

QUADRENNIAL ENERGY REVIEW AND RELATED DISCUSSION DRAFTS

HEARING BEFORE THE SUBCOMMITTEE ON ENERGY AND POWER OF THE COMMITTEE ON ENERGY AND COMMERCE HOUSE OF REPRESENTATIVES ONE HUNDRED FOURTEENTH CONGRESS FIRST SESSION

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QUADRENNIAL ENERGY REVIEW AND RELATED DISCUSSION DRAFTS

TUESDAY, JUNE 2, 2015

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENERGY AND POWER,
COMMITTEE ON ENERGY AND COMMERCE,
Washington, DC.

The subcommittee met, pursuant to call, at 10:04 a.m., in room 2123 of the Rayburn House Office Building, Hon. Ed Whitfield (chairman of the subcommittee) presiding.

Members present: Representatives Whitfield, Olson, Barton, Shimkus, Pitts, Latta, Harper, McKinley, Pompeo, Kinzinger, Griffith, Johnson, Long, Ellmers, Flores, Mullin, Upton (ex officio), Rush, McNerney, Engel, Green, Capps, Castor, Welch, Loeb sack, and Pallone (ex officio).

Also present: Representative Cramer.

Staff present: Nick Abraham, Legislative Associate, Energy and Power; Gary Andres, Staff Director; Will Batson, Legislative Clerk; Sean Bonyun, Communications Director; Leighton Brown, Press Assistant; Allison Busbee, Policy Coordinator, Energy and Power; Karen Christian, General Counsel; Patrick Currier, Counsel, Energy and Power; Graham Dufault, Counsel, Commerce, Manufacturing, and Trade; Tom Hassenboehler, Chief Counsel, Energy and Power; Peter Spencer, Professional Staff Member, Oversight; Dan Schrieder, Press Secretary; Jeff Carroll, Democratic Staff Director; Caitlin Haberman, Democratic Professional Staff Member; Ashley Jones, Democratic Director, Outreach and Member Services; Rick Kessler, Democratic Senior Advisor and Staff Director, Energy and Environment; John Marshall, Democratic Policy Coordinator; and Tim Robinson, Democratic Chief Counsel.

OPENING STATEMENT OF HON. ED WHITFIELD, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF KENTUCKY

Mr. WHITFIELD. I would like to call the hearing to order this morning. The title today is the hearing on the Quadrennial Energy Review and Related Discussion Drafts, including Title III, Energy Diplomacy. We will have two panels of witnesses this morning. And, of course, on the first panel we have our Secretary of Energy, Mr. Moniz, who is no stranger to this committee or to Congress. So we appreciate him being with us very much, and look forward to his opening statement. And then we will have some questions relating to his testimony, as well as other issues.

And at this time, I would like to recognize myself for 5 minutes for an opening statement.

Everyone is very much aware that this subcommittee and the Congress has been working on a bipartisan energy bill for several months now. Many people are even asking, not surprisingly, is there enough common ground between our efforts and the Obama Administration to enact meaningful energy legislation. And I do believe that this question was answered with a clear yes when the Department of Energy's first installment of its Quadrennial Energy Review was released last April. This detailed study focuses on the infrastructure implications of America's new energy boom, and many of its recommendations overlap with provisions of our draft energy bill.

And so we are excited that Mr. Moniz is here today, so that we can explore the perspective of the Department of Energy as the country makes dramatic changes in its energy distribution, production, transmission system. We have a lot of infrastructure needs. We are focusing on the diplomatic diplomacy aspects of energy, which is becoming more and more important to our friends in the European Union, who find themselves reliant on natural gas coming from Russia. And so we have many opportunities in the United States to come forth with a good energy policy. And I think that most of the provisions that we are focused on in this energy bill, democrats and republicans agree that they need to be addressed, and one of the biggest is infrastructure needs, and trying to improve the permitting process, for an example.

So I look forward to the testimony of all of our witnesses today. And we have a real opportunity here and we don't want to drop this ball, so we are getting close to the end of drafting this legislation, coming up with a final product, and we look forward to move it in a meaningful way.

[The prepared statement of Mr. Whitfield follows:]

PREPARED STATEMENT OF HON. ED WHITFIELD

This subcommittee has been working on our bipartisan energy bill for several months now, and many have asked whether there's enough common ground between our efforts and the Obama administration to enact meaningful energy legislation. I believe that this question was answered with a clear yes when the Department of Energy's first installment of its Quadrennial Energy Review (QER) was released last April. This detailed study focuses on the infrastructure implications of America's new energy boom, and many of its recommendations overlap with provisions in our draft energy bill. I welcome Secretary Moniz this morning to discuss the QER and look forward to his input which is always valued by this subcommittee.

Since the 1970s, Congress has developed an energy policy based on assumptions of declining American energy output and increasing import dependence. But that came before the dramatic turnaround in oil and natural gas production over the past decade, and now we are beginning the task of adjusting our energy policy to reflect this new reality. Both the QER and our energy bill are largely based on the need to update Washington's outdated approach.

First and foremost, America's energy boom is necessitating an infrastructure boom. We need more pipelines and storage facilities and all the other elements of the infrastructure for oil and natural gas. We also need more electric transmission lines and upgrades to the existing infrastructure to ensure that our electricity supply is sufficient, reliable, and secure against outside attacks.

Unfortunately, energy infrastructure faces a host of permitting delays and other red tape. These impediments may have been tolerable in the past when relatively little new infrastructure was needed, but now they are holding back the full benefits of the energy boom. Both the QER and energy bill contain a number of measures

addressing infrastructure permitting, and both are careful to do so while maintaining existing environmental and safety standards.

The energy boom and the resulting need for infrastructure is a good kind of problem to have, because solving it creates jobs. However, DOE's existing job training programs don't fully reflect the consequences of our changing energy sector, and don't focus on the skills currently in demand. The QER contains recommendations for updating these programs that are similar to the workforce training title in our energy bill authored by Mr. Rush.

The energy growth in the U.S. and across North America also necessitates a new approach towards energy geopolitics. The QER emphasizes the need for integration of energy infrastructure and increased cooperation with Canada and Mexico. We concur that a fully integrated North American energy system would benefit the U.S. as well as its neighbors. Our recently-released energy diplomacy discussion draft contains several provisions to advance this continent-wide approach and to ensure that energy policy decisions take energy security considerations into account.

Beyond North America, we also see the U.S. playing a more prominent role in global energy markets. Doing so can help our allies and trading partners around the world, weaken the position of our energy-exporting adversaries, and add more jobs by expanding the market for American energy. The discussion draft contains several ideas to enhance America's energy standing in the world. This includes the first-ever provisions to coordinate with our allies on energy security issues as well as provisions to eliminate needless delays in the approval of LNG export facilities.

I would also add that both the QER and the energy bill consider ways to update the Strategic Petroleum Reserve to more closely fit the energy security challenges of 2015 and beyond.

Certainly there are also areas of disagreement, and I am sure Dr. Moniz will let us know about them. Nonetheless, I believe we can put our differences aside and agree on a range of energy reforms that will benefit the American people for decades to come.

Mr. WHITFIELD. And at this time, I would like to recognize the gentleman from Illinois, Mr. Rush, for his opening statement.

OPENING STATEMENT OF HON. BOBBY L. RUSH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. RUSH. I want to thank you, Mr. Chairman, for holding this important hearing today on the QER, and—as well as on a variety of other energy issues covered in the discussion draft.

Mr. Chairman, let me first begin by welcoming the Honorable and distinguished Secretary of Energy, Mr. Moniz, here to the subcommittee today. Welcome, Mr. Secretary. Mr. Secretary, let me commend you for the outstanding work you have been involved in on a myriad of different issues, all important to the American people. Mr. Chairman—Mr. Secretary, you might not accept this, you might not—you might think that this is a—not something that you see, but in my mind and in the mind of a number of my constituents, you are indeed a superstar Secretary. We are proud of your work on behalf of our Nation. Mr. Secretary, from your leadership in the historic nuclear talks with Iran, to establishing the much-needed Minorities and Energy Initiative at DOE, to overseeing the development of the comprehensive QER, are among your more important accomplishments. And I have no doubt that you will go down as one of the most significant and effective Energy Secretaries of modern time. You see, I am a fan, Mr. Secretary.

Mr. Secretary, as you may be aware, I have a bill that I will soon be introducing that will amend the Department of Energy Organization Act to replace the current requirement for a biannual energy policy plan with a quadrennial energy review. It is my hope that this bill, like its Senate counterpart that was recently introduced by Secretary Coons of Delaware and Senator Alexander of Ten-

nessee, will attract bipartisan support. In fact, Mr. Secretary, I have held off on introducing the bill as of yet so that my office can continue to hold talks with the majority side in order to find language that both sides can agree on. And, Mr. Chairman, I will continue to reach across the aisle for support on this nonpartisan issue of codifying a quadrennial energy review, and I hope that we can find common ground.

Mr. Chairman, the QER addresses many areas that are also covered in the discussion draft of the Comprehensive Energy Bill we have all been working on. Issues such as increasing the resilience, reliability, and safety of the grid are discussed in both packages. Additionally, there are many similarities in both the QER and in the discussion draft regarding integrating North American energy markets, modernizing the grid, and enhancing employment and workforce training. However, Mr. Chairman, there is still much work to be done in bridging the gap in areas where there are some disagreements, such as in signing and permitting and addressing the environmental aspect of transportation—or transmission rather, storage, and distribution infrastructure. Specifically, in the discussion draft before us today, I have some concerns regarding the cross-border approval process described in Section 3104. In this section, the burden is shifted away from farming companies and onto agency officials to issue so-called certificates of crossing, unless the official finds the project, and I quote, “is not in the public interests of the United States.”

Another concern that I have, Mr. Chairman, is in Section 3102, which sets up an interagency taskforce to evaluate North American energy flows. However, the task is noticeably missing representatives from either the Council of Environmental Quality, the Environmental Protection Agency, as well as the Departments of Interior or Transportation, among others who may weigh in on environmental issues.

Mr. Chairman, as we move forward with the goal of putting forth a truly bipartisan energy bill, it is my hope that the majority side will work with us to find common ground on most of these issues, and put precedence in doing the right thing above doing it quickly.

Mr. Chairman, I thank you, and I yield back the balance of my time.

Mr. WHITFIELD. Thank you, Mr. Rush, for that opening statement.

At this time, I would like to recognize the chairman of the full committee, Mr. Upton, for 5 minutes.

OPENING STATEMENT OF HON. FRED UPTON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MICHIGAN

Mr. UPTON. Well, thank you, Mr. Chairman. I just want to say in response to Mr. Rush’s comments, I look forward to working with him and Mr. Pallone, and all of our members on both sides of the aisle, to do this right. And appreciate those kind words.

We are delighted to welcome back Secretary Moniz to the committee to discuss the first installment of the Quadrennial Energy Review that focused on energy transport and infrastructure; something we need to do. America’s energy picture is rapidly changing, and our laws and regulations need to change with it. Longstanding

concerns about declining domestic energy output have been erased by rapidly rising oil and natural gas production. 2013 alone, according to the QER, the U.S. added 1.2 million barrels per day of production, a record increase by one country in 1 year. Domestic production of natural gas and related liquids has experienced equally dramatic increases. 2014, the U.S. became the world's number 1 energy-producing nation, and it is time we start acting like it.

Unfortunately, the scarcity mindset is still embedded in our national energy policy. Rising energy production requires more energy infrastructure; what I have called the architecture of abundance. Both the energy legislation and the QER include a number of ideas for upgrading and expanding the Nation's energy infrastructure. And in light of the recent pipeline spill in California, I would add that both aim to ensure that this new infrastructure is built with state-of-the-art technologies that reduce the environmental and safety risks. But our energy abundance can be more than just an economic success story; it can be—it, indeed, can be a foreign policy success story as well. And that is why recently released discussion draft of our energy diplomacy title is so important.

This—the discussion draft builds on the extensive work done by this subcommittee on LNG exports. At numerous hearings over the last couple of years, we heard from many of our allies around the globe who said they would rather get their natural gas from us than the likes of Russia or Iran. That message was underscored last month when I led a high-level delegation to several of our European allies, including Ukraine, and we came away with a profound new understanding of just how vital these partnerships can be. In established parts of the EU, leaders are coming together to promote a unified energy market because of its potential for security, affordability, and innovation. In Ukraine, where the commitment to freedom and democracy is hard-fought each and every day, their energy aspirations are fundamental to their dreams for a peaceful future.

While our discussion draft encourages North American energy cooperation and cross-border infrastructure, opportunities for energy diplomacy extend well beyond our own continent. For example, there is broad recognition that U.S. LNG exports will benefit the U.S. economy, our consumers, and yes, our allies. While the same could be said for oil exports, a statutory ban has prevented us from pursuing these benefits for the last 4 decades. And it is time that Congress considers revising the ban on crude oil exports.

As with natural gas, America now has enough oil production to make increased exports feasible, especially the lighter grades of crude that the QER notes have experienced the most rapid supply increases. Economic and foreign policy experts across the political spectrum believe that expanding the markets for American oil would be a net jobs creator at home, while enhancing our geopolitical influence abroad. And at the same time, reports from the GAO, CBO, and Energy Information Administration all point to reductions in the price of gas as a result of increased oil exports. In other words, oil exports can be a win for the American people and a win for our allies.

The energy sector has been the Nation's most significant job creator in recent years, but with the drop in oil prices, as many as 100,000 energy industry positions have been lost. The case for creating more jobs by expanding the market for American oil is a key reason why oil exports should be on this committee's agenda this year. And while we are not currently considering any such provisions in this pending legislation, I do look forward to working with my good friend, Mr. Barton, and others on both sides of the aisle to ensure that we get the policy right.

I yield back the balance of my time.

[The prepared statement of Mr. Upton follows:]

PREPARED STATEMENT OF HON. FRED UPTON

We are delighted to welcome back Secretary Moniz to the committee to discuss the first installment of the Quadrennial Energy Review that focused on energy transport and infrastructure. America's energy picture is rapidly changing, and our laws and regulations need to change with it.

Longstanding concerns about declining domestic energy output have been erased by rapidly rising oil and natural gas production. In 2013 alone, according to the QER, the U.S. added 1.23 million barrels per day of production, a record increase by one country in one year. Domestic production of natural gas and related liquids has experienced equally dramatic increases. In 2014, the U.S. became the world's number one energy-producing Nation—and it's time we start acting like it.

Unfortunately, the scarcity mindset is still embedded in our national energy policy. Rising energy production requires more energy infrastructure—what I have called the Architecture of Abundance. Both the energy legislation and the QER include a number of ideas for upgrading and expanding the nation's energy infrastructure. And in light of the recent pipeline spill in California, I would add that both aim to ensure that this new infrastructure is built with state-of-the-art technologies that reduce the environmental and safety risks. But our energy abundance can be more than just an economic success story; it can be a foreign policy success story as well. That is why the recently released discussion draft of our energy diplomacy title is so important.

The discussion draft builds on the extensive work done by this subcommittee on LNG exports. At numerous hearings over the last two years, we heard from many of our allies around the globe who said they would much rather get their natural gas from us than the likes of Russia or Iran. That message was underscored last month when I led a high-level delegation to several of our European allies, including Ukraine, and we came away with a profound new understanding of just how vital these partnerships can be. In established parts of the EU, leaders are coming together to promote a unified energy market because of its potential for security, affordability, and innovation. In Ukraine, where the commitment to freedom and democracy is hard-fought each and every day, their energy aspirations are fundamental to their dreams for a peaceful future.

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As with natural gas, America now has enough oil production to make increased exports feasible, especially the lighter grades of crude that the QER notes have experienced the most rapid supply increases.

Economic and foreign policy experts across the political spectrum believe that expanding the markets for American oil would be a net jobs creator at home while enhancing our geopolitical influence abroad. At the same time, reports from the GAO, CBO, and Energy Information Administration all point to reductions in the price of gasoline as a result of increased oil exports. In other words, oil exports can be a win for the American people and a win for our allies.

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year. And while we are not currently considering any such provisions in this pending legislation, I look forward to working with Mr. Barton and my colleagues on both sides of the aisle to ensure that we get the policy right. Thank you.

Mr. WHITFIELD. Gentleman yields back.

At this time, recognize the gentleman from New Jersey, Mr. Pallone, for 5 minutes.

OPENING STATEMENT OF HON. FRANK PALLONE, JR., A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW JERSEY

Mr. PALLONE. Thank you, Chairman Whitfield and Ranking Member Rush.

Let me begin by welcoming Secretary Moniz back to the committee, and congratulating you on completing the first installment of the Quadrennial Energy Review. It is a truly comprehensive look at our Nation's energy infrastructure, and its recommendations will help us chart a path forward in the rapidly changing energy sector.

This installment relates to the transportation, storage, and distribution of energy. These TS&D connections between suppliers and users can impact our energy reliability and security, and affect our ability to meet environmental and economic goals. TS&D infrastructure is vulnerable to a wide and expanding array of threats from natural disasters to physical and cyberattacks, so it is important we thoroughly understand these vulnerabilities and how to mitigate their impacts. At the same time, its modernization can help achieve meaningful greenhouse gas reductions and other environmental goals, while enhancing safety, security, and reliability. Ultimately, the OER represents the forward-thinking we need to ensure a smarter, more resilient, cost-effective, and environmentally sound energy system for the future. And I look forward to working with you, Mr. Secretary, to translate these important ideas into legislation and law.

I wish I could be as upbeat in discussing the majority's Energy Diplomacy Discussion Draft. Rather than building on the strong relationships with our North American neighbors, the majority has chosen to resurrect controversial legislative proposals that have already drawn democratic concerns and presidential veto threats. For example, the bill would eliminate the current presidential permitting process for liquid and gas pipelines, and electric transmission lines that cross the U.S. border with Mexico and Canada, and it replaces the process with one that effectively rubberstamps permit applications and eliminates any meaningful environmental review.

While it now would only take effect after President Obama leaves office, and specifically excludes the Keystone Pipeline, it still appears to allow TransCanada to avail itself of the new process by reapplying with a revised route. The provision also limits federal approval and environmental review to the small segment of the project that physically crosses the national border. It also creates a rebuttal presumption that these projects are in the public interest; shifting the burden of proof to project opponents. This all but guarantees permit approval, and virtually eliminates the opportunity for protective permit conditions.

The draft bill also recycles LNG export language designed to address nonexistent delays at the Department of Energy. In fact,

DOE recently testified, that “Right now, there are zero applicants sitting in front of us for a decision. The last application that came out of FERC, we turned that around in 1 day.” Nonetheless, the bill would make changes to an otherwise successful process.

And finally, another provision would create a taskforce, burdening federal energy regulatory actions with additional red tape, and undermining environmental considerations. In fact, it speaks volumes that the very agencies tasked with natural resource and environmental management, like EPA and DOI, are excluded from the taskforce.

So I hope this committee can start to work towards consensus legislation instead of resurrecting problematic issues of the past.

But thank you, Mr. Chairman. I yield back.

Mr. WHITFIELD. Gentleman yields back.

That concludes the opening statements for today. And, Mr. Secretary, once again, thank you for joining us. We do look forward to your insights on these important issues. And I would like to recognize you for 5 minutes for your opening statement.

**STATEMENT OF HON. ERNEST MONIZ, SECRETARY,
DEPARTMENT OF ENERGY**

Secretary MONIZ. Well, thank you, Chairman Upton and Whitfield, and Ranking Members Pallone and Rush.

Mr. WHITFIELD. I am not sure the microphone is on, but—

Secretary MONIZ. The light is—yes. OK. Start again.

OK. Well, again, Chairman Upton and Whitfield, and Ranking Members Pallone and Rush, distinguished members of this subcommittee, thank you for the opportunity to be with you again today. And I really appreciate the leadership that this committee has shown in working towards comprehensive and bipartisan energy legislation that includes many of the topics in the QER first installment. I look forward to working with you to move these ideas forward, and really appreciate in the opening remarks the statements about common ground and the opportunities we have to work together.

As was already stated, the U.S. has reaped enormous benefits from our energy revolution the last several years which, I point out, includes, of course, hydrocarbon production, but also dramatically increased renewables deployment to energy productivity gains. This revolution, however, has produced changes that are challenging our energy infrastructure. And to be direct, we need to modernize and transform our energy infrastructures and our shared commodity infrastructures. This will require major new investments, and we have to get it right.

We should acknowledge that, while the choices we make and the decisions we take today and in the near future are critical, we also have to acknowledge that the choices and decisions that we fail to take in a timely way are very important for generating our infrastructure for the 21st century.

To help guide these investment choices, the QER provides recommendations based on a 15-month, multiagency process that included 14 public meetings across the country, and consultations with Canada and Mexico. The QER focuses on TS&D, including the

network of pipelines, wires, storage, waterways, railroads, and other facilities that form the backbone of our energy system.

I ask the chairman's permission to submit the summary version of the QER into the record.

The full QER is available online, and you have my written testimony, so let me just take the opportunity to highlight five crucial tasks that we need to take.

First, our infrastructure and investments can and must serve energy security in a broader sense than the oil-centric focus of the last several decades. An example is found in the definition of energy security that the U.S. and our G7 allies developed after the Russian aggression in Ukraine that includes seven critical elements in a modern view of energy infrastructure. Supply diversification, for sure, but also transparent markets, greenhouse gas emissions reductions, enhanced efficiency, clean energy, infrastructure modernization, and emergency response. This doesn't mean that global oil disruptions are not a concern. Indeed, in the context of the QER and its recommendations, modernizing the SPRO both from a physical distribution standpoint, as well as the authorities for its use, is a major area of focus. Through its analysis of resilience and infrastructure modernization, the QER goes beyond global oil supply disruptions as the single focus of energy security policy, leading, for example, to recommendations related to regional fuel disruptions, as we have seen across the country. More coordinated state planning is also essential. And most notably, we feel that state planning grants to help states update and expand their emergency preparedness and security strategies and exercises to enhance electricity reliability, to accommodate several changing factors, are all critical. Other ways to improve energy security include programs to make our energy infrastructures more resilient to a range of hazards and vulnerabilities. These are addressed in part through the QER's recommendation for a pre-disaster hardening grant program, options for transformer reserves, and a systematic program to replace aging unsafe natural gas distribution pipes.

Second, QER and its recommendations underscore the indispensable role of states. These really are test beds. We need to advance studies such as a new framework for evaluating energy services to help things like rate structure development.

Third, the QER analysis showcases the importance and complexity of how our energy revolution challenges our shared transport infrastructures. Frankly, when we started the QER, we did not anticipate that we would end up with this as a major area of focus. However, the dramatic oil production increases in unconventional locations, coupled with things like the RFS and pending exports of natural gas, have placed strains on those transport infrastructures; rail, barge, locks, port facilities, and the like. The QER includes recommendations focused on innovative funding mechanisms for these infrastructures and, for example, recommends a program for port connectors being stressed by new energy supplies.

Fourth, the QER recommends coordinated efforts for skills training, and recruitment of works to build and staff our modernized energy infrastructure system, and support jobs for working families. A national job-driven skills training system with rigorous cur-

ricular and standards that includes a special emphasis on training for veterans, on minorities and energy, is critical to our energy future. I might note that yesterday, 85 minority interns started working at DOE for the summer. I also created the Job Strategy Council to look at how we can capture the energy sector opportunities that we have for new jobs.

And finally, fifth, we need to acknowledge the critical federal role in incentivizing our energy infrastructure investments. While the bulk of the QER recommendations fall under this committee's jurisdiction, the Congress has other committees with equities in energy infrastructure, especially in shared infrastructure and North American energy integration.

I would just note in closing that the Administration's most recent budget request includes a down payment for funding some of the QER's key recommendations at about half a billion dollars, however, in the current budget environment where sequestration has placed artificial caps on spending, DOE's programs and the shared infrastructure programs for the Corps of Engineers and others, frankly, placed these critical programs in competition with very restricted budget allocations. And so, for example, the House Appropriations mark does not meet our needs for energy infrastructure.

In closing, Department of Energy and all the agencies that developed this report and its recommendations see great potential for benefit, and we look forward to working with this committee again to find bipartisan ways of advancing our TS&D infrastructure.

Thank you, and I would be pleased to answer questions.

[The prepared statement of Secretary Moniz follows:]

**Testimony of Secretary Ernest J. Moniz
U.S. Department of Energy
Before the
House Committee on Energy and Commerce
Subcommittee on Energy and Power
Hearing on the Administration's Quadrennial Energy Review (QER)
June 2, 2015**

Thank you Chairman Whitfield, Ranking Member Rush, and distinguished Members of the Subcommittee. I appreciate the opportunity to discuss with you the Administration's Quadrennial Energy Review (QER).

Last month, the Administration released the first installment of the QER, focused on energy transmission, storage, and distribution (TS&D), including the networks of pipelines, wires, storage, waterways, railroads, and other facilities that form the backbone of our energy systems.

QER Process

In a memorandum released on January 9, 2014, President Obama directed the Federal government to conduct a QER and to focus on infrastructure in its first installment: *"This first-ever review will focus on infrastructure challenges [emphasis added], and will identify the threats, risks, and opportunities for U.S. energy and climate security, enabling the federal government to translate policy goals into a set of analytically based, clearly articulated, sequenced and integrated actions, and proposed investments...."*

The President also instructed that the QER be overseen by an interagency QER task force, co-chaired by the Directors of the Office of Science and Technology Policy and the Domestic Policy Council, and comprised of 22 Federal agencies with equities in energy. The task force was directed to deliver a report to the President that:

- Provides an integrated view of, and recommendations for, Federal energy policy in the context of economic, environmental, occupational, security, and health and safety priorities, with attention in the first report given to the challenges facing the Nation's energy infrastructures;
- Reviews the adequacy...of existing executive and legislative actions, and recommends additional executive and legislative actions as appropriate;
- Assesses and recommends priorities for research, development, and demonstration programs to support key energy innovation goals; and
- Identifies analytical tools and data needed to support further policy development and implementation.

As directed by the President, the QER is envisioned as a focused, actionable document, designed to provide policy makers, industry, investors and other stakeholder's unbiased data and analysis on energy challenges, needs, requirements, and barriers that will inform a range of policy options, including legislation.

The President directed the Secretary of Energy to provide support for the interagency QER task force, including support for coordination activities related to the preparation of the QER report, policy analysis, modeling, and stakeholder engagement. DOE's Office of Energy Policy and Systems Analysis (EPSA) also performed or commissioned an extensive suite of analyses focusing on energy TS&D infrastructures.

As a policy roadmap, the QER recognizes the essential role of the States, tribes, cities and industry in shaping the Nation's energy future. The plan also includes a focus on North America, recommending ways to further integrate the energy infrastructures of the U.S., Canada and Mexico to enhance market opportunities, energy security, and sustainability. The White House and DOE undertook an open, transparent process for informing and engaging stakeholders, including the following activities:

- A series of public stakeholder meetings in Washington, D.C. and at 13 other venues across the country on essential regional and sector-specific topics;
- Discussions and meetings with our partners in Canada and Mexico;
- Briefings with industry associations, State officials; environmental groups; congressional staff and others; and
- Development of a public comments portal (QERcomments@hq.doe.gov) to allow interested stakeholders and general public to provide comments on QER.

Why Focus on TS&D Energy Infrastructure?

There has been an energy revolution in the United States over the last decade. We are now the largest combined producer of oil and gas in the world and our oil imports are the lowest they have been in more than 40 years. Natural gas use in power generation has significantly increased and U.S. liquefied natural gas exports are scheduled to start within a year. Wind and solar power generation has grown dramatically and ethanol is now ten percent of U.S. gasoline supply.

The United States is, however, at an energy crossroad. As noted, our energy landscape is dramatically changing with implications for infrastructure needs, options, and choices. The longevity and high capital costs of energy infrastructure mean that decisions made today will strongly influence our energy mix for a considerable part of the 21st century. The vulnerabilities of our energy infrastructures are growing, and the threat of climate change increasingly requires not only more resilient systems, but the integration of zero- and low-carbon power generation.

These rapid and dramatic changes in the Nation's energy fortunes have created enormous opportunities. At the same time, they pose a set of challenges for energy policy makers, investors, non-governmental organizations (NGOs) and industry. These challenges come in many forms. Addressing the opportunities, challenges, and vulnerabilities associated with our energy infrastructure will require action by many parties in the private sector, many of which are coordinated public sector action at the Federal, state, and local levels.

The transformation of our energy landscape has grown the economy, but also has implications for the Nation's energy transmission, storage and distribution infrastructures—the vast networks

that move energy supplies to intermediate processors and end users. These infrastructures are aging, not well-matched to new sources of supply, and exposed to increases in extreme weather events associated with climate change such as sea-level rise, drought, wildfires, and hurricanes. Further, the Nation's energy infrastructures are growing targets of cyber and physical attacks and are increasingly inter-dependent.

These vulnerabilities and stresses come at a price. From 2008 to 2012, weather-related power outages cost the economy as much as \$200 billion. Hurricanes Katrina and Rita shut down 28 percent of the Nation's refining capacity, sending gasoline prices soaring. Nationwide, the replacement of aging natural gas distribution pipelines is estimated to cost \$270 billion.

Also, the availability of affordable rooftop solar panels has, for example, created new options for meeting household electricity needs, yet broader use of these technologies challenges the traditional electricity business model. Coupled with other cost-saving technologies that enable consumer interactions with the grid, these new options put a premium on policies that appropriately value smart grid, distributed generation and other technologies and services relative to those provided within the traditional electric utility model.

Our energy infrastructures need to meet today's energy's changing supply and demand profiles while being flexible enough to incorporate rapid market changes and new technologies going forward. Modernizing our existing energy infrastructures while simultaneously working on their transformation warrants a consistent, sustained, and thoughtful Federal approach. Decision making in this environment is not easy or simple—particularly in this time of rapidly shifting demands and objectives.

Given the condition and location of today's energy infrastructures and the evolving energy marketplace, the essential rationale for choosing energy TS&D infrastructure as the starting point for this QER is straightforward: We need a step change to modernize and transform our energy systems to meet U.S. environmental, energy security, and competitiveness goals for the 21st century. Energy infrastructure is both a fundamental enabler and a limiting factor in transforming the Nation's energy marketplace.

QER Structure

The first installment of the QER underscores the strong public interest in advancing key national goals of jobs, competitiveness, energy security and a cleaner energy future. It also provides policy makers with a roadmap for meeting key energy objectives: enhancing energy infrastructure resilience, reliability, safety and security; modernizing the electric grid and our energy security infrastructures; and improving "shared" energy infrastructures—railways, waterways, ports and roads—that move both energy and other commodities. Several crosscutting themes were also considered, including jobs, the environment, infrastructure siting, and integration of North American energy markets.

- In our analysis of energy infrastructure resilience (contained in Chapter 2 of the report), we determined that TS&D infrastructure is vulnerable to a range of natural phenomena; that vulnerabilities vary substantially by region; and that many threats, including cyber

and physical attacks, are on the rise. Furthermore, the growing interdependencies between energy systems—such as the electricity required to move liquid fuels and natural gas, and the natural gas used to produce electricity—present new vulnerabilities. In our review of the electric grid (Chapter 3 of the report), we anticipate that investments in transmission and distribution upgrades will continue to grow. However, we also find that while costs will rise, in almost all scenarios the actual circuit-miles of anticipated new lines fall within historical build rates. We also draw attention to the need for accurate and appropriate valuation of the services that new technologies can provide to the grid, and we recognize that there is no "one size fits all" solution to the challenges seen across the different utility business models and market structures for electricity.

- Chapter 4 analyzes the security implications of our energy use, and in particular how the changes in domestic production, the U.S. midstream, and international markets for oil call for reassessing our readiness to withstand and recover from shocks utilizing the Strategic Petroleum Reserve (SPR). It also evaluates how biofuels production and the introduction of new "drop-in" fuels are enhancing our security posture.
- Our review of "mid-stream" energy infrastructure analyzes the rapidly expanding role that rail, waterborne, and roadway infrastructures are playing in the energy marketplace. Further examination of the benefits and costs of this expansion led to the development of Chapter 5 on "shared transport" systems. Unlike pipelines and electrical wires, shared transport systems serve a wide variety of commodities (such as coal, agriculture, and chemicals) and intermodal freight. The increase in energy movements on shared transportation systems has, in many cases, created new competition for limited capacity on these systems, while also drawing attention to the impact that traffic congestion and deficient infrastructure can have on communities and economic growth.
- Building on our work with Canada and Mexico, as well as our neighbors in the Caribbean, Chapter 6 of the QER explores the benefits of enhanced integration of energy TS&D systems and energy markets in North America. Special attention should also be paid to the growing concerns over the vulnerabilities of Arctic communities and ecosystems in the face of climate change and expanding energy production.
- Chapter 7 covers some of the environmental implications of TS&D infrastructures, both in terms of its impact on public safety and the environment, as well as how prudent investment can enable better environmental outcomes from our energy use.
- The importance of maximizing the broader economic value of our TS&D infrastructure cannot be overstated when it comes to the opportunities for good paying jobs that new investment presents. Chapter 8 looks into some of the current employment trends and future projections for the energy sector, and proposes a suite of programs to improve the training of energy professionals and the transition of former military personnel to energy jobs.

- Finally, Chapter 9 illustrates the challenges of siting and permitting of TS&D infrastructures, including the importance of close and early collaboration between developers and affected communities.

QER Recommendations

The QER includes many recommendations to meet the Nation’s energy infrastructure objectives. Some of these are summarized below.

Ensuring the Resilience, Reliability, Safety, and Security of TS&D Infrastructure

Ensuring the resilience, reliability, safety, and security of TS&D infrastructure is a national priority and vital to American competitiveness, jobs, energy security, and a clean energy future. To continue supporting these shared priorities, the QER recommends taking the following additional actions:

- **Establishing a competitive program to accelerate pipeline replacement and enhance maintenance programs for natural gas distribution systems.** DOE should establish a program to provide financial assistance to states to incentivize cost-effective improvements in the safety and environmental performance of natural gas distribution systems, through targeted funding to offset incremental costs to low-income households and funding for enhanced direct inspection and maintenance programs. The estimated cost for this program is \$2.5-\$3.5 billion over 10 years.
- **Supporting the updating and expansion of state energy assurance plans, and establishing a competitive grant program to promote innovative solutions to enhance energy infrastructure resilience, reliability, and security.** DOE should undertake a multi-year program of support for state energy assurance plans, focusing on improving the capacity of states and localities to identify potential energy disruptions, quantify their impacts, share information, and develop and exercise comprehensive plans that respond to those disruptions and reduce the threat of future disruptions. The estimated cost for this program is \$350 - \$500 million over 10 years. DOE should also establish a program to provide competitively awarded grants to states to demonstrate innovative approaches to TS&D infrastructure hardening and enhancing resilience and reliability. A major focus of the program would be the demonstration of new approaches to enhance regional grid resilience, implemented through the states by public and publicly regulated entities on a cost-shared basis. The estimated cost for this program is \$3 - \$5 billion over 10 years.
- **Analyze the policies, technical specifications, and logistical and program structures needed to mitigate the risks associated with loss of transformers.** As part of the Administration’s ongoing efforts to develop a formal national strategy for strengthening the security and resilience of the entire electric grid for threats and hazards (planned for release in 2015), DOE should coordinate with the Department of Homeland Security and other Federal agencies, states, and industry—an initiative to mitigate the risks associated

with the loss of transformers. Approaches for mitigating this risk should include the development of one or more transformer reserves through a staged process.

Modernizing the Electric Grid

Electricity is central to the well-being of the Nation. The United States has one of the world's most reliable, affordable, and increasingly clean electric systems, but it is currently at a strategic inflection point—a time of significant change for a system that has had relatively stable rules of the road for nearly a century. To enhance the development of a modern electric grid, the QER recommends:

- **Providing state financial assistance to promote and integrate TS&D infrastructure investment plans for electricity reliability, affordability, efficiency, lower carbon generation, and environmental protection.** In making awards under this program, DOE should require cooperation within the planning process of energy offices, public utility commissions, and environmental regulators within each state; with their counterparts in other states; and with infrastructure owners and operators and other entities responsible for maintaining the reliability of the bulk power system. The estimated cost for this program is \$300 - \$350 million over 5 years.
- **Promoting grid modernization.** DOE has made a comprehensive grid modernization proposal in the President's Fiscal Year (FY) 2016 Budget request. The crosscutting proposal supports strategic DOE investments in foundational technology development, enhanced security capabilities, and greater institutional support and stakeholder engagement, all of which are designed to provide the tools necessary for the evolution to the grid of the future. The estimated cost for this program is \$3.5 billion over ten years.
- **Improving grid communication through standards and interoperability.** In conjunction with the National Institute of Standards and Technology and other Federal agencies, DOE should work with industry, the Institute of Electrical and Electronics Engineers, state officials, and other interested parties to identify additional efforts the Federal Government can take to better promote open standards that enhance connectivity and interoperability on the electric grid.

Modernizing U.S. Energy Security Infrastructures in a Changing Global Marketplace

Until recently, the concept of energy security has focused on "oil security" as a proxy for "energy security." It is clear, however, that energy security needs to be more broadly defined to cover not only oil but other sources of supply, and to be based not only on the ability to withstand shocks but also to be able to recover quickly from any shocks that do occur. To achieve this shared goal, the QER recommends:

- **Investing to optimize the Strategic Petroleum Reserve (SPR's) emergency response capability.** DOE should analyze appropriate SPR size and configuration, and, after carrying out detailed engineering studies, DOE should make infrastructure investments to the SPR and its distribution systems to optimize the SPR's ability to protect the U.S.

economy in an energy supply emergency. It is anticipated that \$1.5–\$2.0 billion is needed for infrastructure life extension investments and to increase the incremental distribution capacity of the SPR.

- **Updating SPR release authorities to reflect modern oil markets.** Congress should update SPR release authorities to allow the SPR to be used more effectively to prevent serious economic harm to the United States in case of energy supply emergencies.
- **Supporting fuels diversity through research, demonstration, and analysis.** DOE and the Department of Defense should continue research and demonstration activities to develop biofuels that are compatible with existing petroleum fuel infrastructure, especially in aviation and for large vehicles. DOE should provide technical support to states, communities or private entities wishing to invest in infrastructure to dispense higher-level ethanol blends. DOE should ensure adequate support for data collection and analysis on fuels, like propane, that play an important role in the Nation's diverse energy mix and are challenged by changing TS&D infrastructures.

Improving Shared Transport Infrastructures

Changes in the U.S. energy production and use affect the way that energy and other commodities are transported in the United States. The use of transportation modes (e.g., rail, barge, and truck transport) that are also shared by agricultural and other major commodities, has been joined by significant growth in the use of these transport modes by crude oil, refined petroleum products, and petrochemicals. To better manage shifting utilization patterns, the QER proposes:

- **Supporting a new program of competitively awarded grants for shared energy transport systems.** A new grant program – Actions to Support Shared Energy Transport Systems or ASSETS -- should be established and supported at the U.S. Department of Transportation (DOT), in close cooperation with the DOE. This program should be dedicated to improving energy transportation infrastructure connectors. The estimated scale of ASSETS investment should be on the order of \$2 - \$2.5 billion over the next 10 years, which would likely mobilize \$4 - \$5 billion in non-Federal investment, based on typical TIGER (Transportation Infrastructure Generating Economic Recovery) cost shares.
- **Addressing critical energy data gaps in the rail transport of energy commodities and supplies.** Congress should fund the President's FY 2016 Budget request for the Energy Information Administration to address critical energy transportation data gaps and continued data sharing with the Surface Transportation Board.
- **Supporting alternative funding mechanisms for waterborne freight infrastructure.** The Administration should continue to examine alternative financing arrangements for waterborne transportation infrastructure and to develop strategies for public-private partnerships to finance port and waterway infrastructure.

Integrating North American Energy Markets

The United States, Canada, and Mexico, as well as other North American neighbors, benefit from a vast and diverse energy TS&D network that has enabled the region to achieve economic, energy security, and environmental goals. To bolster this strong foundation, the QER recommends:

- **Establishing programs for academic institutions and not-for-profits to develop legal, regulatory, and policy roadmaps for harmonizing regulations across borders.** In partnership with universities, qualified not-for-profits, and relevant U.S. energy regulatory authorities, state/province, local, and national energy regulations will be compared to identify gaps, best practices, and inconsistencies with regulations in Canada and/or Mexico with the goal of harmonization.
- **Increasing the integration of energy data among the United States, Canada, and Mexico.** Provide resources for the Energy Information Administration to collaborate with its Canadian and Mexican counterparts to systematically compare their respective export and import data, validate data, and improve data quality. In addition, efforts should be taken to better share geographic information system data to develop energy system maps and review forward-looking assessments and projections of energy resources, flows, and demand.
- **Promote Caribbean energy TS&D infrastructure.** As part of a larger Caribbean strategy, the United States should support the diversification of energy supplies, including actions to facilitate the introduction of cleaner forms of energy and development of resilient energy TS&D infrastructure in the Caribbean.

