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OFFSHORE WIND, ONSHORE BENEFITS: GROWING THE DOMESTIC WIND ENERGY INDUSTRY

THURSDAY, OCTOBER 21, 2021

House of Representatives,

Subcommittee on Energy,

Committee on Energy and Commerce,

Washington, D.C.

The subcommittee met, pursuant to call, at 10:33 a.m., in Room 2123, Rayburn House Office Building, Hon. Bobby L. Rush [chairman of the subcommittee] presiding.

Present: Representatives Rush, Peters, Doyle, McNerney, Tonko, Veasey, Schrier, DeGette, Castor, Schrader, Kuster, Barragan, Blunt Rochester, O'Halleran, Pallone (ex officio), Upton, Burgess, Latta, McKinley, Griffith, Johnson, Bucshon, Walberg, Duncan, Palmer, Lesko, Pence, Armstrong, and Rodgers (ex officio).

Also Present: Representatives Carter, and Joyce.

Staff Present: Waverly Gordon, Deputy Staff Director and General Counsel; Tiffany Guarascio, Staff Director; Perry Hamilton, Clerk; Anne Marie Hirschberger, FERC

Detailee; Zach Kahan, Deputy Director Outreach and Member Service; Rick Kessler, Senior Advisor and Staff Director, Energy and Environment; Mackenzie Kuhl, Press Assistant; Tyler O'Connor, Energy Counsel; Lino Pena-Martinez, Policy Analyst; Kris Pittard, Policy Coordinator; Kris, Pittar, Policy Coordinator; Kylea Rogers, Staff Assistant; Tuley Wright, Senior Energy and Environment Policy Advisor; Sarah Burke, Minority Deputy Staff Director; Michael Cameron, Minority Policy Analyst, CPC, Energy, Environment; Nate Hodson, Minority Staff Director; Peter Kielty, Minority General Counsel; Emily King, Minority Member Services Director; Mary Martin, Minority Chief Counsel, Energy and Environment; Brandon Mooney, Minority Deputy Chief Counsel, for Energy; and Michael Taggart, Minority Policy Director.

Mr. Rush. The subcommittee on energy will now come to order. Today the subcommittee is holding a hearing entitled Offshore Wind, Onshore Benefits: Growing the Domestic Wind Energy Industry.

Due to COVID-19 public health emergencies, members can participate, as I am, in today's hearing either in person or remotely via online video conferencing. Members, staff, and members of the press --

Mr. Upton. Mr. Chairman.

Mr. Rush. Yes?

Mr. Upton. We weren't in order when you started. So if you could start again, that would be good.

Mr. Rush. We weren't in order?

Mr. Upton. So I would ask unanimous consent -- No we weren't. The gavel didn't come down, and now the gavel has come down and -- I ask that you start things again.

Mr. Rush. I am going to disagree with you. I brought the gavel down at 9:30 central time, 10:30 --

Mr. Upton. I know. We didn't hear it. So we were all talking. So there is bad behavior here. So we would ask that you start again so we can be fully attentive.

Mr. Rush. Well --

Mr. Upton. I apologize for the actions of our members on both sides of the aisle.

Mr. Rush. All right. Well --

Mr. Upton. And our chairman, Mr. Pallone, has just walked in the door.

Mr. Rush. In consideration of my friends' requests and unanimous consent

request, I will take time to begin the meeting again and for all of those who didn't hear the gavel come down previously, this is the gavel, watch me.

The subcommittee will now come to order. Today the subcommittee is holding a hearing entitled Offshore Wind, Onshore Benefits, Growing the Domestic Wind Energy Industry.

Due to the COVID-19 public health emergencies, members can participate in today's hearing either in person or remotely via online video conferencing. Members, staff, and members of the press present in the hearing room must wear a mask in accordance with the updated guidance issued by the attending physician.

For members participating remotely, your microphones will be set on mute for the purpose of eliminating and averting background noise. Members participating remotely will need to unmute your microphone each time you wish to speak.

Please note that once you unmute your microphone, anything that is said will be heard over the loudspeaker in the committee room and is subject to being heard by live-stream and C-SPAN. Since members are participating from different locations at today's hearing, our recognition of members such as for questioning will be in order of the subcommittee's seniority. Documents for the record can be sent to Lino Pena-Martinez at the email address that we have provided to staff. All documents will be entered into the record at the conclusion of today's hearing.

The chair now recognizes himself for 5 minutes for the purposes of an opening statement.

Again, good morning, I would like to thank all of you for joining us today for this important hearing on the state of the offshore wind industry. The U.S. offshore wind industry is lagging behind the rest of the world, with Europe having just over 25 gigawatts

and China with just over seven. The U.S. by comparison has effectively zero. That is why I was so delighted when earlier this year President Biden announced a goal of deploying 30 gigawatts of offshore wind capacity by 2030, helping kickstart what I hope would mean a start of an offshore wind revolution.

According to an analysis by the National Renewable Inventory Laboratory, 30 gigawatts of offshore wind has the capacity to create 70,000 jobs by 2030. And it would tee up creation of over 135,000 jobs by the year 2050.

We will see turbines in the Atlantic, in the Pacific, in the Gulf of Mexico, and perhaps even in the beloved Great Lakes that is close to my home State of Illinois. Additionally, at a time when U.S. consumers are vulnerable to violent variations in fossil fuel prices, the allure of a consistent affordable source of base load electricity produced right here at home by American workers should be clear.

And the part of our broader effort to Build Back Better, we need to ensure that we are making small investments so that the offshore wind lives up to its high, very high potential. These include investments in American shipbuilding, steel and American ports.

The Biden administration has announced that it will provide $3 billion worth of loan guarantees to help direct investment to where they so desperately need to loan. An investment in offshore wind would truly exemplify what we know as the Build Back Better promise. That same NREL study found that the construction and operating jobs created by the offshore wind industry would have a median pay higher than the current nationwide median wage. In other words, these are high-paying jobs.

There are also good, union jobs. As some of our witnesses today will attest, the sector has seen a good deal of success integrating organized labor into its plans.

I was pleased last year that Orsted signed an agreement with the national North American Building Trades Unions to transition construction workers into the offshore wind industry. Additionally, Vineyard Wind, which is slated to be the first commercial-scale offshore wind project in the Nation recently signed a project labor agreement with the Southeastern Massachusetts Building Trades Council. This is great, a great, great beginning. And I am constantly on the alert that minorities and women are included into this process.

With that, I now yield to my good friend from the great State of Michigan, the ranking member of the subcommittee, Mr. Upton for 5 minutes.

[The prepared statement of Mr. Rush follows:]

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

Mr. Upton. Well, thank you my friend, Mr. Chairman. And thank you to our witnesses for appearing today.

A special welcome to the honorable Mr. Menezes, the former deputy Secretary of Energy and former Energy and Commerce chief council for energy and development and environment. It is always good to have you back.

Mr. Chairman I am a little bit troubled by the topic of today's hearing. As you know, we are in an energy crisis right now, which is what I believe this committee ought to be focused on, the price of gas and many energy commodities are at a 7-year high. The average price in my district earlier this week around my district was about $3.35 a gallon, almost double what it cost a year ago. And I was in Chicago last weekend, and it was over $4.20 in your district as I traveled up and down the Dan Ryan Expressway.

So compared with last winter's heating costs, the Department of Energy forecasts that U.S. households are going to spend 54 percent more for propane, 43 percent more for heating oil, 30 percent more for natural gas, and 6 percent more for electricity to heat their homes this season.

Last week the Republican members of the committee sent a letter to DOE Secretary Granholm to understand what specific actions DOE is taking to address energy prices and supply shortages. We needed to know what steps DOE is taking to encourage more U.S. energy production to be able to reduce our growing reliance on foreign oil. And as we all know, the U.S. was a net energy exporter in 2019, but since President Biden took office, we are now relying on Russia and Middle East for energy imports, not the right trend.

We also need to know what Federal policies might be causing or contributing to

energy price increases. I suspect that the cancelation of the Keystone XL pipeline and moratorium on building on Federal lands and offshore waters may have played a role.

Congress should also understand how proposed environmental regulations and policies like the push for economy wide net zero greenhouse gas emissions will impact energy bills. We also need to look before we leap. And we need to gather those facts.

We should also be studying the energy crisis in Europe and the impact that it is having on global energy markets and prices. Europe is that big on offshore wind and the track record is not particularly good. The world read the headlines, in September the winds in the North Sea stopped blowing forcing regional energy markets to scramble for natural gas to heat homes and power businesses.

Russia, energy's largest supplier of gas seems to be the biggest winner. And ironically, Europe is burning more coal due to the high gas prices. Here in the U.S., we only have seven offshore wind turbines. We have talked a lot about that over the years, we have seven. One commercial project off Rhode Island that has been plagued with maintenance and operational difficulties in one small pilot project off the Coast of Virginia.

Biden administration plans more than 3,000 new offshore turbines by 2030, not too far away. But it is very difficult to imagine that any projects are going to be get built without substantial taxpayer and ratepayer subsidies and of course we have the questions of permitting. Where is the streamlining on permitting to get 3,000 new offshore turbines in just a short period of time?

Offshore wind faces serious obstacles, including those related to poor economics, operating reliability in harsh conditions, onshore and offshore permitting challenge, negative environment, and fishery impacts, workforce and labor issues, marine traffic and

shipping, concerns expressed by the Department of Defense. The list goes on and on.

While I am optimistic that technological innovation and American ingenuity will bring advance in the offshore wind era, I believe this committee should be focused on ways to lower energy prices for consumers across the board in the near-term.

With that, I look forward to today's testimony. And yield back the balance of my time.

[The prepared statement of Mr. Upton follows:]

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

Mr. Rush. The gentleman yields back the balance of his time.

The chairman now recognizes the chairman of the full committee, Mr. Pallone, for 5 minutes for his opening statement.

The Chairman. Thank you, Chairman Rush. Today we are going to discuss the growing potential of the offshore wind industry to power American homes with clean energy. The industry's growth also provides us a real opportunity to revitalize manufacturing in poor communities throughout the Nation.

This hearing is not only important but timely. Early this year, President Biden restored American leadership in the fight against the climate crisis by announcing an ambitious goal of deploying 30 gigawatts of offshore wind capacity by 2030. Achieving this goal will provide clean power to 10 million American households, and avoid 78 million metric tons of carbon emissions.

This is not only critical to our efforts to combat the climate crisis, but it would also mean major investments, domestic manufacturing and supply chains, including U.S. flag shipping and shipbuilding. These investments would help create tens of thousands of good paying jobs for blue collar workers.

In fact, communities across the Nation are already seeing the incredible benefits of investing in offshore wind and nowhere is that truer than in my home State of New Jersey. Just this year, New Jersey has spurred development of more than 2,600 megawatts of offshore wind capacity. Our State is also constructing the first purpose built wind port in the Nation, bringing thousands of jobs and billions of dollars of investment to the Garden State.

But to be clear, the economic benefits of offshore wind won't just accrue on the

Coast, they will impact communities across the country, a study released last week estimated that achieving the Biden administration's offshore wind goals would generate 109 billion in economic activity. Additionally, the Business Network for Offshore Wind has identified more than 600 domestic supply contracts for offshore wind components to be built by companies throughout the United States.

Offshore wind also holds significant promise for American workers. Achieving the Biden administration's goals will support 80,000 jobs by 2030, including good paying union jobs in construction, steel fabrication, welding, and many other fields. But we we need to make sure that the rising tide of offshore wind lifts all boats.

So I look forward to hearing how workforce development efforts can ensure that local and disadvantaged communities reap the benefits of development. And I know this has been a major concern of Chairman Rush.

The offshore wind industry has great potential for growth and that is particularly important in a rapidly changing world where fossil fuels are increasingly unreliable and subject to huge price swings. We witnessed this from a global volatility of oil and gas prices from the unreliability of gas during the Texas winter storm, from the hack of the Colonial oil pipeline and others.

Doubling down on existing fossil fuel infrastructure makes little sense in my opinion. We must invest in mechanisms that reliably bring energy to consumers. And that is why I am proud that the Build Back Better Act passed by this committee last month included significant funding for transmission, including for offshore wind.

I look forward to hearing from our witnesses about the measures the Federal Government can take to ensure we build a backbone transmission system capable of delivering reliable offshore wind energy to American households and businesses.

Rapidly expanding offshore wind will be critical to decarbonizing the power sector. I am excited about the progress in New Jersey and other States in the North East. And I hope that some momentum will spread to other offshore areas throughout the country. We can't rely on existing trends or wishful thinking to get us to net zero electricity sector emissions. And that is why the investments in the Build Back Better Act are so critical in our efforts to tackle the climate.

I want to welcome all four of our witnesses here today, including, although I can't really see you Heather, Lisa is in the way. We love Lisa so that is okay. But Heather Zichal was my environmental legislative assistant and then legislative director. It says in my notes about 20 years ago before she moved over to the Senate.

I didn't really want to read that part, Heather, because that shows that you and I have been around here for a while but whatever. She then served as a senior adviser to President Obama and is now the CEO of the American Clean Power Association. So welcome, in particular Heather.

I look forward to our overall discussion today, Mr. Chairman and yield back.

[The prepared statement of The Chairman follows:]

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

Mr. Rush. The chair yields back.

The chair now recognizes the gentlelady from Washington State, the ranking member of the full committee Ms. McMorris Rodgers for 5 minutes for the purposes of an opening statement.

Mrs. Rodgers. Good morning, Mr. Chairman.

Mr. Rush. Good morning.

Mrs. Rodgers. We are going to be talking about the state of offshore wind energy. We should take a hard look first at what is happening right now with energy crises. Just yesterday I filled up with gas in Spokane, $3.59 a gallon. Ouch.

The worry and the discussion about rising costs is happening around every kitchen table in America today. It is our job on this committee to make sure that people have access to reliable, and affordable energy to heat their homes, drive their cars, run their businesses. Unfortunately today, this committee is ignoring the real energy crisis in front of us. Around the world over the past month post COVID economic forces and a radical agenda for the Green New Deal are driving up energy costs.

In the United Kingdom where they are betting heavily on offshore wind a sudden loss of wind for electricity generation helped spike natural gas prices to record levels in September.

Increasing energy and power costs rippling through economies of the U.K. and Europe. And it has raised the cost for goods and services especially household energy just in time for winter months. What is happening in Europe should provide a powerful reminder of the dangers of both tight fuel supplies, dependency on Russia, and weather-dependent energy. These reckless policies hurt people's health and welfare.

U.S. households are not escaping this energy crisis.

Committee Republicans reminded the Secretary of Energy just last week that over the past 1-1/2 year retail gasoline prices have almost doubled. Natural gas prices have almost tripled, electric rates continue to increase, and propane prices so critical for many households, have skyrocketed by 552 percent. Meanwhile, the President and his cabinet prepares to jet off to the Glasgow Climate Conference with celebrities.

The Energy Information Administration forecasts that households will pay significantly more this winter as energy and power prices continue to rise. Families are already being stretched thin by the inflation crisis. What will they do when there are 746 heating and natural gas gills pile up this winter?

These are Biden's bills for keep natural gas in the ground and lurching to unreliable energy sources like wind that aren't affordable for families. Unaffordable energy costs from global supply chain disruptions and COVID-related demand shocks have only been accelerated by the anti fossil fuel agenda of this administration despite technology for carbon capture and sequestration. Including the President's decision to cancel the Keystone and issue a moratorium on exploration and development on Federal Lands, while calling OPEC to ask them to increase production. How does this make any sense?

And it is not just the high prices that harm working families in our prosperity. Electricity reliability is also jeopardized, as people in California and Texas are painfully aware. The North American Electric Reliability Corporation is reporting that increasing risk of brownouts, not just in California or Texas but the Midwest and New England. In short, an electricity reliability crisis is unfolding across this country.

And much of this can be traced to the environmental and Federal regulatory

policies from renewable energy standards, to electricity market regulatory structures that drive out traditional base load.

All of this should focus our attention on what really matters, what is necessary to ensure affordable, reliable power for hardworking families and communities now and in the future. What can we do about the current energy crisis? And how will this radical agenda to take over our electricity grid and rush renewable energy hurt prices, security, and reliability. That should be central to our questions today.

We must reset our energy discussions to focus on the very real affordability and reliability crises that are confronting people, especially middle class Americans.

To be sure, we should try to understand the administration's agenda to accelerate the build out of offshore wind generation. The pace and scale of these plans promise industrial development but they raise many practical questions about affordability and reliability. Let's learn from Europe not copy its failures.

So I welcome the witnesses. I would like to welcome especially Mark Menezes, the former deputy Secretary of Energy, an alumni of this staff. I am sure that he can help us explore the really pressing issues that people care about and put into context what is necessary to ensure affordable, reliable energy today and an innovative and prosperous future.

Thank you, Mr. Chairman. I yield back.

[The prepared statement of Mrs. Rodgers follows:]

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

Mr. Rush. The ranking member yields back.

The chair would like to remind all the members on the subcommittee that pursuant to the committee rules, all members written opening statements shall be made part of the record.

And now it is my honor, and my privilege, and my pleasure to welcome our witnesses for this morning's hearing.

As was stated earlier, Ms. Heather Zichal, a former staff member of the committee, and who is currently the chief executive officer of the American Clean Power Association.

Along with her is Mr. David Hardy, who is the chief executive officer of Orsted Offshore North America.

Along with both of them is Mr. James Strong, who is the assistant to the director of district 8, United Steel, Paper and Forestry, Rubber, Manufacturing, Energy, Allied Industrial and Service Workers International Union.

And last but not least, the honorable Mark Menezes, who is the former staff member, and also the former deputy Secretary of Energy at the U.S. Department of Energy.

I want to welcome each of our witnesses, and thank you for joining us here today, and we look forward to your testimony.

At this time, the chair will recognize each witness for 5 minutes to provide an opening statement. But before we begin, I would like to explain the lighting system for witnesses testifying in person.

In front of our witnesses there is a series of lights. The lights will be initially

green. The light will turn yellow when you have 1 minute remaining. Please begin to wrap up your testimony at that point. The light will turn red when your time expires.

With that said, Mr. Zichal, you are now recognized for 5 minutes for your opening statement.

STATEMENTS OF HEATHER ZICHAL, CHIEF EXECUTIVE OFFICER, AMERICAN CLEAN POWER ASSOCIATION; DAVID HARDY, CHIEF EXECUTIVE OFFICER, ORSTED OFFSHORE NORTH AMERICA; JAMES STRONG, ASSISTANT TO THE DIRECTOR, DISTRICT 8 UNITED STEEL, PAPER AND FORESTRY, RUBBER, MANUFACTURING, ENERGY, ALLIED INDUSTRIAL AND SERVICE WORKERS INTERNATIONAL UNION; AND HON. MARK MENEZES, FORMER DEPUTY SECRETARY OF ENERGY, UNITED STATES DEPARTMENT OF ENERGY

STATEMENT OF HEATHER ZICHAL

Ms. Zichal. Thank you, Chairman Rush, Ranking Member Upton, members of the House Energy and Commerce Subcommittee on Energy, thank you for the invitation to testify at today's hearing. My name is Heather Zichal and I am the CEO of the American Clean Power Association, a national trade association that unites the power of offshore wind, onshore wind, solar, storage, and transmission companies.

While the U.S. industry is in its infancy, with 42 megawatts of offshore wind currently deployed, the global offshore wind industry is booming with 34,000 megawatts in Europe, U.K., and Asia.

As U.S. market grows, ACP and our member companies are committed to growing a domestic supply chain. The administration's goal to deploy 30 gigawatts by 2030, as well as additional State goals are jump starting this industry and will create up to 83,000 jobs and $25 billion in annual economic output.

The Vineyard Wind project will be the first commercial scale project in the United States and has already completed two major milestones this year, receiving the final

Federal permits and reaching financial close. There are 13 other offshore wind construction and operation plans or COPs in the permitting pipeline. And BOEM has promised to review at least 16 of those by 2025.

Last week, in Interior Secretary Haaland announced plans for up to seven new lease sales by 2025 in the Gulf of Maine, New York Bight, Central Atlantic, Gulf of Mexico, Carolinas, California, and Oregon. These commitments to reviewing COPs, and new leases, and long-term follow through will provide the certainty needed to build a successful new offshore wind industry here in the United States.

