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CRANE, MAROOTIAN, AND RODRIGUES NOMINATIONS

HEARING

BEFORE THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES UNITED STATES SENATE

ONE HUNDRED SEVENTEENTH CONGRESS

SECOND SESSION

TO

CONSIDER THE NOMINATIONS OF DAVID CRANE TO BE UNDER SECRETARY OF ENERGY, JEFFREY M. MAROOTIAN TO BE AN ASSISTANT SECRETARY OF ENERGY (ENERGY EFFICIENCY AND RENEWABLE ENERGY), AND GENE RODRIGUES TO BE AN ASSISTANT SECRETARY OF ENERGY (ELECTRICITY DELIVERY AND ENERGY RELIABILITY)

NOVEMBER 17, 2022

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CRANE, MAROOTIAN, AND RODRIGUES NOMINATIONS

THURSDAY, NOVEMBER 17, 2022

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

The Committee met, pursuant to notice, at 11:10 a.m. in Room SD–366, Dirksen Senate Office Building, Hon. Joe Manchin III, Chairman of the Committee, presiding.

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

The CHAIRMAN. The meeting will come to order.

First of all, I want to thank everybody and your families for being here that have come with you. You are more than welcome to introduce them when we get to that point. I have an opening statement to make and then I will go to my friend here, John Barrasso, to make his opening statement too.

We are meeting today to consider three pending nominations: the nomination of David Crane to be the Under Secretary of Energy for Infrastructure, Jeffrey Marootian——

Mr. MAROOTIAN. Marootian, sir.

The CHAIRMAN. Marootian—okay, thank you, Jeff—to be an Assistant Secretary of Energy for Energy Efficiency and Renewable Energy, and Gene Rodrigues—is that close?

Mr. RODRIGUES. That is correct, sir.

The CHAIRMAN. All right, okay—to be an Assistant Secretary of Energy for Electricity Delivery and Energy Reliability.

So we welcome all of you and we welcome your families too.

Our first nominee, David Crane, has been nominated to be the Under Secretary of Energy. By law, the Under Secretary performs the functions and duties prescribed by the Secretary. Secretary Granholm has given the Under Secretary the responsibility for managing the Department of Energy's Demonstration and Deployment programs authorized and funded through the Energy Act of 2020 and last year's Bipartisan Infrastructure Act. Mr. Crane brings to the job years of experience as a business leader, having served as CEO of NRG Energy, one of the nation's largest power companies. In this role, he will be overseeing several demonstration programs that I know are very important to members of this Committee, including for carbon capture, advanced nuclear, hydrogen, and a lot more. I look forward to hearing about how you plan to implement these critical programs, if confirmed.

Mr. Jeffrey Marootian has been nominated to be the Assistant Secretary of Energy for Energy Efficiency and Renewable Energy. Jeffrey brings extensive experience managing transportation programs, both at the U.S. Department of Transportation as the Assistant Secretary for Administration and as the Director of the District of Columbia's Department of Transportation. More recently, he has served as a Special Assistant to the President and the White House Office of Presidential Personnel, and for the past two months, has been a Senior Advisor in the Office of Energy Efficiency and Renewable Energy. He has had extensive experience managing governmental programs and construction projects. Though he has only recently been involved with energy programs, I will be interested to hear his thoughts on the Office of Energy Efficiency and Renewable Energy and how he plans to apply his managerial skills and experience in his new role.

Mr. Rodrigues has been nominated to be the Assistant Secretary of Energy for Electricity Delivery and Energy Reliability. The Assistant Secretary for Electricity oversees the Department's Electricity Office, which is responsible for developing new technologies to strengthen and modernize and improve the electric grid. I expect Mr. Rodrigues knows something about the grid, having spent 23 years working for Southern California Edison, one of the nation's largest investor-owned utilities. More recently, he has been the Vice President of Market Development in the Energy and Environment Infrastructure Division of ICF International.

All three of these positions oversee important portfolios at the Department of Energy. They have been made even more important with the additional authorities and funding that we have given the Department in the Energy Act of 2020 and the Infrastructure Act last year. I appreciate all three nominees for being with us this morning and for their willingness to take on and serve in these important and demanding positions. I look forward to hearing more from each of you about your qualifications and how you are going to discharge the responsibilities, if confirmed.

And at this point, I will recognize Senator Barrasso for his opening statements.

OPENING STATEMENT OF HON. JOHN BARRASSO, U.S. SENATOR FROM WYOMING

Senator BARRASSO. Well, thanks so very much, Mr. Chairman.

First, Mr. Crane has been nominated for Under Secretary of Energy for Infrastructure. He has been deciding where to put dollars to work in the energy sector for decades. He has largely focused his career on directing investment away from energy that is available when we need it and he has directed investment toward energy that is dependent on the weather—that is wind and solar. Most notably, Mr. Crane spent 12 years as CEO of NRG Energy, a leading company in the power sector. In a 2016 interview, he openly talked about how he was "fired" from that position. During his tenure as CEO, Mr. Crane attempted to shift NRG's energy electric business toward wind and solar and away from natural gas and coal. According to the New York Times, he was fired after the company share price dropped 63 percent in a year. Mr. Crane later explained at a solar industry conference, "We were taking the profits from

the coal plants and plowing them into solar development, and at the end of the day, that got to be annoying to the shareholders and the board of directors of the company."

Since being fired by NRG Energy, Mr. Crane has called for "name and shame activism" against companies that don't subscribe to his ideology. In a 2017 essay he wrote on the "Green Dream," he argued for the power to reallocate the energy budgets of the world's hundred biggest companies. He would have mandated that they be carbon neutral by 2025. He sought power over "laggards and recalcitrants." He wanted to make employees—employees—personally responsible for their company's carbon emissions. Where did prices for consumers fit into this daydream? Nowhere.

President Biden recently stated that he will be "shutting down coal plants all across America." Mr. Crane appears to be marching in lockstep. American families need affordable and reliable energy. Millions have been forced to decide whether to fill up their tanks with gas, heat their homes, or put food on the table. The Department of Energy's Under Secretary for Energy Infrastructure must support affordable energy. That requires an-all-of-the above energy strategy, and I am concerned that Mr. Crane may be the wrong person for the job.

Mr. Marootian has been nominated to serve as the Assistant Secretary for the Office of Energy Efficiency and Renewable Energy at the Department of Energy. The Office constitutes the largest applied energy office at the Department of Energy. Among other duties, the office develops and implements mandatory energy efficiency standards for household appliances, such as dishwashers and water heaters. For just over two months, Mr. Marootian has been a senior advisor in the Office of Energy Efficiency and Renewable Energy. Before that, he served at the White House Office of Presidential Personnel as the Director of the Washington DC Department of Transportation, the U.S. Department of Transportation, and at the Democratic National Committee. His background has little to do with the office to which he has been nominated to lead. It is unclear why he was nominated to a position at the Department of Energy instead of the Department of Transportation.

Mr. Rodrigues has been nominated to be Assistant Secretary and lead the Office of Electricity at the Department of Energy. Since 2014, he has been Vice President at the Energy Environment and Infrastructure Practice Group, a consulting firm. I am interested in learning more about his plan for ensuring that the nation's electric sector is secure, reliable, and affordable.

I look forward to hearing from the nominees today, Mr. Chairman.

The CHAIRMAN. Thank you, Senator.

The rules of the Committee, which apply to all nominees, require that they be sworn in in conjunction with their testimony. So if you all would stand and raise your right hands?

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

[Witnesses sworn.]

The CHAIRMAN. Please be seated.

Before you begin your statement, I will ask three questions addressed to each nominee before the Committee.

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

Mr. CRANE. Yes.

Mr. MAROOTIAN. Yes, Chairman.

Mr. RODRIGUES. Yes, I will, thank you.

The CHAIRMAN. Thank you.

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

Mr. CRANE. No, Chairman, I am not aware.

Mr. MAROOTIAN. No.

Mr. RODRIGUES. None, Chairman.

The CHAIRMAN. Thank you.

Finally, are you involved or do you have any assets held in a blind trust?

Mr. CRANE. No, I do not.

Mr. MAROOTIAN. No.

Mr. RODRIGUES. No, I do not, Chairman.

The CHAIRMAN. Thank you.

So let us begin with our testimonies now. We will start with Mr. Crane, you are recognized to give your statement.

STATEMENT OF DAVID CRANE, NOMINATED TO BE UNDER SECRETARY OF ENERGY

Mr. CRANE. Chairman Manchin, Ranking Member Barrasso, and distinguished members of the Committee, thank you for the opportunity to testify today. Having had the benefit of a long career, I can tell you that my path was set by the twin oil crises of the 1970's. I believed then, as I believe now, that the United States is the greatest, most judiciously powerful nation on earth, and it troubled me deeply that our country might be compromised through our dependence on foreign sources of a single commodity. I subsequently wrote my college thesis on our potential vulnerability of foreign dependence on sources of other strategic materials, like magnesium or cobalt. It is a concern and fascination with essential commodities that remains important to me and relevant to this day.

While I have worked as a lawyer, a developer, and as an investment banker, I spent the greater part of the first 15 years of my career developing and financing new power plant construction. In 2003, I became CEO of NRG Energy and grew a previously bankrupt company over the next 12 years to become the third largest power generation company in the United States, with 50,000 megawatts of generation. I am very proud of the company we built at NRG. We achieved top decile safety performance and top quartile reliability. We took care of our people, not laying off a single employee during the Great Recession of 2008–2009. We strove always to be a good neighbor in the communities which hosted our facilities, and most importantly, we took great pride in fulfilling

the historic "three imperatives" mission of the American power industry: safe, affordable, and reliable power to all Americans.

A few years into my tenure at NRG, it became clear to me that a fourth imperative was emerging for our industry—decarbonization. This was a particular challenge for our company because, of the 50 largest American power generation companies at the time, NRG was the second most carbon-intensive, and our baseload coal plants, and very importantly, the men and women who operated them, were the heart and soul of our company. Starting in 2006, we leaned hard into a multi-year, multi-billion-dollar strategy to revitalize our aging generation fleet by scaling the zero-carbon elements of our business, by building higher efficiency natural gas facilities, and by embracing technologies that would extend the life of our baseload coal plants by reducing their carbon intensity. We filed the first NRC permit for a new U.S. nuclear plant since 1979, in 2007. We built a substantial utility-scale solar business. We began the first national electric vehicle public charging network, and we built Petra Nova, then the world's largest carbon capture project. Many of these initiatives were enabled in part by assistance of the U.S. Department of Energy and catalyzed by bipartisan acts of Congress, including the Energy Policy Act of 2005.

With respect to our existing coal fleet, we invested billions of dollars in back-end controls, but with these plants nearing the end of their design lives, with structural fatigue a real risk, we closed or mothballed several of them. To this day, these shutdowns are the most gut-wrenching decisions I have ever made as a business executive. We made every effort to redeploy our people at new plants across the country, but this provides little solace to the local communities. This showed me that even in big infrastructure, there is a very human scale impact to what we do. I spent the better part of my career running power companies without, in truth, having any great technical understanding of how electricity is produced, but what I do understand is capital formation and capital deployment in and around the American energy sector. My career experience living and working at the intersection of big capital and big energy projects, in my opinion, ideally suits me for the position you are considering me for today.

The newly created Under Secretary for Infrastructure position has one task and one task only, and that is to implement the provisions of the Bipartisan Infrastructure Law consistent with the intent of this Congress. I am ready, willing, and able to serve in that role, and I hope to perform this function in a manner that embodies the classic Midwest values which my parents taught me to hold dear: decency, fairness, and humility. I hope my service, if confirmed, will validate the trust that the President of the United States and Secretary Granholm have placed in me and that it will make my family proud. And most of all, I want to thank my wife, Isabella, and my five children, Cason, David, Bella, Oliver, and Christopher, two of whom are sitting behind me, for supporting me in this disruptive step in our lives and for allowing me to follow the call to public service.

Thank you for your consideration of me today. I look forward to your questions.

[The prepared statement of Mr. Crane follows:]

Statement of
David Crane

Nominee for Undersecretary of Energy for Infrastructure
United States Department of Energy

Before the Committee on Energy and Natural Resources,
United States Senate

November 17, 2022

Chairman Manchin, Ranking Member Barrasso, and distinguished members of the Committee, thank you for the opportunity to testify today.

Having had the benefit of a long career, I can tell you that my path was set by the twin oil crises of the 1970s. I believed then, as I believe now, that the United States is the greatest, most judiciously powerful nation on earth, and it troubled me deeply that our country might be compromised through our dependence on foreign sources of a single commodity. I subsequently wrote my college thesis on our potential vulnerability of foreign dependence on sources of other strategic minerals, like magnesium or cobalt. It is a concern and fascination with essential commodities that remains relevant to this day.

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And most of all, I want to thank my wife and my children for supporting me in this disruptive step in our lives, and for allowing me to follow the call to public service.

Thank you for your consideration of me today. I look forward to your questions.

The CHAIRMAN. Thank you, Mr. Crane.

Now we are going to hear from Jeffrey. We are on a first name basis here, Jeff.

[Laughter.]

Mr. MAROOTIAN. I will take it, Senator.

STATEMENT OF JEFFREY M. MAROOTIAN, NOMINATED TO BE AN ASSISTANT SECRETARY OF ENERGY (ENERGY EFFICIENCY AND RENEWABLE ENERGY)

Mr. MAROOTIAN. Chairman Manchin, Ranking Member Barrasso, and distinguished members of the Committee, thank you for the privilege to testify before you today and for considering my nomination to serve as the Assistant Secretary for Energy Efficiency and Renewable Energy at the Department of Energy. I am humbled by the confidence that President Biden and Secretary Granholm have placed in me with this nomination, and I am enthusiastic about the opportunity, if confirmed, to work with this Committee, with my colleagues in the Biden-Harris Administration, and with the truly phenomenal team of dedicated professionals in the Department of Energy's Office of Energy Efficiency and Renewable Energy.

My great grandparents came to this country from Armenia in search of freedom and opportunity. They settled in the New York and New Jersey area, where they proudly pursued the American dream. My parents and grandparents instilled in me the importance of not only loving our country, but demonstrating that commitment through civic participation and public service. My grandmother, a New York City public schoolteacher and my grandfather, a Navy veteran, exemplified that commitment, teaching me that the most important thing that I could do was to contribute to society through service to my community. It was that example that not only led me to pursue a path in government, but to find the values that I still carry with me to this day as I sit in front of this Committee. I would also be remiss if I also did not acknowledge that I am here because of the many LGBTQ+ pioneers that have served in public roles before me. It is because of their leadership and courage that barriers have been broken and I am able to proudly serve my country.

I have had the distinct honor of serving in two Presidential administrations, and at the local government level here in our nation's capital. I am grateful to former Transportation Secretary Anthony Fox, for empowering me to serve as an Assistant Secretary and Chief Sustainability Officer during the Obama-Biden Administration, and to DC Mayor Muriel Bowser for entrusting me to lead the city's transportation department. In these roles, I was tasked with overseeing cross-cutting public infrastructure projects, partnering with industry to deploy new and emerging sustainable technologies, and working to reduce carbon emissions across multiple sectors. While overseeing the District Department of Transportation, I focused on taking steps to lower costs for individuals and families, creating jobs and economic opportunity, fostering innovation, and improving the quality of our environment. While serving as the Assistant Secretary for Administration and Chief Sustainability Officer at the United States Department of Transportation, I oversaw the effort to improve energy efficiency and re-

duce waste throughout the agency's public buildings and facilities portfolio. I also managed the administration of research and development grants and took steps to improve upon the Department's use of renewable power.

Having served for much of my career at the state and local level, I am keenly aware of the importance of providing high-quality technical assistance while taking a collaborative approach when working with state and municipal officials. I am also deeply committed to ensuring transparency, being a good steward of public dollars, and being responsive to the issues and concerns brought forward by industry leaders and advocates. If confirmed, I look forward to bringing these principles and lessons learned—and the values of public service instilled in me by my family—to the Office of Energy Efficiency and Renewable Energy. Thanks in large part to the leadership and work of this Committee, the Department has more resources than ever before to create jobs, spur innovation, and improve communities across this country. This historic investment will help the state-of-the-art American-led technology and innovation in our manufacturing sector, and improve our energy security and independence, which is critical now more than ever. It will support the Department's efforts to fund research in a wide array of renewable technologies with the goal of increasing grid reliability and reducing monthly costs for everyday Americans. And these resources will strengthen the Agency's ability to advance technologies such as battery storage, biofuels, and hydrogen fuel cells that will continue to strengthen America's competitive edge.

If confirmed, I look forward to working with my colleagues at the Department of Energy and with this Committee to continue to further cost-effective clean energy solutions while making our energy more secure, creating jobs, and catalyzing investment in the American economy. Thank you again for the opportunity to testify before you today. I look forward to answering your questions.

[The prepared statement of Mr. Marootian follows:]

Statement of
Jeffrey Marootian

Nominee for Assistant Secretary for Energy Efficiency and Renewable Energy
United States Department of Energy

Before the Committee on Energy and Natural Resources,
United States Senate

November 17, 2022

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If confirmed, I look forward to working with my colleagues at the Department of Energy and with this Committee to continue to further cost-effective clean energy solutions while making our energy more secure, creating jobs and catalyzing investment in the American economy.

Thank you again for the opportunity to testify before you today. I look forward to answering your questions.

The CHAIRMAN. Thank you.
And now, we will hear from Mr. Rodrigues.

STATEMENT OF GENE RODRIGUES, NOMINATED TO BE AN ASSISTANT SECRETARY OF ENERGY (ELECTRICITY DELIVERY AND ENERGY RELIABILITY)

Mr. RODRIGUES. Thank you.
Chairman Manchin, Ranking Member Barrasso, and distinguished members of the Committee, I thank you for the opportunity to appear before you today. I feel both blessed and humbled to have been nominated to serve as Assistant Secretary of Energy for the Office of Electricity. My father served our nation as a career soldier and a combat veteran and my mother left the country of her birth to become a naturalized U.S. citizen. So I fully recognize that the calling to serve our country is not just a civic duty, it is a high honor and a profound privilege. If my parents were still with us today, I know they would be very proud, indeed, that their son aspires to serve our nation in such an important role. I will focus my testimony today on just two key points. First, how the last 32 years of my professional career have prepared me for the responsibility of leading the Office of Electricity, and second, if confirmed, how I would ensure that the Office fulfills its critical mission of providing our nation with a secure, reliable, and resilient energy delivery system that provides every American with access to abundant and affordable energy to power our homes, our businesses, and our economy.

My life's work within the energy industry has been focused on matters directly related to the mission of the Office of Electricity. For example, during my nearly 24 years at one of our nation's largest electric utilities, I oversaw customer programs that provided resource adequacy, customer affordability, emissions reduction, economic development, and system reliability, including research, development, and demonstration activities on emerging technologies. Following my time inside the utility, I spent the next eight years in consulting, where I shared my lessons learned with other utilities, with local governments, and with state and federal agencies, including the Department of Energy. And all throughout my three decades in the energy field, I have accepted and embraced leadership roles within organizations committed to meeting the energy, economic, and environmental challenges of today, while preparing our industry for the future. Each of these experiences, and many more that I will not have time to touch upon today, have indelibly ingrained in me the conviction that for us to be truly effective in navigating the transformational opportunities and the unprecedented challenges of developing a 21st century grid, it will take much more than just the expertise of any one person, or any one agency, for that matter.

As our energy network becomes increasingly complex and dynamic, we must ensure reliability, resiliency, and security across the entirety of the energy system. And while there are tremendous opportunities for technological advancement, these will be accompanied by uncertainty and vulnerability that must be addressed with equal consideration and urgency. To lead the way, we must now think, plan, invent, invest, and operate in ways that are more

collaborative, more inclusive, and more coordinated than ever before. This is why I am grateful to have earned the trust of a great many of the industry stakeholders, who will play an indispensable role in the modernization and decarbonization of America's grid. It has been my privilege to work alongside industry leaders from the Edison Electric Institute, the National Association of State Energy Officials, the National Association of Regulatory Utility Commissioners, the Smart Energy Power Alliance, and the GridWise Alliance, among many, many others. These non-partisan organizations know me well and have supported my nomination for this important role. Similarly, the bipartisan Alliance to Save Energy recently honored me with their Charles H. Percy Award for Public Service, which celebrates reaching across the political aisle to accomplish results for the benefit of all Americans.

