THE FISCAL YEAR 2024 DEPARTMENT OF ENERGY BUDGET

HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY, CLIMATE, AND GRID SECURITY

OF THE

COMMITTEE ON ENERGY AND COMMERCE

HOUSE OF REPRESENTATIVES

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C O N T E N T S

THE FISCAL YEAR 2024 DEPARTMENT OF ENERGY BUDGET

THURSDAY, MAY 11, 2023

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENERGY, CLIMATE, AND GRID SECURITY,
COMMITTEE ON ENERGY AND COMMERCE,
Washington, DC.

The subcommittee met, pursuant to call, at 2:01 p.m. in the John D. Dingell Room 2123 Rayburn House Office Building, Hon. Jeff Duncan (chairman of the subcommittee) presiding.

Members present: Representatives Duncan, Burgess, Latta, Guthrie, Griffith, Johnson, Bucshon, Walberg, Palmer, Curtis, Lesko, Armstrong, Weber, Balderson, Pfluger, Rodgers (ex officio), DeGette (subcommittee ranking member), Peters, Fletcher, Matsui, Tonko, Veasey, Kuster, Schrier, Castor, Sarbanes, Cárdenas, Blunt Rochester, and Pallone (ex officio).

Also present: Representatives Carter, Clarke, Barragán.

Staff present: Sarah Alexander, Professional Staff Member, Energy and Environment; Kate Arey, Digital Director; Sarah Burke, Deputy Staff Director; Sydney Greene, Director of Operations; Jack Heretik, Press Secretary; Nate Hodson, Staff Director; Tara Hupman, Chief Counsel; Sean Kelly, Press Secretary; Peter Kielty, General Counsel; Emily King, Member Services Director; Elise Krekorian, Professional Staff Member, Energy; Mary Martin, Chief Counsel, Energy and Environment; Jacob McCurdy, Professional Staff Member, Energy; Brandon Mooney, Deputy Chief Counsel, Energy; Kaitlyn Peterson, Clerk, Energy and Environment; Karli Plucker, Director of Operations (shared staff); Emma Schultheis, Staff Assistant; Olivia Shields, Communications Director; Peter Spencer, Senior Professional Staff Member, Energy; Michael Taggart, Policy Director; Dray Thorne, Director of Information Technology; Camden Burk, Minority Intern; Waverly Gordon, Minority Deputy Staff Director and General Counsel; Tiffany Guarascio, Minority Staff Director; Kris Pittard, Minority Professional Staff Member; Kylea Rogers, Minority Policy Analyst; Andrew Souvall, Minority Director of Communications, Outreach, and Member Services; Medha Surampudy, Minority Professional Staff Member; and Tuley Wright, Minority Staff Director, Energy, Climate, and Grid Security.

Mr. DUNCAN. The subcommittee will come to order, and the Chair recognizes himself for an opening statement.

OPENING STATEMENT OF HON. JEFF DUNCAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF SOUTH CAROLINA

I want to thank you all for being here today to examine the Department of Energy's fiscal year 2024 budget request. Today marks the first time that Secretary Granholm has appeared before this subcommittee in over a year.

Madam Secretary, welcome back to the subcommittee.

The administration's budget request for fiscal year 2024 is almost $52 billion, a $6.2 billion or 13.6 percent increase from enacted levels in 2023. This includes a $366 million increase for the Office of Energy Efficiency and Renewable Energy, a $46 million increase for cybersecurity, a $238 million cut to nuclear energy.

This request is in addition to the billions of dollars already appropriated to DOE through the Democrats' tax-and-spend bill, the infrastructure bill, and the CHIPS Act, all of which passed in the last Congress. I look forward to taking a closer look at the request and DOE's priorities today.

Energy is the foundational—is foundational, and impacts every aspect of American life. Democrats' rush-to-green policies are making energy unaffordable for too many Americans. Over the past 2 years, energy prices have skyrocketed. This administration has discouraged private-sector investment in critical energy infrastructure like oil and gas pipelines, issued onerous regulations on energy production and processing facilities, maintained a needlessly complex bureaucracy that makes permitting reliable power generation like nuclear energy nearly impossible, and made our energy supply chains more vulnerable to hostile foreign actors.

Not long ago, America was an energy superpower. Increased American energy production helped strengthen our economy and gave our industries a competitive advantage, allowed us to challenge adversarial energy dictators without having to worry about global markets, all while decreasing greenhouse gas emissions. President Biden and his Department of Energy has spent the past 2 years ceding that strength and autonomy to hostile nations like China, Russia, and Venezuela.

Since the beginning of 2021, retail electricity rates have increased by 8 percent, gas prices have increased roughly 46 percent, natural gas prices are up roughly 31 percent, and home heating oil and diesel fuel are up by 49 percent. Unfortunately, Democrats and President Biden's regressive energy agenda takes a whole-of-government approach to phase out American energy production and ship it overseas to countries like China.

In fact, the Department recently announced its intention to award $200 million to a Chinese battery company, Microvast. We have yet to hear a good explanation from the Department regarding how this company was able to secure taxpayer dollars intended to establish a domestic supply chain for battery technologies.

If we follow President Biden's energy agenda, Americans will become even more dependent upon China and Russia. The critical minerals supply chain for renewable energy technologies is largely controlled by those two countries. This rush-to-green agenda includes an impractical goal of a zero-carbon electric grid by 2035. And with this impractical goal comes calls for a massive expansion of transmission infrastructure.

The driving force behind this push to build transmission is not reliability or to lower costs for consumers; it is largely to connect more renewable energy to the grid. I am not totally averse to that. That is why I am wary of a lot of the so-called reforms to the transmission permitting process as well as a lot of the transmission programs in DOE's budget request. Most are a precursor to achieve this unrealistic rush-to-green goal.

