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# BROUILLETTE NOMINATION

## HEARING

BEFORE THE

## COMMITTEE ON ENERGY AND NATURAL RESOURCES UNITED STATES SENATE

ONE HUNDRED SIXTEENTH CONGRESS

FIRST SESSION

TO

CONSIDER THE NOMINATION OF DAN R. BROUILLETTE TO BE SECRETARY OF ENERGY

NOVEMBER 14, 2019

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# CONTENTS

## OPENING STATEMENTS



## WITNESSES



## ALPHABETICAL LISTING AND APPENDIX MATERIAL SUBMITTED

# BROUILLETTE NOMINATION

**THURSDAY, NOVEMBER 14, 2019**

U.S. SENATE,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
*Washington, DC.*

The Committee met, pursuant to notice, at 10:40 a.m. in Room SD–366, Dirksen Senate Office Building, Hon. Lisa Murkowski, Chairman of the Committee, presiding.

## OPENING STATEMENT OF HON. LISA MURKOWSKI, U.S. SENATOR FROM ALASKA

The CHAIRMAN. Good morning, everyone. The Committee will come to order.

We are here today to consider the nomination of Dan Brouillette to be the Secretary of Energy. He is currently serving as the Deputy Secretary of Energy, and I am certainly one who believes that you have done an excellent job as second-in-command to Secretary Perry. So we welcome you back to the Committee.

It was good to have a discussion with you last week. I want to thank you, really want to thank you, for all that you have done at the Department, for your willingness to serve to this point and for your willingness to step up in this new and higher capacity.

We have our colleagues here this morning to introduce the Deputy Secretary from both Texas and Louisiana. Mr. Deputy Secretary, you should feel very welcome by having these gentlemen next to you. We will start with Senator Cassidy up here at the dais, followed by Senators Cruz and Kennedy to introduce the Deputy Secretary this morning.

Senator Cassidy, if you would like to proceed and we do have a full, full complement here this morning and a full house behind you, so hopefully the introductions do not consume our full morning, but we certainly welcome all the good comments.

Senator Cassidy.

## STATEMENT OF HON. BILL CASSIDY, U.S. SENATOR FROM LOUISIANA

Senator CASSIDY. Madam Chair, what a wonderful way to tell me to be brief.

[Laughter.]

But it is a privilege to represent my fellow Louisianan, Dan Brouillette, as we consider his nomination to be Secretary of the Department of Energy (DOE). He is eminently qualified as the United States leads the world in all sorts of energy issues.

As Deputy Secretary, he showed a commitment to energy security. It is no surprise, as a Louisiana native, he understands the importance of U.S. LNG exports creating jobs in the United States but lowering greenhouse gas emissions abroad. Dan has committed to innovation in ensuring that our national labs are at the forefront of developing groundbreaking technologies. He has served as the Assistant Secretary for Congressional and Intergovernmental Affairs for the Department of Energy under President George W. Bush, Staff Director for the Energy and Commerce Committee under former Chairman Billy Tauzin and is a member of Louisiana State Mineral and Energy Board. Dan brings with him a wealth of knowledge and a unique perspective. He is ideally suited for the job. I urge his speedy confirmation and look forward to his Floor vote.

The CHAIRMAN. Thank you, Senator Cassidy.

Let's turn to Senator Cruz. Welcome to the Energy Committee.

**STATEMENT OF HON. TED CRUZ,**
**U.S. SENATOR FROM TEXAS**

Senator CRUZ. Well, thank you, Madam Chairman. I am very glad to be here. Madam Chairman, Ranking Member Manchin, members of the Committee, it is my privilege to help introduce Dan Brouillette to the Committee. By the way, with apologies to my good friends from Louisiana, I am telling you right now, Texas claims them and maybe we don't have to resolve that issue here this morning.

Many of you know Dan as a dedicated advocate for American energy. To those who don't yet know him well, I can tell you that he is eminently qualified and will do an exceptional job as the next Secretary of the Department of Energy.

Dan and his wife, Adrienne, have both served our country in the United States Army. They proudly live in San Antonio, Texas, where they've raised nine beautiful children, who you see all arrayed behind Dan, much like an army preparing to stand with their father.

[Laughter.]

After Dan served in the military, he transitioned into working on energy issues as the Chief of Staff to the Committee on Energy and Commerce in the U.S. House of Representatives. From 2001 to 2003, Dan served as the Assistant Secretary of Energy for Congressional Intergovernmental Affairs. He also served on the Louisiana State Mineral and Energy Board for three years, and for the past two and a half years Dan has been serving as Deputy Secretary of Energy.

In addition to his years in public service, both in the military and in government, Dan also has extensive private sector experience. Dan spearheaded Ford Motor Company's Domestic Policy Team as a Vice President at Ford. He also led Public Policy at USAA as Senior Vice President, and that's where Dan and I became friends when he was working and leading that team in San Antonio. Dan has the qualifications, the expertise, the relationships and the gravitas that a Secretary of Energy needs to be effective.

This is a critical time for American energy as this Committee knows well. We're currently experiencing an American energy ren-

aissance with the United States having now become the number one producer of oil and the number one producer of natural gas on the planet, surpassing both Russia and Saudi Arabia in crude oil production. The United States has also become a net exporter of natural gas, a milestone not reached since 1957. So strong leadership at the Department of Energy is needed now more than ever.

I'll say a final point. When it comes to tenacity, we want Cabinet Secretaries to be strong, to be principled and able to conquer enormous challenges. I believe Dan possesses those characteristics and I would point to two data points to support it. Number one, the nine beautiful children that Dan and Adrienne have.

[Laughter.]

They have homeschooled, which if you want to talk about a labor of love and passion and commitment, it is hard to think of anything more daunting and for that matter, any government bureaucracy pales compared to the joys and challenges of the nine beautiful kids at home. Secondly, I had the good fun and I'm going to out Dan for having joined me at game three of the World Series here in DC where Dan and I both unabashedly cheered for the Houston Astros.

[Laughter.]

We were the lone splashes of orange in a sea of red. And if you want to test the measure of a man, he was willing to be surrounded by screaming, exalted Nat's fans and happily cheered on the Astros. We won that game, but alas, did not win the war. Nonetheless, he will be a terrific Energy Secretary.

The CHAIRMAN. Well said, Senator Cruz, thank you very much and thank you for joining us at the Committee.

We will now turn to our friend and colleague from Louisiana, Senator Kennedy.

**STATEMENT OF HON. JOHN KENNEDY,**
**U.S. SENATOR FROM LOUISIANA**

Senator KENNEDY. Thank you, Madam Chair and Ranking Member and thanks to all of you for taking up the nomination of Secretary Brouillette, who is now our Deputy Secretary. As you know, he operates as basically the Chief Operating Officer of the Department of Energy, and with your consent he will be elevated to the position of Secretary.

Dan is not from Texas.

[Laughter.]

He is from Paincourtville, Louisiana, which, as you know, is near Napoleonville, Louisiana. When Dan grew up in Paincourtville—we both grew up in small towns—there were 211 people in Paincourtville. Now there are 911. I grew up in a little town called Zachary which was slightly bigger when I grew up. A small town is the way I've always described it, and I'm so blessed to have grown up in a small town. A small town is a place where everybody knows whose check is good and whose spouse isn't.

[Laughter.]

Dan's a rock star as far as I'm concerned. We've seen such a dramatic change in energy in this world in the last 25 years, maybe even less. Dan has watched it. He's been part of it.

I remember our energy policy in America used to be okay, we're going to buy as much oil as we can from countries that hate us and

through those sales, we're going to give them money to buy weapons to try to kill us. Thankfully, the world has changed. We've had a revolution in fossil fuels. Our oil and gas industry, frankly with the Federal Government hanging all over its back, went out and through technology has unleashed enormous amounts of energy from shale.

But we also understand, and I don't want to get in the debate about climate change, we also understand that glaciers don't, melting glaciers don't lie. And so our policy now is to look at alternative forms of energy—wind, solar, geothermal, nuclear. Dan gets all that. He gets all that, in part, through his experience. He and Adrienne are both veterans. Dan's a veteran of service in our military. He's a veteran of service in the state government level. He's a veteran of having served Congressman Billy Tauzin in the House for which Dan automatically has a place in heaven.

[Laughter.]

And he has served with distinction as Deputy Secretary. He's a serious man. He exercises power intelligently, not emotionally. He and Adrienne will make a great team, and he will be an extraordinary Secretary of the Department of Energy and this Louisianan has my wholehearted and unconditional support.

Mr. BROUILLETTE. Thank you, sir.

The CHAIRMAN. Thank you, Senator Kennedy.

Mr. Deputy Secretary, I think it is fine to have two different states vying for your love and your attention. You clearly have left impressions——

Senator CRUZ. Alaska's not going to claim him now, is it?

[Laughter.]

The CHAIRMAN. Ah, I was going to include that, in part, as part of my remarks. We won't claim him, but we will certainly adopt him.

So gentlemen, both of you, thank you. We know that you have tight schedules here this morning, but thank you for joining us as part of the Committee and your welcoming introductions.

I am going to make some brief remarks, turn to Senator Manchin, and then we will move to swearing you in, Mr. Brouillette, and we will then hear your testimony which will hopefully include more formal introductions of your family. We certainly welcome all of them. It truly is a testament to you and your wife, and to have them with you this morning is a real treat.

I, for one, am very glad that you are here before us as the President's nominee to be the Secretary of Energy. I think we have seen during your time as Deputy Secretary, you have really helped to create a solid agenda for the Department that has been focused on the science and the technology. You have brought us into the world of quantum and artificial intelligence. I think you have been very responsive to the Committee. You have been available to speak with members when you have been asked to do so. My sense is that you have made a good impression on just about everyone.

So when it was indicated that Secretary Perry was going to be stepping down, you, to me, were the obvious choice to replace Secretary Perry in what he refers to as the coolest job he has ever had and I think you share that enthusiasm for this important space.

I do appreciate your willingness to travel to, not only places like Alaska, but to travel around to many of the states, certainly to see the opportunities that a state like Alaska has and see them first-hand. The first trip that you took following your confirmation as Deputy Secretary was to join me in Alaska. We took him out to the Chena Renewable Energy Fair where he was able to see much of what you saw, Senator Manchin, and learn about the potential for low temperature geothermal.

Senator MANCHIN. Like the blue lagoon?

The CHAIRMAN. No, no, no, we didn't do—that is not called the blue lagoon.

[Laughter.]

The geothermal hot springs there at Chena, but also great things like the Lettuce Grow Tower, just further evidence that we can do more when it comes to food security.

The Deputy Secretary and I share Lettuce Grow Towers—I, in my office, and I understand you, in your garage. So it all comes together, but you came back. You came back this past August. We visited Kwigillingok and Kongiganak—small, very remote villages in Southwestern Alaska. You were in Anchorage at CITC's Fab Lab. We got to get up very high looking out to the volcano that we were observing. So you have been on some pretty important and, I think, impressive field trips in my state. You know that I am going to invite you back because there is an awful lot more to be seen.

Broadening my focus a little bit and recognizing your role here, should we confirm you, as I expect we will, to be at the helm of the Department of Energy, this is an exciting time. This country is a leading energy producer, as Senator Cruz has mentioned, and really a disrupter of world markets. We are now sending oil and LNG around the world. We are providing our friends and allies with energy while creating jobs and prosperity here at home. We are on the cutting edge of a number of exciting technologies like advanced nuclear energy, carbon capture and energy storage.

And through the Department's work, we have the opportunity to really push out the boundaries of scientific discovery and build on our status as a global leader in the field of energy. We look to all the promise that our 17 national labs provide and the committed professionals that are there who really work in pursuit of these new discoveries. Really one of our nation's biggest assets, these national labs are. Our research capabilities continue to be the envy of the world, and our challenge now is to ensure that it remains so.

It is no secret that the President's budget request for the Department of Energy has fallen short of the expectations that we have articulated here on this Committee. Congress has rejected the Administration's funding levels each year, instead, providing steady increases for widely-supported programs like ARPA-E. So anticipating that you will be confirmed, I will ask that you continue to fight for sufficient funding for programs that pursue these technologies to make energy cleaner, more reliable, more efficient and certainly more affordable because that is what, I think, it is going to take to sustain this energy dominance over the long-term.

I am going to turn now to my colleague, Senator Manchin, for his comments. We'll have an opportunity to ask questions throughout the morning. If members have additional questions after this first round, we will ask that they be submitted by the close of business today.

Senator Manchin, I turn to you.

**STATEMENT OF HON. JOE MANCHIN III,**
**U.S. SENATOR FROM WEST VIRGINIA**

Senator MANCHIN. Thank you, Madam Chairman, for holding this hearing on Mr. Brouillette's nomination to head the Department of Energy. I want to welcome his family, his amazing wife, Adrienne, and the nine beautiful children that you have, Dan. You should be very proud. I know you both are and you also are willing to serve at this important post for our great nation. I enjoyed our discussion earlier this week and look forward to continuing it today.

I also want to welcome with us today Dr. Brian Anderson from Morgantown, West Virginia, Director of NETL. You have visited Morgantown, and we want you to come back many more times. NETL does a lot of good things. We want to be the cyber headquarters for you, and I think we can do a tremendous job. So we are going to put that little plug in, but I thank you so much for that and your attention toward the importance of NETL.

The Secretary's job is an enormous one, as has been mentioned and talked about, and I think all of us know the Secretary of Energy is responsible for leading the world's premier science and technology enterprise. We count on the Department of Energy and its 17 national laboratories for the cutting-edge research and technological breakthroughs needed to meet our nation's energy needs and keep us strong and secure. At the same time, the Secretary must oversee the nation's nuclear weapons stockpile, which a lot of people don't realize—that is the responsibility of the Department of Energy and Secretary of Energy—our entire weapon stockpile. DOE makes the fuel that propels the Nuclear Navy, which we have been doing successfully for the greatest defense program in the world, and it guards against nuclear proliferation.

The Secretary is also responsible for one of the world's toughest environmental cleanups at Hanford and other Cold War nuclear weapon sites and for overseeing the four power marketing administrations that supply electricity produced at federal dams to customers in 34 states. If that is not enough, the Secretary is responsible for managing an annual budget of close to $30 billion and for protecting the nation's energy sector from cyberattack, which is under attack every day. And I say, this is an enormous job.

But I thank Mr. Brouillette and I know he is up to the task. I thank him for stepping forward. As a father of nine, he is bound to be a skilled manager.

[Laughter.]

Of course, I give Adrienne a little bit more credit for that.

He has a long history with energy issues at the Department of Energy and, very importantly, he has visited NETL in Morgantown, as I have said before, on more than one occasion. He has served as a Staff Director at the House Energy and Commerce

Committee. At the Department he served as an Assistant Secretary of Energy during the Bush Administration and, of course, as a Deputy Secretary for the past two years. He knows the Department, he knows Congress, and he knows the energy issues facing our nation. He has also demonstrated his managerial skills as a Vice President at Ford Motor Company and as a Senior Vice President of USAA, the insurance and financial services giant that serves members of our military and their families.

This Committee has favorably reported and the Senate has confirmed Dan twice before. Today I will be following up on our conversations from earlier this week with a few questions about energy security and your commitment to energy innovation at our national labs.

Overall, I think the President has chosen wisely in nominating you, Dan, for this job and I am pleased to support your nomination.

So, again, Madam Chairman, I want to thank you for holding this hearing today and I want to thank you, Dan and your entire family, for being with us this morning and for your willingness to serve. Thank you.

The CHAIRMAN. Thank you, Senator Manchin.

Mr. Deputy Secretary, the rules of the Committee which apply to all nominees require that they be sworn in connection with their testimony. So I would ask that you please rise and raise your right hand.

Do you solemnly swear that the testimony you are about to give the Senate Committee on Energy and Natural Resources shall be the truth, the whole truth and nothing but the truth?

Mr. BROUILLETTE. Yes.

The CHAIRMAN. You may be seated.

Before you begin your statement, I am going to ask you three questions that we pose to each nominee that comes before the Committee.

Will you be available to appear before this Committee and other Congressional committees to represent Departmental positions and respond to issues of concern to the Congress?

Mr. BROUILLETTE. Yes, I will.

The CHAIRMAN. Are you aware of any personal holdings, investments or interests that could constitute a conflict or create an appearance of such a conflict should you be confirmed and assume the office to which you have been nominated by the President?

Mr. BROUILLETTE. No.

The CHAIRMAN. Are you involved or do you have any assets held in blind trusts?

Mr. BROUILLETTE. I do not.

The CHAIRMAN. Mr. Brouillette, you may proceed. Again, we would encourage your introduction of family and welcome them to the Committee, but we look forward to your statement this morning and an opportunity to engage in some questions.

## STATEMENT OF HON. DAN R. BROUILLETTE, NOMINATED TO BE SECRETARY OF ENERGY

Mr. BROUILLETTE. Thank you, Chairman Murkowski, for that kind introduction. On a stressful day like today, I am not sure I can remember all of their names.

[Laughter.]

But I will do my best. If I turn around, starting from this side, my daughter, Danielle, Jackie, Catherine, Julia, Addie, my lovely wife, Adrienne, my youngest son, Christopher, Joelle, Sam, and my oldest, Stephen. So that's the entire crew.

The CHAIRMAN. Welcome.

Mr. BROUILLETTE. Thank you.

The CHAIRMAN. Welcome to the entire crew and thank you for being such great backup for your dad.

Mr. BROUILLETTE. Well, they are fantastic.

Chairman Murkowski and Ranking Member Manchin, members of the Committee and staff, I've known you for a long time. Thank you for the opportunity to appear before you as President Trump's nominee to be Secretary of Energy. I'd like to thank each of you for being such strong partners for the U.S. Department of Energy through the years and for your time today, and I look forward to continuing to work with each of you should I be confirmed by the Senate.

I'd also like to thank President Trump for his trust in me and for Secretary Perry for his outstanding leadership of this Department over the past three years.

The members of the Committee, as Deputy Secretary I am proud to have been a small part of the incredible success that we have seen in American energy. DOE and its 17 national laboratories play a central role in advancing America's leadership in scientific research and development, energy technology and nuclear security. This enterprise is powered by our nation's most talented and dedicated innovators including 117 Nobel laureates associated with our Department.

Seated behind me are some of the directors from our national laboratories who I'd like to recognize for their incredible leadership. We have with us today, Dr. Tom Zacharia of Oak Ridge, Dr. Mark Peters of INL, Dr. Brian Anderson of NETL, Dr. Martin Keller of NREL. When this team entered the Department of Energy, America ranked number three in supercomputing behind China and Switzerland. We knew America could do better so we did better. We built the world's two fastest supercomputers, Summit at Oak Ridge and Sierra at Lawrence Livermore. Now America is back at number one.

But there's still much more to be accomplished. We're committed to building three new exascale computing machines and following the leadership of this Committee's development of the National Quantum Initiative, we're evolving quantum science capabilities. Our researchers are tackling the world's greatest energy and scientific questions and constructing the next generation of world class science facilities that are the incubators for the world's cutting-edge R&D. That's the power of discovery.

Through the power of innovation, the United States is leading the world in both energy production and the reduction of emissions. America has become the world's top producer of oil and natural gas and soon we will become a net energy exporter. Our energy story, however, also includes historic growth in renewable energy. Today America is the second highest generator of wind and solar energy in the world. We're also reviving nuclear energy by developing ad-

vanced technologies such as small modular reactors and advanced reactors.

We're also expanding the use of clean energy. Since 2005, national greenhouse gases have fallen by 13 percent and power sector emissions have fallen by almost 28 percent according to the EPA. That's something that all Americans can be proud of. And as we pursue this all-of-the-above energy strategy, we must also continue to protect our energy infrastructure. So we've developed the North American Energy Resilience model. It's a first-of-a-kind tool that will allow us to better understand infrastructure risks and improve system resilience in real time.

While we are developing and protecting our energy infrastructure, we're also making sustained progress in cleaning up the nation's legacy of nuclear waste. I'm proud to say that the last radioactive waste has been removed from Hanford's K-Basin and stored safely away from the Columbia River and we have with us today Brian Vance, from Hanford, who is in charge of those operations.

While we're developing, I'm sorry, as we honor the obligations of yesterday however, we must prepare for the threats of tomorrow and the strengths of our nuclear security. We're making significant progress modernizing our nuclear weapons enterprise. While this progress is substantial, DOE is poised to play an even larger role in developing an even brighter future for America. I commit to each of you today that if I am fortunate enough to be confirmed, I will work earnestly with each of you to address the challenges and the opportunities of today and tomorrow.

Chairman Murkowski, Ranking Member Manchin, thank you again for the opportunity to be here. I ask the Committee for your favorable consideration of the President's nomination, and I look forward to answering your questions.

[The prepared statement of Mr. Brouillette follows:]

**Opening Statement for Dan Brouillette,**
**Nominee to be U.S. Secretary of Energy**
**U.S. Senate Committee on Energy and Natural Resources**
**Confirmation Hearing**
**November 14, 2019**

Chairman Murkowski, Ranking Member Manchin, members of the committee and staff, thank you for the opportunity to appear before you as President Trump's nominee to be Secretary of Energy.

I would like to thank each of you for being strong partners of the Department through the years, and for your time today. I look forward to continuing to work with each of you in the future, if confirmed. I'd also like to thank President Trump for his trust, and Secretary Perry for his outstanding leadership of the Department.

Sitting behind me today is my incredible family, who have been my support system every step of the way. Most of you know that I have a big family, so I won't name all of them. But, I will say thank you to my wife Adrienne, who I could never thank enough for her love and support throughout the years.

As Deputy Secretary, I am proud to have been a part of the incredible success we have seen in American energy under this Administration.

DOE and its 17 National Laboratories play a central role in advancing America's leadership in scientific research and development, energy technology, and nuclear security. This enterprise is powered by our Nation's most talented and dedicated innovators, including 117 Nobel Laureates associated with DOE. Seated behind me are some of the Directors from our National Laboratories, who I would like to recognize for their incredible leadership.

In addition to DOE's historical role, we have established two new offices to bolster our efforts in Cybersecurity and emergency response, as well as Artificial Intelligence. We've committed to build three new exascale machines, and, following the leadership of this committee's development of the National Quantum Initiative, we're evolving our quantum science capabilities.

When this team entered the Department of Energy, America ranked number three in the world in Supercomputing, behind China and Switzerland. We knew America could do better, so we prioritized Supercomputers in the budget, and with the support of Congress, we increased funding by 42% overall since the last Administration. We built the world's two fastest supercomputers, Summit at Oak Ridge Lab and Sierra at Lawrence Livermore. Now we are back at number one.

Our researchers are tackling the world's greatest energy and scientific questions, and constructing the next-generation of world-class science facilities that are the incubators for cutting edge R&D. To better deliver this technology to market, we established the first ever Chief Commercialization Officer at DOE, tasked with ensuring the taxpayer-funded discoveries at our Labs make their way to commercialization.

That's the power of discovery.

Through the power of innovation, the U.S. is leading the world in both energy production and the reduction of emissions. America has become the world's top producer of oil and natural gas, and we will soon become a net energy exporter.

Under this Administration, we have sent American LNG to 36 countries, and our export capacity has *quintupled.*

Our energy story also includes historic growth in renewable energy. Today, America is the second highest generator of wind and solar energy in the world. We're reviving and revitalizing nuclear energy by developing advanced technologies such as small modular reactors.

And we're expanding the use of clean energy through efforts ranging from establishing a Clean Energy Manufacturing Institute, launching the Lithium-ion Battery Recycling Prize, and an upcoming Plastics Innovation Challenge. All of this has positively impacted the climate.

Since 2005, national greenhouse gas emissions have fallen by 13%, and power sector emissions have fallen by 27.6% according to EPA. That is something we are very proud of.

As we pursue this all-of-the-above energy strategy, we must continue to protect our energy infrastructure. So we've developed the North American Energy Resilience Model, a first-of-a-kind tool that will allow us to better understand infrastructure risks and improve system resilience.