Additional insights and recommendations are included in the Summary for Policymakers from the QER. I ask the Chairman's permission to submit this summary for the record.

Conclusion

Periods of significant national prosperity have been frequently accompanied by Federal investments in a range of infrastructures—highways, rural electrification, providing water to open up the West. Some of the QER's recommendations will require similar investments in our energy infrastructures at a critical time for shaping our energy system. These will however, leverage significant private investment and pay big dividends for the country—high-paying jobs, increased energy security, and a cleaner environment.

The Administration's most recent budget request includes funding for some of the QER's key recommendations. Its full implementation will, however, require a bipartisan commitment to modernizing the Nation's energy infrastructures. The decisions to do so will strongly influence our energy mix for much of the 21st century. The QER released by the Administration in April provides a roadmap to help us make the right choices.

In closing, we at the Department of Energy, and all of the agencies that have developed this report and its recommendations, see enormous potential for benefit from the recommendations we have made. We very much look forward to working with Members of this Committee, and others in Congress, as we take the next steps together to assure our energy TS&D infrastructure is resilient, and sustains our economy in the future.

Chairman Whitfield and Ranking Member Rush, this concludes my statement. I will be pleased to answer any questions.

Mr. WHITFIELD. Well, thank you, Secretary Moniz.

And at this time, I will recognize myself for 5 minutes of statements and questions.

We all recognize that the Clean Energy Plan has been at the very center of President Obama's initiatives, and I think everyone recognizes that the tension between the Obama Administration and republicans in the House and Senate, as well as elsewhere, has been—many of us feel that the President is moving so quickly through regulations without adequate communication with the legislative body, and while we all recognize the need for an all-of-the-above policy emphasizing clean energy, we look at Europe and we see how some policies over there in which countries like Germany have made decisions to eliminate nuclear energy, has created low wholesale prices, extremely high retail prices, and as a result, Europe has some real economic problems. So what we want to be sure about in America is, we made this mad rush for change, that we do so in a way that we can protect the reliability, the affordability, so that America can continue to be competitive in the global marketplace.

Mr. McKinley, who left, was just telling me that in West Virginia, they have lost 45 percent of their coal jobs. And so this economic impact affects all of us, and that is why we are trying to move this energy bill. That is why the Quadrennial Energy Review is so important to look at all aspects of everything because everyone knows that we are fortunate, we have an abundant energy supply, natural gas particularly, and oil as well, but we have infrastructure needs. And it is very difficult to get permits, it takes years, and so as we are shutting down coal plants through regulatory orders, we don't always have the capability to get the energy product to where it needs to go. And so that is what this is all about.

So one of the things I just wanted to ask you, you were talking about the development of this first installment was a colossal undertaking with at least 22 agencies involved and more than a year of work. And if this is the first installment of the QER, will there be a new installment each year for the next 3 years, and then the process will begin all over again? Is that what your understanding is? Yes, there you go.

Secretary MONIZ. I apologize. So this first installment, frankly, did take us a few more months than we had hoped. We are now in the process of working across the government to settle on the next installment. We would like to get something into your hands early next year again, and then again at the end of 2016.

Mr. WHITFIELD. Yes. Now—

Secretary MONIZ. And clearly, this will be now expanding into the supply and demand ends of the energy sector.

Mr. WHITFIELD. Yes. My time is already running out here. I want to focus on one issue—maybe because I was in the railroad industry, but railroads provide a vital transportation network for all sorts of commodities in America, and historically railroads have generated lots of income from moving coal. And the coal shipments have dropped dramatically, even though our coal exports are up, despite problems with trying to open up coal export facilities in Washington State. But many people are genuinely concerned about

the financial viability of the railroad industry with this extreme reduction in coal transportation. Was that discussed in the quadrennial review process from your personal knowledge? Was there any discussion about that at all?

Secretary MONIZ. Yes, Mr. Chairman. Of course, the Department of Transportation would have prime responsibility in that area, but there were discussions because we did see in some cases, especially in the upper Midwest, some coal shortages for a while, but it was not because the trains weren't operating, they were just carrying other commodities which, my understanding, may have had a higher margin for them.

So one of the initiatives that we have taken, and the DOE EIA is working with the Surface Transportation Board at DOT, first of all, to try to get more data and understanding of how commodities, including energy commodities are moving on the railroads, because it is coal, it is obviously oil, and ethanol competing, in a certain sense, with a whole variety of other commodities.

Mr. WHITFIELD. Yes.

Secretary MONIZ. But I think more data and data transparency will be very important—

Mr. WHITFIELD. Yes.

Secretary MONIZ [continuing]. For federal and state planning.

Mr. WHITFIELD. Yes. Because we do have to have a strong financial railroad sector just because of the impact it has on our entire economy.

So my time has expired. At this time, I would like to recognize Mr. Rush for 5 minutes.

Mr. RUSH. Thank you, Mr. Chairman.

Mr. Secretary, as I asserted in my opening statement, I believe that you will go down as one of the most consequential Energy Secretaries of our time. And again, I want to commend you on your fine work and the initiatives that you have established during your tenure. And as you know, Mr. Secretary, when one attempts to change the culture and the practices of institutions that have been doing things a certain way for a long time, then inevitably there will be resistance and apprehension when those entities are asked to change. And it is with this in mind, Mr. Secretary, that I ask you to follow up with me to gage where we are with some of the initiatives that you and I have discussed before in the past. Specifically, I would like to discuss with you the issue of inclusiveness and outreach at the publicly funded national labs including, but not limited to, Argonne and Fermi in my state. And my office will be in touch with you to schedule a meeting for some time in the very near future between you and I. It is my opinion, Mr. Secretary, that they are—Argonne and Fermi specifically, are faking and fumbling on the issues of inclusiveness and outreach. It seems to me that they are trying to run out the clock on you and I. They are not seriously taking our requests and our initiatives and our discussion to heart.

Mr. Secretary, on another issue, I would like to get your thoughts and feedback on the QER legislation that was introduced in the Senate. And I—as I said before, I will be offering a companion bill in the House soon. As you know, Mr. Secretary, this bill will simply amend the DOE Organizational Act to replace the current require-

ment for biannual energy processing plan with a quadrennial energy review. And can you give the subcommittee some feedback on this bill? From your understanding, would DOE take the lead in addressing a QER, and is there a need for legislation such as what I previously discussed?

Secretary MONIZ. Thank you, Mr. Rush. Yes, by the way, on the consequential issue, I hope they are positive consequences. And I might also at this point say that I think our energy policy and Systems Analysis Office did a heroic job in marshaling this huge QER forward.

On your first question, and culture, et cetera, I might add that there is a wonderful expression by Peter Drucker, the famous management consultant, that culture eats strategy for breakfast. We can change rules but it is harder to change culture. But I think we are certainly making advances, certainly on the issue of minorities and energy, and if you know otherwise, I would like to discuss it with you because I do see enthusiasm going forward. Argonne, for example, one of their initiatives is in terms of making sure that minority businesses are quite aware of the opportunities for procurement. We also have, and Dot Harris has been a leader in our place-based initiative. So a good example is working, in this case, in southwest Louisiana with the enormous construction going on driven by natural gas, for training minorities to get some of those jobs. In terms of research collaborations, another example would be our Jefferson Lab, working closely with Hampton University. I mentioned the interns already. So we are going to keep pushing on all these fronts, and I want to work with you on that, and if you find problems, let me know because I will be sure to—

Mr. RUSH. I certainly will—

Secretary MONIZ. OK.

Mr. RUSH [continuing]. Mr. Secretary.

Secretary MONIZ. Thank you. Secondly, on the QER and the possibility of legislation, let me say that I certainly share the driver of this, which is that I think—and by the way, the initial reaction to the QER, including in this hearing, I think is—suggests that institutionalizing this could really be very important for continuing a bipartisan Administration-Congress discussion, so I am happy to work with both chambers in terms of how that might go forward. I would say that Department of Energy, in this first installment, clearly did provide kind of the analytical horsepower for it, but I do want to note that the Executive Office of the President also played a crucial role in being able to convene 22 agencies to come together to work on it. So anyway, we would be happy to discuss that further.

Mr. RUSH. Thank you.

Mr. WHITFIELD. Gentleman's time has expired.

At this time, recognize the gentleman from Michigan, Mr. Upton, for 5 minutes.

Mr. UPTON. Thanks again, Mr. Chairman.

Mr. Secretary, in my opening I reaffirmed the desire of this committee to work with you and the Administration to find areas of mutual agreement on some QER legislative recommendations, and we look forward to that, and receiving technical assistance on some of the other sections of the bill as well.

One of the areas that I wanted to zero-in on is SPRO this morning. As I note in your response to the committee yesterday, the SPRO was established in 1975 and it is the largest government petroleum reserve in the world. It has been used successfully on multiple occasions to respond to different types of energy supply disruptions. But it is now 2015 and global and domestic oil markets have changed significantly, we would all recognize that, and SPRO needs to be modernized.

So as you know, the committee recently voted a—to drawn down a limited amount of SPRO oil to pay for our 21st Century Cures package beginning in 2018. And as you conduct the ongoing study to recommend the new size and role of SPRO going forward, would you support an additional change that would allow the President to draw down and sell surplus SPRO crude oil in order to use the funds to pay for operations and maintenance in line with the DOE budget request and potential modernization plans? In other words, using what we call mandatory savings to provide for the modernization and need improvements that really have to take place in the next number of years. And I would imagine that would be a pretty small draw down.

Secretary MONIZ. Mr. Chairman, well, first of all, as you know, I have some considerable concern about using the SPRO for anything other than energy security and resilience issues, for which it is intended. Now, first of all, I have to say, the issue of what is or might be called surplus, I think, is really part of the study going on because we understand that there are certain IEA requirements, but that may or may not be the metric for us to use. That is the first thing. Secondly, we did identify, of course, in the QER, excuse me, needs right now for modernizing the SPRO for—well, there are issues of maintenance, there are issues of modernization, and the particular issues of addressing distribution systems for getting SPRO oil onto water, in particular, in an emergency. We estimated that as \$1½ to \$2 billion. That is part of the discussion with Congress, how to address that. Clearly, what you propose would be a case in which, if one were to do that, it would be being used, I would argue, for the energy security intent of the petroleum reserve.

Mr. UPTON. So as you know, the QER recommends more flexibility and anticipatory authority to initiate a SPRO drawdown. Do you envision a greater role for SPRO to moderate global prices?

Secretary MONIZ. The motivation for recommending somewhat greater anticipatory authority is not motivated by a desire to use the SPRO to manipulate oil prices. The issue is that the current anticipatory authorities are highly restrictive. Up to 30 million barrels, and only if that keeps you above 500 million barrels. So there are issues there, and we feel that should a larger drawdown be required, or if the SPRO were at 500 million barrels, one shouldn't have to wait to see the consequences on consumers of a spike in global oil prices before one can act. So I think that is the spirit, as opposed to manipulating oil prices.

Mr. UPTON. So I would note, as the QER discusses, the last time SPRO had a major release in reaction to Libya was back in 2011. Seems like yesterday, but it was 2011. Since then, the supply situation has greatly changed for sure, as demonstrated in the test sale

this last year. If there is an interruption somewhere in the world that doesn't impact the supply to U.S. refiners, would it make any sense at all to export SPRO crude?

Secretary MONIZ. Well, once again, I would say that that should be part of the studies really, that are going on, but I might say that it is hard to see how a major global disruption would avoid impacting our imports, because again, we still import 7 million barrels a day, only because with a major disruption, even if that, let's say, country is not directly importing to us right now, there would probably be a redistribution of the market that would impact our imports. But nevertheless, hypothetically, if that were the case, I think there would still be an issue of putting SPRO out would have the effect of backing our imports that would then equilibrate in the global market. So we could discuss that further.

Mr. UPTON. My time has expired. Thank you very much for your appearance again today.

Secretary MONIZ. Yes.

Mr. WHITFIELD. At this time, recognize the gentleman from New Jersey, Mr. Pallone, for 5 minutes.

Mr. PALLONE. Thank you, Mr. Chairman.

Secretary, climate change, as you know, is real and we are already feeling its effects across the country. The damaging impacts range from heatwaves and droughts, to reduced crop yields and increased wildfires. Every region in the country and every part of the globe is affected. I am concerned about impacts of extreme weather events and sea level rise that are already problems that we have with our energy infrastructure. So my question is, the QER outlines a number of findings in this area, how is your energy transmission, storage, and distribution, or ETS&D infrastructure, vulnerable to the impacts of climate change?

Secretary MONIZ. Thank you Chairman Pallone. First of all, as the data in the QER show, we have been seeing increasing impacts, probably impacting the economy, at the order of \$25 billion a year on average over the last decade. And with rising sea level, the effects of storms, major tropical storms, for example, are amplified. So we feel it is very important now to address the hardening of these infrastructures, not only coastal, but coastal is one major issue, and that is why we recommend a joint set of initiatives. One is to provide energy assurance grants for states to do planning, and to provide a basis for the states to then compete for what we recommend as a several billion dollar opportunity for these hardening kinds of activities. I will give one example. It happens to be in New Jersey. It was not part of the recommendations here, but in New Jersey, there was the case where we cost-shared with the state, a study on implementation of a very significant micro grid to protect electrified transportation corridors. The state then used that study to compete for Sandy recovery money, and in fact, got several hundred million dollars to implement that. That is the kind of thing. Do these studies get technical assistance, and then have the opportunity to move forward with cost sharing major resiliency projects.

Mr. PALLONE. Well, I appreciate your mentioning our New Jersey grant because, obviously, we did have a lot of vulnerabilities during Super Storm Sandy. We saw a breakdown of the infrastructure and services, both electricity and water supply.

But in terms of this competitive grant program that is going to promote innovative solutions for infrastructure resilience, reliability, security, just give me a little more information about how that program would work. I know you mentioned the New Jersey program, but what other kinds of projects would be eligible for those grants?

Secretary MONIZ. Well, it could be, again, any kind of project that hardens infrastructure. The electric grid has clearly shown vulnerability to storms. So it could be things like I mentioned with micro grids. It could be the use of advanced technologies. I could mention some things like synchrophasors that would allow system operators to respond much more quickly to something that is happening, to protect spreading of a blackout, for example. It could be in terms of fuels requirements. One of the recommendations that we have in there is to expand analyses of what different kinds of regional product reserves might do. Now, this is a case where, again, in the northeast and New Jersey—

Mr. PALLONE. Right.

Secretary MONIZ [continuing]. We have already moved there, but there are issues in California, there are issues in the southeast, there could be issues in the upper Midwest. And so we recommend that. And there could be opportunities there for new resiliency projects.

Mr. PALLONE. All right. Thanks a lot. I do want to applaud you for your efforts to strengthen these vulnerable and critical energy infrastructures, especially in the face of global climate change. So thanks again.

Thank you, Mr. Chairman.

Secretary MONIZ. If I—

Mr. WHITFIELD. At this time—

Secretary MONIZ. If I may, I might just add that this is an example of the importance of the broader view of energy security, including resilience of our infrastructure.

Mr. PALLONE. Yes, exactly. Thank you.

Mr. WHITFIELD. Thank you. At this time, I will recognize the gentleman from Texas, Mr. Barton, for 5 minutes.

Mr. BARTON. Well, thank you, Mr. Chairman. And, Mr. Secretary, welcome back.

Mr. Rush and you seem to have a mutual admiration society going. Superstar Energy Secretary. I wouldn't go—

Mr. RUSH. Don't get jealous.

Mr. BARTON. Say what?

Mr. RUSH. Do not get jealous.

Mr. BARTON. Do not get jealous? Well, I wouldn't go quite so far as superstar, but my daughter has a saying that she learned in college, when something is really cool, it is money. And it is money. When you say it is money, it means that, man, that is hot and it is cool and it is right on the bean. Well, I would say Moniz is money. So not superstar but money.

Now, you know what I am going to—

Secretary MONIZ. I asked for this.

Mr. BARTON. I am going to give you a chance to show just how money you are. What do you think I am going to ask you right now?

Secretary MONIZ. I don't know but I am covering my wallet.

Mr. BARTON. You heard the chairman's opening statement. He talked about oil exports and, as you well know, Mr. Secretary, back in the '70s we had the Arab OPEC Embargo, and this committee and the Congress passed a lot of legislation to deal with that, most of which has been repealed. We had price controls on the wellhead natural gas prices, we had price controls on crude oil, we had even retail price controls on gasoline. We limited what natural gas could be used for. That has all been repealed. The only thing that hasn't been repealed is the ban on crude oil exports.

Now, the U.S. is number one in the world in oil production; over 10 million barrels a day. World use is somewhere around 94, 95 million barrels a day. Would you agree that if we were to let our domestic oil potentially be exported, that it would, at a minimum, keep prices from going up on world markets, and it is a possibility that the world oil price might go down? Would you agree with that?

Secretary MONIZ. I think the key issue, Mr. Barton, is whether or not in a country like ours, that still imports 7 million barrels a day, the question would be whether that did or did not stimulate any appreciable additional production. And that would be the issue in terms of global price. Internally, there would be an issue as to how rents are shared between, say, refiners and producers, but in terms of the economy-wide, the real issue was whether there is more production, and certainly in today's market, it is hard to imagine that happening. Now, in a future market——

Mr. BARTON. I am not a Harvard economics professor——

Secretary MONIZ. Nor am I.

Mr. BARTON [continuing]. But I did go to graduate school, and if we want to talk about sharing of rents, our refiners are taking those rents and putting them in their pockets today. They are not sharing those with the retail consumers. If we let the producers have the option of putting that oil on the world market, the consumer in the United States could potentially benefit from the world price going down, and I think you will agree with me that retail gasoline prices are basically set based on the world price for crude. You will agree with that.

Secretary MONIZ. Absolutely, yes.

Mr. BARTON. So——

Secretary MONIZ. EIA has confirmed that.

Mr. BARTON. So I have a list here of studies where they have looked at what would happen to the price in the United States at retail for gasoline, and the Brookings Institute, NERA, Resource for the Future, Council on Foreign Relations, Bipartisan Policy Center, Baker Institute, Center for Global Energy Policy at Columbia University, Energy Policy Research Institute, Aspen Institute, Progressive Policy Institute, IHS Energy, ICF International Heritage Foundation, American Council for Capital Formation, Congressional Budget Office, Energy Information Administration, General Accounting Office, Federal Reserve Bank, have all concluded that if we allowed our oil to be exported, there would be no increase in the domestic price of—for gasoline, and in most cases it might go down. Now, those aren't oil company hacks; those are bipartisan usually, I would say, objective institutes. You have to be aware of some of those studies.

Secretary MONIZ. Well, yes. And again, I think they are all in agreement with the fundamentals that, again, the issue is whether or not such a move would lead to an increase of production of any appreciable magnitude. If it doesn't, then there is essentially no impact on price.

Mr. BARTON. Yes. My time has expired——

Secretary MONIZ. Yes.

Mr. BARTON [continuing]. But if you will send one of your crack aids to the Republican Study Committee Taskforce on Energy Seminar this afternoon, you will hear 4 or 5 experts all say that if we allow our oil to be exported, U.S. production will stabilize and probably go up.

Secretary MONIZ. Again, that is the key issue. We——

Mr. BARTON. Yes.

Secretary MONIZ. I think we all agree on the facts.

Mr. BARTON. OK. Thank you, Mr. Secretary. Thank you, Mr. Chairman.

Mr. WHITFIELD. At this time, the chair recognizes the gentleman from California, Mr. McNerney, for 5 minutes.

Mr. MCNERNEY. Thank you, Mr. Chairman.

Mr. Secretary, I do appreciate the big effort that went into producing this QER document. Nice work. The document does recommend legislation actions. Would you elaborate on 1 or 2 of the most urgent actions that would be required?

Secretary MONIZ. Well, certainly, I think one of the very important ones, as I already mentioned, is this issue of providing funding, particularly for states, to compete for good projects that will provide resiliency of infrastructure. I think that is a very important one. Another one is we recommend a fund that again would allow for competition for accelerating the modernization of natural gas distribution infrastructure for both environmental and safety reasons. Clearly, the Federal Government should not and cannot pay for what may be a quarter trillion dollar bill, but what we recommend is acceleration in which the Federal Government could help absorb any great increase for low income families. Those are two examples of the number.

Mr. MCNERNEY. Very good. One of the things that is discussed is the potential for energy storage and grid modernization, grid resilience. Do you think that there is a short-term potential for that energy storage to be useful in grid resilience and in lowering the cost and improving access for renewables and so on?

Secretary MONIZ. Yes. Well, in fact, we all know California is in the lead, as if often the case——

Mr. MCNERNEY. Right.

Secretary MONIZ [continuing]. In terms of storage. And clearly, except for the places geographically where pumped storage is available, we still need to bring down the costs of storage, but they are coming down. They could be a game changer in terms of large-scale, variable renewables, but also distributed storage at the household or commercial enterprise level could be another game changer, particularly in terms of distributed generation enablement.

Mr. MCNERNEY. Are we pretty close to having the technology available?

Secretary MONIZ. Well, the technology is available. It is the cost. And we probably need another factor of two to three reduction in the cost to make it wide-spread available.

Mr. MCNERNEY. Well, thank you. Do you feel that the regional grid reliability would be put at risk by the Clean Power Plan?

Secretary MONIZ. Well, we don't see any evidence in our analyses yet that this could not be managed in a pretty normal way. For example, we did a specific analysis in terms of the natural gas transmission infrastructure because of the issues raised in terms of dramatically expanding gas use in the power sector, and that found that while one would probably have some regional issues to develop, it was not like we needed a massive program because we actually have been building out that infrastructure pretty substantially for the last 15 years, and frankly, there is overcapacity. So we don't see that as, you know, as a particularly difficult issue.

Mr. MCNERNEY. What would be the best way to deal with the regional question then that you just referred to of grid reliability?

Secretary MONIZ. I think it would be just in the normal process. As the supply distribution is understood in that region, the companies would go through the usual FERC process for, let's say, interstate gas transmission pipes.

Mr. MCNERNEY. Well, there seems to be a patchwork of transmissions citing initiatives across federal agencies. The QER highlights a need to improve coordination between all the stakeholders for transmission-permitting processes. Do you believe that the Rapid Response Transmission Team has been effective, and should its role be expanded?

Secretary MONIZ. I believe that it is—what I would say is I think it has really gained traction. It has been—in my view, I will be honest, I think it is a little bit slow getting going, but I think now the whole pre-application standardization has kind of come into play, and I think that we do need to, in fact, keep up the pace and, if anything, strengthen it, yes.

Mr. MCNERNEY. OK, thank you.

Mr. Chairman, I yield back.

Mr. WHITFIELD. Gentleman yields back.

At this time, recognize the gentleman from Texas, Mr. Olson, for 5 minutes.

Mr. OLSON. I thank the chair. And welcome, Secretary Moniz.

My first question is about the Federal Power Act. Under Section 202(c), DOE, you, can order a power plant to stay running during a grid crisis. In following your order, the plant might squeak past their clean air permits. Unfairly, that plant can be fined and sued by others for doing so. One regulator says go, another says stop. That plant has to decide whether they want to acquiesce in a power shortage, maybe a brownout or blackout, or cut a check, breaking the permit for just a few days, maybe a few hours. I have a bipartisan bill with Representative Doyle and Green to fix this in the energy package we are working on. This is not about a company riding roughshod over environmental laws; we are talking about days or hours in a crisis.

The other week, FERC and NERC endorsed our bill. Your predecessor, Secretary Chu, told me in this committee that he is "very supportive" of the idea. The bill has passed this committee three

times now, and the whole House twice, in the 112th and 113th Congress.

And so my question to you is, can I count on your support in the 114th Congress, will you be very supportive of the bill like your predecessor?

Secretary MONIZ. And, Mr. Olson, thank you. You have asked me this question before, and let me say that the answer is basically yes. I know our DOE staff has worked with both sides on this, and I think we are quite comfortable with it. Thank you.

Mr. OLSON. Great, thank you for that clarification. As you know, my home State of Texas has half our southern border, over 1,200 miles with our neighbor to the south, Mexico, and we know how important that relationship with Mexico is for our trade. Your QER points out that we trade tens of billions of dollars in energy each year with Mexico.

Secretary MONIZ. Sixty-five.

Mr. OLSON. Sixty-five. I like that even better. In fact, some of Texas' only power line connections outside of ERCOT come from our neighbor to the south, Mexico. You might recall that those lines prevented rolling blackouts and brownouts with crises in the fall—I am in sorry, in the early winter of 2011 and August of that same year. My question is, we know this oil plays—we know that oil and gas—shale plays don't stop at the southern border. The new Administration in Mexico is reforming its energy economy, and I think those opportunities will expand in the future. Your QER on our energy package will address the topic North American energy. I believe better coordination and trade will be critical in the years ahead. My question is, can you please tell me what you see as the next major opportunities for North American energy and where that relationship is headed?

Secretary MONIZ. In particular, I would say actually last week, I spent four, I want to emphasize, workdays in Mexico with Western Hemisphere and other energy ministers. The energy reform in Mexico, I think, offers tremendous opportunities for us. Clearly, in the hydrocarbon sector. We know that. Our companies are going to Mexico in the current auctions, and are prepared to offer lots of technical assistance to get engaged in the shale plays as well. However, in discussions with Minister Joaquin, the Energy Minister of Mexico, he has emphasized something that I agree with, and that is that the reform of the electricity sector may actually offer qualitatively new opportunities because the reform, I think, will bring our systems of regulation, et cetera, and standards much more into alignment, as we have with Canada, where we have a completely integrated electricity system.

So we are looking forward to that. It is going to be a major focus. We have both a bilateral working group that I chair on the American side with the—it is a multiagency group, with the Minister of Environment in Mexico, Minister Guerra. And then I also am one of the three chairs of Canada, U.S. Mexico trilateral energy ministers, and we are already well along into a trilateral data cooperation. And just last week, we have a release that went out, I would be happy to get it to you—

Mr. OLSON. Yes, thank you.

Secretary MONIZ [continuing]. Where the three of us announced that we are now going to expand the cooperation——

Mr. OLSON. Right.

Secretary MONIZ [continuing]. With a full agenda laid out, which will include things like emissions and hydrocarbon production, and energy infrastructure issues. So it is a very, very active——

Mr. OLSON. Thank you, sir. I am out of time. I want to extend an invitation to come down and see the work at MIT in your current position, the Petra Nova Project in Thompsons, Texas, the only viable carbon capture and ancillary recovery project in the whole world. Come down and see it. You will love it.

I yield back.

Mr. WHITFIELD. At this time, recognize the gentleman from Texas, Mr. Green, for 5 minutes.

Mr. GREEN. Thank you, Mr. Chairman. Mr. Secretary, you will get an overdose of Texas.

I see my colleague, Joe Barton, is not here, but I don't know if our members heard that his mom passed away last week, and——

Secretary MONIZ. Sorry.

Mr. GREEN [continuing]. I just wanted to express regret to Joe.

Mr. Secretary, welcome back. According to the DOE Web site, for projects that cross the U.S. international border, DOE must comply with NEPA requirements to consider environmental consequences of a proposed project. Mr. Secretary, are you familiar with that requirement?

Secretary MONIZ. Yes, yes.

Mr. GREEN. When making cross-border decisions, does DOE adhere to NEPA regulations and guidelines set forth by the Council on Environmental Quality?

Secretary MONIZ. Yes.

Mr. GREEN. Does this include cumulative indirect impacts?

Secretary MONIZ. I am sorry, Mr. Green——

Mr. GREEN. Does that——

Secretary MONIZ [continuing]. Can you modify the question?

Mr. GREEN. When making these decisions, does DOE adhere to NEPA regulations and guidelines set forth by CEQ, and you said yes, but does that analysis include cumulative and indirect impacts? Does the NEPA process include that?

Secretary MONIZ. I guess I am not quite sure if that is actually part of the NEPA process or not.

Clearly, there are, in general, when we make public interest determinations, cumulative impacts are part of that.

Mr. GREEN. OK. CEQ requires an environmental impact for major federal actions significantly affecting the quality of human environment. It is reasonable to conclude that DOE would require an environmental impact for a cross-border project, an EIS?

Secretary MONIZ. Absolutely. We always require an EIS, yes.

Mr. GREEN. Would DOE consider approval of a cross-border project a major federal action? I am getting down to the whole——

Secretary MONIZ. Yes. Yes, all right.

Mr. GREEN. CEQ has determined that NEPA applies to significant federal actions and can't be avoided by segmenting a project. So that means that a project coming across from Texas to Mexico, not just a cross-border crossing but the project itself, would DOE

decision-making on cross-border segments of a cross-border project require compliance with NEPA?

Secretary MONIZ. Certainly. We always require, yes, NEPA compliance.

Mr. GREEN. The discussion draft in the bill would eliminate the presidential permit process and grant cross-border decision-making to DOE for electric transmission facilities. If this draft would become law, the DOE will be charged with promulgating a rule to implement the granted decision-making. Is it reasonable to conclude that any DOE issues, new regulations, these regulations, would include NEPA requirements about a cross-border project?

Secretary MONIZ. Well, if I might take a step back. I think there are two principles that we would always insist upon. One is proper environmental review—

Mr. GREEN. Yes.

Secretary MONIZ [continuing]. And secondly would be a judgment that this is in the public interest. I think those are the two basic principles.

Mr. GREEN. OK. There is language in Section 3104 of the bill that would limit the department's ability to fully comply with NEPA requirements. Do you believe that that language is needed?

Secretary MONIZ. Well, again, clearly, I think we need to make sure that the environmental requirements are met. So if the proposal would curtail that, then obviously I would not support it.

Mr. GREEN. OK. Are you familiar with what is called the federal NEPA small handle issues?

Secretary MONIZ. No, I am not.

Mr. GREEN. OK. If federal small handle issues relate to how much federal control should be exercised over a private project, specifically whether a full NEPA review is required, when the federal agencies control only a small segment in an otherwise private project. Courts have determined if an otherwise private project cannot proceed without federal permits, then federal agencies are required to satisfy NEPA requirements.

Mr. Secretary, is it possible for a cross-border project to proceed without a presidential permit under current law now?

Secretary MONIZ. I really had better check that with my general counsel.

Mr. GREEN. OK.

Secretary MONIZ. I would have thought not, but I am—

Mr. GREEN. Well, my concern is that we have been trying to set a standard in this bill and previous legislation on cross-border electric transmission, natural gas pipelines, and of course, crude oil pipelines. And in this case, the Department of Energy would have the authority over electric transmission—

Secretary MONIZ. Wires.

Mr. GREEN [continuing]. And whether Department of Energy would use the NEPA process to approve those cross-border—

Secretary MONIZ. Yes. Well, again, my assumption is that, again, the two principles are there. The environmental impact, which is the NEPA process, certainly for the part in the United States, and the determination of public interest. Those are the two requirements and the two principles that I would uphold.

Mr. GREEN. Well, I am out of time, but I know DOE, if we pass this bill with this particular section in it——

Secretary MONIZ. Yes.

Mr. GREEN [continuing]. Would have that authority, and I just wanted to see what the regulatory process would be with DOE.

And I yield back, Mr. Chairman.

Secretary MONIZ. OK, and I would be happy to discuss that.

Mr. WHITFIELD. The gentleman's time has expired, but are you saying that under 3104, our legislation would not require a NEPA review?

Mr. GREEN. It does require a NEPA review.

Mr. WHITFIELD. OK, because I——

Mr. GREEN. And that is what I was wondering, because there has been some confusion on our legislation that we have done separately that NEPA review is not required——

Mr. WHITFIELD. Yes.

Mr. GREEN [continuing]. And I want to make sure folks understand that it is in this bill——

Mr. WHITFIELD. It is required.

Mr. GREEN [continuing]. It was in the previous bill we passed out of the House last session——

Mr. WHITFIELD. Right.

Mr. GREEN [continuing]. And on cross-border issues, not just for DOE.

Secretary MONIZ. OK.

Mr. GREEN. Thank you, Mr. Chairman for clarifying.

Mr. WHITFIELD. Thank you.

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

Mr. SHIMKUS. Thank you, Mr. Chairman. Mr. Secretary, welcome.

Your department really was developed and instituted based upon our nuclear heritage, as you know, and also is focused on our nuclear future, and then you have to deal with a lot of legacy issues. That is not really part of the hearing, but the introduction is just to let you know I appreciate the support I receive from your professionals down at Savannah River, which I visited yesterday, and the contractors there, and they took good care of me——

Secretary MONIZ. Great.

Mr. SHIMKUS [continuing]. And I just want to put that on the record.

Now to the QER. The QER devotes an entire chapter to improving North American energy integration, but makes no mention of issues belying cross-border presidential permitting in general, or the Keystone XL Pipeline in particular. It is kind of some of the questions I think Mr. Green was alluding to. Do you agree that the, and I quote, "ad hoc or siloed permitting process", as the QER puts it, creates significant uncertainty?

Secretary MONIZ. Yes, it certainly can in many cases, yes.

Mr. SHIMKUS. Has the inability to render a decision on Keystone Pipeline impacted other energy projects in Canada? Do you know of——

Secretary MONIZ. I am not aware of it, but—yes.

Mr. SHIMKUS. Yes. And can you check back with us? Obviously, there might be, otherwise I wouldn't be asking this question.

Secretary MONIZ. Well, only in the sense that, obviously, I have seen discussions about other pipelines to take out things east or west, for example, but—

Mr. SHIMKUS. Right. I think the public as a whole, I don't think they really—sometimes I put up the transmission system on a map just to identify how many cross-border pipelines and transmission lines we already have, both north and south, and—

Secretary MONIZ. Yes, I think it is like 74 pipelines or something.

Mr. SHIMKUS. Right. And obviously, just curious, we have problems with one, and the debate is will we have problems with the future or has this uncertainty kind of slowed down the process.

And so part of the legislation which the chairman is pointing to talks about this cross-border energy infrastructure language, in the committee's energy diplomacy discussion draft, would attempt to address unnecessary delays in the permitting of cross-border pipelines and transmission lines. Have you looked at this, and is there room for improvement when we are talking about pipelines or wires?

Secretary MONIZ. Well, obviously, as was already stated, the pipelines, as you know, are not in our jurisdiction, the wires are, and I think it is going pretty straightforwardly. I might add that just the projects discussed over the last 5 years for new transmission lines would total about 5 gigawatts of additional capacity coming into the northeast.

Mr. SHIMKUS. Yes, and we had a hearing just a week ago, I think, on really the natural gas desert of the New England States, we had the Governor of Maine here, which would address, obviously, pipeline infrastructure and probably cross-border also with them. I think a lot of people would kind of shake their head understanding that we still heat with fuel oil in some major states in our union, where access to natural gas pipelines might help them transition—

Secretary MONIZ. Yes.

Mr. SHIMKUS [continuing]. Especially with the abundance that we seem to be having now with our production.

Secretary MONIZ. If I may just—

Mr. SHIMKUS. You may.

Secretary MONIZ. About a week and a half ago, we did approve for potential FTA re-export a natural gas project to Canada.

Mr. SHIMKUS. The energy diplomacy discussion draft also talks about improving the process for permitting major energy projects. Do you agree that it would bring greater clarity and predictability to the process, and help in this energy diplomacy part?

Secretary MONIZ. Could you clarify? If we did what exactly?

Mr. SHIMKUS. Well, the formulation of coordinated procedures and criteria balance energy security impacts with environmental consideration. So you have to—especially in energy diplomacy, Shimkus is ethnically Lithuanian, a lot of people here have heard that before. I have toured the LNG Terminal. This energy diplomacy for our friends around the world, whether it is Japan or whether it is the eastern European countries, is really critical to give them choices of energy. And so the question is cost benefit

analysis, and how can you expedite it, and I think your quadrennial review addresses this a little bit.

Secretary MONIZ. Well, again, as I said earlier, the whole issue of energy security is we are looking at it in a broader sense than the traditional way. And by the way, maybe not here, but if you would like we would be happy to come to your office and discuss the work on Ukraine specifically, since that seems to be an interest potentially.

Mr. SHIMKUS. That would be of great interest to many many members of the——

Secretary MONIZ. We would be happy to do that——

Mr. SHIMKUS. Thank you.

Secretary MONIZ [continuing]. But anyway, we are trying to expedite these issues.

Mr. WHITFIELD. At this time, the chair recognizes the gentlelady from Florida, Ms. Castor, for 5 minutes.

Ms. CASTOR. Thank you, Mr. Chairman. Good morning, Mr. Secretary.

I would like you to elaborate a little bit more on the transmission, storage, and distribution, beyond what you have already testified to, because America's energy infrastructure is aging, it is not well-matched with the new sources of supply, it is exposed to increasingly dangerous extreme weather events associated with climate change, such as sea level rise. In my neck of the woods, we are concerned about more intense electrical storms, and then drought and wildfires. And I know you are sensitive to the potential for cyber and physical attacks as well. And part of America's policy right now is to encourage these new clean energy supplies, and greater energy efficiency such as the availability of rooftop solar that holds great promise for powering households and businesses across the country, and our growing energy efficiency sector that will rely on smart meters, a smart grid distributed generation, but these run completely counter to the traditional electric utility model. Now, you have testified already today about, well, energy assurance grants for states. Maybe you need to go into greater detail on the micro grids. I have never heard of a synchrophasor. What else really must we be looking for to modernize America's grid and infrastructure going forward?

Secretary MONIZ. Well, in terms of the grid, including both the transmission and distribution systems, I think one major theme is that we need to really push forward on what we have just barely started, and that is real integration of information technology into the grid and all of the associated requirements to take the data to be analyzed, of course. Synchrophasors are a part of that. We can discuss that some other time.

Ms. CASTOR. OK.

Secretary MONIZ. But sensors, control systems, coupling information technology into distributed decision-making so that the grid can respond quickly if there is something developing on the reliability side, for example. So that really is, I would say, the overarching theme, more and more information technology integration into that system. That does, of course, potentially exacerbate another thing you mentioned which is the cyber risk that we have to stay ahead of. And I would say there, I just might add that under

the leadership of our deputy secretary, we head something called the Energy Sector Coordinating Council which has EEI and a number of CEOs that meet three times a year to discuss these kinds of risks to the infrastructure, to the grids especially. On the grid, there are some other issues besides those I mentioned, such as the role of potentially long-distance DC transmission where that is much more prevalent in other parts of the world right now, but again, IT, I would say, number 1 in terms of where we have to go.

Ms. CASTOR. And back on your energy assurance grants, would they be open only to states, or would local communities and businesses be able to tap into those grants?

Secretary MONIZ. There is still really a lot of program design to do, and we would be happy to talk with the members about that. I think the way we have been envisioning it is principally through the states, but hoping that the states, to be competitive, would be working with localities and tribes in the appropriate states, for example. But that is all a detailed program design that—

Ms. CASTOR. I would hope you would open it up to local collaboratives or regional collaboratives. Sometimes you have recalcitrant states—there is an unwritten state policy in Florida right now, you can't even say climate change, so that doesn't bode well for our ability to compete for those grants. And I have—

Secretary MONIZ. OK, we will take that under consideration.

Ms. CASTOR. Great.

Secretary MONIZ. Yes, it has been raised before in terms of cities wanting to be able to have—be direct applicants.

Ms. CASTOR. Absolutely. There has been some discussion today about exports of oil and gas. You have used a number today, how much right now is America importing in petroleum and gas?

Secretary MONIZ. I think we are still importing close to 7 million barrels a day of crude oil—

Ms. CASTOR. OK.

Secretary MONIZ [continuing]. Although we are net exporters of about 2 ½ million barrels of oil products. So our net imports are maybe 4 ½ million barrels.

Ms. CASTOR. Doesn't the export heavy focus run counter to America's policy imperative to reduce carbon pollution?

Secretary MONIZ. Well, as I said, frankly, I think in our current situation where we are still major importers, relaxation of export is probably likely to more or less just swap around different oil qualities in different places, as opposed to lead to tremendously increased production or demand. That is my view.

Ms. CASTOR. So you do not think that exporting additional carbon fuels would exacerbate the problem of carbon pollution—

Secretary MONIZ. I think the—

Ms. CASTOR [continuing]. Across—

Secretary MONIZ. I think the key is that even as we are producing more, and this debate is going on in terms of exports, I think the important thing is, and we satisfy this, is keep your eye on the ball for reducing oil dependence. And that means we are aggressive on efficient vehicles, we are aggressive in terms of developing low carbon fuel alternatives, like next generation biofuels, and we are aggressive in supporting the move towards electrifica-

tion of vehicles with clean electricity supplying those vehicles. So——

Mr. WHITFIELD. Gentlady's time—no, go ahead.