Currently, the offshore wind industry is investing millions of dollars in a domestic supply chain. Equinor is investing in the first offshore wind tower and transition piece manufacturing facility in New York's port of Albany. Orstead and other source selected Kiewit OffShore services in Texas to design and build the South Fork project substation.

Dominion Energy is investing $500 million to build the first U.S. flag offshore wind turbine installation vessel in Brownsville, Texas, with 10,000 tons of steel sourced from West Virginia and Alabama.

Atlantic Shores signed a labor agreement with six different unions for workforce training in New Jersey. Nexans is opening a new offshore wind subsea cable manufacturing plant in South Carolina. These investments will only continue to grow as projects are permitted and construction begins.

Additional policy levers can help drive and even greater degree of domestic offshore wind manufacturing on a more ambitious timeline. Congress can help spur these investments with policies like ACP backed legislation from Senator Markey that would create offshore wind manufacturing tax credits for turbine components and vessels. And we hope to see companion legislation introduced in the House soon.

Integrating offshore wind into our electric system will require coordination between Federal agencies, States, utilities, developers, and grid operators. These groups collectively have the skills, knowledge, and experience to successfully integrate offshore wind, but we need to be sure we are looking ahead because transmission takes time to develop.

The wind industry looks forward to working collaboratively with this committee and all of the relevant actors to make sure that we are planning for the infrastructure we need to bring low cost offshore wind to customers.

The FERC, Department of Energy, BOEM, the States, and regional grid operators must coordinate to ensure that transmission planning accounts for at least 30 gigawatts of offshore wind. In many cases, offshore wind projects will interconnect to the electric grid where other sources have retired, providing a clean and reliable replacement energy source. In other cases, new or upgraded transmission will be needed.

Initial offshore wind projects will connect to the grid using individual radio transmission lines. But sustaining the long-term growth of offshore wind will require a coordinated approach to transmission that spans multiple lease areas, States, and regions.

Forward thinking transmission plaining will help to expand the market for offshore wind more quickly and benefit the supply chain. Some early stage transmission plaining is taking place, but multiState and multiagency planning is necessary to ensure that we have the onshore and offshore infrastructure to meet the 30 gigawatt goal.

As such, FERC has commenced a review of its transmission planning, cost allocation, and interconnection rules that would help to spur proactive transmission development, including transmission for offshore wind. New Jersey and PJM are

working together on transmission proposals specifically to integrate 7.5 gigawatts of offshore wind. ACP also support the committee's budget reconciliation language that includes funding for a number of crucial programs along these.

Thank you for the opportunity to testify during this historic time for the offshore wind energy. And I look forward to answering your questions.

[The prepared statement of Ms. Zichal follows:]

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

Mr. Rush. Thank you. And please accept my sincere apologies for saying you are Mr., rather than Ms. Please accept my heartfelt apologies.

I want to now recognize Mr. Hardy for 5 minutes for the purposes of an opening statement.

Mr. Hardy, you are recognized.

STATEMENT OF DAVID HARDY

Mr. Hardy. Good morning, Chairman Pallone, Chairman Rush, Ranking Member McMorris Rodgers, and Ranking Member Upton, and members of this committee. Thank you for the invitation to speak with you today. My name is David Hardy. And I am the CE0 of Orsted Offshore North America.

Orsted is a global leader in offshore wind energy with approximately 8,000 megawatts of installed capacity globally. While today's hearing is focused on offshore wind, it is important to note that Orsted is also a global leader in onshore wind, solar, energy storage, and green hydrogen.

While once a fossil fuel intensive oil and gas company, today we have transitioned to a 100 percent clean energy company. Although with have this global experience, at our core we are a local company rooted in the communities we serve.

In the U.S., Orsted is the leading offshore wind energy company currently developing offshore wind farms totaling more than 4,000 megawatts and powering millions of homes in Rhode Island, Connecticut, New York, New Jersey, and Maryland. We have been involved in one way or another with all seven of the current operating

offshore wind turbines in the U.S. installing the first two turbines in Federal waters off the cost of Virginia last year and owning and operating the five turbine Block Island Wind Farm in Rhode Island.

While our offshore wind projects obviously being built along the Coast lines, I would like to highlight how offshore energy creates economic opportunity in communities across the country.

One of the challenges facing the US Wind industry is the capacity of and expertise within the supply chain. Orsted has a two-pronged approach to help solve this challenge. This includes first, building U.S. capability with existing American companies. And second, attracting European firms to build facilities here in the U.S., thus creating foreign direct investment in new American jobs.

Here are some examples of how we are helping to build capacity and capability within U.S. companies. First, in the area of offshore substation we have partnered with Kiewit, a company based out of Nebraska, to build the first American made offshore wind substation. Kiewit will leverage its oil and gas experience to produce this important piece of infrastructure in Texas.

Next in the area of vessels, earlier this summer, I was in minority whip Scalise's district to meet with Edison Chouest Offshore, a Louisiana company that will build America's first service operation vessel or SOV. This is an $80 million vessel that is 260 feet long.

In June, I joined Congressman McKinley, Senator Manchin, and Secretary Granholm in West Virginia to celebrate the lease that we signed to charter for the first U.S. built offshore wind turbine installation vessel. This $500 million dollar vessel will be built in Texas.

U.S. steel manufacturers in Pennsylvania, North Carolina, Alabama, and West Virginia will supply the steel for these two vessels and Caterpillar in Illinois will produce the engines to power our SOV.

Last in the area of foundation components, I attended an event just 2 weeks ago with Congressman Tonko to announce an $86 million investment for Riggs Distler and Ljungstrom Steel Fabricators to make steel components in western New York for turbine foundations. And in Maryland we are investing $70 million into Crystal Steel, a minority-owned company to do similar work.

Now I would like to share some examples of how we are working with global partners to build U.S. facilities and create American jobs. First, in the area of undersea submarine cables we partnered Nexans, a French global leader in submarine export cables to expand their capability in their South Carolina facility.

And as part of our current bid in Maryland, we have partnered with Hellenic Cables, a Greek company to open a factory in the Baltimore area and produce the first American made offshore wind submarine array cables there.

Additionally, we have also attracted EEW, a German offshore wind foundation manufacturer, to open the world's most advanced monopile manufacturing facility in Paulsboro, New Jersey. This investment includes six large buildings to make the 400 foot long and 40 foot in diameter monopile foundation.

As you can see, there is already significant economic activity happening across the country. Even as a new U.S. industry, our supply chain today already includes companies and employees from every State represented on this subcommittee.

In closing, I would like to emphasize one more important point, that is Europe has a had several decades to build the infrastructure needed to support a mature offshore

wind industry. And although we are making considerable progress in building the U.S. supply chain, it remains a challenge that needs regulatory certainty and incentive if we want to achieve 30 gigawatts by 2030 and realize our full potential.

It is an exciting but critical time for U.S. offshore wind energy, an industry that will both reduce the impacts of climate change, as well as create jobs across America.

Thank you for your interest. And I look forward to your questions.

[The prepared statement of Mr. Hardy follows:]

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

Mr. Rush. The gentleman yields back.

The chair now recognizes Mr. Strong for 5 minutes for the purpose an opening statement.

Mr. Strong, you are recognized.

STATEMENT OF JAMES STRONG

Mr. Strong. Good morning, Chairman Rush, Ranking Member Upton, and members of the subcommittee. Thank you for the invitation to testify today. My name is Jim Strong. I am here on behalf of the United Steelworkers Union because wind shore wind lends tremendous opportunities to workers in manufacturing.

In my testimony, I want to make three points. Number one, most of the potential for job growth from offshore wind is in the manufacturing supply chain.

Number two, manufacturing offshore wind can significantly benefit deindustrialized and economically disadvantaged communities across the country.

And number three, partnerships are critical for workforce training.

Our union appreciates the Biden administration goal of achieving 30 gigawatts of offshore wind by 2030. To meet this, the U.S. will require massive production and purchase of materials for these products, including nacelles, blades, towers, foundation, and subsea cables. The manufacturing of this products will create the demand for raw, and intermediate products, as well as finished goods. The difference between the modest domestic content and high domestic content means a new doubling of the job creation [inaudible] for wind energy. These jobs will not be isolated on the Coast. For

example, steel plate is made in the United States in Indiana, Pennsylvania, and Kentucky.

The Jones Act compliant vessels commissioned by Dominion is being built in Texas with steel from Alabama and West Virginia. And existing American technology from the offshore oil and gas industry, common in the Gulf Coast States, has potential for offshore wind as well.

In order for this new industry to thrive and create jobs, it must make long-term commitments to domestic sourcing and domestic supply chains. Manufacturers can make investments, including by taking advantage of Federal programs like loans and tax credits. But those will not make a difference if manufacturers cannot be confident that they will have customers. Congress, the administration, and the States will need to align policies to make sure our supply chain grows.

Manufacturing for offshore wind can benefit communities across the country by bringing back high quality jobs. One potential success story is nearby in Baltimore where I live. Baltimore and its inner suburbs were once home to vast industrial facilities, with nearly one-third of the labor force working in manufacturing in 1970.

Now, less than 10 percent have manufacturing jobs. This has left Baltimore residents, particularly in communities of color, with access to only low-paying service sector jobs. Our union was proud to announce an agreement with offshore wind developer US Wind this summer in Maryland.

Bethlehem Steel in Sparrows Point was an important part of our Nation's history that once employed tens of thousands of workers. US Winds intends to open a new facility called Sparrows Point Steel on the site of the former steel mill that will manufacture monopile foundations, first for its own projects and then later for other customers.

The company anticipates that there will be 500 permanent manufacturing jobs at the facility, once again bringing people into that sacred site to work with steel. Our union will work with the company to recruit and train local workers, ensuring that the surrounding communities share in the benefits of this investment.

The new jobs created invariably elsewhere will require both new and common skills. When I was younger, I went to vocational school in the Baltimore area as did many of my peers. There were good, union manufacturing jobs in our community at the time. However, now fewer students attend vocation school and employers invest much less in training.

The ideal modern workforce training partnerships of today are those under collective bargaining agreements where training is site specific and tailored to the needs of the employer, the workforce, and the company or community.

Importantly, policymakers and partnerships should help ensure that public investment and workforce training feed trainees into actual employment. Offshore wind has the potential for economic and environmental benefits across the country. However, they will only occur if the industry develops responsibly.

Our union looks forward to working with Congress to ensure that the supply chain is developed and that economic benefit from the industry reached communities across the country, and that the workforce is trained.

Again, I want to thank you again for this opportunity to testify on this issue.

[The prepared statement of Mr. Strong follows:]

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

Mr. Rush. Thank you. Mr. Strong.

The chair now recognizes Mr. Menezes for 5 minutes for the purpose of an opening statement.

STATEMENT OF HON. MARK MENEZES

Mr. Menezes. Thank you, Chairman Pallone, Rush, Ranking Member McMorris Rodgers, Mr. Upton, and members of the subcommittee thank you for the invitation to testify this morning. I am Mark Menezes. I will be speaking as a private citizen, not in any official capacity, and my testimony is my own. I ask that my written statement be entered and printed into the record.

Before I get to offshore wind, I too think it important to note that energy and commodity prices are at their highest in years, the cost of crew, gasoline, natural gas, even propane have increased dramatically over the past several months. Consumers are paying higher costs and than have grown accustomed to since the U.S. shale revolution and when the U.S. game the leader in oil and gas production.

Offshore wind will provide electricity to consumers. But until our transportation and industrial sectors electrify, consumers will expect to be able to get energy when they need it at affordable prices. So what is not to like about offshore wind? Winds offshore are abundant, stronger, more consistent, more sustainable than onshore winds, they are off Coast lines where populations located. Since offshore [inaudible] sea, it appears that planning and citing is less complicated than onshore wind projects.

Things aren't always as they appear, offshore wind is very difficult to cite, build,

connect, and estimate actual cost. One only has to utter take wind to cause pause in this enthusiasm. When this committee faces controversial project we meet with Danish officials who told us the answer was munis and co-ops. That is right, they had to require local ownership to gain acceptance. I am not sure that is a solution here.

A lot has been done to foster offshore wind. At the Department we created and funded the Offshore Wind Consortium, comprised of all stakeholders, selected a State authority to lead it. We had regular briefings from developers and planners. We released the Offshore Wind Market Report. We engaged our national labs to model and solve technical issues. We analyzed the environmental inciting challenges. We even had a blog.

We also looked at costs. Our offices and labs modeled the costs of certain offshore wind projects using state-of-the-art technologies. The results appeared promising. But others now challenge both the estimated cost to plan projects and the actual cost of existing projects. And that consumer costs are actually higher. Costs of the proposed projects off New York's Coast goes up and down our eastern seaboard have been questioned. And still others now question the true cost in Europe, particularly in U.K. where offshore wind has been operating for years. So consumer costs are an issue you should be aware of.

And as you know, there are Jones Act and FERC issues. We had interagency meetings on the Jones Act and FERC initiated a technical conference to examine its offshore transmission policies.

Well, what can Congress do? Well, in 2005, Congress gave lead authority to the Department of the Interior over all offshore energy projects, including wind except in the Great Lakes, as you will recall, Chairman Rush and Ranking Member Upton. And

Congress has sought to address the complicated Federal, State, and local regulatory processes before. Perhaps a CZMA should be looked at. But that is likely outside of this committee's jurisdiction. But even then, States can ban offshore wind off their Coast in State waters.

In July we saw what happened in Maine. A supportive governor signed a bill banning offshore wind in State waters. One can say they still support offshore wind, but in my view States banning offshore wind doesn't make a easier, or efficient, or less expensive to consumers if you have site and operate projects in Federal waters. And even if we are able to overcome all the issues involved, we saw what happened in the North Sea just about a month ago when the wind stop blowing. Grid operators turned to natural gas and coal to keep the grid operating.

The cost of natural gas is at an all time high. A retired coal plant shuttered due to anti-fossil policies had to be restarted. At least two electricity suppliers went bankrupt. The only good news was that U.S. LNG exporters helped keep the lights on in the U.K.

We have learned this lesson in the U.S. When our electric systems are stressed during cold winters and hot summers, grid operators turn to baseload power, natural gas, coal, nuclear, and oil because wind and solar cannot ramp up to meet increased demand.

We saw this in the 2014 polar vortex when operations relied on coal during the 2018 bomb cyclone in the East, operators relied on nuclear increased coal and oil sources as plants switched to oil to meet increased demand. And for the past two, summers DOE are issued emergency orders to California with its abundant wind and solar to run natural gas to meet high demand.

Our system should be designed to provide power when consumers need it the

most. For all the positives of offshore wind, until we have long duration storage battery technology greater than 10 hours deployable at affordable costs, offshore wind will be a luxury to most Americans. Some predict that batteries will take the place of traditional power generation.

While our current state of effective battery technology is 4 hours. It takes years to site, permit, and build. In California, a 4 hour, 350 megawatt battery storage project on a solar project scheduled to come Online in 2022 has been under development for 7 years. Long Duration Energy Storage, possibly the Holy Grail of grid storages, is still years away from demonstration and deployment.

Mr. Chairman, in conclusion, offshore wind has great potential. It is not without its challenges. I respectfully suggest this committee might take time to consider other important measures, keep the U.S. leader of energy production at affordable cost to consumers to ensure a strong economy in our domestic security.

In my written statement, I mention several bills pending in this subcommittee and why their passage will help achieve these goals.

With that, Mr. Chairman, I conclude my statement and look forward to your questions.

[The prepared statement of Mr. Menezes follows:]

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Mr. Rush. That indeed concludes the opening statements of our witness and we will now move to member questions. Each member will have 5 minutes to ask questions of our witnesses. And I will start by recognizing myself for 5 minutes for questioning of the witnesses.

As I have been known and privileged as stated on many other occasions, I am indeed committed to ensuring that the offshore wind industry does not recreate the lack of diversity that is far too common other renewable energy industries.

As an article in USA Today last month stated, and I quote, "women and Black workers are vastly underrepresented in the clean energy workforce." I would like to ask unanimous consent to enter into the record the article, as well as the underlying study on diversity in the clean energy sector.

And without objection, so ordered.

[The information follows:]

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Mr. Rush. Earlier this year, I introduce a bill to help address this very problem entitled the Blue Collar to Green Collar Jobs Act which will create a program at DOE to improve education and training for jobs in the clean energy related sector.

And I look forward to working with my colleagues and to advance this bill, and to advance similar legislation in this Congress to ensure that workers have the skills that they need to thrive in these high paying jobs.

With that said, Mr. Hardy and Mr. Strong, what is Orsted and the U.S. steelworkers doing to recruit more minorities and women into the offshore wind industry? And what can Congress do to help increase the number of minorities and women seeking jobs in this sector?

Mr. Hardy. Thank you, Mr. Chairman.

It is a really important topic and something that I also feel quite passionate about. As a CEO of an American company here, I am constantly looking to try to make sure we have the best and the brightest from all parts of our society.

At Orsted in North American we have about 400 employees and 40 percent of those employees are women. And we have a lot of actions to try to bring more minorities and disadvantaged folks into our industry, not just direct in our industry, but across the whole supply chain as I previously announced. And our, which I haven't discussed, but we are in discussions with --

Mr. Rush. Mr. Orsted, Mr. Orsted, do you have any specific programs that you can tell us about to bring minorities into Orsted?

Mr. Hardy. Yes. I have two examples, sir. One is in our agreements that we are working on right now, the national offshore wind agreement with NAV 2. We are

requiring the trade unions recruit through their apprentice programs or preapprentice programs people of all backgrounds.

And secondly, we have got specific programs in some of our States to do training for environmental justice communities, and if at least in the State of New Jersey, we have $1.5 million scholarship for New Jersey Institute of Technology to try to recruit American people from disadvantaged communities.

Mr. Rush. Mr. Hardy, my time is moving forward.

Mr. Strong, can you answer this more specifically, specifics?

Mr. Strong. Thank you, Mr. Chairman.

When we signed this relationship with US Wind going back a couple of years ago, that was a priority for us in our discussions on what their plans were as far as encouraging and bringing in minorities to help run this program. And I can tell you that as a union, we support, you know, opportunities for everybody, minorities, women. It is an important foundation of our union.

But regarding US Wind, when we had this discussion, US Wind I do know it has expanded its staff to they hired three individuals that have a background in working with the minority business enterprise. They specialize in outreach and ensuring that maximum participation of minority groups. I know businesses are a part of this development. I know that they have had outreach meeting with membership of the Maryland, Washington, Minority Companies Association. And they have also had communications and are working with the governor's Office of Small, Minority and Women's Business Affairs.

And some time in the very near future, they are going to provide a briefing of these reports in moving forward and what their plans are working with minorities,

businesses, women, and so forth, Mr. Chairman.

Mr. Rush. That concludes my time. My time has expired.

The chair now recognizes Mr. Pallone for 5 minutes. Mr. Pallone, you are recognized for 5 minutes.

Mr. Upton. Thank you, Mr. Chairman. Five minutes goes by very fast.

Mr. Rush. Okay. You are recognized for 5 minutes.

Mr. Upton. Thank you. Thank you.

Ms. Zichal, you mentioned that Europe has 34,000 megawatts or the rest of the world, 34,000. We are at 42 megawatts. The goal is to get to 30,000 in this country within a number of years.

Mr. Hardy, your bottom line was we need regulatory certainty. Do we have that today?

Mr. Hardy. I think that we are seeing positive momentum in building confidence in this industry, which is bringing the supply chain investments that we have spoken about, the Biden administration's target of 30 gigawatts by 2030, BOEM's advancement of Federal permitting on the 15 or so projects that are bringing confidence. But these are large, expensive infrastructure projects that we need certainty, long-term certainty in order for us to invest and in order for the supply chain to make those investments.

Mr. Upton. So I want to say virtually everybody here supports an all-of-the-above approach which includes renewables. But what do we need to do legislatively to work with industry to make sure that we have regulatory certainty to try and achieve this goal that is out there? Ms. Zichal?

Ms. Zichal. Thank you, Chairman Upton. I think you are asking a really important question. And certainly as representatives up here, we agree that, you know,

we have got to advance all energy sources. We are committed to making sure we are looking at this energy transition energy through the lens of how do we do it in a way that is reliable and affordable?