While we are developing and protecting our energy infrastructure, we are also making sustained progress in cleaning up the nation's legacy of nuclear waste.

As we honor the obligations of yesterday, we must prepare for the threats of tomorrow and strengthen our nuclear security. We have modernized our nuclear enterprise, from opening new data centers to updating the W76-1 Life Extension Program.

This progress is substantial, but we have more to do. DOE is poised to play an important role in developing a brighter future for America. I look forward to focusing on DOE's mission in energy security, scientific discovery, environmental stewardship, and national security.

I commit to each of you today that if I am fortunate enough to be confirmed, I will work earnestly with you to address the challenges and opportunities of today and tomorrow.

Chairman Murkowski and Ranking Member Manchin, thank you again for the opportunity to be here. I ask the committee for your favorable consideration of the President's nomination, and I look forward to answering your questions.

The CHAIRMAN. Thank you so very much for the statement and let us begin with our questions.

I am known, whether it is on this Committee or on other committees on which I serve, to ask nominees about their views, their level of engagement on Arctic issues. The United States is an Arctic nation, and I believe we have a significant leadership role to play.

And as I ask this question, I also want to thank you because it is, it has been under your direction and your leadership at the Department of Energy that we have seen a stepped-up interest from DOE toward Arctic-related interests. The presence that we had in Reykjavik just six weeks ago at the Arctic Circle Assembly, the number of national lab directors that were part of that conference was noteworthy and generated a buzz and a level of excitement about the role that the United States is playing in this sector.

So I would ask for your comments on what you believe the level of engagement should be on these Arctic-related issues and as you speak to that, as I mentioned in my comments, you have had an opportunity to come to Alaska to see some of the benefits that come from an energy-producing state, not only with our oil, our gas, our fossil resources, but what we host with microgrids, with the wind that we saw in Kongiganak and Kwigillingok, the solar, and everything that we are doing to reduce our reliance on diesel-powered generation.

You saw the efforts of the Cold Climate Housing Research Center and efforts to bring about greater efficiencies. And as you know, I have been working to push for greater coordinated research in the state, but more broadly to the Arctic in general. I have been advocating for the Department to reconstitute the Arctic Energy Office. So, within this context of Arctic and the role of the Department of Energy, if you could address that, please.

Mr. BROUILLETTE. Sure, Madam Chairman, thank you.

To answer your question very straightforwardly and succinctly, we need to do more, not less. So you can expect from the Department of Energy, should I be confirmed as Secretary, an increased engagement, not only in Alaska, but in the Arctic region generally.

Some of the things that we have seen over the years—and we all have different perspectives. I know some of you serve on the Armed Services Committee, and the Arctic means a strategic advantage to those who are focused on those issues. For those of us in the energy business and the energy industry, if you will, energy policy industry, we see the Arctic as a, not only a resource for things like critical minerals and potentially environmentally sensitive energy development, we see it for the purpose of not just extracting, you know, oil and gas, I think it's expanded beyond that, much, much further than we could've imagined.

And what I mean by that is that, you know, as we move to a world of more and more renewable energy, our ability to develop battery storage becomes more and more critical and the minerals that we currently receive today or we rely upon, I should say, for the development of those types of batteries, we become dependent upon nation-states who, quite candidly, do not have our interests at heart. And the Arctic is potentially a resource for those types of minerals.

I will tell you, from where I sit at the U.S. Department of Energy, what you can expect from us is attendance at events like the upcoming 2020 Geothermal Congress in Iceland. We will have a strong and robust presence there. DOE will also help lead, and this may sound a little bit counterintuitive for those who are not familiar with Iceland or, you know, places in the Arctic, we will lead a supercomputing congress in Iceland in 2020. So we're very excited about that. We think that's important. We think that outreach is important. Again, for strategic reasons, but also for our energy development and our energy security here in the United States.

The CHAIRMAN. Well, I thank you for that and I am sure that we can anticipate further engagement and really enhanced engagement because I should know, it is not just energy, it is commerce, it is environment, it is the impact that we are seeing from a rapidly changing part of the globe.

Very quickly here on the Office of Indian Energy (OIE). It is one of the smaller offices there at DOE, but it certainly has an outsize importance in my state. OIE is a key partner for Native communities that really need to work to reduce their high energy costs, and right now we have one DOE employee that is there in the state. Years ago we got a commitment to increase that. I know that you have seen this, but I am, once again, seeking a commitment from you to recognize the potential that we have within OIE and make sure that we are staffing appropriately.

Mr. BROUILLETTE. Madam Chairman, I'll give you two commitments. One, we're going to expand the Office of Indian Energy. We are currently in the market to hire two people there. So that will be expanded. We will also open an Arctic Office that will be fully staffed by the end of 2020. So I give you those two firm commitments. I hope it demonstrates our interest in and the strategic importance of the Arctic to the U.S. Department of Energy.

The CHAIRMAN. The Arctic Energy Office, we think, is going to be key, again, not only for the U.S. Arctic but, I think, the Arctic as a whole. So we thank you for that.

Senator Manchin.

Senator MANCHIN. Thank you, Madam Chairman.

Mr. Brouillette, the Secretary of Energy has a statutory and legitimate role in establishing and implementing policies relating to international energy issues. In that role, Secretary Perry helped broker a deal to sell U.S. coal to Ukraine and U.S. liquified natural gas as an alternative to Ukraine's dependence on Russian gas. Unfortunately those efforts have landed him in the middle of the House of Representatives' investigation into the President's involvement with Ukraine.

Can you state for the record, as Secretary Perry's Deputy, what role you have played in any of this or if you have any knowledge of this?

Mr. BROUILLETTE. So, I think you have, perhaps, two separate questions there, but I will tell you that Secretary Perry and I have been deeply involved in the energy security, not only in the United States, but of our European allies. And in that context and in that position as Deputy Secretary, I have helped to organize technical briefings for him as well as for myself. We have focused on issues

like the Nordstream pipeline which is a Russian pipeline that is being built down into the Northern part of Germany.

To counter those efforts and to lessen the dependence of states like Germany, European states like Germany on Russian gas, we have worked very, very hard to offer alternatives. Part of that has been the construction of LNG export facilities here in the United States. But it's also working with countries like Germany, Croatia, Serbia, others in the proximity of Ukraine to develop LNG import facilities. We've been very, very engaged with them.

With regard to the country of Ukraine, we have worked with them at their request to help them to interconnect their electricity grid, their pipeline grid. And in order to do that, they need to meet the requirements of what is known as the third energy package in the EU. So they have sought our technical expertise to do those things.

I have not been involved in any of the conversations that are related to the House's inquiry. Those are not matters that would typically fall to the Chief Operating Officer of the Department. My role within the Department is to run the day-to-day operations. And as you mentioned earlier, it is a large organization. It is approaching $40 billion in budget and well over 100,000 federal employees and contractors. So that, along with nine kids, keeps me pretty busy.

Senator MANCHIN. Thank you, sir.

Also, I think you have heard us talk about the Appalachian Storage Hub before.

Mr. BROUILLETTE. Yes, sir.

Senator MANCHIN. Secretary Perry and I have a good relationship and a long relationship being former governors, but Rick and I talked and he said, "Joe, I've seen the model of a Class 5 hurricane coming up the Houston Ship Channel, what it'll do to cripple us energy-wise." Do you have the same feeling of that, the commitment toward doing something for a backup energy supply and also reinvigorating the manufacturing base that we could have in the north or mid-Atlantic states?

Mr. BROUILLETTE. Sure. I do, sir.

You know, having grown up in Louisiana and survived a few hurricanes, if you will, I know what they look like and what they feel like and it can be a very disturbing experience to have to go through one. And it pains me, as I told you in your office, privately, to have to suggest, perhaps against the interest of Louisiana, that we should have an alternative. We should have some redundancy in our storage capacity and systems.

And in that regard, I think, Appalachia presents the best opportunity in America to do exactly that. Not only is the area rich in natural resources, you know, wet gas, dry gas, you name it, the labor talent there is incredible. It reminds me much of the places that I grew up in Louisiana. People are, they're hardworking people. They train themselves well and they show up every day on time and that's very, very important for these types of things because they are related to our national security.

Senator MANCHIN. I know you touched briefly with the Chairman here concerning our rare earth minerals and the lack of our being able to sustain it within this country. And now with the countries

that do, that we rely on, basically, for those rare earth minerals, they are not always in our best interest and they could hold us in a hostage situation. It would be detrimental to us.

There is an awful lot going on in that in research as you all have been involved with, especially the last grant that we did with WVU and NETL——

Mr. BROUILLETTE. That's correct.

Senator MANCHIN. ——on coal refuse as far as our acid drainage and things of this sort, we find that there is an awful lot. Do you think that that can be increased to commercial, to where we can get enough minerals or basically be able to sustain the need we have in case of a critical shortage?

Mr. BROUILLETTE. I do and I think that's part of the important work that's being done in Morgantown at NETL. It's to address those types of opportunities within the coal industry, but other industries as well. I think to the extent that we can continue the R&D that's currently being done, we can make these types of technologies, not only, you know, commercially viable, but we can make them economically viable in large scale. And I think that's what we need to focus on at the Department and that's going to be my mission as Secretary, should I be confirmed by the U.S. Senate.

I think there's a lot of opportunity for coal. There's a lot of opportunity for other parts of the country as well.

Senator MANCHIN. Thank you, Madam Chair.

The CHAIRMAN. Thank you, Senator.

Senator Barrasso.

Senator BARRASSO. Thank you very much, Madam Chairman, for holding this hearing. I had an opportunity to meet with the nominee last week. I am very impressed with his knowledge, his experience and his commitment to advancing American energy and technology. I think he would make a superb Secretary of Energy.

The Department of Energy has done a great job, I believe, investing in research to advance domestic energy. What starts here in the U.S. can change the world. We are developing energy technologies here at home and then pushing to get these technologies to the deployment stage. Countries around the world are doing the same.

So, if confirmed, how will you coordinate research efforts to ensure the Department's efforts are not duplicative or redundant doing what other people are doing?

Mr. BROUILLETTE. That's always a challenge, Senator, to be honest. These departments are very, very big. But I will tell you that some of the unique opportunities that we have are, I think, unique to the Department of Energy. So you're probably familiar with the Wyoming Test Center. We do a lot of work out that way.

I think Wyoming, in particular, presents a unique opportunity for us to test technologies like carbon capture. And I'm very excited about the work that I see within Wyoming, what I see in DOE writ large.

Senator BARRASSO. Well, I appreciate that. There is great work being done through the University of Wyoming——

Mr. BROUILLETTE. Yes.

Senator BARRASSO. ——our School of Energy Resources, the Integrated Test Center—I am fully onboard. And, you know, when we

look at what is happening worldwide, we need to get these technologies developed, then deployed. So I look at China and India. They are going to continue to grow their economies. They are going to continue to release carbon dioxide as they build out industrial and transportation sectors.

In spite of what some may believe, the United States cannot tackle climate change alone. We need to work with other countries to find real solutions to manage carbon dioxide without killing our economy and killing jobs.

Once we find that commercial carbon capture solution, how can we deploy the technology to these other countries that do have growing economies like China and India who seem to be the ones that continue to be the greatest emitters worldwide?

Mr. BROUILLETTE. Sure. So one of the things we've done, Senator, at the U.S. Department of Energy is create a Chief Commercialization Officer for exactly that purpose. Our national labs produce an enormous amount of technology and research and products, if you will. It's our job, I think, as the purveyors and the, you know, the owners, if you will, of that taxpayer-funded technology to ensure that it gets commercialized, that we take it off the shelf and we put it into the market, we allow the private sector to run with it, to commercialize it and to have it spread around the world because, as you know, sir, and as we talked about, the use of some of these fossil fuels will continue well into the 2040, 2050 timeframe.

Our Energy Information Administration, the EIA, as it's known within the Department of Energy, projects that fossil fuels are going to power a large portion of the world's energy needs for the next 40 to 50 years. And if that's the case, then I think we have an obligation, if we care about the climate, if we care about minimizing the carbon impact of the use of these fossil fuels, we have to get these technologies off of the shelf and into the market.

Senator BARRASSO. And then with nuclear energy being a source of energy with no carbon footprint, you know, President Trump has established a Nuclear Fuel Working Group to make recommendations to enable American uranium production to continue. I encourage the working group to swiftly make its recommendations to the President to provide immediate relief for American uranium producers. Do you support actions to preserve and strengthen our own American uranium production?

Mr. BROUILLETTE. I do. I do.

The working group is very close to its final product. I'm happy to report to you that it's in the final stages of the interagency working, the interagency process within the Executive Branch. It will look at the entirety of the fuel cycle for nuclear power from enrichment, the front end of the cycle all the way to the back end of the cycle. So we're proud of that work, and we hope to share it with you very, very shortly.

Senator BARRASSO. Great.

Then the Department of Energy does have an Office of Cybersecurity, Energy Security, and Emergency Response. It addresses energy-related emergencies, disruptions. An energy disruption, as we all know, could devastate rural communities throughout the country and urban areas, but specifically for rural communities. If confirmed, how will you work to ensure that our rural communities

are prepared for cyberattacks and have the resiliency and the robustness that is necessary to protect ourselves?

Mr. BROUILLETTE. So, sir, we have what's called, inside of the Department, the Electricity Subsector Coordinating Council. It's made up of CEOs of, primarily, larger utilities. We meet from time to time to talk about issues like cybersecurity. Part of that conversation are tools that are available to almost all utilities. We have a tool—we have a lot of acronyms in the government as you all know, sir—we call it CRISP. It is for reporting cyber incidents, you know, in these types of—in utilities.

We have heard from smaller, rural municipal utilities, in particular, that the product is too expensive. So we're making it cheaper. And that's one of the ways that, I think, if we can make this product, the reporting, you know, the product called CRISP, if we can make that available to these smaller utilities, municipals in particular, then we can share with them, not only the data that we have at DOE, but in certain cases, we can begin to share the intelligence that we see from places that are nation-state actors who want to violate our electricity grid.

And we've done a pretty good job over the last two years of educating smaller utilities and letting them know of the risks that they face, not only for their utility, but to the extent that they're connected with larger utilities, it creates a door. So they've been very, very sensitive and very responsive to our efforts and we hope to continue them in the course of the next two to three years.

Senator BARRASSO. Thank you, Mr. Secretary. Thank you, Madam Chairman.

The CHAIRMAN. Thank you, Senator.

Senator Wyden.

Senator WYDEN. Thank you very much, Madam Chair.

Mr. Brouillette, it has been reported that while you were Deputy Secretary of Energy, the Secretary communicated with high-level Ukrainian officials and at the President's direction, with Rudy Giuliani, his personal attorney, about Ukraine-related matters. The press reports also indicate that Secretary Perry pushed the Ukrainian government to make changes to the Board of Naftogaz, a Ukrainian, state-owned, natural gas company.

And the reason I am asking the question is these efforts echo changes to the Board that were sought by two of Mr. Giuliani's now indicted associates, Lev Parnas and Igor Fruman. So just a couple of questions here. Were you aware of any contacts between Secretary Perry or any other senior DOE officials and representatives of Naftogaz?

Mr. BROUILLETTE. I am aware that the Secretary met on occasion with individuals who were asking for assistance with the restructuring, if you will, or reorganization, of the state-owned enterprise. Naftogaz is a vertically integrated company. In order for them to interconnect with the EU, we had conversations about their structure.

Senator WYDEN. When you say "we", were you involved in conversations with Naftogaz?

Mr. BROUILLETTE. No, sir, I was not. No, sir, no, I was not. I was not. The "we" is the collective we at the Department of Energy.

Senator WYDEN. I gotcha.

Mr. BROUILLETTE. It's not me and the Secretary.

But no, I am not aware of any conversation that he had with either Mr. Giuliani or others within the Ukraine government about the Board or the Advisory Board that's associated with Naftogaz.

Senator WYDEN. So I am still a little bit unclear. Are you aware of the nature of any communications with Naftogaz because initially you said, you knew there were communications? So, being the Deputy, I would be inclined to say somebody like yourself, who is knowledgeable, I have watched you over the years, would know a little bit about the nature of the conversations.

Mr. BROUILLETTE. Sure.

Senator WYDEN. Tell me a little more about that.

Mr. BROUILLETTE. No, I am not aware of the conversations that Secretary Perry had or did not have with Naftogaz directly. I'm just, I wasn't party to that. I didn't have any knowledge of that.

I am aware that the, you know, within the Department there are technical experts that from time to time will interact with colleagues about these types of matters, but I'm not aware of any conversations between the Secretary and anyone at Naftogaz.

Senator WYDEN. And are you aware of any conversations Mr. Giuliani has had with the Department on this?

Mr. BROUILLETTE. I am not.

Senator WYDEN. And you have not had any contact?

Mr. BROUILLETTE. I have not.

Senator WYDEN. Okay.

The only other thing I wanted to touch on is yesterday in the office, and I appreciated the visit, you made it clear to me that because of Bonneville Power and their important role in making sure there was affordable energy in North America, you would keep the idea of privatizing Bonneville Power off the table. I just wanted to let you know I appreciate it.

If you want to add anything to what you told me yesterday in the office, I appreciated the fact that you responded directly to the question. Obviously, privatizing Bonneville Power would hit the Pacific Northwest like a wrecking ball and you answered the question forthrightly and I appreciate it.

I also want to hold the record open with respect to the questions I have asked dealing with Secretary Perry and other officials at the Department. I know our people indicated that we were going to ask some of those questions, but certainly I want to give you the opportunity, if there is additional supplemental material on that, as I say, I was particularly concerned because these press reports did come up at a time when these two indicted associates of Mr. Giuliani were apparently seeking changes to the Board. There seem to be some conversations that took place between the Department and Naftogaz. I will hold the record open if you would like to give me additional information.

Mr. BROUILLETTE. Yes, sir——

Senator WYDEN. Okay.

Madam Secretary, Madam Chair, thank you.

The CHAIRMAN. Thank you, Senator Wyden.

Senator Hoeven.

Senator HOEVEN. Secretary Brouillette, great to see you here and your family is unbelievable, so——

Mr. BROUILLETTE. Thank you, sir.

Senator HOEVEN. ——just great, and it is really fun to meet them.

Thanks for coming by the office. You have a great track record over there at DOE. We appreciate your service and the service of your family very much.

In North Dakota we produce 1.5 million barrels of oil a day, and that is second only to one of your states, Texas. We also produce more than three million cubic feet of gas a day. We don't even drill for gas. It just comes up with the oil.

Mr. BROUILLETTE. Amazing.

Senator HOEVEN. It is essentially free in North Dakota, because we have to get it to markets. Where I am going with this is, we need infrastructure. I mean, when I started as governor up there in 2000, we produced less than 100,000 barrels a day. Now, with hydraulic fracturing, like I said, 1.5 million a day, going up.

And we have—we need pipelines. We need LNG facilities. How do we get more infrastructure to get this to markets? I mean, the Pacific Northwest, the Orient, there is just a lot of places that really want this energy, but we need to get it there. We need infrastructure. How can you help us?

Mr. BROUILLETTE. Well, I think one of the ways we can help is to work with our regulators, both at the state and federal level, to give them some assistance as to the most efficient ways to place infrastructure.

We all support the development of additional pipeline capacity in the United States. We have worked very aggressively with our partners in places like the Department of Energy—Department of the Interior, at the Department of Transportation, to let them know what are the most critical needs? Where are the most critical concerns that we have as the Department of Energy for the placement of infrastructure?

And what do I mean by that is, you know, as we talk about things like cybersecurity, for instance, if you think about what the world was, you know, say 10 years ago, 15 years ago, 20 years ago, where, you know, a pipeline, a natural gas pipeline may have served, you know two, perhaps three, electric generation facilities. Today it might serve six or seven, perhaps eight.

And if we can expand that, it creates quite a risk in the electric generation world, if we can expand that and have a, you know, a number of pipelines serving those seven or eight electric generation facilities, we not only allow in market, you know, the gas to get to market, we reduce our risk, we reduce our cybersecurity risk, in particular, with that type of development.

So sharing that insight, sharing the work of our national laboratories, with the regulators, will perhaps ease some of the permitting, you know, that has to happen as a result of these developments. So that's our contribution to this particular problem. We want to continue that.

Senator HOEVEN. In the coal world, you know, we are all working to find ways to capture carbon and sequester it.

Mr. BROUILLETTE. Right.

Senator HOEVEN. And in our part of the world, as well as Texas, Louisiana and other places, that is both for tertiary oil recovery as

well as just geologic storage. It is technically feasible, we have to make it commercially viable. So we need your help with CarbonSAFE. We have our Project Tundra, Allam Cycle——

Mr. BROUILLETTE. Sure.

Senator HOEVEN. First question. Do you want to come up and see what we're doing up there?

Mr. BROUILLETTE. I would love it.

Senator HOEVEN. Yes, because we would appreciate you seeing it. It is amazing stuff. Great partnership—federal, state and the private sector—leading technology. University of North Dakota, EERC, PCOR—projects, I believe, that you support. Correct?

Mr. BROUILLETTE. Sure.

Senator HOEVEN. So we need both to keep CarbonSAFE moving. You are committed to doing that?

Mr. BROUILLETTE. Yes, we are.

Senator HOEVEN. And we need to work with the tax credits, the 45Q and others. I spoke with IRS Commissioner Rettig yesterday. I think they are committed to keeping this moving. We have to have regulatory certainty. You are committed to helping with those things as well?

Mr. BROUILLETTE. That's correct.

Secretary Perry just sent a letter to the IRS, just recently as a matter of fact. We are urging them to complete their work on finalizing this 45Q.

Senator HOEVEN. Right, because there is a scientific aspect to this. You guys, right?

Mr. BROUILLETTE. That's right. And they have sought our help as well and we have provided it. I harken back to the words of folks like Dr. Fatih Birol at the International Energy Agency in Paris. He called this a game changer. He called 45Q a game changer.

Senator HOEVEN. It is.

Mr. BROUILLETTE. And we feel strongly that it is as well. So we're going to continue to work with the IRS to finalize this rule. We're also going to work within the Department to advance the technology so that it becomes more efficient and cheaper. That's what we really need to do.

Senator HOEVEN. That is right on. It is a game changer. We make this work, we are going to be able to capture $CO_2$ on things like coal-fired electric and others. That is not just good, that is just something that is going to happen in the United States, that is going to happen beyond our borders.

Mr. BROUILLETTE. Around the world.

Senator HOEVEN. It is a big deal.

Mr. BROUILLETTE. Around the world.

Senator HOEVEN. And of course, you are right there, point on it.

The last question I had for you is regarding our national nuclear labs and making sure that we continue to advance that work on the new plutonium pits and the other things that our military needs to upgrade our nuclear capabilities whether it is the LRSO, replacing the ALCMs, whether it is the ICBM Minuteman update, all those kinds of things. Do I have your commitment to doing that?

Mr. BROUILLETTE. We are absolutely committed to that. The Nuclear Posture Review requires that we make 80 pits per year, 30 pits per year by 2026. The NNSA, which is a part of the DOE, is very much committed to that. We're working closely with Senator Heinrich and others about how to do that and where to do that. We have an initial plan put together, but we are firmly committed to producing what the Defense Department needs with regard to these pits.

Senator HOEVEN. Alright, I am on Defense Approps, so we have to sync up what we are doing on Defense Approps with what you are doing at the nuclear labs so it all comes together on schedule.

Mr. BROUILLETTE. Yes, sir.

Senator HOEVEN. Again, thank you. We really appreciate your willingness to serve.

Mr. BROUILLETTE. Thank you, Senator.

The CHAIRMAN. Thank you, Senator Hoeven.

Senator Heinrich.

Senator HEINRICH. Thank you, Madam Chair, and welcome, Mr. Brouillette. I appreciate you sitting down with me yesterday.

Mr. BROUILLETTE. Thank you.

