman from Colorado.

Mr. Gardner. Thank you, Mr. Chairman.

Mr. Cicio, emerging reports from nonpartisan think tanks like BPC and Brookings are talking about and suggesting that it is domestic natural gas prices that will drive exports and not exports driving natural gas prices. So it is actually the natural gas prices will drive exports, not exports driving natural gas prices. Do you agree with that?

Mr. Cicio. Well, low natural gas prices relative to foreign markets, yes, will drive exports. Of course.

Mr. Gardner. So, Mr. de Ruyter, do you agree with that?

Mr. de Ruyter. Absolutely, I agree.

Mr. Gardner. I just wanted to get that cleared up. And I would yield my time to Mr. Olson.

Mr. Olson. I thank my colleague from Colorado.

Welcome to the witnesses. With the short time, I will attempt to curb my instincts as a Texan and brag about the Lone Star State. But here it goes.

I represent a suburban Houston district. We have 125 companies operating in the refining and petrochemical industries in Houston. The region is expecting \$35 billion in new capital investments over the next 3 years. The construction from these investments will create over 100,000 jobs and contribute over \$800 million in taxes. Those

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are big numbers, even for Texans.

I have a few questions about cheap natural gas bringing competitors, foreign companies, to our soil.

Mr. Greenblatt, I am thrilled to hear about the growth of your company in Baltimore because of increased shale gas production. I am wondering how to bring your business to Texas.

But I love the fact, too, you are exporting to China. Do you think foreign competitors, maybe one from China, will come and bring their operations to the United States due to lower energy costs and probably some favorable tax treatments from home countries?

Mr. Greenblatt. I think lower energy costs is going to be a boon to, is going to create a boom in foreign direct investment. I think many companies will reposition and look at the globe and think of us differently and in a very positive way because of our cheap energy prices.

Mr. Olson. Thank you.

Mr. Cordle, sir, could you discuss in a little bit of detail here, with the limited time, what the shale resolution means for foreign manufacturing here in the United States? Foreigners come to our country to manufacture.

Mr. Cordle. Certainly. It has been a tremendous increase in investment in the United States. I believe BASF TOTAL are investing in your State, in Port Arthur, a billion dollar project. And we have

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had almost \$70-plus billion in capital announcements in the last couple of years. This really is a game changer. Never before has the competitive playing field been tilted in our favor. It has always been the other way. And we need to put in the policies that will ensure that this is long-lived, it is real, it is here, and we appreciate what you are doing today, and the rest of the committee, regarding this issue.

Mr. Olson. I am out of time. One final comment. Go Spurs.

Mr. Terry. Object.

The gentleman from Texas, another prideful Texan.

Mr. Green. Well, thank you, Mr. Chairman.

Unlike my neighbor and colleague, it doesn't take a Texan too much time to brag about Texas.

I represent a district in the Houston area, and it at one time had the largest petrochemical complex in the country. Every one of our chemical plants in our district in East Harris County are announcing expansions.

I know one on the list that Mr. Cicio had was PetroLogistics. It took a mothballed chemical plant in our district and because of the propane coming off the Eagle Ford, and they were serving literally the market in the Houston area. But last year, they contacted me and wanted to know what they could do to get a carbon permit because States are not issuing them in Texas. You have to go to EPA. Because they wanted

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to double their capacity and get in the international market. So we are seeing that literally all over the petrochemical complexes, from the Mississippi River down to Corpus Christie, Texas.

I know, Ranking Member Waxman, I know China is expanding on their greener energy production. But they are also, they and India, are building 76 percent of the coal plants in the world. So China is doing everything. They are somewhat free enterprise. But we also know they are a command economy. So they can do things that we have to deal with typically with free market or with government assistance on a limited basis. Although some of my plants think the EPA orders them around, but we do know there is an appeals process for that. And in China, there may not be that.

Mr. Cordle, are you seeing similar expansion in West Virginia like I am seeing in East Harris County?

Mr. Cordle. Not to the scale that you are seeing, but we are very hopeful. We are working very hard as a State in an industry to attract foreign and domestic investments in the region. In the Kanawha River Valley we do, as you know, we have a rich tradition in chemical manufacturing.

Mr. Green. I noticed -- in fact, I got to visit some of the chemical plants along the Ohio River, both in Ohio and in West Virginia. You mentioned the supply response for shale gas has directly created 46,000 jobs in the chemical industry due to expanded chemical

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production. What is the average salary for those jobs?

Mr. Cordle. I believe we are around \$77,000, \$78,000 for those jobs.

Mr. Green. Must be nationwide. Because I know in my area, our work source talks about the average salary is about \$86,000 for those chemical plant jobs and refinery plant jobs. Because they are also expanding.

What policies are needed to maintain the long-term, low-cost energy advantage? I understand that I have that industrial complex, but I also have a lot of service companies who actually continue to work, like Eagle Ford and all over the country, literally. But, for example, has the Federal Government made it difficult to use hydrofracking? What would that mean to some of your businesses?

Mr. Cordle. In terms of hydraulic fracturing, I think the States are best suited to handle the regulation of that activity on the extraction side.

Mr. Green. Are we close to the time?

Mr. de Ruyter, one last question. You talked about the link to the gas-to-liquids facility that you are building in Louisiana. You also talked about Sasol currently operating, and you estimated the greenhouse gas savings associated with blending GTL diesel in U.S. refineries. Has GTL technology ever been used here, and would our refineries have to add or update their equipment to handle it?

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Mr. de Ruyter. The refineries would not have to update or change their equipment. They can use it straight as a blend stock. In fact, it would improve the quality of traditional crude-derived diesel by blending in gas-to-liquids diesel.

Mr. Green. Has it ever been used in the United States?

Mr. de Ruyter. Yes. We have in fact exported diesel to the U.S., and we have also supplied GTL jet fuel to the Department of Defense, who uses it for experimental purposes.

Mr. Green. I appreciate it. I appreciate the opportunity.

Mr. Terry. Thank you, Mr. Green.

You have to say. I have a unanimous consent request to submit an article from E&E on "Exelon Blames Subsidized Wind Markets," article.

Hearing none, so ordered.

[The information follows:]

***** COMMITTEE INSERT *****

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Mr. Terry. Now your job is done.

I want to thank all of our panel here. All of you were awesome and your testimony very informative.

Members have 10 days to submit their questions.

Panel, I would appreciate if we submit questions to you, that you answer them within a timely manner. Timely is not several months.

With that, we are adjourned.

[Whereupon, at 12:45 p.m., the subcommittees were adjourned.]