In closing, I commit to you that if I am fortunate enough to be granted the responsibility of leading the Office of Electricity, we will remain clear-eyed and pragmatic about assessing the challenges ahead, and we will engage industry and innovation stakeholders alike to work side-by-side with us as we develop, demonstrate, and deploy solutions for America's energy delivery network. And along every step of the way, we will never lose sight of the imperative to create and sustain good-paying jobs that serve the American people. I look forward to answering any questions you may have, and if confirmed, to working closely with each of you as we make progress on our shared mission of fostering the continued technological, economic, and environmental leadership of our great nation.

Thank you.

[The prepared statement of Mr. Rodrigues follows:]

Statement of
Gene Rodrigues

Nominee for Assistant Secretary of Energy for the Office of Electricity,
United States Department of Energy

Before the Committee on Energy and Natural Resources,
United States Senate

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Chairman Manchin, Ranking Member Barrasso, and distinguished members of the Committee, I thank you for this opportunity to appear before you today.

I feel both blessed and humbled to have been nominated to serve as Assistant Secretary of Energy for the Office of Electricity. My father served our nation as a career soldier and a combat veteran, and my mother left the country of her birth to become a naturalized U.S. citizen. I fully recognize that the calling to serve our country is not just a civic duty, it is a high honor and a profound privilege. If my parents were still with us today, I know they would be very proud that their son aspires to serve the American people in such an important role.

I will focus my testimony on just two key points: how the last thirty-two years of my professional career have prepared me for the responsibility of leading the Office of Electricity, and, if confirmed, how I would ensure the Office fulfills its critical mission of providing our nation a secure, reliable, and resilient energy delivery system that provides every American with access to abundant and affordable energy to power our homes, our businesses, and our economy.

My life's work within the energy industry has been focused on matters directly related to the mission of the Office of Electricity. For example, during my nearly twenty-four years at one of our nation's largest electric utilities, I oversaw customer programs that provided resource adequacy, customer affordability, emissions reduction, economic development, and system reliability, including research, development, and demonstration activities on emerging technologies. Following my time inside the utility, I spent the next eight years in consulting where I shared my lessons learned with other utilities, local governments, and state and federal agencies, including the Department of Energy. And, all throughout my three decades in the energy field, I have accepted and embraced leadership roles within organizations committed to meeting the energy, economic, and environmental challenges of today, while preparing our industry for the future.

Each of these professional experiences – and many more that I won't have time to touch upon today – have indelibly ingrained in me the conviction that, for us to be truly effective in navigating the transformational opportunities and unprecedented challenges of developing a 21st century grid, it will take much more than just the expertise of any one person, or any one agency for that matter. As our energy network becomes increasingly complex and dynamic, we must

ensure reliability, resiliency, and security across the entire energy system. And while there are tremendous opportunities for technological advancement, we must address the accompanying uncertainty and vulnerabilities with equal consideration and urgency. To lead the way, we must now think, plan, invent, invest, and operate in ways that are more inclusive, collaborative, and coordinated than ever before. This is why I am grateful to have earned the trust of a great many of the industry stakeholders who will play an indispensable role in the modernization and decarbonization of America's grid.

It has been my privilege to work alongside industry leaders from the Edison Electric Institute, the National Association of State Energy Officials, the National Association of Regulatory Utility Commissioners, the Smart Energy Power Alliance, and the GridWise Alliance, among many others. These nonpartisan organizations know me well and supported my nomination for this important role. Similarly, the bipartisan Alliance to Save Energy recently honored me with their Charles H. Percy Award for Public Service, which celebrates reaching across the political aisle to accomplish results for the benefit of all Americans.

In closing, I commit to you that, if I am fortunate enough to be granted the responsibility of leading the Office of Electricity, we will remain clear-eyed and pragmatic about assessing the challenges ahead and we will engage industry and innovation stakeholders to work side-by-side with us as we develop, demonstrate, and deploy solutions for America's energy delivery network. And, on every step of the way, we will never lose sight of the imperative to create and sustain good-paying American jobs and serve the American people.

I look forward to answering any questions you may have and, if I am confirmed, to working closely with each of you on our shared mission of fostering the continued technological, economic, and environmental leadership of our great nation.

Thank you.

The CHAIRMAN. Let me thank all three of you for your testimonies and presentations. If anyone would like to introduce their family members with them, they are more than welcome to do so.

Mr. Crane, do you want to start with yours. I think you have a few more.

Mr. CRANE. I would like to introduce my cousin, Laura, my beloved niece, Molly, and my sons, Cason and Oliver. I just wanted to make sure they were sitting in that order.

[Laughter.]

The CHAIRMAN. Welcome.

Jeffrey.

Mr. MAROOTIAN. My family is watching from home today.

The CHAIRMAN. Well, thank them.

And Mr. Rodrigues.

Mr. RODRIGUES. Thank you, Chairman.

I would like to introduce my wonderful wife, Becky, who is sitting here behind me today.

The CHAIRMAN. It is good to have all of you here.

We will start with the questions.

My first question is pretty simple, yes or no. Do any of you believe that the United States of America can be energy-independent within the next ten years without a robust fossil—clean fossil energy program?

Mr. CRANE. No, Mr. Chairman.

Mr. MAROOTIAN. No, sir.

Mr. RODRIGUES. No, sir, I do not.

The CHAIRMAN. Mr. Crane, I support an all-of-the-above approach to energy policy and believe in order to ensure energy security that we cannot eliminate fossil, and I am glad to hear you all feel the same way. We have to focus on the cleanest way possible to decarbonize. We understand that. The Energy Act of 2020 did that. It helped us. The bipartisan Infrastructure Investment and Jobs Act and the Inflation Reduction Act that we just passed are investing heavily in carbon capture utilization and storage. This included authorizing and funding CCUS demonstration projects, with two required on coal-fired power plants.

In your role, as Under Secretary, Mr. Crane, you will be tasked with implementing these programs. You were previously quoted as saying, "the coal industry has missed the boat on its opportunity to decarbonize." Can you explain your views on coal and CCUS in a domestic and global energy mix now and in the future?

Mr. CRANE. Thank you for the question, Mr. Chairman.

Like you, I believe in all-of-the-above. I believe that domestic coal is a fundamental part of the energy mix of the United States. I applaud the actions that Congress has taken, particularly the carbon capture utilization and sequestration. The 45Q, and I can tell you from being in the private sector, that those provisions are catalyzing a response that I think is going to be very good for the industry. And finally and most importantly, and directly in answer to your question, without qualification, without exception, I can tell you that I will implement the coal-related provisions of these bills with the same vigor that I implement every other provision.

The CHAIRMAN. That was the final part of my question. So you got ahead of me on that one, and I appreciate it, because I was going to say, will you commit to carrying out the CCUS?

Mr. CRANE. Absolutely.

The CHAIRMAN. Okay.

And I have another one for you, sir.

You are currently overseeing the implementation of $9.5 billion in funding to supercharge the hydrogen economy, including $8 billion for several hydrogen hubs. As you know, the Infrastructure Law requires at least two of the hubs to be located in major natural gas producing regions, such as the Appalachia, in West Virginia. So we are very excited for this program to be put to good use. It also requires at least one of the hubs to demonstrate clean hydrogen derived from fossil fuels. So, although the Department of Energy has not selected the winners for hub funding yet, can you talk about the hydrogen hub investment and how it has changed the landscape in terms of the U.S. leadership in hydrogen around the world?

Mr. CRANE. Yes, Mr. Chairman, I would love to do that. As you said, the hydrogen solicitation is underway.

The CHAIRMAN. Yes.

Mr. CRANE. And the first thing I can tell you is that there has been an extremely enthusiastic response from across the country and you know, as you pointed out, the bill requirements require a geographic diversification, fuel input diversification, and end-use diversification and we are confident that we will get proposals from around the country that will fit all those needs.

The CHAIRMAN. What type of activity are you seeing coming in from the world? I am hearing so much about what is going on because we are committed.

Mr. CRANE. As it happened, I was recently with some old friends who are involved in hydrogen development in Europe, where the European Union and the UK are being active, and one of the things that they are saying is that multinational companies are actually moving their hydrogen programs to North America because of the actions of this Congress.

The CHAIRMAN. Let me say—we are concerned about blue hydrogen also which comes from gas, and how you all are implementing that, and are you committed to, as required by law, to work that one, too? The green comes from renewables, as we know, but the blue can be green from gas if it is carbon that is sequestered, correct?

Mr. CRANE. We are absolutely committed to the blue and the green provisions, and once the hydrogen gets into the system, as you know, a lot of it is about the infrastructure that comes downstream from the production of the hydrogen. So again, we will faithfully implement every provision of the——

The CHAIRMAN. The thing I am so excited about hydrogen was this, and the reason I have been doubling down on everything on hydrogen is because we are not—and we would never have to be—dependent on foreign supply chains for energy because we can produce all the hydrogen—clean hydrogen—that we ever need in our country.

With that, Jeffrey, I am going to turn it to you. You have a background in transportation policy, which is covered by the office you have been nominated to lead, but not many of the other programs central to the office, such as renewable technologies and energy efficiency. Can you talk about your experience and do you believe that is a hindrance to you? Do we have you in the right match, because I know you have a lot of skills?

Mr. MAROOTIAN. Thank you so much, Senator Manchin, for that question. I believe I was selected for this role because of my experience leading large organizations. The District Department of Transportation is a very large organization—about 1,100 people. For scale, the EERE Office is just slightly less than that. And as you noted, the transportation components of DOE fit within the EERE portfolio. In fact, about a third of the entire portfolio is dedicated to sustainable transportation. The newly established joint Office of Energy and Transportation is within EERE as well, and broadly, there are a number of programs across the energy efficiency and renewable power pillars that require management in collaboration within DOE with the newly established Under Secretary's Office and across government agencies. Those are the skills that I bring to the table and that is why I believe I was nominated for this role, and if confirmed, I look forward to working with this Committee to implement a wide array of programs.

The CHAIRMAN. With that, I will turn to Senator Barrasso for his questions.

Senator BARRASSO. Well, thanks, Mr. Chairman, I appreciate you doing this.

And Mr. Crane, if confirmed, you are going to have responsibility for over $70 billion in appropriations, and also have the authority to loan another $250 billion. This is not the Department of Energy's money. This money belongs to the American people. So when CEO of NRG, you were entrusted with investors' money. According to the New York Times, and I have the article here from August of 2016 that, Mr. Chairman, I am going to ask to be presented as part of the record.

The CHAIRMAN. Without objection, sir.

[New York Times article from August 2016 follows:]

The New York Times https://www.nytimes.com/2016/08/14/business/energy-environment/how-producing-clean-power-turned-out-to-be-a-messy-business.html

How Producing Clean Power Turned Out to Be a Messy Business

By David Gelles
Aug. 13, 2016

On the edge of a bucolic field in Princeton, N.J., an eco-friendly office building recently opened its doors. Plants festoon the roof, a living wall is planned for the lobby, and rainwater storage tanks supply the building's needs. In the parking lot there are wind turbines, solar panels and electric vehicle charging stations.

It is the picture of a sustainable future, one in which society's insatiable demand for electricity can be met without polluting the planet.

The same cannot be said of the building's tenant, NRG Energy.

The biggest independent power producer in the country, NRG sells electricity to utilities, companies and individual homes. To generate all that wattage, it burns enormous amounts of natural gas, coal and oil, making NRG one of the country's biggest polluters.

It isn't trying to muck up the planet; that's just the nature of the business NRG is in. The electricity industry is the biggest source of greenhouse gas emissions in the United States, according to the Environmental Protection Agency. In 2014, NRG was the fourth-largest emitter of carbon dioxide among the country's power producers.

The business of providing Americans with electricity hasn't evolved much in a century. But today, growing concerns about climate change, affordable wind and solar power, and the potential for distributed generation are pressuring utilities and power producers like NRG to clean up their acts, and fast.

"Our industry is going though massive transformation, the likes of which we've never seen," said Mauricio Gutierrez, the recently installed chief executive of NRG. "The industry has never seen this much turnover."

All this transformation has been particularly tumultuous for NRG, which has weathered more than its share of mishaps and unintended consequences: In May, for example, a fire knocked out a crucial tower at a cutting-edge but troubled solar power plant that the company manages in the Southern California desert. Its big bets on residential solar and on a national charging network for electric vehicles were ahead of their time and fizzled.

A solar panel at an NRG project in Spencer, Mass. Tony Luong for The New York Times

The shale and fracking booms in the United States made natural gas cheap and abundant, pulling down the price of electricity and making power sources that NRG still depends on heavily — including coal, nuclear and renewables — less profitable. Investors lost faith in the company, NRG's stock plummeted, and its previous chief executive was summarily fired, replaced by Mr. Gutierrez.

Far from emerging as an industry pioneer, NRG has become a cautionary tale. A power-hungry nation needs to change the way it is fueled, but as NRG shows, transitioning to clean power is messy business.

"The power producers and utilities are the canaries in the coal mine," said Aron Cramer, C.E.O. of Business for Social Responsibility, a consulting firm. "And there's a lot of road kill in the midst of this transition to a lower-carbon energy system."

No two companies face the exact same set of challenges. But at some level, the quandary preoccupying NRG is one that all power producers and utilities will ultimately face: how to make more electricity while emitting fewer greenhouse gases.

NRG wasn't always a clean-energy proponent. Until recently, it was just another power producer, burning fossil fuels to electrify the grid.

In 2003, it tapped David Crane to be its chief executive. Mr. Crane, who previously ran a traditional London-based power company, set about expanding NRG's core business. He acquired Reliant Energy, which sells electricity to homes and businesses in Texas, as well as GenOn Energy, a rival based in Houston. These moves vastly expanded NRG's scale, and its emissions.

By 2006, Mr. Crane began to respond to the climate crisis and became one of the country's most unlikely environmentalists.

At first, he made modest changes. NRG bought a wind power company, which it later sold. Soon, though, Mr. Crane made large investments in wind and solar plants and spent heavily on pet projects like a national network of electric-car charging stations.

Seemingly overnight, the fossil fuels executive became a champion of renewable energy. He wanted to turn the hub-and-spoke utility model — with big power plants sending electricity out to homes and businesses — inside out.

Instead, in Mr. Crane's vision, solar panels and wind turbines would blanket the country, heralding an era of distributed energy production. He called environmental protection a "moral imperative." Last year, NRG said it would slash carbon emissions in half by 2030 and reduce them by 90 percent by 2050.

"It's the destiny of NRG to be a leader," Mr. Crane said at the groundbreaking of the new headquarters, "to create a more sustainable and prosperous future while winning the fight against climate change."

Mr. Crane was channeling the spirit of the time. In December, world leaders in Paris pledged to combat climate change. The United States said it would cut its greenhouse gas emissions by more than a quarter in 10 years. With wind and solar power cheaper than ever and consumers starting to embrace energy-saving technologies, these targets could be within reach.

But the climate crisis won't be solved with more Teslas alone. If the goals set in Paris are to be met, big electricity producers like NRG will need to reduce emissions while increasing power production. So Mr. Crane set about trying to retool NRG's fleet of dirty power plants while building a new generation of utility-scale wind and solar projects.

NRG's dual personality — fossil fuel giant and clean energy pioneer — is on display at two relatively new facilities on opposite ends of the country.

Just south of Los Angeles International Airport, four smokestacks punctuate the sandy coastline. There in one form or another since the 1950s, they are part of the El Segundo Energy Center, which produces enough electricity to power nearly 450,000 homes.

At first glance, it is just another power plant burning cheap and abundant natural gas. Yet the El Segundo plant is among the most sophisticated of its kind. The two operational units, which came online in 2013, replaced inefficient relics constructed a half-century ago. Wastewater is recycled, emissions controls minimize the production of nitrogen oxide and carbon monoxide, and a mix of combustion and steam turbines greatly enhance the amount of energy derived from the gas.

A worker inspecting an NRG solar installation in Spencer, Mass. Tony Luong for The New York Times

And perhaps most critically, the El Segundo Energy Center is only occasionally generating power.

A generation ago, it operated almost constantly, feeding the vast energy needs of Los Angeles. But over the last several years, big power companies — including NRG — have constructed enormous solar power plants in Southern California, supplying a growing share of daytime electricity.

When the sun is shining, NRG's new high-tech gas-fired power plant is often dormant, coming alive only when demand ramps up and the sun has dimmed. In that sense, the El Segundo plant is a big leap forward. Yet the very need to pour millions of dollars into retrofitting this gas-fired plant on the picturesque shore of the Pacific Ocean shows just how much work has yet to be done.

Across the country, in Spencer, Mass., NRG is putting the final touches on a community solar project on the grounds of St. Joseph's Abbey, a Trappist monastery. There, on rolling green hills near the monks' quarters, hundreds of hard-hatted workers are busy erecting thousands of solar panels.

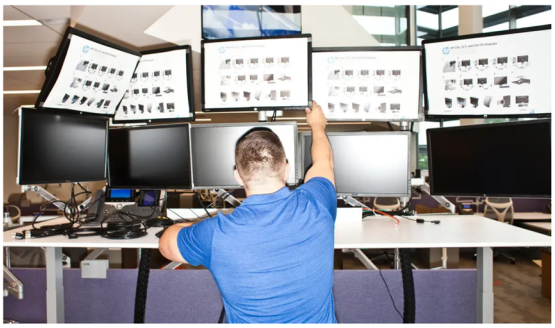
The electricity generated from those panels will flow through new transmission lines, which were required because the existing grid infrastructure could not handle the influx of solar energy. The project will power about 2,000 nearby homes, which should have lower and more reliable electricity bills.

By NRG's standards, the solar plant is relatively small, but more are in the works. With enough such plants on the grid, they could help NRG achieve its ambitious emissions reductions targets.

This is exactly the kind of change that Mr. Crane championed. And yet he is no longer the chief executive of NRG. He was abruptly fired in December, after NRG stock plummeted 63 percent in a year.

Earnings fell as cheap natural gas made NRG's coal-fired plants less competitive, and investors had grown weary of Mr. Crane's focus on clean energy. Even as NRG's core business was losing money, Mr. Crane devoted much of his quarterly earnings calls to discussions about clean-power projects.

"We all believe in renewables," said Shahriar Pourreza, an analyst with Guggenheim Partners. "But there was such a change in the message of the company that investors lost confidence in the management team."



Computers being installed at NRG's new headquarters in Princeton, N.J. Bryan Anselm for The New York Times

The NRG board named the company's chief operating officer, Mr. Gutierrez, as the new leader. He had grown up in Mexico City, where electricity was sometimes spotty. Mr. Gutierrez joined his family's engineering company, then worked for Dynegy, a power producer in Houston, before joining NRG. Yet he says that like his predecessor, he is committed to environmental stewardship.

He drives a red Tesla and uses a Nest thermostat to remotely manage the temperature in his solar-paneled home in New Jersey. A Catholic, Mr. Gutierrez says he draws motivation from Pope Francis, who last year released "Laudato Si," an encyclical on the environment.

"When a spiritual leader like the pope calls out our moral responsibility toward the environment, it's a pretty big thing," Mr. Gutierrez said. "It transcends science and policy."

He was engaged in efforts to combat climate change well before Paris. As Mr. Crane's C.O.O., he led an NRG task force that recommended that the company adopt ambitious targets for emissions reduction. Mr. Gutierrez recently recommitted to those goals. "Renewables is something that's very important for our portfolio," he said. "It's good business."

Mr. Gutierrez has a tricky balancing act. He must appease demanding investors and a skittish board, which most likely means reining in some of Mr. Crane's clean-energy ventures. Yet he must also fill the shoes of a chief executive who had raised hopes among environmentalists that a big energy producer was getting serious about climate change. He must profitably manage gas and coal assets — which still make up most of the company's power generation, sales and profits — while also preparing for a future that is more dependent on solar and wind.