Senator HEINRICH. And we have had a chance to get to know each other over the years a little bit. I know you have been out to Sandia and Los Alamos in your current capacity. I just wanted to start by extending an invitation as well to the Waste Isolation Pilot Plant.

Mr. BROUILLETTE. Accepted.

Senator HEINRICH. It is one of a kind, and I think it is very helpful to actually get down inside that facility to understand the role that it plays, obviously. So I appreciate you being willing to do that.

I want to follow up with a similar question to Senator Hoeven's but on the transmission side of infrastructure. We have got to do a better job in this country. Whole books have been written about how hard it is to develop interstate transmission right now. And if we are going to marry up some of the best, cheap, clean, renewable generation in the country with where the demand is, we have to be able to build transmission. We have, literally, multiple billions of dollars worth of wind that would be developed tomorrow in New Mexico if we had a way to get it to market.

What is the Department's role in helping to facilitate transmission and its role, not just in clean generation, but also in resiliency and other issues that you have brought up today?

Mr. BROUILLETTE. So, one of the, I mentioned in my opening testimony, or opening statement, I should say, we've developed a North American Resiliency Model. As part of that effort, we've also identified critical infrastructure throughout the United States. And a large portion of that is transmission infrastructure.

What we're trying to identify is what needs to be served in the event of a catastrophic event, what needs to be served in our view, and it would obviously be reviewed by the Congress and others, first, second, third, fourth and fifth. I mean, what is it that we need to do for public safety? What is it that we need to do to turn the lights on quickly so that people can begin whatever they need to do, if it's, you know, recovery from a catastrophic event?

We also want to maintain, you know, some level of resiliency for all of our military installations as well. So that's part of the calculation that we're doing.

That effort is beginning to identify critical loads all throughout the country of huge transmission needs that we have. So we would support, I know that you're interested in this, and I think you mentioned a couple weeks ago, you may introduce a bill on this to incentivize this type of, you know, construction and development. We would support those types of efforts, because this is critical to our defense network as well. It is, it's also important for the reasons, I think, you were alluding to earlier.

I was just down in Chile just a few months ago and I met with the President there, had a very good conversation and she was very, very proud at the time of both their, you know, solar energy and their wind energy. The challenge she has is that she can't move it from the north to south.

Senator HEINRICH. Delivery, right.

Mr. BROUILLETTE. So, you know, we have some similar challenges here in the United States as well. Tremendous solar capabilities in the southwest in your part of the world, less so in other parts, but moving that electricity from your part of the world to the northeast is a bit of a challenge at times. So we have to fix those types of issues if we're going to see the continued acceptance and the continued development of renewable technologies.

Senator HEINRICH. To avoid the worst impacts of climate change, it is pretty clear that in addition to eliminating our current emissions we are actually going to have to pull some carbon back out of the air. If you are confirmed, is increasing DOE's research efforts in the area of direct air capture something that you are willing to focus on and commit to?

Mr. BROUILLETTE. Absolutely.

Senator HEINRICH. Great.

Mr. BROUILLETTE. Absolutely.

Senator HEINRICH. I think that is going to be really important.

One of my frustrations with DOE has simply been that DOE's home appliance and light bulb standards, which have been incredibly productive economically saving my constituents an estimated $400 a year, have not gotten, always, the attention that they are due. I am concerned that the Department has now missed legal deadlines on issuing, I think it is 19 new standards overall and some are more than three years late. Are you willing to commit to assuring that DOE is finally meeting whatever its legal obligations are to set and update energy efficiency standards?

Mr. BROUILLETTE. Sure, we will do that.

Senator HEINRICH. Great.

Lastly, the Chair mentioned this, but is there anything you want to share about ARPA-E, because there has been this mismatch between the budget proposals and a broad, bipartisan support of that program which we all recognize has been incredibly helpful to our nation.

Mr. BROUILLETTE. Yeah, happy to address that, Senator.

As you and I have discussed in the past, in some respects it's both a blessing and a curse, I should say, to have worked on this side of the branches of government, if you will, having been a staff-

er in Congress, I'm fully aware of the budget processes and how they work. Now that I find myself in the Executive Branch, the commitments I can give to you are that I will fight for these programs within our Department because I think they're important. But it's also important to understand that I don't have the final say in what comes over to the United States Senate or the Congress, but I give you my commitment that I will fight for these programs.

Senator HEINRICH. That is what we would ask. Thank you.

The CHAIRMAN. Thank you, Senator.

Senator Cassidy.

Senator CASSIDY. A well put answer at the end, very tactful, but also very explicit. So thank you.

Innovation, which we all are interested in. There was a quote yesterday from the Federal Reserve Chair. He said, "The energy independence of the U.S. is something that people have talked about for 50 years, never thought it would happen. It has. It's a great thing."

Mr. BROUILLETTE. It's a great thing.

Senator CASSIDY. It is a great thing. So a lot of what you have been discussing today has been innovation. I would like to go to 45Qs as did Senator Hoeven, but Senator Hoeven kind of focused on the coal aspect of it.

Mr. BROUILLETTE. Yeah.

Senator CASSIDY. But as we read, both the U.S. and worldwide and, by the way, that is important, but in the U.S. and worldwide natural gas is increasingly being used.

Mr. BROUILLETTE. That's correct.

Senator CASSIDY. You are familiar with the geology of Louisiana, I happen to think that it's ideal for 45Qs, the storage of carbon dioxide, maybe in an old oil or gas well in creating, if you will, one more incentive for folks to set up industry and create jobs in my state, but perhaps in others.

So we have a Committee recommendation to pursue this, but how could you ramp up the gas research and development aspect post enactment?

Mr. BROUILLETTE. I'd like to take a closer look at how we might apply to the natural gas industry. And thank you for taking time to meet with me in your office. You know, I must say, I'd heard bits and pieces about the natural gas industry's interest in this, but you've made it perfectly clear what the impact is, what the revenue streams could be and what the future could look like if we did apply to natural gas.

I must tell you that I'm not fully understanding all of the aspects of this, but I understand clearly where you want to go and I would support that. I think it's very important that we, you know, we pursue these types of technologies, not just for coal which we have developed a lot of, you know, we've done a lot of good work, I should say, within the Department of Energy on carbon capture for coal. But I'd like to study it more and I'd like to engage not only your office and you, personally, but also our national laboratories. I'd like to talk to, for instance, Dr. Brian Anderson is here from NETL. I'd like to talk to him. I'd like to talk to Steve Ashby out at PNNL and other laboratories as well to see how we might do

this correctly and how we might incentivize this to come to the market.

Senator CASSIDY. Okay.

So that might be, kind of, you may have answered this next question, but what do you see as the barriers to the commercialization of carbon capture technology for natural gas? Is that something, kind of, we have to explore it further to see what the barriers are?

Mr. BROUILLETTE. Well, I think one of the barriers, clearly now, is we're waiting on an IRS rule on 45Q. I think if we can establish some certainty around those particular rules, you'll see private capital coming into the game much, much quicker. And I think that's important for us to do. We can do a lot at the DOE. We can, you know, this Committee and the Appropriations Committee, in general, has been very, very supportive of our work and has funded it and supported it very strongly, but I think at this point we have to have certainty with the tax law so that we can get private capital to come into this.

Senator CASSIDY. Next, again related, the International Energy Agency has estimated an increasing use of energy about one percent per year, and with that they imagine or project that there will be increased greenhouse gas emissions related to that. In part, that must be related to expanding populations in Asia and Africa and the fact that disproportionately they are using coal for their electrical needs.

Mr. BROUILLETTE. Correct.

Senator CASSIDY. Now it occurs to me that if the EU and U.S. is decreasing greenhouse gas emissions by converting from coal to natural gas, why should we not build in on the front end a natural gas capability? It does not mean you wouldn't want to use sunshine and wind where it is feasible, but for industrial processes giving you that baseload?

I guess I am asking, and China, by the way, is building these coal-fired plants, so it is both a market loss as well as an overall increase in greenhouse gas emissions. What could we do as a nation or at your Department to promote the use of natural, liquified natural gas instead of the coal-fired plants that are being built? So it is our technology, it is our jobs and it is cleaner burning. What could we do to encourage that for Africa as they increase their needs, for example?

Mr. BROUILLETTE. Well, I think, sure, you know, we talked about earlier having a chief commercialization officer and taking these technologies out of the Department of Energy's laboratories and sharing them more broadly, not only here in the United States, but all across the world. The Secretary and I have done a fair amount of work——

Senator CASSIDY. Now, this now seems more than just the transfer, if you will, of research, but it also seems to be a policy which says, wait a second, we have an energy industry which is being out hustled by China with consequences not just for jobs but also for the fact that they are using coal instead of gas and so therefore, releasing more. Obviously these have 30-year lifespans at least.

Mr. BROUILLETTE. Correct.

Senator CASSIDY. So it seems that we go more beyond just the, kind of, transferability of research into almost an industrial policy.

Mr. BROUILLETTE. It's almost an industrial policy, but unfortunately that's not something I can do I guess at the Department of Energy. It's really something that we ought to work together with the U.S. Congress to adopt as a national policy, a national industrial policy. If that's what the Congress wants to do, we would be very supportive of that.

I agree with you. It makes perfect sense. If we're going to sell natural gas, if we're going to, you know, promote U.S. LNG around the world as a potential, you know, supplement to renewable energy, or in some cases replacing other perhaps more emissions emitting types of energy, then we ought to attach it to, you know, carbon capture type technology that allows us to have the best of both worlds, if you will—clean natural gas as well as a renewable technology to, you know, to offset the emissions or whatever is left in the natural gas burning.

Senator CASSIDY. Well, thank you very much. I yield.

The CHAIRMAN. Senator King.

Senator KING. Thank you, Madam Chair. I want to note a historic moment in this hearing when Senator Barrasso said, "We can't tackle climate change alone." I could not agree with him more. I hope that he will urge the President to rejoin the Paris climate accord which is the only, ongoing, international effort to deal with this issue. A molecule of greenhouse gas which comes from the United States causes as much climate problem as one that comes from China or India or anywhere else in the world.

So I am going to speak to Senator Barrasso afterwards. I am delighted he has taken an interest in this and hope we can get back into our area of global leadership and join the other 197 signatories to the Paris accord.

Mr. Brouillette, everybody is trying to claim you today. As you know, if your ancestors had gone slightly west instead of south in 1756, you would be a Mainer.

[Laughter.]

Mr. BROUILLETTE. I would be. I would be.

Senator KING. Substantial population of Acadians in Northern Maine and we love them and so, I know how to pronounce your name because there are many people of similar extraction in the northern part of our state.

First, I don't think there is much more important than—of what you are doing, what your Department does—than research. We talked a lot about energy independence and the fracking revolution which, as you know, was largely supported by research funds from the Department of Energy.

Mr. BROUILLETTE. That's correct.

Senator KING. I just want to hear you reassure me that your commitment will be to a strong and vigorous and forward-looking research whether it is in the national labs or throughout the Department, ARPA-E, these are very important in the national interest in my view.

Mr. BROUILLETTE. You have my commitment on that, Senator.

One of the things that I've noticed, and one of the things I would like to work with this Committee on as well as the other commit-

tees in Congress, is to move some of the research that we're currently doing, perhaps, more to the basic side of the equation, more basic science. We have a tremendous organization in the Office of Science within our Department, and I'd like to see the next generation, if you will, of some of the renewable technologies that we're beginning as Americans to take for granted.

I mean, we talked about this in your office and thank you, sir, for taking the time to meet with me.

You know, we're looking for the next generation of solar panels. We're looking for the next generation of wind technology——

Senator KING. And storage, and transmission.

Mr. BROUILLETTE. ——and storage. And we want to think about these things in perhaps a slightly different way. As we talked about in your office with regard to battery storage, for instance, we've long thought about battery storage as simply filling a gap. You know, if the sun doesn't shine, cover the four hours while the clouds are out, if the wind stops blowing, cover the two hours that the wind is not blowing. We ought to be thinking about battery storage, perhaps, in a more broad context. And what I mean by that is, you know, perhaps batteries are important for resilience, not only as a backup for, you know, renewable energy but a backup for fossil fuels as well.

Senator KING. I totally agree. It is a national security issue and it's also a completely changed world in terms of the use of renewables.

I am going to Oak Ridge in two weeks, as a matter of fact, with Senator Alexander. Oak Ridge has a relationship with the University of Maine that is very beneficial to both sides, and I urge you to support that kind of hub and spoke relationship. The national labs are such a treasure.

Mr. BROUILLETTE. Absolutely, it's a very exciting project that we have with the University of Maine on additive manufacturing. We're very excited about that program, and I think you will see that expand.

Senator KING. Thank you. I am looking forward to it.

A couple of substantive questions. A lot of talk about LNG exports which have a lot of positive benefits in terms of the American economy and also our neighbors and friends having a cleaner source of energy. My concern is if energy, if LNG exports, rise to some critical level, and I don't know what that level is, it will start to have a negative effect or, I guess, a positive effect, make prices higher domestically.

Mr. BROUILLETTE. It depends on what part of the business you're in, I suppose.

Senator KING. That is exactly right. And I am in the consuming business in New England and the price, the low price, of natural gas here is one of our competitive advantages worldwide. I would hate to see us lose that by exporting to the point where it drives our domestic prices up. This happened in Australia. This is not an abstract concern. Is this something that you have some interest and concern about?

Mr. BROUILLETTE. Yes, we monitor very closely, as a matter of fact. I'm aware that there are, I think, four or perhaps five studies that have been done. The latest one was done by NERA, N-E-R-A,

and I've forgotten what the acronym stands for off the top of my head but, you know, that study shows that, you know the increased production in the United States has not yet had a dramatic impact on price. And I think that's borne out by the market prices——

Senator KING. And the new production of LNG, you are saying?

Mr. BROUILLETTE. The new production as well as the expanded export capacities that have developed——

Senator KING. Right.

Mr. BROUILLETTE. ——over the course of the last four to five years.

Senator KING. I would agree with that study, but I just want to keep an eye on it.

Mr. BROUILLETTE. Yes, sir. Yes, sir.

Senator KING. Because once you build $100 billion worth of export capacity and you start exporting it and then you say, uh oh, we have doubled our domestic prices, it is too late. I just think this is something that should be carefully weighed because of the effects on the rest of the U.S. economy.

Mr. BROUILLETTE. Yes, sir, understood, and we do monitor very closely. And I will work closely with EIA and others who track these types of things for us in the Department.

Senator KING. I am out of time, but I am going to give you a question for the record. My concern is about the methane associated with the extraction of natural gas. Methane is 84 times as potent as natural gas in terms of a greenhouse gas. Twenty-five percent of the greenhouse gases now are methane. I am worried that we are not adequately controlling that, that it is an unintended negative byproduct. It is something that, I think, we need to pay some attention to in terms of research and, frankly, regulatory control.

Mr. BROUILLETTE. Yes, sir. Yes, sir.

Senator KING. Thank you. I will submit a detailed question. I look forward to your response.

Mr. BROUILLETTE. Yes, sir. Yes, sir, I'll respond to you.

Senator KING. Thank you.

Mr. BROUILLETTE. Yes, sir.

Senator KING. Thank you, Madam Chair.

The CHAIRMAN. Thank you, Senator King.

Senator Daines.

Senator DAINES. Chair Murkowski, thank you and Ranking Member Manchin as well. Mr. Brouillette, congratulations on your nomination.

Mr. BROUILLETTE. Thank you, sir.

Senator DAINES. You will be the next Secretary of Energy. That is a big deal.

I first want to invite you out to Montana. As we chatted when you came by the office, and I really enjoyed our discussion, I would like to invite you to come out to Montana, see firsthand the issues that we have out in Big Sky Country and the opportunities——

Mr. BROUILLETTE. Accepted.

Senator DAINES. Okay, that was easy.

[Laughter.]

We have vast natural resources in Montana. It is one of the few states that truly does offer an all-of-the-above energy portfolio.

Coal, more recoverable coal than any state in the United States. Hydro, we are a headwater state. The Missouri River is formed in Montana, a lot of water. Oil, gas, wind, solar, geothermal, they power our state. In fact, they power our neighboring states as well.

We are also home to a booming tech sector specializing in areas like quantum computing, optics, UAVs and we also have one-third of our nation's intercontinental ballistic missiles are sourced in Montana. All of this will be under your purview, if confirmed, and I hope you will be able to make it out to Montana so you can see firsthand these great opportunities for growth and talk more about these issues on the ground.

We truly are a shining example of a balanced energy portfolio, and I think the American people, I know I can speak on behalf of Montanans, they want to see a balanced view as it relates to our energy portfolio.

Traditional fuels like coal as well as renewables like hydropower make up the largest portion of our current energy production in Montana. Both are reliable. Both provide affordable baseload power that keeps the lights on and the heat on in the wintertime. And we do have winter in Montana.

Mr. BROUILLETTE. Yes, you do.

Senator DAINES. We also have a growing wind and solar generation and strong potential for geothermal. However, Montana's balanced energy portfolio is coming under attack with the premature forced closures of Units 1 and 2 of the Colstrip Power Plant at the end of this year and the threat of dam breaches across the northwest. Both of these are due, in part, to extreme radical groups that litigate. Closing Colstrip is not just about the loss of over 600 megawatts of baseload power. It is also about the jobs, the livelihoods, the tax base of the Colstrip community which relies on the power plant and the coal mine that feeds it.

I believe that there is a role for you and the Department of Energy to play in order to maintain baseload supply in Montana. One possibility is through investment and advancement of carbon capture technology like we have laid out in the bipartisan EFFECT Act.

Mr. Brouillette, if confirmed, will you commit to working with me and with this Committee to protecting and growing baseload power like Colstrip and maintaining a secure and balanced energy portfolio?

Mr. BROUILLETTE. Sir, I will tell you it's been the policy of this Administration and perhaps even the last Administration to pursue an all-of-the-above energy strategy. The reasons for doing that are numerous, but the reasons that I think are perhaps most important for us today is that, in our view, diversity of energy supply means energy security, not only for our nation, but our allies across the world. So, it's very, very important that we continue to produce energy from all sources that we have here in the United States.

The other reason I think it's important, however, is that, you know, until we are able to develop battery storage that is, has more capacity, is longer lasting, is perhaps more flexible in some respects, it is important that baseload power exists because without it, if we are, I think, objective and candid, the adoption of renew-

ables or the introduction of renewables into our electric grid is just very, very difficult.

So, it's important for places like Colstrip, or institutions or generation facilities like Colstrip, to remain online until we have those answers, you know, down the road.

The other point I would make to you is that, you know, as we look across, I mentioned earlier, the resilience model that we're working on and the identification of critical infrastructure throughout the United States, I can commit to you that at the Department of Energy we're going to look at these types of facilities to see if they fit that potential model and see if there's, you know, anything that we should be concerned, potentially, about the loss of that institution for the military installations that you have identified in your state.

Senator DAINES. Mr. Brouillette, I appreciate this balanced, commonsense view as we think about managing our energy portfolio, of managing risk, going forward. I am one who supports the advances in renewable energy, but there is a reason we call wind intermittent energy. It is a fair characterization because the wind does not blow all the time. To solve the problem of storage here, we are going to have the challenge as it relates to some of these renewables, and technology eventually will solve these problems. But I want to thank you for hearing my concerns today, and I look forward to moving you forward here as our next Secretary of the Department of Energy.

Thank you.

Mr. BROUILLETTE. Thank you, sir.

The CHAIRMAN. Thank you, Senator.

Senator Cortez Masto.

Senator CORTEZ MASTO. Mr. Brouillette, congratulations on your nomination. Welcome to your family. I want to thank you again for taking the time to meet with me this week in my office.

Mr. BROUILLETTE. Thank you, Senator.

Senator CORTEZ MASTO. As you well know, the Nevada National Security Site is integral to Nevada and DOE plays a big role there. And so, I want to ask you a couple questions as it relates to that site, particularly the first one obviously is with respect to Yucca Mountain.

Do you support the storage of spent nuclear fuel or high-level radioactive waste at Yucca Mountain?

Mr. BROUILLETTE. Thank you, Senator, for taking time yesterday. I sincerely appreciated that. And thank you for your kind words about my family as well.

You know, the policy question that's before us on Yucca Mountain is really a policy question, I think, for Congress to make a determination on. As we have discussed in the past and as you well know, I'm obligated to follow the law and the law of the land today is the Nuclear Waste Policy Act. I'm also obligated to not spend money that hasn't been appropriated to the U.S. Department of Energy to pursue those policy directives that were given by the Congress.

So at the moment I can give you the assurance that in the near-term, as Secretary, until the Congress makes a decision on Yucca Mountain, nothing will happen at the Department of Energy.

Senator CORTEZ MASTO. Thank you for your response.

This Congress, Senator Rosen and I introduced the Nuclear Waste Informed Consent Act and the bill would require the DOE Secretary to obtain consent from the affected state, local communities, including the governor of the local governments, as well as our tribal communities before funds from the Nuclear Waste Fund could be used for a nuclear waste repository. Would you support the bill?

Mr. BROUILLETTE. Senator, I haven't read the bill, but I would be happy to do so and provide you a direct answer.

Senator CORTEZ MASTO. Thank you.

And then, under your watch and that of the current Secretary of Energy, Secretary Perry, DOE shipped a half of metric ton of plutonium to the Nevada National Security Site from the Savannah River site in South Carolina. Working through Secretary Perry, I secured an agreement with DOE as codified in an April 24, 2019, letter to begin removing the plutonium from the site in 2021.

[The letter referred to follows:]

**The Secretary of Energy**
**Washington, DC 20585**

April 24, 2019

The Honorable Catherine Cortez Masto
United States Senate
Washington, DC 20510

Dear Senator Cortez Masto:

I appreciate the dialogue with you and our staffs regarding ongoing matters in Nevada. This letter builds upon the Department of Energy (DOE) National Nuclear Security Administration (NNSA) Administrator Lisa Gordon-Hagerty's response to you on February 14, 2019, which provided further detail on the shipment of one-half metric ton of plutonium from South Carolina to the National Nuclear Security Site (NNSS) in Nevada. It is my intention to continue our dialogue to find opportunities and work to overcome challenges as they arise.

Nevada has played – and will continue to play – a pivotal role in our Nation's nuclear deterrent. The work conducted at NNSS often uses plutonium and has for decades. Without plutonium research at NNSS, DOE/NNSA's ability to certify the safety, security, and effectiveness of the stockpile would be put at risk. Experiments conducted at NNSS are essential to maintaining the safety and reliability of the stockpile in the absence of underground nuclear testing. The Device Assembly Facility (DAF) is integral to supporting these experiments and staging these materials.

In support of this work, DOE/NNSA is committed to planned investments of about $1 billion over the next six years to upgrade facilities at the Nevada site.

Pursuant to a U.S. District Court order, DOE/NNSA was required to remove one metric ton of plutonium from South Carolina by 2019. The Department completed its environmental analysis and technical review of potential locations in August 2018 and identified staging sites, including Texas, New Mexico, and Nevada. The one-half metric ton of weapons-grade plutonium that was shipped from South Carolina to Nevada before November 2018 is not nuclear waste; it is material essential for the maintenance of the U.S. weapons stockpile. However, given the concerns you and other members of the Nevada delegation have raised regarding this specific shipment, DOE commits to commencing removal of this material from Nevada beginning in calendar year 2021, and completing the removal by the end of 2026. Additionally, DOE will not ship the other one-half ton of plutonium from South Carolina to Nevada. Moreover, as I communicated to Congress on May 10, 2018, it is my intention to meet any future statutory requirements for plutonium removal from South Carolina by down blending the plutonium and shipping the diluted material directly from South Carolina to the Waste Isolation Pilot Plant in New Mexico.

Thank you for accepting my invitation to visit NNSS. NNSA Administrator Lisa Gordon-Hagerty and I look forward to touring these facilities with you and your staff on May 10, 2019, to gain understanding and see firsthand the vital work carried out each day by the 3,000 dedicated Nevadans who perform research, training, and oversee management of our nuclear stockpile.