Secretary MONIZ. No, I was just going to say, and if you look at it, we are, I think, succeeding. For example, in the last—I think it is 5—I forget, some number of years, maybe a decade, even as our population has increased, as our GDP has increased 13 percent, we have actually decreased petroleum fuel use.

Mr. WHITFIELD. OK. Gentlady's time has expired.

At this time, recognize the gentleman from Pennsylvania, Mr. Pitts, for 5 minutes.

Mr. PITTS. Thank you, Mr. Chairman. Thank you, Mr. Secretary, for coming today.

Chairman Upton mentioned his interest in Ukraine and the meetings over there with the Ukrainian Parliament, the EU, getting resources over there. You said something that you are doing a lot with Ukraine. Would you care to elaborate please?

Secretary MONIZ. I would be pleased to. Starting in the middle of 2014, the G7 energy ministers together with the EU met to discuss energy security issues, and that included specifically the Russia-Ukraine situation. Out of that came a commitment to work with Ukraine for that winter. And so DOE led a team of several U.S. agencies, plus Canadian experts, that went to Ukraine several times and guided them to a winter contingency plan for energy. So that occurred. Including, by the way, a tabletop exercise at the level of the deputy prime minister. Then we are back there helping them again look forward to next winter, but other things as well. For example, we pointed out the dependence not only on natural gas, but on Russian nuclear fuel. And you may have seen now that has led to Westinghouse now has a contract to be a fuel supplier for the Russian reactors in Ukraine. This has caught the attention of some, breaking a monopoly again. So we are working in a number of ways to help Ukraine on the energy situation.

Mr. PITTS. Thank you. The Department of Energy has made progress on a few LNG export applications, but the fact of the matter is that more than 30 applications still await final decision from DOE. And I realize that you decided to reconfigure the process to allow FERC to go first with its environmental review, but the process as a whole remains complicated, unpredictable, especially for U.S. allies who are unfamiliar with the bureaucratic process between DOE and FERC. My question is, when will DOE finalize its follow-on economic study of exports in the 12 to 20 billion cubic feet per day range?

Secretary MONIZ. I can't give you an exact date, but I expect it quite soon. So I don't think it is going to be an impediment because today, we are—8½ I think BCF per day. Approved for non-FTA countries.

Mr. PITTS. Would the transpacific partnership or the transatlantic trade and investment partnership clear the way for automatic LNG export approvals?

Secretary MONIZ. I think that will depend on the specifics of how it is negotiated, but it may very well provide FTA status to more countries, in which case the approval is, you know, more or less automatic. Although I would caution, because this statement is also

often raised with regard to TTIP and Europe, that the reality is that the market prices probably have a bigger impact than whether you are labeled FTA or non-FTA.

Mr. PITTS. Do you support the provisions within the discussion draft which would effectively give DOE 60 days to act on an application following the FERC environmental review?

Secretary MONIZ. Well, we have made our statements very clear on that, in particular, in a hearing in the Senate, that we, frankly, find it unnecessary. We have been acting quite quickly. It is workable. We have said it is workable. We can work with it, but we don't think it is necessary.

Mr. PITTS. U.S. oil production has risen rapidly in the last several years, and imports are falling. In fact, only about $\frac{1}{4}$ of the petroleum consumed in the U.S. is imported from foreign countries, which is the lowest level in 30 years. When asked about lifting the ban on oil exports, you have made the point that the U.S. still imports oil, which is a fact, but given our role in the global market, would it make sense to both import and export oil?

Secretary MONIZ. Well, again, I imagine we are going to meet our needs, and so right now, if we export a barrel, we are going to import a barrel to replace it. So as I said earlier, the only real issue in terms of the exports is whether that would lead to any material increase of production as opposed to just, in effect, swapping oil. There could be some issues there in terms of oil quality. For example, the Mexicans have specifically petitioned for a swap in which we would send light oil to Mexico in return for heavier oil coming back. That is an example of a swap. But I have to say it is not as though we have not been able to absorb all of the oil production today in the United States. It has been—so anyway—

Mr. PITTS. Thank you. My time has expired.

Mr. WHITFIELD. Gentleman's time has expired.

At this time, recognize the gentlelady from California, Mrs. Capps, for 5 minutes.

Mrs. CAPPS. Thank you, Mr. Chairman, for holding this hearing. And I thank you, Mr. Secretary, for your testimony.

The discussion of our Nation's energy infrastructure is very important, and as is the Administration's work on the Quadrennial Energy Review. I am particularly interested in the pipeline safety aspect of it. Over my years on this committee, I have referenced very many times the Santa Barbara oil spill of 1969. That oil spill had tremendous local and national ramifications, giving birth to our modern environmental movement, in many ways, and changing much of the way our Nation as a whole has viewed the environment and oil development. Sadly, the Santa Barbara community was recently hit with another terrible oil spill along the coast. On May 19, more than 100,000 gallons of crude oil spilled from the ruptured Plains All American Pipeline along the treasured Gaviota Coast just north of Santa Barbara. The oil quickly flowed under the highway, onto the beach, and into the ocean, where the oil slick spread south for miles along the coastline. While the exact causes of this spill are still being investigated, it is already clear that woefully inadequate federal pipeline safety standards have played a significant role. It turns out that the Plains All American Pipeline is the only federally regulated pipeline in Santa Barbara County.

It is also the only transmission pipeline in the county that does not have an automatic shutoff valve built into its system, and this is not a coincidence. Every other comparable oil pipeline in Santa Barbara County has an automatic shutoff valve because the county has required it, but the federal Pipeline and Hazardous Material Safety Administration, or PHMSA as it is called, does not make this requirement of pipeline operators. While an automatic shutoff valve may not have prevented this spill, it certainly could have minimized it. Plains was actually allowed to squirrel away tens of millions of dollars into what they called a contingency fund for when their pipeline would inevitably fail, yet they weren't even required to spend a fraction of that amount on installing basic spill prevention technologies. This, to me, defies commonsense, and it cannot be allowed to continue. And this is just one example of lax safety standards. My constituents are understandably angry, and I share their anger. With all due respect for my seatmate, Mr. Green, who appropriately isn't here right now, oil and gas development at its core is dangerous and dirty business. The mere fact that Plains and other companies have oil spill contingency funds shows that there is no such thing as a safe pipeline. Spills do happen, and they will continue to happen as long as we depend on fossil fuel for our energy needs. We obviously cannot end this dependence overnight, but we clearly need to take bigger and bolder actions to achieve the clean energy future that we all know is needed.

Secretary Moniz, I appreciate the President's and your strong commitment to pursuing renewable energy. The objectives of QER are important. We cannot build a clean energy future without modernizing our infrastructure and preparing for new challenges, but we must also do everything in our power to ensure that this infrastructure is as safe as possible. Congress has repeatedly directed PHMSA to strengthen its standards, and yet PHMSA has done very little. The QER specifically mentions a draft PHMSA rule in development that would help strengthen some of these standards, but PHMSA first began taking comment on this rule nearly 5 years ago, and nothing has been published so far. And in 2011, Congress enacted legislation explicitly directing PHMSA to issue a rule requiring automatic shutoff valves on new pipelines by January of last year. Still not even a proposal let alone a final rule. I find this really inexcusable. I know DOE does not have direct control over this agency, Transportation does, or rulemaking, but what is the point of replacing aging pipelines and building new ones if they are all built using ineffective and outdated safety standards? The pipeline that burst in my district was not even 30 years old, so age is clearly not the only factor here.

So, Mr. Secretary, my question for you, and I would appreciate if you can get back to me because I have taken most of this time, but what is the Administration going to do now to ensure—there is a lot of attention focused on this topic, to ensure that a new pipeline infrastructure is as safe as possible?

Secretary MONIZ. Well, again, as you said, PHMSA obviously is in the Department of Transportation, and I would certainly be happy to talk with Secretary Fox and get back to you, but obviously, the QER focus is, we have to rebuild infrastructure in a way that is reliable and resilient, and I would say this is an example

of resilience by having the kinds of safety systems in place that maybe cannot avoid but can dramatically limit the impacts. So this is just part of why we need this discussion, I think.

Mrs. CAPPS. Thank you very much.

Secretary MONIZ. Thank you.

Mr. WHITFIELD. At this time, recognize the gentleman from Ohio, Mr. Latta, for 5 minutes.

Mr. LATTA. Thank you, Mr. Chairman. And, Mr. Secretary, welcome back to the committee. It is always good to have you here.

If I could just follow up what the gentleman from Pennsylvania, Mr. Pitts, was asking, and you mentioned about the swap—the light versus heavy with Mexico. Maybe some folks might not understand why you would have to have a swap. Why is that? That you would have to swap light for heavy crude. Is—

Secretary MONIZ. I just mentioned that that is what the Mexicans have petitioned for because, I think in the—currently, we do not have authorities for exporting oil directly to Mexico, my understanding is it isn't at DOE, of course, but my understanding is they asked for this kind of idea of a swap.

Mr. LATTA. Thank you.

Secretary MONIZ. Which is under consideration, I believe, at the Department of Commerce, I believe.

Mr. LATTA. OK, thanks very much. Another issue not only has this subcommittee taken up but also especially the Telecom Subcommittee, in regards to cyberattacks and physical attacks that could occur to our infrastructure in this country. And so it is not only a growing concern but a great concern that we all have as to what could happen. The committee's discussion draft on energy reliability and security provides the Secretary of Energy the authority to take emergency measures to protect the bulk power system from grid security emergencies. Are you generally supportive of the DOE having grid security emergency authority?

Secretary MONIZ. Well, I believe we have the authorities, but only under emergency conditions.

Mr. LATTA. Well, let me ask, what other grid security recommendations you would make to this committee that we should consider at this time?

Secretary MONIZ. Well, I don't know what is appropriate for statutory direction, but I think utilities, for example, on physical security. Many of them have taken significant steps since the California incident. They are not always advertised for obvious reasons, but they have been doing that. Similarly by the way, many of the utilities—but the reason we need to complete a study on the transformer issues, whether it is because of a physical attack or just wear and tear, a number of utilities have really moved in terms of their backup there, but it is not uniform. And, of course, we have very, very different utility structures, organizational structures, so it is very different for IOUs versus co-ops, et cetera. So I think that is an example where, maybe after a study, some statutory action could be called for in terms of how do we provide appropriate resilience to the low probability but very high consequence of not having access to big transformers.

Mr. LATTA. Let me ask this. How concerned are you about electromagnetic pulses against the grid system?

Secretary MONIZ. Well, that is another risk that we identified. There are studies on that. The National Academy has studied that. I would say it is, once again, an example of a probably low probability but significant consequence possibility.

There has been——

Mr. LATTA. When you say low probability, how—what percent probability would you put that at?

Secretary MONIZ. Well, I am not going to give a number, but it is just—it is low.

Mr. LATTA. OK. Well, because——

Secretary MONIZ. But again, there has been hardening done by many to keep transformers, et cetera.

Mr. LATTA. OK, thank you. Could you explain the importance of information sharing and public-private partnerships as it relates to security the electric grid?

Secretary MONIZ. I am sorry, could you——

Mr. LATTA. Yes. Could you explain the importance of information sharing and public-private partnerships as it relates to securing the electric grid?

Secretary MONIZ. I think that is very important. Once again, the Energy Sector Coordinating Council that our deputy secretary heads is part of that public-private partnership. And by the way, I have to say groups like EEI have been just excellent partners in that. And in terms of information-sharing, just one particular example, there is a lot of information-sharing in terms of reliable operations, et cetera, but one area I would highlight that this council does is including through providing selective security clearances sharing cyber threat data with the private sector.

Mr. LATTA. OK. And finally, in the very short period of time I have, in analyzing recent power plant retirements, the QER mentions market factors, low cost of natural gas, and changing coal prices as the driving factors behind the retirements. Would you agree that environmental regulations like the Mercury Air Toxics Standard and the proposed Clean Air Power Plan also played a role in the retirement of some of our electric generator units?

Secretary MONIZ. Well, certainly, things like mercury restrictions obviously raise costs, and that is always the cost calculation. But again, I think by far the dominant issue over these last years has been gas prices of \$2.50. And for certainly inefficient coal plants, even the variable cost is beat by natural gas combined cycle.

Mr. LATTA. Thank you. Mr. Chairman, my time has expired. I yield back.

Mr. WHITFIELD. At this time, the chair recognizes the gentleman from Vermont, Mr. Welch.

Mr. WELCH. OK, thank you very much.

I have one comment and four questions, so I will go lickety-split. And I think I will ask them all four so you can answer them.

The comment, you have been getting praised for being a great Secretary of Energy, and sideline as a nuclear negotiator, but I don't think people know that you do the best imitation of Luis Tiant, his windup, delivery, and pitch. And I think all members should ask for a demonstration. But——

Secretary MONIZ. Including the look to God.

Mr. WELCH. The look to God. The whole thing.

But the questions, one, this committee has been doing great work on energy efficiency. And energy efficiency in Vermont has been fully embraced, and it has led to our transmission company, VELCO, being able to avoid about \$400 million in expenses associated with transmission lines. So I want your comment on what we can do as a committee and the Federal Government can do to help get the benefits of avoided cost.

Second, we have been trying to get real-time information on electricity rates in New England, in significant part because our rates are very high, and your department has been helpful trying to get real-time information in all the states, and Canada and Mexico, but has been having real challenges in actually getting that information. And I am curious to know what you find is the reason why it is so tough to get that, and what the department and FERC can do to help reduce the electricity bills for New Englanders.

Third, this is a smaller issue but quite important. We have some biomass stove manufacturers, and the standards evolve. One of those stove companies is Hearthstone, and they are having a real hard time getting basically an answer on what the standards are so that they can comply. So we need—

Secretary MONIZ. For efficiency?

Mr. WELCH [continuing]. Some help on that. Yes, that is right. So they have a great product, but if they don't get a real definition of what the standard is then it makes it tough for them to stay out there on the market, and he has been having an awful hard time with that. Small company, but important company, and real jobs to Vermonters.

And then finally, net metering. That is tough because you have to have net metering if you really want to deploy energy efficiency. On the other hand, it obviously has an impact on the economic model. Vermont has gone in a different direction than most states, led by Green Mountain Power, our biggest utility, to embrace and promote expansion in net metering. What could we do at the Federal Government to help that process that is going to help deploy energy efficiency, but also deal with the economic realities of many—

Secretary MONIZ. Yes.

Mr. WELCH [continuing]. Of our big power producers? Thank you.

Secretary MONIZ. Great. Well, thank you, Mr. Welch. So the four questions—well, actually, the third question on the emission standards of biomass stoves I think is something that we will get back to you on because I just don't know the answer right now, but that is one we can take care of.

On the energy efficiency in Vermont, well, again, we are—and as you know, I was in Vermont with the delegation, and Vermont has done a fabulous job in terms of efficiency, with novel, novel business models for supplying energy. But I would say there, the main thing, the recommendation in the QER of relevance to that, and to a certain extent to the net metering discussion as well, is that we need to develop, at at DOE we will start really delving into this much more, we need to devise a much better way of valuing all the services that can be provided in the electricity system. Efficiency, storage, diversity, capacity, power quality, there are all of these issues, and when we had the traditional business model and it was

basically one way from a central plant to a house, well, it kind of all got lumped together. But now with much more diversity, with storage coming in in some cases, distributed generation, we know that energy efficiency, this involves another hot issue right now that is in the courts, is to what extent does end-use efficiency come back all the way to the wholesale market, which FERC is engaged in. So I think this issue of valuing all the services is really core, and that is something that we want to, over the next months, really work hard on, and that is something that needs dialog with the members. So that is, I think, an absolute critical recommendation.

And on terms of electricity prices and real-time prices, I would just note that the EIA has, in fact, not so long ago, launched a new product which has much more real-time data being collected from the ISOs and the RTOs and combined together so that one can research it and one can understand how prices are moving.

Mr. WHITFIELD. Gentleman's time has expired.

At this time, recognize the gentleman from West Virginia, Mr. McKinley, for five.

Mr. MCKINLEY. Thank you, Mr. Chairman. And thank you again for coming before us.

In the last week, during the break, I returned to West Virginia and was on overload of negative information coming at us in West Virginia. The first newspaper I got when I got back there was, dark day for miners. They just announced that 2,268 coalmining jobs were lost. 2,268 families now are looking for jobs as a result of this mining—then soon thereafter we got another power plant closed down, the Kammer Power Plant. Even though FERC has said that—and they have testified before us—the concern that they have is that we are going to have rolling blackouts in the Midwest if we don't start replacing these power plants, but we are continuing to shut these power plants down. And then there was another one that went on to say, just in one community, one small community, they are going to lose \$61 million in wages as a result of this.

So I am dealing with all of this crisis. When you add the additional losses, these 2,268, now we are up to—and I believe the chairman mentioned it earlier today, that we have now lost in West Virginia 45 percent of our coalminers are unemployed since 2012. Just in 3 years. Three years 45 percent of our coalminers are looking for work.

Now, last Friday I met with the Coal Association and I could see there, they said there is going to be further contraction as a result of what policies that are happening nationally. So they are very concerned about what is going on with it. This loss of the Kammer and other power plants, it challenges, you well know, the grid stability that we have, this dependability. It also goes beyond that, and that is what about property taxes, what about the local income tax that people are going to pay? You can take away the power plant but now you are affecting the schools, you are affecting how a community operates with this happening.

So my first question of two questions would be to the coal industry to reverse this decline?

Secretary MONIZ. Well, Mr. McKinley, first of all, of course, we all feel, for whatever reason, when there are these major disrup-

tions in communities, it is obviously something that we need to pay attention to. And the Administration does have some programs to look at some retraining, particularly in the overlap areas with natural gas production, the Power Plus Plan that has been put forward, but I recognize that these don't address 45 percent of a workforce. So they help in the right direction, but they certainly do not "solve the problem."

Mr. MCKINLEY. Well, but keep in mind too, Mr. Secretary, you know that coalminers average age is going to be in their 50s. What are we going to retrain them—my second question, since I didn't—and, unfortunately, you don't have a quick answer either—

Secretary MONIZ. No.

Mr. MCKINLEY [continuing]. On this as to how to stop the—

Secretary MONIZ. We—

Mr. MCKINLEY [continuing]. Hemorrhaging. But the second question, so if you are sitting in the kitchen with this 55-year-old that just lost his job, he has been working 30 years in a coalmine, what do you tell him?

Secretary MONIZ. Well, look, again, I am completely with you. This is a very, very difficult. I think in the end, it is about having to try to produce some other economic opportunities. Revitalization, some retraining, and—

Secretary MONIZ. But these are real—you understand, these are real people that have—

Secretary MONIZ. Yes, and I—

Mr. MCKINLEY [continuing]. Really lost their job—

Secretary MONIZ. I understand.

SAAnd the following is not on the right timescale for you, but I have said previously, I think in front of this committee as well, that we do have many programs, many different kinds of programs, that are addressing the issue of a future of coal, even in a low-carbon world, but that is not going to solve that gentleman's problem tomorrow. I completely agree with that.

Mr. MCKINLEY. So in the 2 what do we tell him?

Secretary MONIZ. I think the key—

Mr. MCKINLEY. He has a mortgage payment—

Secretary MONIZ. He has to be—

Mr. MCKINLEY [continuing]. He has a healthcare bill, what are we doing for him?

Secretary MONIZ. The key has to be economic development and providing other opportunities. And I might just mention, Mr. McKinley, that—and I am happy to say it here, that recently Senator Manchin has asked me to come to West Virginia, and I would be happy to join him and you and come to West Virginia and try to understand the situation and what we can do.

Mr. MCKINLEY. Thank you, Mr. Secretary.

Secretary MONIZ. Yes.

Mr. WHITFIELD. At this time, recognize the gentleman from New York, Mr. Engel, for 5 minutes.

Mr. ENGEL. Thank you very much, Mr. Chairman. Secretary Moniz, thank you for your testimony today, and thank you for all your good work in so many things. We really appreciate it.

I would like to join everyone in applauding your efforts—

Secretary MONIZ. I am having a hard time hearing you.

Mr. ENGEL. I will do this. This is better.

Secretary MONIZ. Thank you. Thank you, that is better.

Mr. ENGEL. OK. Generally not so hard to hear New Yorkers talk. I will just try to talk a little louder and not slur my words.

I want to applaud your efforts and the efforts of everybody involved in producing the first report of the QER Taskforce. I believe it really establishes a very sensible blueprint, making our electric grid more resilient, and to identify and improve vulnerabilities in our current energy transmission and distribution system.

As you know, Super Storm Sandy swept through my district and the surrounding region in October 2012, knocking out power to over 8 million people, and causing several fuel supply and distribution problems. Some New Yorkers in my district waited more than 2 weeks for their lights to turn back on, and struggled the whole time to keep their families safe and warm. So as a result, I am particularly focused on the ability of our grid and our entire energy transmission and distribution system to withstand future shocks, and also to recover quickly from any outage that might occur.

So could you please discuss how we are better prepared today than we were in 2012 for a storm like Sandy, and how the suggestions in the QER would build upon the improvements we have made? In particular, please touch on the establishment of the northeast reserve and the potential expansion of distributed generation through the REV Initiative in New York.

Secretary MONIZ. Thank you. Well, first on the regional gasoline reserve. As you know, that has been established with a million barrels, distributed in three locations from the New York Harbor area, up to Portland, Maine, and that complement to the heating oil reserve that was established some years back. I might point out that one of the recommendations, by the way—which I would put in front of the committee is that it would be very useful if the authorities for using those reserves could be harmonized because they are quite different, and this would not help in terms of a coordinated response in terms of an issue. So that is successfully put in place. It is paid for as well for 4½ years of operation. And I might add, we are currently now about ⅓ of the way through to using the remainder of the money to repurchase 4.2 million barrels of crude oil to go back into the reserve, because we took out 5 million, so it will be 4.2 crude, 1 million gasoline, and 4½ years of operations of the reserve.

Secondly, with regard to the grid and resiliency, again, I would like to highlight what we consider to be one of the most important recommendations, actually, two recommendations, one is to support, in our fiscal year 2016 budget request, state assurance grants to allow planning for hardening infrastructure. And then, and this is a case we have to find out working with you, how to raise the revenue, how to raise the resources, but to establish several billion dollars for competitive resiliency projects. That could include things like micro grids, but designed for resiliency of the energy system.

Mr. ENGEL. Thank you. Let me ask one more question. The QER report also recommends ways to further integrate the energy infrastructures of the U.S., Canada, and Mexico, and the idea is to enhance market opportunities, energy security, and sustainability. Some transmission lines already send hydropower from Quebec to

the northeast United States, and the potential exists, obviously, for more capacity on more transmission lines in the region. Could you please talk about what role, if any, these transmission lines should play in our energy future?

Secretary MONIZ. Well, I think these are very important. Of course, one that was approved recently was the Champlain Hudson line that would take power to New York from—hydropower. And there are a variety of projects for 4 to 5 gigawatts of additional hydropower that could be available to the northeast and upper Midwest. This, obviously, would be clean energy to meet our needs.

Mr. ENGEL. Thank you. Thank you, Mr. Secretary.

Thank you, Mr. Chairman.

Mr. WHITFIELD. Chair now recognizes the gentleman from Virginia, Mr. Griffith, for 5 minutes.

Mr. GRIFFITH. Thank you very much, Mr. Chairman. I do appreciate that.

Let me reference the comments made by Mr. McKinley of West Virginia. We have had hundreds of layoffs in my district alone. Of course, in my neighboring State of West Virginia and Kentucky, there have been thousands, and it has been devastating.

You referenced natural gas in relationship to the closing of some of the coal-fired power plants as one of the factors. Of course, it is one of the factors, but the regulations coming in also, yesterday we closed down the Glen Lyn facility in my district. It was paid for by the ratepayers. Wouldn't cost them any additional. It was only being used at this point for the peak periods. That is now gone. The Clinch River facility in my district had three EGUs, three electric generation power plants. They are converting two of the three over to natural gas, however, the third one is not going to be converted, and the $\frac{2}{3}$ that used to be there will produce about $\frac{1}{2}$ of the electricity.

I am just concerned that in the peak periods of use, now that they are gone, how are they going to be replaced in southwest Virginia and in other parts of the AEP footprint?

Secretary MONIZ. Well, of course, I don't know well enough the exact geography and the distribution of power plants. If I talk more broadly, one of the issues, clearly, is the continuing build-out of the transmission system to move power around effectively. And I might say that I was a little bit surprised, frankly, with the data that came out in the QER that the spending on transmission in the country has actually reached \$14, \$15 billion per year with a continuous increase, basically, over the last 10 to 15 years. So we actually don't think that any significant increase in resources will be required. The issue will be to make sure that the lines are configured, of course, to make sure that energy gets to all the various places.

Mr. GRIFFITH. And I get that, and that brings up natural gas pipelines. And talking about all of this, and they are building them in my district, with great opposition from many people who don't like the pipeline concept. They are also building them in a district just north of mine. Pipelines are going everywhere. But I noticed in the QER you note the need for pipeline replacements for existing pipelines, and that you suggest a DOE-run grant program designed to allow states to receive funds to aid in improvements to pipeline

infrastructure. I support improving our current system for existing pipelines, and I am interested in learning more about the details. What new authorities do you all think you need at DOE, or do you want at DOE in order to create this program, and will you be providing language to the committee so that we can see about putting that into the appropriate bill? How do you envision the DOE replacement program working? How would the funding get to the existing states? Would it be the existing funding or are you going to come up with new funding? Where is the money going to come from? What is the timeline, and how would the states apply, et cetera? I throw all those out at you at once. I will be glad to go back and review them but I don't want my time to run out.

Secretary MONIZ. I think we will have to get back to you with a lot of the detail, but let me make several points. First of all on the resources issue, we were very clear that we had about half a billion dollars proposed in the fiscal year 2016 budget to address various QER recommendations, but there were another \$15 billion of need identified, which we were very clear we have to have a discussion in terms of where can those resources come from. That is over many years, but still. So specifically, the funding for the acceleration of natural gas distribution infrastructure replacement is not in our budget. So that is one those cases. And we have in the past, of course, had many examples of raising resources in various ways for major infrastructure projects. I think that is the discussion we need to have with the Congress, are we prepared to find these mechanisms for a significant push on energy infrastructure.

Mr. GRIFFITH. And as we transition then and we use more natural gas, then it would seem that at some point that funding is going to have to come forward, which means it is going to be passed on to the ratepayer, and yet another expense added on to one of their energy bills.

Secretary MONIZ. Right, and what we are seeing today, by the way, at least for these years, I have a place in D.C., and on my bill there is a specific surcharge on there for replacement of the natural gas distribution pipe. What we are saying is we think this needs to be accelerated. I will be clear, I guess it is Washington Gas, I don't know, whoever it is, the surcharge is for a 40-year replacement program. That seems like an awfully long time. So what we are arguing is we need to shorten these—utilities are typically doing this many, many decades to keep the rate low. We are saying, geez, we need to accelerate this. And what we are proposing is funding that would go to help low-income households absorb the rate hit.

Mr. WHITFIELD. Yes. Gentleman's time has expired.

At this time, recognize the gentleman from Ohio, Mr. Johnson, for 5 minutes.

Mr. JOHNSON. Thank you, Mr. Chairman. And thank you, Mr. Secretary, for being here with us again today.

At the risk of piling on, I want to associate myself also with the concerns already mentioned regarding the coal industry. My district is a district and a state heavily dependent upon the coal industry, not only for reliable energy, affordable energy, but also the jobs that it represents.

I was on a trip to Europe just a couple of weeks ago, and one of the statements that one of our European colleagues in the energy sector made was that, over the last 20 years or so, they have led America in shutting down much of their coal industry in an effort to reduce their carbon emissions, but some of those European countries, when we ask them what their energy profile looked like, they are returning to a higher percentage of a use of coal. And when I questioned them about that, I said why is that the case and how do you think you are going to be able to reach this 40 percent reduction by 2030, and this official said, look, we have learned, our ratepayers, our businesses and our residential customers, have said they are no longer willing to pay the exorbitant high prices for energy. The idea is you make coal so expensive by taxing the carbon emissions that renewables and other alternative forms of energy are more economically attractive. They are going back to coal. I don't know why America, Mr. Secretary, why we have to learn this lesson the hard way; that coal still provides the most reliable, affordable energy on the planet.

And so let me get off of this subject because I have some others I want to talk to you about. You expressed a willingness to come to West Virginia with Senator Manchin and Representative McKinley. Can you swing through Ohio at the same time——

Secretary MONIZ. We can try to do that.

Mr. JOHNSON [continuing]. That you are in the region, and I would love to take you to talk to some of our coalmining cooperators and some of the manufacturers who are being asked to idle their plants because there is not enough energy on the grid to meet the peak demand. And that is today. That doesn't even count for what is coming.

Secretary MONIZ. If I may make a suggestion that might be useful. We have a very, very excellent person named Dave Foster who is really the creator of our Job Strategy Council. Perhaps a meeting with those of you with kind of Appalachian connections in coal, just to brainstorm around what might be other ways of going. I would be happy to do that.

Mr. JOHNSON. Can you help facilitate that?

Secretary MONIZ. Yes, I would——

Mr. JOHNSON. Good.

Secretary MONIZ [continuing]. Be happy to do that.

Mr. JOHNSON. Well, my office will be in touch and we will——

Secretary MONIZ. Certainly, the two of you and Mr. McKinley would be among those.

Mr. JOHNSON. All right. We would like to do that.

Let me move quickly to these other questions. In March, William O'Keefe, the CEO of Marshall Institute, penned an editorial in the Washington Times where he notes that the Council of Economic Advisors' annual economic report for 2015 details the beneficial effects that LNG exports would bring for domestic employment, geopolitical security in the energy industry and the environment. He also makes the point that unless we act soon, we are going to lose many of these benefits. He says, while the American policymakers procrastinate, other countries are stepping up to meet these needs. The United States has an incentive not to wait. Our window of opportunity is closing.

So with that in mind, what are your thoughts not only on LNG exports, but are there any specific steps and policies we should be putting in place today to realize this opportunity before it is lost?

Secretary MONIZ. Well, I have to say first of all that we are not procrastinating. Now, we have approved—and by—this is separate from the conditional approval that we made last week for the Alaska project, because that is a separate gas source, but for the lower 48 we have approved roughly 8½ billion cubic feet per day to non-Free Trade Agreement countries. We have no other applications to work on at the moment. And just to give a scale, I mean the largest LNG exporter in the world is Qatar, and they are at about 10 billion cubic feet per day. Now, the first cargos—

Mr. JOHNSON. I hear you, Mr. Secretary. Then why does the rest of the world, why are they still urging America to get into the LNG export market on a global basis? Why does the rest of the world—

Secretary MONIZ. Well—

Mr. JOHNSON [continuing]. And the oil and gas industry thing that we are not participating in the global export?

Secretary MONIZ. I think that, first of all, there is a lot of misunderstanding, to be honest, number one. Number two, clearly, they are sitting there with \$12, \$15 gas, and they see us at \$2.50, and they think that looks pretty good. Now, of course, by the time it reaches them, when you add \$6 or \$7 for the supply chain, it is not going to be our prices, but it still beats their prices. So clearly, they have an interest. They want to see that. Well, the fact is that if you look at the economic studies that have been done, not by DOE, by others, in terms of what they expect to be our real export market, very few of them come in above, say, 10 BCF per day, given competition in various parts of the world. So all I know is that is for the private sector to sort out.

We have studies that take us up to a potential 12 BCF per day. Earlier it was pointed out we have commissioned another study that would even look at 20 BCF per day, but in the meantime, we have approved 8½. The projects are being built. The first cargos will get on the water probably the beginning of 2016, and then we are going to start exporting.

Another issue is, and a lot of our European friends say, they want the gas, I might just point out as an aside, no value judgments, there are a lot of places in the world that don't want to develop their own indigenous resources but would like ours. OK, well, that is fine, but we do not direct where cargos go. We approve export licenses to non-FTA countries, and those are commercial contracts. Frankly, it is a constitutional issue in terms of our not doing that.

Mr. JOHNSON. Mr. Chairman, my time has expired.

Mr. WHITFIELD. Gentleman—

Mr. JOHNSON. I would submit to our committee and to the Secretary, there is a big disconnect somewhere because the experts tell us that our price is going to rise when we get into the global export market. We haven't seen that. We have heard that the global market price is going to come down. We haven't seen that. So I don't know where the disconnect is, but there is a big disconnect somewhere.

Mr. WHITFIELD. Yes. Thank you.

At this time, I am going to recognize the gentleman from Missouri, Mr. Long, for 5 minutes.

Mr. LONG. Thank you, Mr. Chairman.

And, Mr. Secretary, the discussion draft provides the Department of Energy with some new responsibilities beyond your current mission. For example, we direct the department to study the feasibility of establishing a federal strategic transformer reserve, and arm the Department of Energy with new authority to address certain grid security emergencies, which I think is foremost in everyone's mind as far as grid security. Do you believe the Department of Energy has the expertise and capability to meet these new duties?

Secretary MONIZ. Well, yes, sir. First of all, on the transformer reserve, we are moving forward to study that. We have one study already from WAPA, our western organization, but we are moving forward on that and will, depending on the study, engage then in the appropriate public-private partnership to make sure that we are secure.

With regard to grid security emergencies, again, we already do a lot of this. We work under the FEMA umbrella. We are the lead agency for energy infrastructure. And so, for example, you may have read about the typhoon going through Guam a couple of weeks ago I think it was, well, we had a person in Guam as part of the FEMA response for energy infrastructure. So we are already doing this. Now, additional authorities could be helpful.

Mr. LONG. OK. In your testimony, you mention that one of the key energy objectives is enhancing energy reliability. What impact do you think that the proposed Clean Power Plan will have on energy reliability and transmission issues?

Secretary MONIZ. Well, again, first of all, we analyze these issues, but of course, we don't have a final rule yet to know how to analyze it. But what we have done to date and what we have done in terms of technical analysis around the proposal of last year, again, suggests that reliability will be quite manageable, but we have to wait to get the final rule before we can really do the—

Mr. LONG. So you don't think the proposed plan will have a big effect?

Secretary MONIZ. Well, as I mentioned earlier, one example of something that we did, there was an issue around the projected significant increase of natural gas for the power sector versus coal, and when we looked at the infrastructure issues of the gas delivery, we just did not find that there was likely to be any significant challenge. There would be some work to do, but not a significant challenge.

Mr. LONG. With Mr. Griffith from Virginia a while ago, you had a discussion about money to the states and things, and with this Quadrennial Energy Review recommend providing state financial assistance, which I think you all spoke about a few minutes ago, and grants and investment plans for electric reliability and efficiency. Can you discuss a little bit of some of the criteria, regardless of where the money is coming from, because we know there is a shortage of money, but can you discuss some of the criteria the

Department of Energy will require for the states to receive this financial assistance?

Secretary MONIZ. Well—

Mr. LONG. Assuming, again, there would be money there.

Secretary MONIZ. Yes, well, the money issue is relevant, and I must say I was very, very disappointed in the appropriations mark, which did not provide any funding for either the reliability or the assurance grants, which I think is shortsighted, to be perfectly honest, because I think the states need to have this kind of planning capability. We would provide technical assistance. Now, in terms of program design, that remains to be done, but what we envision will be ultimately proposals around things like micro grids, for example, for reliability and resilience. We would see, again, the integration of IT and smart grids as providing those services. And as I said, we hope in the reliability and assurance arenas to then have funding for competitive cost-share grants.

Mr. LONG. Would the criteria be the same from state to state or would it change across the country?

Secretary MONIZ. I think the criteria—well, that still remains to be worked out completely, but the criteria, no, would be around enhanced reliability and resilience. That is the criteria.

Mr. LONG. I understand that but I am just—my question was whether it would be the same from state to state across the country or whether different—

Secretary MONIZ. I think—

Mr. LONG [continuing]. Different states would—

Secretary MONIZ. No, I think—

Mr. LONG [continuing]. Face different criteria.

Secretary MONIZ. I think the same criteria, but the way the projects would be structured would look very different depending upon the regional and state resources.

Mr. LONG. OK. I am past my time so if I had any time I would yield back. But thank you again for your testimony. Mr. Chairman—

Mr. WHITFIELD. Yes, at this time, I am going to recognize the gentleman from Texas, Mr. Flores, but I also just want to make a comment that we really appreciate your taking the leadership with the Republican Study Group on the forum on oil exports, and have an opportunity to examine that more thoroughly today, so—

Mr. FLORES. Well, thank you.

Mr. WHITFIELD [continuing]. You are recognized for 5 minutes.

Mr. FLORES. Thank you, Mr. Chairman. I hope Secretary Moniz will send someone to the discussion this afternoon.

Of course, I want to talk about exports like my friend, Mr. Barton, did. One of the things you talked about is that there—one of the good reasons for the ability to have oil exports is because you have a better matching of the qualities of grades that are needed by the refineries in different geographical areas around the world. And you didn't go quite far enough, I don't think, because one of the things that happens when you have that better matching is you have economic efficiency, and economic efficiency releases additional capital, and that additional capital, based on my experience is—with 30 years in the business, would go back into reinvestment, which stimulates the production. So next time you are answering

that question, if you would go all the way through that economic cycle I think that it would be helpful.

The next thing has to do with, I guess I would call it a safety valve question. As you know, there are multiple versions of—or proposals for oil exports out there, and some of them include giving the President the ability to suspend oil exports in the situation where we had some sort of an energy crisis, or if it is deemed in the national interest, or to be able to use the strategic petroleum reserve under those same circumstances. And so with those two safety valve features in place, doesn't that make it more compelling to allow oil exports?

Secretary MONIZ. Well, again, obviously, more flexibilities are always welcome, but I think the fundamentals of the oil export question are those that we discussed earlier, I think. And I agree with you, of course, in terms of your economic argument.

Mr. FLORES. OK. One of the things that was interesting about timing is, while your agency and others were working on the QER, the Administration was also involved in negotiations with Iran, and in early April your agency estimated that with a deal in place and the sanctions lifted, Iran might start selling us a stockpile of 30 million barrels or more later this year, and raise its output by \$700,000—700,000 barrels a day by the end of 2016. This would come at a time when we would already have a global glut of crude oil.

And so my first question is this. What analysis, if any, has DOE performed to better understand the implications of the entry of Iranian oil into the global markets on global supply and demand—global supply and prices, rather?

Secretary MONIZ. Well, I think, first of all, you have stated the basic conclusion: that one would see over some year to 2 years, certainly, several hundred thousand barrels per day, probably of increased production. That would go into the 95 million barrel per day or so pool. There are so many uncertainties in that timescale; in particular, on the demand side. For example, a recovering European economy would put substantial then pressure on the supply side. Clearly, the nuclear negotiation is quite independent of that dynamic. That is about nuclear weapons issues that we think are important to block.

Mr. FLORES. Well, no, I do understand the independent nature of the two discussions, however—

Secretary MONIZ. Yes.

Mr. FLORES [continuing]. The impact is the same. So I mean the outcomes are the same.

Secretary MONIZ. Well, it is all supply and demand and, you know—

Mr. FLORES. Exactly.

Secretary MONIZ. Right.

Mr. FLORES. Exactly. And so I guess under these circumstances, doesn't it seem like the President would have an increasingly difficult time justifying lifting the sanctions on Iranian oil, and at the same time keeping the sanctions on domestic oil in place, where domestic oil can't be sold abroad?

Secretary MONIZ. Well, I think the big difference is that we import 700 million barrels a day of crude oil. We are not a net exporter. We are an importer.

Mr. FLORES. Right, but we are on track to be in a position to export, so it makes sense to lift the sanctions.

Secretary MONIZ. Well, that is quite a few years away. We are still—even if you add in oil products, we are still at 4½ million products a day.

Mr. FLORES. OK.

Secretary MONIZ. So——

Mr. FLORES. I have no additional questions. Thank you. I yield back.

Mr. WHITFIELD. At this time, recognize the gentleman from Oklahoma, Mr. Mullin, for 5 minutes.

Mr. MULLIN. Thank you, Mr. Chairman. And, Secretary, thank you for being with us again today. I believe this is the second time you have been in front of this panel.

Secretary MONIZ. More than that.