Analysts are pleased with Mr. Gutierrez's performance so far. He has simplified the corporate structure, played down some of Mr. Crane's side projects and focused on the balance sheet. NRG shares have risen 40 percent since Mr. Gutierrez took over.

"With the old management, there was such a change in message, the company started to lose credibility," Mr. Pourreza said. "Mauricio is leading this company in the right direction."

But how NRG will actually achieve vast reductions in its carbon footprint is unclear. As long as it is burning so much gas and coal, it will remain a major emitter of greenhouse gases. And while Mr. Gutierrez speaks hopefully of developments in carbon-capture technology and utility-scale battery storage, practical solutions remain elusive. "Do we have a perfect line of sight on how we're going to get there? No," he said. "Do we have a road map? Yes."

Mauricio Gutierrez on the rooftop of NRG's headquarters in Princeton, N.J. Bryan Anselm for The New York Times

Complicating matters, the Obama administration's signature effort to reduce greenhouse gas emissions from the power sector — the Clean Power Plan — is tied up in the courts. (NRG was among the companies that petitioned the E.P.A. to modify the plan, arguing that it made the power sector too reliant on natural gas.) The ambiguous fate of that plan has added regulatory uncertainty to an industry already in flux.

"You have these goals set in Paris, you have a framework for getting there through the Clean Power Plan, and you have the judicial branch saying stop," said Ralph Izzo, chief executive of Public Service Enterprise Group, a New Jersey utility. "You can't make economic decisions in that environment."

Even NRG's big renewable projects — installations that are supposed to one day replace coal- and gas-fired plants — are mired in problems. In the Southern California desert, NRG oversees operations at Ivanpah, the world's largest solar thermal installation, where thousands of mirrors reflect the sun at enormous towers and water is converted to steam that powers turbines. NRG owns the plant along with BrightSource Energy and Alphabet, the parent company of Google.

Heralded as a beacon of clean energy when it opened in 2014, Ivanpah has been continually troubled.

From the outset, it produced less electricity than expected. Over the last few years, the cost of solar panels fell sharply, making Ivanpah's power comparatively expensive. In March, the consortium that owns the plant nearly defaulted on a contract with Pacific Gas & Electric, the Northern California utility.

Then in May, a fire at the plant knocked out one of the towers, raising new questions about the project's viability. Last week, when NRG reported quarterly earnings, it said that revenue from its renewables businesses was down 14 percent to $57 million, largely the result of problems at Ivanpah.

This isn't the first time that a big energy company has made ambitious plans to become a leader in green energy, only to be reined in. In 2000, BP introduced its "Beyond Petroleum" tagline and began investing heavily in renewable energy. It committed billions of dollars to wind and solar projects, and made investments in carbon capture and biofuels.

After a decade of investment, BP largely backed off its renewables program. Most of its money was still coming from oil and gas, and the company set about selling its solar and wind power assets. They simply weren't profitable enough.

"It's difficult to recall that 10 years ago BP was one of the darlings of the green movement," said Justin Adams, managing director of global lands for the Nature Conservancy and a former executive at BP working on renewables.

Mike Colación, an operator, walked around transformers as he made his rounds at El Segundo Energy Center. The retrofitted NRG plant is often dormant, only occasionally generating electricity when demand ramps up and the sun goes down. It can produce enough to power nearly half a million homes in the Los Angeles area. Ivan Kashinsky for The New York Times

"Through that period, some investors were interested, most were ambivalent at best and some downright skeptical at worst," he said. "What on earth was BP doing, taking its eyes off its core business and tinkering around with renewables?"

At NRG, Mr. Gutierrez has already backed away from residential solar and electric-vehicle charging projects that Mr. Crane held so dear. So far, however, there are no signs that NRG will completely reverse course. Mr. Gutierrez is still pushing community solar power, and NRG provides solar installations to big companies like Whole Foods. Last week, NRG spent nearly $200 million to acquire more solar and wind assets.

Today, NRG generates about 9 percent of its electricity from renewable assets, up from less than 1 percent in 2008, and that figure is likely to grow. Across the industry, a majority of power plants being built today use renewables, not fossil fuels.

Mr. Crane has not gone quietly into the night. In a letter to NRG employees shortly after his ouster, he said there was "no growth in our sector outside of clean energy; only slow but irreversible contraction following the path of fixed-line telephony." Soon after that, he wrote a blog post titled "If I Was Right, Why Was I Fired?"

"The sad moral of this story is that it's very hard to be a C.E.O. for tomorrow, when the markets only care about being a C.E.O. for today," said Mr. Cramer of Business for Social Responsibility. "I don't think anyone really questions his vision, but he wasn't given any opportunity to put it into action."

Mr. Gutierrez says he shares his predecessor's vision. By 2050, he envisions enormous batteries storing solar power generated during the day, allowing people to use it at night. Distributed energy will be more common, as Mr. Crane predicted. Carbon-capture technology will make the burning of fossil fuels much less environmentally destructive, Mr. Gutierrez hopes. Perhaps coal-fired power plants will be gone altogether.

"We are a part of the problem," he said. "But we are also a big part of the solution."

It's an appealing vision of a green energy system, one that could fulfill the needs of an electricity-hungry world without spoiling the environment. But how NRG gets there — especially with investors and a board that seem intolerant of bold steps — remains vague at best. For now, Mr. Gutierrez is caught in the middle: hoping to arrive

at a cleaner future while still satisfying today's investors, rolling out fields of solar while also burning tons of gas and coal.

"Let's all acknowledge that we can't change our energy system overnight," Mr. Cramer said. "But how do we start making meaningful progress? Saying 90 percent by 2050 is the easy part. We need to start making progress now."

Senator BARRASSO. So you lost 63 percent of NRG's value in a year and you were fired. One financial analyst told the paper, "We all believe in renewables, but investors lost confidence in the management team." So in light of your record, why should we believe that you are going to manage the American people's money better than you managed NRG's money?

Mr. CRANE. Thank you for the question, Senator.

I think on the topic of NRG share price, NRG share price actually traded principally in close correlation with natural gas prices, and the 63 percent reduction you are talking about was actually consistent with other companies in the industry. I think if you look at my track record in terms of investment in big projects, you know, my background in project financing, if you look at things like the credit rating of NRG, no one ever lost, you know, a dime in terms of investing in NRG debt. So I would say that the type of big projects that you say—because it is a huge amount of money that you are talking about, and it is American taxpayer money—and so I take the responsibility very seriously and I believe that I have the skill set and the sense of prudency to be a careful steward of that money.

Senator BARRASSO. So in a 2016 GreenBiz op-ed, you wrote, "The sustainability movement will have to become more aggressive if it is to affect change through business leadership." You explain, your quote, "Enlightened companies will need to withhold their business from companies that do not invest in the future but are content to seek competitive advantage in consumptive business as usual."

[The editorial referred to follows, along with an additional editorial submitted for the record:]

GreenBiz

« Power Player

Lessons on sustainability leadership from Jeff Immelt and The Boss

What do GE's CEO and Bruce Springsteen have in common? It's not hewing to conventional wisdom, for one thing.

By **David Crane**

April 19, 2016

We are deep in the middle of America's quadrennial political silly season and, given that this political cycle has been — already — the most bizarre in modern history, the most sane among us are doing our best to look away from the unsightly mess.

But recently, two non-politicians — both high-profile in their very distinct fields of endeavor — waded deep into the political muck.

GE's CEO, Jeff Immelt, in a letter published in the Washington Post, excoriated Democrative presidential candidate Bernie Sanders for comments the Vermont senator had made about his company to the New York Daily News editorial board; and Bruce Springsteen famously cancelled a concert in North Carolina to protest that state's recent enactment of anti-LGBT legislation.

I am generally not inclined to hero worship. If I were, Jeff and Bruce would be near the top of my list: Jeff, for reasons that should become apparent below, and Bruce because I have long lived in New Jersey and he is, well, The Boss. (Refer, in this regard, to the YouTube clip of Jon Stewart lauding Springsteen at the 2014 Kennedy Center Honors.)

What is extraordinary about Jeff's letter is not so much what he said about Sanders but that he said it (publicly) at all. I am not privy to the inner workings at GE, but I would bet any money that Jeff called out Sanders notwithstanding the unified and vigorous opposition of GE's government relations, public relations and communications groups.

"Don't do it, Jeff." "Walk away from the provocation, Jeff." "You can't win this one Jeff," is the advice he would have gotten.

You see, conventional corporate wisdom tells you that when politicians are fulminating for political gain in your direction, you turn the other cheek and take solace in the fact that not too many people are listening to politicians these days.

“ Conventional corporate wisdom tells you that when politicians fulminate for political gain in your direction, you turn the other cheek and take solace in the fact that not too many people are listening. ”

But Immelt launched a verbal scud at Sanders, noting that GE "had never been a big hit with socialists." More damning, in my eyes, Immelt revealed that Sanders in his 30 years as an elected official from a tiny state never bothered to visit the big GE factory in Rutland, Vermont — an inexplicable oversight on the part of this self-styled tribune of the working class.

Proving that you can't win taking on the left-wing intelligentsia (and undoubtedly causing some of his advisers to whisper "I told you so," but not to Jeff's face), Immelt immediately was criticized by The New York Times for his "ill-advised" and "snarky" attack on Sanders.

So why did he do it?

There is only one reason, I am guessing, and it is a reason worth celebrating. Sanders impugned the moral integrity of General Electric. And Immelt took the view that no matter who the accuser was or how important the accuser could become, he could not let an attack on the core value system of his company go unanswered.

I have seen Immelt do this before, back when he was the de facto leader, on the business side, of the major corporations that made up the U.S. Climate Action Partnership (USCAP). There, one snowy pre-Christmas night in the GE offices high up on 30 Rock, Jeff Immelt through sheer application of moral strength willed all 28 CEOs to sign on to a consensus position on climate change legislation which many felt was significantly damaging to their company's near term economic self-interest.

With the USCAP position destined to become a foundational element of the Waxman-Markey legislation, Immelt then led the rollout of the USCAP plan at a large media event staged on the Senate side of Capitol Hill. At that event, Immelt and GE were angrily assailed from the right by Sen. Bob Corker of Tennessee using similarly unsubstantiated insinuations as deployed by Sanders.

There also, in a packed room with the television cameras rolling, Immelt actually interrupted the senator in order to take strong exception to his comments about GE and its motivations for seeking to do what was right for the future of the planet. The senator immediately backed off his comments.

Empty words on a website

Most companies have a mission statement and a set of core values; many pay little attention to them. They are just empty words on the home page of the company website. Purpose-driven companies need morally grounded leaders, such as Jeff Immelt, willing to fight for the core value proposition of their companies. We need to get other CEOs to be more like Immelt, to infuse life into their company's core values, abide by them and defend them when they are called into question.

Immelt clearly has a very dearly held view of his massive company's essential inner core of values that he deemed worth protecting, even at the cost of alienating a potential president of the United States. For most other CEOs, the stakes are not nearly so high.

While not unique to GE — Unilever, J&J and other companies similarly stand for something more than just near-term bottom-line profitability — there need to be more such companies and leaders, to be cherished and leveraged by the sustainability movement. For where such leaders exist, leading companies that stand for something, that something invariably includes safeguarding the future of the planet.

Jeff, you are the boss.

Now turning to the recent actions of The Boss.

Cancelling an event, such as a concert, you say, may be easy. But if it is so damn easy, why has the NBA declined, so far, to move next year's All-Star Game out of North Carolina?

Critics were all over Springsteen for letting down his fans and for hurting the hourly employees who would have worked the event, but Springsteen evidenced great awareness of the harm his action might be causing in his letter announcing the cancellation.

“ Springsteen recognized the bigger picture potency of withholding economic activity in terms of influencing public policy. ”

The history books largely credit the end of public segregation in the American South to "top down" actions — Supreme Court decisions and federal civil rights legislation. Yet, I wonder whether the grassroots economic boycotts organized around the same time by local black leaders aimed at withholding the business of black consumers to establishments insisting on racial segregation actually did more to hasten the end of overtly segregationist practices in day-to-day life.

Certainly, more recently, we have seen how the mere threat of reduced economic activity from the likes of Marc Benioff at Salesforce.com, in Indiana, and Doug McMillon of Walmart, in Arkansas, quickly led to the moderation of objectionable public policy in those states.

Coalitions of the willing

The sustainability movement, I am convinced, will have to become more aggressive if it is to affect change through business leadership. It is not going to be enough for those companies that "get it" — that are on their own path to net-zero sustainability objectives — to focus all their energies on their own efforts.

As members of "coalitions of the willing," enlightened companies will need to withhold their business from companies that don't invest in the future but are content to seek competitive advantage in consumptive business-as-usual: waste into landfills, once-through freshwater usage, carbon into the atmosphere and so forth.

Companies such as DuPont already do this in the area of employee safety, where subcontractors that do not meet DuPont's exacting safety standards are not permitted to work on DuPont sites. Thanks to Walmart, Nike and others, sustainability practices as a selection criterion is working its way into supply-chain procurement, although not quickly or comprehensively enough. And they aren't doing much at all about who they are willing to partner with or where they locate their businesses.

If business opportunities, defined broadly, start to be denied to companies indifferent to their impact, their sustainability practices will change quickly. I guarantee it.

So, let's all endeavor to be a little bit more like The Boss.

David Crane
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GreenBiz

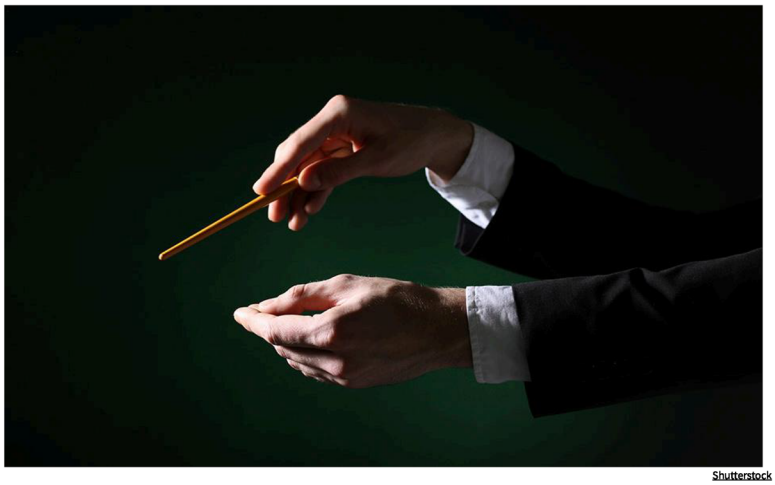
« Power Player

My clean-energy green dream

What would you do if you had the power to do anything you want to fight climate change?

By **David Crane**

June 26, 2017



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I was privileged to participate last week in the Corporate Eco Forum's annual confab — a remarkable event in which top sustainability professionals from our biggest and most forward-leaning corporations get together both to ideate and to speak practically about overcoming obstacles on the road to becoming carbon neutral.

This year's challenge to each participant was to ask themselves "What if?" I used my time there to answer the question: "If I could be anything and do anything I want right now to win the fight against climate change, what would it be?"

My answer: I would have the world's 100 largest corporations put me in charge of their collective energy procurement worldwide, with the mandate to make them all 100 percent carbon-free by 2025.

My thinking was that with the power to exercise their collective purchasing power, the changes we would bring about in the way energy is produced, transported, financed and consumed would be transformative. And in this political environment, the catalyst to transform the way we live can only be demand-driven.

The world's biggest companies, acting together, have a level of demand that can compel society down the road towards the clean energy economy.

“ The world's biggest companies, acting together, have a level of demand that can compel society towards the clean energy economy. ”

As this is my green dream, I am not only going to assume that the world's 100 biggest companies, who represent roughly $15 trillion in market cap, will entrust in me their energy budget for the next eight years, but also that they are literally begging me to do it. They consider me the Mother Teresa of clean energy and, as such, I have the clout to dictate the terms of my procurement engagement.
I concede only one condition, which is that they will not spend more on energy in 2025, in real terms, than they did in 2017. In exchange, they agree to the following 10 conditions.

First, my procurement organization is not a club, alliance or association but an actual unified purchasing entity. The Global 100 assign to me its annual energy budget and I deliver physical energy to meet its needs which, by 2025, will be carbon neutral. It is very simple.

Second, I get to be responsible for all corporate energy procurement, not just electricity. I get to be responsible for transportation fuels as well. This is important because we will be able to optimize only if we can more fully integrate our two massive conventional energy delivery systems — electricity into buildings and gasoline into cars — into one system, thereby enabling the use of the latent secondary storage potential of battery-powered transportation as a partial remedy for the fundamental intermittency of renewables and, equally, using car charging as an energy sink for excess renewable energy at times when it is not needed for traditional uses.

While I am at it, I also want to talk to those of the Global 100, typically the beverage companies, which include in their long-term sustainability goals "fresh water neutrality," about helping them with desalinated fresh water produced at night by with excess wind power and during the midday duck's belly with excess solar.

Third is that I get to be responsible for energy management at the Global 100 so that I can implement large-scale energy-efficiency programs. It is nonsensical for me to be responsible for energy procurement, production and delivery but not for how energy is consumed. It would be like trying to pass off counterfeit $100 bills with Ben Franklin on one side and nothing on the other. It just won't work.

Fourth, I get unilateral discretion to decide when, where and how I roll out my 100 percent green procurement — company by company, technology by technology or country by country. Almost certainly I would choose country by country in an attempt to tap into the competitive dynamic between countries and their utility service territories.

Fifth is that, to the extent I could save money on the Global 100's energy procurement against their 2017 spend, I get to use a portion of that savings for a marketing/PR campaign on behalf of the Global 100. While this green dream of mine is innately collaborative, it is not naive. There will be laggards and recalcitrants. I need to have the ability to play into the competitive dynamic between companies: Coke versus Pepsi. McDonald's versus Wendy's. Marriott versus Hilton.

> *“ If one protagonist in a competitive sector is 'all in' — doing the right thing by the planet — and the other is not, I want to let the customers they compete for know, particularly millennials. ”*

If one protagonist in a competitive sector is "all in" — doing the right thing by the planet — and the other is not, I want to let the customers they compete for know about it, particularly the millennials. I know for a fact that all CEOs are scared to death about getting on the wrong side of millennials.
Sixth, I want to be able to pump a second portion of the savings we achieve into a dedicated venture capital or private equity fund to address energy poverty around the world with clean-energy solutions. Why, you ask? Because it is the right thing to do, and that is simply who we are as an industry.

Seventh, I get regular access to the C-suite of the Global 100, particularly their CFOs. Not only are the CFOs critical, because they are the de facto impediment to sustainability progress in most corporations, but because there will be a lot of financing associated with our global clean-energy build-out, and I will need the CFOs to play along on such ideas as collective offtake agreements.

Eighth, I will have to beg the CFOs' indulgence to play hardball with the financial institutions with which they do business. My message to the banks is that if you want to do business with the Global 100, you need to help finance our clean-energy build-out. Plus, I need competitive terms and I need innovation from lenders in terms of financing these new clean-energy facilities.

Specifically, given the pace of change in every one of the Global 100's core businesses, it is nonsensical for corporates to sign up for more than a 10-year power purchase agreement in any location. There needs to be a new financing solution to "the tail" risk. That risk should not, need not, be taken by the corporate off-takers.

My ninth and 10th conditions require the personal commitment of the Global 100 CEOs.

Ninth, I want the CEOs, individually and collectively, to sign on to a "no more excuses" pledge because, quite frankly, the planet has no more time for them. The fast-food chains that can't install solar because of the franchisees; the hotel management companies that say they are stymied by the actual hotel owners; the big-box store occupants who shrug their shoulders because they don't own the big boxes they occupy.

I could go on, but you get the point.