DOE/NNSA stands ready to continue this important dialogue and discuss these matters, including in classified settings as necessary. The relationship between DOE/NNSA and Nevada is of great importance, and I remain committed to open communication on NNSS' indispensable role in support of the United States' national security.

Sincerely,

Rick Perry

Rick Perry

Senator CORTEZ MASTO. When we met this week, you assured me that you were committed to honoring that agreement. Do you mind reaffirming your commitment today?

Mr. BROUILLETTE. I do not mind at all, Senator. I will give you a firm commitment that we will honor that agreement.

Senator CORTEZ MASTO. Thank you.

In July 2019, the State of Nevada and the Nevada Congressional Delegation were notified that DOE had violated the waste acceptance criteria in shipping mislabeled waste to the site, the National Security Site. During our meeting early this week, you said that the Office of Enterprise Assessments was in the process of completing a report on the DOE's radioactive waste packaging and shipping policies and procedures.

What guarantees can you provide me and the people of Nevada that DOE will not violate its contracts with the state in the future or allow mislabeled or misclassified waste to be transported from one facility to another?

Mr. BROUILLETTE. Sure. Senator, as we talked about immediately following that incident which was a self-reported incident inside of the Department of Energy, I called you and I called the Governor and I called the delegation to let you know of the accident, let you know of the incident, I should say. Following our visits there, following our conversations, the Secretary directed me to do an enterprise-wide assessment of all shipping of waste within the Department. We're about 30 to 45 days away from that final report, or at least the first draft of a complete report. I will come to you. I will share with you that draft. What we have found and what I can tell you at this point in time is that we have found some very minor deficiencies—public health, public safety in this incident and in the minor deficiencies that we found has never been at risk.

Senator CORTEZ MASTO. And is that report, once it is finalized, can it be made public?

Mr. BROUILLETTE. It will be made public.

Senator CORTEZ MASTO. Thank you.

So, and I asked you this question, so between Yucca Mountain, the years of mislabeled waste being sent to the test site, the secret plutonium shipments, Nevadans have very little reason to trust DOE at this point and the nuclear program is overseen by DOE. So, if confirmed, what steps will you take to improve communication and trust with the State of Nevada?

Mr. BROUILLETTE. Senator, I appreciate your concerns and, as you and I discussed, I happen to have family there so I'm very, very sensitive to these issues as well. I can give you my personal commitment that I will spend personal time on these issues. I will be available to you, obviously, and to your staff. I will work diligently and apply the skill sets, the business skill sets, that I think I bring to the table, to look at these types of processes within the Department of Energy and ensure that they are robust, that they follow the proper procedures and that they're all following the regulations that we are all guided by within the Department itself.

Part of that is just, you know, mapping out things. Part of that is changing the culture of some of these organizations. And I will give you my personal commitment that I will make every effort to do that.

Senator CORTEZ MASTO. Thank you.

The CHAIRMAN. Thank you, Senator.

Senator McSally.

Senator MCSALLY. Thank you, Madam Chairwoman. Mr. Brouillette, good to see you again.

Mr. BROUILLETTE. Good to see you, Senator.

Senator MCSALLY. I enjoyed visiting with you in my office a few weeks ago.

Mr. BROUILLETTE. Thank you, Senator.

Senator MCSALLY. We talked about a number of things, but one is how Arizona is really leading in a lot of new technologies and a real all-of-the-above energy strategy which many of us have talked about supporting. I appreciate the Department's commitment to that.

We have the, you know, the hydropower generated by the Hoover and Glen Canyon Dam. We have the Palo Verde, ultra-efficient Palo Verde nuclear plant and we also have a growing solar array because we have a lot of sunshine and wide-open space. We are now number three in solar in Arizona with the opportunity to grow, but as has been mentioned, we still need breakthrough technologies in storage because the sun does not shine at night.

Arizona research institutions and companies are working really hard on research for this type of technology and so, I just want to get your perspective on, you know, support from the Department on working with universities and the private sector, specifically, on the energy storage issue because we are going to hit a point where we cannot really go much further on some of these energy initiatives unless we can have breakthroughs in the storage.

Mr. BROUILLETTE. I think you're absolutely right, Senator, and I look forward to working with you, should I be confirmed, and the good folks in Arizona to figure out some of these tough problems. You know, we just, we're very, very interested in developing the talent that we need to hire over the course of the next, call it five or ten years, and I think we're going to see that coming through a number of different avenues.

But one of the things I'd like to mention to you, and I know it's not in your state, so I apologize for that, perhaps we can do one in Arizona as well, but recently Dr. Martin Keller was here from the National Renewable Energy Laboratory in Boulder, Colorado. He worked closely with the university there, the University of Colorado Boulder, to start a brand-new graduate program that's focused on renewable energy. And that's a partnership with the lab itself. So I'd like to explore opportunities like that as well so that we can build this pipeline of talent coming into these areas, you know, we need these scientists to join us to work on these tough problems.

With regard to the technology itself, I mean, we've, you know, discussed some of that. There is another effort that I would like to just mention to you, again, not in Arizona, so I apologize for that, but it's all on the West Coast and what we call it is the Grid Storage Launchpad, and it's being done with one of our national laboratories in the northwest, Pacific Northwest National Laboratory, we refer to it as PNNL. It's a fantastic operation and a fantastic opportunity we have to develop technologies that will be grid-scale stor-

age, not just the smaller batteries that you see in people's homes, but this is large battery storage. We're very excited about that.

And again, I'd like to work with you on those kinds of issues.

Senator MCSALLY. No, great. Well, I would like to invite you out to Arizona as well——

Mr. BROUILLETTE. Accepted.

Senator MCSALLY. ——to see if there is a place for Arizona's universities to participate in some of these initiatives.

There is also an issue with the supply chain, of course, for energy storage. I talk all the time to people who come in to advocate for green energy and I say to them, oh, you must be pro-mining because these materials come out of the ground. I sometimes get a blank stare as a response, but one of the five Cs for Arizona is copper. We produce more than 65 percent of the nation's copper, but raw materials like copper and nickel and cobalt and other critical minerals are essential to building things like the solar panels, the transmissions line, the batteries and all that goes with that.

So we can't have green tech without having mining. And American mining, where we are also having breakthroughs in technology to have the cleanest, best stewards of our environment in our mining, is certainly something that should be supported if we are trying to advance green energy, in my view. And recycling has to be a part of the mix as well, and the R&D on recycling—I have teamed up with my fellow Arizona Senator Sinema on legislation to jump-start some of this recycling.

I just want to ask your perspective on the supply chain and that being a part of DOE's approach, you know, working with Interior and others to make sure we have a secure supply chain for these technologies.

Mr. BROUILLETTE. You're absolutely correct about that. That's why I mentioned it earlier to Senator Manchin. It's one of the opportunities we see for the mining industry, for the coal industry, the copper industry, in your case. These are critical materials or critical minerals, I should say, that we've become, you know, not only dependent upon but, you know, reliant upon for some of these newer technologies.

So if we have opportunities to look at coal ash, if we have opportunities to look at some of the residual, you know, materials that are left over from mining operations and we can extract from that at least a portion of the minerals that we need, we're going to make every opportunity to make every effort to do exactly that. The lessening of our dependence upon nation-states, again, who don't have our interests at heart, is something that we have to do.

And I appreciate your military service. And again, I must tell you and I say this on the record, I have never been so nervous in all of my life to be standing in front of an A–10 pilot as a former Tank Commander. It, the stress, was very high. I'll just leave it at that.

[Laughter.]

Senator MCSALLY. It is all good. We love to provide that close air support overhead.

I am out of time, but I do want to ask a question for the record related to woody biomass. That is something else that Arizona is leading on as we have mismanaged our forests for so many years.

Now, as we are finally going in to try and manage it, it is an issue of wildfires, it is the management of water, you know, watershed, but also the stuff that would normally just be thrown away, using that as woody biomass to actually generate energy, and we would love to have your commitment to work with us on that.

Mr. BROUILLETTE. Yes, ma'am. I'll take that question for the record——

Senator MCSALLY. Okay.

Mr. BROUILLETTE. ——and look forward to getting back to you.

Senator MCSALLY. Great, thank you.

Mr. BROUILLETTE. Thank you.

The CHAIRMAN. Thank you, Senator McSally.

Senator Hirono.

Senator HIRONO. Thank you, Madam Chair.

To ensure the fitness of all nominees to these appointed positions, I ask the following two initial questions of every nominee who appears before any of the five committees on which I sit.

First question. Since you became a legal adult have you ever made unwanted requests for sexual favors or committed any verbal or physical harassment or assault of a sexual nature?

Mr. BROUILLETTE. No, ma'am.

Senator HIRONO. Have you ever faced discipline or entered into a settlement relating to this kind of conduct?

Mr. BROUILLETTE. No, ma'am.

Senator HIRONO. Mr. Brouillette, this Committee asks each nominee under oath if they will be, "Available to appear before this Committee and other Congressional committees to represent departmental positions and to respond to issues of concern to the Congress." However, Secretary Perry has refused to comply with a subpoena for records about his dealings with Ukraine pursuant to the House of Representatives impeachment inquiry. Will you comply with subpoenas duly issued by Congress?

Mr. BROUILLETTE. Senator, as part of my oath here, I said I would make myself available. If I were to receive a subpoena from the U.S. Congress, I would, of course, consult with Executive Branch counsel and, assuming that the subpoena was properly served and the opportunity to be represented by Executive Branch counsel, I would make myself available.

Senator HIRONO. Thank you. One assumes that the subpoenas were duly issued.

The United States has historically acknowledged a duty of individuals, in fact, we have laws that everyone who serves in the Federal Government has a responsibility to come forward to report misdeeds, fraud, violations of law and we do acknowledge, and I hope you do—you acknowledge the contributions of whistleblowers to combat abuse, fraud and violations of laws?

Mr. BROUILLETTE. I do and I fully support the whistleblower laws on the books, and I will give you a commitment. We have begun a process of reviewing the contracts that we have with contractors in the Department of Energy. I will ensure that the whistleblower provisions that were most recently passed by Congress are included in those contracts.

Senator HIRONO. It sounds as though you would commit to protecting whistleblowers within your Department should you be con-

firmed, and you would protect them from retaliation as required under the Whistleblower Protection Act?

Mr. BROUILLETTE. Yes, ma'am, I would.

Senator HIRONO. And you said that you are actually coming up with some kind of guidance or something that your Department, should you become confirmed, will adopt along these lines?

Mr. BROUILLETTE. We, yes, ma'am, we have instituted guidance. We've instituted training within the Department of Energy, but again, we've also reviewed all of our contracts that we have with outside contractors to ensure that the whistleblower protections that Congress intended when it passed the statute are part of the contracts that we have with these employers.

Senator HIRONO. It must cause you some concern that there are all these calls for the disclosure of the whistleblower who brought to our attention what happened with regard to Ukraine.

There is a lot of discussion about the importance of battery storage and Hawaii has a commitment to becoming 100 percent sustainable off of full electrical energy, so battery storage is a big deal for us. Can we look for some breakthroughs in energy storage, including grid storage from the Department of Energy and all your partnerships, with the various national labs?

Mr. BROUILLETTE. I certainly hope so. I certainly hope so.

Senator HIRONO. I am looking forward to that because we have been talking about the importance of battery storage to actually enable all of us to use all of the energy sources in the land to basically lessen our reliance on fossil fuels and that requires battery storage because it is intermittent power.

The Republic of the Marshall Islands is one of our very close allies, and last month the Department of Energy signed a memorandum, an MOU, with the Department of the Interior to conduct a radiochemical analysis of groundwater surrounding the Cactus Crater waste containment site on Runit Island in the Republic of the Marshall Islands, commonly referred to as the Runit Dome. The study will also assess the structural integrity of the site which houses contaminated soil and radioactive debris from U.S. nuclear weapon tests.

The people of the Marshall Islands have a right to know about the scope and scale of potential problems with the Dome and of impacts to human health and their environment that result from a compromised dome, and the study is very important. It will help us to address these concerns. If confirmed as Secretary, will you commit that the Department will complete this report and submit it to the Committee on time?

Mr. BROUILLETTE. I will commit that we will submit whatever report we're required to on time. Senator, I'd like the opportunity, however, to review the MOU. I'm not intimate with it. I'm not familiar with it, but I would like that opportunity and respond to you, perhaps in writing.

Senator HIRONO. That would be fantastic, thank you.

The United States has not conducted nuclear weapons tests since 1992, and that is really a big part of the Secretary's responsibility. I know that it came as news to your predecessor, or soon to be. Have you been briefed by the directors of the Los Alamos and Sandia and Lawrence Livermore National Laboratories on the sig-

nificant advances that DOE has made in the ability to maintain the U.S. nuclear arsenal in the absence of testing?

Mr. BROUILLETTE. Yes, I have been and we are in the process as we speak as a matter of fact. The lab directors are engaged in a process of assessing and providing their assessment to us of the stockpile itself. So yes, they have been, I have been briefed on it and I look forward to hearing their assessment, perhaps within the next week and a half.

Senator HIRONO. I think we have an aging stockpile, and I think we need to be assured that—of the safety issues that are involved and all of that. So thank you. I look forward to working with you on all these and other matters.

Mr. BROUILLETTE. Thank you, Senator.

Senator HIRONO. Thank you, Madam Chair.

The CHAIRMAN. Thank you, Senator Hirono.

Senator Cantwell.

Senator CANTWELL. Thank you, Madam Chair, and thank you, Mr. Deputy Secretary Brouillette, for being here.

Mr. BROUILLETTE. Thank you.

Senator CANTWELL. I was wondering if you remembered our conversation when you came by.

Mr. BROUILLETTE. I do.

Senator CANTWELL. You said you had two priorities. Do you remember what you told me they were?

Mr. BROUILLETTE. Cybersecurity and Hanford.

Senator CANTWELL. Thank you.

[Laughter.]

Isn't that amazing after all this time we both remember that?

[Laughter.]

I want to go back to Hanford for a second.

Mr. BROUILLETTE. Sure.

Senator CANTWELL. Well, first let me laud my colleagues. My colleagues, the Chair Murkowski and Ranking Member Manchin, are still working on our energy bill but there are some very robust provisions in there for DOE to play a major role in cybersecurity. We just hope that you will help make that a reality. We think we have an education shortage issue, and we think that DOE could play a very big role here.

Obviously the Committee has many other issues, but I hope that they are successful in dealing with that and DOE playing a more major role just in talking to our colleagues. I think practically every Committee here in Congress has had some hearing on cybersecurity, but when they get right down to it, they realize oh, wait, it is the grid and the grid and the grid. So I really do believe that DOE has to play a more robust role here in a leadership way. Hopefully you can do that.

Let me ask you about Hanford since we both remember that that was a big priority. To meet the Department of Energy's, and I know you mentioned that Mr. Vance is here—we very much appreciate that and other DOE officials from Hanford—but we need, obviously, to get the right budget. I think the FY20 funding level was well over a billion below the compliance budget level.

Now I am sure you know very well the challenges that we face as a state in that we have milestones and they have to be met and

that there is a legal obligation by the Department of Energy to meet those milestones. I would just like to hear your commitment again to working with all of us in meeting those milestones.

Mr. BROUILLETTE. I'm fully committed to that, Senator. And we have engaged with the State Department of Ecology. We have notified them of a risk situation there, high risk notice, if you will, is what it's called. We are very much committed to the program that we have currently established.

When you and I had this conversation, I think, almost two years ago, I think, two and a half years ago now.

Senator CANTWELL. Yes, we should clarify for people, that was not last week that we had that conversation.

[Laughter.]

It was years ago——

Mr. BROUILLETTE. It was some time ago.

Senator CANTWELL. Yes.

Mr. BROUILLETTE. But I do recall.

And you know, you pointed out to me at that time, I think, rightfully so, that you were concerned, you know, that a new administration comes in and the program changes. In other words, we move the ship to the right or to the left and we do a 180 and things slow down and nothing gets done and cleanups don't happen on time.

We have chosen not to do that and that's largely at your advice and largely at your direction. We're going to continue the mission at Hanford. We're going to continue the progress that we've already made. As I mentioned earlier, I'm proud that we have moved the last radioactive waste out of the K-Basins and away from the Columbia River. That's not the end of the story, however, for Hanford. We have much more to do.

I'm working closely with the contractors there and we're bringing some, I hope, business discipline to some of their operations so that we can speed up these cleanup efforts. But I want to assure you, give you my commitment that I'm firmly committed to this cleanup operation. It is the highest, one of the highest priorities, I should say, it's the highest within the EM program. It ranks right at the top of my priority list. And should I be confirmed as Secretary, I will be there quite often.

Senator CANTWELL. Well, that should be good news for everybody in the northwest and for the nation, because it obviously is a very complex cleanup problem.

Mr. BROUILLETTE. It is.

Senator CANTWELL. I think people forget the elements of what we did in meeting the nation's need and securing production at that time, but we have to remember that the cleanup responsibilities are just as dire and challenging. So thank you for that commitment.

The HAMMER Federal Training Center provides really great, exceptional work for our workforce who are committed to making sure that there is a safe procedural process at Hanford. Are you committed to continuing working with Hanford and the HAMMER facility?

Mr. BROUILLETTE. Yes, I am and Brian and I have had these conversations on a regular basis about the importance of HAMMER,

the importance of processes and procedures on the installation so that worker safety remains paramount.

Senator CANTWELL. Okay.

And there are clearly a lot of priorities at Hanford, including the startup and operation of the direct-feed, low-activity waste facility, the DFLAW, as you know.

Mr. BROUILLETTE. Correct.

Senator CANTWELL. How would you—talk about that for a second and how you think we keep moving forward.

Mr. BROUILLETTE. Sure, sure. I think that's part of what we, what I meant earlier when I said we're not going to change the ship. What we did was focus our efforts on DFLAW so that we can actually get that process started and going. And we're right now, I think, on schedule for around 2023 to begin those operations.

The balance of facilities are going to be online very, very shortly which means the administrative buildings and the things that have to support that institution, but we have focused and made that our priority. We have to do that first and right. I guess, in a very simple parlance, let's do something, let's get something started and show that it works so that we can get to high-level waste and do the other things that need to be done in this very complex facility that we have.

Senator CANTWELL. Thank you. Thank you, Madam Chair. Thank you.

Mr. BROUILLETTE. Thank you, Senator.

The CHAIRMAN. Thank you, Senator Cantwell.

I knew you would be back to query the Deputy Secretary on Hanford, so you did not disappoint there.

Mr. Deputy Secretary, I had an opportunity this morning to be with Secretary Perry. This was at the IFNEC Global Ministerial on small modular reactors and advanced nuclear and it was really a good gathering of international leaders focused in this area. The Secretary articulated a very strong vision for the U.S. role in this space, and then I was able to follow him with comments about what we are doing legislatively in tandem with the Administration to move out on this extraordinary potential.

As you know, we have advanced the Nuclear Energy Leadership Act, NELA, but what we do within this legislation is we focus on the reality that most of these reactors are going to require the high-assay, low-enriched uranium, the HALEU, which we know is not currently produced here. So we are looking to what it is that we need to do in order to facilitate this opportunity for us here in this country.

I know that this is something that the Department is looking at, the NELA legislation, in addition to everything else that we have already advanced and put into law, some of the other pieces that we are working to help facilitate. But I pointed out in my opening comments that it should not be unusual or odd that a Secretary from a producing state like Texas or someone like me from a producing state like Alaska would be interested in the prospects and the future for advanced nuclear and all that it provides.

Hopefully the Department is considering what a comprehensive advanced nuclear fuel program would look like to anticipate these near-term needs, but know that that is going to continue to be a

priority of mine. It certainly has of Secretary Perry and hopefully you will continue that as well.

Mr. BROUILLETTE. It will be, Senator.

You know, there's a number of different issues there in your question. What we are going to advance at the Department of Energy are things like the versatile test reactor at INL. Dr. Mark Peters is here. That's a very high priority for us. I mean, that particular reactor, that piece of equipment, if you will, allows us to test materials, it allows us to utilize processes that will test, you know, newer fuels, so that they can qualify, perhaps get through regulatory processes a lot sooner.

We're also going to conduct, you know, a pilot project for HALEU. And we think that's very important for a number of different reasons. We want to get to a place where we can develop small, micro reactors, one to five megawatts. Small, modular reactors, I think, have a very bright future and we're very excited about their path forward throughout the regulatory process.

But if we can make them even smaller, then it can serve communities that you showed me in Alaska, I think, much more easily and places like where I grew up in Louisiana where there's only 200 people and, as I told you in Alaska, perhaps more alligators than people on any given day. If we can get small reactors into those types of areas in the country, we've not only provided them with a clean, reliable source of power, we've taken, I think, a good step forward in reducing carbon emissions throughout the world.

So it's something that's very important to us at the Department. It's something I do want to continue should I be confirmed as Secretary, and I look forward to working with you. And I must say, for the record as well, thank you for allowing us to borrow Dr. Ben Reinke who is very intimate with your piece of legislation.

The CHAIRMAN. Well, thank you. We are working those together. I think it is a good package.

Senator Manchin, did you have any final questions?

Senator MANCHIN. Just briefly. I just want to make a statement on how important—we have talked about this, Mr. Brouillette—how important this job is. I mean, you look at history and you look at energy, the role energy's played in history and where we are as a people and in our nation how it has played out with us being blessed with having a lot of resources for our nation to defend ourselves, stability, industrial might, to be the super power of the world. I go back and I think about my grandparents talking about the first time they received electricity and remembering that my grandmother was so tickled to have a refrigerator and then they got a washing machine. Those are the two things.

Mr. BROUILLETTE. Wow.

Senator MANCHIN. I think today, we were just talking to the staff, thinking about, we probably have a billion, out of 7.5 billion, maybe a billion people without any energy, access to energy whatsoever in the world and their desire to have what we have taken for granted.

But also, the threat because of all the terrorism that goes on and how susceptible we are and that is cyber, as we talked about. Also us being on the cutting edge, if you will, and our ability to stay ahead of the rest of the world and the other nations who want to

challenge our status, by using energy as a geopolitical tool and holding people hostage, and all the things that are going to be under your purview.

I just want you to know you are going to have us as partners with you. We want you to succeed. We want you to do well. We want you to be able to come to the Committee and not look at us as Democrats and Republicans but as Americans that want our country to prosper, but to help lift others around the world that are seeking the same opportunities in life that we have been able to have.

So I wish you well. Godspeed.

Mr. BROUILLETTE. Thank you, sir.

The CHAIRMAN. Thank you, Senator Manchin, well said.

Deputy Secretary, you have fielded a range of issues here this morning, everything from the Arctic to advanced nuclear to the waste issues to critical minerals, energy storage, LNG. We have covered the gamut, and you have articulated very well from a policy perspective. It is quite clear that your knowledge, the breadth and depth of it, of energy writ large, is very substantive but also your keen understanding of the Department of Energy, its responsibilities, its roles and the promise that it can hold, again, not only for this country, but for other nations as they look to our leadership in so many of these different areas.

I am a little concerned, however, you have made commitments here to visit Alaska, West Virginia, Arizona, Montana, Maine, Wyoming and Nevada. I am a little concerned you are not going to have time for the day job here. But we will work with you as you seek to gain better understanding and appreciation of all that our great states have to offer in these very important areas.

Again, I want to thank your family for joining you here today.

To you, I have never seen such well-behaved young people sitting behind their father, no squiggling, no squirming. I did catch a little bit of a nap there, and I am totally with you on that, guy.

[Laughter.]

But I also want to recognize your national lab family that you have here. We know that the men and women who serve in our national labs are an extraordinary, extraordinary, asset to our country, and I know that they are a very tight-knit group, having hosted many of you in the State of Alaska. So the fact that they are here in your support is also a testament to the dedication that you have to this job.