Mr. MULLIN. Well, but this year, if I am not mistaken. At least this is the second time you and I have had an opportunity to visit. And the last time we spoke, we talked about the lack of infrastructure with the power plants as far as the coal-fired plants that are coming down. We have a report from Southwest Power Pool there is going to be 12,900 megawatts lost just in their area. And just a while ago while you were being questioned, I believe by Mr. Long, you said that you didn't see any significant challenges to meet those needs, but yet where is the power going to come from?

Secretary MONIZ. Well——

Mr. MULLIN. If we are going to lose 12,000 just in my region, then where is the extra power going to be made, or where it is going to be produced? The gas lines aren't there. We are seeing 4 years to take a permit, to just simply get a permit to install a gas line. Unless there are power plants that are being built that I am not aware of in my region, then I believe there is going to be a significant challenge to meet the power needs.

Secretary MONIZ. But first of all, let me emphasize that I did state that what we have seen to date, but we, of course, await a final rule. Secondly, of course, demand—now, I am talking nationally, not in any particular specific region——

Mr. MULLIN. Well, specifically speaking, the coal-fired plants are in a specific region.

Secretary MONIZ. No, no, sure. Well, every plant——

Mr. MULLIN. I understand that, but we have 12,900 megawatts being lost in one region, and you said that there was—you didn't see any significant challenges in meeting those needs. Where is that extra power going to come from?

Secretary MONIZ. Well, I mean, first of all, I made it very clear that I—the same when I discussed the natural gas transmission pipes, there will be local issues that have to be resolved in some places with new infrastructure, all I can do is look at the broad picture nationally and note that, first of all, electricity demand nationally is not going up, it is essentially flat. We are building a significant amount of natural gas and wind, in particular, capacity——

Mr. MULLIN. So it is OK because——

Secretary MONIZ [continuing]. Annually——

Mr. MULLIN [continuing]. The numbers aren't going up——

Secretary MONIZ. And Oklahoma, by the way——

Mr. MULLIN [continuing]. It is OK——

Secretary MONIZ [continuing]. Has plenty of wind.

Mr. MULLIN. Yes, but it is OK to bring the power down because we don't need it right now? I mean——

Secretary MONIZ. I——

Mr. MULLIN [continuing]. That is like saying——

Secretary MONIZ. I did not——

Mr. MULLIN [continuing]. Let's——

Secretary MONIZ. I did not say that. All I said was that we are building substantial capacity even as out demand is flat, and secondly——

Mr. MULLIN. Where is the building——

Secretary MONIZ [continuing]. We have substantial——

Mr. MULLIN [continuing]. We are losing power, you are saying we are building significant capacity. What are we building it in? Because power cannot replace—or wind cannot replace what we have here. You can have miles and miles and miles of windfarms, which we have in Oklahoma, which I, frankly, don't think is very pretty, I think it leaves a lot bigger footprint than we do in anything else, but that is another topic, but we are losing 12,900 megawatts in one area. I am going back to what you said——

Secretary MONIZ. Right.

Mr. MULLIN [continuing]. With the gentleman from Missouri——

Secretary MONIZ. Yes.

Mr. MULLIN [continuing]. When you said you don't see significant challenges meeting those needs. So what I think I hear you saying, now, correct me if I am wrong, that it is OK that we lose it because our increase for electricity isn't—the need isn't there so it is OK that we lose it. Is that what I am understanding?

Secretary MONIZ. No, what I am saying is that, first of all, we have about 68,000 megawatts of wind, but what I am saying is that there will, obviously, all the local planning authorities will have to be planning, but at the macro level, we are not seeing the likelihood of enormous challenges. We are being cautious. We have to wait for the final rule to come into place.

Mr. MULLIN. But you guys are already moving forward with it. And, Mr. Secretary, you are over the Department of Energy, and you are saying that the local communities, local areas, need to get together. What is DOE's specific plan to meet this need? Is there not a need——

Secretary MONIZ. Well——

Mr. MULLIN [continuing]. It is just saying we are going to let them go down——

Secretary MONIZ. I mean——

Mr. MULLIN [continuing]. And let everybody else figure it out, it is not our problem?

Secretary MONIZ. Look, first of all, in our system, the private sector obviously builds the power plants, builds——

Mr. MULLIN. But you guys are the ones that pick winners and losers.

Secretary MONIZ. No.

Mr. MULLIN. Yes, it is, because——

Secretary MONIZ. The——

Mr. MULLIN [continuing]. You have said coal is going out, wind is the new thing.

Secretary MONIZ. Obviously, there is a responsibility of government, whether statutory or regulatory, to set certain rules of the road in terms of environmental protection, et cetera, et cetera. The private sector and typically state regulatory bodies then respond to that. So——

Mr. MULLIN. So if I am hearing correctly——

Secretary MONIZ [continuing]. That is the way it works.

Mr. MULLIN [continuing]. There is no plan. We are just going to drop the power and let everybody else figure it out.

Secretary MONIZ. There——

Mr. WHITFIELD. Gentleman's time has expired.

Secretary MONIZ. They are no more——

Mr. MULLIN. I yield back. Thank you.

Secretary MONIZ [continuing]. Or no less plan than there always has been.

Mr. WHITFIELD. Yes. Mr. Pompeo of Kansas is now recognized for 5 minutes.

Mr. POMPEO. Great, thank you, Mr. Chairman. And thank you for your patience today. You have been with us a long time. We are getting toward the end and so a lot of the questions have been asked. And so maybe I will open the aperture just a little bit, starting with this. Do you believe that the American taxpayer has received good value for the tens of billions of federal dollars that have been spent on carbon capture technologies to date, yes or no?

Secretary MONIZ. Well, first of all, I don't think it is tens of billions of dollars, so it is quite a bit less than that.

Mr. POMPEO. OK, whatever the number is, sir——

Secretary MONIZ. But the——

Mr. POMPEO [continuing]. Do you think we have gotten good value for——

Secretary MONIZ. Yes.

Mr. POMPEO [continuing]. That?

Secretary MONIZ. But I think the answer is that, yes, it will prove to have been very, very well spent.

Mr. POMPEO. Great, thank you. I think they look more like slender than success, so we disagree. Yes or no, do you agree with French Foreign Minister who has said that the global climate change agreement that is being negotiated this year should be worded in a way that does not require congressional approval? Yes or no.

Secretary MONIZ. I am not aware of that statement.

Mr. POMPEO. So——

Secretary MONIZ. The——

Mr. POMPEO [continuing]. Do you think—I will ask it more——

Secretary MONIZ. The——

Mr. POMPEO [continuing]. Directly——

Secretary MONIZ. If I may say, the——currently, obviously, the Climate Action Plan that we are executing is based upon administrative authorities to get an economy-wide approach eventually, but it will require legislation.

Mr. POMPEO. The government that you are a part of is negotiating an agreement this year, at the end of the year, it intends to enter into an agreement, they have made that very clear. Do you believe that the agreement that the United States enters into ought to be submitted for congressional approval?

Secretary MONIZ. I think we need to see what the nature of this agreement is. There are many agreements——

Mr. POMPEO. So I can't get you to say——

Secretary MONIZ [continuing]. That are political agreements.

Mr. POMPEO [continuing]. Yes, that you think that a climate agreement should be approved by Congress.

Secretary MONIZ. I think it very much depends upon what the nature of the agreement is.

Mr. POMPEO. I will take that as a no. Today, we have had a lot of questions about crude exports. It seems to me that the only country that you are currently advocating to export crude oil is Iran. Is that right?

Secretary MONIZ. Excuse me?

Mr. POMPEO. Well, you are sitting in a set of negotiations where we are going to free-up the Iranians to export their crude products, but you won't advocate for Americans to be able to export their crude products. Is that——

Secretary MONIZ. As I said earlier, the situations are completely different, and we are a large importer of oil.

Mr. POMPEO. The situations are identical. It would benefit each country greatly to be able to access foreign markets and sell their products at market prices around the globe, and both consumers and exporters would benefit from those in both countries if they are opened up. Do you agree with that or disagree?

Secretary MONIZ. Obviously, for Iran——

Mr. POMPEO. I mean it is a simple question——

Secretary MONIZ. Obviously——

Mr. POMPEO [continuing]. Mr. Secretary.

Secretary MONIZ [continuing]. If Iran——

Mr. POMPEO. It is not a trick question.

Secretary MONIZ [continuing]. Had sanctions lifted, it helps their economy.

Mr. POMPEO. And if we lifted ours——

Secretary MONIZ. And it indeed helps us——

Mr. POMPEO [continuing]. It would help ours too.

Secretary MONIZ [continuing]. On the nuclear weapons side. As I said earlier, the only issue on oil exports in the United States of large-scale relevance is whether or not there is a significant increase in production as a result, and I have said, in the current oil market, that may be a difficult case to make.

Mr. POMPEO. Right. You don't believe in supply and demand when it comes to crude—which you think no more supply will be lodged. So we have been through that. In 18 months there will be a new President, although maybe not a new Secretary of Energy. One never knows. Your QER was prepared based on this President's vision of greenhouse gases, their impact around the world, and America's role in diminishing them. If the next President comes in and has a different view with respect to that, tell me what remains of the value of the QER work that you all did.

Secretary MONIZ. Essentially, all of it. The QER is really aimed clearly at facilitating more clean energy, but it is about energy security, resilience of our infrastructure, it is about North American energy, it has huge, huge implications for our energy infrastructure, independent of the climate issues.

Mr. POMPEO. Yes, I just have a different view of what is in the QER. When I stare at it, I see the analysis and I appreciate that. I agree with your analysis of the requirements for increased infrastructure. We don't disagree there. But it seems to me most of what is in the QER was aimed at federal intervention in the marketplace. You have several references to classic market failure with respect to public goods and negative externalities. I think much of the conclusions in the QER about how that infrastructure will be ultimately built out, and who will decide which infrastructure will be built out, is heavily dependent on this President's vision for climate change and how the United States can impact that. And I just think it was a wonderful exercise, I am glad we did the work with respect to infrastructure, but I think the conclusions drawn on the QER will need to be revisited immediately by the next Administration.

With that, I yield back, Mr. Chairman.

Mr. WHITFIELD. Gentleman yields back.

And that concludes our questions. We have one additional member though, Mr. Cramer of North Dakota, who is a member of the Energy and Commerce Committee, he is not in this particular subcommittee, but he has been so focused on these issues that he sat here for 2½ hours with us, and we are going to give him the opportunity to ask 5 minutes of questions.

Mr. CRAMER. Yes, well, thank you, Mr. Chairman. And thanks to my colleagues for the indulgence.

You know what, it doesn't only take one good North Dakotan to represent the entire state, so I spread myself fairly thin, Mr. Secretary. So I thank the members. And I also, Mr. Secretary, want to thank you not only for being here, but for at least agreeing to, if not joyfully, although I think you are a joyful person, to holding one of the listening sessions in North Dakota. I know it was a late request, and it was a late addition to the agenda for you and Secretary Fox and others, but I thoroughly enjoyed the time that you were out there.

And I notice in the QER, there is a lot of reference to things that you learned last August in North Dakota, especially as it pertains to the transportation infrastructure, and some of the challenges particularly reflected are the challenges for the railroads that move multiple commodities, as you know. And you heard quite clearly, and I think, again, indicated in the report quite clearly, that there were challenges, but at the same time, one of the things I want to do, I think, is to bring the record up-to-date. Last August, we were following on two record winters and two bumper crops, we had two seasons in a row that strained the infrastructure for sure for agricultural commodities. I think one of the bigger challenges was the fact that not only was it a record crop or a bumper crop, but it was a late harvest, due to weather, it was also a late and a very wet harvest. And so there was a consolidation of all of those commodities. And the additional moisture creating other transportation

problems like the movement of propane, for example, for grain drying. That perfect storm created incredible stress on the infrastructure, along with, of course, 700,000 or so barrels per day of oil being moved by rail. So there was a lot of criticism last August. There is a fair bit of that reflected in the report, but just in the last 10 months, the storm has sort of shifted, and I want to stress some of those points, but also encourage you and the team to continue to monitor it on a very regular basis, because some of the things that were identified have worked. The STB's weekly—the requirement for the weekly reports, for example, by the class 1 railroads has been very helpful in transparency, allowed better planning. A warmer winter with a more traditional harvest season, and, frankly, lower commodity prices have created more normalcy. And during which time, and I can be the railroad's worst nightmare, but I also want to acknowledge when they have done their part, and I have to say for BNSF, which is obviously, our largest railroad by far, they have invested mightily in personnel, locomotive, energy, cars, and certainly double-tracking much of the Bakken region and much of the Upper Midwest. And I want to be sure that the record is clear, but I also want to, again, encourage you to remain flexible and update the report regularly to acknowledge that this robust infrastructure does exist. And it is my hope and my expectation that that additional and more robust rail infrastructure actually enhances all commodities.

I also think it is worth noting that because of the STB reports, we have noticed that they are pretty well caught. Not just pretty well caught up, but caught up to the point where there is extra capacity. And much like the electrical grid, it doesn't hurt to have a little extra capacity, but it also creates opportunity for growth.

So, I would only probably ask that, for you to comment on my comments if you would like to, but again, express my appreciation for your attention to the issues.

Secretary MONIZ. Well, thank you. And we certainly appreciated, by the way, your participation in the QER field hearing in North Dakota, along with your Senate colleagues.

First of all, I think you have put your finger on really what was the main driver of our discussion on this subject in the QER, and that was the need for more data. To be perfectly honest, the railroads have not always been the most transparent in terms of data availability. And I think that has certainly been improved, and certainly, the issues around coal, for example, have been certainly relieved. There are other issues, as we know, in terms of oil by rail that are being addressed, and I might say that with the Department of Transportation we have now launched the next phase of the study of relevance to crude properties and rail.

Mr. CRAMER. Yes.

Secretary MONIZ. It will take about 18 months before we are ready with that. But I think you are absolutely right. We have had some progress on the data front and EIA, by the way, is playing a role in there as well.

Mr. CRAMER. Yes, they are. Yes.

Secretary MONIZ. So it is great.

Mr. CRAMER. Well, thank you. And thank you again, Mr. Chairman.

Mr. WHITFIELD. Well, thank you.

And that concludes the first panel. Secretary Moniz, thank you very much for your testimony and answers to our questions, and we look forward to continuing to work with you on many pressing issues as we move forward. And thanks again for your leadership. And Mr. Rush will be notifying you of the formation of the fan club, and we will be getting together soon with that.

Mr. RUSH. Yes.

Secretary MONIZ. Well, thank you, Mr. Chairman. Thank you, gentlemen.

Mr. RUSH. Mr. Chairman, we will have our first meeting relatively soon.

Secretary MONIZ. OK.

Mr. WHITFIELD. And there will be a huge crowd there, so.

I would like to call up the second panel of witnesses at this time. And I want to thank them for their patience. I know many of them came from long distances.

On our second panel today we have Mr. Rudolf Dolzer, who flew all the way to the U.S. from Bonn, Germany, to testify. And we appreciate him being here. We have Mr. Jason Grumet, who is the President of the Bipartisan Policy Center. And we have Mr. Gerald Kepes, who is Vice President, Upstream Research and Consulting. We have Ms. Alison Cassady, who is the Director of the Domestic Energy Policy for the Center for American Progress. We have Ms. Emily Hammond, who is Professor of Law at George Washington University Law School. And I am going to call on my colleague, Mr. Pitts of Pennsylvania, to introduce one of our witnesses as well.

Mr. PITTS. Thank you, Mr. Chairman. I am very pleased to introduce Mr. Scott Martin, a County Commissioner from Lancaster County, Pennsylvania, formerly chairman of that commission, and also active in the statewide Association of County Commissioners. An outstanding commissioner who I am very pleased could travel down from Pennsylvania to be with us today.

Thank you, Mr. Chairman.

Mr. WHITFIELD. Thank you. And, Mr. Martin, thank you for being with us.

Once again, I want to thank all of you. We really look forward to your testimony. And I am sorry that there was such a delay in your testifying. We had to reschedule a little bit. But, Mr. Dolzer, I think you came the longest distance—from Bonn, Germany, and I think you were in the German Parliament at the time, and you are a professor also at the University of Bonn, and so we genuinely appreciate your making this effort. And I am going to recognize you to start off with for 5 minutes. And then after everyone has concluded, we will have some questions for some of you. So, Mr. Dolzer, you are recognized for 5 minutes.

STATEMENTS OF RUDOLF DOLZER, ADVISORY BOARD MEMBER, ASSOCIATION OF INTERNATIONAL PETROLEUM NEGOTIATORS, AND PROFESSOR OF INTERNATIONAL LAW, UNIVERSITY OF BONN; JASON GRUMET, PRESIDENT, BIPARTISAN POLICY CENTER; SCOTT MARTIN, COMMISSIONER, LANCASTER COUNTY, PENNSYLVANIA; GERALD KEPES, VICE PRESIDENT, UPSTREAM RESEARCH AND CONSULTING, IHS; ALISON CASSADY, DIRECTOR OF DOMESTIC ENERGY POLICY, CENTER FOR AMERICAN PROGRESS; AND EMILY HAMMOND, PROFESSOR OF LAW, GEORGE WASHINGTON UNIVERSITY LAW SCHOOL

STATEMENT OF RUDOLF DOLZER

Mr. DOLZER. Thank you, Chairman Whitfield, Ranking Member Rush, members of the committee. My name is Rudolf Dolzer, I am a German national who, all together, has lived about 8 years in the United States. In Germany, I became a law professor. Subsequently, I was director general of the Federal Office of the Chancellor and the Chancellor Kohl. This is where my gray hair come from. And then I was appointed three times to the German Parliament's Commission of Inquiry. We have that in Germany, you can be appointed to Parliament without the right to vote.

In the U.S., I studied in Spokane, Washington, at Gonzaga University. Then I studied for a longer period at the Harvard Law School. I later taught at five U.S. universities; the last time in Dallas in Texas. In Houston, I am a member of the Advisory Board of the Association of Independent Petroleum Negotiators. A month ago, I published a larger study of international cooperation in global energy affairs.

Mr. Chairman, the era of abundance, as you say, opens up new opportunities of leadership for the United States, and the world is looking at the United States. This reminds us also, at least me, that energy is not just about energy, it is about foreign affairs, it is about national security, it is about finances. But ultimately, energy has its own characteristics and dynamics and, this is my first major point, foreign affairs, national security, and also issues such as trade must be folded into the fabrics of energy politics and not the other way around. This is also my view as regards climate change.

Energy politics, Mr. Chairman, and when I look at your draft on energy diplomacy, energy politics also calls for arrangements of its own when it comes to international cooperation. Title III of the present bill represents an innovative modern approach, also from an international point of view. This Title may even be strengthened by a transatlantic trade and investment partnership. Again, trade is not just one aspect of energy. Recent events, and this has been addressed this morning, in Russia and Ukraine, and Europe in general, have underlined that energy independence will require safe energy supplies, and will require political foresight and a robust long-term strategy. Together, we must understand the nature of that issue.

This is not well known, Europe as a whole will, in the coming decade become more vulnerable as our resources dwindle, in particular in Norway. So this is Europe as a whole. The forums as pro-

posed in your bill will serve to provide a common basis, but I propose that we go further and establish a more advanced concept which I call the Transatlantic Energy Agenda. We need to update and broaden existing arrangements with the new involvement, I think of parliaments and of the private sector. We have longstanding arrangements for cooperation in foreign affairs, in national security, in agriculture, for example. For energy, arrangements of this kind are lacking at the moment, and I think that ought to change. We need more exchange, we need better exchange, we need to know what we are doing, and we need exchange about best practice.

America's abundance also lends itself to strengthening of regional partnerships. In Europe, we have particular experience in this respect. Since 2009, the European Union has the competence to deal with the establishment of a single market, but the member states have retained their sovereign powers to determine the energy mix. The French made sure that no one touches their right to work with atomic power. This is a very complex jurisdictional situation which we have in Europe. We now have a set of rules promoting competition in Europe with liberalization with unbundling. We have less progress, and I think this is of interest here so far with regard to internal and cross-border connections to overcome isolated domestic markets.

The key concept which has been worked out in the last 24 months has been the idea of project of common interests, as it is called. The new rules call, and I think this is of interest here, for a much more rapid process of approving permits. So far, that time, don't be astonished, took about 10 years or more to have a permit for a trans-border arrangement. This is now going down to 3 ½ years at a maximum, according to the new law. Also member states now must introduce one-step authorities instead of the multitude of institutional arrangements we have had so far.

Now, the funds needed for a single energy market will be considerable, but I think the advantage will justify the cost. Costs in terms of secure supply, new infrastructure urgently needed, more options for the customers, better negotiating position on the international level. When you negotiate with Russia or the OPEC or Venezuela, I think the larger your market, the better it is. In North America, I think a new taskforce by the NAFTA countries, similar to the European Commission, might help to elaborate a unified energy strategy.

Mr. Chairman, I conclude. In the past, energy issues have at times been a bone of contention between the United States and Europe; sometimes a bitter contention. I think your bill with Title III has the promise and the hallmarks of a new era of cooperation, with tangible benefits on both sides of the Atlantic.

Thank you very much for your attention. I very much appreciate this opportunity to express my views before your important committee. Thank you very much.

[The prepared statement of Mr. Dolzer follows:]

Testimony of Professor Dr. Dr. Rudolf Dolzer

Regarding

"Quadrennial Energy Review and Related
Discussion Drafts, including Title III – Energy Diplomacy"

Tuesday, June 2, 2015

House Committee on Energy and Commerce

Subcommittee on Energy and Power

Representative Ed Whitfield – Chairman

Representative Bobby L. Rush – Ranking Member

Good morning,

Mr. Chairman, Ranking Member Rush and Members of the Committee.

My name is Rudolf Dolzer, I was General Director of the Chancellor's Office in Germany under Chancellor Helmut Kohl. I was three times appointed Member of German Parliamentary Commissions and a law professor. I have studied law at the University of Heidelberg and at the Harvard Law School. I have, at various times, taught at 5 leading U.S. universities.

Throughout my career, I have turned to energy issues, and I have published a study on international energy cooperation last month. A more intense collaboration on energy matters promises to contribute to a renewed invigorated Atlantic alliance.

Mr. Chairman,

The era of abundance opens up new opportunities of leadership for the United States. It also reminds us that energy is not just about energy, but about foreign policy, about defense, about finance. And it also reminds us that energy is a field of its own, requiring expertise and knowledge of its own. The importance of energy is underlined when NATO, for instance, addresses energy, as do foreign ministers. But, ultimately energy has its own characters and dynamics and energy politics must be based on these characteristics. Foreign affairs, defense and trade must be folded into the fabrics of energy politics, and not the other way around. That is also true, in my view, for matters of climate change.

Energy politics also calls for arrangements of its own when it comes to international cooperation.

Title III of the energy bill represents an innovative modern approach, recognizing the new opportunities for the United States. It properly includes provisions for an Energy Forum suitable to promote dialogue and leadership. This Title may even in part be strengthened. A Transatlantic Trade and Investment Partnership (TTIP) will be a suitable forum to reduce barriers, beneficial for both sides.

But, again, trade is just one aspect of energy. Recent events have demonstrated, in Russia and in the Ukraine, that energy independence with safe energy supplies require foresight and a robust strategy. Together, we must understand the nature and long-term magnitude of those challenges.

Europe will, in the coming decade, become more vulnerable to pressure as its own resources will peak around 2020, especially in Norway. The Forum, as proposed in Title III, will help to provide a common basis and prospective. But I propose that we go further and establish a more advanced concept, which I call The Transatlantic Energy Agenda (TAEA). We need to update and broaden existing arrangements with a new involvement of parliaments and of the private sector.

We have active Atlantic committees on foreign affairs, defense, or agriculture, with ministers meeting frequently; for energy, arrangements of this kind are so far

missing. In my view, that ought to be changed. We need more exchange. In energy affairs, the U.S. and Europe share common issues.

America's abundance lends itself to strengthening regional partnerships and therefore improving competitiveness and affordable energy.

In building regional energy cooperation, Europe has its own experience and has been on a path of trials and errors in the past decades. Since 2009, the European Union has the competence to create a single energy market, but the member states have retained their sovereign powers to determine their energy mix and they general structure of its energy supply.

The European Union has laid down a set of rules which ensure competition, with liberalization and unbundling as the main themes. Less progress has been made with regard to internal and cross-border connections to overcome the the previously isolated national markets. The key concept in the future will be the so-called "projects of common interest." These projects will be defined by Brussels – cross-border projects will be the focus. They do not mandate any projects, but they allow access to EU funds. The new rules call for a more rapid process of approving permits. So far, permits typically took more than 10 years, now it will be at most 3 ½ years. Also, member states must set up one-stop authorities for such projects, instead of the traditional multitude of agencies.

The Funds needed for a single energy market will be considerable, but the advantages will justify the costs.

- A single market is essential for secure supply
- Integrated markets fuel new infrastructure and offers more and more secure options for the customers
- Integrated markets strengthen the international negotiating positions, such as vis-à-vis OPEC or Russia or Venezuela. We could discuss best practices based on experience. In North America, a new Task Force by the NAFTA countries similar to the EU Commission, could help to elaborate a unified energy strategy.

Mr. Chairman, I conclude:

In the past, energy issues have at times been a tone of contention between the United States and Europe. Your bill with Title III has the promise and hallmarks of a new era of cooperation, with benefits on both sides of the Atlantic.

Again, I thank the Committee for their unique opportunity to appear before you.

Mr. WHITFIELD. Well, thank you, Dr. Dolzer.

And our next witness, as I said, is Mr. Jason Grumet, who is the President of the Bipartisan Policy Center. And thank you very much for being with us. You are recognized for 5 minutes.

STATEMENT OF JASON GRUMET

Mr. GRUMET. Well, thank you very much, Chairman Whitfield, Mr. Rush, and the resilient members of the committee. On behalf of the Bipartisan Policy Center, it is a pleasure to join you in this important discussion on the economic and policy architecture governing our Nation's energy abundance.

My testimony can be summarized into 3 main points. First, I want to applaud the committee for focusing on significant opportunities to strengthen North American energy integration and collaboration. North American energy security and self-sufficiency are, in fact, realistic goals that must be vigorously pursued, and not taken for granted.

My second point, Mr. Chairman, is that increased North American cooperation is a critical component of a larger effort to promote economic growth through efficient markets, to enhance North America's role in global energy trade, and to project U.S. power and global interests.

And my third point is that we must seize the opportunity to translate this strength of abundance into a long-term and sustainable energy strategy, and not allow this strength to result in unintended complacency.

In short, Mr. Chairman, this committee and Congress has the disorienting challenge of managing success, which is a new problem for our Nation when it comes to energy policy, and I think it creates real opportunities that we need to discuss.

So let me begin by saying a little bit about the energy integration and collaboration. I believe the provisions in this legislation that promote data quality and sharing, that coordinate planning and improve permitting and siting, are all essential to achieving the promise of North American energy security.

The opportunities are particularly pronounced in the case of Mexico. While U.S. companies have much to gain in increased trade with Mexico, it is hard to overstate the importance of energy production to the Mexican economy, and the broader U.S.-Mexican relationship. Even after years of decline, energy production remains a key source of high-paying jobs, and is responsible for actually $\frac{1}{3}$ of the Mexican Government's overall activities. If modernization efforts succeed, energy production could be a significant driver of Mexican economic development and individual opportunity. And the implications here are quite broad. The Bipartisan Policy Center believes that we must reform our Nation's broken immigration system. And while this hearing is not the place to discuss the challenges and intricacies of protecting the southern border or enhancing our legal immigration, there is no question that improved economic opportunity in Mexico is an essential component of successful and lasting immigration reform.

Let me turn now to the issue of siting. While our technology for producing energy has evolved dramatically over the last decades, our permitting policies date back to the 1950s and 1960s, and are

poorly matched to our rapidly evolving needs. We commend the committee's substantive efforts to make the cross-border permitting process more transparent and predictable. BPC also commends the committee's political judgment in crafting this provision to exempt the still-pending Keystone decision. It is time to have a broad-based bipartisan energy debate that is explicitly beyond Keystone, and it is encouraging to see the committee working diligently to avoid a focus on symbolic disagreements in favor of producing an agenda that can secure broad bipartisan support and become law.

I would like to now move to the second point, which is a focus on the component that North America plays in the larger global picture. Our Nation has made, I think some very good progress of late supporting LNG exports, but as was discussed earlier, current restrictions on crude oil are undermining our commitment to efficient markets, they diminish our ability to promote free trade and fair trade, and they empower our adversaries who seek to use energy as a weapon. I cannot build upon Mr. Barton's string site of studies except to agree that there has been a spate of recent analyses that all conclude that adding a reliable supply of crude to the global market will continue to exert downward pressure and actually protect U.S. consumers.

My final point is on the challenge of how we use this abundance to promote our long-term sustainability and security needs. There is a broad critique of the abundance agenda that must be grappled with if we are going to secure the broad-based support for an effective national energy policy. The concern is that stable, low-cost supplies of oil and gas are undermining investment in the diverse array of technologies our Nation and the world will require over the next century to meet global demand, to protect our security interests, and to confront the risks of climate change. This legitimate concern, however, leads to very different policy pathways. The Bipartisan Policy Center believes that additional action must be taken to confront climate change, but we reject the idea that we should pursue a low-carbon future by erecting and undermining barriers to the resurgence of oil and gas production. Perpetuating inefficient markets and creating transportation and infrastructure bottlenecks in the hope of somehow reducing global reliance on fossil fuels is not an effective climate change strategy, and if anything, it will result in increased emissions. Instead, as we vigorously pursue the benefits of abundance, we must be equally determined in conducting the research and creating the incentives to develop and commercialize the next generation of energy breakthroughs. From carbon capture and storage, to utility-scale solar, to next generation biofuels, advanced nuclear energy storage, and an array of energy-saving technologies, we must find ways to encourage greater investment, despite the current low price environment.

America's hydrocarbon renaissance has given us the gift of time. The question before the committee and Congress is what do we do with this time.

In closing, the Bipartisan Policy Center looks forward to continuing to work with the committee as you build an architecture for abundance that grows our economy, enhances our security, and confronts domestic and global environmental threats.

Thank you.
[The prepared statement of Mr. Grumet follows:]



BIPARTISAN POLICY CENTER

Written Testimony
Jason Grumet
President, Bipartisan Policy Center

Before the United States House of Representatives Committee on Energy and Commerce
Subcommittee on Energy and Power
June 2, 2015

Chairman Whitfield, Ranking Member Rush, and members of the subcommittee, thank you for the opportunity to join in this critical assessment of the economic and policy architecture governing our nation's energy abundance. I appreciate the opportunity to share some specific thoughts on the Energy Diplomacy title and to broadly explore the opportunity to advance our economic, security, and environmental interests based on a foundation power and strength. America's energy resurgence is not an inevitable result of good fortune, but reflects a combination of natural resources, effective markets, largely coherent regulatory structures, and a culture of discovery and innovation. Sustaining this success demands that we modernize several aspects of our outdated governing framework and increase investment in key infrastructure and technological innovation.

My testimony can be summarized in three main points:

- 1) The greatest near-term opportunities lie in strengthening North American energy integration and collaboration. North American energy self-sufficiency is a realistic goal that must be vigorously pursued and not taken for granted.
- 2) Increased North American energy cooperation is a critical component of a larger effort to promote efficient markets, enhance North America's role in global energy trade, and project U.S. global interests.
- 3) We must seize the opportunity to translate the blessing of abundance into a long-term, sustainable energy strategy, and not allow strength to result in complacency.

Introduction

A decade ago, Congress secured broad bipartisan support in passing the Energy Policy Act of 2005. At the time, the majority of energy experts and advocates were resigned to an inexorable decline in domestic production, compounding growth in energy demand, and a resulting increase in dependence on foreign energy supplies. While there were multiple motivations for this legislation, the central theme in most discussions was confronting volatile natural gas and oil prices and the general sense of national energy insecurity. Today, Congress

is once again working towards bipartisan energy legislation, but the past several years have realized a dramatic reversal in our energy fortunes. We now face a new and unique challenge: How do we manage success and ensure that our newfound energy abundance provides the foundation for lasting economic, environmental and security benefits?

It is well understood that the United States is in the midst of an unprecedented resurgence in energy production. Domestic oil, natural gas, and renewable energy production have grown far beyond expectation while breakthroughs in end-use energy efficiency have slowed the growth in domestic demand and significantly improved our overall energy productivity. While most recent attention has focused on breakthroughs in domestic production, the gains in efficiency are equally unprecedented. When adjusted for economic growth and inflation, the United States has cut its energy needs by more than 50 percent since 1973, and this trend shows no sign of slowing.

But these striking developments are not limited to the United States. Our neighbors to the north and south are also in the midst of their own energy booms, and North American energy self-sufficiency is within reach. The United States, Canada and Mexico can secure substantial benefits from further integrating North American energy markets, but realizing this vision will require more than just sitting back and watching the oil and gas flow. Capitalizing on our energy abundance will require significant strategic investments in critical infrastructure and greater cooperation among all three nations. The provisions in this legislation to promote data quality and sharing, coordinated planning, and improved permitting and siting processes are essential to achieving the promise of North American energy self-sufficiency.

1. North American Energy Integration and Collaboration

North America has once again become an energy powerhouse and could remain a dominant force in global energy markets for decades. Since 2005, North American oil & natural gas production has increased by over 20 percent, while renewable energy production has risen nearly 40 percent.¹ In the United States, the 2014 growth in oil and other liquids production was the largest in U.S. history, and the fourth largest recorded for any country in at least the past 40 years.² Canada's proved reserves of oil rank third globally, and they are the world's fifth-largest producer of dry natural gas.³

With effective management, North American oil production is expected to grow by over one

¹ BP Energy Outlook 2035. February 2015. http://www.bp.com/content/dam/bp/pdf/Energy-economics/energy-outlook-2015/Energy_Outlook_2035_booklet.pdf

² BP Energy Outlook 2035. February 2015. http://www.bp.com/content/dam/bp/pdf/Energy-economics/energy-outlook-2015/Energy_Outlook_2035_booklet.pdf

³ U.S. Energy Information Administration. [Canada Country Analysis Brief](http://www.eia.gov/beta/international/country.cfm?iso=CAN). <http://www.eia.gov/beta/international/country.cfm?iso=CAN>

third by 2025. In fact, North American oil production accounts for nearly 60 percent of the projected increase in global oil production during this time period.⁴ Projections are similar for natural gas. North American natural gas production increases 36 percent by 2025, and accounts for nearly one-third of the total increase in global natural gas production.⁵

While Mexico's oil and gas production has declined for years, the country recent energy sector reforms could bring a welcome change in this trend. For more than 60 years, Mexico's Constitution prohibited private sector entities from competing with Pemex, Mexico's national oil company, to develop oil and gas resources in Mexico. In 2014, President Peña Nieto signed into law an historic set of energy sector reforms that open the doors to private and foreign investment, and could reverse the declines in production. The U.S. Energy Information Administration (EIA) estimates Mexico has the fourth largest shale gas potential in the world. Many of the most productive oil and gas plays in the Eagle Ford shale in South Texas extend into Mexico, and significant shale reserves lie along Mexico's Gulf Coast.⁶

North American Energy Trade

In recent weeks, Congress has spent considerable time debating trade promotion authority with an eye toward expanding international trade both east and west. As we focus continued attention on the opportunities to strengthen relationships, global markets, and working conditions, we must not overlook the prospect of improved economic cooperation with our immediate neighbors. According to the Administration's Quadrennial Energy Review (QER) released several weeks ago, "In 2013, energy trade between the United States and Canada reached approximately \$140 billion, and energy trade with Mexico exceeded \$6.5 billion in 2012."⁷

North America is already a highly integrated energy market. There are currently more than 80 pipelines and 50 electric transmission lines operating at the border with Canada which is our largest source of oil imports. In 2014, the United States imported nearly 2.9 million barrels of oil per day from Canada, accounting for nearly 40 percent of our total crude oil imports.⁸ The U.S. and Canada's electric grids are also highly integrated, with the United States a net importer in the East, and a net exporter in the West. And for more than 50 years, the United States and

⁴ BP Energy Outlook 2035. February 2015. http://www.bp.com/content/dam/bp/pdf/Energy-economics/energy-outlook-2015/Energy_Outlook_2035_booklet.pdf

⁵ BP Energy Outlook 2035. February 2015. http://www.bp.com/content/dam/bp/pdf/Energy-economics/energy-outlook-2015/Energy_Outlook_2035_booklet.pdf

⁶ Pete Domenici, Jason Grumet. "Mexico's Economy Key to Immigration Reform." Houston Chronicle. October 10, 2013. <http://www.chron.com/opinion/outlook/article/Domenici-Grumet-Mexico-s-economy-key-to-4885280.php>

⁷ Quadrennial Energy Review: Energy Transmission, Storage, and Distribution Infrastructure. Washington, DC. April 2015.

⁸ U.S. Energy Information Administration. U.S. Imports by Country of Origin. Washington, DC. April 29, 2015.

Canada have worked together to develop and operate the waters of the Columbia River for hydroelectricity generation (among other things) under the Columbia River Treaty.

Energy trade with Mexico has expanded rapidly in recent years, driven by U.S. shale gas production and the resulting low prices. In 2014, the United States exported nearly 750 billion cubic feet to Mexico via pipeline—an amount that has nearly tripled since 2005.⁹ This trend is expected to continue. As the QER notes, “By 2016, EIA projects that the United States will be exporting more than 1 trillion cubic feet of natural gas to Mexico annually, and, by 2030, that amount is expected to almost double.”¹⁰

Fostering North American Energy Cooperation

This legislation will build upon our existing collaboration with Canada and Mexico in several key ways.

1. Strengthening Diplomacy and Cooperation: While North America has a substantial resource base, there are many factors that have led to the successful development of these resources. These include clear regulatory structures, well-defined mineral rights, competitive markets that allow for the efficient flow of capital, and a highly-developed infrastructure and transportation system. The United States and Canada have a long history of cooperation on all of these issues, and the recent reforms in Mexico’s energy sector now provide us the opportunity to expand these efforts across all of North America. The legislation will help move us to a truly integrated North American market by directing the Administration to develop a framework explicitly focused on improving North American energy security and promoting the efficient exploration, production, and regulation of North American energy resources.

Increased collaboration between the U.S. and Mexico’s energy sectors could not be more timely or welcome. By all accounts, Mexico’s landmark energy reforms are proceeding quite well, and Mexico appears on track to meet its key milestones. In fact, less than two weeks ago, Pemex made its first sale of oil and gas infrastructure to a foreign investor—two U.S.-based investment funds, BlackRock and First Reserve. Pemex sold a 45 percent stake to these U.S. investors in a natural gas pipeline project that will transport shale gas from Texas to Mexico.

It’s hard to overstate the importance of energy production to the Mexican economy and the broader U.S. Mexico relationship. Even after years of decline, energy production remains a

⁹ U.S. Energy Information Administration. Natural Gas Monthly. Washington, DC. April 30, 2015.

¹⁰ Quadrennial Energy Review: Energy Transmission, Storage, and Distribution Infrastructure. Washington, DC. April 2015.

leading source of high-wage jobs in Mexico and funds over a third of all government activities. If modernization efforts succeed, energy production could be a significant driver of Mexican economic development and individual opportunity. The Bipartisan Policy Center (BPC) believes that our nation must reform its badly broken immigration system. While this hearing is not the appropriate forum to discuss the challenges and intricacies of securing our southern border and enhancing legal immigration, there is no question that improved economic opportunity in Mexico is an essential component of successful and lasting immigration reform.

2. Harmonizing Data and Analysis: Information is the lifeblood of markets. Markets rely on good data and objective analysis to make decisions, and EIA is the gold standard for energy data and analysis in the United States. The QER includes explicit recommendations for EIA to “[i]ncrease the integration of energy data among the United States, Canada, and Mexico” and “[u]ndertake comparative and joint energy system modeling, planning, and forecasting.” While such efforts might seem obvious, the development of consistent, high-quality data and analysis across all three countries is a major undertaking and essential to achieving the benefits of North America’s energy abundance. BPC believes this effort should be a central feature of the work of the Interagency Task Force proposed in this legislation.
3. Permitting for Cross-Border Infrastructure Projects: While our technology for producing energy has evolved dramatically in the past four decades, our permitting policies are antiquated and poorly matched to our rapidly evolving needs. Here in the United States, the permitting process for oil pipelines that cross international borders is governed by a series of executive orders that date back to 1968. The orders empower the U.S. Secretary of State to determine whether these pipelines would serve the U.S. national interest and, after considering the input of other executive departments, to issue presidential permits to approve them. A separate series of executive orders, dating from 1953, grants authority over border-crossing natural gas pipelines and electric transmission facilities to the Federal Energy Regulatory Commission and the U.S. Department of Energy, respectively. The fact that these executive orders do not specify any particular time line or standards for making the national interest determination have created a process ill-suited for the continent’s changing energy landscape.