And I think as -- we have regulatory certainty and predictability in as much as this administration and Department of the Interior are currently making timely decisions about permitting and leasing. We didn't know that that is always going to be the case going forward.

I think that there are some ways that we could find to work together, that would allow for expedited processes. It is not to say the process today is broken. I think when you are standing up a new industry and a new permitting process for the first time in any country, you are going to find ways to improve that process.

Mr. Upton. So how -- I am sorry to interrupt. So how does the rest of the world get 34,000 megawatts and we are at 42? Do they have a shot clock? I mean, what do they do on the regulatory side that we are not?

Ms. Zichal. Well, so I they with very a lot to learn from other countries. Right? It is very clear, as you pointed out, globally we are looking at 34,000 megawatts versus 42 in this country. It has been a slow tart. But the good news is I think we can catch up.

I think we have seen from this administration a commitment to this 30,000 gigawatt goal, which is terrific. But I think at the same time, it is not as easy as installing one wind turbine. Right? We have to think holistically about what we want to do with this industry. What does this mean in terms of the kind of jobs we are creating domestically.

When percentage of the supply chain is coming from the United States versus other countries? How do we make sure that the transmission planning, which is a really

long and complicated process, allows us to bring those 30 gigawatts on? So I guess we could look at it and say the rest of the world is ahead of us, but I look at it and say, we can learn a lot from what has worked and what hasn't.

RPTR MARTIN

EDTR ZAMORA

[11:30 a.m.]

Mr. Upton. So let me ask you another question.

I am going to ask unanimous consent to put into the record a letter addressed to Mr. Rush and myself from the Affordable Energy for New Jersey. It is a 3-page letter. We will put it into the record.

We talk about we want to make it affordable. We do.

Mr. Rush. So ordered.

Mr. Upton. Yeah, without -- I would ask unanimous consent to stick -- put this in the record, Mr. Chairman.

Mr. Rush. So ordered.

[The information follows:]

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

Mr. Upton. And you already have a copy, as I do.

But when you talk about you want to make this affordable, we all want that, particularly when we see these alarming energy costs that are going up. In this letter from the Affordable Energy for New Jersey, they talk about, currently, in 2035, the last year of the contract in New Jersey, it is going to be $470 per megawatt hour. By contrast, the average price for wholesale electricity in New England last year was about $31. So a difference of 15-fold.

How does that make it affordable?

Ms. Zichal. Well, I think, again, we just permitted the first project in the United States for offshore wind. And if you look at the lessons in the renewable energy sector, I am pretty optimistic. The cost of wind has come down 71 percent since 2009. Solar is down 90 percent. And offshore wind, yes, initially there is going to be, you know, a cost for doing something and being a first mover in the United States.

But I also think what is interesting about many of the opening statements, we were focused on the fact that we have got rising energy -- rising commodity costs for things like propane, heating oil, natural gas. The beauty of offshore wind is that the wind is free. We don't have to rely on these commodities that are subject to the whims of the global market. And I think over time what we have learned by looking at the European example is that costs have come down 43 percent. There is cost parity, and I am very optimistic that we as an industry can get there.

Mr. Upton. I know my time has expired, but appreciate you --

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

The chair now recognizes the chairman of the full committee, Mr. Pallone, for 5

minutes.

The Chairman. Thank you, Chairman Rush.

You know, I just listened obviously to what Mr. Upton said, and, you know, I just want to say, like all new technologies, offshore wind, didn't start cheap, but it is getting cheaper. And, in fact, offshore wind prices are already dropping each year, and NREL estimates further price decreases of up to 50 percent over the next few years. But keep in mind that unlike offshore wind and renewables, the price of natural gas is skyrocketing. In fact, in more than 60 percent of the country, building new solar now is actually cheaper than running an existing coal plant. So, you know, it is all relative, in my opinion.

But I wanted to get in at least two, maybe three questions. So, you know, I want to say I am very proud of New Jersey's leadership in developing a robust offshore wind industry in the United States, and Orsted is playing a large role in achieving that vision, but it is important that in developing these projects, Orsted invests in New Jersey's workforce and local communities.

So, Mr. Hardy, could you elaborate on Orsted's plans to partner with local labor organizations and communities to ensure that New Jersey residents benefit from offshore wind development and, in particular, describe what actions Orsted is taking to help shoreside communities?

I know, for example, you are doing things in the Port of Newark and Elizabeth, but maybe a minute or so because I want to get to Ms. Zichal too.

Mr. Hardy. Thank you, Mr. Chairman. We are also proud of our work that we are doing in New Jersey. I could spend a lot of time on New Jersey, but I will try to keep it short.

I mean, building of this EEW monopile manufacturing facility, this is a huge

factory. It will employ over a thousand workers for 3 years just building the factory, and then we will employ -- all signed with local PLAs. And then workers in that factory will be 500 to 600 long-term workers building these monopile facilities, and that is just one example.

We are investing in the wind port. We are opening an office in Newark for our industrial IoT, Internet of Things, headquarters. We are partnering with -- we are building an O&M base on the New Jersey shore in the Atlantic City area, so just a lot of activities to create jobs in New Jersey and to invest in this industry there.

The Chairman. I appreciate that. Thank you so much.

Let me get to Ms. Zichal, or Heather. You identify in your testimony how constructing new transmission and upgrading existing onshore facilities to reliably deliver offshore wind energy to the onshore grid. You mentioned that. And we just passed in the committee provisions in the Build Back Better Act that direct the Department of Energy to plan for offshore wind transmission development and fund the significant expansion of the offshore wind transmission system.

So I mention these steps, but what else can Congress or DOE or the Federal Energy Regulatory Commission do to make sure we are proactively planning our transmission system to incorporate offshore wind?

Ms. Zichal. Thank you, Mr. Chairman, and thank you for your kind words in the introduction. It is a little strange for you to call me Ms. Zichal. But I appreciate your question.

You know, embedded in your question is exactly what -- how we need to be thinking about standing up offshore wind, because it is not -- as I said earlier, it is not just about constructing the wind turbines; it is how do we actually bring that power onto the

grid to power American homes and businesses.

And, you know, we are very grateful for the collective actions that have been taken around the bipartisan infrastructure bill because those transmission components are really critical for our industry overall.

I would say additionally, you know, some examples of what additional planning efforts could include, I think the Department of Energy funding studies through the national labs and providing technical support to States and grid operators is going to be a step in the right direction.

And I also believe that between FERC and BOEM, they have a 2009 memorandum of understanding to enhance their collaboration on offshore wind and transmission. I think, you know, updating that memorandum could be helpful. But at the end of the day, it really truly is about regulatory certainty and predictability in the permitting process so that, you know, we have got one permit done. We see the pipeline. We want to make sure that we are continuing to make timely decisions so that the industry can respond and we can then make the investments domestically that we want to do to grow the economy, create jobs, and reduce greenhouse gas emissions.

The Chairman. Thank you so much.

Thank you, Mr. Chairman.

Mr. Rush. The chairman yields back.

The chair now recognizes the ranking member, Mrs. McMorris Rodgers, for 5 minutes.

Mrs. Rodgers. Thank you, Mr. Chairman.

Mr. Menezes, as you know from your time at the Department of Energy and on this committee, that our job is to oversee energy policy and ultimately make sure that

people have affordable, reliable energy. In my opinion, we should be harnessing all of the benefits of our Nation's abundant energy resources, and our goal should be to do what is going to be best for prosperity, for the prosperity of hardworking families, and our energy security.

The prospect of higher prices for American families this winter is alarming. What also is alarming is the energy crisis that is unfolding in Europe. It should be a warning to American policymakers. In the United States, gas and electricity bills could double this winter, with harmful impacts for those in need. It is energy-induced poverty.

Half of Europe's natural gas is supplied by Russia, which news reports indicate is refusing to boost their supplies. All of this has been driven by the U.K. and the European rush for renewables, at the exclusion of developing the U.K. shale, shutting down coal and nuclear, especially in Germany.

So I just wanted to ask if you would talk briefly about the factors behind the European energy crisis, its energy security, and what we should be doing here to avoid the same fate.

Mr. Menezes. Thank you for the question. Indeed, there are many factors that go into, of course, the high prices, you know, around the world right now today. Of course, we are coming back, we are coming out of COVID, so there is increased demand and there is tight supplies. But to be sure, it is a lot of the policies that you see in place that have very aggressively favored renewables over fossils.

So, for example, when the winds stopped blowing in the U.K., there weren't really that many natural gas units or coal units available, because to be able to be in ready standby, you had to purchase very expensive certificates to run, you know, in the EU. So it was always already out of a price point.

Policymakers here in the United States too, I mean, because U.S. LNG has been now a global export for these several years, the EU has been expecting to be able to get U.S. LNG. They favor that. We try to develop that so they weren't dependent on Russia over that. And indeed it turns out that Cheniere, one of our LNG exporters, was able to, you know, sort of come to the rescue, if you will, of Europe.

So policies do make a difference in the real marketplace. Capital is waiting to be invested here in the U.S. What you see signaling from this administration, you know, pretty much puts the chilling effect on moving capital, making investments as you see the policies coming out of this administration.

Mrs. Rodgers. Well, just as a followup, the standing is that the administration has reached out to OPEC and Russia and Kyrgyzstan to boost oil production, but yet at the same time, shutting down exploration development of energy here in the United States and production right here in the United States. On the first day in office, President Biden cancelled the Keystone pipeline, imposed a moratorium on exploration and development of Federal lands while asking Russia and OPEC to produce more.

Would you speak to how these actions contribute to higher prices?

Mr. Menezes. Well, thank you very much. You know, indeed, the actions that we have seen from this administration actually go down further than what you have read about in stopping the Keystone pipeline and, you know, he has allowed Nord Stream to go, which, of course, the Russians enjoy because now they will be able to send natural gas to Europe and Europe will become more dependent on Russia gas.

But, you know, he has placed a moratorium on new coal and gas leases in Federal lands and waters. The Interior Department drilling permits are down 75 percent from April. You know, he suspended the leases, the existing leases in Anwar and Alaska. He

has announced stricter methane emission regulations on natural gas industries. He has increased fuel mileage standards for automobiles.

The FERC, his FERC that we are looking forward to to try to help solve the offshore wind issues announced it is considering greenhouse gas emissions for all natural gas and LNG, and announced that it is even reviewing its certification process on pipelines. And for the President to be calling on OPEC to provide, you know, increased oil, he should be calling on the U.S. producers in the United States. We have shown that we can produce. That is why we are the world's number one leading producer in oil and natural gas. He should be calling on the U.S. producers, Americans to produce the energy that we need, not OPEC countries or Russia.

Mrs. Rodgers. Well, thank you. There is a lot of questions around all of these policies being promoted right now by the administration.

I have run out of time, though. I yield back.

Mr. Rush. The ranking member yields back.

The chair now recognizes the gentleman from California, Mr. Peters, for 5 minutes.

Mr. Peters. Thank you, Mr. Chairman. Thanks for having the hearing.

Offshore wind can play a key role in accomplishing our clean energy and climate ambitions. I suggest to ensure the technology reaches its full potential we should do three things: We should level the playing field among energy technologies; we should reduce the regulatory burden for siting and permitting both offshore wind projects and the transmission infrastructure needed to bring that energy to market; and we should deploy innovative financing tools to make sure that the United States leads the world in advanced technology development.

First on incentives, I am a strong supporter of the Clean Energy Payment Program. However, if that program is no longer politically viable, as we are hearing, we should add a price on carbon pollution to the Build Back Better bill. It is the only single budgetary tool that substantially reduces greenhouse gas emissions and raises significant revenue, and that fits squarely within the reconciliation process, which is restricted to Federal outlays in revenues and provides technology neutral and economywide incentives that would not assure an outcome with respect to renewables but would allow wind to compete.

Second, we have to reform our siting and permitting processes for major clean energy and transmission projects. As an example, my POWER ON Act, which is included in the bipartisan infrastructure bill, would clarify FERC's backstop citing authority and lead to more rapid deployment of interstate transmission projects.

But I want to say here that I completely agree with the implication of Mr. Upton's questions that if we are serious about renewables and climate change, we cannot hold up the development of wind, solar, hydro, carbon capture, and nuclear projects. We have to get out of our own way if we claim this is a crisis, and we do believe it is a crisis.

And, third, we have to use the Department of Energy Loan Programs Office to accelerate the deployment of advanced offshore wind through loan guarantees, and I would advocate for more funding for this office in the House Build Back Better Act.

With that, I wanted to ask a couple of questions, and start with Ms. Zichal, about California in particular. I know that there is an easier deployment in the East Coast because of the way the ocean floor is. What is the potential for offshore wind off the coast of California? What are the policy barriers that [inaudible] deployment?

Ms. Zichal. Well, thank you for your question. You know, I couldn't be more

excited about the opportunity for offshore wind in California. And earlier, we were talking about the fact that the United States is behind when it comes to the deployment of offshore wind. But where I think the United States has the ability to lead the world is in the floating technology, and that is the kind of technology we need off the coast of California.

It is a different -- as you point out, it is a different ocean environment, but obviously one that we believe can contribute in a very meaningful way to clean affordable power for families, not only in California, but throughout the region.

We are really -- we were excited to see the decision by BOEM to move forward with some leasing programs in call areas, Morro Bay and Humboldt. I know that those -- getting those decisions made and seeing that process move forward has been a priority for you. It has certainly been a priority for the industry as well.

I also think, because we are looking at new technology, thinking through DOE funding and pilots would help to provide valuable experience that can be applied at scale on the West Coast, and that is certainly something we would love to work with you on.

Mr. Peters. Okay. Thank you.

And, Mr. Hardy, I want to give you a chance to respond to a question that was posed to Ms. Zichal before about the U.S. being so far behind Europe in the development of offshore wind. And, particularly, what policies -- what can we learn from Europe? What policies has Europe implemented that has contributed to a more rapid build-out than here?

Mr. Hardy. Yeah, I would like to just discuss this price discussion, I think it will be helpful. Part of the reason that prices are higher here in the U.S. is because we are just standing up this industry, and we have a lot of fixed costs in the beginning. We are

doing port infrastructure. We are billing half a billion dollar ships. We are building factories, et cetera. Europe has been doing this for 30 years, so their supply chain is already built, and they are on the variable cost curve. We are coming down on the variable cost curve related to the turbine technology, but eventually we will have a prompt jump down and then continue on the cost curve once we get these fixed costs behind us.

So what can the U.S. Congress do to help? Help us get down that curve faster by helping us invest in these fixed costs, get these factories built, get these ports built, get the transmission built, and then we will be on a low cost, variable cost like Europe is today in offshore wind.

Mr. Peters. So your advice is let's get started. I think the loan program at DOE is probably a helpful tool for that.

Mr. Chairman, my time has expired, and I yield back.

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

The chair now recognizes Dr. Burgess for 5 minutes.

Mr. Burgess. I thank the chair.

Mr. Menezes, it is good to see you again. Thank you for your help in my district this summer. We did our annual energy efficiency event. Sometimes we forget that energy efficiency is another arm of one of the arrows in our quiver when we talk about the Nation's energy armamentarium, and I certainly thank you for your help that day.

I also agree with you and virtually every other member on this side of the dais who has voiced concern. We are, of course, talking about big scale wind projects that down the road are in a significant deliverable, and not that that is not important, but it is a little hard to consider that when you are facing a cold winter with rising prices. And

what is that going to mean for our constituents? And what is it going to mean for American families and families around the world?

You referenced the wind stopping blowing in Europe. What if they have a colder winter than we do and the demands for our exportable natural gas are going to increase, and that is going to affect price here?

Unfortunately, in the Build Back Better Act, there is a methane fee that was included. We don't call it a tax because that would be a tax on families earning under $400,000 a year. So we are a little sensitive of the language but, nevertheless, it is going to increase price.

So I just wonder if you had any additional thoughts on that. You know, we as the authorizing committee for energy policy in the people's House looking ahead with the dire wolf at the door in the wintertime, any other advice that you can give us from your recent activity at the Department of Energy?

Mr. Menezes. Well, thank you very much for that. I will tell you, Congress actually has a good bill that they can pass right now. It is the bipartisan infrastructure bill. That will address a lot of the issues that we are talking about here today. So instead of waiting around and try to figure out passing the reconciliation package, you can actually look very closely at that one and you will achieve some of the goals here that we have been talking about.

We have the solution to tight supplies right here in this country, right here. You know, the shale revolution. Once again, you have heard me say this, both oil and natural gas, we are able to help, not only domestically, but globally. We can bring the supply. So as -- and this is a good story. As demand increases coming out of COVID, we should be able to produce enough so that everybody can get what they need at

reasonable prices.

We will have to go through a little bit here, but the fact is that if we are not sending out the negative messages to move capital and to get resources out of the ground, we would be actually spending money and getting the economy moving so that we can actually celebrate what we have here. All studies show that our natural gas displaces coal and has led to decreased global emissions. All studies show that.

Mr. Burgess. Yes, sir.

Mr. Menezes. Okay.

Mr. Burgess. Right. The deliverable -- yeah, 5 minutes goes by terribly quickly.

It is a little bit off topic, but that never stops me. The stranded natural gas in the Permian Basin is an area where we could perhaps focus for an immediate deliverable on natural gas for heating homes, delivering it to electrical generation plants, getting it from West Texas. Unlike wind energy, the wind is right on the shoreline and you can bring the power right on board, we will have to get the natural gas from the Permian to the places where it is going to be used -- Houston, Dallas, San Antonio, and the ports down in Corpus Christi and Freeport -- but it is doable.

And there are existing pipelines -- this is a fascinating topic that one of our railroad commissioners brought up to me. There are existing abandoned natural gas pipelines in the State of Texas that could begin this process literally by turning it back on. To be sure, there are things that will have to be checked and make certain everything is up to specs, but this is an immediate source for an immediate problem that we have, again, just right around the corner.

I do have to ask you, since there has been so much talk about the price, on the wind energy, are people factoring in, will there be like a Federal subsidy like there is for

land-based wind energy in this offshore wind energy?

Mr. Menezes. Well, thank you for the question. Everything that I have read says that we still continue to need, you know, the subsidies and support from the government to be able to get where we want to go, to even get to the variable cost curve. So while there is a lot of fixed costs that are being spent, there needs to still be considerable subsidies.

We see this with the extension of the renewable tax credits that we go through decade after decade after decade. You know, each year we say we are going to phase them out because, why, you know, it is cheap, we have gotten down the variable cost curve, you know, the wind is free, right? Well, why do we continue to have all these subsidies? Why is it a good thing that FERC can allow negative pricing in energy markets and we can't actually price the real cost that consumers know as to what they are paying for?

Mr. Burgess. There is a real effect. We felt it last February. Absolutely.

Thank you, Mr. Chairman. I yield back.

Mr. Rush. The gentleman yields back.

The chair now recognizes the gentleman from Pennsylvania, Mr. Doyle, for 5 minutes.

Mr. Doyle. Thank you, Chairman Rush and Ranking Member Upton, for holding this hearing.

I think the U.S. offshore wind industry, it is a game changer for renewable energy and for our efforts to combat climate change. Additionally, opportunities to bring home manufacturing and provide good-paying, long-term jobs in the industry is tremendous.

You know, I think the key to getting buy-in from the public as we build out more

clean energy systems will be the benefits they bring to communities in terms of jobs and economic activity. Unfortunately, we have heard too often that the renewable energy sector is lagging in unionization and abundance of good-paying, career-sustaining jobs.

Mr. Strong, let me ask you, what has been your union's experience working with offshore wind industry thus far? And what can Congress do to ensure that labor is getting a fair shake as industry grows?

Mr. Strong. Thank you, Congressman. This has been my first experience actually dealing with offshore wind, and that is a relationship that we have with US Wind. It started about 3 years ago. It has really progressed very well. We have entered into an MOU with US Wind that those jobs at this facility will be union jobs. They have agreed they will not interfere in our ability to organize. And in that MOU, it says that we will get an agreement within a short period of time, and whatever issues that we don't agree to, we will submit to arbitration.

Now, we are pleased with our relationship with US Wind, and it has been a very good experience. And we think that eventually these are going to be well-paying jobs. You know, in the high 30s, $40 an hour job with benefits, and it is much needed in our State. We are bringing steel back, fabrication back to what would be considered sacred ground at the Bethlehem Steel Sparrows Point.