I think, based on what I have heard today, you will have strong support moving out of this Committee. It is my intention to try to move you through the Committee process just as rapidly as possible.

Secretary Perry has announced that he will be departing on the first of December, and we would like to see a seamless transition there as we move your name forward to assume this very important position as Secretary of Energy.

We thank you for being here. We thank you for your time, your leadership and your vision.

With that, the Committee stands adjourned.

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

## APPENDIX MATERIAL SUBMITTED

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

**Questions from Ranking Member Joe Manchin III**

**Question 1:** I understand that for certain highly-technical jobs at NETL and possibly other National Laboratories, pay caps are making it difficult to compete for the best and brightest engineers and scientists. Earlier this year, I added an amendment to a bill that we reported out of Committee, S.607, which would require the Secretary of Energy to examine the full scope of compensation models for hiring and recruiting and retaining specifically these highly technical jobs at DOE and the labs.

If confirmed, will you commit to working with me to make sure NETL has the resources and people needed, including every tool available to recruit and retain experts?

**Answer:** Yes.

What exactly are the limitations currently capping pay for some of these highly technical and competitive jobs and do these limits need Congressional action to address?

**Answer:** As a government-owned, government-operated (GOGO) national laboratory, NETL federal employee salaries are principally capped by the standard GS or SES pay scales. NETL often cannot provide the same salary as their peers at government-owned, contractor-operated (GOCO) national laboratories.

**Question 2:** Both the Nuclear Energy Leadership Act and the Senate Energy and Water Appropriations bill call for significant investment in the demonstration of advanced nuclear reactor technology by 2025. As Secretary of Energy will you commit to continue Department efforts to demonstrate advanced reactor technologies? If confirmed, what steps will you take to ensure that the Department of Energy can meet these timelines?

**Answer:** Yes. Enabling the development of advanced nuclear energy systems will preserve and expand America's largest domestic source of clean energy. DOE's work is aimed at ensuring long-term U.S. nuclear energy leadership. The Office of Nuclear Energy (NE) supports development of innovative next generation nuclear energy systems and provides the science and technology base, including supporting important R&D infrastructure like the Versatile Test Reactor, for United States (U.S.) innovators of advanced nuclear energy systems. NE investments are focused on early-stage research and development (R&D), while providing industry access to the National Laboratory infrastructure for testing. NE activities employ R&D to bridge technology gaps to help enable industry's deployment of advanced nuclear energy systems.

If confirmed, I look forward to working with you on this issue.

**Question 3:** As we move into the next decade the Office of Nuclear Energy mission is going to begin to shift dramatically as we begin to demonstrate advanced nuclear reactors. Constructing and demonstrating advanced reactors will require enormous resources and a rebalancing of the

offices priorities. In a constrained budget environment has the Department of Energy and the Office of Nuclear Energy begun to plan how it will most efficiently shift resources from existing programs to advanced reactor demonstration while preserving important programs such as the Light Water Reactor Sustainability program as well as training and apprenticeship programs? And if the Department has prepared a plan will you commit to share those plans with the Committee?

> **Answer:** The Department is committed to completing current programs that are of high strategic value and we look forward to advancing next generation nuclear programs. The Office of Nuclear Energy is actively working on a strategic plan to fully articulate how we will meet all of our nuclear objectives and, if confirmed, I look forward to sharing that vision in the near future.

**Question 4:** The Nuclear Energy Leadership Act, which passed out of Committee with bipartisan support requires that the Department produce high-assay, low-enriched uranium containing not less than two metric tons of the uranium-235 isotope by 2022 and ten metric tons by 2025. Will the Department be able to meet those requirements with only 16 AC-100 centrifuges currently planned for operation? Will you commit that you will look at all available options to meet our country's enrichment needs to supply high-assay low enriched uranium in the coming decade?

> **Answer:** The Department's HALEU Demonstration program is intended to demonstrate a domestic technology which will ultimately enable the re-establishment of our domestic nuclear fuel supply chain. This is a demonstration project only, and is not intended to produce the quantities of material along the timeline required in the Nuclear Energy Leadership Act (NELA). The Department is working to meet the requirements of NELA by processing existing DOE material from multiple stockpiles. Pending sufficient resources, the Department could fully meet the requirements of NELA with existing non-defense related DOE stocks in the coming decade.

**Question 5:** Retaining domestic enrichment capabilities that are void of foreign involvement is critical for U.S. national security. This was a large part of the rationale for awarding a no-bid contract to Centrus Energy Corporation. However, the Department of Energy has not provided a breakdown of the projects activities, an associated timeline for meeting production goals, and funding levels for the project. Will you please provide the Committee with a breakdown of activities, cost, timeline and any additional documentation that the Department of Energy used to justify its rationale for selecting Centrus. And if any of the information is business sensitive or involves classified information will you make that available in the appropriate secure setting?

> **Answer:** To the extent legally permissible, I will provide the information requested.

**Question 6:** Federal liability for defense waste remediation operations has skyrocketed to an estimated $377 billion, according to DOE's fiscal year 2018 financial statement. Yet the Administration has not changed its strategy to reduce costs. The National Academy of Sciences

issued a report this year named the "Independent Assessment of Science and Technology for the Department of Energy's Defense Environmental Cleanup Program." The report recommends that the Department of Energy Office of Environmental Management establish a Science and Technology Program for "identifying, prioritizing, selecting, developing, and deploying the new knowledge and technologies needed to address its cleanup challenges." The report also points out that the Department of Energy has substantially reduced investments in Science and Technology development over the past 15 years and has not invested at all in technologies that might lead to breakthrough solutions that could reduce cleanup lifecycle costs and risks to workers. Will you commit to working to shift the Office of Environmental Management priorities to increase funding to the development of breakthrough technologies in order to reduce overall cost?

> **Answer:** The Department welcomes the report and recommendations of the National Academies of Science on the EM technology development program. The Department's budget is designed to maintain a safe and secure posture at all sites, while continuing to meet our ultimate goal of finishing cleanup. While formulating the President's Budget Request, the Department considered each site's operational requirements, progress towards meeting compliance agreements, priorities towards completing the mission, and opportunities and initiatives to reduce environmental liabilities. Due to the very unique, complex, and hazardous nature of the EM cleanup mission, we are constantly looking for new and innovative ways to carry out this important mission in an even safer, more efficient, and more cost-effective manner and will deploy new and cost effective technologies as they are identified.

**Question 7:** Last year, the FCC announced that it was considering a proposal to open up space in the 6 Gigahertz (GHz) band for new uses. This band of spectrum is used extensively by critical infrastructure industries like electric utilities, natural gas transmission providers, railroads and even public safety organizations for mission-critical communications. While I recognize the value in maximizing commercial use of spectrum, I strongly believe we must ensure that communication by public safety organizations is not compromised. Several of us on the Energy and Natural Resources Committee wrote Chairman Pai of the FCC last week to request that he ensure critical infrastructure industries will not be negatively impacted in should their proposal move forward and Assistant Secretary Walker voiced his similar concerns in a September letter. Do you share his concerns and will you commit to working with the FCC to protect the communications capabilities of critical infrastructure industries in the 6 GHz band?

> **Answer:** DOE has statutory obligations to ensure a reliable energy system. If confirmed, I will make it a priority to be an advocate for critical infrastructure owners and operators who would be affected by the FCC proposal to commingle licensed and un-licensed users in the 6GHz spectrum. It is important to also note that electric and water utilities will not have a readily available alternative to the 6GHz band, if the FCC were to move forward with its proposal to commingle licensed and un-licensed users. Secure communications are mission critical for electric and water utilities and should therefore be ensured. DOE has already contacted FCC regarding these issues. If confirmed, I will continue providing FCC the information it needs to make informed decisions.

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

**Question 8:** Given the urgency of creating the solutions to climate change, including through efficiency, renewables, carbon capture and advanced nuclear, the Department of Energy has a central role in U.S. leadership on this issue. DOE has historically fueled the innovation engine of the U.S. economy by investing in technologies at every step of their research, development, and even commercialization. This role for DOE will only increase in the future. What do you see as the most significant contributions from DOE to reducing greenhouse gas emissions, and how do you plan to commercialize those technologies in a timely manner?

> **Answer:** The Department is committed to a clean and reliable, "all-of-the-above" energy future. Our research reflects this goal. However, we also recognize the importance of turning this research into impact through commercialization. Our applied offices work closely with the Office of Technology Transitions to ensure the full potential of nuclear energy research and carbon management/utilization research is fulfilled through public-private partnerships and maximum awareness. As part of this effort the Office of Technology Transitions and NETL will host a Carbon Utilization Innovation XLab in Pittsburgh in late March. This event will bring the leading private sector companies together with the advanced CCUS research of the DOE.

**Questions from Senator John Barrasso**

**Question:** On January 23, 2019, I wrote Secretary Perry expressing my concern about the Department of Energy's (DOE) announcement to issue a sole source contract to demonstrate the production of high-assay, low enriched uranium (HALEU). DOE justified the sole source contract to meet Department of Defense (DOD) energy needs "because only U.S. origin technology would be capable of producing HALEU for any type of advanced reactor application, civilian or defense related."

I asked if DOD required only U.S.-origin nuclear technology for electricity procurement or civilian energy use at DOD installations. I also asked if the "U.S.-origin" requirement for nuclear technology extended to the entirely of the nuclear fuel supply chain.

Under Secretary Menezes' March 26, 2019, response did not address these questions.

Does DOD require nuclear energy procured for use at DOD installations contain only U.S.-origin nuclear technology? If so, does the "U.S.-origin" requirement extend to all technology and material in the nuclear fuel supply chain, including uranium production?

> **Answer:** Currently, the Department of Defense (DOD) does not directly produce or procure nuclear power for defense installations. As DOD evaluates and develops emerging advanced nuclear technologies for power supply, DOE is providing technical assistance. DOE's decades of technical experience with nuclear power generation, including naval nuclear propulsion, inform our work.

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

Agreements currently in place with foreign suppliers of uranium limit its use for certain defense activities, including use for naval reactors and weapons programs, making the material produced from these sources "obligated" for peaceful uses. Utilizing "unobligated" uranium to power defense installations would obviate applicable foreign supplier restrictions on supplied fuel. In such cases, "unobligated" uranium requires U.S.-produced uranium, meaning uranium that is mined and milled in the United States or extracted in the United States, via in situ extraction.

**Questions from Senator Ron Wyden**

**Question 1:** As we discussed both in our in-person meeting and at the hearing, the Bonneville Power Administration (BPA) is integral to power supply and transmission services not only in the Northwest, but to the reliability of the electric grid in North America. Preservation of these important functions is contrary to Trump Administration's repeated attempts to sell off and privatize BPA and, as we discussed, should be taken off the table. Will you, as Secretary, ensure that BPA is not privatized?

**Answer:** I recognize the importance of Bonneville to the citizens of the Northwest. Congress and the President will arrive at a budget agreement, as they have in the past, and I will work to execute that agreement to the letter. I will also work to ensure BPA customers receive dependable service at a reasonable price.

**Question 2:** As we discussed in our meeting, contractors for the Department have a long history of contesting claims by whistleblowers as well as retaliating against them. This is especially true at Hanford. Last week, the DOE IG issued a report criticizing Bechtel, the Department's largest contractor at the site, for refusing to adopt whistleblower protections that Congress enacted six years ago ("Inspection Report, Department of Energy's Incorporation of 41 U.S.C. 4712 Enhanced Whistleblower Protections for Contractor Employees Into Its Contracts," DOE-OIG-20-04, November 2019). What will you do as Secretary to respond to and protect whistleblowers at the Department and its contractors both at Hanford and throughout the complex?

**Answer:** The Department of Energy recognizes that whistleblowers play a critical role in keeping our government honest, efficient and accountable. If confirmed as Secretary of Energy, I will see to it that the Department continues working diligently to ensure that all DOE contracts provide the whistleblower protections afforded to contractor employees as required by applicable laws.

Moreover, we will continue our work to secure an environment free from the threat of retaliation for all whistleblowers, both Government and contractor employees. In March of this year, I signed a DOE Order that made important improvements to strengthen the Department's Employee Concerns Program, encouraging free and open expression of employees' concerns, without fear of reprisal.

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

**Question 3:** As we discussed in the hearing, it has been reported that Secretary Perry communicated with high-level Ukrainian officials and, at the President's direction, with Rudy Giuliani, his personal attorney, about Ukraine-related matters. It has also been reported that Secretary Perry pushed the Ukrainian government to make changes to the board of Naftogaz, a Ukrainian state-owned natural gas company. Those efforts echoed changes to the board sought by two of Mr. Giuliani's now-indicted associates, Lev Parnas and Igor Fruman. When I asked whether you were aware of any communications between Secretary Perry, or any senior DOE officials, and representatives of Naftogaz you responded that you were, "aware that the secretary met on occasion with individuals who were asking for assistance with the restructuring if you will or reorganization of the state-owned enterprise." Please identify the individuals you referenced as having sought assistance from the Department in restructuring Naftogaz and clarify when those meetings occurred.

**Answer:** I am unaware of any effort, by Secretary Perry or any other DOE employee, to push the Ukrainian government to make changes to the board of Naftogaz, Ukraine's state-owned natural gas production and transportation company. As I mentioned in my testimony, the Department has historically provided technical assistance to Ukraine on various energy matters. A recent report titled "Enhancing Energy Resilience in Ukraine: Assessment and Recommendations" details work, coordinated by the Department, of an international team to identify measures to build resiliency into Ukraine's energy systems, in collaboration with stakeholders in Ukraine. Separately, in February 2019, I participated in a roundtable discussion on European energy security issues at the Munich Security Conference, a widely attended event that gathers heads of states, ministers, non-governmental organizations, and representatives of academia, military, industry, and the media. On the sidelines of that conference, I was asked by Ukraine's Minister of Foreign Affairs, Pavlo Klimkin, for the Department to provide technical assistance on matters including restructuring (often referred to as "unbundling") of Naftogaz, as required by the European Union's Third Energy Package and a key condition for Ukraine to comply with its obligations under the Energy Charter Treaty. Naftogaz CEO Andriy Kobolyev also participated in that brief discussion, as did our respective staff. However, none of my discussions with either Minister Klimkin or Mr. Kobolyev referenced changes to the makeup of the Naftogaz board, Rudy Giuliani, Lev Parnas or Igor Fruman. On May 1, 2019, Mr. Kobolyev and Ukraine's Deputy Foreign Minister Olena Zerkal (and representatives of Ukraine's Embassy) came to DOE headquarters to discuss Naftogaz' need to finance additional purchases of natural gas to store for the winter 2019-20 heating season in anticipation of Russia's Gazprom cutting off gas supplies to Eastern Europe. Those discussions also included an update on Ukraine's unbundling plans.

**Question 4:** Were you aware of any communications between Secretary Perry or any other senior DOE official and Mr. Giuliani regarding Ukraine, Naftogaz, or any other matter. If so, please describe those communications.

**Answer:** I was aware of no such communications.

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

**Question 5:** Were you aware of any communications between Secretary Perry or any other senior DOE official and Michael Bleyzer or Robert Bensh regarding Ukraine, Naftogaz, or any other matter? If so, please describe those communications.

**Answer:** I was aware of no such communications.

**Question 6:** Were you aware of Mr. Giuliani's broader Ukrainian efforts? Have you had any communications with Mr. Giuliani about Ukraine or any other matter? If so, please describe these communications.

**Answer:** I was not aware of Mr. Giuliani's reported Ukrainian efforts and became aware of his efforts only from open source press reports. I have never communicated with Mr. Giuliani regarding Ukraine. I have met Mr. Giuliani only once, in 2007, at a fundraiser when he was campaigning for President.

**Question 7:** Have you had any communications with U.S. Ambassador to the European Union Gordon Sondland or former special envoy to Ukraine Kurt Volker about Ukraine, Naftogaz, or any other matter? If so, please describe those communications.

**Answer:** Shortly after his confirmation by the U.S. Senate, I had one meeting with Ambassador Sondland in July 2018 to discuss U.S. energy policy and DOE priorities for U.S.-E.U. energy engagement. The only discussion specific to Ukraine was regarding Nord Stream 2 and how its completion would deprive Ukraine of an important revenue source and further increase Europe's dependence on Russia for natural gas. I was also with a delegation of government officials that included Ambassador Sondland on two separate occasions: the 75th Anniversary of D-Day and a visit to the Cameron LNG export facility in Louisiana. Neither Ukraine nor Naftogaz were discussed on either occasion.

I had no such communications with Ambassador Kurt Volker.

**Question 8:** Will you commit to providing any and all information to the Congress that is requested from you or the Department of Energy during the course of the impeachment inquiry related to Ukraine or any other matter?

**Answer:** I commit to engage in accommodating lawful requests for information, subject to any valid claim of privilege or immunity.

**Question 9:** More specifically, there are a handful of exascale computing projects slated for development in the next few years. Building out these systems will ensure our nation continues its lead in science R&D on the world stage. Will these remain a priority and what help do you need from the Committee to ensure exascale computing is a top priority of the Department?

**Answer:** Yes, Exascale computing projects will remain a priority. The Exascale Computing Component within the Department's Exascale Computing Initiative enables

continued U.S. global strategic advantage in science and technology, which is the foundation of future revolutions in technology development, energy security, scientific discovery, and national security. We have enjoyed great support from Congress and look forward to your continued support.

**Question 10:** In September, Secretary Perry announced the creation of the DOE's Artificial Intelligence and Technology Office to serve as a hub for DOE's AI efforts and to facilitate partnerships and access to federal data, models and high performance computing resources for America's AI researchers. Will you continue this initiative and how will the Department partner with private sector enterprises on this initiative to accelerate the R&D, delivery, and adoption of AI?

**Answer:** I will continue this very important initiative. Artificial Intelligence is a rapidly evolving technology that will have an impact on the missions of nearly every office of the Department of Energy. Standing up cross-cutting Artificial Intelligence Technology Office (AITO) allows the Department to take a holistic approach to A.I. research and development and ensure optimized use of taxpayer dollars. The AITO will act as a "one stop shop" for private sector innovators, other federal agencies, and partners in higher education to facilitate increased partnerships and accelerate the pace of development of A.I. technologies, which have vast applications from grid security to precision medicine.

**Question 11:** This Committee helped to enact the National Quantum Initiative Act last year - landmark legislation aimed at ensuring America remains at the forefront of quantum information science and technology for decades to come. Can you provide the Committee with an update on how the Department is implementing the law's direction to establish National Quantum Information Science Research Centers to conduct basic research, and DOE's progress in selecting members to serve on the National Quantum Initiative Advisory Committee? In particular, how is DOE helping to ensure America's private sector industrial stakeholders are represented in that Committee?"

**Answer:** The FY 2020 President's Budget Request contained funding to fund at least one National Quantum Information Research Center. DOE is in the process of standing up the first Center, and subject to availability of funding, intends to release a Funding Opportunity Announcement in FY 2020. The Department publicly announced the National Quantum Initiative Advisory Committee on September 11, 2019, and has solicited nominations for membership to the committee.

**Questions from Senator Maria Cantwell**

**Question 1:** Deputy Secretary Brouillette, the Department of Energy, Washington state and the EPA are beginning negotiations regarding the path forward for Hanford cleanup. These negotiations will be an important opportunity to prioritize cleanup work in order to achieve the greatest reduction of risk to human health and the environment. There are clearly a lot of

priorities at Hanford, including startup and operation of the Direct Feed Low Activity Waste Facility (DFLAW), sitewide risk mitigation, soil and groundwater remediation, and ensuring the site's aging infrastructure is capable of meeting future needs. As secretary, how would you prioritize the work at Hanford, and what steps would you take to build support from regulators, communities, tribes and other important stakeholder groups?

**Answer:** I fully understand the magnitude and importance of the Environmental Management mission at Hanford and look forward to visiting. Sites like Hanford in Washington State directly contributed to our nation's national defense and security. I will continue our ongoing consultations with regulators, communities, Tribes, and other stakeholders as the Department of Energy continues to thoughtfully and deliberately work toward determining the best path forward to safely and successfully complete the clean-up, including treating Hanford's tank waste. We continue to make progress towards commissioning of the direct feed low-activity waste facilities and are conducting an Analysis of Alternatives to evaluate options for the high level waste fraction of the tank waste. We fully recognize the challenges we face and are addressing these challenges head-on with an eye toward getting waste treated and disposed of safely and efficiently.

If confirmed, I will work with you to ensure we address the environmental legacy of this mission by making sustainable, risk-informed, and fiscally wise decisions for the clean-up of the site.

**Question 2:** Deputy Secretary Brouillette, what will you do to ensure there is adequate funding to meet the Department's cleanup milestones at Hanford and other legal obligations under the TriParty Agreement? How will your efforts be different than your predecessor?

**Answer:** I am personally committed to achieving the mission at Hanford. If confirmed, I will work with you, the State of Washington, other Senators and Members of Congress, and others to ensure we are making sustainable, risk-informed, and fiscally wise decisions regarding our Environmental Management obligations at Hanford.

The Department's FY 2020 Budget Request will enable continued achievement of important cleanup progress. The request supports DOE's approach to beginning tank waste treatment at Hanford by the Amended Consent Decree deadline of 2023 through the Direct Feed Low Activity Waste (DFLAW) approach; allows DOE to initiate commissioning of those sections of the Waste Treatment and Immobilization Plant necessary to implement DFLAW to include the Low Activity Waste Facility, Analytical Laboratory, Effluent Management Facility, and the Balance of Facilities; and will enable DOE to maintain safe operations and site-wide services at the site, continue groundwater pump-and-treat operations, and continue waste site remediation in the River Corridor.

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

As I stated during the hearing, I hope to bring some additional business discipline to our contractors at Hanford so we can speed up the cleanup operations, which is one of my highest priorities.

**Question 3:** Deputy Secretary Brouillette, the HAMMER Federal Training Center at Hanford stands out for providing exceptional worker safety training. Are you committed to continuing Department of Energy's support for HAMMER, and what additional actions will you take to ensure the safety of the workforce at Department of Energy sites?

**Answer:** Yes. I strongly support HAMMER, and the important role it plays in providing safety training for our workers at Hanford. If confirmed, I will continue to support investments in upgrades and replacements, worker training programs, and new technologies that may provide further protections for the workforce, which is critical to our continued progress.

**Question 4:** Deputy Secretary Brouillette, I'm interested to hear your views on the Energy Department's role in further expanding the deployment of renewables. I believe Energy Department R&D has played a key role in helping bring about the rapid and remarkable decline in the costs of wind and solar we've seen over the last decade. Those efforts included tackling deployment challenges such as project financing, customer acquisition, and other so-called soft costs like project financing. Do you believe that DOE work in support of clean energy deployment, such as the soft cost program under the SunShot program, helped to expand consumer energy choices and lower solar installation costs?

**Answer:** I believe renewable energy should be part of an "all-of-the-above" energy strategy. I believe that the Department of Energy should continue to invest in the research that will spur the innovation that will keep America's economy, including its wind and solar industries, competitive. I also believe that we need a focus on domestic solar manufacturing to improve domestic solar competitiveness.

**Question 5:** Deputy Secretary Brouillette, do you agree that wind and solar generation are now the least cost option in most markets, without even pricing in the risk of volatile future gas prices or climate change? Are solar, wind, and storage prices expected to continue to decline in the coming years? Do you believe that falling renewable energy prices will lead to lower electricity costs for consumers if we switch away from increasingly costly fossil fuels?

**Answer:** I envision the Department continuing to develop technologies that produce energy more efficiently and in an environmentally friendly way that will lead to lower costs. I believe that a strong national energy program can include natural gas, oil, and coal.

**Question 6:** Deputy Secretary Brouillette, do you think the marketplace would react more effectively and efficiently to a policy mechanism like a predictable price on carbon or more intangible policies like boosting DOE R&D? Or do we need both?