Efforts to further harmonize and integrate North American energy markets will only succeed if we demonstrate to our neighbors that we are reliable partners, capable of making timely and efficient decisions. Unfortunately, our track record on the Keystone XL pipeline does not inspire this confidence. No matter what your view on the desired outcome, the nearly seven year-long, political fixation on this single project has crowded out the ability for far more important discussions about our nation’s energy and climate

future and cast a pall of indecision over U.S. energy policy. While opponents of the pipeline cheer their victory in delaying the KXL permit, U.S. imports of Canadian crude oil derived from oil sands have doubled from 2005 to 2013, from roughly 0.6 million barrels per day to 1.2 million barrels per day—an increase of nearly the same as the planned capacity of the pipeline (0.83 million barrels per day)—albeit it through less efficient means.¹¹

BPC commends the Committee's substantive effort to make the cross border permitting process more transparent and predictable for future projects. Establishing explicit criteria and a time line for project approvals will enable greater integration in North American energy markets. The resulting resiliency and flexibility will enhance our collective economies and energy security during times of both abundance and during crises and supply interruptions

BPC also commends the Committee's political judgment in crafting this provision to exempt the still-pending Keystone decision. It is time to have a broad-based, bipartisan energy debate that is explicitly "Beyond Keystone." It is encouraging to see the Committee working diligently to avoid a focus on symbolic disagreements in favor of an agenda that can win broad support and be signed into law.

2. Promoting Efficient Markets and Strengthening America's Global Posture

The opportunity to strengthen North American Energy cooperation is an important component of the architecture of abundance and must be understood in a global context. U.S. policy, both foreign and domestic, has operated under an assumption of energy scarcity for the past three decades. Today, the rules of U.S. diplomacy are being rewritten for a future less dependent on foreign oil, with significant implications for the country's strategic posture and relationships with allies, trading partners, and rivals.

Our strategic interests and prospects for energy trade extend well beyond North America. In 2010, Sabine Pass Liquefaction, LLC filed an application with the U.S. Department of Energy (DOE) to export liquefied natural gas (LNG) to countries with which the United States does not have a free trade agreement. Sabine Pass was the first in a wave of new plans to build liquefaction plants to export LNG. The approval of Sabine Pass in 2011 sparked a major debate about the prospects for substantially higher LNG exports from the United States. Congress, the Administration, industry, and stakeholders spent roughly two years analyzing and debating the potential impacts on domestic U.S. natural gas prices while the process for approving LNG export applications ground to a halt. In general, experts concluded that LNG exports were unlikely to have a significant impact on domestic prices, and DOE once again began approving

¹¹ Bipartisan Policy Center. "U.S. Imports of Canadian Oil Sands Have Doubled Since 2005." March 28, 2014. <http://bipartisanpolicy.org/blog/us-imports-canadian-oil-sands-have-doubled-2005/>

applications in 2013. Sabine Pass is expected to send its first shipments of LNG exports later this year.

Now attention has turned to the prospect of crude oil exports, and similar debates are taking place about the potential impact on gasoline prices. A key question for policymakers and voters is whether lifting restrictions on crude oil exports will meaningfully affect domestic gasoline prices. In short, the answer is no. Increased U.S. production in recent years has contributed to a far more resilient global market place that is reflected in lower global prices and greater resiliency against supply interruptions. While one cannot eliminate the possibility of minor, localized price impacts while domestic markets recalibrate, the price of gasoline in the United States is driven by the global price of oil. Adding a reliable supply of crude oil to the global market will exert downward pressure on prices and protect U.S. consumers from global supply disruptions.

The current restrictions on exporting crude oil are an anachronism. Forged in a bygone era of vulnerability, this policy is now inhibiting our ability to capitalize on America's energy strength. Export restrictions are a form of resource nationalism that undermines our nation's fundamental commitment to efficient markets and our ability to promote free and fair trade. Keeping U.S. resources and market power on the sidelines empowers our adversaries to use energy as a weapon, and diminishes our ability to pursue a myriad of policy and security interests. Lifting these market barriers will strengthen our domestic economy and protect consumers. Congress should move to lift these restrictions in a deliberate manner that is cognizant of the impact on those refiners that have come to rely on lower domestic crude prices.

3. Promoting Long Term Sustainability and Security

There is one broad critique of the abundance agenda that must be grappled with in order to secure broad-based support for effective national energy policy. The concern is that stable, low-cost supplies of oil and gas are undermining investment in the diverse array of energy technologies our nation and the world will require over the next century to meet growing global demand, protect our national security interests, and confront climate change.

This legitimate concern however leads to very different policy pathways—one approach that seeks to perpetuate weaknesses in our energy markets, and another that looks for opportunities to capitalize on our strengths. BPC believes that additional action is necessary to effectively address climate change, but rejects the idea that we should pursue a low-carbon future by intentionally undermining our resurgence in oil and gas production. Perpetuating inefficient markets and creating transportation and infrastructure bottlenecks in the hope of somehow reducing global reliance on fossil fuels is not an effective climate change strategy,

and if anything will result in increased global emissions. Instead, we should embrace our energy abundance and confront climate change with the strength of efficient markets and increased investment in innovative and non-carbon technologies.

As we work to reap the benefits of affordable oil and natural gas and reduced energy demand, we must acknowledge that our former energy insecurity created strong incentives for public and private investment and innovation. While production and efficiency gains are providing profound economic, security, and environmental benefits today, our future depends on accelerating development of a wide suite of technologies—from carbon capture and storage, to utility-scale solar, next-generation biofuels, advanced nuclear, energy storage, and an array of energy saving technologies.

The provision of safe, clean, affordable, and sustainable energy is, by virtually any standard, one of the foremost challenges we face. The United States has a historically unmatched record of successful energy RD&D. U.S. public and private RD&D investments have created the world's best natural gas turbines, the most sophisticated oil-drilling equipment, the world's most efficient solar cells, advanced glass and lighting, and much more. The costs of this RD&D are small compared with the benefits.

The history of unconventional gas technology development demonstrates the critical roles played by private and public resources in energy innovation. The federal government initially undertook R&D without being able to imagine the full scope of its applications. Many technologies developed in one area, ultimately proved essential in other domains. Tax credits for unconventional gas development in the early 1980s led private sector firms to pursue otherwise risky investments. This attracted new sources of capital and increased exploration and development activity, tripling production of unconventional gas from 1980 to 2002 and driving further technological innovations through learning-by-doing. Decades passed before the benefits of some technological advances were fully realized.

Today, we are reaping the benefits of these past investments, but we must not become complacent. Currently, the federal commitment to energy RD&D is less than one-half of 1 percent of the annual nationwide energy bill. This is insufficient to inspire the economic, security, and environmental options we will need in the future.

A variety of ideas have been proposed to encourage greater investment despite the current low-price environment. As our nation vigorously pursues the benefits of abundance agenda, we must be equally determined in conducting the research and creating the incentives necessary to develop and commercialize the next generation of energy technology. America's

hydrocarbon renaissance has given us the gift of time. The question before this Committee and the Congress is what we do with this time.

Conclusion

It is not a coincidence that the vast majority of energy innovations have occurred in the U.S. Our natural resource base is deep but not unique. What is unique is our commitment to the rule of law, the depth of financial markets, the quality of our research labs and universities, an economy that rewards for innovation, and the historic capacity of Congress to respond to changing global dynamics. Our nation has been blessed with a profound opportunity to work with our neighbors and trading partners to build a resilient and sustainable energy system that will enable shared and lasting prosperity. We must capitalize on this opportunity and build an architecture for abundance that grows our economy, enhances our security and confronts domestic and global environmental threats.

Thank you for the opportunity to testify. BPC looks forward to continuing to work with the Committee as you complete your Architecture of Abundance.

Mr. WHITFIELD. Thank you.

And our next witness, who has already been introduced, but is Mr. Scott Martin, who is a County Commissioner, Lancaster County, Pennsylvania. Thanks for being with us, and you are recognized for 5 minutes.

Mr. MARTIN. Thank you, Mr. Chairman. Just for the record, it is Lancaster, not Lancaster.

Mr. WHITFIELD. What did I say?

Mr. MARTIN. Lancaster, that is what—you said like Burt Lancaster.

Mr. WHITFIELD. OK.

Mr. MARTIN. That is in Lancaster County, so——

Mr. WHITFIELD. Well, I am going to——

Mr. MARTIN [continuing]. We will have Mr. Pitts work with you on that one.

Mr. WHITFIELD. I am going to let you and Mr. Pitts work that out.

Mr. MARTIN. All right, well, thank you, Mr. Chairman.

Mr. WHITFIELD. But thanks for letting me know.

STATEMENT OF SCOTT MARTIN

Mr. MARTIN. You are welcome. Thank you, Mr. Chairman, and members of the subcommittee. It is an honor to be here. Again, I serve on the Lancaster County Board of Commissioners.

The United States must work to develop a coherent, logical, and clear national energy strategy. I applaud Chairman Upton for his architecture of abundance legislative framework that will hopefully stimulate a wide-ranging and bipartisan debate on the need for a long-term national energy agenda based upon economic development, commonsense regulations, a modern and safe energy infrastructure, greater efficiencies, increased exports, especially with LNG, to support our foreign policy goals, environmental sensitivity, minimal government involvement, and utilization of free market economic principles.

There are certainly many positive developments and trends in energy, however, there are also numerous challenges and issues that urgently need to be addressed. The longer we wait to address and solve these issues will only make them more difficult, expensive, complicated, and controversial.

One of the most pressing priorities is energy independence. Of course, energy independence can only be achieved through new and recoverable sources. The required infrastructure exists, the regulatory environment is not hostile, excuse me, capital is available to finance the expansion in both domestic and international markets are functioning properly. Thankfully, due to horizontal hydraulic fracturing, known as fracking, and the discovery of vast new oil and gas reserves, America is now the world's largest oil and natural gas producer. As they should, energy prices have been decreasing. The United States is increasingly able to export large amounts of LNG around the world, and especially to European countries. The volatile and tense situation in Ukraine demonstrates very clearly why we need to build the Keystone XL Pipeline, greatly accelerate the permitting of LNG export facilities, and work to expedite the building of pipelines and compressor stations.

As noted above, a significant technological improvement has been the use of fracking and extracting natural gas from shale. The use of fracking in Pennsylvania, and the construction of necessary infrastructure, has had widespread and significant economic development impacts. Some of these include 96 percent of new energy hires were from the Appalachian area, 45,000 new building trade jobs in that same region, 243,000 new energy jobs in Pennsylvania, over \$1 billion invested by the shale industry in road and infrastructure improvements, and including energy industry grants to community college and trade schools to train the workers needed by extraction companies in the Marcellus Shale region, with an average core wage of \$68,000 a year.

This increased shale gas production in Pennsylvania has also saved the average Pennsylvania family between \$1,200 to \$2,000 annually in energy savings costs. Businesses and other institutional energy users have also benefitted from the greatly increased availability of cheap natural gas. The Pennsylvania National Guard and Army Reserve components of Fort Indiantown Gap, the Garden Spot Public School District, and the Shady Maple Companies, all in our area, have experienced significant savings in their energy bills after switching to natural gas.

Cheaper energy will further a developing industrial and manufacturing renaissance in America. In brief, lower energy costs create more disposable income, and hence, greater aggregate demand. Decreased transportation costs lead to lower prices, and American products are more globally competitive. The domestic oil and gas revolution can only be successful long-term if the necessary pipelines are quickly built and brought online. The Williams Company has proposed to build 180 mile interstate pipeline, known as the Atlantic Sunrise Project, from northern Pennsylvania and connect it to their main U.S. gas pipeline that travels from Texas to the northeast. The actual connection point would be in southern Lancaster County. Thirty-seven miles of the proposed pipeline would go through my county, and we are talking about a \$2.6 billion economic impact throughout the construction of this project. Williams has been very cooperative and easy to work with as various concerns have come up. Over 100 route changes, which is more than $\frac{1}{2}$ of the original route, have been made based on stakeholder input. Williams is also committed to making the pipeline open access so that potential customers in Lancaster County could directly access the pipeline.

As you can imagine, a project of this size does generate controversy and opposition. One early controversy was the proposed routing of the pipeline through a protected and environmentally sensitive area parallel to the Susquehanna River. The Board of Commissioners, working with several local organizations, went to Williams and expresses strong concerns regarding this route. Williams quickly found a new route and completely moved away from the sensitive areas, and did so with Native American sites and water source areas.

Lancaster County has five significant pipelines running through our county. Many property owners are not even aware of the pipelines that cross their land. Based upon discussions with local farmers having existing pipelines on their property, Williams, including

with their major U.S. pipeline, has been very responsive to their needs.

Lancaster County is one of the leaders in agricultural production, not only in Pennsylvania but across the county, but we also preserve more farmland than any other county in the United States, with over 100,000 acres preserved. Needless to say, the county ordinances that govern our farmland preservation program have allowed pipelines since inception. Since November of 2014, there have been two elections where the proposed pipeline was in a de facto manner on the ballot, and the voters were very clear in rejecting efforts to stop the proposed pipeline, including an effort to have two townships adopt a community-based ordinance that would essentially declare that federal and state laws do not apply in these municipalities. I believe that many of these voters clearly recognize that this pipeline represents the concept of a greater good being served.

In closing, I want to again emphasize how incredibly important the ongoing energy revolution is to the future of the United States, and indeed, the world. While renewables, greater efficiencies, clean coal, next-generation nuclear, and a secure and smart grid are vitally important, it is really the virtually unlimited supply of clean, recoverable natural gas from shale that will lead America into the future.

Thank you.

[The prepared statement of Mr. Martin follows:]

Committee on Energy and Commerce

Sub-Committee on Energy and Power Hearing

Quadrennial Energy Review and Related Discussion Drafts, including Title III, Energy Diplomacy.

Commissioner Scott Martin – Lancaster County, Pa.
June 2, 2015

Written Statement

The United States does not have a coherent, logical, and clear national energy strategy. I applaud Chairman Upton for his “Architecture of Abundance” legislative framework that will hopefully stimulate a wide ranging and bipartisan debate on the need for a long term national energy agenda based upon economic development, common sense regulations, a modern and safe energy infrastructure, greater efficiencies, increased exports (especially LNG) to support our foreign policy goals, environmental sensitivity, minimal governmental involvement, and the utilization of free market economic principles.

There are certainly many positive developments and trends in energy; however, there are also numerous challenges and issues that urgently need to be addressed. These challenges impact almost every area of our society, including counties and local municipal governments. The longer we wait to address and solve these issues will only make them more difficult, expensive, complicated and controversial.

While there are many equally important goals, one of the most pressing priorities is energy independence. If the United States could achieve true energy independence, the domestic and international ramifications would be incalculable. Of course, energy

independence can only be achieved if there are new and recoverable sources, the required infrastructure exists, the regulatory environment is not hostile, capital is available to finance the expansion, and both domestic and international markets are functioning properly.

I would also argue that the American people need to become more aware of how energy policy (or lack of) impacts their lives. It has been said that most Americans only care about energy policy when the lights won't come on. Congress and the energy industry should have the common goal of educating their constituents and customers regarding the difficult energy challenges facing the United States.

Thankfully, due to new and innovative technologies such as horizontal hydraulic fracturing (fracking), and the discovery of vast new oil and gas resources, America is now the world's largest oil and natural gas producer. As they should, energy prices have been decreasing, sometimes very rapidly.

The United States is increasingly able to export large amounts of liquefied natural gas (LNG) around the world, and especially to European countries. Increased imports of American LNG provides them with greater energy security, lower costs, and more choices. It should also be noted that there are environmental, pipeline and LNG terminal infrastructure, and domestic and international political issues that must be resolved.

American foreign policy is given greater flexibility, new options, and regional hegemons are limited in using energy as a weapon in extracting concessions from countries largely dependent on a single supplier for their energy requirements. The volatile and tense

situation in the Ukraine demonstrates in very stark terms why we need to build the Keystone XL pipeline, greatly accelerate the permitting of LNG export facilities, work closely with the importing nations and expedite the building of pipelines and compressor stations.

As noted above, a significant technological improvement has been the use of fracking in extracting natural gas from shale. The technique has been around for quite some time, but only recently due to innovations in horizontal drilling, fracking has become widely used in the Marcellus shale region of Pennsylvania. The use of fracking in Pennsylvania, the downstream impacts, and the construction of necessary infrastructure has had widespread and significant economic development impacts.

Some of these include:

- \$2.3 billion in additional tax revenues for the state of Pennsylvania.
- Energy development royalties and bonuses generated over \$700 million for the state.
- 96% of new energy hires were from the Appalachian area.
- 45,000 new building trade jobs in the Appalachian region have been created.
- \$850 million has been distributed to local communities and environmental programs from shale impact taxes.
- In 2014, shale development supported 243,000 jobs in Pennsylvania.
- Over \$1 billion has been invested by the shale industry in road and infrastructure improvements.
- Energy industry grants to community colleges and trade schools to train the

workers needed by extraction companies in the Marcellus shale region. These are very high paying jobs with an average core wage of \$68,000/year.

In Lancaster County, we have received approximately \$1.4 million in impact fees. This money has been used to repair bridges and roads, preserve farmland, fund enhancement projects, and building and repairing water and sewer infrastructure.

Increased shale gas production in Pennsylvania has also saved the average family between \$1,200 to \$2,000 annually through energy savings based upon increased supplies and energy consumers being closer to the gas extraction point. The huge additional energy costs to millions of Americans in the Northeast several winters ago due to a “polar vortex” could have been greatly reduced if the necessary pipeline infrastructure existed. The gas was available, but could not be transported to where it was needed.

Business and other institutional energy users have also benefitted from the greatly increased availability of cheap natural gas. The Pennsylvania National Guard and Army Reserve components at Fort Indiantown Gap in Lebanon County, the Garden Spot Public School District in New Holland, Pa., and the Shady Maple Companies in Blue Ball, Pa., have experienced significant savings in their energy bills after switching to natural gas. Cheaper energy due to technological advances, greater supply, and efficiencies will further a developing industrial and manufacturing renaissance in America. Economists also talk about the “multiplier effect” that lower energy costs have both on a macro and micro level. In brief, lower energy costs (gasoline is a perfect example) create more disposable income and hence greater aggregate demand, decreased transportation

costs lead to lower prices, and American products are more globally competitive.

After the shale gas is extracted, it must of course be transported to both domestic and international markets. The domestic oil and gas “revolution” can only be successful long-term if the necessary pipelines are quickly built and brought on-line. The Williams Companies has proposed to build an interstate pipeline (approximately 180 miles) known as the Atlantic Sunrise project from the Marcellus Shale region of northern Pennsylvania and connect it to their main U.S. gas pipeline that travels from Texas to the Northeast. The actual connection point would be in southern Lancaster County. Thirty seven miles of the proposed pipeline would go through my county.

The new Atlantic Sunrise proposal connecting with an existing Transco natural gas pipeline would transport 1.7 billion cubic feet of gas per day, enough to serve seven million homes. It is estimated that the design and construction of the Atlantic Sunrise pipeline will generate approximately \$1.6 billion in additional regional wages, revenues and investments, support 8,000 jobs, and add \$870 million in economic value during the construction period.

Williams throughout the pre and post application phases has been very cooperative and easy to work with as various issues, problems, and concerns have come up. Over 100 route changes (encompassing 47% of the original route) have been made based on stakeholder input during the eleven month pre-application period. Since this is an inter-state pipeline, as you know the Federal Energy Regulatory Commission (FERC) has jurisdiction prior to the actual construction. It is my understanding that

Congressman Joe Pitts received only four requests from impacted property owners for re-routing assistance during the pre-application period.

Williams has also committed to making the pipeline “open access” so that potential customers in Lancaster County could directly access the pipeline. Also, there will be a bi-directional valve installed at the intersection point so that gas can be directed northeast or south-southwest as needed by customers.

As you can imagine, a project of this size generates opposition and controversy.

One early controversy was the proposed routing of the pipeline through a protected and environmentally sensitive area roughly parallel to the eastern side of the Susquehanna River. The Lancaster County Board of Commissioners working with several local conservation and environment organizations went to Williams and expressed strong concerns regarding this route. Williams quickly found a new route and completely moved away from the sensitive areas.

There were also some extremely important and historically significant American Indian sites near the route. After Williams was made aware of these sites, working with local experts, and some descendants of the original Native American inhabitants, the proposed route was changed to avoid any cemeteries or other historically important sites.

Lancaster County already has five significant pipelines that cross the county in a west-east direction. Many property owners are not even aware that a pipeline crosses their land, whether it is agricultural, commercial, or residential. Based upon discussions with local farmers having existing pipelines on their property, including the main Williams’

U.S. pipeline, Williams is very responsive to any problems or issues that arise. Lancaster County has more preserved farmland than any other county in the United States. Over 100,000 acres are preserved. The county ordinances that govern the farmland preservation program specifically allow for pipelines to cross these farms.

Since November of 2014 there have been two elections where the proposed pipeline was in a de facto manner on the ballot. In both elections, the voters were very clear in rejecting efforts to stop the proposed pipeline from coming through the county. An outside public interest law firm was organizing an effort to have two townships adopt a "Community Based Ordinance" that would essentially declare that federal and state laws do not apply in these municipalities. The voters indirectly rejected that as well in a decisive manner. I believe that many of these voters clearly recognized that this pipeline represents the concept of a "greater good" being served. We just need to trust the common sense, good judgment, and wisdom of the American people.

The Federal Energy Regulatory Commission (FERC), essentially must answer one question in approving or rejecting a proposed project -- Is this proposed pipeline absolutely necessary? Indeed, the actual document that FERC issues is entitled -- "A Certificate of Public Convenience and Necessity." FERC requires that the applicant follow a very detailed and prescribed process that concurrently tracks with the National Environmental Policy Act (NEPA) requirements, including permitting approvals from all relevant federal and state agencies. The FERC-NEPA prescribed application process provides the public with numerous meaningful and direct opportunities to make their opinions and concerns known. I have encouraged all impacted property owners to take

advantage of these opportunities rather than pursuing tactics and strategies that will only lead to disappointment and disillusionment.

In closing, I want to again emphasize how incredibly important the ongoing “Energy Revolution” is to the future of the United States, and indeed the entire world. It would have been very difficult even five years ago to think that we have a very legitimate chance to become energy independent by the end of the decade. While renewables, greater efficiencies, clean coal, next generation nuclear, and a secure and smart grid are vitally important, it is really the virtually unlimited supply of clean, recoverable natural gas from shale that will lead America into the future. I can think of no better example of something being in the “public interest.”

Testimony of Commissioner Scott Martin
6/2/2015

Mr. WHITFIELD. Thank you, Mr. Martin.

And our next witness is Mr. Gerald Kepes, who is Vice President of Upstream Research and Consulting. And, Mr. Kepes, thanks for being with us, and you are recognized for 5 minutes.

STATEMENT OF GERALD KEPES

Mr. KEPES. Thank you, Mr. Chairman. Members, thank you for having me here.

Mr. WHITFIELD. Did you turn your microphone on?

Mr. KEPES. I will do that. How about that? Does that come across? OK. Apologize for that.

Mr. Chairman, members, thank you very much. I am actually very pleased to be in front of you today because in my world, which is—

Mr. WHITFIELD. Mr. Kepes, forgive me for interrupting. Would you mind taking Ms. Cassady's microphone and try that one?

Mr. KEPES. Push that again. Thank you very much. Again, my apologies. I hope this doesn't eat into my 5 minutes here.

Mr. Chairman, members, thank you. I am very pleased to be here today because the world that I usually am in is the business world, in the exploration and production business. I am a geologist. I have been in and around the oil and gas industry for 30 years, so you can decide whether that makes me objective or not on this business, but I think I am fairly knowledgeable. And I am also representing the work and analysis and experience of my colleagues at my company.

What I really want to talk today about is competitiveness of the E&P sector, and more than the volumes that have been produced, the new supplies from shale, just as important for you to think about is the incredible competitiveness of the energy industry right here. And the reason is that competitive basically means cost and efficiency, and reaction to market conditions. So, for example, as we look at this low oil price period, which has many benefits for the economy, consumers, et cetera, at one point clearly, perhaps the Saudis and others thought that the U.S. oil industry was just a phenomenon of high oil prices. That is not the case. In other words, many thought that this industry, the shale oil and gas industry, could survive only with high oil and gas prices. That is not the case. So that is actually one of my first points today. This is not a high oil price phenomenon. But we have had low natural gas prices for about 6 years right now, and shale gas production has sustained and, in fact, grown. That is critically important. And why is that so important? Because when it comes to thinking about energy diplomacy and the idea that we can export the volumes that we have, because we will match or meet the internal requirements, it is not just about volumes. What we are really exporting is competitiveness. And I want to make that point, is that anything that you might consider in terms of these energy diplomacy objectives or goals, which are actually quite admirable, they will be sustainable and viable as long as this competitiveness exists because it is not just offering to send supplies somewhere, the marketplace is what is pulling them. Whether it is the Ukraine or parts of Europe or Mexico, as I will talk about next here, which is a great example, they wouldn't be doing this if these supplies exported from U.S.

shores were not competitive and a lower-priced alternative to other factors. This is particularly important because if we define very simply what energy security is, which is really, we would argue, reliable supply at affordable prices.

So let's take Mexico. Right now, there is a lot of interest in Mexico because of the opening of the E&P sector, that is exploration and production, because of the fact that we have had over 70 years of a monopoly of the state oil company, PEMEX, going to be reversed. But that is actually not the biggest issue going on. The bigger issue is the fact that Mexico is going to be importing a lot more natural gas from the United States. I am sure the committee knows that right now, they import about 2 billion cubic feet a day. That number could go up to 5 or 6 billion cubic feet a day within the next 10 years. It is a bigger impact because, two things. One, all this will draw more much gas-fired power generation if the reforms work in the midstream and downstream in Mexico, and we hope that they will. That should result in lower energy prices for the entire economy. We don't know yet if it is 10 percent lower or if it is 30 percent lower, but the impact of that on the Mexican economy competitiveness, this is actually the big picture. It is not so much the oil side, what I am trying to say, it is the gas side and what we are about to do right there. That is a very important factor.

Now, it is said, and it is quite true, that Mexico has substantial natural gas resources, but in this case, the decision that they made was, if they tried to develop their own natural gas resources right now, it is so expensive that it made far more sense to import less expensive U.S. natural gas. That is a choice for competition, it is a choice for competitiveness, and again, if you want to look at it from an energy policy program for the U.S., a tremendous success, because as this goes forward, that competitiveness, that lower price and efficiency is what is going to have a larger impact on the Mexican economy, and a huge contributor to what has already been troubled at times, but a very successful U.S.-Mexican relationship.

So those are the arguments I want to put in front of you. That, one, shale production is not a high-priced phenomenon. Also intrinsic to the supply volumes that we have, which is important, is the competitiveness of that. One, that if it is going to be part of U.S. energy diplomacy initiatives, then that competitiveness needs to continue. That is going to undergird all of that in order for it to be successful. And finally, U.S. infrastructure processes and regulations, naturally, have to be equally competitive in order to allow this to be sustained.

Thank you very much for giving me the time.

[The prepared statement of Mr. Kepes follows:]

**U.S. House of Representatives Subcommittee on Energy and Power:
Quadrennial Energy Review and Related Discussion Drafts, including Title III –
Energy Diplomacy**

Testimony by:

Gerald Kepes

Vice President, IHS

June 2, 2015

Chairman Upton, Ranking Member Pallone, and members of the Committee, I greatly appreciate the opportunity to testify before you on competitiveness in the exploration and production (E&P) business and its importance for national energy sectors, policies, institutional capacity and critical infrastructure. It is my hope that my testimony today will contribute to the important work that the Committee is progressing regarding US energy diplomacy. Thank you.

I appear before you in my capacity as Vice President for IHS where I lead the company's Upstream Strategy & Competition group. IHS is a global research and consultancy firm, with 9000+ employees around the world specializing in energy, capital-intensive industries, data and analysis with a global presence. My consulting activities include involve interactions with companies and individuals at senior to executive levels of the exploration and production (E&P) oil and gas business. Reflecting on several decades of experience in the global oil & gas business, it is quite clear that competitiveness, choice of strategy, focus and above-ground risk all impact

the success or failure of national energy sectors and policies every bit as much as individual projects, new country entry and companies.

Your Committee's "Title III – Energy Diplomacy" draft seeks to advance energy diplomacy by enhancing coordination and planning, and eliminating barriers to trade among allies and partners of the United States. In order for this to be successful it is important to understand the impact of competitiveness in the E&P business. Central to the long term success of the onshore North American shale play is competitiveness. The competitiveness of production of oil and gas in North America is what will provide the fundamental commercial success of US energy diplomacy; My remarks today focus on this point.

The experience of the last ten years for onshore North American shale production is of course most prominently captured in the substantial increase in US oil and gas production with oil up at 9.3 million barrels per day (MMB/d), from 2011's 5.6 MMB/d. Much has been made of the volume performance, and rightly so. It is doubly important to look at production performance now because of lower oil prices noting that we have had "lower" natural gas prices for approximately six years.

Lower prices have had an impact on the US economy as well as the trajectory of US oil and gas production. But, a critical conclusion is that US shale production is no longer a phenomenon of high oil and gas prices. Periods of higher prices did indeed provide windows of higher profitability which paid for higher risk, new play entry and experimentation. At this time, however, an increasing percentage of US shale

production is commercially viable at prices lower than what they could have sustained in prior years.

As a result of a number of favorable resource, commercial and political factors, not to mention the US oil field service sector, US shale production is among the most efficient production types in the world. This is especially remarkable, because the innate quality of the shale resource base is not high in comparison to many other conventional oil and gas resources elsewhere. Higher quality conventional oil and gas resources (albeit increasingly mature) flow to the surface without the intensive fracking operations required for shale production. Of course, as conventional oil and gas fields mature, they require additional stimulation techniques and investments, which drive up the cost, but still represent higher quality resources in terms of produce-ability.

Efficiency gains in US shale production outstrip performance anywhere else in the world. The decline in oil prices over the last nine months, as well as gas prices for the last six years has accelerated these efficiency gains. Indexing to January 2014, WTI (West Texas Intermediate) is down by 50%, the US oil rig count is down by close to 50%, but US liquids production continues to rise, albeit at a slower pace. Growth has slowed and on a month to month basis, we will see declines in 2015 oil output. But overall, average 2015 US oil production will still show a gain over average 2014 US oil production; at an oil price which is almost 50% of the average oil price in 2014.

Compared with 2014, IHS expects investment capital in US shale oil plays to be 65% more efficient at the start of 2016 than the start of 2015 due to compounding productivity and cost cuts. IHS anticipates cost reductions to reach 30% over this year with productivity enhancement as much as 15%. In 2016, one US dollar of investment will have the same production impact as \$1.65 did in 2014.

US shale production is thus highly competitive. Paradoxically, the current low oil prices (and the continuing low gas prices) have served to greatly strengthen shale's competitiveness, triggering the commercial response generating these results. Of course, a change in the policy toward crude oil exports would full un-lock this potential. A lower to medium oil price world acts to ensure that this situation will persist for years. It is this very competitiveness which underscores the opportunity for new US energy diplomacy objectives and realizations.

The sustainability of this opportunity (the duration of the competitive factor and its commercial viability) will provide the greatest scope for the success of the policies envisioned in this energy diplomacy initiative. The more competitive and open the US sector is, the more options US energy diplomacy will have.

US – Mexico cross-border energy flows are an excellent example of what is possible. Currently, Mexico is pursuing an ambitious energy reform which has fundamental implications for upstream – midstream – downstream segments of its energy sector. Not surprisingly, the “Opening” of the E&P sector and the reversal of seventy year+

monopoly held by PEMEX, the national oil company of Mexico, has received the most attention. This is understandable; the changes are significant and as the process goes forward, foreign operators will invest and hold equity in Mexican oil and gas resources. But the bigger story at least for the next five to seven years may not be the Opening. Instead it may be the changes in Mexico's midstream and downstream segments. The US already exports nearly 80 Bcf a month to Mexico via pipeline, up more than 300% from 2005, with a prospect for greater increases in the future.

A highly competitive US shale business will generate long term supplies of natural gas exports to Mexico (potentially 3 times that of today) which in turn will (with successful reform) provide lower cost feedstock to gas-fired power projects. The ultimate aim of Mexican policymakers is to lower the cost of electricity to the entire Mexican economy. A Mexican economy with electricity costs which are 10% to 30% lower than that today is a much more competitive economy with all of the associated positives both for that country and for cross-border trade.

Mexico does have substantial undeveloped natural gas resources, both conventional and unconventional. But for the most part these resources are higher cost. At the current time, the political and economic logic for Mexico to import greater volumes of US natural gas (due to its competitive offering) to support higher GDP growth (with positive impacts for a greater range of Mexican citizens) is much more compelling than investing scarce financial and operating capacity into higher cost, domestic (Mexican) resources. The Mexican government chose the more competitive option.

Competitiveness in the US onshore shale business will drive (with critical trade, permitting and pipeline agreements) a substantial expansion of gas-fired power capacity in Mexico, along with a lower per kilowatt hour cost for consumers and businesses. This will be a major achievement for the Mexico political economy and a triumph for US energy diplomacy and foreign policy. Without the sustained commercial competitiveness created by the US shale industry, this opportunity to further enhance the US-Mexico strategic relationship would not exist. The US-Mexico relationship would have fewer options. Competitiveness creates options.

My main arguments today are: US shale production is not a high price phenomena; intrinsic to the dramatic increase in supply volumes is the competitiveness of the shale industry; US competitiveness provides the sustainable viability which will undergird any successful US energy diplomacy initiatives; and US infrastructure, processes, regulation et al must be equally competitive in order to support not retard the proposed energy diplomacy.

What can the US Government do to leverage the competitiveness created by the US shale industry for energy diplomacy objectives in the areas of infrastructure, including natural gas and liquids pipelines, electrical transmission lines, safety, LNG export capacity and more? US competitiveness, properly and appropriately supported by US government legislation and regulation can provide more sustainable options for the national energy sectors of US friends and allies.

Mr. Chairman, Ranking Member, members of this Committee, thank you for the opportunity to testify in front of you. I welcome the chance to respond to your questions.

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Mr. WHITFIELD. Well, thank you, Mr. Kepes.

And our next witness is Alison Cassady, who is the Director of Domestic Energy Policy for the Center for American Progress. And thank you very much for being with us, and you are recognized for 5 minutes.

STATEMENT OF ALISON CASSADY

Ms. CASSADY. Thank you, Chairman Whitfield, Ranking Member Rush, and members of the subcommittee, thank you for the opportunity to testify today. My name is Alison Cassady, and I am Director of Domestic Energy Policy for the Center for American Progress. CAP is a nonprofit organization dedicated to improving the lives of Americans through progressive ideas and action.

Before I jump into my more specific comments on the energy diplomacy discussion draft, I would like to highlight a topic that is not a subject of today's hearing, but I think should be, and that is climate change which, to me, is the most urgent and challenging energy diplomacy issue of our time.

Climate change has become a priority in international relations because the climate science is so clear. A failure to act on climate change risks severe, irreversible impacts on a global scale. As the committee considers the Nation's energy policy and its interaction with the rest of the world, CAP urges you to put climate change front and center of any policy that you develop. We can no longer afford to separate energy policy from climate policy.

So with that introductory context in mind, I am going to jump into a few thoughts on Section 3104 of the discussion draft about cross-border energy projects.

As you all know, under current law, entities wanting to construct or operate a cross-border pipeline or transmission line are required to obtain a presidential permit. This section of the bill eliminates that requirement, and instead requires the relevant federal agency to issue a certificate of crossing; that is, unless the agency finds that the cross-border segment of the project is not in the public interest of the United States.

And I have a few concerns about this approach. First, the new process presumes that the project is in the public interest, placing the burden of proof on concerned stakeholders to demonstrate that it is not, instead of asking the applicant to make the affirmative case that it is. Second, under the new process, the applicant only needs to obtain federal approval for the portion of the project that physically crosses the U.S. border, even if the project itself spans hundreds of miles. And finally, the new process limits environmental review under NEPA to just the cross-border section of the project. To me, this makes little sense since we all know that these types of projects can have environmental impacts well beyond the border. For a truly transcontinental project, such as a pipeline that runs through numerous states down to the Gulf Coast, the current presidential permitting process is the only venue for the public and stakeholders to examine and understand the potential impacts of the whole project that is under consideration. Under the process established by this bill, the review would be fragmented, it would be state-by-state, and no one except the project applicant would ever examine the project as a whole.

I also have a few concerns about Section 3106, which is the LNG export section. This section sets a 30-day deadline upon the completion of an environmental review for the DOE to issue a final decision on any application to export natural gas to a non-free trade country. The United States is well on track to becoming a new exporter of natural gas. To date, the DOE has issued final authorizations to 6 facilities to export up to 8.6 billion cubic feet per day of LNG. That is more than 10 percent of daily U.S. natural gas consumption, and that is on top of what we already export to free trade countries like Mexico.

The existing DOE permitting system appears to be working. It puzzles me, therefore, why we need a bill that would seek to fast-track new DOE permit approvals. To be clear, CAP does not oppose LNG exports in principle, but we have concerns about placing an artificial deadline on agency review of permit applications. Congress should not preclude DOE from taking the time it needs to make a considered and well-informed decision, particularly on the most difficult projects. The stakes are simply too high for natural gas consumers here in the United States. Last year, the Energy Information Administration concluded that increased LNG exports lead to increased natural gas prices. And these higher natural gas prices create economic winners and losers. Certainly, natural gas producers and employees of natural gas producers would be the clear winners, but, for example, manufacturers that use natural gas as a feedstock would face much higher energy costs.

In short, the decision to export significant volumes of natural gas, even to our allies, is a complex one that should not be made lightly given the potential consumer impacts here in the United States. This decision is made even more complicated given the growing demand here at home for natural gas in both the electricity sector and the transportation sector. So if the United States overcommits to natural gas exports via long-term 20-year contracts, consumers here could pay the price, and that is why a deliberative process is so important.

With that, I will end my testimony, and be happy to answer any questions.

[The prepared statement of Ms. Cassady follows:]



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**Testimony of Alison L. Cassady
Director of Domestic Energy Policy
Center for American Progress**

**Before the House Committee on Energy and Commerce
Subcommittee on Energy and Power**

June 2, 2015

Chairman Whitfield, Ranking Member Rush, and members of the subcommittee, thank you for the opportunity to testify today. My name is Alison Cassady, and I am Director of Domestic Energy Policy at the Center for American Progress, or CAP, a nonprofit think tank dedicated to improving the lives of Americans through progressive ideas and actions.

I am going to focus my testimony on three sections of the discussion draft: section 3104, related to cross-border infrastructure projects; section 3105, related to the Strategic Petroleum Reserve, or SPR; and section 3106, related to liquefied natural gas, or LNG, exports.

Section 3104: Cross-Border Infrastructure Projects

Background

The United States has a close energy relationship with both Canada and Mexico. The United States and Canada share more than 80 transboundary pipelines and more than 30 electricity transmission lines.¹ The United States and Mexico trade in oil, natural gas, and refined products. Although Mexico and the United States engage in little electricity trade at this time, the potential exists to expand cross-border electricity exchange, particularly from renewable energy sources.²

In this context, it is important for the United States to identify ways to better integrate our energy system with our neighbors' systems to the north and south. Numerous efforts are already underway. The United States and Canada have launched a Clean Energy Dialogue with the goals of "expanding clean energy research and development; developing and deploying clean energy technologies; and building a more efficient electric grid based on clean and renewable generation."³ The United States, Canada, and Mexico also participate in the Energy and Climate Partnership of the Americas, a forum in which governments in the Western Hemisphere work on initiatives related to energy infrastructure, energy efficiency, renewable energy, and other energy issues.⁴ In March, the United States and Mexico launched a separate high-level task force to "further deepen policy and regulatory coordination in specific areas including clean electricity, grid modernization, appliance standards, and energy efficiency, as well as promoting more fuel efficient automobile fleets in both countries, global and regional climate modeling," and other areas.⁵

On top of these existing initiatives, the Department of Energy's *Quadrennial Energy Review*, or QER, identified additional ways in which the United States could improve coordination among all three countries to meet our common energy goals.⁶

Concerns with Section 3104

Unfortunately, the approach outlined in section 3104 of the discussion draft would do little to enhance North American energy cooperation. Instead, it would upend the existing process for

federal approval of transboundary pipelines and transmission lines and replace it with a process that essentially guarantees approval with inadequate environmental and public interest review.