Mr. Doyle. Thank you.

Mr. Hardy, it is my understanding your company has strong relationships with labor in Denmark. What is Orsted doing to build strong relationships with construction and manufacturing unions here in the United States?

Mr. Hardy. Thank you, Congressman Doyle. Look, I am a Navy veteran, submarine veteran enlisted. Other than the military, I think the unions have the best

training programs. We are building a new industry here that requires a certain skill level, and so we are on our front foot at Orsted. We leaned into working with unions. We signed an MOU with NABTU, and we are in the process which we will expect to complete national offshore wind agreement, which will propose that we use the building trades for every aspect of our projects, onshore, offshore.

Some of those capabilities already exist in the unions. Building an onshore substation, they know how to do that. But erecting an offshore wind turbine, the U.S. unions have never done that before. But we are developing a relationship with the unions, doing training programs, introducing our supply chain, our service providers, and trying to bring those jobs to the unions.

And in the cases where there may be some parts of the country that aren't union, we are agreeing to prevailing wage requirements, trying to create these middle-class jobs in our industry.

Mr. Doyle. Very good. Thank you.

Ms. Zichal, given the administration's estimate of the offshore wind industry will generate a demand of more than 7 million tons of steel, equivalent to 4 years of output for a typical U.S. steel mill, what can Congress do to ensure that the benefits of offshore wind extend beyond the coast and into these manufacturing communities like mine in western Pennsylvania and other places?

Ms. Zichal. One of the things that excites me most about working on offshore wind is the new opportunity for economic development. Offshore wind developers today are already committed to $729 million in port infrastructure and $280 million in U.S. manufacturing facilities. So think about the opportunity there.

In terms of actions from Congress, I think there is an important conversation

happening today around domestic content requirement as it relates to the Build Back Better legislation. I also think there are important conversations happening about what are some of the manufacturing credits that we might be able to provide. So it is kind of think holistically about let's create the demand and create the opportunity to build these projects, but then let's also look at, you know, what are the other tools in the toolkit to make sure that we are creating opportunities across the board.

Mr. Doyle. Thank you.

Mr. Chairman, thank you very much. I yield back.

Mr. Rush. The chair muted himself.

The chair now recognizes the gentleman from Ohio for 5 minutes.

Mr. Latta, you are recognized for 5 minutes.

Mr. Latta. Well, thank you, Mr. Chairman. And thanks for our witnesses being with us today.

As already stated by members on our side of the aisle, our country is facing an immediate crisis over how everyday Americans will be able to afford to heat their homes this winter, fill up their vehicles to go to work, turn the lights on at the small businesses, and importantly right now, especially across my district, how farmers are going to dry their grain.

This year, we have seen energy prices reach their highest levels in years, gas prices up to a 7-year high with no signs of relief. Natural gas price is at levels we haven't seen since the end of the Bush administration.

This coming winter, residential propane prices are projected to be at their highest level since the polar vortex in 2013 and 2014. At that time, I worked tirelessly to address propane shortage and make sure Ohioans were able to heat their homes and

maintain their livelihoods. I had legislation that was signed into law to help prevent future shortages, and I co-founded the Congressional Propane Caucus to make sure that Congress stayed educated on the benefits and resources that come from propane.

Mr. Under Secretary Menezes, quick question. You know, as I have been sitting here and hearing the testimony today, you know, we have had a lot of testimony over the last year in this committee and also in the subcommittee. We are talking about protecting our infrastructure and how critical that is. I am just curious, what is the vulnerability of offshore wind to cyber and physical attacks? And how far -- just in general, how far off are most of the wind turbines?

Mr. Menezes. Well, I will defer to the experts on, you know, distances, but you know that they have to be beyond the viewshed, because we are not really going to build many too close. But it is in harsh environments. You know, it is deep. I think on the East Coast we can probably have fixed platforms. On the West Coast it will be floating.

But to be sure, they are using state-of-the-art technology, which is a good thing. But what we know and we have learned at the Department and everybody knows it now is that as, you know, you improve the technology and you become more sophisticated and you put these industrial control systems, you know, on these operations, you want to make sure that they are very, very secure from cybersecurity.

And so, certainly, we haven't even brought that up, but I think security of these, I think is something that we should look into. They are far away from the shoreline, so one would wonder, if you can't see them, are they operating? You know, you get your electricity, but who has out there guarding them, protecting them? And what about the cybersecurity risks?

Mr. Latta. Because, you know, when I have gone through power plants,

especially nuclear power plants -- and this is the question I want to bring up -- is that, you know, the security levels at them are pretty high, because they want to make sure that that power stays on.

But, you know, just talking, if I could move on in talking about our domestic nuclear industry, and you mentioned two pieces of my legislation, in that nuclear power being one of the most reliable sources of energy and it is emissions free. Is it possible for the United States to meet the Biden administration's climate mandates if we don't have a strong nuclear industry here at home?

Mr. Menezes. Well, not only here in the U.S.; I mean, our nuclear fleet, you know, provides at least 20 percent typically both in capacity and almost in generation each year on emission-free energy. It is by far, you know, the largest producer of emission-free energy that we have here. And certainly even internationally, EIA, Dr. Fatih Birol, he called on all nations should be considering, if you are interested in reducing your emissions and bringing electricity to the people, particularly in developing countries, you should be developing nuclear.

Now, who is the leader in nuclear technology? Well, it has been the United States, right. Now, we need to continue that global leadership, because it really makes a big difference. Because other countries are going to be turning and they are turning to nuclear to meet these emission-free goals, and they will want to deal with the United States. Well, the United States requires 123 agreements, right, nonproliferation, nonenrichment agreements for nuclear weapons. That is all great.

Well, we are now in competition with the Chinese and Russians of providing nuclear technology to other countries. This is 40 years, 100-year relationships where you bring in the regulatory process, you know, the institutional knowledge, you have to

train everybody, you have to have the whole educational system in place to do that. You want to have that relationship.

If we in the United States, whether you are for or against nuclear, if we give up on nuclear, we lose that leadership, and we are ceding it to Russia and China, and those are two countries that do not have statutory obligations for 123 agreements.

So nuclear plays a big role in, not only emissions, but also in global security, and you want the U.S. to maintain that. And we should be building next generation of nuclear here both for climate reasons and global world security.

Mr. Latta. Well, thank you very much.

Mr. Chairman, my time has expired, and I am going to submit my additional questions for the record. Thank you. I yield back.

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

The chair now recognizes Mr. McNerney for 5 minutes.

Mr. McNerney. Well, I thank the chairman. This is an interesting hearing, close to my heart.

Offshore wind on the West Coast is behind offshore wind development for the rest and some of the other countries because our ocean geography, and this will present a unique set of challenges and opportunities.

Ms. Zichal, I really appreciate your comment that we may be behind other countries in offshore development, but that gives us an opportunity to learn from their mistakes. I spent 20-plus years in the wind industry, and I can verify that mistakes are made and that diligent parties can learn from the mistakes of others without having to pay enormous learning costs.

Do you see floating turbine technology as ready for utility scale development in

the Pacific at costs that are comparable to those on the East Coast deployments? Now, I realize this is similar to Mr. Peters' question, but I would really like to focus on the technology rather than on the policy.

Ms. Zichal. Well, thank you for your question. I mean, the short answer is yes. But, again, I think what is interesting about California and the work that the Department of Interior is doing with their leasing is thinking down the road about what are we -- what is the opportunity here, how do we think differently about the technology, and what potential do we have in America to grow and really lead, pave the way for the rest of the world to develop and embrace the floating turbine technology.

I also think what is really important as we think about the opportunity in California and the opportunity for offshore wind, that we also get in front of the conversation that needs to happen around transmission. You know, obviously, planning for transmission and, you know, the work that goes into connecting offshore wind resources to the grid is going to be really crucial. So as -- I think as we are thinking holistically about California's opportunity, we need to think not only about how do we get the technology right, how do we make sure that America is leading the way there, but also, you know, how do we jump-start that conversation about transmission planning. Because I think that is going to be really important, especially in a State like California.

Mr. McNerney. Well, you sort of anticipated my next question. You mentioned in your testimony the possibility for an interconnection at the site of a retired nuclear generation, which would be a good way to use existing infrastructure. What kind of planning [inaudible] are needed to ensure that these transfers happen?

Ms. Zichal. So as I think about interconnection processes, which is something I am sure everyone loves to think about, the transmission and interconnection have three

Ps: planning, permitting, and paying.

And on the planning side, FERC has jurisdiction over how we plan for transmission. Each individual offshore wind project today is determining where to best interconnect to the grid and is paying their own costs. I think as these projects move forward, we are going to need to be planning for the long term with a backbone transmission approach.

On permitting, this is a shared responsibility between BOEM and the States. I think BOEM and FERC can better coordinate on transmission to make sure there aren't unnecessary hurdles.

And on paying, FERC also has jurisdiction over who pays for transmission. We want to be sure that the benefits of upgraded transmission, including lower cost power, reliability, and reduced emissions, are equitably shared and not just placed solely on generators.

Mr. McNerney. Thank you for that answer.

Mr. Hardy, Orsted already has made large investments on fixed bottom offshore wind projects in the eastern United States. Is there specific equipment that will be needed for installation of floating wind turbines? And has Orsted started investing in the supply chain for that?

Mr. Hardy. Yeah. As previously discussed, I mean, we are the world's leader in offshore wind, so, of course, we are monitoring and planning for the transition to floating technology. We have got some partnerships and some active projects in Europe and in Asia around floating. Floating is still a little less mature than fixed bottom for sure, but these are long-cycle projects. So when we think about floating in California, we are thinking about projects that are installed in late 2020, early 2030's, and the technology will continue to evolve between now and then.

So you have got float -- you have got the floating, the floaters themselves, the foundation. You have got dynamic cables. And we are researching, you know, all of those types of technologies and partnering with technology providers to make sure that these become, you know, commercially viable as soon as possible.

Mr. McNerney. Are we going to be able to benefit from the oil technology of floating platforms?

Mr. Hardy. Sir, can you repeat the question?

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

Mr. McNerney. I am out of time, but oil platforms have used floating technology for years. Are we going to benefit from that?

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

The chair now recognizes the gentleman from West Virginia, Mr. McKinley, for 5 minutes.

Mr. McKinley. Thank you, Mr. Chairman.

I would like to enter into the record an article that was published this week in The Wall Street Journal that is entitled "Behind the Energy Crisis: Fossil Fuel Investment Drops, and Renewables Aren't Ready."

With all due respect, Chairman Rush -- and we have been friends for years -- this hearing seems to be taking on an air of distraction from what Americans are really dealing with across this country. I can't for the life of me understand why we are having a hearing on offshore wind when there are so many uncertainties that we are going to be facing in the next couple of months as we enter into winter and the fact that countries all around the globe are dealing with this global energy crisis.

In the United States, energy costs are at a 7-year high. In Europe, according to

Daily Mail, the natural gas prices are up 600 percent. And in China, we have rolling blackouts and rationing energy. But the Democrat leadership here in Congress is seemingly and apparently more interested in discussing offshore wind turbines.

Look, I am supportive of offshore wind turbines. I like the project that we are going to be involved in in West Virginia with it, but this is a topic better suited for the end of winter, not dealing with how we are prepared to deal with the winter weather as we approach this.

So let's talk about some of those things we are facing today. Remember earlier this year, Winter Storm Uri exposed a number of issues with our grid in ERCOT, MISO, and other parts of the country. Fourteen States experienced shock because of the winter weather. And the polar vortexes of 2014 and 2016 exposed America's vulnerability and outages occurred. PJM came within 5 minutes of having a major power outage on the East Coast.

These are the important issues, and this committee's responsibility is to give the American people confidence that as we get into this winter, they won't face the same problems and crisis being experienced currently in Europe and China, higher utility bills and energy rationing.

Look, this is America, but we have fewer supplies due to Biden's cutbacks, like threats to the gas production, reductions in mining coal, decommissioning nuclear power plants. What is Congress doing about supply? And this is a case of economics 101. I am just an engineer. I am not an economist, but it is so fundamental. We have supply and demand. Demand is going up, and the supply is dropping. We are bound to hit higher costs with that. So no wonder IEA is estimating the energy costs are going to go up 30 percent this year.

So how can we give the American people confidence today that the United States won't have shortages or heating costs?

So, Menezes, could you explain this? Is the United States prepared for a potential winter storm this time?

Without your mask, please.

Mr. Menezes. Right. Well, our own EIA is predicting, of course, that costs are going to be much higher, certainly in propane, really across the board. You can expect that. I know utilities are already sending out letters to their ratepayers informing them that because of the high price of natural gas -- which is unusual in the United States. Why would the United States have high price of natural gas? Well, again, it has all happened since the change of administration.

Again, as we come back, you know, demand is increasing. But the fact of the matter is we have the solution right here. Congress really doesn't have to do anything. They should do no harm. They should allow, really, the producers to produce, and supply will get to demand. And guess what will happen to prices? It puts downward pressure on prices.

So while an engineer, I think you have got the economics right, although I, myself, am neither, but I think that is what we can do here in the United States.

But don't forget about propane. Right? Where does propane come from? Propane is a by-product of natural gas. So if we are producing less natural gas, guess what we have less of? We have less of propane. So it all works together and is something --

Mr. McKinley. You more or less answered my third question. Wouldn't it make more sense to balance the scale and ramp up production? And that is what you are

saying. We need to be doing that rather than cutting back.

And then the last, do you think currently -- remember, we are just 2 months away. There is already snow in Colorado. We know the winter is coming. We have seen the predictions that this is going to be a pretty severe winter. I don't know how well we are prepared for it.

So I am saying, do you think we currently have enough energy supply to avoid increased utility bills this year?

Mr. Menezes. Well, everything that I read, I think, if you are a Member of Congress, you should be very concerned about what we are reading today about tight supplies for an expected cooler winter.

Mr. McKinley. Okay. My time has expired. I yield back the balance of any time I have. Thank you.

Mr. Rush. The gentleman yields back.

The chair now recognizes the gentleman from New York, Mr. Tonko, for 5 minutes.

Mr. Tonko. Thank you, Chairman Rush, for this hearing. And thank you to our witnesses for participating.

It is indeed rare that we have the opportunity to witness and support the development of a brand-new industry in the United States. With offshore wind, we can get it right from the start to build our own resilient supply chains that create high-quality, unionized American jobs. It has been estimated that offshore wind will result in some $109 billion in domestic supply chain investments in the next decade. And even though my district is hundreds of miles from any wind energy area, both ports in New York 20 have recently announced hundreds of new jobs to manufacture components.

Mr. Hardy, it is great to see you again, and thank you for the good news. While we were together recently at the Port of Coeymans, which will be involved in advanced foundation components construction, I understand that you have been visiting with suppliers located across the country. While coastal communities and their ports will experience new investments, can you speak to how Orsted projects are creating opportunities for those that are beyond the coastal communities?

Mr. Hardy. Absolutely. Good to see you again, Congressman, as well.

As I mentioned in my original testimony, right now, we already see jobs being created by this early -- in the early stages of this new industry in 44 States. So this is not a manufacturing opportunity along the coastlines. Of course, some of the operation and maintenance jobs will be there and, of course, the port infrastructure will be closer to shore, but the supply chain, when you think about tier 1, tier 2, tier 3, will stretch across the whole United States. And so we are looking every day to try and bring as many jobs to Americans as we stand up this industry, like you said, doing it right from the start.

Mr. Tonko. Thank you, sir.

And I have a bill, the Restoring Offshore Wind Opportunities Act, that would lift the ban on offshore wind leasing off the Carolinas. Some might question why a member from upstate New York is interested in seeing offshore wind projects built so far away, but I do believe this speaks to the profound opportunities that offshore wind is creating for United States manufacturers and why we all have a stake in this industry.

So, Mr. Hardy, again, do you expect that as more projects are developed around the country, that there will continue to be opportunities for steel plants in West Virginia and Maryland, shipbuilders in Texas, and component manufacturers in upstate New York?

Mr. Hardy. Well, the simple answer is, yes, I do. But a little bit more feedback,

I mean, we are excited about Secretary Haaland's announcement just last week to bring some certainty to the industry and lay out timelines for additional offshore wind leases. And as we continue to bring certainty, you hear this theme from me over and over, then companies like mine and companies in the supply chain will continue to invest, and that investment will happen across America as people see the market opportunities to supply components to the industry, and, of course, that will create new jobs.

Mr. Tonko. Thank you.

And, Mr. Strong, where do you see the opportunities for union jobs being created across our country? And what types of jobs would be part of the supply chain?

Mr. Strong. Well, obviously steel. A tremendous amount of steel goes into one of those turbines. Cement. We have two facilities in Maryland that we will see increase in production, could be very well we will see additional hirees, depending on how much production they will provide for these projects.

But the supply chain is enormous, from steel to the cables to the cement to the various components, the blades. We have a great opportunity here to really put manufacturing to levels that we haven't seen before, going back many, many years ago. I am optimistic. Our union is really supporting offshore wind renewables because of the tremendous potential in growth in manufacturing.

Mr. Tonko. Thank you, sir.

And the Build Back Better Act reported by this committee last month included $100 million for DOE to convene stakeholders to plan, model, and analyze the transmission needs for offshore wind.

Ms. Zichal, you were earlier asked by Representative McNerney about the challenges to offshore -- or about transmission as an issue for the West Coast. There are

probably unique challenges to offshore transmission in that regard. And because I am out of time, I would just ask that you get to the committee a response to how this DOE funding would be helpful to overcome any of the challenges that you imagined would be there for transmission as it relates to the floating offshore wind industry.

Thank you very much. With that, Mr. Chair, I yield back.

Mr. Rush. The gentleman yields back.

The chair now recognizes the gentleman from Virginia, Mr. Griffith, for 5 minutes.

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

I have an article that I would like to submit for the record from E&E News called "Bloody expensive. Major U.S. Offshore wind Plan Hits obstacles." Without objection --

Mr. Rush. Hearing no objection, so ordered.

[The information follows:]

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

Mr. Griffith. Thank you.

Mr. Menezes, as referenced in the article I have submitted for the record, there is a significant concern in my beloved Commonwealth of Virginia about who will pay for this massive offshore wind project. The cost of the project just to build two of the 180 turbines costs $300 million. While the full cost remains unclear, we know this will be a -- it will result in a hefty price tag.

Isn't it true that under current Virginia law, all Dominion customers will pay for the building of the turbines?

Mr. Menezes. That is correct. I think your legislature made sure that that was going to happen.

Mr. Griffith. Yes. And looking at this at the national level, if the Biden administration aims to add 30 gigawatts of offshore wind by 2030, I understand that means somewhere between -- somewhere around 3,000 new turbines. Won't nationally it also be mostly customers with some taxpayer dollars paying for those?

Mr. Menezes. Well, right. You just heard Ms. Zichal. Ms. Zichal said that she didn't want these costs to be put on the power developers. Well, where are those costs going to be put on? The costs are going to be put on ratepayers. You know, these -- and the resident -- if you are not aware of it, it is the residential customers that pay the largest amount of all rates, over industrial users and over commercial. So when you hear things like this, don't -- make sure you know where the costs are going.

Mr. Griffith. I appreciate that.

Mr. Hardy, I am concerned about the impacts some of the wind farms will have on our environment, particularly birds. Many of the US Wind farms are located in the paths

that are used by migratory birds, because the birds use the wind to get north and south, and the turbines are put there in order to catch the good winds.

So as Ms. Zichal said, a lot can be learned from other countries. What has your company learned in dealing with white-tailed eagles and other Palearctic bird species?

Mr. Hardy. Sir, I can talk broadly about birds. I will have to follow up with you on the specific bird type that you are asking about. But, in general, the lease areas that we are building in our Federal lease areas, which have been studied by the Federal agencies, including --

Mr. Griffith. Okay. I am asking about your experience in Europe. What experience has your company had in Europe?

Mr. Hardy. In Europe, we are the most sustainable energy company in the world, and we build all of our projects in --

Mr. Griffith. So you really don't know about the birds, the experience that your company has had in building fairly large wind farms off the coast of northern Europe?