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

**Answer:** As I previously stated, I believe that the Department of Energy should continue to invest in the research that will spur the innovation that will keep America's economy, including its wind and solar industries, competitive.

**Question 7:** Deputy Secretary Brouillette, were you involved in developing the proposed rule the Energy Department sent FERC in late 2017 that would have favored uneconomic coal and nuclear plants at the expense of renewables, natural gas, and other emerging clean energy technologies?

**Answer:** As the COO of the Department, I helped identify and organize the experts and resources required to prepare the proposal. The rule was an effort to recognize and fairly price all fuel sources used to generate electricity.

**Question 8:** Deputy Secretary Brouillette, in January 2018 the FERC unanimously rejected the Energy Department's proposal referenced in the question above, do you agree with their decision?

**Answer:** I respect FERC's decision to further study the important issues surrounding the reliability and resiliency of the nation's electric generation and distribution resources.

**Question 9:** Deputy Secretary Brouillette, according to an analysis by The Brattle Group, keeping U.S. coal and nuclear fleets operating as is for the next two years would have cost $34 billion. Do you agree with their conclusions and how do you think those costs would have impacted household electricity bills in the covered areas?

**Answer:** I am not familiar with that report, but as I previously stated, I believe that a strong national energy program can include natural gas, oil, and coal.

**Question 10:** Deputy Secretary Brouillette, on November 23, 2018, thirteen federal agencies including the Department of Energy – with input from hundreds of government and non-governmental experts – jointly issued the Congressionally-mandated Fourth National Climate Assessment. I appreciate that testimony before the Energy Committee mentions the progress our nation has made in reducing greenhouse gas emissions, but found it striking that you didn't mention why that was important. Could you please confirm that you agree with each of the following conclusions from the Fourth National Climate Assessment:

*"Climate change is transforming where and how we live and presents growing challenges to human health and quality of life, the economy, and the natural systems that support us."*

*"Future impacts and risks from climate change are directly tied to decisions made in the present."*

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

*"There are no credible alternative human or natural explanations supported by the observational evidence."*

**Answer:** I cannot speak to the specifics of where and how the way people live may be changing, nor how human health, quality of life, the economy, nor natural systems are changing. I do believe that the climate is changing, which will pose challenges. One of the many important areas of research we are pursuing at the Department of Energy is in the Office of Biological and Environmental Research, focusing on improving our understanding of basic environmental and Earth systems science. It is important that we continue to better understand changes in our environment.

**Question 11:** Deputy Secretary Brouillette, as this Committee grapples with how to best undertake our responsibility to respond to the challenge of climate change, and having been instrumental in the drafting of the 2005 Energy Bill, do have any recommendations or models for legislation we should pursue?

**Answer:** The Department routinely responds to requests for technical assistance on proposed legislation prepared by members of Congress, and will continue doing so.

**Question 12:** Deputy Secretary Brouillette, the Department of Energy has successfully operated excess personal property programs at cleanup sites around the country for decades. These programs are managed by DOE-designated Community Reuse Organizations (CROs), who sell unneeded property from DOE sites and reinvest those funds for economic development. These programs are proven to be very effective in helping to grow and diversify local economies and, very importantly, they actually reduce costs to the federal government. Unfortunately, it appears that the future of these programs is in question. In fact, the program at Hanford, which has contributed to the creation of over 1,600 local jobs, has already been effectively cancelled. As Secretary, what will you do to ensure that common-sense programs such as this one continue into the future?

**Answer:** I recognize the importance of building strong, collaborative relationships with our cleanup site communities, and support that continued collaboration. The Department supports community reuse organizations within established legal boundaries. If confirmed, I will work with our program offices to ensure a consistent approach, aligned with legal and regulatory requirements, is employed across the complex, in order to enable these programs to continue into the future.

**Question 13:** Deputy Secretary Brouillette, standby power was historically estimated to account for 5-10% of residential electricity use in most developed countries and roughly responsible for 1% of global carbon dioxide emissions. I understand that more recent technology advances and government policies may have reduced standby power loads but that some of that progress may have been mitigated by the growing number of connected electronics all of us have in our homes today. Can you please share your thoughts on standby power—both about the scope of the problem and whether we should be doing more about it? Please share any specific policy

measures you think the Committee should consider that could help address standby power losses. I authored Section 524 of the Energy Independence and Security Act of 2007 which required that any federally-procured product use one watt or less in standby mode, can you please detail what actions the Energy Department and the Federal Energy Management Program have taken to implement that law?

**Answer:** The Department should continue to investigate possible improvements with regard to standby power. However, I am not conversant with all the activities being undertaken to address the issue. If confirmed, I look forward to working with your office to explore the opportunities.

**Questions from Senator Bernard Sanders**

**Climate Change**

**Question 1:** In November 2018, the U.S. Global Change Research Program released the Fourth National Climate Assessment (the Assessment), which found that human activity is the primary cause of climate change and that climate change will cost hundreds of billions of dollars and cause thousands of premature deaths each year in this country alone unless we take action now to drastically reduce our greenhouse gas emissions.

a. Do you agree with the Assessment's conclusion that human activity is the primary driver of climate change? If not, please describe the specific findings and methodology with which you disagree.

**Answer:** I cannot speak to the specific findings of the report, but I believe the climate is changing, and humans must have some impact. One of the many important areas of research we are pursuing at the Department of Energy is in the Office of Biological and Environmental Research (BER), focusing on improving our understanding of basic environmental and Earth systems science. It is important that we continue to better understand changes in our environment.

b. Do you agree with the Assessment's conclusion that climate change will cost hundreds of billions of dollars and cause thousands of premature deaths each year in the United States alone if we do not dramatically reduce our greenhouse gas emissions? If not, please describe the specific findings and methodology with which you disagree.

**Answer:** I cannot speak to the findings of the report, but I believe the important question is how we address climate change in a thoughtful way that doesn't compromise economic growth, the affordability of energy, or American jobs.

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

c. In my questions for the record from your nomination hearing on May 25, 2017 as Deputy Secretary for the Department of Energy (DOE), I asked whether you agreed with the vast majority of scientists in believing that climate change is real and caused by human activity, and that we must aggressively transition away from fossil fuels toward energy efficiency and sustainable energy like wind and solar. You responded by saying that you believe the costs and benefits of climate related policies need to make sense for the American family.

According to Lazard's 2019 Levelized Cost of Energy report, "climate related policies" like wind and solar are the cheapest forms of new energy generation. Additionally, according to the Solar Foundation, solar power is responsible for one in every 50 new jobs created in the United States, and the clean energy sector is growing at 17 times the rate of the rest of the economy. Since these "climate related policies" clearly make sense for the American family, please outline your plan, if confirmed, for increasing investments in DOE renewable energy and energy efficiency programs.

**Answer:** When and where wind and solar are the cheapest forms of new energy generation, the market will drive increased investment in the deployment of these technologies.

I support the President's budget. If confirmed, I will work diligently to ensure that the funds appropriated by Congress are expended effectively, efficiently, while supporting the EERE mission in accordance with the law.

d. In my questions for the record from your nomination hearing on May 25, 2017 as DOE Deputy Secretary, I asked you how important you believed it was to reduce the amount of fossil fuels that we use to support our energy needs. You responded by saying "a strong national energy program is needed to meet the present and future energy needs of the Nation consistent with overall national economic, environmental and social goals" and that a strong energy program can include natural gas, oil, and coal.

In light of the Assessment's findings that fossil fuels like natural gas, oil, and coal are driving climate change, would you like to revise this statement for the record? If not, please describe:

**Answer:** No, thank you.

1. How hundreds of billions of dollars of climate-driven economic damage is consistent with our country's overall national economic goals.

**Answer:** I have no knowledge of specific damage currently being caused to the nation's economy. I support policies that lead to lower energy costs, a significant driver of economic growth. If confirmed, I look forward to

supporting innovation in energy technology research and development at the Department of Energy, consistent with the law and Congressional appropriations, to meet the goal of lowering energy costs and emissions.

2. How thousands of premature deaths each year is consistent with our country's overall national social goals.

   **Answer:** I have no knowledge of the specific premature deaths to which your question refers. I support policies that lead to lower energy costs, a significant driver of economic growth. If confirmed, I look forward to supporting innovation in energy technology research and development at the Department of Energy, consistent with the law and Congressional appropriations, to meet the goal of lowering energy costs and emissions.

3. How extinction of species, increases in invasive species and disease outbreaks, and ocean acidification are consistent with our country's overall national environmental goals.

   **Answer:** I have no knowledge of any specific species extinction, disease outbreak, or ocean acidification to which your question refers. I support policies that lead to lower energy costs, a significant driver of economic growth. If confirmed, I look forward to supporting innovation in energy technology research and development at the Department of Energy, consistent with the law and Congressional appropriations, to meet the goal of lowering energy costs and emissions.

4. Your plan, including a timeline, for dramatically reducing the amount of fossil fuels that we produce, transport and use.

   **Answer:** I support an "all-of-the-above" strategy, which can include natural gas, oil, and coal. I believe that rather than focusing on using regulation to eliminate energy options, the U.S. should focus on a policy of energy innovation, which is consistent with the statutory mission for the Department of Energy. I'm confident that the women and men at our National Labs and universities and in the private sector will innovate and find new solutions to our energy challenges. We are aggressively pursuing the next generation of energy storage, advanced reactors, carbon capture, and hybrid-energy systems.

   Meanwhile, we must remember that energy technology cost and performance both matter. If people can't afford an energy solution, they will not purchase it at scale. And, if we cannot ensure that a technology will facilitate reliable and resilient operation of the grid, it will not be deployed at scale.

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

**Question 2:** In my questions for the record from your nomination hearing on May 25, 2017 as DOE Deputy Secretary, I asked what you believed were the best then-current and prospective DOE policies to effectively reduce carbon pollution from energy development and use. You responded by saying that you looked forward to being briefed by DOE staff on current policies in this area. Given that you have had ample time to be briefed, what do you now believe are the best current and prospective DOE policies to effectively reduce carbon pollution from energy development and use?

> **Answer:** I support an "all-of-the-above" strategy and plan to focus on energy innovation, which is consistent with the statutory mission for the Department of Energy. I'm confident that the women and men at our National Labs and universities and in the private sector will innovate and find new solutions to our energy challenges. We are aggressively pursuing the next generation of energy storage, advanced reactors, carbon capture, and hybrid-energy systems, which we believe will be important low-, or zero-carbon energy resources that will work with today's energy technologies, including wind, solar, and hydro power.

**Question 3:** Please describe what you perceive as the current impacts of climate change on this country.

> **Answer:** I am not familiar with specific current impacts that can be entirely attributed to climate change.

**Vermont**

**Question 4:** In my questions for the record from your nomination hearing on May 25, 2017 as DOE Deputy Secretary, I asked what you would do to support Vermont's efforts to achieve its goal of 90 percent clean energy by 2050. You responded by saying that you had not been fully briefed on the tools available to help Vermont move forward with its goals, and that you looked forward to learning more about how DOE can help support Vermont's efforts.

Given that you now have had ample time to be fully briefed on the tools available to help Vermont move forward with its goals, what will you do, if confirmed, to support Vermont's efforts to achieve its goal of 90 percent clean energy by 2050.

> **Answer:** In several of my previous answers, I have described "all-of-the-above" energy policies I plan to pursue to ensure lower cost and lower emission energy solutions for the future. If there are specific technical energy challenges facing Vermont in relation to the goal you stated in this question, if confirmed, I would be happy to work with you, your staff, and officials of the State of Vermont on technical solutions.

**Question 5:** In my questions for the record from your nomination hearing on May 25, 2017 as DOE Deputy Secretary, I asked what DOE could do to support the production and use of electric

vehicles. You responded by saying that DOE needed to make sure electric vehicles are at the right price and have the features that work for the American family.

a. What, in your view, is the "right price" for electric vehicles? What have you done as DOE Deputy Secretary to ensure that electric vehicles achieve that price? If confirmed, what new efforts will you undertake as DOE Secretary to ensure electric vehicles achieve that price?

> **Answer:** I will continue to support programs that make sense for the American people. I still believe that it is up to the private sector to make cars and trucks to meet the American public demand.

b. What, in your view, are "features that work for the American family" in terms of electric vehicles? What have you done as DOE Deputy Secretary to ensure that electric vehicles have those features? If confirmed, what will do you do as DOE Secretary to ensure electric vehicles have those features?

> **Answer:** Affordability and efficiency are key for vehicles, whether they are electric or powered by internal combustion engines. That is why at DOE, our Vehicle Technology Office continues to work on early stage research and development to drive down cost for EVs and batteries, increase range, and reduce charge times.

**DOE Rulemaking**

**Question 6:** On September 4, 2019, DOE issued a final rule that would allow the continued sale of highly inefficient lightbulbs. This energy efficiency rollback is estimated to cost the average American household more than $100 per year, adding up to a total of $14 billion in additional electricity costs by 2025. What is the rationale for this decision to increase Americans' energy bills? Please describe in detail and provide a list of meetings DOE held with any outside groups on this rulemaking while it was being drafted.

> **Answer:** This rule reinstates the clear intent of Congress and gives Americans the choice on how to light their homes. This was a transparent and collaborative process. During the rulemaking process, on September 25, 2018, DOE attended by telephone an E.O.- 12866 meeting between the Office of Management and Budget, Earthjustice, and NRDC on DOE's pending proposed rule. On February 5, 2019, one day before DOE issued its proposed GSL definition rule, DOE met with representatives of LEDVANCE. After DOE published the proposed rule on February 11, 2019, it was open for public comments for 81 days and DOE hosted a public meeting on February 28, 2019, to gather additional input from the public.

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

**Renewable Energy**

**Question 7:** During your time as DOE Deputy Secretary, what has DOE done to research and develop new energy storage technologies? Going forward, what are your goals for energy storage technology? If confirmed, will you commit to supporting robust funding for DOE's energy storage research and development efforts?

> **Answer:** DOE is focusing resources on the emerging challenges of grid integration and energy storage. For example, the FY 2020 request includes funding for the Advanced Energy Storage Initiative, an integrated R&D effort across the applied energy offices to develop storage technologies that enhance flexibility of generation and consumption to support grid reliability.

**Question 8:** In my questions for the record from your nomination hearing on May 25, 2017 as DOE Deputy Secretary, I asked whether you would commit to supporting the hugely successful SunShot Initiative, which in 2017 achieved its original goal of reaching $0.06 per kilowatt-hour for utility-scale photovoltaic solar and set a new goal of reaching $0.03 per kilowatt-hour by 2030. The program has helped contribute to a 22 percent increase in employment in the solar industry year over year, totaling more than 240,000 solar industry jobs in 2018 and growing at a rate 17 times faster than the overall economy. You responded by committing to learn more about the solar program's goals and progress.

Now that you have had ample time to learn about this foundational program's goals and progress, will you commit to supporting this program and ensuring it reaches its 2030 goals?

> **Answer:** I continue to support research and development to uncover the technological breakthroughs that will allow any number of new technologies, including solar, to be more competitive. I am fully supportive of continuing to drive down the costs and improving the efficiency of solar power. Furthermore, I am very supportive of ongoing work to enhance domestic solar manufacturing.

**Question 9:** During your time as DOE Deputy Secretary, what have you done to promote the development and deployment of wind and solar energy in rural areas? If confirmed, what will you do as DOE Secretary to promote the development and deployment of wind and solar energy in rural areas?

> **Answer:** As I have previously stated, renewable energy should be part of an "all of the above" energy strategy. I believe that the Department of Energy should continue to invest in the research that will spur the innovation that will keep America's economy, including its wind and solar industries, competitive.

**Question 10:** As you know, our nation's aging electric grid is desperately in need of modernization. We need a resilient and distributed smart grid that can support a fully renewable energy system. If confirmed, will you commit to supporting the development of such a grid? If

so, please describe your plan, including a timeline, for supporting the development and deployment of this modern, distributed smart grid. If you will not make this commitment, why not?

> **Answer:** The reliability and the physical security of our grid are very important to national security and a crucial role of the DOE. If confirmed, I am committed to strengthening our grid security and modernizing cyber security efforts.

**Question 11:** In FY2018, DOE failed to spend its appropriated funding for research despite clear and strong congressional guidance to invest public dollars in new technologies and innovation for clean energy. In FY2018, approximately $600 million in R&D funding went unused, including $319 million of the Office of Energy Efficiency and Renewable Energy's (EERE) budget (14 percent of EERE's total budget). How much of the FY2019 funding was expended? If greater than FY2018, what did DOE do differently in FY2019, relative to FY2018, to fully use its appropriated research spending? Can you commit to ensuring that DOE will spend all of its congressional appropriations in FY2020? If you cannot make that commitment, why not?

> **Answer:** The Department has honored all FY 2018 obligations directed by Congress and plans to do the same for FY 2019 funds. In FY2018, the "unspent" figures cited were consistent with historical averages. Funds are not "spent" until negotiations have been completed and funds are obligated to the award. For FY 2019, DOE has obligated $1.75B of the total EERE enacted budget. The remaining $630M is planned for obligation with the finalization of EERE's FY 2019 Funding Opportunity Announcement (FOA) awards. If confirmed, I commit to obligating FY 2020 funds that Congress provides for EERE as soon possible after receiving a final appropriation.

**Nuclear Power**

**Question 12:** Do you support the consent-based siting of spent nuclear fuel and high-level radioactive waste initiative that was created and led by the DOE under the Obama administration, and would you support a dialogue between nuclear host communities and potential nuclear waste-storage communities as part of that initiative?

> **Answer:** I believe that solving the issues surrounding the long-term storage of spent nuclear fuel and high-level radioactive waste is absolutely critical. I also stated that it will be very important that all voices in the debate on whether the federal government should develop a long-term storage repository are heard.

**Question 13:** In my home state of Vermont, we have been experiencing first-hand the problems associated with nuclear decommissioning since the Vermont Yankee nuclear power plant shut down in 2014. What responsibility do you feel the federal government has to mitigate the

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

impacts experienced by communities where nuclear plants have been decommissioned and spent fuel storage remains?

**Answer:** I am aware of the situation in your state and of the desire to remove spent nuclear fuel from the Vermont Yankee site. The Department is precluded under existing law from taking title or possession of commercial spent nuclear fuel unless and until Congress appropriates funding to carry out the purposes of the NWPA.

**Question 14:** It has been publicly reported that you are involved with, and supportive of, the Department's efforts to pursue a 123 Agreement to transfer nuclear power technology to the Kingdom of Saudi Arabia. It has also been reported that Senior Advisor to the President, Jared Kushner, has been involved in these efforts.

To your knowledge, has Mr. Kushner been involved in efforts to transfer nuclear power to the Kingdom of Saudi Arabia? Have you ever interacted directly with Mr. Kushner on this issue or any other matters related to the Kingdom of Saudi Arabia?

**Answer:** The answer to both questions is No.

**Question 15:** At a hearing on May 9, 2018, before the Committee on Science, Space, and Technology, Secretary Perry stated that the goal of his civil-nuclear discussions with Saudi Arabia was to convince it to use Westinghouse Electric to construct its reactors: "[W]e tried to really drive home to the crown prince … that if you want the best reactors in world, you have to come to the United States and you have to use Westinghouse." Secretary Perry later told a group of reporters on September 26, 2018 that "the kingdom recently made a decision that keeps U.S. businesses—foremost Westinghouse Electric Co.—in the mix for what could ultimately become a market worth tens of billions of dollars." Westinghouse Electric is owned by Brookfield Asset Management, a Canadian private equity firm that signed a $1.28 billion real estate deal last August with Kushner Companies.

a. Have you ever met or communicated with representatives of Westinghouse Electric or the IP3 consortium to discuss providing nuclear power technology to the Kingdom of Saudi Arabia?

**Answer:** I have met with Westinghouse, but I do not recall ever meeting with IP3.

b. Have you or any other employees at the Department of Energy ever communicated directly with Senior Advisor to the President Jared Kushner on any matters related to Westinghouse Electric, the IP3 consortium or the possible sale of nuclear power technology to Saudi Arabia?

**Answer:** No, I have not done so. I am not aware of, and cannot speak for, other employees of the Department of Energy.

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

**Energy Markets**

**Question 16:** Do you believe that DOE should play a role in ensuring that wholesale market structures align with federal and state environmental mandates? If so, what should that role be?

> **Answer:** Ensuring wholesale market compliance with state environmental mandates falls within the jurisdiction of states. DOE provides technical assistance and develops technologies through various R&D efforts at our National Labs to promote wholesale market compliance with federal mandates as appropriate.

**Science**

**Question 17:** In my questions for the record from your nomination hearing on May 25, 2017 to be DOE Deputy Secretary, I asked whether there were any parts of the DOE website that you believe contain incorrect, incomplete, or erroneous information or descriptions of climate change science. You responded by saying that you had not reviewed the full website.

Now that you have had ample time to review the full website, are there any parts of the DOE website as it existed on January 19, 2017, that you believe contained incorrect, incomplete, or erroneous information or descriptions of climate change science?

> **Answer:** I have not reviewed the full website. But I believe it is important to maintain accurate and helpful information for the benefit of the American people.

**Question 18:** In my questions for the record from your nomination hearing on May 25, 2017 to be DOE Deputy Secretary, I asked whether you would ensure that all data and data interpretations on DOE websites continue to be publicly available and, in cases where they become redundant, are archived in an accessible manner. You responded by saying that you were not aware of current archival practices. Now that you have had ample time to become familiar with DOE's archival practices, will you ensure that all data and data interpretations on DOE websites continue to be publically available and, in cases where they become redundant, are archived in an accessible manner?

> **Answer:** Yes, consistent with appropriate privacy, health and safety, and other applicable protections, in keeping with relevant laws and regulations.

**Question 19:** In my questions for the record from your nomination hearing on May 25, 2017 to be DOE Deputy Secretary, I asked whether you would improve DOE's policies to make explicit that government scientists are permitted to speak freely with the press and the public about scientific matters in order to protect scientific integrity. You responded by saying that you looked forward to being briefed on current laws and practices. Now that you have had ample time to receive briefings on current laws and practices, will you commit to improving DOE's

policies to make explicit that government scientists are permitted to speak freely with the press and public about scientific matters?

**Answer:** DOE employees of all types should be able to speak openly, consistent with national security protections and in keeping with applicable laws and regulations. If confirmed, I would encourage robust scientific integrity policies inside a framework to ensure that they do not compromise national security.

**Questions from Senator Martin Heinrich**

**Question 1:** In September, Secretary Perry announced the creation of DOE's Artificial Intelligence and Technology Office to serve as a hub for AI efforts and to facilitate partnerships and access to federal data, models and high performance computing resources for America's AI researchers. What are the department's plans to collaborate with the private sector to help accelerate the R&D, delivery, and adoption of AI?

**Answer:** I will continue this very important initiative. Artificial Intelligence is a rapidly evolving technology that will have an impact on the missions of nearly every office of the Department of Energy. Standing up cross-cutting Artificial Intelligence Technology Office (AITO) allows the Department to take a holistic approach to A.I. research and development and ensure optimized use of taxpayer dollars. The AITO will act as a "one stop shop" for private sector innovators, other federal agencies, and partners in higher education to facilitate increased partnerships and accelerate the pace of development of A.I. technologies, which have vast applications from grid security to precision medicine.

**Question 2:** Where do you see the near-term opportunities at DOE to apply artificial intelligence? What will be the role of DOE's laboratories in support of the new initiative?

**Answer:** In collaboration with our laboratories, DOE is actively exploring how artificial intelligence technologies can be implemented to improve how the Department delivers on its core missions and how it can enhance the effectiveness of the national laboratory complex. Given the large amount of data that exists in the Energy sector, there are several opportunities for using AI/ML techniques to build intelligent sensors and more realistic and predictive models.