“ The pledge I want CEOs to make is simple. In short form, 'If your brand name is on a building, a storefront or a box, you own its carbon footprint.' ”

The pledge I want CEOs to make is simple. In short form, "If your brand name is on a building, a storefront or a box, you own its carbon footprint." If you thought that one was rough, wait for my final condition.

Tenth, as my mandate is to make the Global 100 carbon neutral by 2025, eight years into the future, more than 90 percent of the CEOs who launched this initiative in 2017 will be gone by then. I want the current Global 100 CEOs to pledge that to the extent they are involved in the orderly selection of their successors, that as a precondition to that selection they will insist that their successor reaffirms his or her commitment to our "carbon neutral by 2025" effort.

Those are the 10 conditions of my "what-if."

If we, the Global 100, reorder our own energy procurement so that it is carbon neutral, we will have done a lot. We truly will have moved the needle towards a clean-energy society. We will have reaffirmed our own core values. We will sleep better at night feeling good about ourselves.

But we won't have won the war against global warming. Energy consumption outside of the big corporate sector dwarfs that from within. We need our collective initiative to create a huge ripple effect.

If we successfully can leverage our collective purchasing power to get a country or a utility to go 100 percent carbon-free itself, then we truly are on the path to victory in the pivotal battle of our generation.

But how to do that is a green dream for another day.

David Crane
Editor at Large, GreenBiz

Senator BARRASSO. So six years have passed since you wrote the op-ed. So the question is, are today's enlightened companies, which I imagine today would be described as "woke" companies, are the woke companies, as you define them, sufficiently withholding their business from those who are not enlightened?

Mr. CRANE. I think the point of that article has to do with decarbonization specifically, and it is not saying that all companies in the future have to just buy renewables. Decarbonized fossil fuels, I think, is something that most companies that are trying to do something about climate change, you know, they will buy power from decarbonized fossil fuels. So I don't know the concept of wokeness as it applies to the energy industry. It is not one that I am that familiar with, but I do believe that the provisions of the bill that I am supposed to implement, which will provide decarbonized fossil fuel alongside other renewables, including new renewables like geothermal, I think it provides a future that energy consumers will be willing to buy into.

Senator BARRASSO. That is a debatable point of what energy companies or energy consumers will be able to buy or willing to buy because my thought is, you know, companies should prioritize reliability and affordability for their users. So you know, should companies prioritize reliability and affordability when producing energy, even if it means purchasing energy derived from coal or natural gas or oil?

Mr. CRANE. Ranking Member, safe, affordable, reliable power, the three imperatives of this industry, have not changed in the 21st century. You are completely correct in that regard. We have just added this imperative of decarbonization. So I agree with you. We cannot compromise safe, affordable, and reliable power to deliver to all Americans.

Senator BARRASSO. Mr. Marootian, if I could, on building codes—building energy codes are state laws. The Office of Energy Efficiency and Renewable Energy plays a role in the development of building codes, along with, you know, private entities. The Department of Energy has no authority—none—to set mandatory nationwide building codes. Do you believe the Department of Energy should have authority to establish mandatory nationwide building energy codes?

Mr. MAROOTIAN. Senator Barrasso, thank you for that question. I believe, first and foremost, in following the intent of the law, and also believe, further, in state sovereignty and states' ability to make those types of laws that are best for citizens of those states. And if confirmed, those would be the principles that I would apply.

Senator BARRASSO. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Senator.

And now we will go to Senator Heinrich.

Senator HEINRICH. Thank you, Chairman.

Mr. Crane, the Office of Clean Energy Demonstrations (OCED) was tasked with funding large-scale demonstrations under the Bipartisan Infrastructure Law to de-risk technologies for industry. So I want to ask you just what metrics you are going to be thinking about to ensure that those large demonstrations are truly addressing the key risks to be able to move those things towards adoption/deployment scale.

Mr. CRANE. Senator Heinrich, thank you for the question. And your characterization is right, it is mainly big projects within OCED, although we have the billion dollars for rural and remote smaller projects, but on the big projects, I think, actually the genius of the law is this hub concept, which I think, you know, could be described more as an ecosystem. And one of the things that we are trying to do is, you know, sometimes in the past with DOE projects, we talk about how they had been "demonstrate and dismantle," and what we really are looking for is "demonstrate and deploy." And I think a particular area of focus for me, because, you know, the DOE's technical strength has almost no limit—but more on the commercial offtake. I mean, these projects not only have to operate within their ring fence, but they have to be commercially sound.

So I would tell you that that is the singular thing I am focused on, particularly when you look at something like hydrogen, where we are going to ramp-up hydrogen production, but we have to look at the demand for hydrogen at the same time.

Senator HEINRICH. And I think, you know, it is not just about the technical aptitude, but then being demonstrated in a way to bankability that industry takes off with these things, right? I mean, that is really the 1-2-3-4 approach to getting this stuff to scale, is showing that it really works and then that you can build it in a way that is profitable. Then once the Loan Program Office, for example, works with someone to do that step, then the banks and other financial sector players will jump in and these things will be off and running on their own.

Mr. CRANE. Senator, that is an extremely insightful point. And in fact, we are standing up a small team right now. What I am very concerned about is, the Department of Energy has a lot of negotiating in these public-private partnerships, but what we cannot do is structure projects that the private sector would never replicate.

Senator HEINRICH. Right.

Mr. CRANE. So I would tell you in my two months at the DOE, the word replicability has passed my lips more often than it has in my previous 63 years. So that is one of our mantras.

Senator HEINRICH. So let's shift specifically to the industrial sector, and how should we be thinking about infrastructure planning and investment to be able to decarbonize the next frontier, which is really heavy industry—cement, glass, aluminum, steel, all of those industrial processes that rely on high heat.

Mr. CRANE. The decarbonization of industry, and that is, of course—I think we now have a total of $5.8 billion for that—is just one of the most exciting things that we have on our plate. And we have been looking at seven hard-to-abate sectors, and based on my experience—I was on the board of a steel company before I resigned to come to DOE—is that the key is to go to the heart of the process, where a lot of heavy industry thinks that there is no zero-carbon solution to create the process heat that is at the center, the core of what they do. And I think with the money that has been authorized from Congress, we can put out demonstration projects that can show that you can create very high temperatures—1,000

to 1,400 degrees Centigrade heat, you know, without putting carbon into the atmosphere.

Senator HEINRICH. I want to shift to you, Mr. Marootian. EERE has an opportunity to exercise its standard-setting authority in a way that really advances grid efficiency and clears the way for rapid clean energy development. And the Department, for instance, could choose to establish an efficiency standard for electricity conductors that promotes the use of modern and efficient advanced conductors across the grid. Reconductoring existing transmission with advanced conductors can double corridor capacity. It can lower line losses. Customers can experience significant savings all without the decades-long planning challenges that the Chairman is all too familiar with. Would you work with my office to evaluate how DOE can promote the deployment of advanced conductors as one of our transmission solutions?

Mr. MAROOTIAN. Senator Heinrich, I would be delighted to.

Senator HEINRICH. Chairman, I have four seconds left, so I am going to give back all that time.

[Laughter.]

The CHAIRMAN. Hickenlooper will probably use it when he gets time.

So now we have Senator Cassidy.

Senator CASSIDY. First, Mr. Crane, the most important question, is your wife, Miss de la Houssaye, by maiden name, from Louisiana? That is a very common Louisiana name, although Isabella is not.

Mr. CRANE. Yes, my wife is Isabella de la Houssaye from Crowley, Louisiana.

Senator CASSIDY. Oh my gosh. Oh my gosh. You got my vote.

Mr. CRANE. And her mother was the Republican mayor of Crowley, Louisiana for eight years.

Senator CASSIDY. That is wonderful. And is she related to the jockey that did so well?

Mr. CRANE. Not that I know of, but you know——

Senator CASSIDY. You ought to claim him.

Listen, on a more serious note, again, thank you all for your participation. Mr. Crane, when negotiating the Bipartisan Infrastructure bill, we established a compromise, and that was bipartisan. It was really bipartisan, and it kind of reflected that which folks from the left and the right would agree to. And on clean hydrogen, we struck the agreement as two kilograms of carbon dioxide equivalent per kilogram of hydrogen produced at the point of production—at the point of production. And so this was done to ensure we made progress in lowering the emissions, but to make sure that only emissions within the fence line were being considered. Now, one of the frustrating things is, DOE has released draft guidance defining clean hydrogen based upon the full life cycle. That is clearly a deviation from what the infrastructure bill said, which means they are going to get sued, which means all of this is going to be delayed.

I mean, this is so dad-gum predictable, and I hate it when agencies defy Congress. This is literally defying Congress. So that said, and because of that suit, this is going to have a delayed deployment, I mean, just period. It is going to have a delayed deployment. So can you explain to me in the role that you are nominated to fill,

how you are going to ensure that the Department of Energy actually pays attention to the letter, as clearly written in the law, and implements requirements as written, and will you commit to doing so?

Mr. CRANE. Thank you, Senator, for the question. And to answer your question directly, I will absolutely commit to look into the matter you are talking about and to do everything to make sure that no roadblocks, you know, develop in terms of the prompt implementation of the hydrogen legislation across the full range of permitting and all the questions that you are talking about. I absolutely commit to do that.

Senator CASSIDY. And philosophically, do you feel as if—now this is a philosophical question and this is independent because it just helps me—do you think the Administration is, because some of your previous writings which suggest you might be sympathetic to this, would be justified in considering the full life cycle as opposed to just the fence line? What are your thoughts on that?

Mr. CRANE. Senator, the full life-cycle analysis, as far as I understand, is not the dispositive criteria. It is one factor that is being looked at. But it is very complicated to figure out when you are doing a full lifestyle, you know, evaluation of basically any human activity, it is very hard to know where you draw the line. So I don't necessarily believe it's not something to be looked at, but again, in my two months at the DOE, I have not actually sensed any desire to flout the will of Congress. In fact, particularly with the hydrogen provisions, I have been in meetings where members of the Department of Energy are poring over every word in the legislation to make sure that the FOAs that go out, you know, meet the intent of Congress. And I commit to you that we will continue to play right down the middle of the fairway, as Congress intends.

Senator CASSIDY. Next, if you will—thank you for that—the United States, if you look at oil brought to the coast of Louisiana for refining, the oil with the lowest life-cycle emissions is that which comes off the Gulf of Mexico—the Outer Continental Shelf. And yet, this Administration has had a reluctance to lease and to permit development of U.S. resources on federal lands. And instead, we are bringing in oil and gas from—at least oil—from other countries, which actually has a higher life-cycle greenhouse gas emission profile. Now, this is incredibly frustrating for an Administration which claims that it wants to lower emissions—to favor products from other countries, by the way the jobs are going there as well.

So what are your thoughts? Does it make sense that the United States is prejudiced against developing resources in North America, creating American jobs and having a lower life-cycle emission profile or not, I guess?

Mr. CRANE. Senator, I support the proposition that domestic production is always going to be favored to, you know, any foreign source of oil or any other strategic commodity or strategic mineral. I am not personally familiar with the carbon footprint of oil from different parts of the world, but I accept what you are saying, but I always would prefer domestic over foreign. Yes, I would say that is not part of my remit, you know, in the Under Secretary position,

the specific issue of oil and gas drilling on federal lands is not part of my——

Senator CASSIDY. I understand that. It gives me a sense of your philosophy.

Mr. CRANE. I favor domestic production over foreign. I cannot go into too much——

Senator CASSIDY. I understand.

Mr. CRANE. I am from the electricity side of the business, not the oil and gas.

Senator CASSIDY. Yes, but your writings suggest that your vision is greater. So with that, I yield back and thank you and I thank Ms. de la Houssaye.

The CHAIRMAN. Thank you, Senator.

Senator Hirono.

Senator HIRONO. Thank you, Mr. Chairman.

Welcome to the all of the nominees and your families. To ensure the fitness of nominees for the positions that they have been nominated to, I ask the following two questions of all nominees before any of the committees on which I sit. So I will ask the questions of you.

Since you became a legal adult, have you ever made unwanted requests for a sexual favor or committed any verbal or physical harassment or assault of a sexual nature? We will start with you, Mr. Crane and just go right down the line.

Mr. CRANE. No, I have not, Senator.

Mr. MAROOTIAN. No, Senator, I have not.

Mr. RODRIGUES. No, Senator, I have not.

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

Mr. CRANE. Absolutely not, Senator.

Mr. MAROOTIAN. No, Senator, I have not.

Mr. RODRIGUES. No, Senator, I have not.

Senator HIRONO. Mr. Marootian, Hawaii has set an ambitious standard of 100 percent renewable power by 2045, and Hawaii has reached nearly 40 percent renewable power, but our state still relies on oil for most of its electricity. Families and businesses in Hawaii have had to watch their power bills go up along with the global price of oil. Solar power costs have fallen by over 80 percent in the last decade alone, and renewable power is now the cheapest source of power in most places. That does not even count the public health benefits from reducing air pollution or reducing the costly impacts of climate change. What do you think are the biggest challenges to bringing low-cost renewable power to people, and what will you do to address those challenges if you are confirmed?

Mr. MAROOTIAN. Thank you so much, Senator Hirono, for that question, and I think that is the exact right question that we should be asking right now. The team at EERE is focused on doing cutting-edge R&D work to help drive costs of all of these technologies down even further, and the important thing that we need to do is look to scale these technologies, to bring them to the grid and to microgrids in some places so that we can really expand the accessibility. And that is the work that the Department is doing at EERE in conjunction with the demonstration and deployment side of the agency that is being stood up underneath the Under Sec-

retary's office. There is a real opportunity for us to take these kinds of technologies from the lab to the street, as Secretary Granholm has said. And if confirmed, I look forward to doing that.

Senator HIRONO. Do you think we are doing enough to come up with storage, battery storage for intermittent power?

Mr. MAROOTIAN. Thank you for that question, Senator.

Battery storage is something that the Department is very keenly focused on. There are a number of technological applications that are currently being evaluated in partnering with industry to help advance battery storage. That is the key. That is the missing piece for really bringing some of these technologies to scale. And so I certainly look forward to working with my colleagues, if confirmed, on how to advance battery storage.

Senator HIRONO. Thank you.

Mr. Crane, I have consistently supported DOE's efforts to not just research clean energy technologies, but to also help demonstrate and deploy those technologies to help ensure that people benefit from energy that is cleaner, more reliable, and more affordable. Given the historic funding that Congress has given DOE in the last two years to advance clean energy, I support Secretary Granholm's decision to establish the Under Secretary of Energy for Infrastructure and your nomination. In addition to your other work, you have served on the board of the Elemental Excelerator—I should know this, after all, they are in Hawaii—a non-profit in Hawaii that is an incubator for clean energy and climate technology startup companies. So I am really glad that just as my colleague was establishing ties to Louisiana, you have ties to Hawaii.

What more should DOE do to help deploy new energy technologies to give people cleaner and more affordable energy in their homes, vehicles, and businesses?

Mr. CRANE. Thank you, Senator, for the question, and thank you for your support for innovation in this space. And I just want to tell you that amongst the many things I had to stop doing in order to take this job, stepping down from the board of the Elemental Excelerator in Hawaii was one of the most painful decisions. I wept over that because the Excelerator is significantly funded by the Department of the Navy.

Senator HIRONO. Yes.

Mr. CRANE. The concept of it is tremendous, to take these early emerging technologies and demonstrate them, and using an island grid like you have in Hawaii, it is just one of the most remarkable things out there. So after that advertisement for the Elemental Excelerator, I would actually say to you, the direct answer to your question is, I think you and Congress have done everything that you need to do. It is up to us at the Department of Energy to implement with the tools that you have put in our hands. And so that is the most direct answer I would give.

Oh, well, actually, I should say, I would love to see some sort of permitting bill pass because, again, it is—we have all this money and what I am very concerned about is we see these meritorious projects, they are ready to go and then they get hung up on a particular permit. So if there is one thing I could ask of this Congress, it would be progress on the permitting front.

Senator HIRONO. Thank you.

Mr. Chairman, my time is up so I will submit my questions for Mr. Marootian and for Mr. Rodrigues for the record.

The CHAIRMAN. Thank you for that last comment, Mr. Crane. We really appreciate your support for the permitting. It is the key to getting everything. If not, there is going to be a lot of money stranded that shouldn't be.

With that, we are so grateful that Senator Hoeven is with us today. Thank you, Senator. It is good to see you.

Senator HOEVEN. Thank you, Mr. Chair. It is good to see you, my friend. Thank you.

Mr. Crane, thanks for coming in yesterday and visiting. As we discussed, we have carbon capture projects underway in North Dakota—not only a coal gasification plant, but two of our large coal-fired electric plants. Also, I didn't mention, at least while I was there—maybe you discussed with some of my staff members, but we also have biofuel plants that are implementing. One already has. Another one is in process.

So talk to me about how the programs you have, how you intend to deploy them to help us make this happen, not only in our state, but across the country. And there are three components to that that we have worked very hard to pass, and certainly the Chairman has been very involved with that and gets big thanks for it, and obviously, it's committee, but that includes not only front-end funding to help with the technology that has to be put on these plants to capture the CO_2 so that it can sequestered, also the loan guarantees. And then, of course, the 45Q tax credit, which is really overseen by Treasury, but obviously has to be coordinated with the other programs. So in your job, assure me that you are going to help deploy those programs so that we can accomplish this carbon capture.

Mr. CRANE. Thank you, Senator, for the question, and for the time yesterday. I cannot only assure you that I will implement those programs, I will implement them with great enthusiasm, and as I know you know that we have already put out the first FOA for carbon capture, which is more for FEED studies. We are going to be putting out a second one within the next few months for the large-scale projects and yes, I will implement them enthusiastically. And as we discussed, 45Q is a huge incentive and you know, I have taken back your concerns about overlapping programs to see just what the rules are, but I am, you know, 45Q can be done alongside of our money. It is just the one thing that cannot be done by statute is the loan and the grant in the same project. But even that, it is a question of how you define the project.

Senator HOEVEN. Right. And you are committed to working on that with——

Mr. CRANE. I am absolutely committed to working with you and your staff on that.

Senator HOEVEN. Okay. Thank you.

Mr. Rodrigues, talk to me a little bit about baseload in terms of grid reliability. Obviously, coal-fired electric provides a lot of that baseload now. That is why we are working so ardently on the carbon capture piece. And as Mr. Crane and I discussed yesterday, this is not the first rodeo. We have done this with SO_X. We have done this with NO_X. We have done this with mercury, okay? So

now we are going to do it with CO_2, but we need that baseload electricity. What is your role in making sure that we keep baseload electricity as part of the mix to stabilize the grid?

Mr. RODRIGUES. Thank you very much, Senator Hoeven and thank you for the opportunity to meet with your staff yesterday. We had a tremendous conversation. I will say that your question calls out something that is critically important for the American people to understand, and that is the complexity of the energy system. To ensure reliability, which is job number one for the Department of Energy, along with affordability, security, and other attributes, we need a mix of resources that can be used in different ways. Baseload energy is critically important. And that is why, I think, the work of the Department looking to find ways to do carbon capture utilization and storage is one of the most important breakthroughs that we can work on today. Within the jurisdiction of the Office of Electricity, what we will be doing is exactly this, ensuring that each and every state's policy decisions, policy preferences, and decisions made about the resource mix that they want to have to serve their constituents, their citizens, that the grid is enabled to take those resources and affordably get them to the American people and do so reliably and safely as well.

Senator HOEVEN. And natural gas has a continued important role in that effort as well?

Mr. RODRIGUES. I absolutely believe that is the case, sir.

Senator HOEVEN. Thank you.

Mr. Marootian, the EERC—Energy and Environmental Research Center at the University of North Dakota, are you familiar with it?

Mr. MAROOTIAN. No, sir, I am not.

Senator HOEVEN. Okay. Well, they have for a long time worked with DOE, particularly on the fossil side, but they have also been trying to establish a relationship with DOE on the renewable piece. How would you recommend that we go about building that relationship with you, a cooperative agreement type of relationship with the EERE?