Under current law, entities wanting to construct and operate a cross-border pipeline or electric transmission line are required to obtain a presidential permit. Section 3104 of the discussion draft eliminates that requirement. Instead, the discussion draft requires the relevant federal agency to issue a “certificate of crossing” to the applicant within 120 days of final action under the National Environmental Policy Act, or NEPA, “unless the relevant official finds that the construction, connection, operation, or maintenance of the cross-border segment is not in the public interest of the United States.”⁷

I have a few concerns about this approach. First, this language sets a rebuttable presumption of approval for applications. Under current law, for cross-border oil pipelines, the State Department requires an affirmative finding that a project is in the national interest. For cross-border transmission lines, the Department of Energy, or DOE, can issue a presidential permit only after it affirmatively finds the proposed project is consistent with the public interest. In contrast, the discussion draft presumes the project is in the public interest of the United States, placing the burden of proof on opponents of the project to demonstrate that it is not.

Other language in section 3104 makes it unlikely that opponents of a project would ever be able to meet this burden of proof. The new permitting process applies only to the “cross-border” segment of the project, defined as the “portion of a liquid or natural gas pipeline or electric

transmission facility that is located at the national boundary of the United States with either Canada or Mexico.”⁸ In effect, this language means that an applicant only needs to obtain federal approval for the portion of the project that physically crosses the U.S. border, even if the project itself spans hundreds or thousands of miles. By limiting the scope of the project requiring federal approval, the discussion draft stacks the deck against a concerned stakeholder who believes the project in its entirety is contrary to the public interest.

Similarly, by limiting federal approval to just the cross-border segment of the proposed project, the discussion draft also limits environmental review under NEPA to just the small portion of the project that traverses the national boundary, the width of which is not defined in the bill. In effect, this language exempts cross-border energy projects from meaningful environmental review. Pipelines and transmission lines can span hundreds of miles, crossing city, county, and state lines, passing through sensitive ecosystems or drinking water sources, and cutting across private property and public lands. Even the best-constructed pipelines can rupture, causing serious environmental damage that is difficult to repair. Yet this discussion draft precludes the relevant federal agency from requiring a thorough environmental assessment of the potential impacts of the whole project and opportunities to mitigate those impacts.

One need only look at the debate over the Keystone XL tar sands pipeline to understand the implications of this section. As members of the Committee are aware, the controversy over the pipeline has nothing to do with the cross-border segment of the pipeline; rather, opponents have raised concerns about the pipeline’s impact on the pace of tar sands development, climate

change, and aquifers along the pipeline's route in the United States.

For a truly transcontinental project, such as a pipeline that runs from Canada through the United States to the Gulf Coast, the current presidential permitting process is the only venue for the public and stakeholders to examine and understand the potential impacts of the project in its entirety. Under the process established by this bill, the project would be permitted state-by-state with a federal permit just for the small part that crosses the border.

Taken together, the key elements of section 3104—the rebuttable presumption of approval and the narrow focus on just the cross-border segment of the proposed project—all but guarantee that the relevant federal agency will have to approve the certificate of crossing. But it will not guarantee that decision-makers have the most relevant information in front of them to understand and address any points of stakeholder concern. Therefore, the process established by this bill would be less likely than the existing process to engender public acceptance of any final decision.

Section 3104(c)(3), related to modifications to existing projects, also raises concerns. The discussion draft exempts from the new permitting process certain modifications to existing pipelines and transmission lines, such as a change in ownership, volume expansions, downstream or upstream interconnections, or adjustments to maintain flow. Versions of this language introduced in the previous Congress included “reversal of flow direction” in the list of exempted modifications, so I am pleased to see that is no longer here. But volume expansions are often

controversial and could have environmental impacts as significant as an entirely new project. They should not be let off the hook for permitting requirements.

Section 3105: Strategic Petroleum Reserve

Section 3105 requires the DOE to conduct a strategic review of the Strategic Petroleum Reserve, or SPR. This strategic review does not raise any particular flags, but it seems a bit duplicative with the review the DOE already completed as part of the QER.

In the QER, the DOE noted that the SPR needs congressional attention, since the “design of the SPR and the infrastructure for utilizing it were determined in 1975, when domestic oil production was in decline, oil price and allocation controls separated the U.S. oil market from the rest of the world, there was no global commodity market for oil at all, and there were no hedging mechanisms to manage risk.”⁹ The DOE makes several recommendations to Congress for how to update the SPR release authorities in the Energy Policy and Conservation Act to ensure the President has the tools to trigger a release from the SPR in the event of a severe supply disruption.¹⁰ The DOE also cites the need for funding to conduct critical maintenance on SPR facilities and increase the SPR’s incremental distribution capacity.¹¹ CAP urges Congress to consider and act on the recommendations outlined in the QER.

Section 3106: Authorization to Export Natural Gas

Background

The Natural Gas Act of 1938 requires any company that wishes to export natural gas to obtain an authorization from the DOE.¹² Under current law, when a company wants to export LNG to countries with which the United States lacks a free trade agreement, or FTA, the DOE reviews its application and must approve it unless the agency finds the exports inconsistent with the public interest.¹³ When a company wants to export LNG to countries with which the United States has a free trade agreement, the DOE must deem its application as consistent with the public interest and approve it without modification or delay.¹⁴

To date, companies have filed more than 50 applications with the DOE to export LNG to FTA- and non-FTA countries.¹⁵ Gas companies are most interested in obtaining access to the non-free-trade markets in Europe and Asia, where demand and prices are high.¹⁶ The DOE has issued final authorizations to six facilities to export up to 8.61 billion cubic feet per day, or Bcf/d, of LNG to both free-trade and non-free-trade countries.¹⁷ The DOE has issued conditional authorizations for additional applications, including a recently-issued conditional authorization to allow a consortium of Alaska North Slope producers to export up to 2.55 Bcf/d to Asia.¹⁸ If all remaining applications are approved, then gas companies would be authorized to export up to 35 Bcf/d to non-FTA countries.¹⁹ For context, the Energy Information Administration, or EIA, estimates that the United States consumed an average of 73.5 Bcf/d of natural gas in 2014.²⁰

Concerns about Section 3106 and High-Volume LNG Exports

The DOE permitting system appears to be working, and the United States is well on-track to becoming a net exporter of natural gas. It is puzzling, therefore, that this bill seeks to fast-track DOE permit approvals. Section 3106 sets a 30-day deadline—upon the completion of the environmental review under NEPA—for the DOE to issue a final decision on any application for the authorization to export natural gas to a non-FTA country.²¹

CAP does not oppose LNG exports in principle, but we have concerns about placing artificial deadlines on agency review of LNG export permit applications. While the 30-day timeline could be sufficient in some cases or even most cases, it may not be enough in all cases. Overall, CAP cannot support efforts to expedite permit approvals for LNG exports if doing so could prevent the DOE from making a considered and well-informed decision.

The stakes are simply too high for natural gas consumers in the United States. In 2014, the DOE asked the EIA to examine what effects higher levels of LNG exports could have on domestic natural gas prices. The EIA's conclusion is clear: "Increased LNG exports lead to increased natural gas prices."²² The EIA estimated that natural gas supply prices would rise an average of 4.3 percent to 10.6 percent over current projections for the 2015 to 2040 period, depending on the volumes of LNG exported.²³

This increase in the supply price translates into higher consumer prices. Using EIA data, CAP examined the potential price impact of exporting 16 Bcf/d and 20 Bcf/d on residential, commercial, and industrial natural gas consumers. CAP found that they could spend at least \$7

billion more on their natural gas bills per year by 2020 and up to \$14 billion more per year by 2040.²⁴

Industrial consumers—those who use natural gas for heat, power, or chemical feedstock—are particularly vulnerable to natural gas price increases. Under a scenario in which the United States exports 16 Bcf/d of LNG, industrial consumers would pay 8.2 percent more for natural gas per year by 2020 than what is currently projected. Increases in industrial natural gas bills that year would be largest in the West South Central states of Arkansas, Louisiana, Oklahoma, and Texas, as well as in the Mountain states of Arizona, Colorado, Idaho, New Mexico, Montana, Nevada, Utah, and Wyoming. Under the scenario in which the United States exports 20 Bcf/d, industrial natural gas consumers in the Middle Atlantic states would pay 18.3 percent more per year than currently projected by 2040. In the New England states, they would pay 13.2 percent more per year.²⁵

Proponents of high-volume LNG exports often point to a study by NERA Economic Consulting, which concludes that LNG exports produce net economic benefits despite higher natural gas prices. But within this net economic benefit are economic winners and losers. The NERA study states that higher natural gas prices could “have negative effects on output and employment, particularly in sectors that make intensive use of natural gas.”²⁶ NERA explained that expansion of LNG exports “raises energy costs and, in the process, depresses both real wages and the return on capital” in industries other than the natural gas industry, which benefits substantially.²⁷

As a result, some manufacturers have raised concerns about the potential economic impact of policies that would raise natural gas prices. The Industrial Energy Consumers of America, or IECA—which represents “manufacturing companies for which the availability, use and cost of energy, power or feedstock play a significant role in their ability to compete in domestic and world markets”²⁸—has stated its strong opposition to LNG exports. In a recent letter to President Obama, IECA highlighted the impact that rising natural gas prices could have on the competitiveness and profitability of certain U.S. manufacturers, such as those in the chemical and fertilizer industries that use natural gas as a raw material.²⁹ IECA urged the DOE to exercise “great caution” when approving future LNG export applications.³⁰

In short, the decision to export significant volumes of natural gas, even to our allies, is a complex one that should not be made lightly given the potential consumer impacts in the United States. This decision is made even more complicated given the growing demand for natural gas in the electricity and transportation sectors here at home. If the United States over-commits to natural gas exports, consumers could pay the price.

Conclusion

The “energy diplomacy” discussion draft under consideration today is notable for what it does not include: provisions to facilitate and enhance U.S. cooperation with its neighbors and the rest of the world on climate change, the most urgent and challenging energy diplomacy issue of our time. President George H.W. Bush negotiated a treaty to address climate change. That treaty was

ratified unanimously by the U.S. Senate in 1992. Since that time, the world has worked together to make progress on climate change and identify a path toward significant carbon pollution reductions. If we were to canvass the embassies on Massachusetts Avenue, embassy staff likely would highlight the need to build ambition for a decisive outcome at the upcoming climate talks in Paris. Climate change has become a priority in international relations because the climate science is clear: a failure to act on climate change risks severe, irreversible impacts on a global scale.

As the Committee continues to consider the nation's energy policy and its interaction with the rest of the world, the Center for American Progress urges you to put climate change front and center in any policy you develop. We can no longer afford to separate energy policy from climate policy.

End Notes

¹ U.S. Department of Energy, *Quadrennial Energy Review: Energy Transmission, Storage, and Distribution Infrastructure* (2015), p. 6-5.

² *Ibid.*, p. 6-9.

³ U.S. Department of Energy, “U.S.-Canada Clean Energy Dialogue,” available at <http://energy.gov/ia/initiatives/us-canada-clean-energy-dialogue-ced> (accessed May 28, 2015).

⁴ Energy and Climate Partnership of the Americas, “About ECPA,” available at <http://ecpamericas.org/About-ECPA.aspx> (accessed May 28, 2015).

⁵ The White House, “Joint Statement on U.S.-Mexico Climate Policy Cooperation,” press release, March 27, 2015, available at <https://www.whitehouse.gov/the-press-office/2015/03/27/joint-statement-us-mexico-climate-policy-cooperation>.

⁶ U.S. Department of Energy, *Quadrennial Energy Review*, p. 6-13.

⁷ Section 3104(c)(2)(A)(i) of Title III of untitled discussion draft, May 14, 2015, available at <http://docs.house.gov/meetings/IF/IF03/20150602/103508/BILLS-114pih-TitleIII-EnergyDiplomacy.pdf>.

⁸ Section 3104(g)(1) of Title III of untitled discussion draft, May 14, 2015, available at <http://docs.house.gov/meetings/IF/IF03/20150602/103508/BILLS-114pih-TitleIII-EnergyDiplomacy.pdf>.

⁹ U.S. Department of Energy, *Quadrennial Energy Review*, p. S-6.

¹⁰ U.S. Department of Energy, *Quadrennial Energy Review*, pp. 4-7 and 4-8.

¹¹ U.S. Department of Energy, *Quadrennial Energy Review*, pp. 4-9.

¹² 15 U.S.C. § 717b.

¹³ 15 U.S.C. § 717b(a).

¹⁴ 15 U.S.C. § 717b(c).

¹⁵ U.S. Department of Energy, “Long Term Applications Received by DOE/FE to Export Domestically Produced LNG from the Lower-48 States (as of May 13, 2015)” (2015), available at <http://energy.gov/sites/prod/files/2015/05/f22/Summary%20of%20LNG%20Export%20Applications.pdf>.

¹⁶ For example, see Cameron LNG, “Expansion Update,” available at <http://cameronlng.com/expansion-update.html>, and “Construction begins on Cove Point LNG export project,” *Oil & Gas Journal*, October 30, 2014, available at <http://www.ogj.com/articles/2014/10/construction-begins-on-cove-point-lng-export-project.html>.

¹⁷ U.S. Department of Energy, “Long Term Applications Received by DOE/FE to Export Domestically Produced LNG from the Lower-48 States.” The DOE also has approved numerous applications to export LNG to free-trade countries, as required by the Natural Gas Act. But, as a practical matter, most applicants will not move forward with plans to export LNG without approval to export to non-free-trade markets in Europe and Asia.

¹⁸ U.S. Department of Energy, “Energy Department Authorizes Alaska LNG Project, LLC to Export Liquefied Natural Gas,” press release, May 28, 2015, available at

<http://energy.gov/articles/energy-department-authorizes-alaska-lng-project-llc-export-liquefied-natural-gas>.

¹⁹ U.S. Department of Energy, “Long Term Applications Received by DOE/FE to Export Domestically Produced LNG from the Lower-48 States.”

²⁰ Energy Information Administration, “Short Term Energy Outlook” (U.S. Department of Energy, May 2015), p. 8, available at <http://www.eia.gov/forecasts/steo/archives/May15.pdf>.

²¹ Section 3106(a) of Title III of untitled discussion draft, May 14, 2015, available at <http://docs.house.gov/meetings/IF/IF03/20150602/103508/BILLS-114pih-TitleIII-EnergyDiplomacy.pdf>.

²² Energy Information Administration, *Effect of Increased Levels of Natural Gas Exports on U.S. Energy Markets* (October 2014), p. 12, available at <http://www.eia.gov/analysis/requests/fe/pdf/lng.pdf>.

²³ *Ibid.*, p. 34.

²⁴ Center for American Progress, *Potential Consumer Price Impacts of Efforts to Rapidly Expand Exports of Liquefied Natural Gas*, available at (January 2015), available at <https://www.americanprogress.org/issues/green/report/2015/01/27/105441/potential-consumer-price-impacts-of-efforts-to-rapidly-expand-exports-of-liquefied-natural-gas/>.

²⁵ *Ibid.*

²⁶ NERA Economic Consulting, *Macroeconomic Impacts of LNG Exports from the United States* (2012), p. 8, available at http://energy.gov/sites/prod/files/2013/04/f0/nera_lng_report.pdf.

²⁷ *Ibid.*, p. 7.

²⁸ Industrial Energy Consumers of America, “About IECA,” available at <http://www.ieca-us.com/about-ieca/> (last accessed May 2015).

²⁹ Letter from Paul N. Cicio to President Barack Obama, January 6, 2015, available at http://www.ieca-us.com/wp-content/uploads/01.06.15_Obama-LNG-Cover-Letter.pdf.

³⁰ *Ibid.*

Mr. WHITFIELD. Thank you, Ms. Cassady.

And our next witness is Ms. Emily Hammond, who is Professor of Law at George Washington University Law School. And thank you for joining us, and you are recognized for 5 minutes.

STATEMENT OF EMILY HAMMOND

Ms. HAMMOND. Thank you, Chairman Whitfield, Ranking Member Rush, and the distinguished members of the subcommittee. I appreciate the opportunity to testify today.

In my testimony, I would like to highlight several concerns that undermine the discussion draft's important goal of a unified energy policy. These concerns relate specifically to Sections 3102, 3104, and 3106. In short, those provisions fail to properly account for the reliability, fuel diversity, and environmental implications of energy policy, and they also fail to adequately permit the energy agencies to undertake their work in a participatory, deliberative, and well-reasoned manner.

Let me start with the Interagency Taskforce. Despite that the lines between energy and the environment no longer truly exist—excuse me, the composition of the taskforce has significant gaps that will hinder rather than help the development of a comprehensive energy policy. Most critical is the absence of agencies with environmental expertise. But other key agencies like those whose missions relate to jobs, to the economy, and to transportation, are also omitted from the taskforce. As demonstrated by the QER, which we heard about this morning, all of these agencies can successfully work together toward unified energy policies, and administrative law will show that when agencies collaborate in this way, they are more successful, and that they tend to have broader stakeholder support, and they have reduced vulnerability to judicial challenges.

For the same reasons, the criteria for the Interagency Taskforce as planned should include environmental issues, and especially climate change. Failing to do so will only deepen the current dysfunctions in our energy regulatory system and in the energy markets.

Second, the authorization for cross-border infrastructure projects does not make clear how DOE would implement its authority differently from how it currently does under the presidential permit framework. Currently procedures do account for environmental issues, and those should be retained. I note as well that the provisions striking portions of the Federal Power Act, and in particular Section 202(f), threaten to undermine important backstop authority that the Federal Power Act retains for FERC that allow it to ensure grid reliability for intrastate projects that cross international boundaries. I urge the subcommittee to carefully reexamine the striking provisions of this section.

Finally, the 30-day deadline for DOE action on LNG applications is of concern. Even if DOE is able to act quickly in some circumstances, it needs more flexibility, given the very complex issues at stake. Imposing a rigid deadline actually threatens more delay. First, deadline suits, which are contemplated by the discussion draft, tend to impose additional delays even if those suits are successful. And second, with stakes so high and such engaged stakeholders, judicial challenges are inevitable. All right, we can easily

predict lawsuits no matter DOE's decision, and if DOE is rushed in making its determination, the record is less likely to be carefully developed, the agency's reasoning may not be clear, and once again, it is likely to be more vulnerable to judicial remand and imposition of even further delays.

To summarize, the relationship between energy and the environment must be considered as the United States seeks a uniform energy policy. Careful attention to administrative procedure and its role in promoting good government must also accompany any new energy statutes. If we move forward with U.S. energy policy with these principles in mind, we can make substantial improvements for the future.

Thank you again for the opportunity to testify today, and I look forward to your questions.

[The prepared statement of Ms. Hammond follows:]

**TESTIMONY OF EMILY HAMMOND
PROFESSOR OF LAW
THE GEORGE WASHINGTON UNIVERSITY LAW SCHOOL
BEFORE THE HOUSE COMMITTEE ON ENERGY AND COMMERCE
SUBCOMMITTEE ON ENERGY AND POWER**

JUNE 2, 2015

Thank you, Chairman Whitfield, Ranking Member Rush, and distinguished Members of the Subcommittee, for the opportunity to testify today concerning the Energy Diplomacy Discussion Draft.

I am a Professor of Law at the George Washington University Law School, and am also a member-scholar of the not-for-profit regulatory think-tank, the Center for Progressive Reform. My expertise relates to energy, environmental, and administrative law. I have authored numerous books, articles, and book chapters on these topics, and have particularly emphasized: (1) the links between administrative process and agency decisionmaking in the fields of energy and environmental law; and (2) the relationship of cost, reliability, and environmental attributes of electricity fuel sources to the wholesale electricity markets and the electricity fuel mix. Early in my career, I practiced as a civil engineer; that experience and training allows me to bring a technical perspective to energy and environmental law.

As a professor asked to testify due to my expertise, not as a partisan or representative of any organization, I will focus my testimony on three aspects of the Discussion Draft: (1) Section 3102, North American Energy Diplomacy; (2) Section 3104, Authorization of Cross-Border Infrastructure Projects; and (3) Section 3106, Authorization to Export Natural Gas.

Background

The field of energy represents a complex interaction between energy resources, energy markets, and environmental externalities. Policies that do not consider these interactions have led to numerous dysfunctions. Consider the example of the electric grid. Since the 1970s, the United States has pursued two policies: ever-more-efficient markets, and an ever-greener grid.¹ But because these policies have evolved in a piecemeal, uncoordinated fashion, the wholesale electricity markets fail to fully value grid reliability or the environmental characteristics of fuel sources or electricity services. As a result, we are seeing decreased diversity in electricity fuel sources, which threatens both grid reliability and our ability to flexibly respond to the climate change imperative. For example, we are increasingly seeing natural gas as an electricity fuel even as we are losing parts of the nuclear fleet in areas with wholesale markets.² Yet both these fuels offer climate and reliability benefits that compliment increasing renewables penetration. The bottom line is that energy decisionmaking must include consideration of relative mix of fuel sources as well as the environmental implications of that mix.

As you well know, energy issues also attract significant industry, public, and other stakeholder attention. Many energy issues—like liquefied natural gas, hydraulic fracturing, and spent nuclear fuel—trigger deeply held perceptions of risk that make it difficult, as a public policy matter, to move forward on the basis of consensus.³ But procedures are valuable in at least smoothing the process: when people feel they have a trustworthy, neutral, transparent decisionmaker, and when they have a voice in the process, they are more likely to accept government decisions—even those contrary to their policy preferences.⁴ Conveniently, the basic framework of administrative law—which emphasizes participation, deliberation, and transparency—reinforces those norms.⁵ In considering procedural requirements for energy agencies, therefore, it is critical to keep in mind the value of administrative procedure.

These observations relate to my primary concerns with the Discussion Draft, which I outline according to their sections below: energy policy can do better in accounting for the reliability, diversity, and environmental implications of decisionmaking; and it should permit the energy agencies to undertake their work in a participatory, deliberative, transparent, and well-reasoned manner.

Section 3102. North American Energy Diplomacy.

A critical challenge for energy policy in the United States is that it has evolved in a piecemeal fashion, focusing on specific energy resources through source-specific federal and state agencies. Creating an Interagency Task Force, as this Section does, is an important step in bridging the gaps between the enumerated agencies' particular statutory mandates. Indeed, agencies stand to be more successful—in achieving stakeholder support and in avoiding litigation—when they coordinate their efforts and ensure that their diverse perspectives are brought to bear on major policy matters.⁶

But the composition of the Task Force has significant gaps that will hinder—not help—the development of comprehensive energy policy. Most critical is the absence of agencies with environmental expertise like the Environmental Protection Agency (EPA), the Army Corps of Engineers (Corps), and the Department of the Interior (DOI). Not only do energy projects implicate traditional environmental concerns—like water use and water quality, air pollution, and ecosystem protection—but, as recognized in the Quadrennial Energy Report (QER), the energy sector is at the heart of climate change policy.⁷ One need look no further than the debates surrounding EPA's Clean Power Plan and MACT Rule,⁸ the Federal Energy Regulatory Commission's (FERC's) Order 745 governing demand response,⁹ and the Nuclear Regulatory Commission's (NRC's) Rule on Storage of Spent Nuclear Fuel¹⁰ to see that the lines between energy and the environment are more blurred than ever.

I urge you instead to take steps to better integrate energy and environmental policy, and to consider the policy ramifications of energy decisions on jobs and the economy as well. With that in mind, I am also concerned that other critical agencies, like those whose missions relate to jobs and economic development, are also omitted from the Task Force.

As demonstrated by the QER Interagency Task Force, all of these agencies can successfully work together toward developing and implementing policies governing energy resources and related environmental issues.¹¹ Indeed, agencies that fail to consult with one another risk judicial remand,¹² while the public suffers the consequences of delay and the United States loses its effectiveness on the international energy stage.

Finally, these concerns are deepened because the list of policymaking criteria in the Discussion Draft does not include environmental issues. By failing to include such issues—and especially, climate change—in the policymaking criteria, the Task Force will deepen the current dysfunctions in our energy regulatory system and energy markets. In addition, this section calls for participation of too narrow a set of stakeholders. Most importantly, the public is not given a seat at the table. At the very least, there should be an opportunity for comment by *any* interested person on the interagency coordination plan, followed by a mandate that the Task Force consider all input in developing a final interagency coordination plan.

These same concerns relate to the Canada-Mexico Plan, which likewise should include environmental considerations and robust participation in the Plan's development.

Section 3104, Authorization of Cross-Border Infrastructure Projects.

Section 3104's provisions relating to electricity transmission also raise several concerns and warrant further consideration. First, this section would repeal the requirement, found in the Federal Power Act (FPA), to secure authorization from FERC to transmit electricity to a foreign country.¹³ But this provision of the FPA directs FERC to consider such transmission would impair the sufficiency of electric supply or impeded coordination within the United States.¹⁴ The Discussion Draft now places authorization authority with DOE—which currently has Presidential Permit authority under Executive Order 12,038—but the Discussion Draft does not require DOE to implement these safeguards for grid reliability.

Second, the Discussion Draft's conforming amendments regarding state regulations could undermine grid reliability and have unforeseen consequences under the FPA. Currently, *intrastate* electricity may be transmitted across an international boundary without transforming the transmitter into a public utility under the FPA, *unless* FERC finds that such State regulation would impair U.S. electricity supply or impede coordination in the United States.¹⁵ Again, repeal of this state provision would take away the backstop for grid reliability that is wisely a part of the current FPA, and it could leave a significant gap with respect to State activity.¹⁶

Third, on the surface it may not seem too big a leap to make DOE the authorizing agency for cross-border electric transmission, and to revoke the Presidential Permit requirement for electricity transmission because DOE currently is responsible for such permitting. But important decisionmaking requirements are lost along the way. For example, DOE currently considers the environmental impacts of proposed transmissions as well as how the transmission would impact the bulk power system.¹⁷ The Discussion Draft

contemplates that DOE would ensure consistency with grid reliability standards, but it creates an ambiguity whether environmental factors may be considered. Overall, it leaves uncertainty whether DOE's current approach could continue under this new regime.

Section 3106. Authorization to Export Natural Gas.

Finally, I want to highlight some issues with the deadline requirements of this section of the Discussion Draft. The 30-day deadline for DOE to act on applications is of concern. Even if DOE is able to act quickly in some circumstances, it needs more flexibility given the incredibly complex issues at stake for LNG exports. Indeed, imposing a rigid deadline like this perversely threatens even more delay. First, deadline suits, like those contemplated in the Discussion Draft, impose additional delays even if they are successful. And second, the stakes are so high—and there are so many stakeholders in LNG decisions—that we can easily predict lawsuits regardless of DOE's ultimate decision on such an application. If DOE is rushed in making its decision, the record is less likely to be carefully developed and the agency's reasoning may suffer, making it vulnerable to a judicial remand and imposing even further delays.¹⁸

Conclusion

The relationship between energy and the environment must be considered as the United States seeks a uniform energy policy. Failure to integrate the two thus far has contributed to market flaws, reliability concerns on the electric grid, and enormous public health and environmental harms. Moreover, careful attention to administrative procedure—and its role in promoting good government—must accompany any new energy statutes. If we move forward in energy policy with these principles in mind, we can make substantial improvements for the future.

Thank you again for the opportunity to testify today. I look forward to your questions.

¹ Emily Hammond & David B. Spence, *The Regulatory Contract in the Marketplace*, -- VAND. L. REV. -- (forthcoming), available at <http://ssrn.com/abstract=2584619>; see also

² Hammond & Spence, *supra* note 1, at 21; IHS ENERGY, THE VALUE OF US POWER SUPPLY DIVERSITY (July 2014), available at <https://www.ihs.com/info/0714/power-diversity-special-report.html>.

³ Emily Hammond, *Nuclear Power, Risk, and Retroactivity*, -- VAND. J. TRANSNAT'L L. -- (forthcoming), available at <http://ssrn.com/author=649887>.

⁴ Tom Tyler, *Social Justice, Outcome and Procedure*, 35 INT'L J. OF PSYCHOL. 117, 121 (2000).

⁵ Emily Hammond & David L. Markell, *Administrative Proxies for Judicial Review: Building Legitimacy from the Inside-Out*, 37 HARV. ENVTL. L. REV. 313, 322-26 (2013).

⁶ See Jody Freeman & Jim Rossi, *Agency Coordination in Shared Regulatory Space*, 125 HARV. L. REV. 1131, 1146-49 (2012); cf. Emily Hammond, *Presidential Control*,

Expertise, and the Deference Dilemma, 61 DUKE L.J. 1763, 1785-90 (2012) (documenting problematic dispute between DOE and NRC and collecting further examples).

⁷ DOE, QER REPORT: ENERGY TRANSPORTATION, STORAGE, AND DISTRIBUTION INFRASTRUCTURE, 1-14 (Apr. 2015); *see also* JOEL B. EISEN ET AL., ENERGY, ECONOMICS, AND THE ENVIRONMENT __ (4th ed. 2015) (describing negative environmental externalities associated with the energy sector).

⁸ Proposed Rule: Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34,830 (June 18, 2014) [hereinafter Clean Power Plan]; National Emission Standards for Hazardous Air Pollutants From Coal and Oil-Fired Electric Utility Steam Generating Units and Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial-Institutional, and Small Industrial-Commercial-Institutional Steam Generating Units, 77 Fed. Reg. 9304 (Feb. 16, 2012) [hereinafter Utility MACT Rule].

⁹ Demand Response Compensation in Organized Wholesale Energy Markets, 134 FERC 61,187 (Mar. 15, 2011) [hereinafter Order 745].

¹⁰ Final Rule, Continued Storage of Spent Nuclear Fuel, 79 Fed. Reg. 56,238 (Sept. 19, 2014) (finding reasonable assurances of safety of long-term spent fuel storage).

¹¹ *See* DOE, QER REPORT: ENERGY TRANSPORTATION, STORAGE, AND DISTRIBUTION INFRASTRUCTURE, 10-20 n.d (Apr. 2015) (listing members of QER Interagency Task Force).

¹² *Del. Dep't Natural Resources v. EPA*, – F.3d – (D.C. Cir. May 1, 2015) (holding arbitrary and capricious EPA's failure to consult with FERC regarding back-up generator rule).

¹³ *See* 16 U.S.C. § 824a(e).

¹⁴ *Id.* § 824a(e).

¹⁵ 16 U.S.C. § 824a(f).

¹⁶ *Id.* § 824a(e).

¹⁷ DOE, INTERPRETIVE GUIDANCE ON THE REQUIREMENTS OF 10 C.F.R. § 205.322.

¹⁸ Emily Hammond, *Deference and Dialogue in Administrative Law*, 111 COLUM. L. REV. 1722, 1739-52 (2011).

Mr. WHITFIELD. Well, thank you, Ms. Hammond.

And that concludes the opening statements. I just want to make an announcement that we are expecting some votes around 1:30 or so. There are only six members here, so we each get 5 minutes. That will be 30 minutes. I think that we can make it through and give you all an opportunity to respond if we go efficiently and quickly.

So I am going to recognize myself for 5 minutes, make sure I get mine in, Bobby, and then we will go from there.

Ms. Cassady and Ms. Hammond both made comments about climate change, and certainly, that is something we are very much concerned about, but I would like to remind everyone that within the Federal Government, just the U.S. Federal Government, there are 68 different initiatives on climate change. There has been a total of about \$36, \$37 billion spent by the U.S. Government alone each year just on climate change. So the differences that we are having with President Obama, truthfully, is that he views it as the most important issue facing mankind, and some of us have different views that a job, access to healthcare, clean water, affordable energy, economic growth are very important also. So I appreciate your comments—and now Mr. Pallone is coming in so that is another person, so I am going to have to hurry. OK. I wanted to make that comment.

Now, Dr. Dolzer, in France, they have a large percentage of their electricity produced from nuclear. Germany made the decision, I guess, to stop all production of energy by nuclear. Is that still the policy in Germany?

Mr. DOLZER. That is the policy. We decided 3 days after the Fukushima events in 2010 to phase-out. We had an earlier change in 2000, then we had another change in 2009, and Fukushima is still the key event in Germany. At the moment, my prediction is—the current situation is that $\frac{1}{2}$ of the nuclear plants have already been phased out after 2011, and the rest, eight of them are still in operation. They will be phased out by 2021.

Mr. WHITFIELD. And, of course, you all have been—in Germany, they have been moving very quickly to renewable energy: wind, solar, whatever. So what has the result been? I mean has it affected your reliability? Has it affected the retail prices of electricity or not?

Mr. DOLZER. It has affected the price of the consumer considerably. I think the price went up by about 30 percent for electricity for the private households.

Perhaps one conclusion is, and I am not here taking any particular position, if you change policies to it in a pragmatic manner without too much momentary intervention, I think the change in Germany has forced us to react very quickly. It had some rather unintended consequences. At the moment, we are the main importer of U.S. coal. Now, of course, this is a little bit odd and awkward to have more coal—

Mr. WHITFIELD. I was told that last year—

Mr. DOLZER [continuing]. As a consequence—

Mr. WHITFIELD [continuing]. Two-thirds of U.S. coal exports went to Europe.

Mr. DOLZER. Correct. So we are supporting West Virginia. A consequence of our decision to phase-out nuclear was de facto to promote coal. For the moment, my prediction is this policy will not change. None of the major political parties, including the one to which I belong, intends to change. However, I think if I listen to—correct to what my wife tells me, opposition among the people is growing to this policy. The question is, is that affordable, what we are doing at the moment in the long-run. Germany has many issues, as most other states. We need more schools, we need better universities, we need more streets, and the question is can we focus our budget in the way we did on one issue alone, which is—

Mr. WHITFIELD. Yes. When you—in your testimony, when you were talking about Europe being more vulnerable, is that what you were referring to?

Mr. DOLZER. That is correct. The—

Mr. WHITFIELD. The policy about the renewables and the push for—

Mr. DOLZER. The policy about renewables, together with the policy of phasing out nuclear power means that we need more energy in the future as regards gas. We have a very special situation; we can get more gas from Russia, from Iran, from Algeria, or at the moment from Norway, but Norway is about to peak. In other words, our choices are not considerable. And here I would like to come back for a moment to U.S. policy. The U.S. has criticized us, of course, for being dependent too much on Russian gas. Correct. Almost 40 percent. At the same time now, of course, in an era of abundance, the Europeans would hope that the United States allows for more gas to be exported to Europe in a situation where we need stronger support with our alternatives. And I think even small additional imports from the United States would help on a symbolic manner. In other words, the position in Europe that you hear quite often is, on the one hand the U.S. criticizes that we are too dependent on Russia or Iraq or—

Mr. WHITFIELD. Yes, OK.

Mr. DOLZER [continuing]. Whoever, on the other hand, the U.S. does not allow and facilitate—

Mr. WHITFIELD. Yes.

Mr. DOLZER [continuing]. Exports to Europe. I think this is a position that may be reconsidered.

Mr. WHITFIELD. OK. At this time, I am going to recognize Mr. Rush for 5 minutes.

Mr. RUSH. I want to thank you, Mr. Chairman. Mr. Chairman, I just want to take a moment to welcome back to the committee Ms. Cassidy. She served for many, many years as an expert staffer under our former chairman, Henry Waxman, and she was on this side of the table, and now she is on that side of the table. But I just wanted to welcome her back. So good to see you again, and you are continuing your outstanding work. So thank you so very much.

I want to ask you a question, and also Ms. Hammond. It is in response to some of the comments of the chairman. In your opinion, and both of your—if you will respond, are energy and environmental issues inherently related, and why is it so very, very important that any kind of comprehensive energy policy also integrate

environmental concerns in that policy? And do either of you have any specific—

Ms. CASSADY. I would just add to that, the energy infrastructure decisions we make today will last decades. So we decide to build a pipeline today or build a new energy production facility, we are locking in decades of new emissions or not, and that is why it is very important to consider, whenever we are considering energy policy, we should consider climate policy as well, and think through how will this energy project affect our transition negatively or positively toward a zero carbon future.

Mr. RUSH. I yield back.

Mr. WHITFIELD. Gentleman yields back.

Because we now have called votes, I am going to reduce the amount of time to 3 minutes for everyone so that, hopefully, we can give everybody a chance.

So, Mr. Olson, you are recognized for 3 minutes.

Mr. OLSON. Thank you, Chairman. I am with you.

Welcome to our witnesses. I apologize you got behind an energy superstar, and now votes in a hearing coming in this hearing room about 2 o'clock, so I have one question for you, Mr. Grumet. It is about Mexico.

As you mentioned in your testimony, Mexico is on the verge of a revolution for energy. Changes, changes, changes. I moved to Texas in 1972. I saw the stronghold OPEC had on America first-hand. 1979, I had just gotten my license. I was sent down to get in line for gasoline. Gasoline dependent upon, you have a long line, get gas depending upon the last digit of your license plate. If it was an even date, go on an even day, even number. Long lines. Gas prices doubled. They had a stronghold on us. Now, with all the street production in America, our neighbor to the north, Canada, and Mexico, I see a vision of OPEC going away, replaced by NAPEC. North American Petroleum Exporting Countries.

My question is, sir, what is the one thing Congress can do to help make that reality, make NAPEC head of OPEC?

Mr. GRUMET. Thank you for that question, and I will note that usually you put the warm-up band before the rock star, so you might want to do that—all right, I am back. I think you make a very important point. We used to look at our headlines, and OPEC was having a meeting and there would be a chill through the land. Now, they can meet or not meet, it doesn't matter much to us if, in fact, we seize the opportunity of abundance. And I think our opportunities with Mexico are profound. We have to give a lot of credit to President Nieto for trying to reverse 60 years of an investment policy that basically discouraged first world technology. I think the opportunities to spend a lot of time working with Mexico on something that is pedestrian but incredibly important, and that is data quality. The ability to have North American energy security depends on having good data, shared analysis, shared understandings, and a transparency across our analytical platforms. That is a very boring but incredibly difficult and important thing to do. Our energy administration here is the gold standard, and I think we really should spend a lot of time, it is going to require some resources if we want Mexico to join us. If we had that shared data foundation and we have thoughtful laws that, as our col-

leagues have suggested, provide time for environmental deliberation, but then actually require a decision, I think we can have an integrated energy system that will raise both——

Mr. OLSON. So shared data, number one. We need to have that in Congress. That is the best we can do right now?

Mr. GRUMET. I think that is something you could actually get done right now, that would be very true.

Mr. OLSON. That is even better. I like that.

Yield back, sir.

Mr. WHITFIELD. Gentleman yields back.

At this time, recognize the gentleman from New Jersey for 3 minutes, Mr. Pallone.

Mr. PALLONE. Thank you, Mr. Chairman.

I just wanted to follow up on a few statements made earlier today about Section 3104. This provision makes an end run around the National Environmental Policy Act, and would eliminate meaningful review of the environmental impacts of proposed cross-border energy projects. And this section dramatically narrows the scope of environmental review to only the cross-border segment of the energy project, the tiny portion that physically crosses a national boundary.

So, Ms. Cassady, does limiting NEPA review to just a small sliver of a cross-border energy project make any sense to you, and what are some of the drawbacks of looking at just the cross-border segment of a pipeline or transmission line?

Ms. CASSADY. Thank you for the question. No, it doesn't make much sense to me simply because if you look at the more controversial pipeline and other projects that we have examined over the last few years, the controversy has never been around the impacts at the border. We all know, even the best-constructed, highest technology pipeline, an accident can happen. And those pipelines span hundreds of miles, they pass through sensitive ecosystems, over aquifers, over private and public lands. The purpose of an environmental review is to make sure that policymakers have all of the facts about the potential impacts of the project over the entire course of the project, not just the small part at the border, in order to better understand how to mitigate those potential impacts. So in order to understand the potential consequences of a project, we need to look at it in its entirety and not just at the border.

Mr. PALLONE. How about the legislation's presumption that cross-border projects are in the public interest, how would looking at just the cross-border segment impact an agency's ability to determine whether or not a project is in the public interest?

Ms. CASSADY. The presumption of approval stacks the deck against a stakeholder who has legitimate concerns about whether or not a project is in the public interest. It forces the concerned stakeholder to make the case that it is not in the public interest, rather than forcing the applicant to make the case that it is. And that is just a higher burden of proof. And the way the bill is written, since it is so focused on a very narrow part of the proposal and doesn't look at all of the potential impacts, it is going to be much harder for a concerned stakeholder to make the case that this tiny little part of the project is not in the public interest.