- Machine learning models are currently used to predict flow, optimize hydraulic fracturing ("fracking"), and detect seepage from carbon sequestration and nuclear non-proliferation sites. Data mining coupled with AI/ML is used to predict reservoir behavior in key features such as pressure and saturation levels.
- Distributed sensing can be used for real-time feedback and improvement of operational capabilities in energy infrastructures (e.g., power grid).
- Big data and ML can be used to refine fundamental understanding of materials, equipment, and systems performance to yield more efficient

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

R&D on extreme environment materials and novel system design, including design of small-scale modular reactors; for identifying materials and component fatigue; understanding and predicting fluid flows in power plant systems and the subsurface; and optimizing dynamic responses to market dynamics.

**Question 3:** I was pleased to help enact the National Quantum Initiative Act last year - landmark legislation aimed at ensuring America remains at the forefront of quantum information science and technology for decades to come. Quantum science is an area where both Sandia and Los Alamos National Laboratories have substantial expertise and experience. What is the status and timeline of DOE's implementation of the act's direction to establish up to five National Quantum Information Science Research Centers to conduct basic research?

**Answer:** The FY 2020 President's Budget Request contained funding to fund at least one National Quantum Information Research Center. DOE is in the process of standing up the first Center, and subject to availability of funding, intends to release a Funding Opportunity Announcement in FY 2020.

**Question 4:** Has DOE participated in the process to select members to serve on the National Quantum Initiative Advisory Committee, including representatives from private sector industrial stakeholders?

**Answer:** The Department publicly announced the National Quantum Initiative Advisory Committee on September 11, 2019, and has solicited nominations for membership to the committee.

**Question 5:** Do you see a continuing role for DOE's national security laboratories to contribute to the Office of Science's efforts in quantum technologies and partner in the new research centers?

**Answer:** Within the Department, the Office of Science (SC) is focused on early stage Quantum Information Science (QIS) research that builds on its expertise and capabilities in frontier computing, quantum materials, quantum information and field theory, control systems, isotopes, cryogenics, and other relevant topics spanning the National Laboratory system and multiple program offices. All six of the SC Associate Directors and their staff maintain awareness of other QIS activities across the Department. The Associate Director for Advanced Scientific Computing Research and staff meet regularly with counterparts in the National Nuclear Security Administration to discuss and coordinate evolving QIS research and future hardware investments. The Department also recognizes the urgency articulated in the National Cyber Strategy for innovation in quantum information science that maintains the United States' strategic advantage in cyberspace. In particular, the Strategy prioritizes risk-reduction for seven key areas including national security, and energy and power.

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

**Question 6:** Secretary Perry established a new DOE cyber and energy security office, CESER, to lead the nation's efforts to secure U.S. energy infrastructure against all threats, including cyber attacks. If confirmed, what are your plans to develop this function within DOE?

**Answer:** DOE plays a critical role in bolstering our nation's cyber capabilities and defending our electric grid from all types of threats, both foreign and domestic. Cybersecurity remains a top priority and, if confirmed, I will work within the resources provided by Congress to ensure we support this important mission. The CESER office works closely with local, state, and federal agency partners, as well as energy industry partners to ensure the security of America's energy and electricity infrastructure.

**Question 7:** DOE is the sector specific agency for energy sector cybersecurity. I note that GAO published a report in August titled "Actions Needed to Address Significant Cybersecurity Risks Facing the Electric Grid." The report recommends that DOE develop a plan and implement a cybersecurity strategy for the grid. What is the status of that effort and is the expertise of DOE's laboratories supporting the effort?

**Answer:** In line with the recommendation in the GAO report, DOE's Office of Cybersecurity, Energy Security and Emergency Response (CESER) is focused on strategic efforts that serve to strengthen energy sector cybersecurity preparedness, coordinate cyber incident response and recovery, and accelerate game-changing research, development, and deployment (RD&D) of resilient energy delivery systems.

As the Sector Specific Agency (SSA), CESER works with Federal partners, as well as state, local, tribal, and territorial governments, industry, and DOE's National Labs, focusing on understanding rapidly evolving cyber threats and vulnerabilities, identifying the potential magnitude of impacts, and coordinating with the sector to facilitate mitigation and response strategies.

**Question 8:** DOE recently announced that completion of the ongoing study of interconnection seams on the electric grid will be further delayed to incorporate updated models and information. What additional role does DOE expect for the study's technical committee to review and comment on the proposed expansion or for the public to comment on the additional tools and models to be used?

**Answer:** The Department of Energy (DOE) has a specific interest in large-scale (e.g., inter-regional and even continental-scale) transmission planning. The Interconnection Seams Study was funded through DOE's Grid Modernization Initiative and conducted by NREL to use current tools to assess the benefits of increasing connectivity between the Eastern and Western Interconnections. DOE officials reviewed preliminary results from the study and decided to expand the project to model and analyze additional scenarios. This includes refining methods and data parameterization for improved modeling of transmission congestion within capacity planning tools and grid operations models. The

improved characterization of congestion will model how this transmission expansion can contribute to reliability and resilience in the future grid.

The expanded scope of work for the study is nearly complete. We expect to have some initial results in FY 2020, with the overall project expected to be complete in the summer of 2022.

**Question 9:** U.S. wind deployment has more than tripled over the last decade, spurred in part by the important work of DOE's Wind Energy Technology Office. Today wind is the largest source of renewable generating capacity in the country surpassing 100 gigawatts. DOE's efforts have increased output, improved reliability, and reduced costs. Do you agree that a robust wind R&D program led by DOE is important for continued technology advancement? What specific research areas has the department identified as the most promising?

**Answer:** I continue to support research and development to uncover the technological breakthroughs that will allow any number of new technologies, including wind, to be more competitive. I am fully supportive of continuing to drive down the costs and improving the efficiency of wind power. Furthermore, I am very supportive of the ongoing work to enhance domestic wind manufacturing.

For example, NREL researchers are exploring the manufacturing process for specific parts of a thermoplastic wind blade. At NREL's Composites Manufacturing Education and Technology (CoMET) Facility we are producing wind turbine blade components with thermoplastic resin which reduce a wind turbine's levelized cost of energy by reducing cycle time, embodied energy, and capital costs. Ultimately, these resins have the potential to reduce manufacturing costs by up to 30%, decrease the critical cycle time during production by up to 20%, and improve durability in service and to enable easier blade repairs.

**Question 10:** In a September 10 letter to Secretary Perry, New Mexico Governor Lujan Grisham noted the critical role of the Waste Isolation Pilot Plant in the cleanup of DOE's defense transuranic waste. She also relayed a concern about the current state of the transportation infrastructure surrounding the WIPP and the increasing cost of maintaining the WIPP highways routes in New Mexico. Her specific request to the secretary was for DOE's support for reinstating the annual economic assistance funding to New Mexico, authorized in section 15 of the WIPP Land Withdrawal Act, to help protect the health and safety of New Mexicans. What thoughts do you have with respect to Governor Lujan Grisham's request and what are the specific steps DOE needs to take to reinstate the economic assistance funding?

**Answer:** The Department appreciates the state of New Mexico hosting the Waste Isolation Pilot Plant, the only operating deep geological repository in the United States. DOE fully supports the safe transportation of defense transuranic waste to WIPP. If confirmed, I will work with you and Governor Lujan Grisham to support safe highways and infrastructure in New Mexico for shipments to WIPP.

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

**Question 11:** DOE's new Order 140.1 made major changes in the way the department supports the Defense Nuclear Facilities Safety Board's oversight of nuclear facilities. You signed DOE's Order 140.1 even though there had been no consultation with the board or any outreach to the communities most affected by these facilities. Since the board became aware of the new order, each member has made very clear that the order is both inconsistent with DOE's obligations under the Atomic Energy Act and is preventing the board from meeting its statutory responsibilities. Concerns about Order 1401.1 also continue to be voiced in communities in my state.

If you are confirmed, will you commit to meeting with the members of the board to resolve the continuing conflict over Order 140.1 and assure that the board can fulfill its statutory responsibilities to protect public health and safety?

**Answer:** The Order does not diminish the DNFSB's legal authority defined by Congress under the Atomic Energy Act, nor does it hinder the Department's cooperation with the DNFSB, or prevent the DNFSB from conducting its independent safety oversight mission of the Department's defense nuclear facilities to ensure adequate protection of public health and safety. I am unaware of any mission or oversight changes that the DNFSB has implemented since issuance of the Order, nor has the Department made any such request.

We will continue to support the Board to fulfill its mission as defined by the Atomic Energy Act. During my tenure as Deputy Secretary, I have engaged in multiple meetings with Board members, testified at a public hearing, and conducted an all-hands meeting with the DNFSB staff. If confirmed, I will continue to work with the Board to ensure that DOE Order 140.1 fully supports the Board's efforts to fulfill its statutory mission.

**Question 12:** Do you agree DOE can play a role in helping improve education and training programs for careers in energy-related industries?

What are DOE's existing programs that support career training and energy workforce development?

**Answer:** A highly skilled workforce is vital to America's energy needs. If confirmed, I look forward to ensuring workforce training is appropriately prioritized. The Department of Energy supports a broad range of programs focused on the education and training in science, technology, engineering, and mathematics (STEM) fields that are critical to advancing the DOE's mission in science and innovation, energy, and national security. These opportunities range from hands-on research and training opportunities in all of DOE's mission areas at the National Laboratories, to internships at DOE sites specifically targeting veterans and individuals from Minority Serving Institutions (MSIs).

**Question 13:** I continue to be a strong supporter of efforts to improve technology transfer from the national laboratories. I am pleased the department continues to fully fund the Office of Technology Transitions and named a Chief Commercialization offer to lead it. OTT also

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

continues to manage a robust annual solicitation for funding from the Technology Commercialization Fund authorized in EPAct05.

What are your ideas and plans, if confirmed, to build a more robust technology transfer program at DOE's national laboratories?

**Answer:** The Department of Energy ("DOE") is committed to spurring discovery and innovation at our National Laboratories ("National Labs"), and ensuring that America retains its preeminent place in scientific research and technological commercialization in an increasingly competitive world. DOE recognizes the need for an increased reliance on the private sector to fund later-stage research, development, and commercialization of energy technologies by fostering collaboration between National Labs, universities and companies, as well as our state and local partners, and the need for innovative funding models to accelerate and ease technology development and commercialization of cutting edge research and innovation.

We have elevated DOE's technology transition mission by promoting the Director of OTT as our first Chief Commercialization Officer (CCO) in November 2018, to better coordinate and enhance efforts across the Department.

OTT also creates The Lab Partnering Service ("LPS") which serves as a single access point to the National Labs for investors, innovators, and institutions allowing advanced and user-friendly online search capabilities across numerous technology areas within the Department, and enabling more streamlined access to DOE expertise, information and capabilities.

DOE is leading a series of Summits called InnovationXLab, to increase the engagement of the National Labs with the private sector on high-impact, and potentially transformative, innovations and technologies. These Summits highlight research from the National Laboratories that is approaching commercial application and hear from industry about its current and emerging technical challenges, risk appetite, and investment criteria. Our InnovationXLab Summits have highlighted energy storage technology; grid modernization and cybersecurity; advanced manufacturing; and AI.

In November 2018, DOE announced the approval of the Laboratory Agreement Processing Reform initiative, designed to streamline the ability of contractors at our National Labs to enter into certain lab partnering agreements within a DOE-approved portfolio of routine work. We anticipate this will significantly reduce the processing time for agreements in the approved portfolio, enabling the National Labs to concentrate on more complex, potentially higher-impact transactions. DOE also announced a Liability Reform initiative, providing more flexibility for the National Labs to address indemnity requirements, a common barrier to engagement with the private sector.

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

**Question 14:** You may be familiar with URENCO USA's Nuclear Enrichment Facility in Eunice, New Mexico, which has been operating since 2010 and currently meeting more than a third of the U.S. demand from utilities for enriched uranium. I know you would be welcome to tour this unique facility.

Do you agree that DOE's primary role is to support the investments made by the private sector to help ensure the viability of the domestic nuclear infrastructure, such as URENCO?
Would you agree that in the future open and transparent competition for the civil HALEU fuel-cycle presents the best chance of success for US-based industry to compete in the global market?

> **Answer:** I believe a strong front-end of the nuclear fuel cycle is important for the U.S. advanced nuclear reactor industry and look forward to increased competition in the marketplace to ensure the viability of the domestic nuclear infrastructure. I look forward to touring URENCO, if confirmed.

**Questions from Senator Mazie K. Hirono**

**Question 1:** The Insular Areas Act of 2011 (P.L.112-149) requires the Secretary of Energy to conduct radiochemical analysis of the groundwater surrounding the Cactus Crater containment structure on Runit Island in the Republic of the Marshall Islands, and to conduct a visual examination of the structure. The Act requires the Secretary to conduct such monitoring activities at least once every four years, and to submit a report to Congress that outlines the results of those activities, and to make a determination as to whether the results indicate any significant change in health risks to the people of Enewetak.

Last month, the Departments of Interior and Energy signed a memorandum of understanding to fund and conduct the radiochemical and structural analysis. Monitoring activities are expected to take approximately 18 months. If confirmed as Secretary of Energy can you commit that the Department of Energy will complete the monitoring and analysis on time, and submit the report to this committee in a timely manner?

> **Answer:** Yes, DOE will follow the statute and continue to work with DOI to meet the requirements of the Insular Areas Act of 2011.

**Question 2:** DOE's stated mission is to "ensure America's security and prosperity by addressing its energy, environmental and nuclear challenges through transformative science and technology solutions." That mission reflects the various goals that Congress has given the DOE over the years, but Congress has not given DOE the explicit goal of addressing the causes and effects of climate change (see, for example, Section 902 of the Energy Policy Act of 2005). Do you support or oppose Congress adding to DOE's authorized goals a) reducing the greenhouse gas emissions of energy related activities, and b) improving the resilience of the energy sector to climate change?

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

**Answer:** The Department does and continues to develop technologies that produce energy more efficiently and in an environmentally friendly way.

**Question 3:** In your view, if the U.S. were to return to nuclear weapons testing, what would be the implications for other nuclear powers like Russia, China, India, and Pakistan? Will you pledge to uphold U.S. policy of not supporting a return to nuclear weapons testing and to working to strengthen the global taboo against nuclear testing?

**Answer:** I would defer to the lead agencies, the Department of Defense and Department of State, on the policy analysis and national security implications for Russia, China, India, and Pakistan, if the U.S. were to return to nuclear weapons testing. If confirmed, I pledge to uphold the United States' commitment to a moratorium on nuclear explosive testing. I will rely upon the expertise of the lab directors and the Commander of STRATCOM—who, through the annual assessment process, certifies the stockpile to the President. I recognize the role that the Stockpile Stewardship Program has played and the advances in technology that have allowed us to both certify and life extend our existing stockpile without the need for nuclear testing.

**Question 4:** The state of Hawaii is unique in that each of the Hawaiian Islands operates as its own isolated power grid. Consequently, the State faces a number of unique challenges as it seeks to reach its goal of 100% renewable power by 2045. Over the last decade, the Department has been a key partner with the State as it seeks to modernize its electric grid, including renewing a Memorandum of Understanding (MOU) in 2014 to provide technical assistance on meeting the state's energy goals. Will the department under your leadership you continue to assist the state of Hawaii as outlined in the 2014 MOU?

**Answer:** I believe that providing and sharing information is an important role of the Department of Energy and I look forward to working with you if confirmed.

**Question 5:** I have reintroduced the Next Generation Electric Systems Act, S. 2380, which would bring together the DOE and private expertise to spur innovation in the ability of the electric power grid to provide families and businesses with affordable and reliable power from increasingly clean sources. What steps will you take at Secretary to help modernize the grid to incorporate high levels of intermittent renewable power, and technologies like energy storage, microgrids, and electric vehicles? During the hearing, you discussed the challenges of moving power across the grid to different regions of the country to take advantage of renewable sources of power. Can non-contiguous territories and states like Hawaii and Alaska count on DOE's continued support to improve electricity transmission and distribution?

**Answer:** The reliability and the physical security of our grid are very important to national security and a crucial role of the DOE. If confirmed, I am committed to strengthening our grid security and modernizing cyber security efforts.

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

**Question from Senator Cindy Hyde-Smith**

**Question:** The Federal Communications Commission (FCC) is considering a proposal to open the 6 GHz spectrum band for unlicensed use. The 6 GHz band is used by critical infrastructure companies like electric and water utilities, first responders and others for mission-critical communications that are essential to public health, safety and wellbeing. While I recognize the importance of expanding our nation's wireless capabilities, especially in the rural parts of my state, I also have questions about how this proposal will affect incumbent users. If confirmed, will you make it a priority to ensure that consequences to incumbent users are addressed prior to opening the 6GHz spectrum band for unlicensed use?

**Answer:** DOE has statutory obligations to ensure a reliable energy system. If confirmed, I will make it a priority to be an advocate for critical infrastructure owners and operators who would be affected by the FCC proposal to commingle licensed and un-licensed users in the 6GHz spectrum. It is important to also note that electric and water utilities will not have a readily available alternative to the 6GHz band, if the FCC were to move forward with its proposal to commingle licensed and un-licensed users. Secure communications are mission critical for electric and water utilities and should therefore be ensured. DOE has already contacted FCC regarding these issues. If confirmed, I will continue providing FCC the information it needs to make informed decisions.

**Questions from Senator Angus S. King, Jr.**

**Question 1:** Scientists report that methane is 84 times more potent than carbon dioxide and is a much more damaging greenhouse gas in the short-term.

What specifically is the Department of Energy doing to help contain unnecessary methane emissions in the natural gas supply chain?

**Answer:** The U.S. has the most extensive natural gas production, gathering, processing, storage, and pipeline delivery system in the world. DOE's Office of Fossil Energy (FE) is focused on the technologies needed to keep the system operating at the highest level of efficiency and reliability.

When it comes to methane mitigation, DOE's FE and the National Energy Technology Laboratory (NETL) are pursuing R&D on new enabling technologies for mitigating against methane emissions and enhancing the cyber-physical security and resiliency of the natural gas pipeline infrastructure. These mitigation efforts are focused on a combination of developments in (1) new sensor technologies combined with artificial intelligence for real time operational monitoring and early fault prediction and (2) advanced materials for pipelines including liners and coatings.

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

**Question 2:** Is the department doing research regarding methods to reduce methane leakages that occur during natural gas production and transport?

**Answer:** DOE FE and NETL are pursuing R&D on new enabling technologies for mitigating against methane emissions and enhancing the cyber-physical security and resilience of the natural gas pipeline infrastructure. FE is also continuing its research efforts to identify the sources of high methane emissions rates. When it comes to natural gas transportation, DOE is focused on R&D aimed at developing next-generation intelligent pipelines.

**Questions from Senator Catherine Cortez Masto**

**Question 1:** The President's fiscal year 2020 budget request included $116 million to restart licensing activities for a Yucca Mountain nuclear waste repository. As we have discussed, I oppose any effort to force a nuclear waste repository on Nevada or any other state that has not provided its consent, especially when it would put their communities and economies at great risk.

Will you support this Administration's continued efforts to fund the Yucca Mountain Project or will you instead seek funding to support a nuclear waste repository siting process that is based on consent, sound science, trust, and safety?

**Answer:** As I stated in my testimony, I am obligated to follow the law as directed by Congress to complete the Yucca Mountain licensing process, subject to appropriations.

**Question 2:** In your responses to the questions I previously submitted for the record following your nomination hearing in May 2017, you said you were not familiar with the Blue Ribbon Commission on America's Nuclear Future 2012 report.

**A.** Have you read the report and its recommendation that the Department of Energy Secretary obtain consent from the Governor, local government, and tribal communities of the affected state before a nuclear waste repository can be constructed in that state?

**Answer:** I have been briefed on the report.

**B.** Do you support ensuring states, local governments, and tribal communities have the right to consent when determining a site for a nuclear waste repository or other nuclear waste storage site?

**Answer:** As I stated during my previous confirmation hearing for Deputy Secretary of Energy, it is important that States, tribes and communities have a voice in the siting of nuclear facilities.

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

**Question 3:** During the hearing, I asked if you would support the bill Senator Rosen and I introduced this Congress, the *Nuclear Waste Informed Consent Act* (S. 649), which would require the DOE Secretary to obtain consent from the affected state and local communities, including the governor, local government, and Indian tribes, before funds from the Nuclear Waste Fund could be used for a nuclear waste repository.

**A.** Would you support the bill or any aspects of the bill?

**Answer:** As I stated in the confirmation hearing, I would be happy to review the bill and provide you a direct answer should I be confirmed.

**B.** Do you support consent based siting when deciding where to store nuclear waste?

**Answer:** As I stated during my previous confirmation hearing for Deputy Secretary of Energy, it is important that States, tribes and communities have a voice in the siting of nuclear facilities.

**Question 4:** Are you familiar with Chairman Murkowski's bill, the *Nuclear Waste Administration Act* (S. 1234)?

**A.** Would you support Senator Rosen's and my efforts to ensure Nevada is treated the same as every other state by allowing Nevada to participate in the consent-based siting process established in the bill?

**Answer:** As I stated during my previous confirmation hearing for Deputy Secretary of Energy, it is important that States, tribes and communities have a voice in the siting of nuclear facilities.

**B.** Would you support taking the high-level nuclear waste program out of DOE? Why or why not?

**Answer:** No. DOE's technical expertise traces its lineage to the Manhattan Project during World War II and has been informed by the entire history of commercial and defense nuclear activities in the U.S. It is best suited to do this type of work given the unique scientific expertise provided by the DOE national laboratories.

**Question 5:** Under your watch and that of current Department of Energy Secretary Rick Perry, DOE shipped a half metric ton of plutonium to the Nevada National Security Site (NNSS) from the Savannah River Site (SRS) in South Carolina. During your nomination hearing, you committed to honoring the agreement I secured with DOE, as codified in an April 24, 2019 letter, to begin removing the plutonium from NNSS in 2021.

Will you also commit to removing the one-half metric ton of plutonium from NNSS by 2026?

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

**Answer:** I am committed to commencing removal of this material from Nevada beginning in calendar year 2021, and completing the removal by the end of 2026, pursuant to the terms of the April 24, 2019 letter.

**Question 6:** It is my understanding that there is still roughly 12 metric tons of defense plutonium at the Savannah River Site (SRS) that Congress tasked DOE/NNSA with removing from the site by 2022.

**A.** Do you believe DOE/NNSA will be able to comply with the National Defense Authorization Act requirement that the remaining defense plutonium will be removed from the site by the January 2022 deadline?

**Answer:** I am committed to removing the remaining defense plutonium from the Savannah River Site as expeditiously as possible.

**B.** Can you commit that none of that plutonium will be shipped to Nevada?

**Answer:** I can commit that the Department of Energy does not plan to ship any defense plutonium from South Carolina to Nevada for disposition.

**Question 7:** In July 2019, the State of Nevada and the Nevada Congressional Delegation were notified that DOE had violated the waste acceptance criteria in shipping mislabeled waste to NNSS. During our meeting earlier in the week and during your nomination hearing, you said you expect the Office of Enterprise Assessments to complete its review of the DOE's radioactive waste packaging and shipping policies and procedures within the next 40 days. You also noted that that report would be made public.

**A.** What are the steps DOE will be taking to ensure the Department does not violate its contracts in the future? What will the Department be doing to prevent mislabeled or misclassified waste from being transported through our communities and on our nation's roadways?

**Answer:** As a result of the Y-12 waste characterization incident, the following actions have been taken, or are being undertaken, to strengthen the NNSS waste acceptance program:

- Coordinating Radioactive Waste Acceptance Program facility evaluations with DOE's Office of Enterprise Assessments to share information and to identify opportunities for improvement
- Developed new Lines of Inquiry (LOIs) to more deeply interrogate waste profiles and prioritized on-site verification
- Conducting causal analysis to identify additional ways to strengthen oversight of the waste acceptance and disposal process at the NNSS

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

- Coordinating with the State of Nevada to ensure transparency for all aspects of the Y-12 investigation

**Question 8:** According to media reports, Assistant Secretary Rita Baranwal is supportive of reprocessing spent nuclear fuel. What is your position on spent fuel reprocessing?