Mr. MAROOTIAN. Senator Hoeven, I certainly would welcome the opportunity to speak with representatives and establish that open line of communication. I think the Department—EERE's ability to provide technical assistance to states, to universities, to research centers, is key. It is something I am deeply committed to and look forward to working with your office, if confirmed, on that.

Senator HOEVEN. Yes, and I would invite you to come to the EERC and see what they can offer because it is tremendous, and I would actually invite all three of you to come to North Dakota and we will be following up with you on that. You might want to come in the summer, but it is up to you, but we definitely want to invite you and get you out there.

Mr. MAROOTIAN. Thank you.

The CHAIRMAN. Thank you, sir.

And now, we have Senator Hickenlooper.

Senator HICKENLOOPER. Great, thank you, Mr. Chair and thanks to all three of you for your commitment to public service and being willing to go through this kind of interrogation. Let me start with Mr. Marootian. I knew a Marootian when I was younger, but with a name like Hickenlooper, I can discuss phonetics.

Historically, DOE's national labs such as NREL and Golden, which you will oversee if confirmed, have in many ways been our secret weapon in developing new energy innovations and bringing them to market. Going forward, we are going to increasingly rely on these labs to guide us to some of the energy questions with this big transition. The transition—obviously, the importance of getting this mapped out and together is very, very important, whether it is transition build-out to simply operating a system that is on a, you know, diverse mix of generation sources. So how do you envision using DOE labs and NREL, in particular, to help inform U.S. industry and policymakers about these questions?

Mr. MAROOTIAN. Thank you for the question, Senator Hickenlooper, and thank you for your time last month, meeting with me. I agree with you. The national labs—NREL and all the 17 labs are the agency's crown jewels. They have the tremendous capacity and potential to do really cutting-edge advanced research and development across the board, and they have a number of really solid partnerships already. I think it is critical that we expand those partnerships with industry and with consumers. And I think about, for example, the Clean Energy Cybersecurity Accelerator as a great industry partnership that is developing real-world, real-time solutions for industry, and I think about things like the SolarAPP, which is a technology that is consumer-facing that helps streamline permitting processes for customers who are looking for solar.

So I think those are the kinds of partnerships that I would love to work on expanding, if confirmed. I have had the opportunity to meet with Dr. Keller several times, along with several of the other lab directors and very much look forward to working with them.

Senator HICKENLOOPER. Terrific, thank you.

Mr. Rodrigues, when we spoke we briefly discussed how electric vehicles might be able to help out in the power sector as we incorporate more variable generation on our grid, especially in things like vehicle-to-grid applications. We have a Bidirectional Act that you are aware of and would promote these kinds of innovations. With the right incentives in place it would seem that we could align the self-interest of vehicle owners, buses, grid operators, and utilities themselves. If you are confirmed, what role do you see for the Office of Electricity in helping to identify and promote the policies and standards and rate structures, you know, all this stuff to really deploy these promising technologies and innovations?

Mr. RODRIGUES. Thank you for that question, Senator, and thank you for taking the time to meet with me. I enjoyed our conversation and I hope we will be able to continue it further.

I am absolutely, tremendously excited about the opportunity to take advantage of vehicle-to-grid, vehicle-to-everything, all the grid-edge sources out there. As we look around us right now outside these windows, the resource that we have the ability to tap into, as soon as we technologically just break through a couple more engineering barriers, it is grid-edge resources and vehicle-to-grid is one of those. As we discussed the other day, if and to the extent the grid is able to accept these resources, to integrate them, then we will have ways to increase reliability and increase affordability.

May I make one last point on that?

Senator HICKENLOOPER. Sure.

Mr. RODRIGUES. The Office of Electricity will be focused on those sorts of technologies and advancements that need to be made to ensure that the visibility of these resources, the controllability of these resources, and as you point out, the very important policies are in place to ensure that consumers recognize the value of being a beneficial part of how we control our grid.

Senator HICKENLOOPER. Absolutely, and that won't be easy.

Mr. Crane, I saved the best for. As a recovering geologist, and I think according to Mark Kelly I am the only scientist in the Senate. He claims he's only an engineer. I would debate that, but I cannot help but ask your perspective on this emerging issue, as geothermal energy becomes more widely accepted. I was interested to see DOE's new enhanced geothermal EarthShot, a department-wide initiative, which aims to achieve a 90 percent reduction in the cost of enhanced geothermal projects by 2035. Can you talk about the steps that you will take, if confirmed, to commercialize promising technologies like that, across DOE's agencies, perhaps using EarthShot as an example?

Mr. CRANE. Thank you, Senator, for the question and maybe while your youth was well spent becoming a scientist, mine was misspent becoming a lawyer. So when we start talking about geology, you have me out of my depth, so to speak, but I think the geothermal EarthShot and the cross-cutting nature across the Department of Energy is very exciting, and geothermal is a very underutilized resource that has more baseload characteristics. And so you know, the programs—right now it is more in the R&D side of the Department of Energy, but you know, we will support that on the demonstration and deployment side, wherever and whenever we can.

Senator HICKENLOOPER. Perfect. Couldn't ask for more. Great. Thanks.

Thanks to all three. It was the first time I have gotten a question to all three when we have had three people up here. So these are concise answers. This is a direction the government needs to move in.

The CHAIRMAN. It is because our——

Senator HEINRICH. It is because you were so succinct.

The CHAIRMAN [continuing]. Resident scientist asked the question.

[Laughter.]

Senator HICKENLOOPER. I doubt that.

The CHAIRMAN. Senator Cantwell.

Senator CANTWELL. Thank you, Mr. Chairman, thank you for this important hearing and all of you for your willingness to serve. These are very important positions and certainly, I appreciate the focus that you brought to this morning's feedback in answering questions.

Mr. Rodrigues, I would like to drill down a little more. You and I had a chance to meet, but obviously the Pacific Northwest National Laboratory has been a critical contributor on electricity issues since its inception in grid modernization, cybersecurity, energy storage, all of those things. They are the home to the largest

collection of power system engineers and will soon be home to the Office of Electricity's new Grid Storage Launchpad, which will provide a place to accelerate and vindicate grid-scale storage, so very important. Obviously, we are very interested in smart grid technology and moving forward on the Office of Electricity's support of the Grid Storage Launchpad once it opens in 2024. So I wanted to ask you about the investment in time frame because utility operators and consumers agreed to dynamically control large electrical loads like EV chargers, water heaters, pumps, all of these things that we have to do to drive down cost and look at consumer affordability. I think they released a study that showed if this technology were used across the country, it would cut peak loads by up to 15 percent and deliver $50 billion in economic benefits to customers.

So how do you see the Grid Storage Launchpad moving forward with PNNL and helping to roll this out?

Mr. RODRIGUES. Thank you for that question, Senator Cantwell and again, thank you for taking time to meet with me yesterday. Let me start with a personal story. I have been in the energy industry some 32 years. When I first entered that, some 32 years ago, I remember having a conversation with one of the leads of the utility on the technology side saying, you know what the next breakthrough is for renewable energy? Storage. And that is because from a utility perspective, the thing that makes these technologies used and useful in making affordable energy and reliable energy for people is the ability to control the portfolio of resources you have. Grid storage, I believe, represents the most important breakthrough our country can make, and the PNNL is fortunate and we are fortunate that it is the home of the Grid Storage Launchpad. That is going to put out not just a good rigorous technology demonstration, but it is intellectually rigorous plus muscular in terms of the size and the breadth of the effort. I am very excited about the work being done there.

Senator CANTWELL. Thank you.

Mr.—I want to say this right—Marootian?

Mr. MAROOTIAN. Marootian.

The CHAIRMAN. Feel free, if you have to—Jeff.

Mr. MAROOTIAN. Perfect.

Senator CANTWELL. Okay, Marootian.

Obviously in the energy efficiency and renewable energy portfolio, PNNL is also a big player on renewable grid integration and coastal and marine integration as well. How do you think the role of the national labs would help support these priorities in moving forward on decarbonization?

Mr. MAROOTIAN. Thank you, Senator Cantwell, for that question.

I have had the pleasure of speaking with Dr. Ashby and very much, if confirmed, look forward to working with the PNNL team. They are doing some cutting-edge research and work across the board, and I think it is critical that we, as a Department, focus on how to take the R&D work that is being done at the labs and apply it to real-world applications, and I look forward to doing that, if confirmed.

Senator CANTWELL. And Mr. Crane, I understand PNNL was one of the first labs you visited in your current role, so thank you. Given the strong capabilities the Department is invested in for

many years, how do you plan to leverage these investments, particularly, you know, some of the things we need to do on the security side?

Mr. CRANE. Well, Senator, you are absolutely correct. The first national lab I got to visit was Pacific Northwest and it was truly awe inspiring, and I think the thing that personally most excited me about my visit was the work that was being done within that lab on next-generation electrolyzers, which will be essential to a highly successful hydrogen strategy, particularly as the current generation of electrolyzers that we are looking at, of course, rely on iridium, which is something that the United States does not have a supply of currently. So you know, we have to promote, you know, more special metals, domestic sources, but solid oxide electrolyzers. Where the work is being pioneered out in Washington State, I think, is something we have to focus on very quickly to accelerate and scale up.

Senator CANTWELL. I am not sure—you could probably explain it in a short period of time, but I look forward to helping everybody understand this cutting-edge change. I don't even, if you have a sound bite, you could say it, but——

Mr. CRANE. No.

Senator CANTWELL. Okay.

Mr. CRANE. No, no, no, as a lawyer, I am at the very edge of my technical understanding right now.

Senator CANTWELL. Yes. I think you can change a lot in manufacturing, I will just say that. I think it could be a game changer in manufacturing.

Could I just, for the record, Mr. Chairman, I know we have people who want to ask a second question.

The CHAIRMAN. Sure.

Senator CANTWELL. Mr. Rodrigues, you and I also had a conversation about grid fiber. The Chairman literally pioneered this idea in his state, with people working together on grid fiber as a way to drive a smarter grid, and do you think that a program to encourage more utility investment in grid fiber is a good idea?

Mr. RODRIGUES. Thank you for that question, Senator Cantwell. I don't think it's a good idea, I think it's an excellent idea.

Senator CANTWELL. Great. Okay. Thank you, Mr. Chairman.

The CHAIRMAN. Okay.

Senator Murkowski.

Senator MURKOWSKI. Thank you, Mr. Chairman.

Gentlemen, thank you for your willingness to step up into some of these key positions. Many of us on this Committee were very involved in the Infrastructure Investment and Jobs Act. Folks in my state are really anxious about how this is implemented, how this law is implemented. We have already seen a great return to our state, and it is no wonder, given that we lack significantly when it comes to basic infrastructure, everything from water and waste water to broadband to things like roads and rails and bridges, ports and harbors, and of course, ferries. So we have a lot of work to do there and you, in your respective positions that you have been nominated to, certainly Mr. Crane, you will be deeply involved in shepherding much of this as we look to upgrade and modernize our nation's energy infrastructure.

I don't know the extent to which any of the three of you have had an opportunity to come to Alaska, but I will make a public request to each of you, if confirmed, that you will make the effort to do so. The Chairman has been to Alaska numerous times. Senator Heinrich has been. Many members of this Committee have been up, and I think every time any one of you goes up, you realize how much you don't know about the state because it is just so vast and its needs are so great. So I am going to encourage all of you to do just that.

Mr. Crane, let me ask you a question regarding critical minerals, and I do think it is timely that I just presented the Chairman with—I don't know if it's a gift, Mr. Chairman, but I know it is certainly within the allowable limits. It is a hunk of natural graphite from the Graphite One prospect just outside of Nome. But we talk a lot about critical minerals in my state and what that means and why they are so important.

Mr. Crane, you have indicated that you think that it is important, in fact, it needs to be a priority to be able to access our resources domestically—not only our energy resources, but I am assuming when it comes to critical minerals, you feel that way as well. I have been a little bit frustrated with some of the things that we have seen from this Administration. They are saying the right words about accessing our critical minerals, not being reliant on places like China, which, we know, we are so heavily, heavily reliant, but they are saying one thing and then certainly with initiatives in my state, it seems that they are going the other way. We are seeing permits being pulled. We are seeing rights-of-way being rescinded. Applications for funding being passed up on.

So just if you can speak generally to me as the nominee for Under Secretary for Infrastructure, whether you agree that infrastructure for critical mineral supply and processing in this country is important, is lacking, do you think that accessing is a challenge and what, basically, can you do to assure me that there is a plan here to help address our nation's critical shortage when it comes to these minerals?

Mr. CRANE. Senator, thank you for the question, and let me start by saying I completely agree with you that this is an essential area that needs to be addressed. There is no point in just switching from dependence on foreign sources of oil and gas to foreign sources on other technologies where we have this Achilles' heel of not, you know, getting the minerals from China.

In the Under Secretary Infrastructure vertical hierarchy, there is a manufacturing and supply chain office which has been funded with several billions of dollars, which is very carefully looking at this and is going to be identifying areas where we can directly lean in, in terms of ensuring those supplies. And so I am extremely supportive of that and will implement that vigorously. And if you don't mind, going back to your opening comment, if I get confirmed and get invited, I will come to Alaska, but last month Secretary Granholm and I spent a whole day with the tribal and indigenous leaders here in Washington. I know that is not the same thing as actually being on the spot, but I understand the issues of the remote communities, the energy needs in your area, and there is, I think, a lot we need to do to enable them to access the rural and

remote provisions of the Bipartisan Infrastructure Law, and I would very much look forward to working with you and your staff to make that happen.

Senator MURKOWSKI. Well, consider yourself invited. In fact, I have already got a place in mind. We would like to take you up to the North Slope area, and in particular, the community of Utqiagvik. There is a facility up there, DOE's research facility at Oliktok Point. It is a great example of how federal and state agencies, as well as students from our university, can benefit from continued collaboration. So we think that assets like this are important to help out our national labs when we think about the scientific initiatives that are underway there. So you are invited as well as the other nominees here.

Just very, very quickly, because I do not want to go over my time too greatly, but I did want to ask you, Mr. Marootian, given that your career has focused primarily on transportation issues here in the District, I know you were asked earlier about your qualifications to be the Assistant Secretary here, but I am looking for a better understanding in terms of what you will do to make sure that you understand what it means to be in a very, very large geographically positioned state with very few people, where, for us, you know, it is a microgrid system that is really providing the reliability. It is basically a couple wind turbines synched up with a battery storage that looks like it is nothing more than just a storage shed out there on the tundra. And this is where we have a very unique aspect. So I am hoping too that not only you can translate your understanding or your base of knowledge with how these systems work in urban places, but that you have a willingness or perhaps you do have some background there that you can share with me very briefly.

Mr. MAROOTIAN. Thank you, Senator Murkowski. I see Alaska as truly an all-of-the-above state. I realize the significant resources, from oil and gas, to wind, to hydroelectric, to geothermal, and certainly understand and recognize that the rural and remote nature of some communities does make grid access very difficult. It translates into, as you know, higher costs for importing fuel, for example. And I think that there are a number of applications, a number of ways that EERE can be supportive of Alaska, continuing the partnership between NREL and the Cold Climate Housing Research Center, for one. Advancing the research and development on a number of technologies that support the microgrid—onsite geothermal, for example. Biomass, a number of other types of technologies that can apply onsite. And harnessing the state's abundant hydroelectric potential as well. So those are some of the ways that I think we can partner. I certainly, as somebody who comes from a local government background, truly recognize how important it is that place-based solutions be applied, that communities are met where they are. I very much look forward, if confirmed, to working with your office, with the Arctic Energy Office, with the Indian Energy Office at DOE, and certainly look forward to visiting the state as well.

Senator MURKOWSKI. Good. Well, you used all the right buzzwords. Somebody must have just really plugged you in on

Alaska there because we are talking about the need for greater affordability, certainly, but also place-based solutions.

And Mr. Rodrigues, I would hope that you too recognize in this position that you have been nominated to, when you are talking about grid deployment and energy reliability, that that reliability really is so tightly keyed to affordability.

Mr. RODRIGUES. I absolutely agree with that premise, Senator, and I also would say I view it not just as an obligation of the Office of Electricity to pay attention to and develop ways for Alaska's remote microgrid system to become more reliable, more resilient, but also more affordable. It is a moral obligation that we do our best to ensure that we have technological answers for the needs of your state.

Senator MURKOWSKI. Too many communities are still powered by diesel, and they are locked into fuel prices that were set a couple months ago. So I have communities that are still paying in excess of $10 a gallon for home heating fuel and they are going to be paying that until the next barge arrives in June. So for us, affordability is key.

Mr. RODRIGUES. You have my absolute commitment that we will give this issue our hardest and most focused attention.

Senator MURKOWSKI. Very good.

Thank you, Mr. Chairman. I am well over my time, but I think you were writing with your hunk of graphite there.

The CHAIRMAN. Just a little.

Senator MURKOWSKI. Thank you.

The CHAIRMAN. No problem, but thank you.

Real quick. We are coming to an end here. I have just a couple questions, and I think Senator Heinrich might have a follow-up question, okay? If I can?

So Mr. Rodrigues, on that, on reliability, which we have talked about, you know, your job and your experience with the SoCal Edison, I think, puts you in a unique position. You have an important mission focused on grid reliability, resiliency, and modernization. I think we all agree our North American grid is the envy and the marvel of engineering for the whole world, but ongoing changes in the generation of mix that we are seeing with all of the new technology, outside forces, cyber threats, and weather events that test the grid, also highlight the importance of a resilient grid of how we can harden this grid. So what do you view as the most pressing concern for the Office of Electricity to address in that realm?

Mr. RODRIGUES. Thank you for that question, Senator Manchin. I think it is very insightful. I will say this: the number one task, the number one role of the Office of Electricity is to ensure that the American power system, the American grid, is reliable, because without energy reliability, nothing else matters to the American people. And may I add just one thing to it? The thing that makes me so gosh darn excited about being able to have the opportunity, if confirmed, to work at the Office of Electricity is that the leadership in technology, economics, and environmentalism that our office can bring through the research, development, and demonstration is not just going to help the American people, but it will allow us, as a country, as a nation, to help our allies around the world to remain secure and have affordable energy as well.

The CHAIRMAN. Thank you.

And Mr. Marootian—Jeff—I was determined to get that right before this meeting was up. When it comes to transportation, I think it is irresponsible to put all our eggs in one basket, in one single technology, because some may be more viable than others depending on the type of use that is demanded. For instance, when it comes to long-distance trucking, hydrogen may be a more viable option than battery electric vehicles. And I say that because fuel cell systems are traditionally lighter than batteries and refueling time is faster than using an EV charger. So it makes an awful lot of sense. Since your background is in transportation, what are your views on hydrogen use in the transportation sector and the applications that are the most viable for hydrogen?

Mr. MAROOTIAN. Thank you, Chairman Manchin.

I agree. I think there is tremendous promise in hydrogen for medium and heavy-duty trucking, to marine shipping, and a number of other applications as well. The Department has an incredible team working on hydrogen, led by Dr. Sunita Satyapal, and I very much look forward, if confirmed, to working with them to advance these technologies, to help bring the cost down, and also partnering with the Under Secretary's Office as the hydrogen hubs get stood up. There is a tremendous opportunity here for us to scale these technologies and bring them into real-world applications.

The CHAIRMAN. Well, we are putting an awful lot of investment and a lot of hope into having this alternative fuel, which we think is going to be tremendous for our country.

And with that, Mr. Heinrich.

Mr. HEINRICH. Thank you, Chairman.

Mr. Marootian, the Inflation Reduction Act really provided incredible consumer-facing, cost-saving rebates for energy efficient electric appliances—things like induction stoves, heat pumps, air-sourced heat pump water heaters—but because these things have been developed in recent years, many Americans are simply unaware of these technologies and what they can mean for their health and their pocketbook. How can your office better educate Americans about the opportunities for better health outcomes and lower costs through home electrification?

Mr. MAROOTIAN. Thank you, Senator Heinrich, for that question. It is something that I have thought a lot about, and as a former local government official, I have relied heavily on the Federal Government for technical assistance and for information, and I know that there are many people who do not have as easy access to that information. And so it is urgently critical that we provide as much information as possible to consumers, and that we partner with as many local governments and state governments as possible to make sure that folks are getting this information so that they understand how they can access rebates and credits, but also so that they have the opportunity to see what available technologies are out there. And so I very much look forward to working with your office on that.