Mr. Hardy. I know a little bit about that. I am the North American CEO, and we are looking at all the environmental aspects, including white whales, fish, birds, et cetera.

Mr. Griffith. All right. So let me -- I asked specifically about the white-tailed eagle because it is the cousin of the American bald eagle and has similar habits, and that is why I wanted to know about that. If you could follow up with me later on that, I would appreciate that.

Mr. Hardy. Yes, sir.

Mr. Griffith. But one of the studies from northern Europe shows that the mortality rate caused by the wind turbines is reduced 70 percent if you paint the turbine blades black. Now, in this article I submitted, there is a picture that purports to be the

Dominion facility, one of the two you have already put up, and they are white. Why wouldn't you all look into that if there is a study that says there is a 70 percent reduction in mortality?

Mr. Hardy. Sir, I will just have to follow up with you on these questions.

Mr. Griffith. Well, I mean, I do think the environment is important, and everybody assumes that wind is environmentally friendly, but as an avid bird watcher, I can assure you there are lots of deaths caused by wind turbines.

And your turbines, the blades are actually going to be about 40 percent -- or the height is going to be about 40 percent greater than everything you have in Europe. Isn't that true?

Mr. Hardy. We will be building projects that are larger than the projects that were built in Europe 30 years ago. The projects that are being built in Europe today are using the same technology that we are using.

Mr. Griffith. So the new ones in Europe are going to be just as big as this one you are putting off the coast of Virginia?

Mr. Hardy. Yes.

Mr. Griffith. 180-some facilities, with 800 foot, almost as big as the Eiffel Tower?

Mr. Hardy. That is correct.

Mr. Griffith. All right. Mr. Menezes, back to you. Would it be cheaper and more efficient and potentially better for the environment -- talking about my birds there -- to invest in and deploy carbon capture technologies on existing coal and natural gas plants?

Mr. Menezes. Yes. We should put carbon capture on existing facilities. That will help reduce emissions.

Mr. Griffith. And that will help reduce emissions, and won't it also help us not leave costs stranded? Because the ratepayers have already paid for those plants. Isn't that true?

Mr. Menezes. That is correct.

Mr. Griffith. Yes, I appreciate it.

Mr. Menezes. By the way, you said captured carbon, and you can help make some of the blades here and you can probably use carbon black and maybe they will actually be black.

Mr. Griffith. Yeah, we can actually use -- yeah, and we can use some graphene out of southwest Virginia. I appreciate it. Appreciate the plug.

Thank you all very much. I yield back.

Mr. Rush. The gentleman yields back.

The chair now recognizes Mr. Veasey of Texas for 5 minutes.

Mr. Veasey. Mr. Chairman, thank you very much. And I want to thank all the panelists for being here today to discuss the importance of investing in domestic wind energy.

I look forward to hearing from the panel throughout the rest of the committee to just talk about how we can provide more safer, more sustainable, and more reliable energy to Texas and the Nation.

As I think everybody already knows here, Texas is one of the dominant players in wind energy. I don't think that there is any secret about that. As a matter of fact, Texas dominates the wind energy to such an extent that if we were a country to our own, we literally would rank number five in total wind generation in the world.

Mr. Hardy, I understand there is a potential in the longer term for offshore wind

to be developed in the Gulf. But in the more immediate term, can you expound on what Texans have to gain from supporting offshore wind development in the U.S.?

Mr. Hardy. Yes. Thank you, Congressman. I appreciate your question.

First off, I would highlight that Orsted builds onshore wind farms in Texas, so we are one of the participants in the Texas onshore wind and solar industry. With respect to offshore wind in Texas, you are also correct that there are now studies being done about offshore wind being built in the Gulf and potentially supplying power to not only Texas but Louisiana, Mississippi, and other Gulf States.

Likewise, today, there are significant supply chain activities happening in Texas, not least some of the things we talked about earlier, the Kiewit offshore substation is being built near Corpus Christi. There are the Dominion vessel, the Jones Act compliant turbine installation vessels being built down in Brownsville. These are large job-creating projects that are supporting our offshore wind industry today, and the oil and gas sector is a natural place for engineering and construction to be transitioned into the offshore wind industry. And, of course, Texas has a long history in Houston and elsewhere in supporting that industry.

Mr. Veasey. So how many jobs are we talking about? Can you expand on that a little bit? What sort of job creation numbers would we be looking at?

Mr. Hardy. Just the vessel alone is over 1,000 jobs for a multiyear period. The Kiewit offshore substation is similar types of numbers, hundreds of jobs for a multiyear period. The construction yard is actually down in Brownsville -- outside of Corpus Christi, but there will be other jobs related to that, engineering procurement jobs in other States as well.

RPTR DEAN

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[12:30 p.m.]

Mr. Veasey. Mr. Strong, in your testimony you emphasize the importance of providing workforce training to develop new talent in the wind industry. How can we ensure that quality, good paying jobs created by wind are disperseed across States? And furthermore, how might this revitalize post industrial communities?

Mr. Strong. Well, thank you, Congressman. I sit on the Maryland Manufacturing Advisory Board, I represent organized labor, I appointed by the governor in that capacity. But in Maryland what we have noticed in the manufacturing sector, every company that participates has a demand for a skilled workforce. There is a shortage of skilled workforce in many trades, welders, machinists, millwrights so forth. So it is a problem in Maryland that we are constantly talking about.

And you know eventually we have to get all the stakeholders together, the Federal Government, the State government, come up ideas and plans. I went to a vocational school when I was young, but you don't see them anymore, but it is a problem.

And in my conversations with US Wind, we know that this is a challenge for us to find the type of skills that we are going to need to work at this facility. We are working on it. We are talking to the State about worker development and so forth. But this is a problem in all of manufacturing sectors.

Mr. Veasey. Yes, absolutely it is.

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

Mr. Rush. The gentleman thanks and the gentleman yields back.

The chair now recognizes the gentleman from Ohio, Mr. Johnson, for 5 minutes.

Mr. Johnson. Thank you, Mr. Chairman.

You know, I have to say, that I am deeply concerned about the subject of today's hearing. I mean, just look at the news. We have rampant inflation, gasoline and grocery prices rising, shortage of essential products. And we are staring down a cold winter with price hikes on electricity, natural gas, and oil. You could say that America is experiencing an energy problem and a commerce problem. That is what this committee is all about, energy and commerce.

So one would think that the Energy and Commerce Committee would be working on solutions and holding hearings to address these issues that the American people are so concerned about. But no, the American people will be tuning in today to watch us participate in a windmill hearing. Can you believe that? A windmill hearing. You can't make this stuff up.

In my district in Appalachia Ohio, my constituents are starting to get worried. Families on fixed incomes, seniors are sensitive to energy costs. When these costs rise, it crowds out the rest of their budget.

The latest data shows that these fears are warranted. According to the Energy Information Administration, if winter this year is 10 percent colder than usual, which many are predicting, heating oil would be 59 percent higher than last year. Natural gas bills, 50 percent higher. Propane, 94 percent higher. And electricity, 15 percent higher. Folks, I think the windmill hearing could have waited. Perhaps, we should be examining what is happening in Europe to figure out how to prevent their energy crisis from coming here.

So Mr. Menezes, you mentioned in your testimony U.S. LNG recently helped the U.K. keep the lights on when the wind stopped blowing. I appreciate you mentioning

my LNG export legislation, H.R. 1575. So here is my question to you, is it true that any large scale build out of renewables such as offshore wind still needs to be backed up by ample supplies of reliable, abundant, and affordable natural gas or coal fired base load electricity?

Mr. Menezes. That is correct. We need backup power. We are not there with batteries so that has been my testimony.

Mr. Johnson. Okay. Does it concern you that given what we are seeing in Europe that the movement to quote, "Keep it in the ground" coupled with a rush to renewables could raise energy prices and risk grid reliability here at home in America?

Mr. Menezes. Yes, I agree. I mean, fossil fuels still provide 80 percent of our energy today. It is the propane, it is the heating oil, its everything that we use every day, every aspect of our lives. And this administration has essentially a-keep-it-in-the-ground policy.

Mr. Johnson. Okay. Mr. Menezes, continuing with you, we are currently seeing our natural gas and other commodities stockpiles blow their seasonal averages. I am worried about this administration discouraging domestic production of our abundant coal, oil, and gas resources. In your opinion, is this administration focused enough and truly doing all it can to get ready for this winter with reports of major energy price increases and perhaps even energy shortages on the way?

Mr. Menezes. I do not see it. I would expect them to call on U.S. producers to really help increase supplies so that prices can be addressed.

Mr. Johnson. Well, Thank you.

Mr. Chairman, I hope it is noted I am yielding back an entire 104, 1 minute and 4 seconds.

Mr. Rush. And the chair appreciates the gentleman for yielding. The chair does note it.

And the chair now recognizes the gentlelady from Washington State, Ms. Schrier, for 5 minutes.

Ms. Schrier. Thank you, Mr. Chairman. And thank you to our witnesses.

You know, I have been listening with interest. Many of my colleagues are argued it that we should be increasing our reliance on fossil fuels in order to keep energy costs down and reduce uncertainty. But there is certainty that continued resilience on fossil fuels will further warm the planet. And that is already disastrous.

Also, the major impetus for transitioning to clean energy is to stop adding to atmospheric CO2 and responsibly manage climate change. So we need a full portfolio of alternative sources of energy, hydro, nuclear, solar and wind, including offshore wind. And of course, I just want to point out that no natural gas is coming offline until we have enough renewable energy to replace it. So tying these together, which some of my colleagues are doing, is misleading, it is fearmongering. And it is just making a bunch of excuses for doing nothing.

Mr. Hardy, I have a question for you, which is as we establish more and more manufacturing jobs here, the training, the manufacturing, and the steel, what can Congress do to promote a possible export market for American made offshore wind complements?

Mr. Hardy. Yeah. Thank you for that question.

You might be surprised to realize that we are actually exporting offshore wind components from the U.S. today. I talked about the Nexans cable factory in South Carolina. They are actually the first product they are producing there they are exporting

to a project in the U.K. So this can happen quickly. We are behind in megawatts, but we are coming in where the technology is much more advanced.

We have American ingenuity. We have the best labor force, good engineering schools. And so, it will be a while before we maybe have the megawatts that they have, but we can produce components and supply chain items today and export them. And some of the investments that I talked about earlier have the potential for further export in the global market.

Ms. Schrier. I appreciate your saying that.

Having visited Wild Horse Wind Farm in my district, I have seen the size of those turbines. And so, just imagining them being exported is pretty remarkable. And I would just point out that even if the wind energy isn't here, converting the clean energy anywhere on the planet helps all of us. So I want to thank you for that of.

Ms. Zichal, I have a question for you. Given your experience in the Obama administration, I was wondering about the National Renewable Energy Laboratory's regional energy deployment system model. And it has estimated that the State of Washington has offshore wind technical generation potential of more than 160 megawatt hours, or enough energy to power 13 million homes in the State, which we don't even have.

How did you believe industry can leverage the work of the Department of Energy and the National Labs to address technical and market barriers to really unlock the full potential of offshore wind? And can you talk a little bit about public-private partnerships to lower some of the supply chain barriers.

Ms. Zichal. Yes. Thank you for your question.

I think big picture what we have learned about standing up and industry for the

first time ever, which is had what we are doing with offshore winds, it does take a village. And we are very lucky in the fact that we have agencies, we have the National Labs, we have a number of different agencies that are able to lean in and help, not only through the technology, but, you know, the regulatory process as well.

And a lot of the proposals that have come from Congress, as well as some of the appropriations supported by this committee are going to provide important funding to help continue down that path. So I would like on behalf of the American Clean Power Association and member companies thank the committee for your important work there.

As you talk about a public-private partnership. I think there are absolutely tremendous opportunities. And previously we were talking about cybersecurity and clean energy. And this is an area where our trade association is working directly with the National Labs to create a clean energy cybersecurity incubator. So this is an industry that very much recognizes the important role that the U.S. Government and elected officials are playing in helping us achieve decarbonization in the power sector. And we would love an opportunity to continue working together in that vein.

Ms. Schrier. Thank you.

With my remaining time, Mr. Hardy, my colleague Marc Veasey talked about wind power in the -- [inaudible] is that viable, given the climate?

Mr. Hardy. Yes, it is viable. The wind speeds are lower there, but the turbine technologies continues to evolve. And just like in onshore wind, the original turbines were developed for the north seas, where the wind speeds are higher. But as we move to lower wind speeds, the turbine technology, the rotor diameter to generator ratio can be built to support those low speed winds.

Ms. Schrier. All right. I am way out of time. Thank you very much.

I yield back.

Mr. Rush. The gentlelady yields back.

The chair now recognizes Mr. Bucshon for 5 minutes.

Mr. Bucshon you are recognized for 5 minutes.

Mr. Bucshon. Thank you, Mr. Chairman.

I just want to point out that people like me are not proposing doing nothing about carbon emission. We just want solutions and timelines that don't destroy our economy and put us in a very weak geopolitical position against the rest of the world, which is what a lot of these proposals are doing coming from my colleagues on the other side of the aisle and will do. I feel like I had to respond to that since we were accused of doing nothing by my colleague that just spoke.

I support an all-of-the-above energy approach. It keeps the lights on, rates down, and emissions low. I believe there is a role for wind energy. I support wind energy as part of the portfolio. And I support research and development efforts made by public and private entities to develop the technology needed to make wind energy more reliable and more affordable.

However, we have a duty to our constituents to ensure that our energy grid remains reliable and affordable. The majority's focused on wind energy at a time when many of my constituents are seeing their energy prices soar, is out of touch with the challenges facing ordinary Americans.

As such, I am concerned that the Biden adminstration's pledge to deploy 3,000 offshore wind turbines and make everybody in some of these companies rich in the United States by 2030 would make our energy grid overly reliant upon weather dependent energy sources. Plus, it is just not feasible. Permitting workforce grid

infrastructure, et cetera. This type of a build out could take decades.

As we saw last month in Europe, an overreliance on wind energy fails to meet energy needs when the wind doesn't blow, which is why we must continue to employ other energy sources like nuclear, natural gas, coal, utilizing carbon capture technologies. We all want to get our emissions down. They aren't dependent on the weather. The Biden administration's unrealistic target ignores the constraints of current technology to deliver reliable, affordable wind energy.

Mr. Menezes, in your testimony, you discuss access to critical minerals necessary to make wind turbines. From where are we currently getting the parts like turbine blades and generating equipment to build and operate offshore wind?

Mr. Menezes. I thank you for the question.

In my testimony I identified rare Earths that are used in the magnets on these turbines. And we did the study of critical minerals and materials in the Trump administration we identified 35. And the rare Earths are one of these. Fourteen of those rare Earths we have no domestic production of, the other 31 we import over 50 percent. And of that amount that we import, 75 percent comes from China. So you should be aware of that. Therefore, we have supply chain vulnerabilities.

Mr. Bucshon. So the short answer is we don't produce much of these things at all ourselves. We are going to buy it from China, and other foreign countries --

Mr. Menezes. Critical materials.

Mr. Bucshon. Critical materials to make these. Understood.

I also want to again point out that, Mr. Upton pointed out this letter from Affordable Energy for New Jersey, and a couple of key questions. Will the work be done by an American workforce? The answer is no. Look at Rhode Island's 30 megawatt six

turbine offshore wind project off Block Island as a benchmark. The majority of the work was performed on a specially wind turbine installation vessel, was completed by foreign nationals from the developer's country of origin, something that could be considered a violation of the Jones Act. Why is that? Well, because there is a limited supply of installation vessels that provides a -- this provides a challenge in this area.

Currently, there is zero Jones Act qualified offshore wind turbine installation vessels in the United States. The first is under construction and not expected to sail until 2023.

The second question, will it be affordable? Well, I am not so sure. When Block Island's six turbines came online in 2016, the local utility paid $245 per megawatt hour for the project's electricity with a guaranteed increase 3.5 percent per year. By contrast, the average price of wholesale electricity in New England last year was $31 megawatt hour. As Mr. Upton pointed out, a massive cost increase.

So I guess my last question, Mr. Menezes, is what steps can the Federal Government take to ensure that we can develop, and manufacture, and maintain offshore wind technology here in the U.S. and get control of our own supply chain to do so?

Mr. Menezes. It is an excellent question.

Look at the Department what we decided to do we cannot continue to rely on rare Earths, or critical materials, or minerals manufactured in China or other countries. And so, we turned our labs loose to find frankly substitutes, let's create new materials. Surprisingly, a lot of advancements that we make in technologies today we create new materials. And so, that is one of things we did. Also recycle, reuse, we do all of this. R&D is certainly good.

And if I can just respond to Ms. Zichal's point about the cybersecurity.

Mr. Bucshon. My time has expired. I apologize.

I yield back, Mr. Chairman.

Mr. Rush. The gentleman yields back.

The chair now recognizes the gentlelady from Colorado, Ms. DeGette, for 5 minutes.

Ms. DeGette. Thank you so much, Mr. Chairman. And thanks to all of our witnesses today.

I am the chair of the Oversight and Investigation Subcommittee of this hearing. And we had a hearing a while ago about the failure of the Texas grid that oil -- coal, gas, and nuclear power lost twice as much power to the extreme cold as renewable energy sources. And major power companies are warning that gas supplies in Texas and the Gulf are still ill prepared to handle cold weather conditions.

I am sorry that our colleague, Mr. McKinley, isn't still here in the room, because he made a little comment about my State of Colorado. He said that we already have snow there. That is true, we already have three ski areas open just FYI to everybody. But I also want to tell my colleague, Mr. McKinley, we have zero offshore wind sources in Colorado that are powering the, as far as I know, that are powering the ski areas.

But despite that, though, Mr. Hardy, your company does operate offshore wind turbines in extremely cold winter environments, don't you?

Mr. Hardy. Yes. The majority of our projects are built in the North Atlantic off the coast of the U.K., Denmark.

Ms. DeGette. And it is cold up there.

Mr. Hardy. Harsh, harsh conditions.

Ms. DeGette. Harsh.

And what happens to offshore wind turbines when there is a major cold front?

Mr. Hardy. The turbines are designed to operate in those environments and we haven't had any significant issues with any reliability.

Ms. DeGette. So let's say you had a situation where electric resource supplies were strained. Could offshore wind actually help in severe weather conditions?

Mr. Hardy. It absolutely can.

Ms. DeGette. Why is that?

Mr. Hardy. Because the turbines actually perform in those environments, the wind is free. As we have talked about before, usually when the storms come, the wind is blowing. It if reaches too high, then they need to protect themselves. But in general, in those cold winters is when the wind blows the most and that is when we produce the most power. And so, it is specifically up in the northeast when these production scale utility, scale projects are on board we will actually offset the need for natural gas for heating in the northeast.

Ms. DeGette. And is it expensive to winterize offshore wind turbines?

Mr. Hardy. It is a standard part of the package.

Ms. DeGette. Okay. So it is not extra money, really? Okay.

Let me ask you about your turbine capacity factor, which is the ratio of actual output to the maximum possible output. How would you compare the capacity factor of offshore wind to other resources like onshore wind and fossil fuel generation?

Mr. Hardy. Offshore wind has the highest capacity factor of all renewable energy. It can today, with the latest technology, exceed 60 percent capacity factor. Whereas, onshore solar is probably less than half of that and onshore wind is somewhere

in between.

Ms. DeGette. Okay. How has the capacity factor for offshore wind improved with advances in technology in the past decade?

Mr. Hardy. It is a combination of the site conditions. Where we are putting these turbines 15 miles offshore. Someone asked the question earlier, 15 to 20 miles offshore. The winds blow stronger and more consistently there, so that is part of it. And then the turbines are designed to capture that consistently.

Ms. DeGette. Okay. Sort of a different issue, Mr. Hardy, I understand that Orsted is pilot testing the production of hydrogen utilizing the electricity generated by some of its offshore wind turbines. Can you just briefly explain that process and what we could use the hydrogen for? I saw that the other day. I was very intrigued.

Mr. Hardy. Yes. Green hydrogen produced by green electrons is an important aspect in the energy transition. With this green hydrogen you can make green fuels to power the hard to abate energy markets like ship fuels, airplane fuels, et cetera. You can also use the green hydrogen mixed with nitrogen to make green ammonia for fertilizers, green hydrogen as an additive to natural gas to green existing capacity. The way it works is the electrons you split water and you create hydrogen from clean water through electrolysis.