Mr. PALLONE. Well, thank you. I think these energy infrastructure projects are a lot more than just a border crossing: they are going to last for decades, and fundamentally NEPA requires us to look before we leap, and that is just basic common sense. So we should not be carelessly narrowing or creating loopholes in the law, and I think we need to understand the impact of these projects before they are constructed so that we can protect public health and safety and the environment, and I think ignoring the impacts is not going to make them disappear. So thank you again.

Thank you, Mr. Chairman.

Mr. WHITFIELD. At this time, recognize the gentleman from Pennsylvania, Mr. Pitts, for 3 minutes.

Mr. PITTS. Thank you, Mr. Chairman.

Mr. Martin, Lancaster County doesn't have any wells of Marcellus Shale being drilled in it. Probably the nearest well is 100 miles away. But how is Lancaster County benefitting from Marcellus Shale, the boom that you mentioned, even if there are no wells being drilled in the county?

Mr. MARTIN. Well, first and foremost, what we have seen is, one, Pennsylvania putting forth an impact fee with monies that were distributed back not only to well counties, but also to counties who end up having pipelines. Those kinds of funds that are coming back are used to conserve open space, preserve ag preservation easements, and also really replace structurally deficient bridges. But we are also seeing the economic impact as well here. We have IT companies that do data mappings of pipelines and wells that have grown dramatically. Engineering firms. One of the larger engineering firms in the Marcellus Shale region, Virtue Engineering, more than doubled in size. Over a 2-year period, they bought an additional 75 vehicles.

I used in my testimony examples of the Pennsylvania National Guard or Shady Maple. Shady Maple saving over 170—it is a smorgasbord, if anyone has ever been to one, I highly recommend it. \$175,000 a year in energy costs, which then Garden Spot School District saw, which is in the same area, and said we are going to tape in, and they are going to realize those savings.

Now, we would like to see more of it. Unfortunately, about ½ of Pennsylvanians do not have access to that natural gas, but given the premise of the open access nature of pipelines, you will start to see more of these entities like the Pennsylvania National Guard at Fort Indiantown Gap, and others, who are able to tap in and be able to realize that savings. And where we expect to see most of it, and where we hear from a lot of our constituents, is especially in the area of manufacturing, especially those who are heavily reliant on energy to do that. We have companies that spend over \$3 million a year in energy costs, but they are nowhere near the nearest pipeline. So I think we will see further opportunities coming forth.

But I just want to add, Congressman, two of the great things I see is, you are now able to get an education in Pennsylvania in the petroleum and gas industry that you had to go to like Texas Tech to used to be able to get. They are investing in areas—I think \$2 ½ million dollar grant from the industry to Lackawanna Community College. Two-year program, cost for that 2 years about \$22,000.

And when they are coming out of that program, the starting rate is like \$68,000. So those are the types of things that you are seeing. These are good middle-class jobs that not only use your head but also use your hands. And we are seeing that grow, and that is something we hopefully continue to see grow not only through Lancaster County, but throughout Pennsylvania.

Mr. PITTS. Thank you very much, my time has expired.

Mr. WHITFIELD. At this time, recognize the gentleman from Texas, Mr. Green, for 3 minutes.

Mr. GREEN. Thank you, Mr. Chairman. I appreciate hearing from the county commissioner. My accent gives me away, but obviously, every school in Texas has energy courses, from our community colleges all the way up to not only Texas Tech and Lubbock, but UT and A&M and University of Houston, and everywhere else.

Ms. Cassady, I want to welcome you back to the committee. I know you are familiar with the NEPA regulations promulgated by the Council on Environmental Quality, not only from your work on the committee, but with the center. Under NEPA, an agency is specifically prohibited from segmenting projects, known as piecemealing. The Code of Federal Regulations states proposals or parts of proposals which are related to each other closely enough to be, in effect, a single course of action are evaluated. The discussion draft requires the State Department to promulgate rules on cross-border pipelines, and you heard Secretary Moniz say that the agencies are required to do it.

Ms. Cassady, wouldn't the federal agency in charge of the environmental review be charged with the NEPA review that satisfies these CEQ regulations, and looking at the whole project?

Ms. CASSADY. My understanding of the bill is that the NEPA review only applies to the cross-border segment of the pipeline project or the transmission line, and so the federal approval only applies to that portion as well. Therefore, NEPA would only apply to that portion. There would be state-by-state reviews if it was passing through a state. In terms of federal review, it just applies to the cross-border segment.

Mr. GREEN. Well——

Ms. CASSADY. That is my understanding of the legislation.

Mr. GREEN. Shouldn't the cross-border review—so much of our NEPA process is also done by other federal agencies and a party to it. For example, if you have a pipeline coming from Texas in Eagle Ford to Mexico, that cross-border pipeline, state law covers it on the property that is not federal, but it may be crossing federal lands, and so the NEPA process would come into play on that. But granted, the cross-border, which is international, and of course, as taxpayers we own our part of the border, then they would do it. But you don't think that the bill calls for them to look at the whole project? And it may not be one agency doing it, but there will be other agencies doing a NEPA process on what they are required to do in that pipeline, from whether it be at Eagle Ford, of course, into Mexico. That is what worries me because I know, and my colleague from New Jersey said that the NEPA process is not covered. I think it is, because if it is not the Department of Energy, for example, for electricity transmission, it would be another federal

agency if they had the authority in there, or in some cases, state agencies. So the NEPA process would be included.

And, Mr. Chairman, I know I am almost out of time, and we are almost out of time for—

Mr. WHITFIELD. Well, Mr. Green, that is our view as well, and we would love for our staff to sit down with Ms. Cassady in more detail, but it is our understanding that this does not change the NEPA process.

Mr. GREEN. Yes. Now, I have to admit, in my few seconds, I have a problem with the State Department. We have a company in Texas who was—a Canada pipeline that was dormant, they wanted to change the name because they bought it, and their goal was to not only bring crude oil from Canada, but it was also to attach into the United States from Bakken, and the State Department decided they needed to review what was on the U.S. property.

Now, I want a federal agency looking at it, but the State Department shouldn't be deciding whether a pipeline out of Bakken is good or not because, granted, we are getting crude oil in trains into Houston, Texas, because our refiners do that. It is so much safer and easier to put a pipeline in there than it is bring those 100-car trains full of crude oil from Canada.

Mr. WHITFIELD. Gentleman's time has expired.

Recognize the gentlemen from Virginia, Mr. Griffith, for 3 minutes.

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

All right, I will take anybody who can answer this, and I suspect it will be Mr. Grumet or Ms. Cassady, or Ms. Hammond.

Are you all familiar with the regulations relating to production of electricity in Mexico by coal? And no is a fine answer. If you don't know, you don't know. Nobody knows. Because the reason I ask that question is it is part of our proposal here, and one that I am interested in, has electric transmission facilities, it is not just pipelines. And one of my concerns is that we are putting coalminers out of work in Appalachia. Like Lancaster, down our way it is not Appalachia, it is Appalachia, and we are putting coalminers out of work in Appalachia, but if we allow electric transmission lines to cross over from Mexico using not-as-good a coal, with not-as-good a process, in not-as-clean plants, what gain have we made environmentally? And I think this is a case where, while Ms. Cassady and I are not going to agree on much, we might actually agree on that, that that ought to be a concern.

Mr. Grumet, do you have any thoughts on that at all?

Mr. GRUMET. I mean you make a very important point, and Dr. Dolzer's testimony referred to it as well, right. Electrons and molecules don't have a lot of concern about arbitrary political boundaries, and that is why we actually have to have a shared solution that brings the technology of the United States to bear on the issues in Mexico. We have to have shared agreements. And I am not going to try to get into a lengthy conversation about regional climate action in 60 seconds, but—

Mr. GRIFFITH. Well—

Mr. GRUMET [continuing]. I think there is a real opportunity to actually lift the Mexican system so that it actually has parity with the U.S.

Mr. GRIFFITH. And I certainly don't mind lifting up the Mexican system, but I am reminded of the old NASA study that shows it takes 10 days for the air to get from the middle of the Gobi Desert to the eastern shore of Virginia, so if we are going to eliminate coal, waiting another 30 or 40 years on Asia just really means we are putting our people out of work and we are not really doing that much for the overall northern hemisphere——

Mr. GRUMET. All I will say is——

Mr. GRIFFITH [continuing]. Air.

Mr. GRUMET [continuing]. That we fundamentally have to find a way to burn coal in a way that meets our security interests and our environmental interests, and there is one way we can do that if we invest the resources to get it done. We are not doing that right now, so——

Mr. GRIFFITH. And I agree with you completely. We can do more and we should do more. I look forward to working with you on clean coal technologies.

I yield back.

Mr. WHITFIELD. And there are no other questions. So thank all of you once again for your patience, and we look forward to maintaining contact with you and continuing to work with you as we try to bring this legislation to the committee.

I am also asking unanimous consent that a statement from the Canadian Electricity Association be submitted for the record. And without——

Mr. RUSH. No objection.

Mr. WHITFIELD. Without objection, so ordered.

[The information appears at the conclusion of the hearing.]

Mr. WHITFIELD. Is this it? OK. And we are going to keep the record open for 10 days for any additional material that may need to be submitted.

And once again, that will conclude today's hearing. Thank you all for your interest. And, Mr. Dolzer, thanks for coming all the way from Germany.

[Whereupon, at 1:42 p.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]



STATEMENT FOR THE RECORD OF
THE CANADIAN ELECTRICITY ASSOCIATION
BEFORE THE U.S. HOUSE COMMITTEE ON ENERGY AND COMMERCE
SUBCOMMITTEE ON ENERGY AND POWER
HEARING ON “QUADRENNIAL ENERGY REVIEW AND RELATED DISCUSSION
DRAFTS”

June 2, 2015

The Canadian Electricity Association (“CEA”) is pleased to provide this statement for the record, which focuses on several issues set to be examined by the Subcommittee on Energy and Power during today’s hearing.

In this statement, CEA applauds key principles and provisions reflected in the “Architecture of Abundance” discussion draft on Energy Diplomacy; recommends one minor modification to that language; and offers feedback on the chapter in the U.S. Department of Energy’s (“DOE”) Quadrennial Energy Review (“QER”) which looks at the integration of energy markets and infrastructure in North America.

I. Description of CEA

CEA is the authoritative voice of the Canadian electricity industry, promoting electricity as a key social, economic and environmental enabler that is essential to North American prosperity. CEA members generate, transmit, distribute and market electric energy to industrial, commercial and residential customers across Canada and into the U.S. every day. Our membership includes provincially-owned and investor-owned utilities, many of which are vertically-integrated; independent power producers (several of which also own assets in the U.S.); municipally-owned local distribution companies; independent system operators; and wholesale power marketers.

II. Background – The U.S.-Canada Electricity Relationship

Electricity plays an integral role in the vibrant bilateral energy relationship. There are over 35 electric transmission interconnections between the U.S. and Canadian power systems, which together form a highly integrated North American grid (see Appendix 1).

These linkages between the U.S. and Canadian grids have enabled steady growth in a continent-wide electricity marketplace. Bilateral trade occurs routinely – and has occurred for decades – at a range of points across and beyond the border, with supply fulfilling demand in the most efficient, cost-effective manner possible (see Appendix 2). In 2014, the value of cross-border sales exceeded US\$3 billion, while the total volume represented further growth in the recent

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upward trend in bilateral trade. Such trade enables market participants to take advantage of supply diversity across the wider grid, reflected in the very different generation mixes in place in either country (see Appendix 3). In a very real sense, the North American electricity market is borderless.

Moreover, electric integration between Canada and the U.S. is set to continue expanding. Table 1 below provides a summary of the multitude of cross-border transmission projects currently under various stages of development.

Table 1 – Current U.S.-Canada International Power Line Projects

Name	Sponsor	State-Province	Length (miles)	Voltage & Capacity	Purpose	In-service Date	U.S. Presidential Permit Status
Champlain Hudson Power Express	Transmission Developers Inc.	New York-Québec (QC)	333	1,000 MW, HVDC (underwater, underground, merchant)	Deliver hydro and wind energy from QC to New York City area	Fall 2017 (expected)	Issued October 2014
Great Northern Transmission Line	Minnesota Power (MP)	Minnesota-Manitoba (MB)	220	500 kV, 750 MW, AC	Part of MP-MB Hydro PPA; supports building wind in North Dakota	June 2020 (expected)	Application filed April 2014
Lake Erie Connector	ITC	Pennsylvania-Ontario (ON)	73	1,000 MW, HVDC (underwater, merchant)	Enable bidirectional flow of energy and capacity; enhance security and reliability	2019 (expected)	Application filed May 2015
New England Clean Power Link	TDI-New England	Vermont (VT)-QC	154	1,000 MW, HVDC (underwater, underground, merchant)	Deliver renewable energy from QC into VT and New England	2019 (expected)	Application filed May 2014
Northern Pass	Northern Pass Transmission LLC	New Hampshire (NH)-QC	187	1,200 MW, HVDC line with 345 kV AC spur	Deliver QC hydro into NH and New England	2017 (expected)	Application filed October 2010; re-filed with new route July 2013
Soule River Hydroelectric Project	Soule Hydro, LLC	Alaska (AK)-British Columbia (BC)	10	138 kV, HVAC (underwater)	Support 77 MW hydro project in AK (sales to BC or Pacific NW)	TBD	Application filed March 2013

Sources: <http://energy.gov/oe/services/electricity-policy-coordination-and-implementation/international-electricity-regulation-2>; <http://www.itclakeerieconnector.com/>.

These projects attest to the enduring appeal of cross-border infrastructure as an advantageous option for pursuing benefits which are specific to the economic needs, reliability demands and public policy interests of the local jurisdictions involved.

What's more, each of these pending cross-border transmission projects will support the development of clean, low- and non-emitting energy resources, including resources located in the U.S. Greater integration across the grid will therefore help ensure that North America's clean energy potential is maximized, rather than left stranded.

The benefits associated with interconnection of the two countries' power systems are numerous:

1. U.S.-Canada electric integration helps reduce U.S. greenhouse gas ("GHG") emissions.

- In April 2015, the Center for Climate and Energy Solutions ("C2ES") released a policy paper examining the role imports of Canadian hydroelectricity can play under the U.S. Environmental Protection Agency's Clean Power Plan.¹ Overall, C2ES found that hydropower imports could have a significant, positive impact on GHG emission rates for importing U.S. states, and that there should be ample opportunities for states to craft innovative policies to take advantage of Canadian hydropower in a manner that achieves real emission reductions.
- From 2006-2012, exports of hydropower from Manitoba to utilities in the U.S. helped to achieve reductions in GHG emissions in the U.S. Midwest in the range of 44 million to 60 million metric tons.²
- The New England States Committee on Electricity ("NESCOE") released an analysis in November 2013 of the economic and environmental impacts associated with hypothetical incremental levels of hydroelectric imports from Québec and Newfoundland and Labrador.³ Under different scenarios of increased imports during a 2014-2029 study period, the analysis concluded that average annual electric sector GHG emission reductions in New England would range from 1.3 million to 8.0 million metric tons, with cumulative reductions ranging from approximately 58 million to 97 million metric tons.

2. U.S.-Canada electric integration enhances reliability of supply for U.S. consumers.

- Canada typically exports between 5-10% of its total electric generation to the U.S. on an annual basis. These sales are critical to the supply mix in many areas in close proximity to the border. For example, in 2010 exports from Canada represented the following percentages of total retail sales in these jurisdictions:

¹ <http://www.c2es.org/newsroom/releases/canadian-hydropower-help-states-achieve-carbon-cutting-goals>.

² Based on revenue quality metered data and eGRID 9th edition Version 1.0 Year 2010 GHG Annual Output Emission Rates for MRO West.

³ Black & Veatch report prepared for the New England States Committee on Electricity. "Hydro Imports Analysis." (November 1, 2013), p. 1-1.

http://www.nescoe.com/uploads/Hydro_Imports_Analysis_Report_01_Nov_2013_Final.pdf.



- Vermont, 38%; Maine, 18%; Minnesota and North Dakota (combined), 12%; New England (all states), 10%; New York, 6%; and Michigan, 6%.⁴
- Canada-U.S. trade can serve to increase the diversity of supply options available in certain regions confronting unique challenges. For example, the U.S. Energy Information Administration (“EIA”) reported in August 2014 that New England may continue to rely on an increasing amount of imported hydropower from Canada in order to manage the impending retirement of a significant amount of fossil and nuclear capacity.⁵
 - Integration assists in managing conditions of oversupply and loss of supply. For example, among the solutions incorporated into the Bonneville Power Administration’s updated process to manage oversupply conditions is additional storage of water in Canadian dams, beyond amounts required under international treaty.⁶ With respect to loss of supply, the importation of electricity from neighboring Canadian jurisdictions was critical to the reliability of power supplies for several U.S. states and regions during the severe “polar vortex” events experienced in the winter of 2013-2014.⁷

3. *U.S.-Canada electric integration enhances affordability of supply for U.S. consumers.*

- In recent assessments of the competitive performance of ISO-NE electricity markets, the External Market Monitor concluded that the importation of electricity from Québec and New Brunswick “reduces wholesale power costs for electricity consumers in New England.”⁸
- The Market Monitoring Unit (“MMU”) for NYISO has consistently observed a correlation between availability of electricity imports from adjacent Canadian jurisdictions and reduced market prices. For example, after a 20% increase in NYISO market prices from 2009-2010, the MMU identified a diminished level of imports from Québec as a key factor contributing to increased energy prices.⁹

⁴ National Energy Board, Electricity Exports and Imports (2010) and U.S. Energy Information Administration, U.S. States, State Profiles and Energy Estimates, Exports and Imports (2010). See Appendix 3 for presentation of this data in table form.

⁵ <http://www.eia.gov/todayinenergy/detail.cfm?id=17671>.

⁶ <http://www.bpa.gov/news/newsroom/Pages/BPA-revises-policy-for-managing-seasonal-power-oversupply.aspx>.

⁷ U.S. Federal Energy Regulatory Commission. Technical Conference on Winter 2013-2014 Operations and Market Performance in RTOs and ISOs. (April 1, 2014). Docket No. AD14-8-000. Transcript available: http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20140408-4002.

⁸ http://iso-ne.com/static-assets/documents/markets/mktmonmit/rpts/ind_mkt_advsr/isonc_2013_emm_report_final_6_25_2014.pdf, p. 117.

⁹ Potomac Economics. “2010 State of the Market Report for the New York ISO Markets.” (July 2011). http://www.potomaceconomics.com/uploads/nyiso_reports/NYISO_2010_Final.pdf, p. iii.



- In late 2013, MISO released a study examining whether the costs associated with enhanced transmission capacity between Manitoba and MISO would enable greater penetration of wind resources across the organized market. The study concluded that significant benefits would be derived from adding new capacity, including weighted average load cost savings of US\$430 million annually through 2027.¹⁰

4. *U.S.-Canada electric integration helps enable development of clean energy in the U.S.*

- A recent power purchase agreement (“PPA”) between Manitoba Hydro and Minnesota Power includes a “wind storage” provision, entitling Minnesota Power to deliver generation from its North Dakota wind farms into Manitoba, where the energy can be absorbed into the province’s hydroelectric system.¹¹ In multiple public forums, Minnesota Power has repeatedly underscored how this agreement is vital to its plans to maximize the operational efficiency of its existing wind resources and to further expand its wind development in the Midwest.¹²
- In 2011, NYISO implemented new energy transaction scheduling measures for its interconnections with Québec – with hourly times reduced to 15-minute intervals – in order to enhance the integration of variable energy resources on its system. It is estimated that NYISO has yielded upwards of US\$20 million in annual savings through this improved interregional transaction coordination.

III. “Architecture of Abundance” Energy Diplomacy Discussion Draft

Based on the above information and context, CEA wishes to share a few observations on the Title III – Energy Diplomacy discussion draft set to be discussed during today’s hearing.

Section 3104 – Authorization of Cross-Border Infrastructure Projects

CEA agrees with the discussion draft’s finding that “the United States should establish a more uniform, transparent, and modern process for the construction, connection, operation, and maintenance of...electric transmission facilities for the...transmission of electricity to and from Canada and Mexico...” CEA respectfully suggests that there are benefits to be gained from modernizing the existing DOE Presidential Permit process – particularly when one bears in mind the commitments that DOE has made around how this process should function and under what timelines. The public information provided by DOE to Presidential Permit applicants and other

¹⁰ <https://www.misoenergy.org/layouts/MISO/ECM/Download.aspx?ID=160821>, p. 49.

¹¹ http://www.mnpower.com/Content/Documents/Company/PressReleases/2011/20110524_NewsRelease.pdf.

¹² For example, see Minnesota Power’s May 2012 comments to the U.S. Senate Committee on Energy and Natural Resources on the *Clean Energy Standard Act of 2012*: <http://www.gpo.gov/fdsys/pkg/CHRG-112shrg74903/pdf/CHRG-112shrg74903.pdf>.



stakeholders states that DOE requires approximately 6-18 months to issue a Presidential Permit.¹³ However, a quick glance at the recent record in Presidential Permit proceedings reveals a trend of delays and much longer timelines.

For example, since 2000, five applications for construction and operation of new Canada-U.S. international power lines (“IPLs”) have successfully moved through the Presidential Permit process. The permitting times for these projects ranged from six months (for an IPL only one mile in length and thus exempt from DOE environmental review) to four-and-a-half years for the most recently-approved project (the Champlain Hudson Power Express).

In addition, over the last 10 years, many Presidential Permit proceedings at DOE have featured either physical or operational changes to existing IPLs, or transfers of ownership of existing IPLs. Processing times for these applications have also suffered significant inconsistencies. For example, in 2010, a CEA member filed a request to amend its DOE Presidential Permit for purposes of a straightforward transfer of ownership.¹⁴ This took approximately two-and-a-half years to process. What’s more, this application entailed a request to reverse a previous transfer of ownership executed by the company, which in the earlier instance took only six months to complete.

CEA respectfully suggests (and has done so in recent years as part of its engagement with DOE staff) that a take-away from the recent record of Presidential Permit proceedings is an inconsistency in the timelines for processing applications – whether the application is for construction and operation, physical or operational change, or transfer of ownership. While CEA is not aware of any specific circumstances in which inconsistencies have jeopardized the viability of a project, such inconsistencies inject uncertainty and risk into the project from a planning perspective, and can result in unnecessary escalation of administrative costs for proponents and opportunity costs for consumers.

In order to maximize the benefits associated with cross-border electric integration, it is imperative that Canada and the U.S. have permitting approaches that are modernized, efficient, imbued with a high standard for environmental protection and closely aligned. CEA believes that these critical goals will be promoted by several provisions in Section 3104 – namely, the establishment of fixed timelines and the achievement of efficiencies in project reviews, including for routine proceedings such as transfers of ownership.

In addition, CEA supports the proposed repeal of the statutory requirement for DOE electricity export authorizations, as that which is governed under these authorizations is already addressed

¹³ See: <http://energy.gov/oe/services/electricity-policy-coordination-and-implementation/international-electricity-regulation-6>. [Retrieved: June 1, 2015].

¹⁴ A 7.5-mile segment of this IPL loops through U.S. territorial waters, thus requiring possession of a Presidential Permit by the applicable CEA member company.



or can be addressed through separate market or regulatory mechanisms, or a combination thereof.

CEA would observe that many of the principles underlying Section 3104 mirror recent regulatory reforms enacted in Canada. In 2012, in recognition of the cumbersome and often duplicative review processes around major energy infrastructure projects, the Government of Canada modernized the review process for such projects. CEA supports achieving greater synergies between the permitting processes in place on either side of the border, as such synergies can assist in maximizing efficiencies and providing maximum certainty to project sponsors and permit applicants.

Section 3102 – North American Energy Diplomacy

CEA also supports language in the discussion draft encouraging coordination between U.S. and Canadian officials to promote enhanced infrastructure development and cross-border electricity trade, which would benefit both countries. Such language is consistent with recent actions taken by Canada and the U.S. to enhance cross-border cooperation on energy matters.

In terms of the proposal in Section 3102 to require the development of a Canada-Mexico Plan by U.S. agency heads to improve planning and coordination with these countries, CEA appreciates the inclusion of language to provide that the agency heads may consult with “international participants” such as CEA in the development of the Plan. However, given the complicated and often challenging nature of developing a cross-border energy framework, there may be value in adding language to the Section to encourage U.S. agency officials to work directly with their counterparts in Canada and Mexico in the development of such a framework.

Given the shared benefits of the North American grid and its need for significant upgrades in the coming years, CEA supports steps being taken by policymakers in both Canada and the U.S. to enact meaningful regulatory reforms and to better support cross-border infrastructure development and trade. CEA appreciates the thoughtful and worthwhile contribution to this broader effort reflected in the Energy Diplomacy discussion draft.

IV. QER Chapter on “Integrating North American Energy Markets”

Among major U.S. executive branch energy and environmental strategies in recent memory, the QER is arguably the most attuned to the reality and value of the integrated nature of North American energy markets. The QER does not merely acknowledge the vast depth and number of cross-border energy linkages – it affirms their many benefits and offers proposals to strengthen and expand them. In fact, of the four crosscutting requirements which shape the fundamental objectives of the QER, one of them is the imperative to enhance energy market integration in North America. CEA would argue that this is a distinct feature of the QER, in contrast with

foundational U.S. energy policies of the past. CEA therefore strongly commends DOE for its thoughtful and valuable work in acknowledging, embracing and promoting North American energy integration throughout the QER.

The robust attention on the North America-wide picture in the QER is consistent with the heightened level of cooperation on energy and environmental issues which DOE has recently been pursuing with its counterparts in the Governments of Canada and Mexico. For example:

- September 2014 – DOE and Natural Resources Canada (“NRCan”) enter into a Memorandum of Understanding (“MOU”) to expand bilateral energy and environmental collaboration in 11 areas of activity (several of which involve electricity-related goals).
- December 2014 – DOE, NRCan and the Mexican Ministry of Energy enter into a MOU formalizing trilateral cooperation in areas of strategic interest (including harmonization of energy data and enhancing energy infrastructure resilience).
- May 2015 – DOE, NRCan and the Mexican Ministry of Energy establish the North American Energy Ministers’ Working Group on Climate Change and Energy.

CEA is very encouraged by this unprecedented degree of emphasis at the highest levels of government on strengthening energy market integration across North America. Taken together, the QER, the expanding ministerial cooperation, and the Energy Diplomacy discussion draft represent exceptional opportunities to maximize the full potential of an integrated approach to energy development and use among Canada, the United States and Mexico. CEA looks forward to supporting the execution of actions flowing from these initiatives and to the benefits which they will yield for consumers in all three countries.

CEA appreciates this opportunity to provide this statement and would be happy to answer any questions that may arise during the hearing.

Contact:

Patrick Brown
Director, U.S. Affairs
Canadian Electricity Association
brown@electricity.ca
(613) 627-4124

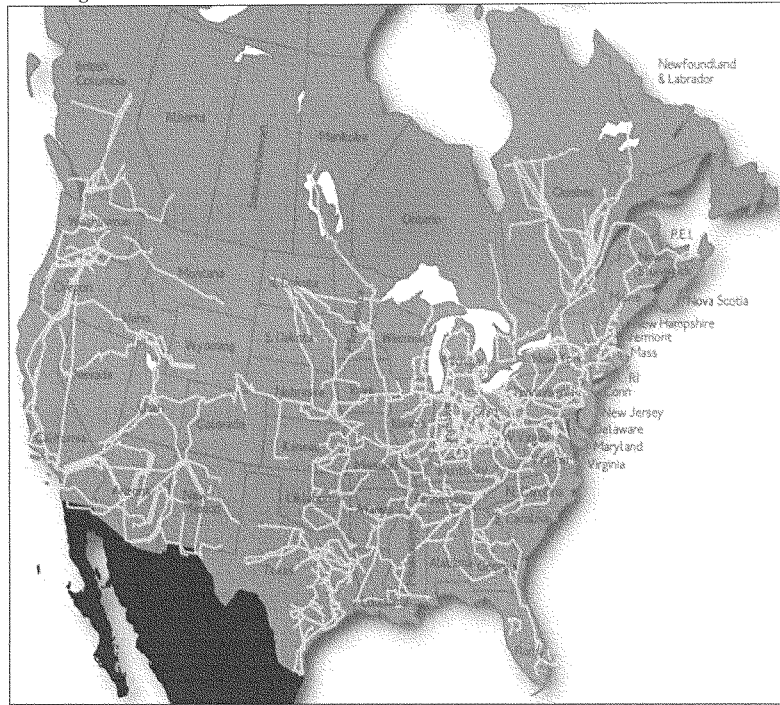


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APPENDIX 1

The Integrated North American Transmission Grid



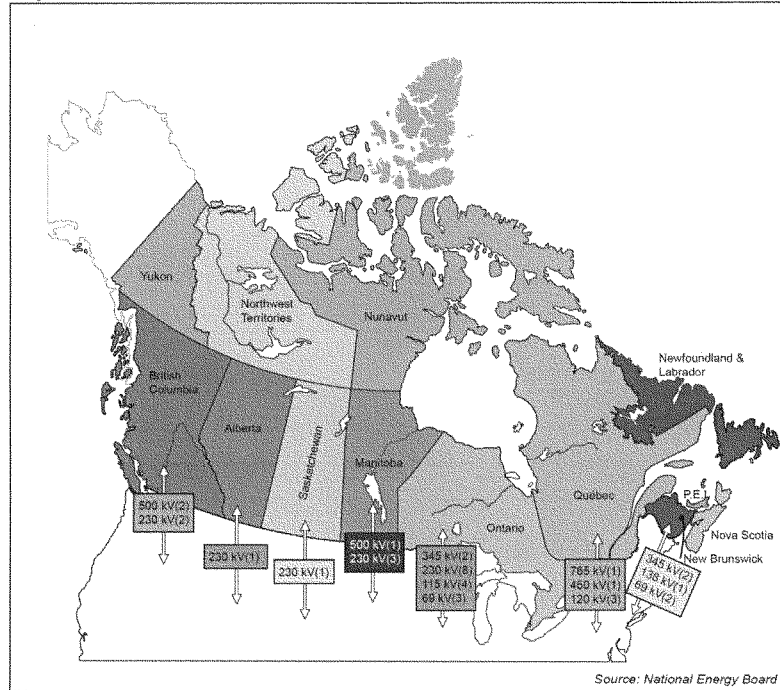
Map copyright Canadian Electricity Association. Lines shown are 345 kilovolts ("kV") and above. There are numerous interconnections between Canada and the U.S. under 345 kV that do not appear on this map.



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Major Transmission Interconnections Between Canada and the United States



Map copyright Canadian Electricity Association.

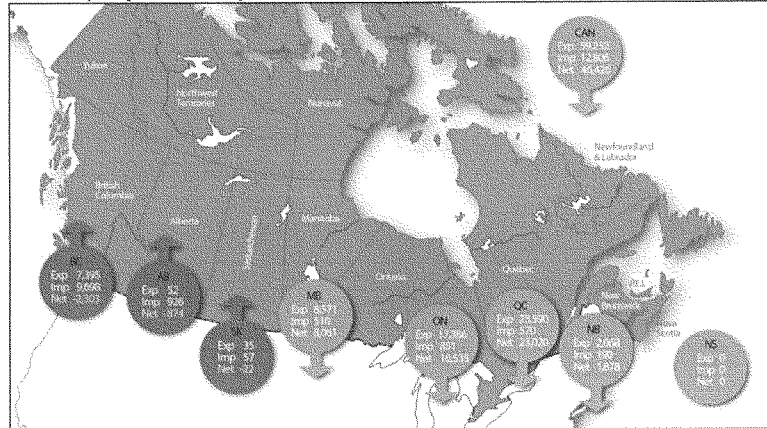


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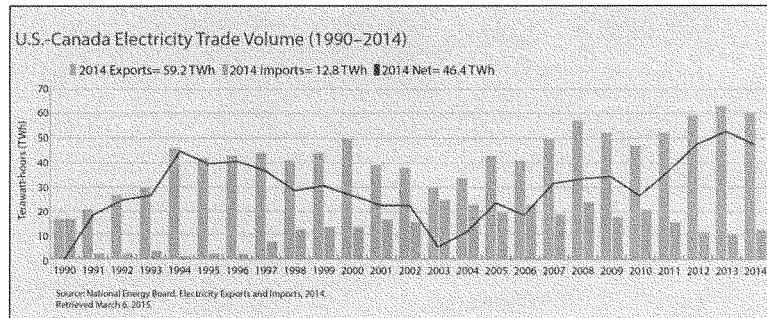
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APPENDIX 2

Electricity Exports and Imports Between Canada and the U.S. (2014)



Map copyright Canadian Electricity Association. Data displayed are in gigawatt-hours. Numbers may not sum due to rounding. Source: National Energy Board, Electricity Exports and Imports, 2014.



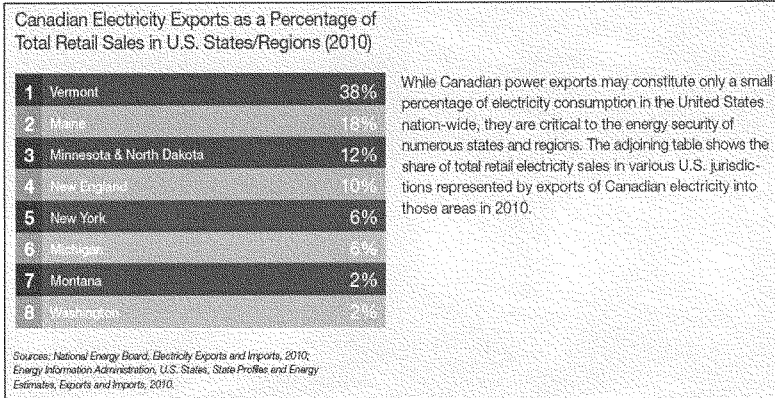
Graph copyright Canadian Electricity Association.



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APPENDIX 3



Electricity Generation in the U.S. and Canada by Fuel Type (2013)

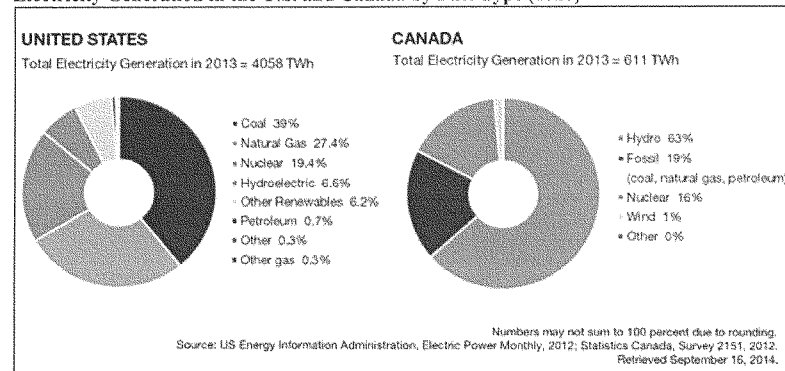


Chart copyright Canadian Electricity Association.



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FRED UPTON, MICHIGAN
CHAIRMAN

FRANK PALLONE, JR., NEW JERSEY
RANKING MEMBER

ONE HUNDRED FOURTEENTH CONGRESS
Congress of the United States
House of Representatives
COMMITTEE ON ENERGY AND COMMERCE
2125 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-6115
Majority (202) 225-2927
Minority (202) 225-3541

June 23, 2015

The Honorable Ernest J. Moniz
Secretary
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Dear Secretary Moniz:

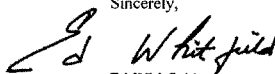
Thank you for appearing before the Subcommittee on Energy and Power on Tuesday, June 2, 2015, to testify at the hearing entitled "Quadrennial Energy Review and Related Discussion Drafts."

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for ten business days to permit Members to submit additional questions for the record, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and (3) your answer to that question in plain text.

To facilitate the printing of the hearing record, please respond to these questions with a transmittal letter by the close of business on Wednesday, July 7, 2015. Your responses should be mailed to Will Batson, Legislative Clerk, Committee on Energy and Commerce, 2125 Rayburn House Office Building, Washington, D.C. 20515 and e-mailed to Will.Batson@mail.house.gov.

Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,



Ed Whitfield
Chairman
Subcommittee on Energy and Power

cc: The Honorable Bobby L. Rush, Ranking Member, Subcommittee on Energy and Power

Attachment



Department of Energy
Washington, DC 20585

October 28, 2015

The Honorable Ed Whitfield
Chairman
Subcommittee on Energy and Power
Committee on Energy and Commerce
U. S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

On June 2, 2015, Secretary Ernest Moniz, testified regarding "Quadrennial Energy Review and Related Discussion Drafts."

Enclosed are the answers to questions that were submitted by Representatives Pete Olson, Michael Doyle, David Loebsack, John Sarbanes, and you to complete the hearing record.

If you need any additional information or further assistance, please contact me or Lillian Owen, Office of Congressional and Intergovernmental Affairs at (202) 586-5450.

Sincerely,

A black rectangular box redacting the signature of Janine Benner.

Janine Benner
Deputy Assistant Secretary for House Affairs
Congressional and Intergovernmental Affairs

Enclosures

cc: The Honorable Bobby L. Rush
Ranking Member



QUESTIONS FROM CHAIRMAN WHITFIELD

- Q1. On January 9, 2014, President Obama issued a Presidential Memorandum establishing a Quadrennial Energy Review (QER) Task Force to review existing energy policies in the context of current economic, environmental, and security conditions and provide recommendations for additional executive and legislative actions, as well as establishing priorities for research and development. The President directed the Secretary of Energy to provide support for the 22-member multi-agency QER task force, including support for the coordination of activities related to the preparation of the QER report, policy analysis, modeling, and stakeholder engagement. The Department's Office of Energy Policy and Systems analysis serves as the Secretariat of the QER task force, and provides systems analysis to support the Administration's initiatives.
- Q1a. Please provide a detailed accounting of the costs associated with the development of the QER, including the amount of annual agency funds and the number of personnel, including FTEs, attributed to QER activities.
- A1a. The Office of Energy Policy and Systems Analysis (EPSA) performs a significant amount of work in support of Departmental and National Policy matters in addition to its support for the QER Task Force. Such policy work is broad and ranges across topics that include environmental and efficiency initiatives, energy security and market analysis, energy systems assessment and integration, energy system financing, state, local, and tribal stakeholder engagement, as well as other topics that develop on an ongoing basis. Like all EPSA activities, this work is broadly supportive of the QER while simultaneously contributing to Departmental and national goals and objectives.

EPSA work for the first installment of the QER (and other projects and programs) began in FY 2014 and continued in FY 2015. In FY 2014, EPSA was appropriated about \$19 million and employed 51 FTEs. In FY 2015, EPSA was appropriated about \$38.5 million and employed 64 FTEs. EPSA leveraged existing DOE publications and ongoing DOE analytical efforts. In addition, EPSA contracted with a number of national laboratories and other organizations to complete analyses that support the QER. A selection of these analyses are contained in the table below and can be found at the following website:

<http://energy.gov/epsa/qer-document-library>

TITLE	ORGANIZATION	FOCUS AREA
<u>United States Fuel Resiliency: US Fuels Supply Infrastructure (Vol 1-3)</u>	Intek, Inc.	Resilience
<u>Simulating Impacts of Disruptions to Liquid Fuels Infrastructure</u>	Sandia National Laboratories	Resilience
<u>Natural Gas Infrastructure Implications of Increased Demand from the Electric Sector</u>	U.S. Department of Energy	Electric Grid
<u>Impacts of Demand-Side Resources on Electric Transmission Planning</u>	Oak Ridge National Laboratory, Lawrence Berkeley National Laboratory	Electric Grid
<u>Opportunities for Energy Efficiency Improvements in the U.S. Electricity Transmission and Distribution System</u>	Oak Ridge National Laboratory, Pacific Northwest National Laboratory, Lawrence Berkeley National Laboratory	Electric Grid
<u>Grid Integration and the Carrying Capacity of the U.S. Grid to Incorporate Variable Renewable Energy</u>	National Renewable Energy Laboratory	Electric Grid
<u>LNG Analysis Summary: A Different Way of Looking at the Future of World LNG Trade</u>	Jensen Associates	Energy Security
<u>The Future of U.S. Natural Gas: Supply, Demand & Infrastructure Developments</u>	Bentek Energy	Energy Security
<u>A Review of the CO2 Pipeline Infrastructure in the U.S.</u>	National Energy Technology Laboratory	Energy Security
<u>Coal-by-Rail Business-as-Usual Reference Case</u>	Argonne National Laboratory	Shared Transport
<u>Opportunities for Efficiency Improvements in the U.S. Natural Gas Transmission, Storage and Distribution System</u>	Lawrence Berkeley National Laboratory	Multiple
<u>Controlling Methane Emissions in the Natural Gas Sector: A Review of Federal & State Regulatory Frameworks Governing Production, Processing, Transmission, and Distribution</u>	Joint Institute for Strategic Energy Analysis	Multiple

Quantification of the Potential GrossEconomic Impacts of Five MethaneReduction Scenarios

Joint Institute for Strategic Energy

Analysis

Employment

and Workforce

- Q1b. Please identify all QER related interagency task forces, advisory committees, working groups, and initiatives in which the Department currently participates or has participated since January 2014.
- A1b. Per the Presidential Memorandum of January 9, 2014, the White House Office of Science and Technology Policy (OSTP) and the Domestic Policy Council (DPC) ran the Quadrennial Energy Review Interagency Task Force. The task force, which included more than 20 executive departments and agencies, was co-chaired by the OSTP Director and the DPC Director. The Department also provided periodic updates to the President's Council of Advisors on Science and Technology (PCAST) and to the Secretary of Energy's Advisory Board (SEAB).
- Q1c. Please provide a description of the Department's plans for future installments of the QER, including the schedule for each release and an estimate of the cost associated with the development of each installment.
- A1c. The Department is still developing the scope of work and schedule for the second installment of the QER.
- Q1d. Please provide a rough timeline for the implementation of the current QER recommendations and, to the extent possible, the implementation timeline and scope of the recommendations to be developed in future QER installments.
- A1d. The first installment of the QER released by the White House in April of this year contains a number of findings and recommendations to inform policy decisions that can lead to a more robust and resilient energy infrastructure. These recommendations are national in nature and the Department remains committed to supporting the 22 members of the multi-agency QER task force as they pursue implementation.
- Q2. The Department's authority to regulate the export of liquefied natural gas (LNG) arises under section 3 of the Natural Gas Act (NGA). Section 3(a) of the NGA sets forth the standard of review of LNG export applications, creating a rebuttable presumption that a proposed export of natural gas is in the public interest:

[N]o person shall export any natural gas from the United States to a foreign country or import any natural gas from a foreign country without first having secured an order of the [Secretary of Energy] authorizing it to do so. The [Secretary] shall issue such order upon application, unless after opportunity for hearing, [he] finds that the proposed exportation or importation will not be consistent with the public interest.