Senator HEINRICH. And I would just add contractors and labor. I mean, the first time I installed an air-sourced heat pump water heater, I have a fantastic plumber, and they were like, I don't know what to do with this. And now, they are installing those left and

right and they are saving people money and they love them. So we have to do that education piece if we are going to have uptake in a meaningful amount of time.

Mr. Rodrigues, thanks for meeting with me the other day. I know there have been concerns posed by DOE and industry about the lack of domestic manufacturing of large power transformers, the supply chain issues around transformers. What are your thoughts on the need for spurring more domestic manufacturing or even a national reserve of some sort of large power transformers and distribution transformers?

Mr. RODRIGUES. Thank you very much for that question. It is an incredibly important issue for America. Writ large, the issue of energy independence comes down to availability and our ability to make useful and productive use of resources right here at home. Transformers, as we sit here today, have two challenges for them. Number one, without advancements in transformer mechanics, they are built kind of on a custom basis, one at a time, which creates a lag in getting transformers to the grid, especially if you have a resiliency issue where you are trying to recover the system. The Office of Electricity is already doing research and working on demonstrating the notion of flexible transformers that have greater application and can be on the shelf for multiple uses. And I think that is the kind of real-world thinking that the Office of Electricity is already doing, that I hope to be able to put even more strategic intent and more focus on.

Senator HEINRICH. Great. No, that is a great answer.

One, I want to thank David for articulating that we need resilient, reliable, efficient—I think it was safe, affordable, reliable, and effectively clean, right? We need all of those things at this point. And you know, one of the technologies we have not spent a ton of time talking about, and Mr. Rodrigues, we did this a little bit in the office, but given the challenges that we have with transmission and given the challenges that we have with permitting that Mr. Crane alluded to in his comments today, how do we look at dynamic line ratings, advanced conductors, transmission monitoring, topology optimization, power flow controls, and get those things out, given that they are already proven, into the ecosystem so that yes, we are going to have to build more transmission, we know we are going to have to do that because demand is going to go up, but we can also use these things to buy us time and make a more resilient grid?

Mr. RODRIGUES. Thank you for that question, Senator. It underscores the importance of a common-sense approach to dealing with transmission issues. And just as we were talking about an all-of-the-above energy strategy before, we need an all-of-the-above transmission strategy. Everything that you mentioned are areas where the Office of Electricity is currently working to do grid enhancement so you don't have to be delayed by the process it takes to get new transmission corridors permitted, up, and built. That is a long, long time. The American people need faster answers than that.

The grid enhancement technologies that the OE has on its shelf are important for us, and we are demonstrating right now. Part of our conversation yesterday, and I will be very brief about this, is we need to understand that this is a system of decision-makers. It

is not just the technology answer. It is about making sure that utilities feel that this technology is certain and credible and will serve their people over the useful life of 20 to 30 years. Regulators need to understand the benefits of the system, as do advocates and ratepayer advocates alike. So I view the role of the Office of Electricity as becoming a lot more loud and a lot more engaged in conversations with everyone who is part of the decision-making process for getting technology off the shelves and put to productive use.

Senator HEINRICH. Thank you.

The CHAIRMAN. I want to thank all of our nominees and thank their families for attending and we appreciate your being here this morning, your responsiveness to our questions and concerns, and your willingness to take on these important jobs and serve our country. I still believe public service is the noblest of all professions and you all should feel very good about that.

Members will have until 6:00 p.m. tomorrow to submit additional questions for the record.

And this meeting is adjourned.

[Whereupon, at 12:41 p.m., the Committee was adjourned.]

APPENDIX MATERIAL SUBMITTED

U.S. Senate Committee on Energy and Natural Resources
November 17, 2022 Hearing: The Crane, Marootian, and Rodrigues Nominations
Questions for the Record Submitted to Mr. David Crane

Question from Chairman Joe Manchin III

Question: You were previously quoted saying the coal industry has missed the boat on its opportunity to decarbonize. Can you explain if you still agree with this statement?

I do not still agree with that statement. That statement was made in an era where it seemed there would not be adequate federal signals or support for large scale deployment of carbon capture technologies. I had been frustrated that carbon capture technologies, that I feel are essential to ensuring the long-term future of coal, weren't being embraced.

The Bipartisan Infrastructure Law, thanks to your leadership and that of the Senate Energy and Natural Resources Committee, changed the landscape completely. Together with the enhanced and long term 45Q tax credit provided by the Inflation Reduction Act, the coal industry can and will deploy these key technologies to decarbonize and to continue providing reliable, baseload power. I am committed to implement the carbon provisions in the Bipartisan Infrastructure Law as vigorously as possible, including those related to coal-fired power plants.

Questions from Ranking Member John Barrasso

Question 1: In the White House Environmental Justice Advisory Council's (WHEJAC) Justice40 Initiative Implementation Phase 1 Recommendations, dated August 17, 2022, the Council recommended that agencies "Develop a remedy or penalty for states or agencies that do not implement or comply with the intent of J40 investments to benefit disadvantaged communities."

a. Has the Department of Energy withheld funding from any state on the grounds that the Department determined that the state was not compliant with the Biden Administration's Justice40 Initiative, or any other executive order addressing Environmental Justice (EJ) policies?

The Department has not withheld any funding based on the Administration's Justice40 Initiative.

b. If confirmed, would you support withholding funding from a state because you did not believe it was compliant with the Justice40 Initiative or any other executive order addressing EJ policies?

No, I would not support withholding funding from states. If confirmed, I would work to implement the Bipartisan Infrastructure Law and related provisions aligned with Congressional intent.

c. If you answered yes to either of the two previous questions, please provide the statutory justification for funding denial on the basis of perceived non-compliance with Justice40 or any other executive EJ policy.

N/A

U.S. Senate Committee on Energy and Natural Resources
November 17, 2022 Hearing: The Crane, Marootian, and Rodrigues Nominations
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Question 2: It is imperative that non-federal partners know what to expect at all points during the grant application process and do not experience a change in rules after receiving a promise of funding or acceptance into a federal program.

a. Is DOE retroactively applying any Biden Administration EJ requirements, including Justice40, to any projects that were selected for grant awards or program participation prior to the creation of those EJ requirements?

No, to my knowledge the Department does not intend to retroactively apply any EJ requirements to existing projects already awarded.

b. If confirmed would you support retroactively applying EJ requirements to grant awards that predate the EJ requirements?

No. I agree it is important to have clear expectations and criteria for DOE awardees. I would not support changing the criteria of any grants to add new stipulations or requirements after they had been awarded.

c. Would you expect that applying EJ requirements to DOE grants or programs retroactively would raise the costs and delay the results of projects funded in part by DOE?

I am unaware of instances where the Department has retroactively applied any EJ requirements to existing projects already awarded. I would expect that changing the criteria of any grants to add new stipulations or requirements might increase costs or result in the delays.

d. For grants that require a non-federal match, awardees may receive state funds approved by state legislatures that expire if unused within a certain window. How would you ensure that adding EJ requirements retroactively would not put grant awardees at risk of losing state funds if their non-federal match expired while working to comply with unforeseen EJ policies?

The Department does not intend to retroactively apply any EJ requirements to existing projects already awarded.

Question 3: WHEJAC included in their Justice40 Initiative Implementation Phase 1 Recommendations a suggestion that the Department of Energy "Include a Social Cost of Carbon (SCC) analysis (based on the carbon lifecycle) for all grants or procurements, and triple the SCC in areas that are designated disadvantaged communities."

a. Has DOE currently adopted this recommendation?

The Department has not adopted this recommendation.

b. If so, please explain in detail the basis for doing so. Please include references to the statutes that, in the Department's judgment, give the Department the authority to adopt the recommendation.

N/A

c. If not, if confirmed, would you recommend that DOE adopt it in the future?

d. If you agree with WHEJAC regarding tripling the SCC estimate in certain cases, please explain why you believe 3x to be the appropriate value.

e. What categories of projects would the tripled SCC apply to?

f. Why wouldn't this recommendation, if implemented, have the effect of *preventing* economic development and job growth in economically disadvantaged areas?

I have not been involved in any discussions that Department may have had regarding these recommendations, and therefore I am under the impression that the Social Cost of Carbon would not apply to the work under the purview of the Undersecretary of Infrastructure. The BIL funds clean energy demonstrations, from advanced nuclear to carbon capture to hydrogen energy. If confirmed, I would be focused on implementing these provisions, and do not see a need to incorporate any Social Cost of Carbon as the Congressional intent for these provisions is clear. I have not examined the WHEJAC recommendations and cannot comment on the appropriate value of the Social Cost of Carbon, the projects to which it might apply, or the impacts of implementation.

Question 4: There is some confusion regarding how EJ communities are identified and whether they maintain that status indefinitely.

a. How is the Department of Energy determining which communities qualify as EJ communities?

While this does not fall under the purview of the Undersecretary of Infrastructure, I understand that the Department is using an interim definition of disadvantaged which is in accordance with Executive Order (EO) 14008 - Tackling the Climate Crisis at Home and Abroad and OMB Guidance M-21-28 for purposes of implementing the Justice40 Initiative. OMB Guidance M-21-28 defines communities based on both geographic boundaries, as well as dispersed sets of individuals that share common conditions. OMB Guidance M-21-28 defines disadvantage by a non-exhaustive list of socioeconomic, demographic, and environmental characteristics.

b. Are EJ community designations permanent or can a community grow out of the EJ community designation?

A designation is not permanent, and the ambition is that once identified, the Administration can use investments and a long-term strategy in these communities which will improve outcomes and lift communities out of the disadvantaged designation.

c. How would project funding be impacted if a community was no longer an EJ community?

Currently, the only energy communities that are targeted for federal investment are those identified by statute in the Bipartisan Infrastructure Law or the Inflation Reduction Act.

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Question 5: The Interagency Working Group on Coal and Power Plant Communities and Economic Revitalization (IWG) was established to revitalize energy communities impacted by the transition away from fossil fuels. Such energy communities include Bureau of Labor Statistics areas impacted by concentrated, direct coal-related job losses from mine and power plant closures. They include areas in the Appalachian region (e.g., West Virginia) and U.S. Mountain West region (e.g., Wyoming and Colorado). Does receipt of federal funding from a program that provides assistance to energy communities trigger any additional EJ requirements for that community? For instance, would future infrastructure projects be subjected to any additional scrutiny because the host community received funds through a program targeting energy communities?

Response: Thank you for your question. The Department does not intend to take a regulatory approach to either Environmental Justice or to Energy Communities. These communities are identified because they share a disproportionate burden of economic, social, and other factors. As such, the goal of the administration is to identify benefits, funding, and others measure to support these communities.

Question 6: Please answer the following with a "yes" or a "no."

a. Is affordable energy a good thing or a bad thing?

Affordable energy is a good thing. As noted in my testimony, I am guided by the historic "three imperatives" mission of the American power industry: safe, affordable and reliable power to all Americans.

b. In your home state of New Jersey, the average retail price of electricity is 23 percent more than the national average. Do you think New Jersey families and businesses pay too much for electricity?

Yes. We should do everything in our power to lower energy prices and reduce energy burden.

c. Is reliable energy a good thing or a bad thing?

Reliable energy is a good thing.

d. Is American energy independence a good thing or a bad thing?

American energy independence is a good thing.

Question 7: In a 2016 op-ed in *GreenBiz*, you accused Exxon of "greenwashing." You wrote – "Should Exxon…be applauded for pursuing new ventures and new sustainable technologies that ultimately might transform its business, and the energy sector with it? Or should we heap scorn upon them, not only for what they previously have done…, but now for…advertising its clean-energy efforts rather than actually pursuing them?" Over the years, you have invested in Exxon as well as other successful energy companies such as Kinder Morgan, Southern Company, and TC Energy Company. Please explain the discrepancy between your outspoken contempt for such companies and your private investment in them.

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Response: I have publicly opposed fossil fuel company-focused boycott and divestment campaigns and have repeatedly advocated for incumbent energy companies to participate in the transition to a decarbonized energy economy, including through carbon capture.

The sentence quoted was seeking to illustrate the difficulty of evaluating companies who may be taking sustainable actions, but only for the benefit of public relations rather than a true investment or business strategy. That statement did not advocate for a boycott of Exxon Mobile stock.

I own a few hundred shares of Exxon mobile stocks which were bequeathed to me by my grandmother when she died in 1991. I held those shares, and others, out of respect for her. As to the other three companies - Southern Co, Kinder and TC Energy - consistently with the non-boycott philosophy set forth above, I have purchased shares in both SO and Kinder. As to TC Energy, this name is not familiar to me, and I have no recollection of when I purchased it or why.

Question 8: You have expressed great enthusiasm for solar energy. You have tweeted: "50 million American homes should have #solar on their roof RIGHT NOW." Your financial disclosure reveals a variety of investments in solar companies. If confirmed, how will you resolve this conflict of interest? Please explain in detail.

Response: I have completed or am in the process of divestiture for all investments as required by Department of Energy and the Biden Administration. If confirmed, I will work to implement the Bipartisan Infrastructure Law and other duties in line with all law, regulations, and aligned with Congressional intent.

Question 9: The office to which you have been nominated focuses on deploying clean energy infrastructure. One of its responsibilities is to oversee the Office of Manufacturing and Energy Supply Chains. "Clean energy" technologies are heavily reliant on mineral supply chains from foreign countries including China. Some of these supply chains use slave and child labor. If confirmed, how would you ensure that the Department's efforts to deploy clean energy do not increase reliance on foreign minerals or slave and child labor? Shouldn't the United States Government do all that it can to enable the production and processing in the United State of minerals necessary for new energy and transportation technologies, including but not limited to batteries? If not, why not? If confirmed, will you be an advocate within the Biden administration for the domestic production and processing of minerals necessary for new energy technologies. If so, what specifically will you do to drive this outcome? If not, why not?

Response: I believe it is of the utmost importance for the United States to pursue energy security. Energy security includes shoring up of our supply chains, including the critical minerals that go into everything from electric vehicle batteries to wind turbines. It is my strongly held view that as the DOE assists the private sector in developing a decarbonized and diversified energy sector, it makes no sense to substitute new foreign energy dependencies for existing ones, particularly if there is any possibility that those foreign dependencies may involve child or slave labor or other exploitative or environmentally irresponsible behaviors.

Thanks to the Bipartisan Infrastructure Law and Inflation Reduction Act, the Department has new tools to address vulnerabilities in the energy supply chain, including the new 45X manufacturing tax credit and nearly

$7 billion to establish domestic battery production capacity. If confirmed as Undersecretary, one of my top priorities will be ensuring collaboration and coordination between program offices. Perhaps the most important of these collaborations involves ensuring that the Office of Manufacturing and Energy Supply Chains (MESC) is directing the financial resources at its disposal and its manufacturing/supply chain expertise to ensure that the emerging energy technologies being catalyzed across the other infrastructure offices (Office of Clean Energy Demonstrations, Grid Deployment Office, Loan Programs Office) are not leading to any such vulnerabilities.

I also will be an advocate within the Department of Energy and through the Administration to increase our domestic production of critical minerals, as well as create the refining, processing, and manufacturing supply chains critical to energy security. Already, action is being taken in several key areas. For example, the Federal Consortium for Advanced Batteries (FCAB), which is led by the Departments of Energy, Defense, Commerce, and State, released a blueprint that details specific goals around establishing a domestic supply chain for lithium-based batteries. DOE is actively making investments and guiding work for the new or expanded production of these key minerals and materials.

Question 10: Concerning graphite, which has been classified as a critical mineral, recently the Department announced that it would grant funds to various entities involved in the commercial-scale, domestic production of battery-grade graphite. What are the Department's plans to provide further support for the development of battery-grade graphite? Specifically, does the Department foresee providing support for domestic production and processing of graphite from domestic sources? If so, when?

Response: Graphite is the most widely used material found in lithium batteries. There have been significant efforts to replace graphite with other materials, such as silicon and lithium metal, but there are challenges in these materials and the issue remains a primary ongoing focus for battery R&D. While there is promise in other materials eventually replacing graphite, graphite remains indispensable. DOE is working closely with companies seeking to domestically produce natural graphite and is looking for additional opportunities through the Manufacturing Energy Supply Chains Office (MESC) to bolster the graphite supply chain.

In addition to the MESC, which is overseeing the implementation of these newly awarded programs, DOE has other offices that support deployment focused activities towards onshoring of graphite anode production, including the Loan Programs Office. DOE Fossil Energy and Carbon Management Office is also supporting R&D to convert high carbon content coal derived materials, including coal and coal refuse, into graphite, possibly providing a suitable substitute for use in batteries, with prices comparable to natural graphite.

Question 11: Earlier this week, *Politico* ran a story titled *"NRC's Crowell: 'Irresponsible' to pursue nuclear as climate solution without fixing waste problem."* If confirmed, you will be responsible for ensuring that the Advanced Reactor Demonstration Projects are completed on time. One of those two reactors will be built in my home state of Wyoming. In your view,

a. Is it irresponsible to pursue nuclear energy as a climate solution before finding a permanent solution for the disposition of the spent nuclear fuel?

I believe we must pursue advance nuclear, maintain our existing fleet including through programs like the Civilian Nuclear Credit Program, and seek a permanent solution for spent nuclear fuel. While nuclear waste falls under the Office of Nuclear Energy, the Department is seeking a consent-based siting solution to our nuclear waste.

b. Should we continue to aggressively pursue nuclear energy?

Yes.

Question 12: In your response to my question which referenced your departure from NRG, I understood you to maintain that performance of NRG's stock during 2015 was on par with certain peer companies. To what companies were you referring? Was the employment of the CEO of any such peer company terminated during the period or was the CEO of any such peer company asked to resign?

Response: The closest comparable company to NRG in 2015, in that they were also a coal-heavy independent power producer with a particular concentration in Texas (ERCOT), was Dynegy (NYSE ticker: Dyn). Dynegy's stock price dropped 56.9% during 2015. The CEO of Dynegy at the time, Bob Flexon, who was NRG's former CFO during my tenure, was not fired. Dynegy has since been acquired by Vistra, and the energy companies I incubated at NRG - such as Clearway and EVgo - are now worth billions as standalone companies.

Question 13: Concerning EVGo:

a. What was the value of your initial investment in the SPAC that acquired and took EVGo public? How many of each class of EVGo shares did you acquire? What was the price per share?

All the various classes and types of shares I own in EVgo are accurately reflected in my financial disclosure, which has been provided to the Committee. My financial basis in my shareholding approximates $850,000

b. What is the value of your investment today? How many shares do you still hold? What is the value of the shares today? What has been the gain or loss on your EVGo investment?

Information about my financial interest in EVGo is accurately reflected in my financial disclosure, which has been provided to the Committee. Since I have no monetary return on my EVgo stock, just the $850,000 spent, it is difficult to assess my ultimate return on the investment in EVgo.

c. How has your investment in EVGo, from inception of the SPAC, to the merger with EVGo, to taking EVGo public, to your nomination, to today compared with the value of the investment of other investors in EVGO at each of those milestones (i.e., inception of the SPAC, from the merger with EVGo, and from taking EVGo public?)
d. How does the value of your investment in EVGo compare with the investment of other investors who acquired shares of EVGo on the public markets after EVGo was listed in July 2021?

I cannot compare my return with that of other unnamed investors without knowing the day they bought and the day they sold, given the stock volatility and difficulties ascertaining my own return.

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e. Are you aware that between August 15 and August 16, 2022, five officers of the company sold a total of 137,055 shares at a price of between $11.52 and $12.04 for a total of $1,598,891?

I was unaware of the sale of EVgo stock by EVgo officers in August 2022.

f. Do you know why those officers sold at this time? The sales were within two weeks of your nomination, which was received by the Senate and referred to ENR on August 3, 2022. To your knowledge and belief, were the sales in any way connected to your nomination?