Ms. DeGette. Okay. So why would you make hydrogen with the wind turbines rather than generating electricity?

Mr. Hardy. Sometimes you can use hydrogen because of the location and the cost for transmission. And it is just an augmented way to go through the energy transition.

Ms. DeGette. It just helps you transition to a cleaner energy source. Is that

right?

Mr. Hardy. Yes.

Ms. DeGette. Great.

Thank you so much, Mr. Chairman. I yield back.

Mr. Rush. The gentlelady yields back.

The chair now recognizes the gentleman from Michigan, Mr. Walberg, for 5 minutes.

Mr. Walberg. Thank you, Mr. Chairman. And thanks to the panel for being with us today.

Mr. Chairman, with all due respect, let me first add to my colleague's concerns as well that I am disappointed that a time when we are facing rapidly rising energy prices, steep home heating costs, global supply shortages, and skyrocketing gas prices, this committee is choosing to prioritize President Biden's antifossil fuel agenda, overensuring that we can meet basic needs of American families during the coming winter months. And we do have them in Michigan.

Frankly, it is a little mind boggling to me how even after witnessing what is happening in Europe where millions of families won't be able to afford to heat their homes this winter and are entirely reliant on Russian gas, we are continuing down this self destructive path. The Wall Street Journal put it best earlier this week when it said, Putin must be amazed at his strategic luck.

Now, turning to offshore wind, there seems to be many benefits to exploring this technology, but I am deeply concerned with this rush to green agenda, which would require the build out of 30,000 megawatts by 2030. My colleagues have mentioned some of the issues with rushing this build out. The one that hits home for me is the

impact to recreational and commercial fishing and its supported livelihoods and industries. The Great Lakes provides commercial fisherman with an annual average harvest of nearly 50 million pounds. And in my district, Lake Erie, supports the largest commercial fishery with its abundance of walleye and yellow perch. I know from experience.

Mr. Chairman, I would like to enter into the record this letter from the Responsible Offshore Development Alliance, RODA, a coalition of fishing industry associations with an interest in improving the compatibility offshore wind development with their businesses.

[The information follows:]

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

Mr. Walberg. RODA announced its intent to sue the Biden administration earlier this week over its failure to comply with the Outer Continental Shelf Lands Act. In its approval of the Vineyard Wind 1 project, and this letter highlights some of their concerns.

Mr. Menezes, you have extensive experience examining offshore wind projects. It seems to me like when the hype starts building for these types of projects, and everyone is trying to get a piece of the pie, some of the entities that have legitimate interest are left by the wayside until the last minute, when it is too late. How do we ensure voices like RODA are heard and at the appropriate time are given due consideration?

Mr. Menezes. Excellent question. I know when we established the consortium we set it up with the intent that all stakeholders would be heard. You have to hear from everyone. You have to give everybody a voice. And you have to build in enough time in the process. Other than that, you end up in court. And we know that is not necessarily a good outcome.

Mr. Walberg. And that is where it is going right now as it appears.

So let me ask you, Mr. Menezes, in their filing, the commercial fishing groups lay out evidence that this Vineyard Wind project will have severe long-term impacts on commercial fishing operations. The Army Corps of Engineers even says that, and I quote, "due to the placement of turbines, it is likely the entire 76,000 acre area will be abandoned by fisheries due to difficulties with navigation."

I am curious, what kind of processes did you have in place as under Secretary of Energy to consider not only the economic impacts, but the safety risks of vessels navigating around these turbines, particularly during storms and cold weather events

when ice builds up on turbine blades.

And if you have time to respond to Ms. Zichal's statements that you wish to, take the time.

Mr. Menezes. Well, I was going to say so our process was very comprehensive. I was very much interested in offshore wind. I am an offshore platform guy from Louisiana. So I know if you are going have platforms offshore for oil and gas, you ought to be able to site platforms offshore for wind, just generally.

So we had a top to bottom, thorough evaluation of this. We had regular meetings with all the stakeholders on this. We heard -- and we knew these were not going to be pleasant meetings, or meetings rather, but we heard from the fisheries, we heard from all the interested parties.

You didn't always like what you heard, but had you to make sure that you had a fair process for everybody to hear. That is why we were frankly excited about the consortium, because we thought that if you will we can have a Federally created and funded consortium lead by a State agency. Right? Because the States have big issues. But to make sure that you had a process, you had to put them all in the room together. Now, you can't always reach resolution to be sure.

And the thing that we really learned and what is stark is these projects are out of sight and, if you will, out of mind. So nobody really asked the questions about endangered species. I mean, do we even have any out there? Do we know? Do we care? Right? I mean it is just this out of sight thing.

And so, unfortunately if you will for offshore wind, people get so excited by it initially, by the time you get into the process and everything, you realize that there are equities that has to be balanced. And so, that is what the witnesses have been talking

about here today -- that we experience there --

Mr. Rush. I am requesting the witness bring his answers to a conclusion.

The chair --

Mr. Walberg. I yield back.

Mr. Rush. The gentleman yields back.

The chair now recognizes the gentlelady from California, Ms. Matsui, for 5 minutes.

Ms. Matsui. Thank you very much, Mr. Chairman. I want to thank all of the witnesses for being here today. This is an extremely important subject as we try to figure out what we do with this existential threat, climate crisis.

Now in my home State of California, we are talking a lot about extreme weather events, as I believe the rest of the country. And that has been intensified by climate change, the threat of longer and more widespread wildfires in our case, which deeply affects electricity reliability in the region, causing rolling blackouts that affect millions of households.

For [inaudible] I [inaudible] the POWER ON Act, which provides funding to make our electricity grid more resilient to extreme weather events. Similarly, supporting the development of offshore wind in our Nation can help combat the issue of energy reliability caused by climate change.

I want to ask a question that was talked about a little bit before, but in more detail. Ms. Zichal, I was interested regarding the transmission of clean energy, in essence we always seem to find that to be quite a challenge, but especially with offshore platforms and things like that. We are talking, I believe, about a backbone offshore. How would that work? For instance, as existence right now I would say we have them in

California or on the East Coast.

Ms. Zichal. Thank you for your question.

California, as I said earlier, really has an opportunity to be a global leader in floating offshore wind. But the fact that California's waters are so deep that they will require floating offshore wind turbines rather than the fixed-bottom turbines that are prevalent in the East Coast. The technologies are essentially identical except for their foundations.

And, you know, as we look around the world, we see 80 megawatts of floating offshore wind turbines that have been installed globally. There are three multiturbine floating projects, one in Scotland, one in Portugal, and one in the U.K. The New England Aqua Ventus projects that is currently being permitted in the Gulf of Maine will be the first U.S. floating offshore wind project.

So I do, I think as we are starting this investment in offshore wind and beginning to take advantage of this technology, I think you are going to see not only, you know, projects that are going to focus on the fixed-bottom turbines, they are also going to utilize the floating offshore technology. A lot of that is due to the leadership role that California and the members there have played in really prioritizing and getting the Department of the Interior to move forward with leasing in Humboldt and Morro Bay so thank you for your leadership there.

Ms. Matsui. Absolutely.

I wanted to ask Mr. Hardy a question. It is my understanding that General Electric last year initiated a novel wind turbine recycling program and that Orsted has made a commitment to sustainably recycle its turbines.

Mr. Hardy, how long do wind turbines last? And what is the protocol for

ensuring they are recycled and repurposed? Additionally, is it possible to repower offshore wind turbines much so as wind turbines are repowered for onshore wind projects.

Mr. Hardy. Yeah. Thank you for your question.

Wind turbines are designed to -- most wind projects are designed for a 30-year life, but the technology actually will allow the turbines to probably run for longer than that. And at Orsted, we take this industry very seriously and we are the most sustainable energy company in the world. And we have made a commitment to recycle all the blades in all of our wind turbine projects from 2030 and beyond. And we have made a commitment to have a have a carbon-neutral supply chain by 2040 or sooner.

And in our caught process, in the process of getting an approval to build an offshore wind farm, we have very detailed decommissioning plans that we have to submit to the regulators. So all of that is accounted for and of course the steel and other components in these wind farms will be recycled.

So I -- the permitting process in Federal waters is very robust. It is taking longer than it should, but 2 to 3 years at least from the time we submit our application in a year or more ahead of that to do all the studies. And so, a lot of things go into making sure that these projects are sustainable out at sea for the long term, including fisheries and mammals and all kinds of other things.

Ms. Matsui. Well, thank you very much, Mr. Hardy.

And I think I am out of time right now. Thank you very much.

Mr. Rush. The gentlelady yields back.

The chair now recognizes the gentleman from South Carolina, Mr. Duncan, for 5 minutes.

Mr. Duncan. Thank you, Mr. Chairman. And I thank the panelists for being here today. It is a great hearing. I actually love the idea of wind and solar. In fact, I have liked it for a long time.

South Carolina's home to the Clemson and Duke energy drivetrain facility where they actually test a lot of the turbines and the torque is put on them and the feasibility of it. Your company, Orsted, has agreed to invest a good bit of money in South Carolina with the Nexans project for undersea cables for the transmission. It all works. But also know it is very costly. And I don't know that wind and solar projects actually are that feasible without a lot of government subsidies that we see. So we have got to get beyond where the government supporting this industry.

I remember John Kerry talking about, he is our climate czar, I think, talking about wind off the coast of Cape Cod a long time ago. That had to be in the early 2000s. How many wind turbines are off the coast of Cape Cod? None, zero. How many are off the coast of Malibu or Debby-Do in South Carolina, Hilton Head? None. I think we have seven off the coast of Rhode Island. We may see them. But I would ask anyone that is really interested in seeing wind turbines off the coast of their home State to go to Iowa or the panhandle of Texas.

And don't just go during the daytime when you see all those turbines out there and it looks real groovy because they are spinning and they are creating energy, go at night. Go at night, because what you are going to see is this massive red blob of safety lights that are on top of those turbines to keep the airplanes from flying into them. And I am not just talking about one. There are hundreds and hundreds of turbines, all blinking in unison, big red lights, and you tell me you want that off the coast of New Jersey, Mr. Chairman of the full committee. Tell me you want that off the coast of

Miami or Malibu. You don't.

So there is an issue there that is aesthetics that is often left out of this debate. I will go back to what I was saying, we don't have them off the coast of Cape Cod because John Kerry and his crowd didn't want them ultimately within sight of land.

We have this debate about offshore drilling platforms, Mr. Menezes, which I support. We talk about South Carolina and we were trying to work on getting some energy development out there. People didn't want to see those platforms off the coast. But what we were talking about was well over the visible horizon. You wouldn't see them, unless you got in a boat. And if you got in a boat taking a fishing run, go out there and see them and fish.

The same thing is going happen with wind turbines. I think there are great fisheries. And there are some benefits for it. But the left keeps holding up Europe as a model, and an example of, you know, clean energy and wind turbines offshore energy development. They are still as reliant on coal today as they were when they put those turbines off the coast, because coal and natural gas have to supplement it.

And while I am talking about natural gas, let me tell you, we have the ability in this country to export natural gas to Europe to our friends to lesson their dependence on foreign sources of energy. We don't. We don't, because now the President has green lighted Nord Stream 2 pipeline. Which is coming from where? It is coming from Russia. They are bringing Russian gas to Europe.

Europe is now reliant on Russia and Vladimir Putin to bring gas to Europe to meet their energy needs. Energy policy in Europe is a disaster. They are relying on Russian gas, which is dirtier. It burns dirtier and puts more emissions in the atmosphere that we don't like. When we talk about climate change and other things, Russian gas is dirty.

We can't just talk about Europe burning Russian gas, because New England is burning Russian gas too. We won't run a pipeline from Bill Johnson's district in western Pennsylvania, the Marcellus Shale right up to New England. We won't run it, because they don't like pipelines. They kill pipelines. This administration kills pipelines in this country. They don't like pipelines in New England to bring cleaner burning, U.S. produced natural gas, which we have an abundance of. But they will bring in an LNG ship from Russia to Boston's harbor and export or import Russian LNG, and burn dirty Russian gas.

Who sells that gas? Vladimir Putin sells that gas. And he and his oligarchs end up benefiting from it. The hypocrisy glaring on this when we have the gas here and we are trying to put wind turbines offshore and can't do it without government subsidies. It is unbelievable.

You know, I was on the Natural Resources Committee. And I filed some bills that deal with Migratory Bird Treaty Act and endangered species, because condors and golden eagles, and migratory birds of all sort, not just waterfowl are killed every year by wind turbines. But we ignore that dirty fact. And we will expedite wind turbine permits to allow wind farms to be built in this country. And we will slow walk oil and gas development, stuff that works. And I got vilified because I just wanted to treat the wind industry fairly with the Migratory Bird Treaty Act, but I got vilified by the outdoor environmental community.

So Mr. Chairman, I like wind. I hope we get this. I don't mind seeing it offshore, but I don't have any property on the coast. There is a lot of aesthetic things we have to work out here. We have to do away with the subsidies and make sure that it is economically feasible. And we also have to factor into this that New England is

burning Russian gas and won't put wind turbines off their --

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

Mr. Duncan. It is crazy. I yield back.

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

The chair now recognizes Ms. Castor of Florida for 5 minutes.

Ms. Castor. Well, thank you, Mr. Chairman, for calling the hearing.

You know, anyone who is concerned about the rising cost and risks on American families and businesses should be pressing for ambitious investments in clean energy, and public private partnerships with clean energy companies.

Solar power and wind power is a lot less expensive, has a much reduced impact on the air we breathe. And when it comes to biodiversity, we have the biodiversity crisis. And unless we tackle climate change, that biodiversity crisis is going to get a whole lot worse.

Talk about rising costs because climate just this year we have had about 20 climate-fueled disasters. We have paid out over $109 billion already. So don't forget that part of the equation either.

The good news is that here in America we are blessed with abundant offshore wind resources on the Atlantic Coast, off the Atlantic Coast, and the Pacific Coast. These resources can help bring lower costs, clean energy to millions of Americans. But we do have to build up the supply chains as the witnesses have testified today.

One element of it I was excited to hear from Orsted that a lot of the offshore vessels you are going to need are going to be belted shipyards around the country, including port Tampa Bay. Is that still correct, Mr. Hardy?

Mr. Hardy. Yes, it is.

Ms. Castor. Great.

Well, a couple of years ago, Congresswoman Elaine Luria and Bobby Scott, and Don McEachin, they invited me to Norfolk, to the Port of Virginia. And it was so interesting to see the port executives there, their excitement for the potential to grow their port businesses and jobs there because they really saw themselves as the place where the wind turbines could be assembled and the vessels could help build especially in the mid-Atlantic, the new offshore wind areas. How is that going in that area? And then what do you see -- what do we need do to improve our port infrastructure around the country as we increase the supply chains and build out?

Mr. Hardy. Yeah. There are a lot of big projects happening along the East Coast with respect to ports. We are involved in a project in Rhode Island in Providence. We are cofunding in a kind of a public-private partnership with the State of Connecticut. The New London pier. We are making investments in New Jersey at Paulsboro in the New Jersey wind port, in the Baltimore harbor, Tradepoint Atlantic making investments there for staging offshore wind. And some of our competitors or partners in the offshore wind space are making similar investments in other States. So there is quite a bit of infrastructure, one time costs going into building up the capability of this industry. And I think it is important to recognize that, you know, this is a long-term play, a long-term solution. And we are making investments now that will make us competitive and less reliant on carbon fuels in the long term. We are not going to solve the 2021 winter crisis with offshore wind, but we might prevent a crisis in 2026 or 2029 if we invest now.

Ms. Castor. Thank you.

So you all have recommended a number of things already, extending tax credits

for offshore wind. Ms. Zichal, you favored that. Correct?

Ms. Zichal. Yes.

Ms. Castor. Along with reauthorizing the expanding the DOE research and development demonstration of offshore wind technologies. Is that right?

Ms. Zichal. That is correct.

Ms. Castor. Developing a national offshore wind transmission plan?

Ms. Zichal. Yes.

Ms. Castor. Ensuring the U.S. Territories, that don't get a lot of attention, the Territories can take advantage of the offshore wind. Is that another recommendation?

Ms. Zichal. Yes.

Ms. Castor. We talked about upgrading ports, coordinating the clean energy training programs to strengthen the diversity and inclusivity of the workforce. Is the clean energy and offshore wind industries are they committed to doing that?

Ms. Zichal. Yes.

Ms. Castor. And then encouraging the Department of the Interior to take a regional approach to offshore wind leasing that minimizes the environmental impact. You discussed that a little bit already.

Ms. Zichal. Yes, absolutely.

Ms. Castor. That is terrific, because that lines up with the major report issued last year from the Select Committee on the Climate Crisis where we surveyed businesses and manufacturers, labor leaders all across America on what is our plan of action. And so I am glad that they are aligned there.

In addition, I want to point out, I totally agree with you on the grid interconnections. And if anyone wants to move that forward, there is a bill 4027 of the

Efficient Grid Interconnection Act that should help folks. But it has been good to see the great interest in this hearing today and good clean offshore wind resources.

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

Mr. Rush. The gentlelady yields back.

The chair now recognizes the gentleman from Alabama, Mr. Palmer, for 5 minutes.

Mr. Palmer. I thank chairman.

Mr. Menezes, based on -- first of all, I want to address a comment by Mr. Hardy that the lifecycle for a turbine is 30 years when I think the functional lifecycle for a wind turbine is about 20. Well, I have got the reports here that would indicate otherwise. And I am not surprised that you would disagree. You are going to defend your industry.

Mr. Menezes, based on what we are seeing from Europe, these massive offshore turbines, along that same line, there is a report from the Manhattan Institute that says after about 10 years the average output of these newer offshore wind turbines was just over half of the initial output. We are already struggling with the disposing of current wind turbine blades to the point that we have resorted to burying them in landfills. And I have got an article here with a picture of a landfill in Wyoming, Mr. Chairman. I would like to enter into the record, without objection.

Mr. Rush. So moved.

Mr. Palmer. Thanks, sir.

Mr. Rush. Without objection rather.

[The information follows:]

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

Mr. Palmer. If we need to replace these machines every 10 to 15 years, is offshore wind really as environmentally friendly as advertised?

Mr. Menezes. Is that directed to me?

Mr. Palmer. Yes, sir.

Mr. Menezes. We saw this issue for some few years ago. And so, I know we turned our labs loose to try to figure this stuff out because it was filling up in our landfills. And we made special trips out there to NREL in particular to see if they could help, you know, with the problem. But it was a growing problem.

Mr. Palmer. Yeah. Well, when you talk about losing the output at the rate that has been reported, that also increases the cost of generating power through wind turbines. Isn't that also true? Mr. Palmer?

Mr. Menezes. Absolutely.

Mr. Palmer. Yeah. The reason I bring this up is that we are already experiencing major energy poverty in the United States and particularly in Europe, as Europe has moved, more and more to renewables, they have seen a major increase in excess winter deaths because of energy policy.

The household energy utility costs in Europe are way higher than the United States. And Germany has I think maybe the highest in the European Union. Great Britain is right behind them. And literally people are having to make decisions about how much money they can spend to keep their homes warm in the wintertime versus what they can spend on food and medicine. Isn't this -- I ask, should the people who support renewable energy just wholesale should those deaths we considered collateral

damage?

Mr. Menezes. Well, it is certainly one way to look at it. I will tell you one of the reasons for the high cost in Europe were they moved very early on high feed-in tariffs to build renewables. And they are still stuck with those higher than market costs.

So the citizens of Europe are burdened higher costs because of something the policymakers, decisions they made years ago, they are still bearing the high costs of feed-in tariffs to build renewables.

Mr. Palmer. And it is interesting that they are having to backup these renewable energies, particularly the wind turbines for natural gas and now coal because of what happened in the North Sea recently. We saw when those shut down or quit providing adequate output, they had to resort to natural gas. Natural gas prices spiked, which makes an energy poverty issue even greater. And they then reverted back to coal.