Section 3 (c) sets forth a different standard of review for applications to import or export natural gas, including LNG, from or to those countries with which the United States has in effect a free trade agreement (FTA):

[T]he importation of ...natural gas [from] ...or the exportation of natural gas to a nation with which there is in effect a free trade agreement requiring national treatment for trade in natural gas, shall be deemed to be consistent with the public interest, and applications for such importation or exportation shall be granted without modification or delay.

Please clarify the Department's policy with respect to its review of export applications that involve LNG export facilities in Canada or Mexico. Since these countries hold an FTA with the United States, is it DOE policy in all cases to grant authorization to export natural gas in accordance with section 3(c), automatically and without modification or delay?

- Q2a. Does the Department regulate the re-export of natural gas originating from the U.S.? Are there circumstances when a non-FTA application may also be required when gas is exported to Canada or Mexico? If so, when?
- A2a. Section 3 of the Natural Gas Act differentiates between exports of natural gas to non-FTA countries and exports to FTA countries. In determining whether an export is to a FTA or non- FTA country, DOE believes it must look to the trade status of the country in which the natural gas or LNG is delivered for end use. To do otherwise would allow exporters to evade the public interest review and opportunity for public participation afforded in non-FTA export proceedings under NGA section 3(a), simply by transiting the natural gas or LNG through a FTA country en route to a non-FTA country, allowing the dual-track scheme Congress created in the NGA to be easily evaded.
- Q2b. If U.S. natural gas is exported to Canada or Mexico via pipeline and sold or comingled, would the applicant for the DOE export license be required to track and inform the Department of its end-use destination?
- A2b. In general, yes, DOE intends to include a provision in authorizations to export natural gas to Canada or Mexico for subsequent re-export as LNG to other countries, which requires

the authorization holder to report the country (or countries) of destination into which the LNG was actually delivered for end-use.

- Q2c. How will DOE prioritize foreign projects, when the LNG export facility is not subject to an environmental review conducted by the Federal Energy Regulatory Commission? Will DOE apply a categorical exclusion under the National Environmental Policy Act (NEPA)?
- A2c. Part of the review of applications to export natural gas to non-FTA countries includes the environmental review required by the NEPA. NEPA does not require DOE to consider the environmental impacts of proposed export projects outside of the U.S. However, NEPA does require DOE to consider the reasonably foreseeable environmental impacts in the U.S. of authorizing these natural gas exports. The environmental review completed as part of a non-FTA application is driven by the specific characteristics of the individual export project, but may include, for example, new pipeline construction in the United States necessary to supply a LNG terminal in Canada or Mexico. DOE will follow its process of reviewing projects in the order that they are ready for final agency action.
- Q2d. Please clarify DOE policy with respect to the use of conditional authorizations in light of the procedural change to suspend issuance of such authorizations on applications to export LNG to lower-48 states, followed by the May 28th announcement granting conditional authorization to Alaska LNG.
- A2d. It is DOE's policy to no longer issue conditional authorizations for proposed export projects in the lower-48 states, consistent with the procedural order issued on August 15, 2014. Recognizing that export facilities located in Alaska may present different considerations, the Department reserved the question of issuing conditional authorizations to Alaskan projects to later proceedings in which this question could be considered in light of the facts of an application.¹

¹ Procedures for Liquefied Natural Gas Export Decisions, Final Revised Procedures, 79 Fed. Reg. 48,132 at 48,135 n. 6 (stating "The revised procedures will apply only to exports from the lower-48 states. In the Proposed Procedures Notice, DOE stated that no long-term applications to export LNG from Alaska were currently pending and, therefore, DOE could not say whether there may be unique features of Alaskan projects that would warrant exercise of the DOE's discretionary authority to issue conditional decisions. After publishing the Proposed Procedures Notice, DOE received one application to export LNG from Alaska. See Alaska LNG Project LLC, Application for Long-Term Authorization to Export Liquefied Natural Gas, Docket No. 14-96- LNG (July 18, 2014). DOE will consider whether to issue a conditional decision on that application, or any future application to export from Alaska, in the context of those proceedings.").

DOE discussed the rationale for granting conditional authorization to the Alaska LNG project in the order issued on May 28, 2015. The order states, “As Alaska LNG has shown, because the Project includes an 800-mile pipeline, it is substantially more capital-intensive and will require substantially greater expense toward environmental review than any project that has been proposed for the lower-48. For that reason, we believe that the regulatory certainty afforded by providing the Department’s judgment on non-environmental aspects of the application will be of greater benefit than it would for projects proposed in the lower-48. In reaching this judgment we are informed by the history of multiple efforts since the 1970’s to develop projects that access North Slope natural gas supplies, all of which failed despite supportive legislative initiatives by both the State of Alaska and the U.S. Congress.”²

² See, e.g., Alaska Natural Gas Transportation Act, 94 Pub. L. No. 586 (1976) (codified at 15 U.S.C. § 719 et seq.); Alaska Natural Gas Pipeline Act, 108 Pub. L. No. 324 (Division C) (2004) (codified at 15 U.S.C. § 720 et seq.); and Alaska Gasline Inducement Act, 2007 Alaska Sess. Laws 22, Alaska Stat. § 43.90.010 et seq. (2014). See also Alaska Natural Gas Pipeline Project History, Alaska Natural Gas Transportation Projects Office of the Federal Coordinator, <http://www.arcticgas.gov/Alaska-Natural-Gas-Pipeline-Project-History>, (last visited May 22, 2015) (maintained by the U.S. Arctic Research Commission).

QUESTION FROM REPRESENTATIVE OLSON

Q1. Mr. Secretary, my state of Texas has some native lignite, but it is my understanding that our coal plants are heavily reliant on shipments of Powder River Basin coal for environmental reasons. This means that we rely on rail to a fair extent. The QER described constraints facing rail lines transporting coal, and resulting issues for fuel supply at our nation's power plants. However, the rail industry has claimed that this was temporary and that there is now excess capacity.

Q1a. Could you please describe the extent to which constraints have been resolved?

A1a. A definitive answer, at least at this time, is difficult to provide, for the reasons below:

- When the Quadrennial Energy Review (QER) reviewed the movement of coal out of the Powder River Basin (PRB) over the last several years, the situation was one of an already constrained rail network taking on the added responsibility of serving a huge expansion of domestic petroleum production in the Bakken region (QER Pages 5-4 – 5-8).
- A confluence of circumstances, in addition to the Bakken production, tested the nation's rail network, in particular in the fall of 2013 and throughout 2014. Two years of record grain harvests, a cold fall and an early and cold winter of 2013-14, and all the other commerce moving out of Plains states and across the upper Midwest, complicated the delivery of coal to utilities across the country. Several railroads serve PRB coal at its origin, and most of the rest of the nation's Class I railroads are involved in delivering that coal to generating units in Texas as well as more than 30 other states (QER Page 5-9). Delays in coal deliveries related to commerce moving south and east of the Bakken/PRB regions continued through much of 2014.
- The BNSF Railway is one of the major railroads for movements of both Bakken crude and PRB coal. Many of the publicized difficulties in the 2013-14 timeframe happened on BNSF's part of the rail network. Since then, BNSF has made investments across its service area, and has taken other strides to address capacity

constraint problems (e.g. track building, purchase of additional rolling stock, and hiring and training of new crews) (QER Page 5-10).

- The circumstances that created problems two years ago – a dramatic increase in oil shipments, weather, and harvest-related high demand for constrained rail infrastructure by coal and agricultural shippers may not occur concurrently again. The decrease in the world price of oil had the effect of reducing the amount of oil moved by rail nationally and out of the Bakken.³ Other factors – including an increase in pipeline capacity and the opening of a refinery in North Dakota – have eased rail congestion attributable to crude-by-rail from the Bakken.⁴ A milder winter of 2014-15 may have temporarily alleviated some of the concerns we heard from coal-fired utilities about deliveries of PRB coal. Notwithstanding the current easing of rail congestion, oil production levels in the Bakken remain steady, even with smaller rig counts.⁵ Consequently, the circumstances that contributed to slower than desired (or lower than desired) coal deliveries over the 2013-2014 period have the potential to disrupt rail service again in the future.

Your concerns about the timely delivery of fuel to coal-dependent plants serving your district and throughout Texas are understandable. Further analysis of the movement of energy products by multiple modes is part of an all-of-the-above energy policy. Three of the recommendations in the QER seek to improve policymaking regarding the rail transportation of coal and other energy commodities (Page 5-13):

³ See, e.g., Ron Patterson, "Oil Shipments by Rail Declining," Oilprice.com, July 20, 2015. <http://oilprice.com/Energy/Crude-Oil/Oil-Shipments-By-Rail-Declining.html>. See also Gabriel Collins, "When Oil Prices Head South, So Do the Bakken Oil Trains," North America Shale Blog, BakerHostetler, February 11, 2015. <http://www.northamericashaleblog.com/2015/02/11/when-oil-prices-head-south-so-do-the-bakken-oil-trains/>

⁴ "Slowdown in N.D. drilling opens up space on Amtrak rails," Energywire, E&E Publishing, LLC, July 16, 2015. <http://www.eenews.net/energywire/stories/1060021860/search?keyword=oil+pipeline>. See also Matt Olberding, "Number of oil trains coming through state continues to drop," Lincoln Journal Star, July 16, 2015. http://journalstar.com/business/local/number-of-oil-trains-coming-through-state-continues-to-drop/article_6057b20e-e939-53b8-b83d-77591f58742f.html.

⁵ Brian Scheid, "The conundrum of North Dakota's oil output: At the Wellhead," The Barrel, Platts/McGraw Hill Financial, July 20, 2015. <http://blogs.platts.com/2015/07/20/north-dakota-oil-output/>

- A call for DOE, the Federal Energy Regulatory Commission, and the Surface Transportation Board (STB) to further analyze the effects of rail congestion on these commodities;
- An analysis of the effects on the stability of the grid caused by delayed or incomplete coal deliveries; and
- An effort to improve the data available for policymakers regarding the movement of energy commodities.

In the course of developing the QER, the analysts encountered data gaps in many areas touching on the nation's transmission, storage, and distribution infrastructure for energy and energy products. Although STB currently monitors reporting requirements in response to service disruptions, increased data might allow federal policymakers to make objective, long-term recommendations regarding how, when, and in what priority coal and other energy products move, and how that commerce might be improved to the benefit of consumers.

QUESTIONS FROM REPRESENTATIVE DOYLE

Q1. Mr. Secretary, the QER highlights single source dependency – the rising shift to natural gas – as a potential threat to our country’s security. I certainly agree that we need to make sure we use a broad range of sources for our energy, and have expressed my concerns that potential new rules like the clean power plan will force us to rely on natural gas even more.

Q1a. How do you recommend ensuring we keep a balanced portfolio of energy sources?

A1a. Among the Department’s missions is to “catalyze the timely, material, and efficient transformation of the nation’s energy system and secure U.S. leadership in clean energy technologies.” The Department fulfills this mission by supporting technology development and energy systems analysis under an all-of-the-above approach, as reflected in the FY 2016 budget currently before Congress, which requests:

- \$645 million for Renewable Power within the Office of Energy Efficiency and Renewable Energy to support research on advanced solar, wind, and other renewable sources of energy, much of it aimed at enhancing the cost-competitiveness of these technologies;
- \$908 million for the Office of Nuclear Energy to support the sustainability of light water reactors, the development of advanced nuclear systems, and modeling of nuclear systems, among other activities;
- \$842 million for the Office of Fossil Energy to support research on carbon capture and storage from coal and natural gas fired electricity sources, and prudent development of oil and natural gas resources, as well as supporting the Strategic Petroleum Reserve; and
- \$270 million for the Office of Electricity Delivery and Energy Reliability to support grid modernization to enhance the reliability, efficiency, and security of the Nation’s electric power grid through efforts to foster the deployment of smart grid systems and technologies, research in basic materials to improve energy storage, energy reliability assessments, and other activities.

The best plan for maintaining a balanced portfolio of energy sources is to provide these funding levels for these critical activities that support a wide range of energy technologies.

In addition, the Quadrennial Energy Review includes several recommendations that, once implemented, will support a balanced approach. Among these is a recommendation to “work with stakeholders to develop a framework(s) for identifying attributes of services provided to the grid by electricity system components, as well as approaches to incorporate the valuation of grid service attributes in different regulatory contexts (e.g., pricing or incorporation in planning processes)” (QER Page 3-27).

- Q2. The Quadrennial Energy Review examines existing CO₂ pipeline infrastructure and suggests we should look to expand this network. As a longtime advocate for the cleaner use of fossil fuels, like coal, I think that the capture and reuse of carbon emissions from power plants is crucial as doing so will help keep the leading source of baseload power reliable and affordable for consumers, while ensuring that we are prudent in reducing our carbon emissions.
- Q2a. Can you please elaborate on the potential for, and necessity of, these CO₂ pipelines?
- A2a. There is an opportunity to facilitate CO₂ capture in the power and other industrial sectors by creating CO₂ pipeline networks linking CO₂ supply with demand in current markets. Additional CO₂ pipeline networks could bring CO₂ to market for CO₂ enhanced oil recovery (EOR) operations. At the present time, there is a market driver for CO₂-EOR as well as federal tax incentives available (on a \$/ton of CO₂ injected) for both CO₂-EOR and geologic storage in saline reservoirs. There is considerable opportunity for oil recovery in the US from CO₂-EOR and there has been a recent shortage of CO₂⁶. As noted in the QER and supplemental analysis,⁷ most of the CO₂-EOR opportunities are concentrated in oil production basins and served by CO₂ pipeline networks that are concentrated within those regions. However, existing pipeline networks remain distant from major sources of CO₂ from power generation in other parts of the country. Building up a more regionally expansive CO₂ pipeline infrastructure that services the needs of the CO₂-EOR market could facilitate carbon capture from the power sector and major

⁶ https://www.netl.doe.gov/file%20library/research/oil-gas/small_CO2_EOR_Primer.pdf

⁷ <http://www.energy.gov/epa/downloads/review-co2-pipeline-infrastructure-us>

industrial facilities, where CO₂ capture may be at a smaller scale and lower cost but still provide significant learning opportunities. It would also enable geologic CO₂ storage in these oil and gas reservoirs and other types of geologic formations by providing a more expansive CO₂ infrastructure network.

- Q3. The QER recommends enacting financial incentives for the construction of CO₂ pipeline networks, specifically connecting them to nearby oil fields or saline storage formations.
- Q3a. Are there any limitations as to what would qualify as nearby?
- A3a. Long distance CO₂ pipelines (hundreds of miles) have been in operation for decades. A number of factors determine the economic viability of a CCUS project and associated CO₂ pipeline, including but not limited to: potential oil revenue from oil produced from the geologic storage formation, long term potential for the geologic storage formation, and what other CO₂ sources are available to make the pipeline more economical. A review of the 500 largest CO₂ point sources (primarily coal-fired power plants) in the United States shows that 95 percent are within 50 miles of a possible storage site⁸. However, until a geologic storage formation is fully characterized and economic considerations are taken into account, the specific length of the pipeline needed cannot be assumed.
- Q3b. Oil fields, and correspondingly, the existing CO₂ pipeline infrastructure are fairly geographically concentrated; however, power plants are not. How can we expand this network to make sure that CCS technology – or other technologies we haven’t discovered yet – are encouraged across the country?
- A3b. The present CO₂ pipeline network is concentrated in four clusters: Permian Basin (W. TX, NM, and S. CO), Gulf Coast (MS, LA, and E. TX), Rocky Mountains (N. CO, WY, and MT), Mid-Continent (OK and KS) <http://www.energy.gov/epsa/downloads/review-co2-pipeline-infrastructure-us>. The primary source of CO₂ for each cluster is natural, either reservoirs of CO₂ (Mc Elmo Dome, Bravo Dome, Jackson Dome) or natural gas production with high CO₂ content (LaBarge). Connecting these clusters would facilitate transport of CO₂ between regions and allow opportunities to expand existing gas processing plants or other industrial sources to meet increasing demand. New pipelines

⁸ http://www.globalchange.umd.edu/data/gtsp/docs/gtsp_reportfinal_2006.pdf

could also be ‘clustered’ in regions with a large number of CO₂ point sources such as coal fired power plants and other facilities with high-purity CO₂ streams, using a central gathering point to support a larger diameter pipeline.

- Q3c. Do you think that building out pipelines for this important, beneficial reuse of CO₂ emissions is preemptive when we are, in my opinion, severely underfunding CCS research or research into new, yet-to-be-discovered technologies that limit these harmful emissions?
- A3c. A more expansive national CO₂ pipeline infrastructure could serve both the existing CO₂-EOR market and projects that employ carbon capture, utilization and storage (CCUS) for climate mitigation. Investment in this infrastructure would complement investments in research, development and demonstration and other policies designed to accelerate CCUS. This pipeline investment would ultimately support additional CCUS projects, providing an in-place solution and existing market to support them.
- Q3d. I strongly feel that if we don’t incentivize it, private industry won’t develop this technology because it’s not yet required, and the government needs to take the lead on this. Do you think that funding for that type of research should be something we seriously consider going forward?
- A3d. Yes. Continued research and development, such as the work undertaken by DOE’s Office of Fossil Energy (FE), are needed to enable the deployment of CCUS. Such research and development experience is expected to accelerate innovation and further drive down the cost of capturing CO₂ from power plants and other industrial sources of CO₂. Ongoing work within FE’s Carbon Storage program is characterizing potential sites for saline storage.

Expanding CO₂ pipeline networks and lowering the cost of CO₂ capture is only part of the challenge in advancing CCUS. Finding suitable reservoirs that will utilize and/or safely and permanently store CO₂ and mobilizing the capital necessary to fund CCUS projects are other challenges to be met.

The President’s FY 2016 Budget proposed CCUS tax incentives in order to catalyze greater investment of private capital in CCUS. As stated in the QER recommendations at 7-26:

“The President’s FY 2016 Budget Request proposes the creation of a Carbon Dioxide Investment and Sequestration Tax Credit in order to accelerate commercial deployment of carbon capture, utilization, and storage, as well as to catalyze the development of new carbon capture, utilization, and storage technologies. Specifically, the proposal, part of the President’s POWER+ Plan to invest in coal communities, would authorize \$2 billion in refundable investment tax credits for carbon capture technology and associated infrastructure (including pipelines) installed at new or retrofitted electric generating units that capture and permanently “sequester” CO₂. Congress should enact this proposed tax credit.”

- Q4. The QER highlights the importance of investing in our country’s energy infrastructure. However, many of my constituents only think about energy, or how it actually gets to their office or home, when they go to turn on the lights and nothing happens.
- Q4a. This report on TS&D focuses on the largely invisible back-end of the equation. How do you recommend we approach this issue and explain it to our constituents back home?
- A4a. In our discussions with the public we tried to emphasize the importance of Transmission, Storage, and Distribution (TS&D) infrastructure for energy by describing the current challenges facing our infrastructure and the ways in which it needs to evolve to provide important direct benefits to energy consumers.

For example, the backbone of this system is the networks of pipelines, wires, storage, waterways, railroads, and other facilities that enables us to connect our sources of energy – such as oil fields and power plants – and deliver to consumers the energy services they need in their daily lives (QER Page 1-2).

TS&D infrastructure is facing a number of significant challenges in the 21st Century. The workforce that maintains the nation’s TS&D infrastructure, like the infrastructures themselves, is aging (QER Page 1-3). TS&D infrastructure is increasingly vulnerable to extreme weather events like hurricanes, flooding, and wildfires, as well as cyberattacks due to the integration of information technology in the electric grid (QER Page 2-2). Meanwhile, the United States is undergoing an energy revolution. Solar electricity generation has increased 20-fold since 2008, and electricity generation from wind energy

has more than tripled (QER Page 1-7). During that period, the United States has also become the world's leading producer of oil and natural gas combined (QER Page 1-5). While our economy benefits from increased renewables integration and domestic oil and gas production, these trends also place new, disruptive stresses on our energy infrastructure (QER Pages 1-5 - 1-7).

To respond to these trends and the vulnerabilities that come with them, the QER proposes investments, as well as regulatory and statutory changes intended to enable our TS&D infrastructure to be:

- More resilient against extreme weather and cyber- and physical attacks, which can cause power outages and disrupt fuel supplies (QER Page 2-2), put human health and safety at risk, endanger property, and create economic dislocations. The QER recommends that states create energy assurance plans so that power will remain online or recover quickly in the event of a disruption (QER Page 2-39);
- Safer, through replacement of pipelines in major metropolitan areas and wherever else aging infrastructure can present a hazard to human health and safety, and to property (QER Page 2-38);
- More environmentally responsible, by modernizing the electric grid to support more clean energy and reduce consumption (QER Page 3-2). The QER also proposes a program to improve infrastructure around ports, which will reduce local diesel particulate pollution by enabling trucks and boats carrying energy resources to move in and out of the surrounding areas quickly (QER Pages 5-27 and 7-16); and
- A creator and supporter of good jobs in the energy sector. Nearly one million American workers were employed in energy TS&D jobs in 2013, and an additional 900,000 jobs were indirectly supported by energy TS&D activity. By 2030, projections indicate that the energy sector will employ an additional 1.5 million workers, mainly in the construction, installation and maintenance, and transportation sectors, and more than 200,000 additional workers with computers and mathematics skills will be required (QER Page 8-2). The QER recommends investments and

professional support with the goal of creating and sustaining jobs in Energy TS&D (QER Page 8-10).

QUESTION FROM REPRESENTATIVE LOEBSACK

- Q1. The QER points out that biofuel production in the United States has "increased rapidly over the last decade, enhancing energy security and reducing greenhouse gases from transportation." It points out that ethanol is responsible for most of this growth, and it currently displaces about 10 percent of US gasoline by volume. It finds that continued growth in ethanol and other biofuels will depend on investment in distribution capacity and continued investment in research, development, demonstration, and deployment.

Right now, the most significant thing slowing investment in all biofuels - particularly advanced and cellulosic — is the EPA's proposed rule setting blending targets under the Renewable Fuel Standard (RFS.) The EPA went back to the drawing board after a failed rulemaking in 2014, and the Agency released a 3-year rule at the end of May. All of the biofuels stakeholders I've talked to said this rule falls short of what is needed to expand the role of biofuels in the U.S. to help diversify our fuel supply and stem climate change.

- Q1a. What is DOE doing to ensure that the investment contemplated by the QER can actually occur and our progress to date can be maintained in light of the problematic proposal from EPA?
- A1a. The Department of Energy has a suite of programs and initiatives to promote the development and commercialization of advanced and cellulosic biofuels. The program areas covered include feed stocks, conversion technologies, demonstration and market transformation, and sustainability. These programs are described in the 2016 Congressional Budget Request for the Office of Energy Efficiency and Renewable Energy.
- Q1b. What infrastructure is needed to compliment the increased capabilities of renewables such as wind and solar?
- A1b. As new sources of intermittent electricity generation come online, the grid will require additional infrastructure in the form of short-haul transmission lines to connect them as well as long distance transmission lines. In addition, the grid will require additional sources of generation or demand flexibility to accommodate the increased intermittency; these flexibility solutions could include infrastructure (e.g., battery storage, natural gas back-up systems, or additional transmission) or changes in operational strategies like demand response.

Modeling conducted for the first installment of the Quadrennial Energy Review indicated that even with relatively high penetrations of wind and/or solar, additional transmission capacity needs through 2030 were commensurate with expected base-case transmission additions.

Q1c. Can you give me examples of funding mechanisms for transportation infrastructure improvements?

A1c. An example of funding mechanisms for transportation would include the GROW AMERICA Act proposal, in which the Administration provides \$18 billion over six years for targeted investments in the nation's transportation system that will improve the movement of freight. In addition, the President's FY 2016 Budget proposes a new per-vessel user fee for the inland waterways that will raise \$1.1 billion over the next 10 years, effectively doubling the level of resources available in the Fund for investments in these waterways.

In addition, the first installment of the QER recommends alternative funding mechanisms for waterborne freight infrastructure such as public-private partnerships that help encourage private sector participation (Page S-21).

QUESTIONS FROM REPRESENTATIVE SARBANES

- Q1. What are the most significant barriers to maturation and broader adoption of Smart Grid technologies in our electric delivery and consumption systems?
- A1. Major barriers to smart grid technology maturation and adoption include a lack of business cases to justify the investment, lagging smart grid technology standards, and regulatory structures, market structures, and rate designs that limit taking better advantage of the opportunities. Broadly, these barriers are analogous to those that occurred when cheaper information and communication hardware and software diffused widely through the U.S. economy, beginning in the early 1990s. These barriers were worked through in the last several decades in the larger economy, and are now being worked through as our electric delivery and consumption systems adopt increasingly economic advanced communication and information technologies (e.g., the “smart grid”). Much progress has occurred over the last several years, yet more remains to be done. Indeed, a revolution in communication and information technologies is changing the nature of our electricity system.

Electric utilities and their regulators require established business cases for investments that ensure both reliability and affordability, requiring proof that spending meets a “just and reasonable” regulatory standard commonly used. This includes verification and validation of technical performance and a robust cost–benefit analysis, before the electric utilities and their regulators approve adoption of new smart grid technologies.

The American Recovery and Reinvestment Act of 2009 supported development of business cases, leading to many deployments of smart grid technologies, including advanced metering infrastructure, wide-area grid monitoring (synchrophasor technology), distribution automation, customer systems, and electric distribution and transmission systems. Lagging smart grid standards also pose issues, which could result in higher costs (from needing to retrofit assets) and high risks (due to potentially stranded assets) for smart grid technology adoption once standards are finalized. Government and industry experts are actively advancing standards development, testing, and supporting policies, but solutions still often lag industry needs. Continued coordination for standards identification and independent testing is needed to define the rules of the road and

streamline new technology integration, as stated in the DOE 2014 Smart Grid System Report⁹ and more recently in the Administration's QER recommendation for DOE to assist in accelerating standards development.

Regulatory structures may need to adapt to changes in smart-grid-enabled business models that build on new opportunities for the customer in local electricity generation and management. Demand-side management technologies such as smart meters and other enabling technologies, when coupled with alternative rate structures such as time-based rates, could succeed in improving utility system efficiencies, particularly during peak consumption periods. Changing rate structures to embrace new technologies, however, does require thoughtful consideration, as affordable and reliable electricity for all is important to maintain. A number of states have opened regulatory dockets to consider changes to their electricity regulatory structures, taking all these factors into account. Market structures of the Independent System Operators and Regional Transmission Organizations (RTOs) may also need to adapt to the opportunities offered by new products and services. For example, PJM, an RTO operating in 13 states and the District of Columbia, now has a market for fast ramping products that take advantage of certain storage and demand response technologies that can provide a valuable grid reliability service. Efficient new market structures can fully realize the benefits of new products and services, while also promoting new smart grid technology adoption.

- Q2. What specific policies should the Congress adopt to overcome these barriers and hasten the deployment of Smart Grid technologies?
- A2. To overcome barriers and hasten the deployment of Smart Grid technologies, the QER highlights the following issues: Lack of a business case to justify investments; lagging technical standards; and economic factors that limit the ability to take advantage of Smart Grid opportunities. In particular, developing standards and supporting policies facilitates industry innovation and could have the largest impact of the three. Additionally, policies that encourage states to develop common methodologies for cost/benefit analysis of incorporating smart grid technologies, including value of reliability, resilience, and

⁹ <http://energy.gov/oe/downloads/2014-smart-grid-system-report-august-2014>

security are discussed. Finally, states and other stakeholders need to work together to support and adopt the Smart Grid Interoperability Panel in developing interoperability standards that could hasten deployment of Smart Grid technologies.

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June 23, 2015

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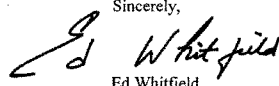
Dear Mr. Kepes:

Thank you for appearing before the Subcommittee on Energy and Power on Tuesday, June 2, 2015, to testify at the hearing entitled "Quadrennial Energy Review and Related Discussion Drafts."

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for ten business days to permit Members to submit additional questions for the record, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and (3) your answer to that question in plain text.

To facilitate the printing of the hearing record, please respond to these questions with a transmittal letter by the close of business on Wednesday, July 7, 2015. Your responses should be mailed to Will Batson, Legislative Clerk, Committee on Energy and Commerce, 2125 Rayburn House Office Building, Washington, D.C. 20515 and e-mailed to Will.Batson@mail.house.gov.

Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,

Ed Whitfield
Chairman
Subcommittee on Energy and Power

cc: The Honorable Bobby L. Rush, Ranking Member, Subcommittee on Energy and Power

Attachment

U.S. House of Representatives Subcommittee on Energy and Power:

Quadrennial Energy Review and Related Discussion Drafts

Question from the Honorable Pete Olson with reference to testimony dated June 2, 2015:

In both the QER and in the Committee's energy legislation, there has been discussion of midstream assets. Markets are changing, and we don't necessarily have the infrastructure we need in the places we need it. We all understand that oil and gas play lose value fast without a path to market that is affordable and reliable. At a time when job losses are so heavy in the oil and gas space, this worries me.

- a. Is it fair to say that regulatory delays can be a serious hindrance for energy production?*
- b. What happens to our energy production and energy security if the transportation network can't keep up?*

My response to the above question:

There is no question that regulatory delays can be a serious hindrance to energy production. Allow me to add more nuance to this issue however. Most damaging to energy production is uncertain regulation where the rules are not clear or subject to unpredictable delays. To put it another way, investors and other stakeholders can take into account in their planning if a given permitting process is known to take a longer period of time, whether 14 months or 20 months (as example); far more injurious is if

the process is three months one time, and 54 months the next time (as example).
Predictability is critical.

Stepping back, a delay in promulgating a comprehensive set of regulations (where needed) if the longer time frame results in a clear expression of policy and rules, is more beneficial than a piecemeal offering of a new regulatory package which creates more confusion and potential for unpredictability. My experience globally is that an accompanying failure to provide for the regulatory capacity (people and resources) needed to properly enforce new regulations is just as deadly.

Reflecting over the last five to ten years regarding this issue in the United States, we have had over forty years where oil and gas infrastructure was primarily designed to import crude oil (and then in cases natural gas) and move into the interior. The last five to ten years presents a nearly complete turnaround given the dramatic changes in our oil and gas supply situation; the challenge is now to design and build oil and gas infrastructure which is more geared to export crude oil and natural gas. (Of course there are internal US challenges also as shale oil and gas represent new supply geographies with insufficient evacuation capacity given demand centers.) Naturally this requires a fundamental re-look at our associated regulatory processes and functions. A delay in the review and resulting recommendations slows down the newly discovered supply options we now have.

With respect to energy security and production, if we define energy security as achieving "reliable, affordable supplies of energy," then inadequate transportation infrastructure unquestionably impairs both security and supply. This impact is actually greater in an extended period of low to medium oil and gas prices (which from the consumers' perspective is a more desirable outcome). As example, if due to inadequate transportation infrastructure the cost to move oil from the wellhead to a refining center (or natural gas to power generating facilities) increases from \$4 per barrel to \$6 or \$8 per barrel, the relative impact of that higher cost is a larger burden on commercial viability when the price of oil is \$55 per barrel as opposed to \$90 per barrel. Less attractive economics reduce production.

An additional impact takes place where the inability (or restricted ability) to export crude oil or natural gas also creates price differentials (with lower prices in the interior of the US). Here also, less attractive economics reduce production.

Adequate political and financial investment in clear policy and even more clear regulations, and regulatory capacity and predictable processes will serve to maximize benefits and optionality which the United States has the potential to enjoy from its domestic oil and gas sector.

Chairman Upton, Ranking Member Pallone, and members of the Committee, once again, I greatly appreciate the opportunity to testify before you on competitiveness in

the exploration and production (E&P) business and its importance for national energy sectors, policies, institutional capacity and critical infrastructure. Thank you.

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CHAIRMAN

FRANK PALLONE, JR., NEW JERSEY
RANKING MEMBER

ONE HUNDRED FOURTEENTH CONGRESS
Congress of the United States
House of Representatives
COMMITTEE ON ENERGY AND COMMERCE
2125 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-6115
Majority (202) 225-2927
Minority (202) 225-3841

June 23, 2015

Ms. Alison Cassady
Director of Domestic Energy Policy
Center for American Progress
1333 H Street, N.W., 10th Floor
Washington, D.C. 20005

Dear Ms. Cassady:

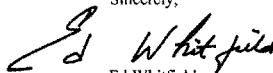
Thank you for appearing before the Subcommittee on Energy and Power on Tuesday, June 2, 2015, to testify at the hearing entitled "Quadrennial Energy Review and Related Discussion Drafts."

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for ten business days to permit Members to submit additional questions for the record, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and (3) your answer to that question in plain text.

To facilitate the printing of the hearing record, please respond to these questions with a transmittal letter by the close of business on Wednesday, July 7, 2015. Your responses should be mailed to Will Batson, Legislative Clerk, Committee on Energy and Commerce, 2125 Rayburn House Office Building, Washington, D.C. 20515 and e-mailed to Will.Batson@mail.house.gov.

Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,



Ed Whitfield
Chairman
Subcommittee on Energy and Power

cc: The Honorable Bobby L. Rush, Ranking Member, Subcommittee on Energy and Power

Attachment

Center for American Progress



1333 H Street, NW, 10th Floor
Washington, DC 20005
Tel: 202.682.1611 • Fax: 202.682.1867

www.americanprogress.org

July 8, 2015

The Honorable Ed Whitfield
Subcommittee on Energy and Power
Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, DC 20515

Dear Chairman Whitfield:

Thank you for the opportunity to testify on June 2, 2015 at the hearing titled "Quadrennial Energy Review and Related Discussion Drafts." My responses to the questions for the record are attached.

Sincerely,

A handwritten signature in black ink, appearing to read "Alison L. Cassady".

Alison L. Cassady

**Responses to Questions for the Record
Hearing on “Quadrennial Energy Review and Related Discussion Drafts” (June 2, 2015)**

Alison L. Cassady
Center for American Progress
July 8, 2015

Questions from the Honorable Kathy Castor

- 1. Under the current approval process for LNG exports, the Department of Energy has a tool to protect American consumers. That tool is the public interest determination. DOE has the ability to weigh the benefits and costs of additional LNG exports, including the impact of increased domestic natural gas prices on consumers who use gas to heat and cool their homes and to turn on the lights. How would the deadlines in section 3106 of the discussion draft impact DOE's ability to protect consumers?**

The United States is on-track to becoming a net exporter of natural gas. As of June 2015, the Department of Energy (DOE) had issued final authorizations to six facilities to export up to 8.61 billion cubic feet per day (Bcf/d) of LNG to both free-trade and non-free-trade countries. That's more than 11 percent of U.S. natural gas consumption in 2014. The DOE permit approval process seems to be working, which is why it is puzzling that the discussion draft seeks to fast-track DOE permit approvals.

Section 3106 sets a 30-day deadline—upon the completion of the environmental review under the National Environmental Policy Act—for the DOE to issue a final decision on any application for the authorization to export natural gas to a non-free trade country. CAP does not oppose LNG exports in principle, but we have concerns about placing arbitrary deadlines on DOE review of LNG export permit applications. While the 30-day timeline could be sufficient in some cases or even most cases, it may not be enough in all cases. In the cases where the 30 day deadline is not sufficient, it may be because the application is particularly complicated or controversial.

Overall, CAP cannot support efforts to expedite permit approvals for LNG exports if doing so could prevent the DOE from making a considered and well-informed decision about whether an application is in the public interest, including the interest of U.S. consumers.

2. I understand the Center for American Progress recently did an analysis of the potential price impacts of legislative efforts to rapidly expand LNG exports.

The full study, dated January 27, 2015 and titled “Potential Consumer Price Impacts of Efforts to Rapidly Expand Exports of Liquefied Natural Gas,” is available on CAP’s website at www.americanprogress.org.

a. What are the potential price impacts for residential consumers, if we were to greatly expand LNG exports?

In 2014, the DOE asked the Energy Information Administration (EIA) to examine what effects higher levels of LNG exports could have on domestic natural gas prices. The EIA concluded clearly, “[i]ncreased LNG exports lead to increased natural gas prices.” The EIA estimated that natural gas supply prices would rise an average of 4.3 percent to 10.6 percent over current projections for the 2015 to 2040 period, depending on the volumes of LNG exported. This is a simple matter of prices responding to rising demand.

This increase in the natural gas supply price translates into higher prices for consumers, including residential consumers. Residential consumers include those who use natural gas in private dwellings, including apartments, for heating, air-conditioning, cooking, water heating, and other household uses.

Under a scenario in which the United States significantly increases its LNG exports to 16 Bcf/day, residential consumers would pay 4.3 percent more per year on their natural gas bills by 2020 than current projections suggest. Increases in residential natural gas bills that year would be most significant in the East North Central and West North Central regions of the Midwest and the West South Central states of Arkansas, Louisiana, Oklahoma, and Texas. By 2040, residential natural gas bills would rise the most in the Middle Atlantic states—6.7 percent higher than current EIA projections. Under a more aggressive scenario in which the United States exports 20 Bcf/d, residential consumers in the Middle Atlantic states would pay 10 percent more per year by 2040 than currently projected. In New England, they would pay 7.4 percent more per year than currently projected.

b. What are the potential price impacts for industrial consumers, if we were to greatly expand LNG exports?

Industrial consumers include those who use natural gas for heat, power, or chemical feedstock. Under a scenario in which the United States exports 16 Bcf/d of LNG, industrial consumers would pay 8.2 percent more per year on their natural gas bills by 2020 than what is currently projected. Increases in industrial natural gas bills that year would be largest in the West South Central states of Arkansas, Louisiana, Oklahoma, and Texas, as well as in the Mountain states of Arizona, Colorado, Idaho, New Mexico, Montana, Nevada, Utah, and Wyoming. Under the more ambitious scenario in which the United States exports 20 Bcf/d, industrial natural gas consumers

in the Middle Atlantic states would pay 18.3 percent more per year than currently projected by 2040. In the New England states, they would pay 13.2 percent more per year.

As a result, it is not surprising that some manufacturers have voiced concerns about the potential economic impact of export policies that would raise natural gas prices. The Industrial Energy Consumers of America (IECA) has stated its strong opposition to LNG exports. In a January 2015 letter to President Obama, the organization highlighted the impact that rising natural gas prices may have on the competitiveness and profitability of certain U.S. manufacturers, such as those in the chemical and fertilizer industries that use natural gas as a raw material. IECA urged the DOE to exercise great caution when approving future LNG export applications.