I was unaware of those sales, and I do not know why those officers sold at that time. I do not have any knowledge or belief it was related to my nomination.

g. According to a September 28, 2022 news article published by Capital.Com, EVGo saw its stock price plummet by 57% in less than a year. Analysts have expressed concerns that EVGo is overvalued and has underappreciated competition in its marketplace. Between August 31, 2022 and September 30, 2022, approximately 21.4 million shares of the company were sold short (reportedly representing approximately 30% of the total number of regular shares). Although indicating that EVGo might benefit from global trends in favor of EVs and other factors, the article also cites a recent report that branded EVGo as a "mediocre EV charging company" and substantially overvalued. What is your response to these reports?

As I am not a professional fund manager or a short seller, I cannot explain the down draft that has afflicted EVgo and most other emerging growth publicly traded companies in the clean energy and Cleantech sectors over the past several months. I do understand that EVgo's has outperformed their closest competitor over the last several months (Chargepoint).

Question 14: Concerning EN+Group:

a. Please provide the Committee with details about the facts and circumstances that led to your service as an independent director and trustee of EN+ Group and your subsequent resignation from that role.

For approximately two years, I acted as a voting trustee of certain Russian shareholders in EN+ by assignment of their voting rights from Lord Barker, the chairman of EN+ (Lord Barker could not exercise the voting rights himself because he was also Chairman of the Company). I never served as a director of EN+ or of its major subsidiary, Rusal.

The Russian shareholders had assigned their voting rights to Lord Barker in furtherance of an arrangement with the United States Treasury Department and the Office of Foreign Assets Control (OFAC) dubbed the "Barker Plan." I understood that this was an effort by OFAC and the U.S. Government to ensure certain sanctions did not result in China being the sole importer of aluminum into the United States, threatening U.S. supply chains and domestic manufacturing. I understand my service in this trustee role was specifically approved by OFAC.

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When Russia invaded Ukraine in February 2022, I no longer was willing to serve in this role even though I was repeatedly assured that OFAC wanted the arrangement to continue. I submitted my resignation on March 6th, 2022, which took effect two months later. Lord Barker also resigned as chairman of EN+ during that period.

b. What were your specific responsibilities and duties?

Twice I voted by proxy on non-controversial matters at the Annual General Meetings and every month I was required to attest to OFAC that I continued to not know or have had any contact with Oleg Deripaska or anyone associated with him or the other Russian parties.

c. What was the source, nature, and extent of your compensation?

I was paid $10,000/month to act as shareholder trustee, paid by the Company.

Question 15: If the Biden Administration intends to meet its clean energy goals, the United States will need to dramatically expand its mining and processing capabilities for these minerals. Currently, we source the vast majority of minerals, such as nickel and lithium, from hostile nations like China and Russia. Do you support mining these critical minerals in the United States to meet these clean energy goals?

Yes, I believe domestic production and extraction, done correctly and responsibly, is a critical component of our energy supply chain security.

Questions from Senator James E. Risch

Questions: Idaho's volcanic landscape contains some of the best geothermal potential in the nation, but bringing more geothermal innovation online is currently impeded by red tape. A 2014 study by the National Renewable Energy Laboratory found that a single geothermal project may trigger the NEPA process six separate times, greatly increasing the time to get a project off the ground.

a. What actions should the Office of Clean Energy Demonstrations take to accelerate the pace of innovation and commercial deployment of geothermal projects?

The Office of Clean Energy Demonstration's (OCED) core mission is to accelerate the development, deployment, and market adoption of clean energy technologies through partnering with the private sector to demonstrate innovative technologies at scale. To achieve OCED's mission, the office will leverage its project management expertise to help awardees navigate both technical and regulatory challenges.

Specifically regarding NEPA, OCED is committed to its efficient and effective implementation and will avoid duplicating efforts by, wherever possible, relying on existing NEPA documents and related studies and cooperating with other state and federal agencies. OCED will also ensure to rely on categorical exclusion determinations from DOE and other agencies whenever appropriate. Finally, in carrying out its NEPA responsibilities, OCED will also analyze issues and impacts with the amount of detail commensurate with their importance and strive to complete activities as expeditiously as possible.

b. If confirmed, will you commit to working with me and my colleagues to accelerate efforts to bring geothermal projects onto the grid?

If confirmed as Undersecretary of Energy Infrastructure, I commit to, and look forward to working with your office to find opportunities to accelerate the commercialization and deployment of geothermal technologies, which are, in my opinion, perhaps the most underappreciated of sustainable energy technologies.

Unfortunately, OCED does not currently have a specific geothermal technology demonstration program, there are two OCED programs that could potentially demonstrate geothermal technologies - the Clean Energy Demonstration Program on Current and Former Mine Land Program and the Energy Improvements in Rural or Remote Areas Program. OCED can provide your office with more information about these programs and looks forward to engaging with your office to find these and other opportunities to demonstrate innovative geothermal technologies on an expedited basis.

Questions from Senator Maria Cantwell

Question 1: Mr. Crane, I was pleased to be able to author and include the innovative $2.5 billion Transmission Facilitation Program in the Bipartisan Infrastructure Bill which I hope will facilitate a build out of a number of much needed large-scale transmission projects, as well as support the establishment of microgrids and upgrades of existing transmission lines.

How do you think Congress can best work with you and the Grid Deployment Office to ensure that the Transmission Facilitation Program (TFP) and forthcoming anchor tenant contracts with TFP applicants help address that pressing need?

Response: On November 18, 2022, the Grid Deployment Office (GDO) released the first Request for Proposals (RFP) under the TFP. In the RFP, DOE is first seeking proposals for capacity contracts – also known as "anchor tenant contracts" - through which DOE will commit to purchasing up to 50% of the maximum capacity of the transmission line. By initially offering capacity contracts to late-stage projects, DOE will increase the confidence of additional investors and customers to commit to supporting those projects and reduce the risk that they will not be built or will be built with less capacity than is optimal. The anchor tenant authority is unique to the TFP. DOE is seeking to move quickly on this authority to help spur near-term transmission deployment and operations through this RFP.

While DOE is working to increase awareness of TFP as a new program offering and encourage participation, we welcome feedback from Congress on input you may be receiving from stakeholders on the program and how DOE can best work with interested stakeholders while ensuring a fair process for all applicants.

Will the Administration consider requesting an increase in the Treasury borrowing authority of the program?

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Response: Congress created TFP as a $2.5 billion revolving loan fund. While we anticipate significant interest in TFP, we will not know how many applicants will apply and what level of funding they will need until the February 1, 2023 deadline for submissions. DOE plans to potentially retain TFP funds to support a second Request for Proposals in 2023 that may include loan and public-private partnership opportunities as well as capacity contracts, including opportunities for microgrids.

How does the Department plan to ensure a diversity of geographic locations and applicant business models benefit from the authorities in the Transmission Facilitation Program?

Response: The recently announced RFP for capacity contracts under the TFP is intended to accelerate the addition of new high-voltage transmission capacity across the United States through a two-part application process. Under this process, DOE will prioritize projects that best promote the greater public interest by delivering beneficial grid outcomes to the maximum extent practical, specifically projects that: use technologies that improve capacity, efficiency, resiliency, or reliability of the bulk electric system; otherwise improve the resilience and reliability of the system; facilitate interregional transfer capacity that promotes economic growth, and; contribute to national or subnational goals to lower electricity sector greenhouse gas emissions; all while ensuring repayment of TFP's support.

To ensure the greatest possible degree of geographical diversity in evaluating responses to the RFP, DOE may consider public policy factors, including the geographic distribution of a selected project or groups of selected projects and the ability to replicate a proposed project's solution in other regions of the United States. In addition, DOE will consult with the relevant transmission planning regions, as required by law, to ensure that projects that DOE supports do not duplicate or conflict with regional transmission needs and planning.

Question 2: Mr. Crane, I believe one of our nation's most promising opportunities to increase domestic manufacturing of critical materials, reduce greenhouse gases, and create hundreds of well-paid union jobs is at the Intalco aluminum smelter in Ferndale, Washington. For more than 50 years, Intalco was one of a number of aluminum smelters operating in the Pacific Northwest, powered by federal hydropower and staffed by generations of skilled workers in the region. Currently, a coalition of former management, labor, and private capital seeking to reequip and reopen the facility, which closed in 2020.

Provisions that Congress included Inflation Reduction Act (IRA) are likely to prove pivotal in restarting the Intalco smelter, several of which are being managed by the Department of Energy.

Can you please comment as to whether the project costs of restarting Intalco and building a new aluminum recycling facility are likely to qualify as "re-equip[ping]…or establish[ing] an industrial facility for the processing, refining, or recycling of critical materials" under the Advanced Energy Project Credit (IRA sec. 13501; 26 USC 48C)?

If the restart of the Intalco facility reduces greenhouse gas emissions, which costs of acquiring and restarting the smelter, including the "point feed" project, are likely qualify under the Advanced Industrial Facilities Deployment Program (IRA sec. 50161)?

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Response: I am committed to implementing programs under the Bipartisan Infrastructure Law and the Inflation Reduction Act in a way that maximizes our domestic manufacturing and enhances our energy security and supply chains. The IRS has requested comments on the enhancement of the 48C and the newly established 45X tax credits. DOE will stand ready to provide technical assistance to the IRS and to applicants for these programs. Similarly, DOE is working quickly to stand up the advanced manufacturing program under IRA. While each application will need to be evaluated based on the details of the individual applicant, if confirmed, I would look forward to working with you, the delegation, and the committee on these types of critical infrastructure projects.

Question 3: Mr. Crane, I believe that lighting up dark fiber and building out optical ground wire (OPGW) along our nation's transmission grid systems could empower generators and grid operators with the closer to real-time data and visibility needed to integrate more distributed resources and intermittent renewable power sources. Grid based fiber networks could provide utilities with private, closed-loop, cyber secure communications networks that hackers can't get into. And it could provide a middle-mile backbone that helps bring affordable broadband to essentially every household or business that currently serviced by the grid.

Do you agree that expanding communications capacity along the grid's existing rights-of-way could provide significant co-benefits for cybersecurity, grid modernization, and facilitate affordable high-speed internet to the tens of millions of unserved and underserved Americans?

My bipartisan GRID Broadband Act would provide a federal cost-share to spur the build out of fiber along our nation's grid. As a former utility executive, do you think such a grant program would encourage utilities to invest in grid fiber? How else might you support this proposal if you are confirmed?

Response: Yes, I agree this could lead to significant benefits. To the extent that developers can enable communication capacity along existing rights-of-way, underserved communities would be able to take advantage of the benefits this infrastructure provides.

I would also agree that grant program like that proposed GRID Broadband Act would encourage investment. I would support such a proposal through coordination across DOE and other government agencies (USDA, DOC, and DHS) to further the support of renewables, transportation electrification, and distributed electric resources (DERs) as well as providing increased access to broadband services.

Questions from Senator John Hoeven

Question 1: The Western Area Power Administration (WAPA) markets federal hydropower at cost to preference customers who cover all costs of the power, so that none is borne by taxpayers.

If confirmed, would you support continuing customer investment into WAPA's core mission and not rely on outside financing?

Response: Yes, I support continuing customer investment into WAPA's core mission. It is important to note that in recent years WAPA has received appropriations to address emergency funding needs related to

customer-requested purchased power and wheeling costs due to the ongoing drought hitting the Colorado River Basin particularly hard. Much like other emergencies, Congress has seen fit to provide appropriations to address emergency costs incurred by federal agencies.

Question 2: The Western Area Power Administration (WAPA) Transportation Infrastructure Program (TIP) is currently separated from WAPA's primary mission of serving power customers.

Do you support maintaining a firewall between power customer funds and TIP financing?

Response: When WAPA established TIP to manage WAPA's borrowing authority, firewalls were established and operationalized to maintain separation between customer funds and TIP financing. With over 10 years of operating in this manner, and TIP loans being serviced and repaid, I would continue to support the successful management of this authority which includes this firewall.

Questions from Senator Catherine Cortez Masto

Wind up: Regarding the Bipartisan Infrastructure Law, I appreciate the timeliness with which the DOE has been working to implement my bill, the Renew America's Schools grant program, that I worked on with Sen. Murkowski and others on this committee to pass. I know the Department is utilizing some of this money for a broader technical assistance and outreach effort.

Question: As that initiative moves forward, can I get your commitment to –

a. Engage with specific school districts in Nevada, and

b. That you will work across federal departments to ensure that our schools are getting a broader understanding of all the funding opportunities made available by the IIJA and the IRA? For example, working with EPA to comprehensively outline to local schools the programs that exist between both of your agencies that pertain to similar subject matter, such as: grant support for air monitoring, cleaner buses, or other energy efficiency investments opportunities.

Response: Yes, I commit to working with school districts in Nevada and across the country that are looking to make energy improvements. Community outreach, including providing technical assistance, education, and support throughout the grants process is critical to ensuring funds reach school districts with the most need. I also commit to taking a collaborative approach and working across federal departments, including the EPA, to ensure that our local schools are getting a broader understanding of the funding opportunities made available by the IIJA and the IRA, particularly grant support for air monitoring, cleaner buses, or other energy efficiency investments opportunities.

Question: In regard to our growing need for domestically-sourced critical minerals, and the growth of domestic critical mineral supply chains, we increasingly need greater cross-cutting coordination amongst agencies and departments. What efforts do you intend to take to coordinate with your relevant counterparts at EPA or the Interior Department, or other necessary agencies?

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Response: Cross agency coordination is critical to deploying efficient capital to industry. There are already several cross-agency efforts already in place. For example, the American Battery Materials Initiative (AMBI) is intended to organize and support the various workstreams among multiple agencies within the Administration so we can work efficiently and effectively to meet the growing demand for battery-grade critical minerals. The Initiative will ensure a coordinated U.S. Government approach in our work with stakeholders, allies, and partners to develop more sustainable, secure, resilient supply chains, including collaboration with the private sector throughout the full supply chain to accelerate procurement of battery materials from domestic, allied, and partnered sources. The purpose is to create a public-facing interagency initiative to improve communication and engagement efforts related to securing the critical minerals and materials supply chains for electric vehicle batteries. The ABMI will develop and execute a national industrial strategy for securing the battery material supply chain—from extraction to processing to recycling.

If confirmed, I would also work to align federal agencies to speed government action for permitting. For example with NEPA, OCED is committed to its efficient and effective implementation and will avoid duplicating efforts by, wherever possible, relying on existing NEPA documents and related studies and cooperating with other state and federal agencies.

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Questions from Ranking Member John Barrasso

Question 1: In the White House Environmental Justice Advisory Council's (WHEJAC) Justice40 Initiative Implementation Phase 1 Recommendations, dated August 17, 2022, the Council recommended that agencies "Develop a remedy or penalty for states or agencies that do not implement or comply with the intent of J40 investments to benefit disadvantaged communities."

a. Has the Department of Energy withheld funding from states on the grounds that the Department did not believe the state to be compliant with the Biden Administration's Justice40 Initiative, or any other executive order addressing EJ policies?

The Department has not withheld any funding based on the Administration's Justice40 Initiative.

b. If confirmed, would you support withholding funding from a state because you did not believe they were compliant with the Justice40 Initiative or any other executive order addressing EJ policies?

No, I would not support withholding funding from states. If confirmed, I would support the implementation of Energy Efficiency and Renewable Energy programs and funding in line with Congressional intent.

c. If you answered yes to either of the two previous questions, please provide the statutory justification for funding denial on the basis of perceived non-compliance with Justice40 or any other executive EJ policy.

N/A

Question 2: It is imperative that non-federal partners know what to expect at all points during the grant application process and do not experience a change in rules after receiving a promise of funding or acceptance into a federal program.

a. Is DOE retroactively applying any Biden Administration EJ requirements, including Justice40, to any projects that were selected for grant awards or program participation prior to the creation of those EJ requirements?

No, to my understanding the Department does not intend to retroactively apply any EJ requirements to existing projects already awarded.

b. If confirmed, would you support retroactively applying EJ requirements to grant awards that predate the EJ requirements?

No. I believe it is important to maintain clear requirements and expectations with awardees, and I would not support changing the terms of a grant that has already been awarded.

c. Would you expect that applying EJ requirements to DOE grants or programs retroactively would raise the costs and delay the results of projects funded in part by DOE?

I am unaware of instances where the Department has retroactively applied any EJ requirements to existing projects already awarded. I would expect that changing any terms of a grant or program in the midst of execution could cause delays or additional costs.

d. For grants that require a non-federal match, awardees may receive state funds approved by state legislatures that expire if unused within a certain window. Are you concerned that adding EJ requirements retroactively could put grant awardees at risk of losing funds if their non-federal match expired while working to comply with unforeseen EJ policies?

The Department does not intend to retroactively apply any EJ requirements to existing projects already awarded.

Question 3: WHEJAC included in their Justice40 Initiative Implementation Phase 1 Recommendations a suggestion that the Department of Energy "Include a Social Cost of Carbon (SCC) analysis (based on the carbon lifecycle) for all grants or procurements, and triple the SCC in areas that are designated disadvantaged communities."

a. Has DOE currently adopted this recommendation?

The Department has not adopted this recommendation.

b. If not, if confirmed, would you recommend that DOE adopt it in the future?

N/A

c. If you agree with WHEJAC regarding tripling the SCC estimate in certain cases, please explain why you believe that to be the appropriate value.

d. What categories of projects would the tripled SCC apply to?

e. Do you believe this recommendation, if implemented, could actually have the effect of *preventing* economic development and job growth in economically disadvantaged areas?

f. If you agree with this recommendation, please provide the statutory authority for its implementation.

I have not been involved in any discussions that Department may have had regarding these recommendations, and therefore I am under the impression that the Social Cost of Carbon would not apply to the work under the purview of EERE. I have not examined the WHEJAC recommendations and cannot comment on the appropriate value of the Social Cost of Carbon, the projects to which it might apply, or the impacts of implementation.

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Question 4: There is some confusion regarding how EJ communities are identified and whether they maintain that status in perpetuity.

a. How is the Department of Energy determining which communities qualify as EJ communities?

While this does not fall under the purview of the EERE, I understand that the Department is using an interim definition of disadvantaged which is in accordance with Executive Order (EO) 14008 - Tackling the Climate Crisis at Home and Abroad and OMB Guidance M-21-28 for purposes of implementing the Justice40 Initiative. OMB Guidance M-21-28 defines communities based on both geographic boundaries, as well as dispersed sets of individuals that share common conditions. OMB Guidance M-21-28 defines disadvantage by a non-exhaustive list of socioeconomic, demographic, and environmental characteristics.

b. Are EJ community designations permanent or can a community grow out of the EJ community designation?

A designation is not permanent, and the ambition is that once identified, the Administration can use investments and a long-term strategy in these communities which will improve outcomes and lift communities out of the disadvantaged designation.

c. How would project funding be impacted if a community was no longer an EJ community?

Currently, the only energy communities that are targeted for federal investment are those identified by statute in the Bipartisan Infrastructure Law or the Inflation Reduction Act.

Question 5: The Interagency Working Group on Coal and Power Plant Communities and Economic Revitalization (IWG) was established to revitalize energy communities impacted by the transition away from fossil fuels. Such energy communities include Bureau of Labor Statistics areas impacted by concentrated, direct coal-related job losses from mine and power plant closures. They include areas in the Appalachian region (e.g., West Virginia) and U.S. Mountain West region (e.g., Wyoming and Colorado). Does receipt of federal funding from a program that provides assistance to energy communities trigger any additional EJ requirements for that community? For instance, would future infrastructure projects be subjected to any additional scrutiny because the host community received funds through a program targeting energy communities?

Response: Thank you for your question. The Department does not intend to take a regulatory approach to either Environmental Justice or to Energy Communities. These communities are identified because they share a disproportionate burden of economic, social, and other factors. As such, the goal of the administration is to identify benefits, funding, and others measure to support these communities.