And I am not against renewables, don't get me wrong. I worked for international industry companies, worked in environmental systems. I get it in terms of what we need to do. But I grew up dirt poor. I mean, we heated our house with a coal heater that sat in the kitchen with a pipe that went outside through the wall. So I understand what is like to live in an inadequately heated home. There are millions of Americans that are suffering that as well. And this head long rush into renewables is not only going to cost us a lot of money, it is going to cost us a lot of dead people. And I think that needs to be a major consideration. Would you agree, Mr. Menezes?

Mr. Menezes. I think it is a major concern we should consider.

Mr. Palmer. I agree with you. And I would also like to point out that the lifecycle for natural gas production is about for 60 years. And for nuclear, is 80 years. And with the onset of NextGen nuclear, which is being pushed by a number of people,

including Bill Gates, I think the lifecycle on that end would be much longer and in terms of emissions and greenhouse gases is zero.

Mr. Chairman, I yield back.

Mr. Rush. The gentleman yields back.

The chair now recognizes the gentleman from --

Mr. Palmer. Mr. Chairman, I failed to ask permission to enter one other document into the record, if I may, without objection.

Mr. Rush. So ordered.

Mr. Palmer. Thank you.

[The information follows:]

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

Mr. Rush. Mr. Schrader, you are recognized for 5 minutes.

Mr. Schrader. Thank you very much, Mr. Chairman. I appreciate this panel and this hearing today.

A lot of conflicts so I couldn't sit in the whole time. Welcome, Mr. Hardy. Thank you for being here, an Oregonian by connection at the very least for quite some time. And I look forward to you coming back at some point. That would be very good.

Mr. Hardy. One of my 11 States, yes.

Mr. Schrader. To Ms. Zichal and Mr. Hardy, actually a lot of discussion in my home State of Oregon about offshore wind. And some excitement and some concern at the same time.

My local fishermen have engaged me, and BOEM, and a lot of local partners along the coast with the process and some of the things that have gone on. We have had some folks in the wave energy space also try and acknowledge opportunities there. And the concern has become not all through the fault of BOEM, because they are a reactive agency. They basically, if someone applies for a lease, they then go through their processes and try it and do the right thing as per their regulatory framework that is established.

But there is no opportunity for either Vestas or whoever to get some certainty up front about is this a suitable area for our leasing. What does the local community think about it? And from my standpoint more importantly, what do my fishermen and fisherwomen think about it? That is a big deal. So it is really important that, I think, we develop some sort of process.

Maybe you have had experience with your leases in other parts of the country and

your projects in other parts of the country to how we go about engaging the fishermen, engaging the local communities that aren't necessarily governmental agencies. BOEM's framework you have to be a governmental agency to get on any of the task force. So how should we build opportunity in for the local input on the Pacific Coast?

Ms. Zichal and maybe Mr. Hardy and Mr. Menezes.

Ms. Zichal. First, thank you for your question.

For starters, I think as an industry we absolutely believe that fisheries and offshore winds can coexist. And BOEM's current offshore winds leasing process does consider other uses when they are leasing and permitting offshore wind projects. And those do include commercial and recreational fisheries. It is not to say that it is the perfect process, and it is certainly one I think we as an industry would like to engage with you and discuss further.

But from what we have seen to date, the BOEM process itself does allow for the input from fishing communities. And it also allows us to think differently about and to hear from the industry directly. You know, are there areas that we should think differently about turbine spacing and layouts and make modifications to that. And in fact, it is not all that different from what we do when we are doing onshore wind and thinking about what we were talking about earlier migratory birds or you know, when you are trying to site a new oil and gas facility and dealing with a lesser prairie chicken or another endangered species.

There are existing programs within the agencies to make sure that there is the right feedback mechanism. Do we have it perfect? Probably not. But it is something we would love an opportunity to work with you on.

Mr. Schrader. Mr. Hardy?

Mr. Hardy. Yeah. I agree with most or all of what Ms. Zichal said. I think that the current programs do -- the commercial fishermen and recreational fishermen do have a voice. I think it is a misstatement to say they don't. I think companies like Orsted, we have a marine affairs organization that is 10 plus people that are dedicated to this, plus third-party consultants that we hire. We talk to recreational and commercial fishers on all of our projects.

As Ms. Zichal alluded to, we have made compromises already on layouts to create a larger one by one nautical square mile. If we were purely doing this in our own interest, we would have those turbines kind of more densely packed, but we opened up the design so that the commercial fishermen could fish within the wind farms and could transit them in a safe manner. We have also come up with other compensatory programs for the fishermen for lost gear, for lost catch, et cetera. And we are working with NOAA's fishery data to try to coexist with the commercial fishermen. So it is a part of our program.

Mr. Schrader. So is those some of the things that we would want to engage with and make conditions of approval perhaps as we get into that, where there is an opportunity to have those discussions?

Mr. Hardy. Just quickly, I think if we could have prealigned programs where the fisheries knew what they would get and we knew what was cost us that would be helpful. Right now it is quite bilateral.

Mr. Schrader. Mr. Menezes do you have any --

Mr. Menezes. Well thank you for the question. Again while at the Department we --

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

expired.

Mr. Schrader. Oh, my bad. Sorry.

Mr. Menezes. I apologize.

Mr. Schrader. Thank you very much.

Mr. Rush. The chair now recognizes the gentlelady from Arizona, Ms. Lesko, for 5 minutes.

Mrs. Lesko. Thank you, Mr. Chairman. And thank you for all of those who are testifying today.

My goal as a Congresswoman is to provide the most reliable and affordable energy to my constituents, and also to increase jobs in the United States. And I believe in an all-of-the-above energy policy, whatever works, whatever's reliable, whatever's affordable. I don't really care what the source is, as long as that is what happens in the end for our constituents.

I have three questions, all for Mr. Menezes. The first one is, as you know, the Biden administration is planning to have 30,000 megawatts of offshore wind energy, which I calculate would need 3,000 offshore wind turbines by 2030. That is just 9 years from now. Do you think that is realistic?

Mr. Menezes. Based on my own personal experience, and what I think I have even heard today, I do not believe it is realistic.

Mrs. Lesko. Thank you.

My second question to you, sir, is in March of this year we had testimony from former Secretary of Energy, Ernest Moniz. And in that I asked him a question and he answered that each offshore wind turbine takes 1 ton of rare Earth mineral. And I assume that he was talking about the Neodymium that is used in the maintenance for the

wind turbines. My understanding is that most of those wind turbine magnets are made in China. Is that your belief?

And I also have a follow-up question. I just saw recently, September 24, the Biden administration actually is doing an investigation into the effects of imports of Neodymium magnets on U.S. national security, because so many of them are produced offshore.

So my next question is, how fast, assuming the United States decided to start making them on our own and processing the material, how fast could we do that? Could we do it in the 9 year time period?

Mr. Menezes. Thank you for that. That is very challenging question. I will tell you that I am not entirely sure if the magnets themselves are made in China, but certainly the rare Earths are produced in China. And what we have seen is we have pushed offshore lot of the critical materials being made in other countries. It was something that the past administration was comfortable with, and so other countries really built that up.

We would have to build up, you know, the ability to be able to process to first mine to the extent that they need to be mined, to the extent that we can get them out of coal ash, there are rare Earth elements there. We need processes in place, and that is going to take a long time just to get the permitting in place.

In my testimony, I talked about it takes 7 years just to get a battery storage facility on a solar plant permitted in California. So it will be a very difficult stretch. It is a goal we should all seek however.

I think that it is important for national security that we realize that we have to produce our own critical minerals and materials. And I earlier gave you the facts about

how we are over dependent on imports for this for our own national security reasons in addition for breaking technology like these magnets that power those high powered offshore turbines.

RPTR MARTIN

EDTR ZAMORA

[1:30 p.m.]

Mrs. Lesko. Well, I agree with you, Mr. Menezes. And I also think that James Strong would probably appreciate the jobs coming to the United States instead of our foreign countries and often our adversaries.

My last question is, do you think this rush to push offshore wind turbines, which I am not opposed to, I am just talking about the timing of it and all the incentives, which will push away other energy sources, will that lead to unreliability, possibly unreliability and higher costs for our constituents in America?

Mr. Menezes. So what the witnesses have been talking about today is the fact that we are going to have these offshore wind turbines offshore. We are going to have to have basically gathering lines to come in and funnel in, and certain, you know, some will be high voltage, not all, undersea cables. They have to tie into our existing bulk power system in locations. You simply not -- you can't connect every single turbine out there to come into the bulk power system, and we don't have any offshore bulk power system lines out there right now.

So we are talking about basic wires. We have got to feed in. We have got to figure out where we can do it, and it is where the interconnection comes in is where you want to make sure that the grid is sufficiently flexible to take what is going to be a large amount of megawatts, if all of this gets built into our grid. So that is going to be shoving off a lot of existing power right now. And so we have to make sure that we get all the engineers together and we make sure that we have all the grid operators there, in addition to having the policies in place to get these things in at the right place so that we

can actually handle what is going to be a large amount of offshore wind.

Mr. Rush. The gentlelady's time has expired.

The chair now recognizes the gentlelady from New Hampshire, Ms. Kuster, for 5 minutes.

Ms. Kuster. Thank you so much, Mr. Chairman, for hosting this important hearing.

Offshore wind is good for workers, it is good for the economy, and it is especially good for our planet. Meeting President Biden's goal of creating 30 gigawatts of offshore wind power by 2030 could create more than 80,000 good-paying jobs for workers, generate $25 billion annually in economic output, and all while reducing our carbon emissions and saving our planet. So that is just the first step.

According to research by Environment America, offshore wind could more than meet the New England region's future needs. Presently, offshore wind makes up a tiny fraction of power generation in New England. Today, granite staters are bracing themselves for another cold winter, which likely will bring unusually expensive electricity and heating bills due to increased natural gas prices.

During the coldest days of the year in New England, natural gas supplies constrain because families need extra gas to heat their homes and power generators need extra gas to generate electricity. So this means natural gas power plants pay a premium for gas that they need to generate power. Ultimately, these costs get passed along to ratepayers and higher electricity bills. And to make matters worse, the North American Electricity Reliability Commission has warned of potential winter outages in New England due to constraints on natural gas supply.

So, Mr. Hardy, I want to emphasize the point raised by my colleague, Ms. DeGette.

Can you operate offshore wind turbines in cold weather conditions when natural gas supplies in New England are constrained?

Mr. Hardy. Absolutely. And, in fact, in the winter months, as I explained earlier, is when the wind blows the hardest and we will be able to produce the most electricity.

Ms. Kuster. Thank you. And as a followup, since the source of fuel for wind turbines is free, should New England ratepayers expect to pay less for electricity as offshore wind is built out in our region?

Mr. Hardy. Yeah. Maybe I just take 1 second and explain the economics of an offshore wind farm. We commit to a price and we sell that power up front, and then that price is locked in. So we take the risk. If the turbines aren't as reliable or the wind doesn't blow as much, that doesn't affect the ratepayers. We are taking the risk. And we have an incentive, of course, to sell as much power as possible, so we are motivated to keep the turbines as reliable and high performing as possible.

So I think that the answer to your question is that, you know, this should reduce consumers' costs for power and heating in the winters in New England.

Ms. Kuster. Great.

Now, one of the big challenges we have heard about today are interconnection queues or developing the infrastructure necessary to plug offshore wind farms into the electricity transmission system. I think there are two solutions. First, plug in at existing interconnection points, and that could lower costs for ratepayers and save time required to build new transmission infrastructure. My office has heard from fossil power generators that want to give up their interconnection point but don't currently have a business case for doing so.

Ms. Zichal, should FERC consider market structures that would help retiring fossil fuel power generators turn over their interconnection point to offshore wind?

Ms. Zichal. Thank you for your question. I think I would start by saying that we as American Clean Power Association are happy that the FERC has taken the first step towards reforming its transmission planning and interconnection rules, and we feel that this is going to go a long way toward ensuring that generators can cost effectively integrate onto the grid.

Part of the long-term solution is to plan for the upgrades needed to integrate future generation as part of a transmission system rather than just relying on individual generators to fund major upgrades that everyone benefits from.

So, bottom line, I think there is more work to do, but the decisions by the FERC initially are moving us in the right direction.

Ms. Kuster. So I think you anticipated my second choice, the Federal Government to take a preplanned approach to interconnection, building out the necessary underwater transmission infrastructure ahead of new offshore wind development. Analysis by the battle group on the New York offshore wind market found this preplanned approach could lower costs and risks associated with developing new offshore.

My time is out, but I will follow up. And if you have any more information for the record on that, I would be very grateful. Thank you.

And, with that, Mr. Chairman, I yield back.

Mr. Rush. The gentlelady yields back.

The chair now recognizes the gentleman from North Dakota, Mr. Armstrong, for 5 minutes.

Mr. Armstrong. Thank you, Mr. Chairman.

And from being the geographic center of North America, offshore energy is something that doesn't necessarily directly relate to my constituents. However, cheap, reliable, and affordable energy in the winter is obviously something we care very much about.

And I appreciate the eagerness of my colleagues to be engaged in development of domestic energy, but I have to point out once again that we are not having an honest conversation about the timelines for the massive deployment of intermittent distributed generation and the numerous legal, bureaucratic, and supply chain issues that are going to complicate this process.

We know that President Biden announced a goal of deploying 30 gigawatts of offshore wind by 2030, and on paper and a Tweet, that may seem attainable. However, once you break it down, 30 gigawatts is a massive undertaking that the current system is not designed to handle.

The only operational offshore wind farm in the U.S. is the Block Island Wind Farm. It is a 30-megawatt, five-turbine project that took years to design and plan and construct, and that is just one project. And even assuming the second one will take less time than the first one, if we put that in perspective, to scale up the Block Island project to the levels pushed by President Biden, you would need a thousand projects of the same size or, roughly, 5,000 new turbines. All of this would need to be completed within the next 8 years, meaning that we would have to build more than 1.5 new offshore turbines every day starting on January 1.

As if that is not enough of a challenge, simply based on the availability of materials, labor, installation vessels, and port infrastructure, there is no consideration

about how the transmission will be developed, and numerous obstacles, including local opposition, siting concerns, activist environmental litigation, and never-ending permitting process for all energy projects. Even if you account for technological improvement and increased efficiency, the fact that this committee continues to ignore the nuts and bolts of deploying any form of generation or transmission, let alone distributed energy sources.

So, Mr. Menezes, in your testimony, you touched on the failed Cape Wind project and recent actions in Maine to ban offshore wind in State waters. But these aren't the only examples of local communities rejecting utilitarian infrastructure, are they?

Mr. Menezes. No. One was old and one was new, so that is kind of framed it that way.

Mr. Armstrong. And whether it is a wind project in Thousand Islands in New York or a transmission line supplying electricity generated from a hydropower project in Canada, people generally don't like massive energy infrastructure in their backwards, particularly wealthy communities who have houses on the beach or the coast.

So do you think in order to meet President Biden's goal of deploying 30 gigawatts offshore in 9 years is feasible, without substantially curtailing the ability of State, local governments, and individuals to object to generation and transmission projects?

Mr. Menezes. I do not believe it is feasible. It is just numbers that they put up.

Mr. Armstrong. What about litigation reform? I mean, Ms. Zichal, you mentioned lesser prairie-chicken. Well, if you care about the bifurcation of the habitat, you don't care what is bifurcating the habitat. You just care that it is being bifurcated. And I have said this continuously, if you think it is hard to put an oil and gas pipeline in eastern Montana, try putting a transmission line in a highly -- in a densely pop -- we have taught -- the oil and gas industry have taught people how to slow down these projects,

and I think, more importantly, you don't have to stop them at the place they occur. Eventually along that line somewhere, there is a bottleneck, and you don't have to beat it in any particular spot; You just have to beat it in one spot.

So I guess that would be the same question. Do you think we can deploy these types of infrastructure projects without having significant litigation reform, one, and, two, significantly curtailing local municipalities' ability to stop -- or to weigh in on these projects?

Ms. Zichal. Well, I would say where you see roadblocks and impossibilities because of regulatory hurdles, I see opportunity. I think that we have tremendous opportunity in this country to harness the Saudi Arabia of winds, create jobs, and drive down greenhouse gas emissions.

Mr. Armstrong. I don't disagree with any of that, but -- and I am going to go to Mr. Menezes. I was a very big fan of President Trump's 57 nationwide permits legislation, which continually gets opposed. I just don't think we can do it without significant regulatory and litigation reform. And I think we need to be honest with the American people about what the problems are with getting these -- listen, it doesn't matter if it is a gas pipeline. It doesn't matter if it is a transmission line. It doesn't matter what the -- it can be a cloverleaf for a highway. If we don't solve this problem, we continue to have these hearings and we continue to put these pie-in-the-sky deadlines in place that just simply are unattainable, and we have to deal with the litigation and permitting reform.

And, with that, I would just let you close with my exactly zero seconds left.

Mr. Menezes. Thank you very much for the question.

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

The chair now recognizes the gentlelady from California, Ms. Barragan, for 5 minutes.

Ms. Barragan. Thank you, Chairman Rush, for holding this important hearing on offshore wind, which has great potential to help our country reach 100 percent clean energy while creating good-paying union jobs along our coast.

Ms. Zichal, one barrier to offshore wind is the lengthy amount of time it is expected to take to build an offshore wind farm, which could be 5 to 10 years. The climate crisis means we must move as fast as possible. What are the most meaningful steps the Federal Government can take to shorten this length of time so we can connect the clean energy to our grid faster?

Ms. Zichal. Great. Thank you for your question. The encouraging thing is I think between the steps that have been taken by the Biden administration, plus the good legislation that has been proposed in the bipartisan infrastructure framework, as well as the Build Back Better legislation, we have got the core components there. And, you know, first and foremost, is we just as an industry need certainty and predictability in the permitting process.

Second, you know, we -- the tax credits and the direct pay options are crucially important as we think about the future and where we need to go.

And the last piece of this, I think, is around the manufacturing -- the domestic manufacturing incentives. We have spent a lot of time today talking about the jobs and the opportunities that we have to grow this industry and create jobs, and those manufacturing credits, I think, would be very crucial to us, not only being able to build these projects, but having a higher and higher degree of domestic content in the projects themselves.

Ms. Barragan. Thank you very much.

Mr. Hardy, while offshore wind won't cause an oil spill like we are living with in southern California, it will expand maritime activity at our ports, oceans, and coastal communities. How are you working with communities to advance environmental justice and address frontline community impacts?

Mr. Hardy. Yes. Thank you. As I have said a number of times, we are the world's leader, and we are trying to build this industry sustainable and for the long term. And so when we think about, you know, what we need to do to stand up this industry in the U.S., we think about supply chain, we think about training, and we think about the port infrastructure, and we think about the workers that we will need. And so we have got specific initiatives to bring the opportunities to all Americans to participate in this industry.

And one specific example of something that we did in New Jersey, we invested $11 million in Zeem Solutions, which is an electric truck initiative, to convert drayage trucks at the Port of Newark into electric trucks and to build a charging station for those trucks with offshore wind.

The communities around the Port of Newark are particularly susceptible to the pollution, just like many other communities in port locations. So we think that that could be used as a model for other initiatives that we could do both on the East Coast and West Coast.

Ms. Barragan. Well, thank you. And thanks for bringing that up in particular. I represent the Port of Los Angeles, so anything we can do around the ports is something important to me. I am a firm believer that offshore wind will bring clean power to our coastal communities, reducing local air pollution from burning fossil fuels in California and

other coastal States.

Ms. Zichal, as we look to develop offshore wind off the West Coast, what kind of port infrastructure upgrades are needed at our West Coast ports? I know you touched a little bit about the East Coast, so I wanted to get your input about the West Coast ports. And will this be an additional source of job creation?

Ms. Zichal. So, for starters, I think there is great opportunity for port revitalization, and it very well fits within the broader goals of, you know, a just and fair energy transition. You know, the kinds of investments in port communities, whether you are on the East or West Coast, and even though we are talking about a different kind of technology for the West Coast, I still think you are going to see a lot of those same opportunities for port revitalization and the same kind of investments Mr. Hardy was speaking to.

And not only, you know, is that great from an economic perspective, but these port communities for a long time have been the underserved communities that have been struggling with some of the worst air pollution challenges. And with these opportunities, not only are we addressing the economic piece of the puzzle, we are also addressing the environmental and public health components as well.