**Answer:** Dr. Baranwal is a technical expert in the field of nuclear energy and I look forward to her evaluations of all options for dealing with the used fuel from the current fleet of reactors for my consideration, if confirmed.

**Question 9:** When was the last time you were at Yucca Mountain? NNSS? The Savannah River Site? Los Alamos?

**Answer:** I visited the following sites on the following occasions:

- Last visit to Yucca Mountain: During my previous tenure at DOE as Assistant Secretary of Congressional and Intergovernmental Affairs in the George W. Bush Administration
- Last visit to NNSS: August 2019
- Last visit to Savannah River Site: April 2019 (MOX/SRPPF)
- Last visit to Los Alamos National Laboratory: February 2019

**Question 10:** It is my understanding that DOE recently announced the NREL study on interconnection seams on the electric grid will be delayed until possibly 2022, so that it may include new and updated information and models. Many believe that addressing these seam issues could yield benefits that dramatically exceed the costs of expanding electric transmission across the seams of the Eastern and Western U.S. interconnections.

As we consider transmission related legislation in Congress, it would be very useful to inform the conversation with DOE's findings.

Knowing that the study is going to include new information and models, does DOE plan to do any of the following:

- Reconvene the Seam Study's technical committee;
- Invite the technical committee to review and comment on the proposed project expansion; and
- Solicit public comments on the proposed capacity planning tools and grid operations models to be used?

If no to any of the above, why wouldn't DOE want more technical expertise to aide this study?

**Answer:** The Department of Energy (DOE) has a specific interest in large-scale (e.g., inter-regional and even continental-scale) transmission planning. The Interconnection Seams Study was funded through DOE's Grid Modernization Initiative and conducted by

**U.S. Senate Committee on Energy and Natural Resources**
**November 14, 2019 Nomination Hearing**
**Questions for the Record Submitted to the Honorable Dan R. Brouillette**

NREL to use current tools to assess the benefits of increasing connectivity between the Eastern and Western Interconnections. DOE officials reviewed preliminary results from the study and decided to expand the project to model and analyze additional scenarios. This includes refining methods and data parameterization for improved modeling of transmission congestion within capacity planning tools and grid operations models. The improved characterization of congestion will model how this transmission expansion can contribute to reliability and resilience in the future grid.

The expanded scope of work for the study is nearly complete. We expect to have some initial results in FY 2020, with the overall project expected to be complete in the summer of 2022.

**Question 11:** Earlier this week, we talked about the importance of innovation that has stemmed from DOE's research and development programs, particularly in the renewable energy space.

For instance, U.S. wind deployment has more than tripled over the last decade, largely due to the good work being done at DOE's Wind Energy Technology Office. The research, development, innovation, and collaboration undertaken by the Office has helped wind turbine technology advance and overcome market barriers that would otherwise constrain wind energy deployment.

Investments in renewable R&D have increased output, improved reliability, and reduced consumer costs. Continued progress in all of these areas is critical for the U.S. to attain global leadership in wind, solar, and other renewable technologies.

Do you agree that a robust renewable R&D programs led by DOE are important for continued technology advancement? What specific areas does the department hope to grow further?

**Answer:** I agree that the work DOE has sponsored and conducted has had a remarkable impact on the development and deployment of renewable technology. I support an "all-of-the-above" approach to clean energy technologies that includes renewables.

**Question from Senator John Hoeven**

**Question:** As you know, DOE plays an integral role in producing and sustaining our nuclear deterrent. Minot Air Force Base is the only base with two legs of the nuclear triad. As such, I closely follow efforts to extend and refurbish our nuclear warheads, including the W87-1 ICBM warhead that will be fielded on the Ground Based Strategic Deterrent and the W80-4 warhead that will be used on the Long Range Stand Off (LRSO) Missile that will replace the aging Air Launched Cruise Missile now carried on the B-52.

With five warhead modernization programs underway, the National Nuclear Security Administration (NNSA) is executing an unprecedented variety of complex component development and production work. The NNSA will need sustained funding over the next decade

to support national security priorities like plutonium pit production, the refurbished warhead for the next intercontinental ballistic missile, and a new domestic uranium enrichment capability for defense purposes.

Will you commit to supporting the vital national security mission of the NNSA, including its programs and budget, in order to ensure we maintain an effective nuclear deterrent for the decades to come?

**Answer:** Yes, I am committed to supporting the vital national security mission of NNSA. The U.S. nuclear deterrent has been the cornerstone of our national security and global stability for more than 70 years, and its credibility assures our friends and allies and deters those who wish us harm. For the Nation to retain a credible deterrent and prevent, counter, and respond to global nuclear security threats, NNSA will require significant and sustained investments for the foreseeable future. By investing in NNSA's nuclear security enterprise and continuing our efforts to modernize our scientific, technical, and engineering capabilities and infrastructure, NNSA will continue to deliver on its vital and unique mission.

Air Conditioning Contractors of America
2800 Shirlington Rd. Suite 300 · Arlington, VA 22206 · 703-575-4477

November 12, 2019

Honorable Lisa Murkowski
Chairman
Senate Committee of Energy and Natural Resources
522 Hart SOB
Washington, DC 20510

Honorable Joe Manchin
Ranking Member
Senate Committee of Energy and Natural Resources
306 Hart SOB
Washington, DC 20510

RE: Pending Confirmation – Mr. Dan Brouillette, Department of Energy Secretary

Dear Chairwoman Murkowski and Ranking Member Manchin:

The Air Conditioning Contractors of America (ACCA) is the national association of heating, ventilation, air conditioning, and refrigeration (HVACR) professionals across the U.S. with a membership of nearly 60,000 industry leaders. We write in support of the nomination of the Honorable Dan Brouillette as the U.S. Secretary of Energy.

The HVACR industry is a backbone of the American economy. The products ACCA members design, install, service, and maintain are responsible for ensuring information technology centers are operational, making modern medicine possible, maintaining a fresh food supply, and providing essential comfort for every home, office building, and healthcare facility in the country. The HVACR industry is also one of the largest consumers of energy in the U.S., and the Department of Energy's regulatory agenda has a significant impact on contractors' ability to deliver efficiency and comfort to the American people.

ACCA members are proud business owners and responsible stewards of our environment, supporting efforts to ensure HVACR systems are installed properly and operating efficiently. They understand, firsthand, the importance of having knowledgeable leaders at the Department of Energy who can balance environmental concerns and the ability for HVACR contractors to expand their operations and grow the American economy.

Mr. Brouillette recognizes the importance of the energy industry and the impact it has on our economy and workforce. He has shown strong support for meaningful regulatory reform, energy efficiency programs, and a robust workforce that can support our efficiency goals.

ACCA supports the confirmation of Mr. Dan Brouillette as the Secretary of Energy and urges the Senate to vote in favor of his confirmation.

Sincerely,

**Barton James**
President & CEO
Air Conditioning Contractors of America

The Honorable Lisa Murkowski
Chairwoman
Senate Committee on Energy and Natural Resources
304 Dirksen Senate Office Building
Washington, D.C. 20510

The Honorable Joe Manchin
Ranking Member
Senate Committee on Energy and Natural Resources
304 Dirksen Senate Office Building
Washington, D.C. 20510

November 13, 2019

Dear Chairwoman Murkowski and Ranking Member Manchin:

We write to express our strong support for Dan Brouillette's nomination to serve as Secretary of the Department of Energy and urge your support for his confirmation.

We believe Mr. Brouillette's integrity, experience, and managerial expertise, demonstrated during his many years of senior leadership positions in the public and private sectors, including Deputy Secretary of the Department of Energy, USAA, Ford Motor Company and Chief of Staff to the U.S. House Energy and Commerce Committee, uniquely prepare him for this important role. Mr. Brouillette's deep qualifications and broad support is also validated by his previous U.S. Senate confirmation for Deputy Secretary of the Department of Energy in August 2017 on a bipartisan vote of 79 to 17.

We share Mr. Brouillette's commitment to ensuring that our nation's growing energy demands continue to be met by American innovation, technology, efficiency, and free enterprise. Continued access to abundant, durable, and affordable energy – to power our homes, businesses, transportation, communications networks, and more – is critically important to economic growth and American security.

We again respectfully request your support for the confirmation of Mr. Brouillette to serve as Secretary of the Department of Energy and look forward to continuing our strong partnership to strengthen American energy security and drive innovation.

Sincerely,

Alabama Petroleum Council
Alaska Oil and Gas Association
American Chemistry Council
American Composites Manufacturers Association
American Forest & Paper Association
American Fuel and Petrochemical Manufacturers
American Gas Association
American Petroleum Institute
American Pipeline Contractors Association
American Public Gas Association
API New York
API Ohio

Arkansas Independent Producers and Royalty Owners
Arkansas Petroleum Council
Associated Industries of Florida
Associated Petroleum Industries of Michigan
Associated Petroleum Industries of Pennsylvania
Association of Home Appliance Manufacturers
Association of Oil Pipelines
Brick Industry Association
Center for Liquefied Natural Gas
Colorado Petroleum Council
Connecticut Petroleum Council
Distribution Contractors Association
Edison Electric Institute
Electric Power Supply Association
The Fertilizer Institute
Florida Petroleum Council
Glass Packaging Institute
Georgia Petroleum Council
Illinois Petroleum Council
Independent Petroleum Association of America
Indiana Petroleum Council
International Association of Drilling Contractors
International Association of Geophysical Contractors
International Marine Contractors Association
Interstate Natural Gas Association of America
Kansas Petroleum Council
LNG Allies, The US LNG Association
Louisiana Association of Business and Industry
Louisiana Mid-Continent Oil and Gas Association
Maryland Petroleum Council
Massachusetts Petroleum Council
Minnesota Petroleum Council
Missouri Petroleum Council
Montana Petroleum Association
National Association of Manufacturers
Natural Gas Supply Association
National Ocean Industries Association
National Propane Gas Association
National Wooden Pallet and Container Association
New Jersey Petroleum Council
New Mexico Business Coalition
New Mexico Oil and Gas Association
North American Association of Food Equipment Manufacturers
North Carolina Chamber of Commerce
North Carolina Petroleum Council
North Dakota Petroleum Council
Northeast Pennsylvania Manufacturers and Employers Association
Oklahoma State Chamber of Commerce
Petroleum Alliance of Oklahoma

Petroleum Association of Wyoming
Plastics Industry Association
Portland Cement Association
South Carolina Chamber of Commerce
Tennessee Petroleum Council
Texas Oil and Gas Association
U.S. Oil and Gas Association
Utah Petroleum Association
Virginia Petroleum Council
Western Energy Alliance
West Virginia Oil and National Gas Association
West Virginia Petroleum Council
Wisconsin Petroleum Council
Western States Petroleum Association

CC: Members of the Senate Energy and Natural Resources Committee

**American Chemistry Council**

ACC Applauds Nomination of Dan Brouillette to Be Secretary of Energy
November 8, 2019

# Statement

**For Immediate Release** **November 8, 2019**
Contact: Jennifer Scott (202) 249-6512
Email: jennifer_scott@americanchemistry.com

## ACC APPLAUDS NOMINATION OF DAN BROUILLETTE TO BE SECRETARY OF ENERGY

**WASHINGTON (November 8, 2019)** – *The American Chemistry Council (ACC) issued the following statement welcoming the nomination of Deputy Secretary of Energy Dan Brouillette to be the next Secretary of Energy.*

"We applaud Dan Brouillette's nomination as Secretary of Energy. Thanks to shale gas, the U.S. chemistry industry has announced $204 billion in capital investment in new facilities and expansions over the past decade. We look forward to working with Mr. Brouillette and leaders in Congress to enact an energy strategy that fully develops America's diverse sources, promotes energy efficiency and recognizes our industry's contributions to solutions that help save energy and reduce GHG emissions. We expect Mr. Brouillette to be a strong partner in that effort."

*http://www.americanchemistry.com/newsroom*
*The American Chemistry Council (ACC) represents the leading companies engaged in the business of chemistry. ACC members apply the science of chemistry to make innovative products and services that make people's lives better, healthier and safer. ACC is committed to improved environmental, health and safety performance through Responsible Care®; common sense advocacy designed to address major public policy issues; and health and environmental research and product testing. The business of chemistry is a $553 billion enterprise and a key element of the nation's economy. It is among the largest exporters in the nation, accounting for ten percent of all U.S. goods exports. Chemistry companies are among the largest investors in research and development. Safety and security have always been primary concerns of ACC members, and they have intensified their efforts, working closely with government agencies to improve security and to defend against any threat to the nation's critical infrastructure.*

**American Electric Power**

Letters of Support
November 5, 2019

AMERICAN ELECTRIC POWER
BOUNDLESS ENERGY™

American Electric Power
1 Riverside Plaza
Columbus, OH 43215
aep.com

Nicholas K. Akins
Chairman, President & CEO

November 5, 2019

The Honorable Lisa Murkowski
United States Senate
522 Hart Senate Office Building
Washington, D.C. 20510

Dear Senator Murkowski:

On October 18, 2019, President Trump nominated Dan Brouillette to be the U.S. Department of Energy's 15th Secretary of Energy. I believe the President has made a superb choice in elevating Dan Brouillette from Deputy Secretary to Secretary, and I believe he will lead the Department of Energy with distinction.

Deputy Secretary Brouillette has vast experience in government and business. He has the temperament and judgement that comes from service in the United States Army, from a senior staff position in the U.S. House of Representatives, and in senior positions in major U.S. corporations. I have had the pleasure to work with Secretary Brouillette in his capacity as Deputy Secretary and have found him to be well prepared and informed, always open to differing viewpoints, and cognizant of the importance that energy plays in the economy and well-being of U.S. citizens. As a member of the U.S. Senate Committee on Energy and Natural Resources, I urge you to support this nomination and forward it to the full Senate for a vote.

Thank you for your consideration.

Sincerely,

cc: Mike Pawlowski
Ann Robertson
Kensey Finnegan
Jed Dearborn
Kellie Donnelly

**American Nuclear Society**

ANS applauds Brouillette nomination
November 8, 2019

ANS Nuclear Policy Wire

November 8, 2019

## ANS applauds Brouillette nomination

Craig Piercy, the incoming CEO of the American Nuclear Society made the following statement today regarding the nomination of Dan Brouillette:

*"On behalf of America's professional nuclear community, I am pleased to applaud the nomination of Dan Brouillette to be Secretary of Energy. Mr. Brouillette has demonstrated a keen understanding of the role the U.S. technical workforce plays in supporting DOE missions, and the contributions we are making to solve our grand energy and environmental challenges. We would also like to thank Secretary Rick Perry for his service and wish him well in his future endeavors."*

Connect with us

CHAMBER OF COMMERCE
OF THE
UNITED STATES OF AMERICA

NEIL L. BRADLEY
EXECUTIVE VICE PRESIDENT &
CHIEF POLICY OFFICER

1615 H STREET, NW
WASHINGTON, DC 20062
(202) 463-5310

November 13, 2019

The Honorable Lisa Murkowski
Chair
Committee on Energy
and Natural Resources
United States Senate
Washington, DC 20510

The Honorable Joe Manchin
Ranking Member
Committee on Energy
and Natural Resources
United States Senate
Washington, DC 20510

Dear Chairman Murkowski and Ranking Member Manchin:

The U.S. Chamber of Commerce supports the nomination of Dan Brouillette to be Secretary of Energy, and urges the Committee to expeditiously consider his nomination.

Mr. Brouillette has an extensive background that makes him highly qualified for this position. Having previously been confirmed by the Senate, both in his current position as Deputy Secretary of Energy, as well as Assistant Secretary of Energy for Congressional and Intergovernmental Affairs, he is especially prepared to lead this important agency.

Moreover, Mr. Brouillette has also amassed significant private sector experience, serving in executive roles at financial services and auto companies. He has also served as senior staff at the House Committee on Energy and Commerce.

The Chamber urges the Committee to favorably report Mr. Brouillette's nomination to the full Senate.

Sincerely,

Neil L. Bradley

cc: Members of the Committee on Energy and Natural Resources

**Edison Electric Institute**

EEI Applauds the Nomination of Dan Brouillette to Serve as DOE Secretary and Urges Senate Confirmation
November 7, 2019

EEI
Edison Electric
INSTITUTE

NEWS

**FOR IMMEDIATE RELEASE**
**FOR INFORMATION, CONTACT:**
**BRIAN REIL, (202) 508-5514**

## EEI Applauds the Nomination of Dan Brouillette to Serve as DOE Secretary and Urges Senate Confirmation

**WASHINGTON (November 7, 2019)** – Edison Electric Institute (EEI) President Tom Kuhn today issued the following statement in support of the nomination of Deputy Secretary of the U.S. Department of Energy (DOE) Dan Brouillette to serve as DOE Secretary.

"EEI applauds the nomination of Dan Brouillette to serve as DOE Secretary. Deputy Secretary Brouillette has decades of energy policy experience and a clear commitment to public service. He also is at the forefront of the research and development underway to enhance energy grid security and identify the critical technologies needed for a clean energy future.

"Deputy Secretary Brouillette is a tremendous partner for our industry during hurricanes and other extreme weather events, and we look forward to continuing to work with him and his staff to enhance the reliability, security, and resiliency of the energy grid.

"We encourage Senate Majority Leader Mitch McConnell and the Senate to move forward without delay and confirm Dan Brouillette as secretary of the U.S. Department of Energy."

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*EEI is the association that represents all U.S. investor-owned electric companies. Our members provide electricity for more than 220 million Americans, and operate in all 50 states and the District of Columbia. As a whole, the electric power industry supports more than 7 million jobs in communities across the United States. In addition to our U.S. members, EEI has more than 65 international electric companies as International Members, and hundreds of industry suppliers and related organizations as Associate Members.*

**Nuclear Energy Institute**

President Trump Nominates Brouillette as Energy Secretary
November 7, 2019

Washington, D.C.—*Today, President Trump announced his intent to nominate Dan Brouillette as the U.S. Secretary of Energy. The following statement can be attributed to Maria Korsnick, president and chief executive officer of the Nuclear Energy Institute:*

"We congratulate Dan Brouillette on his nomination to serve as the United States Secretary of Energy. Deputy Secretary Brouillette has extensive experience and expertise in energy policy and has been a champion for U.S. leadership in commercial nuclear technology, domestically and abroad. We thank Secretary Perry for his leadership and encourage the Senate to swiftly confirm Deputy Secretary Brouillette to lead the Energy Department."

https://www.nei.org/news/2019/trump-nominates-brouillette-energy-secretary

SEMICONDUCTOR INDUSTRY ASSOCIATION

John Neuffer, President & CEO

November 18, 2019

The Honorable Lisa Murkowski
Chair
Senate Energy and Natural Resources Committee
U.S. Senate
Washington, D.C. 20510

The Honorable Joe Manchin
Ranking Member
Senate Energy and Natural Resources Committee
U.S. Senate
Washington, D.C. 20510

Dear Chairwoman Murkowski and Ranking Member Manchin:

On behalf of the Semiconductor Industry Association (SIA), I'm writing to express our support for the nomination of Dan Brouillette to serve as the U.S. Secretary of Energy.

Semiconductors play an essential role in enabling the "must-win" technologies of the future, including artificial intelligence, quantum and exascale computing, and 5G and next generation telecommunications. America's continued leadership in semiconductor technology is dependent on continued innovation and partnership with our country's scientific community, including the Department of Energy (DOE). The leadership of DOE and the national labs on basic research in microelectronics contributes to the innovations that advance America's technological edge, thereby making an essential contribution to our economic growth and national security.

We believe Mr. Brouillette can effectively lead the Department and help strengthen America's leadership in scientific research and development. As stated in his testimony before the committee, Mr. Brouillette recognizes the central role DOE plays in advancing our technology leadership, which depends on robust and sustained funding of scientific research. Earlier this year, DOE issued a request for information on Basic Research in Microelectronics. SIA strongly supports this initiative and the need for increased research in semiconductors and related fields. We look forward to working with Mr. Brouillette and the entire DOE team in advancing semiconductor technology through this initiative.

We urge the Committee to advance the nomination of Mr. Brouillette to the full Senate and urge his prompt confirmation.

Sincerely,

1101 K Street NW, Suite 450 Washington, DC 20005
p: 202-446-1700 www.semiconductors.org

**Southern Company**

Statement on the Nomination of Deputy Secretary Brouillette to Serve as U.S. Secretary of Energy
November 8, 2019

Southern Company

November 8, 2019

**Statement on the Nomination of Deputy Secretary Dan Brouillette to Serve as U.S. Secretary of Energy**

Southern Company congratulates Deputy Secretary Brouillette on his nomination to serve as the next U.S. Secretary of Energy. Mr. Brouillette has led a long and distinguished career and is well suited to lead the Department of Energy. We look forward to working with him to advance sound national energy policy that ensures clean, safe, reliable, affordable and resilient energy for the customers and communities we are privileged to serve.

We also applaud Secretary Perry for his lifetime of service to our nation. Under his leadership, the United States has made tremendous strides in the areas of clean energy, energy security and national security. We wish him and his family all the best in this next chapter of their lives.

**United States Energy Association**

USEA Chief Applauds POTUS Pick for Energy Secretary, Says Brouillette is Exceptional Choice
November 8, 2019

**FOR IMMEDIATE RELEASE**

**Contact:** Dipka Bhambhani
Communications Director
dbhambhani@usea.org
(202) 321-3337
**Twitter:** @USEnergyAssn

**November 8, 2019**

**USEA Chief Applauds POTUS Pick for Energy Secretary, Says Brouillette is Exceptional Choice**

Washington, D.C.—This week, President Trump nominated Deputy Energy Secretary Dan Brouillette to be his next energy secretary, replacing Rick Perry who plans to leave the helm by year's end.

The Senate Energy and Natural Resources Committee will take up the nomination before sending it to the full Senate for approval.
In a statement on the nomination, **USEA Executive Director Barry Worthington** said:

"Deputy Energy Secretary Dan Brouillette is an exceptional choice to lead the Department of Energy.

"Brouillette's management experience and understanding of energy issues is unparalled. He gets it, from the granular details, to the long view of energy's impact on national security, the value of innovation and global partnerships.

"We work with the Energy Department across teams, among leadership, and I personally feel Secretary Perry and Deputy Secretary Brouillette have been unique trailblazers who have made a big difference to our industry's progress. They have helped drive our energy abundance and drive down costs down for consumers now and into the future. This has helped our industry expand energy access globally to ensure our national security and the security of our allies.

"Our teams at USEA work with DOE on domestic and international programs. We help expand the use of natural gas in India and assemble American and Chinese industry and government stakeholders to discuss energy cooperation. We work closely with DOE's Office of Fossil Energy, the Office of Electricity Delivery, and the Office of Renewable Energy and Energy Efficiency.

"Secretary Perry and Deputy Secretary Dan Brouillette have transformed the Department of Energy. They have been champions of clean energy innovation and expansion of diverse energy supplies across the globe. They have visited the country's 17 national labs, lauded their progress, encouraged their potential and highlighted their life-changing discoveries to the rest of the world.

"Under their leadership, DOE has streamlined the permitting process for LNG exports and they have helped improve energy efficiency, credited for reducing U.S. emissions and managing our natural resources.

"Energy is the foundation for economic growth. USEA's central mission is to increase energy access globally, expand the use of clean energy technology, build economies and alliances. We do this with strong leadership from this administration—The White House, the Energy Department and the U.S. Agency for International Development.

"Secretary Perry brought to the department a refreshingly authentic problem-solving style, a vivid view of energy innovation, and a goal for energy access and international cooperation. We believe Deputy Secretary Dan Brouillette with his own unique style will continue that legacy and execute sound energy policy.

"We support the nomination of Dan Brouillette to be the next energy secretary and encourage the Senate to approve his nomination expeditiously."

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