Question 6: Before joining the Department in September, you served as Special Assistant to the President for Climate and Science Personnel in the White House Office of Presidential Personnel. In that position, you were responsible for vetting individuals for positions at the Department of Energy, the Department of the Interior and other agencies.

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a. Were you or anyone reporting to you responsible for vetting Tracy Stone Manning to be Director of the Bureau of Land Management?

Response: Neither I nor anyone reporting to me was involved in the vetting process of Tracy Stone Manning to be the Director of the Bureau of Land Management at the Department of the Interior.

a. Last year, *NBC News* reported that a White House official described Tracy Stone-Manning's nomination as a "massive vetting failure." Do you agree with that assessment? If not, why not?

Response: I cannot speak to the news report in question as I am not familiar with it or with the White House official referenced. I cannot speak to the vetting process as my role did not involve vetting Ms. Stone Manning.

Question 7: According to the Office of Energy Efficiency and Renewable Energy's website, its programmatic priorities are: decarbonizing the electricity sector; decarbonizing transportation across all modes; decarbonizing the industrial sector; reducing the carbon footprint of buildings; and decarbonizing agriculture.

a. What is the statutory authority for these to be priorities?

There are a number of bipartisan statutory authorities that guide EERE's work, including:

- P.L. 93-275, "Federal Energy Administration Act" (1974);
- P.L. 93-410, "Geothermal Energy Research, Development, and Demonstration Act" (1974);
- P.L. 93-577, "Federal Non-Nuclear Energy Research and Development Act" (1974);
- P.L. 94-163, "Energy Policy and Conservation Act" (EPCA) (1975);
- P.L. 94-385, "Energy Conservation and Production Act" (ECPA) (1976);
- P.L. 94-413, "Electric and Hybrid Vehicle Research, Development and Demonstration Act" (1976);
- P.L. 95-91, "Department of Energy Organization Act" (1977);
- PL 95-617, "Public Utility Regulatory Policies Act Of 1978" (1978);
- P.L. 95-618, "Energy Tax Act" (1978);
- P.L. 95-619, "National Energy Conservation Policy Act" (NECPA) (1978);
- P.L. 95-620, "Power Plant and Industrial Fuel Use Act" (1978);
- P.L. 95-238, Title III –"Automotive Propulsion Research and Development Act" (1978);
- P.L. 96-512, "Methane Transportation Research, Development and Demonstration Act" (1980)
- P.L. 96-294, "Energy Security Act" (1980);
- P.L. 100-12, "National Appliance Energy Conservation Act" (1987);
- P.L. 100-357, "National Appliance Energy Conservation Amendments" (1988);
- P.L. 100-494, "Alternative Motor Fuels Act" (1988);
- P.L. 100-615, "Federal Energy Management Improvement Act" (1988);
- P.L. 101-218, "Renewable Energy and Energy Efficiency Technology Competitiveness Act" (1989); P.L. 101-566, "Spark M. Matsunaga Hydrogen Research, Development, and Demonstration Act of 1990";
- P.L. 101-575, "Solar, Wind, Waste, and Geothermal Power Production Incentives Act" (1990);
- P.L. 102-486, "Energy Policy Act of 1992" (WIND);

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- P.L. 104-271, "Hydrogen Future Act of 1996";
- P.L. 106-224, "Biomass Research and Development Act" (2000);
- P.L. 109-58, "Energy Policy Act of 2005";
- P.L. 110-69, "America Competes Act of 2005";
- P.L. 110-140, "Energy Independence and Security Act of 2007";
- P.L. 110-140, title VI, Sec. 641, "US Energy Storage and Competitiveness Act of 2007";
- P.L. 110-234, "The Food, Conservation, and Energy Act of 2008";
- P.L. 111-5, "American Recovery and Reinvestment Act of 2009";
- P.L. 112-210, "American Energy Manufacturing Technical Corrections Act (2012);
- P.L. 115-244, "Energy and Water, Legislative Branch, and Military Construction and Veterans Affairs Appropriations Act, 2019";
- P.L. 115-246, "Department of Energy Research and Innovation Act" (2018);
- P.L. 116-92, "National Defense Authorization Act for Fiscal Year 2020";
- P.L. 116-260, "Consolidated Appropriations Act of 2020" (Section Z: Energy Act of 2020).

b. Please explain your specific expertise in each of these areas.

In previous roles I was tasked with overseeing cross-cutting public infrastructure projects, partnering with industry to deploy new and emerging sustainable technologies, and working to reduce emissions across multiple sectors. While overseeing the District Department of Transportation, I focused on taking steps to lower costs for individuals and families, creating jobs and economic opportunity, fostering innovation and improving the quality of our environment. While serving as the Assistant Secretary for Administration and Chief Sustainability Officer at the United States Department of Transportation, I oversaw the effort to improve energy efficiency and reduce waste throughout the agency's public buildings and facilities portfolio. I also managed the administration of research and development grants and took steps to improve upon the Department's use of renewable power.

Question 8: The Office of Energy Efficiency and Renewable Energy plays a pivotal role in the research and development of critical minerals and the technologies that use them. If the Biden Administration intends to meet its clean energy goals, the United States will need to dramatically expand its mining and processing capabilities for these minerals. Currently, we source the vast majority of minerals, such as nickel and lithium, from hostile nations like China and Russia. Do you support mining these critical minerals in the United States to meet these clean energy goals?

Yes. I agree it is critical to onshore the supply chain for critical minerals. In addition to the work the Department of Energy is pursuing to build domestic battery and critical mineral manufacturing and recycling, I agree that safe and responsible domestic mining is an important component of energy security.

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Question from Senator Mazie K. Hirono

Question: Hawaii is committed to a carbon neutral economy by 2045. The state is moving to 100 percent renewable power, but it also faces significant carbon emissions from vehicles, aviation, and maritime shipping. Given your background in transportation, what is your plan for how the Office of Energy Efficiency and Renewable Energy should support development of low and zero-emission transportation options?

Response: The Department of Energy's sustainable transportation strategy to decarbonize transportation includes all modes: air, sea, rail, and road. It encompasses activities in the fuel streams of electrification, hydrogen and fuel cells, and biofuels. We will need to deploy solutions from all three of these technologies to be successful in our efforts. DOE's Office of Energy Efficiency and Renewable Energy is focused on cutting-edge Research and Development (R&D) and a variety of different battery technologies to drive costs down and are working with offices across DOE to find ways to scale these technologies and deploy them in areas that need it.

Questions from Senator Catherine Cortez Masto

Regarding the Bipartisan Infrastructure Law, I appreciate the timeliness with which the DOE has been working to implement my bill, the Renew America's Schools grant program, that I worked on with Sen. Murkowski and others on this committee to pass. I know the Department is utilizing some of this money for a broader technical assistance and outreach effort.

Question: As that initiative moves forward, can I get your commitment to:

a. Engage with specific school districts in Nevada, and

b. That you will work across federal departments to ensure that our schools are getting a broader understanding of all the funding opportunities made available by the IIJA and the IRA? For example, working with EPA to comprehensively outline to local schools the programs that exist between both of your agencies that pertain to similar subject matter, such as: grant support for air monitoring, cleaner buses, or other energy efficiency investments opportunities.

Response: Yes, I commit to engaging with a diverse array of stakeholders, including school districts across Nevada that are seeking to increase energy efficiency and reduce their carbon emissions. Yes, I commit to taking a collaborative approach and working across federal departments, including the EPA, to ensure that our local schools are getting a broader understanding of the funding opportunities made available by the IIJA and the IRA, particularly grant support for air monitoring, cleaner buses, or other energy efficiency investments opportunities.

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Question: In regards to our growing need for domestically-sourced critical minerals, and the growth of domestic critical mineral supply chains, we increasingly need greater cross-cutting coordination amongst agencies and departments. What efforts do you intend to take to coordinate with your relevant counterparts at EPA or the Interior Department, or other necessary agencies?

Response: Building a reliable and secure domestic critical mineral supply chain is essential to ensuring we meet our energy goals. I'll also continue to encourage EERE's Advanced Materials and Manufacturing Technologies Office (AMMTO) to coordinate internally within DOE. If confirmed, I'll continue to support cross agency collaborations with the Environmental Protection Agency, Department of Interior, Department of Commerce, Department of Defense, and other appropriate federal partners.

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Questions from Ranking Member John Barrasso

Question 1: In the White House Environmental Justice Advisory Council's (WHEJAC) Justice40 Initiative Implementation Phase 1 Recommendations, dated August 17, 2022, the Council recommended that agencies "[d]evelop a remedy or penalty for states or agencies that do not implement or comply with the intent of J40 investments to benefit disadvantaged communities."

a. If confirmed, would you support withholding funding from a state because you believed it was not compliant with the Justice40 Initiative or any other executive order addressing Environmental Justice (EJ) policies?

No, I would not support withholding funding from states. If confirmed, I would support the implementation of Office of Electricity programs and funding in line with Congressional intent.

b. If you answered yes to the previous question, please provide the statutory justification for funding denial on the basis of perceived non-compliance with Justice40 or any other executive EJ policy.

N/A

Question 2: It is imperative that non-federal partners know what to expect at all points during the grant application process and do not experience a change in rules after receiving a promise of funding or acceptance into a federal program.

a. If confirmed, would you support retroactively applying EJ requirements to grant awards that predate the EJ requirements?

No. I agree it is important to have clear expectations and criteria for DOE awardees. I would not support changing the criteria of any grants to add new stipulations or requirements after they had been awarded.

b. Would you expect that applying EJ requirements to DOE grants or programs retroactively would raise the costs and delay the results of projects funded in part by DOE? If not, why not?

I am unaware of instances where the Department has retroactively applied any EJ requirements to existing projects already awarded. I would expect that changing the criteria of any grants to add new stipulations or requirements might increase costs or result in the delays.

c. For grants that require a non-federal match, awardees may receive state funds approved by state legislatures that expire if unused within a certain window. Are you concerned that adding EJ requirements retroactively could put grant awardees at risk of losing funds if their non-federal match expired while working to comply with unforeseen EJ policies?

I do not support applying retroactive EJ requirements or other changed to existing projects already awarded.

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Question 3: WHEJAC included in their Justice40 Initiative Implementation Phase 1 Recommendations a suggestion that the Department of Energy "Include a Social Cost of Carbon (SCC) analysis (based on the carbon lifecycle) for all grants or procurements, and triple the SCC in areas that are designated disadvantaged communities."

a. Do you agree with this recommendation?

b. If you answered yes to the previous question, please explain the basis for multiplying the SCC figure? Why is 3x the SCC the appropriate value?

c. What categories of projects would the tripled SCC apply to?

d. Why wouldn't this recommendation, if implemented, have the effect of *preventing* economic development and job growth in economically disadvantaged areas?

e. If you agree with this recommendation, please provide the statutory authority for its implementation.

I have not been privy to any conversations the Department may have had regarding these recommendations, nor have I examined the WHEJAC recommendations and cannot comment on the appropriate value of the Social Cost of Carbon, the projects to which it might apply, or the impacts of implementation. If confirmed, I would look forward to working with my DOE colleagues to better understand the EJ40 Initiative and any role Office of Electricity may play.

Question 4: There is some confusion regarding how EJ communities are identified and whether they maintain that status in perpetuity.

a. How is the Department of Energy determining which communities qualify as EJ communities?

b. Are EJ community designations permanent or can a community grow out of the EJ community designation?

c. How would project funding be impacted if a community was no longer an EJ community?

I do not have insight into how the Department of Energy has defined EJ communities beyond what is publicly available on the DOE website, nor do I have insight onto the permanency or impacts on funding, if any. If confirmed, I would look forward to working with my DOE colleagues to better understand the EJ40 Initiative and any role Office of Electricity may play.

Question 5: The Interagency Working Group on Coal and Power Plant Communities and Economic Revitalization (IWG) was established to revitalize energy communities impacted by the transition away from fossil fuels. Such energy communities include Bureau of Labor Statistics areas impacted by concentrated, direct coal-related job losses from mine and power plant closures. They include areas in the Appalachian region (e.g., West Virginia) and U.S. Mountain West region (e.g., Wyoming and Colorado). Does receipt of federal funding

from a program that provides assistance to energy communities trigger any additional EJ requirements for that community? For instance, would future infrastructure projects be subjected to any additional scrutiny because the host community received funds through a program targeting energy communities?

Response: I am not familiar with the work Interagency Working Group on Coal and Power Plant Communities and Economic Revitalization, and I am not aware of any additional restrictions that may be placed on funding or awards. If confirmed, I would work to expeditiously provide technical assistance with communities and stakeholders across the country in order to access funding and resources from the Department of Energy and the Office of Electricity.

Question 6: The most recent EIA data show California has the highest electricity rates in the continental states, 77% higher than the national average.

a. Do electric customers in California pay too much for electricity on a unit basis?

   Yes, and assuring affordable energy for the American people is a personal priority of mine and a key objective of the Office of Electricity. California, like every other state in our country, has a segment of its population that faces an elevated energy burden and struggles with their energy bills. Californians' rates for electricity (i.e., what consumers pay on a per unit basis) is one element for assessing affordability; however, the bottom-line amount of the electricity bill to be paid is also a key consideration. If confirmed, I will see to it that the Office of Electricity maintains a sharp focus on all elements of affordability to ensure that our solutions assist each state in achieving its affordability objectives.

b. Haven't California's energy and environmental policies made the unit cost of electricity high? If not, what accounts for California's high rates?

There is no question that energy and environmental policies that impact the utilities' cost to serve their customers can affect the rates consumers pay for electricity. However, another key factor is the total amount of electricity sold to consumers. The most recent EIA data show that California's per capita energy consumption was lower than all other states except Rhode Island. This low per capita electricity consumption causes the California utilities to recover their costs over fewer kWh sales, resulting in higher rates but also contributing to lower electricity bills for California consumers.

Question 7: Cybersecurity experts agree that the internet connectivity of many so-called clean energy technologies increases the likelihood for cyber-attacks against energy infrastructure. Approximately two years ago, a cyberattack affected a grid operator's visibility into nearly 500 megawatts of solar and wind facilities in a "denial of service" attack. Some of these facilities are in Wyoming.

a. Do you agree that the internet connectivity of many new energy technologies increases the vulnerability of the electric grid to cyberattacks?

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I do agree that as we increase grid edge distributed energy resources (DER), including distributed generation such as rooftop solar photovoltaics and battery storage systems, this could create an expanded attack surface for potential cyberattacks.

b. How will you address the problem of cybersecurity for power inverters and other components that have proven susceptible to cyber-attacks?

As we adopt technology that provides greater visibility through sensing technologies and communications, there is an increasing need for cybersecurity enhancements and protections. This is a key an exciting role for the Office of Electricity to work cross-departmentally with the Office of Cybersecurity, Energy Security, and Emergency Response, the Office of Energy Efficiency and Renewable Energy and the National Laboratories on R&D that can help protect key grid components like inverters. This R&D would need to be conducted closely with industry to ensure it is used and useful R&D that can inform best practices and industry baselines for cybersecurity for DER stakeholders.

Question 8: If the Biden Administration intends to meet its clean energy goals, the United States will need to dramatically expand its mining and processing capabilities for these minerals. Currently, we source the vast majority of minerals, such as nickel and lithium, from hostile nations like China and Russia. Do you support mining these critical minerals in the United States to meet these clean energy goals?

Yes. I believe that improving energy security and energy supply chains that involve critical minerals is an essential priority. That includes safe domestic production, processing, manufacturing, and recycling of critical minerals.

Questions from Senator James E. Risch

Question 1: Over the past two years, the Council of Environmental Quality (CEQ) has egregiously overstepped its authority into the Department of Energy's jurisdiction regarding the oversight of the Bonneville Power Administration. This has been demonstrated multiple times through nontransparent attempts to reallocate BPA's surplus away from ratepayer returns, litigation negotiation, and similar tactics.

a. Do you see this interference as a concern? Why or why not?

I am not familiar with the actions from the Council of Environmental Quality with regards to the Bonneville Power Administration. If confirmed, I would certainly advocate for transparency in ratepayer returns and the autonomy of the Power Marketing Administrations.

Question 2: What role do you expect Power Marketing Administrations to play as the United States transitions to a clean energy future?

As the United States continues its energy transition, the value that the Power Marketing Administrations create for the American people will grow. Today, the PMAs already provide abundant, low-cost hydroelectric power that contributes to affordability and bolsters the reliability of our nation's portfolio of energy resources. That role will continue into the future.

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In addition, as we modernize the nation's grid to enable greater visibility through sensing technologies, more secure communications, and speed-of-light data analysis and control, the PMAs' modernized transmission systems will facilitate higher levels of certainty in forecasting and planning, and will improve real-time operational flexibility over a wider geographic reach. This will magnify the PMAs' beneficial contribution to the reliability, resiliency, and affordability of America's electricity supply and delivery network.

Questions from Senator Maria Cantwell

Questions: Mr. Rodrigues, I believe that lighting up dark fiber and building out optical ground wire (OPGW) along our nation's transmission grid systems could empower generators and grid operators with the closer to real-time data and visibility needed to integrate more distributed resources and intermittent renewable power sources. Grid based fiber networks could provide utilities with private, closed-loop, cyber secure communications networks that hackers can't get into. And it could provide a middle-mile backbone that helps bring affordable broadband to essentially every household or business that currently serviced by the grid.

Do you agree that expanding communications capacity along the grid's existing rights-of-way could provide significant co-benefits for cybersecurity, grid modernization, and facilitate affordable high-speed internet to the tens of millions of unserved and underserved Americans?

My bipartisan GRID Broadband Act would provide a federal cost-share to spur the build out of fiber along our nation's grid. As a former utility executive, do you think such a grant program would encourage utilities to invest in grid fiber? How else might you support this proposal if you are confirmed?

Based on my experience within the utility sector, I believe that the grant program you describe would provide a strong incentive signal to spark utility interest in participation, especially since the federal cost-share element could markedly improve the results of the cost-benefit analysis of a transmission grid fiber capital request focused solely on direct benefits to utility system operations and cybersecurity. I also agree that the co-benefit of facilitating affordable internet access for unserved/underserved Americans adds a compelling additional public policy argument for the investment.

If confirmed, I would look forward to working with you to provide for any technical support or assistance on this initiative. Potential work could include continued research, development, and demonstration of any grid components and systems, and the application of planning and modeling tools that support analytical certainty about the beneficial impacts of an investment in transmission grid fiber. Furthermore, I would use the convening and facilitation role of the Office of Electricity to bring together key stakeholders from the various sectors who would be engaged in proposing, reviewing, and/or approving transmission grid fiber capital requests for a collaborative, multiple-perspective, public workshop aimed at identifying and addressing any perceived barriers to implementation.

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Question from Senator Mazie K. Hirono

Question: Hawaii is home to six separate islanded electric grids. The power lines in Hawaii stretch across mountains and valleys and they face the threat of hurricanes. The main transmission lines on the islands are of lower voltage compared to the big interstate lines in the 48 states, but they are just as critical to the well-being of the people of Hawaii. What is your view of how modernizing our grid can help Hawaii and other states move to higher levels of renewable energy while improving the affordability and reliability of the power we all depend on?

I believe that grid modernization is essential to enabling Hawaii to achieve its leadership goal of 100% renewable energy by 2045. Because each of Hawaii's islands is served by a separate electric grid, the state cannot rely on the resource accessibility and diversification inherent in interconnection with other regions to assist with integration of a high penetration of renewable resources. Modernization of Hawaii's grid addresses and resolves this constraint by providing greater visibility into grid conditions, which allows the modernized grid to exercise near-real-time analysis and control of generation, grid components and systems, energy storage, and grid edge assets to optimize system performance to bolster reliability, increase affordability, and enhance security. In addition, grid modernization promotes resiliency by enabling rapid identification, assessment, and recovery actions whenever reliability is disrupted by natural events (such as extreme weather) or cyber threats. If confirmed, I will ensure that the Office of Electricity maintains its longstanding commitment to assisting Hawaii in its achievement of its energy policy objectives while also serving as a showcase to other states -- and countries – that 100% renewable energy can be achieved rapidly, reliably, and affordably.

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