Ms. Barragan. Thank you.

And right on time, Mr. Chairman, I yield back.

Mr. Rush. The gentlelady yields back.

The chair now recognizes the gentleman from the great State of Georgia, Mr. Carter, for 5 minutes.

Mr. Carter, you are recognized for 5 minutes.

The gentleman doesn't respond. The chair now recognizes the gentleman from

Pennsylvania, Mr. Joyce, for 5 minutes.

Mr. Upton. So, Mr. Chairman, as you know, we are in a series of votes. Dr. Joyce is actually en route back from the floor back to here, so he should be here in about 2 minutes. He walks fast.

Mr. Rush. Well, I am going to proceed. The gentlelady from Delaware, Ms. Blunt Rochester, is recognized for 5 minutes.

Ms. Blunt Rochester. Thank you, Mr. Chairman. And thank you so much to the witnesses and our Ranking Member Upton.

The National Renewable Energy Laboratory calculated that the offshore wind industry could provide over 2,000 gigawatts of energy a year. That is almost double the amount of energy our country uses annually. Additionally, a recent University of Delaware report estimates that the offshore wind industry has the capacity to generate up to $109 billion of economic development over the next 10 years.

Not only does the offshore wind industry have the potential to address the ongoing crisis, but it also has the potential to create good-paying union jobs, health, quality of health, and a more equitable economy.

This February, I introduced H.R. 862, the Climate Action Planning for Ports Act of 2021, which would reduce the impacts of pollution around our Nation's ports.

As Ms. Barragan mentioned, ports are often adjacent to low-income communities and communities of color, groups that disproportionately bear the brunt of pollution and climate impacts.

And so do I do want to follow up a little bit more with Mr. Hardy and Ms. Zichal. I wanted to come at it from the benefits for the communities, and if we could speak a little bit about that. And, also, I wanted to touch on the chairman's comment about

diversifying the industry as well. I know the question was asked, and the answers were kind of vague, and I would love to hear from a union perspective as well as you, Mr. Hardy and Ms. Zichal.

So I will turn it to you, Mr. Hardy, if you could just talk about ports but also about diversifying the industry.

Mr. Hardy. Yes. Thank you for your leadership on this important topic.

As a company ranked three times the world's most sustainable energy company, we share your values. As I said many times, we are trying to build this industry in a sustainable way, and the intersection between port communities and offshore wind presents an opportunity for positive change. As I mentioned just in the answer to the last conversation, we have made a big investment, $11 million investment with Zeem in the Port of Newark, but not just to train -- not just to transition those drayage trucks into electric, but also to create training and certification programs and job opportunities for the local residents of the Newark area and the port communities.

Likewise, in Maryland, we just announced a zero-emission operation and maintenance hub, where we will host our CTVs, our crew transport vessels, to service our Skipjack 1 project. And, again, we will be working there to train folks to enter this sector, and we will be targeting folks from disadvantaged communities. And we have set aside specific funds for attracting and recruiting people into this industry, and we are very committed to trying to make it an equitable transition.

Ms. Blunt Rochester. I would love to follow up with you as well as Mr. Strong. I think the issue of affordability, reliability, and equity are all intertwined in this conversation.

And, Ms. Zichal, earlier this month, I introduced two bipartisan pieces of

legislation with Representatives Malinowski and Kinzinger, H.R. 5495, the Building Resilient Supply Chains Act, and H.R. 5492, the Manufacturing Economy and National Security Act. I could speak on and on about what we hope to accomplish with that, but I want to ask you, if we don't swiftly act to promote the domestic production of wind turbines, how will that impact our global competitiveness?

Ms. Zichal. Well, for starters, I think that a lot of the policies that are currently being discussed are going to help solve for these things, whether that is the manufacturing tax credits or the requirements around domestic content. I think a lot of -- there are a lot of good ideas that are currently out there in the mix, and hopefully before the end of the year, we will get across the finish line.

At the same time, what I think is so important about this opportunity is this is the first -- I have been working on climate policy for two decades, and this is the first time we have actually been talking about, not just an energy transition, but an energy and justice -- you know, energy and environmental justice transition. This is something our industry takes very, very seriously. We spend a lot of time one-on-one with our board members looking at what our potential best practices across the industry, rather than just by a company-by-company basis. So I think there is great room for improvement, and it is something we would love to work together on.

Ms. Blunt Rochester. I would love to work together with you on that as well, and I thank you.

And I yield back 1 second.

Mr. Rush. The gentlelady does yield back.

The chair now recognizes the gentleman from Georgia, Mr. Carter, for 5 minutes.

There is no response from Mr. Carter.

Mr. Joyce from Pennsylvania is recognized for 5 minutes.

Mr. Joyce. First, I want to thank Chairman Rush for allowing me to waive on to this subcommittee hearing today, and thank all of you witnesses for appearing.

As we begin this next decade, American energy needs will only continue to grow. Consistent and stable energy prices are critical to our economy, with manufacturing using over 30 percent of the Nation's power and every American depending on the grid to heat and to cool their homes.

As we have heard today, American energy prices are the highest that they have been for years. Any American who goes to the pump or looks at their utility bill has already discovered this very sad reality. That is why it is vital for our Nation and our constituents to have access to all available energy sources, all. Offshore wind is not a source that can supply our businesses and power our homes.

By building a grid that is dependent on wind power, we leave ourselves at the mercy of Mother Nature. We have seen this. We have seen it in the United Kingdom, where their overreliance on wind for 25 percent of their power has led to volatile prices when wind output dropped by over two-thirds. Fortunately, they had the wherewithal to restart a coal power plant to fill that needed gap. There is no reason why we should allow this sort of situation to ever occur in the United States.

My first question is for you, Mr. Menezes. As the Biden administration looks to achieve its goal of deploying 30,000 megawatts of offshore wind power by 2030, just how many windmills are we talking about?

Mr. Menezes. I think we said we were talking about 3,000? Two thousand. Two thousand turbines, which is a lot.

Mr. Joyce. From a geographic point of view, what is this going to look like on our

coasts? Can we expect to see wind turbines off of every shore up and down the East Coast, the West Coast, and the Gulf of Mexico?

Mr. Menezes. Well, to be sure, there are, you know, plans or studies looking at trying to put as much offshore wind as we can on our Eastern Seaboard. We testified earlier Gulf of Mexico's wind zone is great. But to be sure, if it works, if we can figure out ways to get it going in some areas, I think you can expect it to be utilized in other areas.

Mr. Joyce. So the answer is all coasts, East, West, and perhaps even the Gulf of Mexico.

If we are concerned about being environmentally friendly, I don't understand how building thousands of windmills in hundreds of different ocean habitats allows that to occur. Instead of endangering ecosystems on the sea floor and in the sky, there are other established and other affordable options.

For example, 1,154 megawatts of nuclear power plant typically uses 50 acres of land. Not only does it inhabit far less space, but it provides the necessary baseload power through all types of weather at all times of the year.

Moving on to discuss the physical footprint of what this administration's offshore wind energy goal would mean, the real question is, would this even be possible? The red tape in the energy industry has gotten out of hand. In terms of offshore power specifically, the Bureau of Ocean Energy Management gives a timeline that would occur over 10 years for a single project to be planned, permitted, and built, one project.

Mr. Menezes, in this regulation of environment, would the construction of that many offshore windmills even be possible?

Mr. Menezes. Not within the timeframe announced.

Mr. Joyce. So the goals to have this amount of wind power by 2030, from your perspective, is not attainable?

Mr. Menezes. Correct.

Mr. Joyce. Overregulation is both expensive and, unfortunately, it is a job killer. I hope to work with my colleagues on reforms that will allow our Nation to have safe and stable energy prices moving forward and to utilize the necessary energy that is under the feet and has already been developed here in the United States.

I again would like to thank Chairman Rush for allowing me to waive on to this important hearing, and I waive my remaining 30 seconds back.

Mr. Rush. The gentleman yields back.

Miss Rice, I sincerely apologize to you. The order should have been reversed. So if you would, Miss Rice, you are recognized for questioning the witnesses.

Miss Rice. Thank you so much, Mr. Chairman. And thank you for allowing me to waive on to this very important hearing.

As we have heard from our witnesses, it is critical that we ensure a skilled labor pool is ready to work in this emerging industry. I am very proud of the workforce development efforts already underway at Stony Brook University and Farmingdale State College in my home State of New York. These institutions are partnering with the State to establish a new and innovative offshore wind training institute which will train 2,500 workers as part of the largest public investment in offshore wind workforce development by any State in the country. The institute has already begun teaching its first class of students, and I have heard nothing but positive feedback so far.

Ms. Zichal and Mr. Hardy, to what extent are developers working with academic institutions to coordinate training programs and curricula so the offshore wind labor pool

is well matched with the demand for skilled workers in manufacturing, construction, maintenance, repair, and all the other jobs that are going to flow from this emerging industry?

Ms. Zichal. Well, the issue that you are pointing out is something that we in the industry think about every day, which is, we see true opportunity, and we see the offshore wind industry as something that is very much at the beginning of taking off. And in order to do that, we recognize we are going to need to have a skilled, trained workforce. You know, when you even contemplate what it would take to, you know, build an offshore wind turbine, it is very different than an onshore wind facility.

So we are spending a lot of time working directly with labor unions. We are working with Congress in trying to find new programs. We are thinking outside the box about where might we create some new public-private sector partnerships to advance training for the offshore wind workforce that we are going to need.

And, again, it is not just about the turbines itself. It is about, you know, the entire supply chain, so building the core components that go into the wind turbines, as well as, you know, building the ships and all of the technology that it is going to need to support them.

Miss Rice. Mr. Hardy?

Mr. Hardy. Yeah. We, you know, want this next generation -- we want this industry to be the next generation of good-paying green jobs, and we want those to be accessible to all. So that is why we are partnering with community colleges and technical programs. I think you alluded to the $10 million seed funding that we esta -- that we helped fund the National Offshore Wind Training Center on Long Island, New York. We also have a 10-year $1.5 million scholarship with the New Jersey Institute

of Technology to fund pre-college STEM programs and scholarships for STEM students. In Maryland, we are sponsoring a $10 million STEM scholarship and workforce development program.

And we are really supportive of Congressman Keating's legislation to provide Federal grants and enhance the suite of offshore wind training programs available. His legislation is called the Offshore Wind Jobs and Opportunities Act, H.R. 998.

So, in general, we are aligned, I think, on trying to partner with technical and community colleges to train the workforce. We also do quite a bit with universities on research: Rutgers, URI, and others, Stony Brook, and others, to name a few.

Miss Rice. Well, thank you so much for leading the way in that department.

And I want to thank all the witnesses. I have to go run and vote.

And, again, Mr. Chairman, thank you so much.

Mr. Rush. The gentlelady yields back.

The chair now understands that Mr. Carter has returned.

Mr. Carter, you are recognized for 5 minutes.

Mr. Carter, you are recognized for 5 minutes.

The chair understands that the --

Mr. Joyce. Mr. Chair, he is unavailable, if you would proceed with the order.

Mr. Rush. All right. Mrs. Trahan, you are recognized for 5 minutes.

Mrs. Trahan, you are recognized for 5 minutes.

Mr. Carter, I see you entered into the room.

Mrs. Trahan, you are recognized for 5 minutes.

Mrs. Trahan. Well, thank you, Mr. Chairman.

As a bay stater and a Massachusetts representative, I am excited to speak with

you all about the Vineyard Wind project, the Nation's first utility scale offshore wind energy project 15 miles off the coast of Massachusetts. The project will generate renewable affordable energy for over 400,000 homes and businesses, while reducing carbon emissions by over 1.6 million tons per year.

I want to ask a few questions related to what I am seeing on the ground in the State. As many of my colleagues have mentioned today, we must ensure that the offshore wind industry is creating stable union jobs for all people, regardless of race and gender.

Vineyard Wind and stakeholders throughout the State have been working on a project labor agreement. One challenge I hear about is that the majority of building trade union members in Massachusetts are white, while most of the minority-owned contractors in the Boston area are nonunion. My understanding is that this speaks to a larger challenge regarding equity in the offshore wind workforce.

Mr. Strong, can you speak to USW's efforts to diversify the union jobs across the offshore wind supply chain?

Mr. Strong. Well, again, my -- thank you for the question, Congresslady.

My experience has been with US Wind. When we started that conversation a couple of years ago, obviously we talked about the roles of minority workers. That is a foundation of our union, being diversified. They are committed. They have hired personnel to work with the minority business enterprise. They are working with the other groups to promote the hiring and the use of minority workers and businesses.

One of the oldest communities that we have that is located where Bethlehem Steel is is Turner Point Station is predominantly African American. They support the project because they know that there are opportunities for those workers in that

community to get the good-paying union jobs. That is why they come there at that facility.

But this has been part of our conversation with US Wind, and they are committed to making sure that minorities have access to these jobs, and that they are also committed to making sure that minority businesses are included in their contracts.

Mrs. Trahan. Great. I appreciate that. I mean, that is exactly what we need when we say Build Back Better.

Typically, we think of offshore wind investment as the physical construction of majestic turbines in the ocean, but what we are seeing in Massachusetts is that investments span beyond that basic construction.

For example, Vineyard Winds is investing $3 million to research and deploy innovative technologies to further safeguard marine mammals. They are providing a $50,000 grant to the New Bedford Port Authority for developing publicly owned port facilities, and they have committed to investing $10 million in projects to accelerate the development of the offshore wind supply chain and infrastructure in Massachusetts.

Mr. Hardy, can you speak to the ways these broader offshore wind power supply chain investments help Americans?

Mr. Hardy. Absolutely. Thank you for your question. As we have talked about numerous times throughout the day, this is a brand-new industry, and although maybe people don't realize how different it is from onshore wind, the supply chain is completely different. The turbines look the same, but they are actually quite a bit larger. They are built to different specifications, et cetera. And so the build-out of the supply chain across all of the U.S. will create tremendous number of jobs.

And as you alluded to, with Vineyard Winds project, which isn't our project, there

is a number of other job creations that happen as part of this industry. We have talked about port revitalization and port infrastructure, vessels. We talked about onshore construction of the manufacturing facilities, of the onshore substations, and then the offshore construction jobs and the offshore long-term, 30-plus year operation and maintenance jobs, which an offshore maintenance technician is a six-figure job typically.

So these are not, you know, minimum wage, low-cost jobs. These are highly advanced, good-paying, middle-class jobs as we build out this industry.

Mrs. Trahan. Well, I appreciate that.

And my time is ticking down, but I just want to thank the committee. I want to thank the chairman for allowing me to waive on. I am always happy to share what we are learning from the offshore wind industry in Massachusetts and certainly learn from the expert panel of witnesses.

Thank you. I yield back.

Mr. Rush. The gentlelady yields back.

The chair now recognizes the gentleman from Georgia, Mr. Carter, for 5 minutes.

Mr. Carter. Thank you, Mr. Chairman, and thank all of you for being here. I know it has been a long day, so I will try to wrap this up very quickly.

Mr. Menezes, you have been very busy. I know you testified before the Climate Change Committee yesterday, and I appreciate your efforts in doing that. And yesterday, we had the opportunity to discuss the proposed SEP plan that is in the reconciliation bill, and I know that you had some strong feelings on it, as do I. And I think you would agree that it would be detrimental to investments in other energy solutions if it were to pass, and it would essentially just negate a lot of all the progress that we have made.

I am from the State of Georgia, of course, and we take our renewable energy and clean energy very seriously. In fact, solar energy has been growing in our State, and we are in the top 10 now, expect to be in the top 7 in the use of solar energy. We have nuclear reactors under construction at Plant Vogtle, as you are well aware, the only nuclear reactors under construction in the country right now. It is baseline reliable energy, and over time, it will be affordable energy, and that is certainly something that is important.

Just wanted to ask you, I know that you mentioned in your testimony about Denmark and their successful acceptance and the adoption of wind energy because they had local buy-in and local ownership. Considering this, what role do you think that States and local communities should have in deciding offshore wind projects in their areas?

And I mention this because I have the honor and privilege of representing the entire coast of Georgia, and they are, of course, oppo -- I say there are some who are opposed to offshore drilling but also to offshore wind projects. And my question is simple: What do you think the local communities, should they have a voice in this or should they not?

Mr. Menezes. Thank you for the question. I think we all agree here that the States should have a role and so, you know, the local municipalities, et cetera. Nobody is trying to deny anybody from a process. What I think what we are seeing, though, like in Maine -- just take Maine. Maine is very supportive. The Governor is very supportive, but they are banning in State water, so that is 3 miles out I think is what Maine is, so that pushes everything out in Federal waters. I don't think there is anything necessarily wrong with that. That takes the States and munis out,

except -- municipalities -- except when you need to come on shore.

So we have to figure out a way where somewhere along the Eastern Seaboard we are going to have to just physically bring the power in. So there will probably be another round there that might more involve reliability councils, you know, the utilities, you know, the public utility commissioners to make sure that the bulk power system can handle this fairly enormous amount of power that is going to come in. And so there you are going to have another probably round of stakeholders to go through to see where you can interconnect, who bears those costs, who does upgrades, you know, those kinds of issues that we were talking about.

Mr. Carter. Can you elaborate on that? I am not sure I am following you. You mean that you would put it all together outside the 3 mile --

Mr. Menezes. No. So the way that you place the turbines, you know, they can't really all be bunched up. Of course, it is a huge coast, so in some respects, they will be close together. But even as our NREL lab shows, you position them in certain positions to make sure that you take advantage of, you know, the wind in certain distances.

My point on that is, as I had said earlier, you are not going to have a line going into the coast from every single turbine.

Mr. Carter. Right.

Mr. Menezes. You are going to have like these gathering systems, sort of like we do right now, you know, with natural gas. And so all this electricity will be brought in, and they are going to be either into HD -- you know, high-voltage lines, rather, or maybe not quite that much. But the fact is they have got to make landfall and they have got to tie into the bulk power system. So, right now, we have interconnections that where

other power right now is feeding into the grid.

So I think what we have talked about this morning was you identify those places along the bulk power system where you can interconnect, and when that decision is made, then you have the gathering systems, you know, the gathering lines, you know, that bring the power in, you know, and then you need to bring it onshore, you need to get it into the bulk power system. And that is where FERC and that is where BOEM and the others that we have come in.

So you have pushed it further out into Federal waters, so it takes it out of the State's hands.

Mr. Carter. And it becomes more expensive as well?

Mr. Menezes. One would probably -- that would be my view likely, because you are not as close.

Mr. Carter. Right.

Mr. Menezes. You are just further out.

Mr. Carter. Right. Okay. Okay, well, you know, it is a concern. I mean, everybody wants renewable and clean energy, but they just don't want wind turbines in sight.

Mr. Menezes. You know what, you made a great point about the SEP, because we have been asked about the 10-year program.

Mr. Carter. Right.

Mr. Menezes. If the SEP passes, the Clean Electricity Performance project, it pushes the utilities from really investing in offshore wind. They are not going to have the time to comply with the SEP to really do the investments and to make the modifications on the grid necessary to bring in offshore wind. It is going to be outside

the SEP window.

So this is an example of technology, that if that SEP is adopted in the reconciliation package, you are not going to get a lot of support when the utilities are going to be building solar. That is really all they are willing -- there is going to be some wind, but it won't be offshore wind.

Mr. Carter. Right. Okay. Well, thank you.

I am out of time, and I will yield back. Thank you very much.

Mr. Rush. The gentleman yields back.

Seeing no more members with questions, the chair is announcing that this concludes the witness questioning.

And I would like to thank our witnesses for your considerable participation in today's hearing. You have really invested a lot of sacrificial time in this hearing and I really appreciate it, and the members of the subcommittee really appreciate it.

That said, I want to remind members that pursuant to committee rules, they have 10 business days to submit additional questions for the record to be answered by the witnesses who have appeared before us today. And I also ask each witness to respond promptly to any such questions that you may receive.

Before we adjourn, I would request unanimous consent to enter the agreed upon list of documents into the subcommittee's records.

Without objection, so ordered.

[The information follows:]

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

Mr. Rush. At this time, the subcommittee does hereby stand adjourned. The subcommittee is adjourned.

Thank you.

[Whereupon, at 2:16 p.m., the subcommittee was adjourned.]