President Biden's energy agenda discourages investment in traditional energy sources that provide 24/7 electricity generation. According to the EIA, last year we added the least amount of interstate natural gas pipeline capacity since the agency began collecting data nearly 30 years ago. This did not happen by accident.

Republicans on Energy and Commerce have solutions to reverse the Democrats' regressive energy agenda. H.R. 1, the Lower Energy Costs Act, passed the House a few weeks ago with a bipartisan vote. Legislation would create a regulatory structure that encourages investment and innovation to bring all forms of energy online.

The Department of Energy's core mission is to confront energy security needs that face our Nation. This budget request falls short of that goal. Instead, the Biden administration's Energy Department prioritizes Green New Deal policies that raise prices for hardworking Americans and embolden foreign adversaries.

When America is a world leader in energy production, the world is safer and a cleaner place. President Biden's Energy Department has put its foot on the scale in favor of green technologies at the expense of reliable fuels like nuclear, natural gas, and hydropower. This is making our supply chains more vulnerable to foreign adversaries, dragging down economic growth, harming our national security, and raising prices for everyday American families. DOE must reverse these policies and return to its core energy security mission.

So I want to thank you again, Chair Rodgers, for letting me hold this hearing. I want to thank the Secretary for being here, and I look forward to her testimony.

[The prepared statement of Mr. Duncan follows:]

Jeff Duncan (SC-03) Opening Remarks
Energy Subcommittee Hearing
Department of Energy FY24 Budget Request
May 11, 2023

As prepared for delivery

The Subcommittee on Energy will now come to order.

Thank you all for being here today to examine the Department of Energy's Fiscal Year 2024 budget request. Today marks the first time Secretary Granholm has appeared before this subcommittee in over a year.

Madam Secretary, welcome back to the Subcommittee.

The Administration's budget request for FY24 is almost $52B – a $6.2B, or 13.6%, increase from enacted levels in 2023.

This includes a $366M increase for the Office of Energy Efficiency and Renewable Energy, a $46M increase for cybersecurity, and a $238M cut to nuclear energy.

This request is in addition to the billions of dollars already appropriated to DOE through the Democrat's tax and spend bill, the infrastructure bill, and the CHIPS Act, all of which passed last Congress.

I look forward to taking a closer look at the request and DOE's priorities today.

Energy is foundational and impacts every aspect of American life. Democrats "rush to green polices" are making energy unaffordable.

Over the past two years, energy prices have skyrocketed. This Administration has discouraged private sector investment in critical energy infrastructure like oil and gas pipelines, issued onerous regulations on energy production and processing facilities, maintained a needlessly complex bureaucracy that makes permitting reliable power generation like nuclear energy nearly impossible, and made our energy supply chains more vulnerable to hostile foreign actors.

Not long ago, America was an energy superpower. Increased American energy production helped strengthen our economy, gave our industries a competitive advantage, and allowed us to challenge adversarial energy dictators without having to worry about global markets, all while decreasing greenhouse gas emissions.

President Biden and his Department of Energy have spent the past two years ceding that strength and autonomy to hostile nations like China, Russia, and Venezuela.

Since the beginning of 2021…

- Retail electricity rates have increased by 8%
- Gas prices have increased by roughly 46%

- Natural gas prices are up roughly 31%; and
- Home heating oil and diesel are up by 49%

Unfortunately, the Democrats and President Biden's regressive energy agenda takes a whole of government approach to phase out American energy production and ship it overseas to countries like China.

In fact, the Department recently announced its intention to award $200M to a Chinese battery company, Microvast. We have yet to hear a good explanation from the Department regarding how this company was able to secure taxpayer dollars intended to establish domestic supply chains for battery technologies.

If we follow President Biden's energy agenda, Americans will become even more dependent upon China and Russia - the critical mineral supply chain for renewable energy technologies is largely controlled by these two countries.

This rush to green agenda includes the impractical goal of a "zero-carbon electric grid by 2035." And with this impractical goal comes calls for a massive expansion of transmission infrastructure. The driving force behind this push to build transmission is not reliability or to lower costs for consumers – it is largely to connect more renewable energy to the grid.

That is why I am wary of a lot of the so-called reforms to the transmission permitting process, as well as a lot of the transmission programs in DOE's budget request – most are a precursor to achieve this unrealistic "rush to green" goal.

President Biden's energy agenda discourages investment in traditional energy sources that provide 24/7 electricity generation. According to the EIA, last year we added the least amount of interstate natural gas pipeline capacity since the agency began collecting data nearly 30 years ago. This did not happen by accident.

Republicans on Energy and Commerce have solutions to reverse the Democrats' regressive energy agenda. H.R. 1, The "Lower Energy Costs Act" passed the House a few weeks ago with a bipartisan vote. The legislation would create a regulatory structure that encourages investment and innovation to bring all forms of energy online.

The Department of Energy's core mission is to confront the energy security needs that face our nation.

This budget request falls short of that goal. Instead, the Biden Energy Department prioritizes green new deal policies that raise prices for hardworking Americans and embolden foreign adversaries.

When America is a world leader in energy production, the world is a safer and cleaner place.

President Biden's Energy Department has put its foot on the scale in favor of green technologies at the expense of reliable fuels like nuclear, natural gas, and hydropower. This is making our

supply chains more vulnerable to foreign adversaries, dragging down economic growth, harming our national security, and raising prices for American families.

DOE must reverse these policies and return to its core energy security mission.

Thank you again Chair Rodgers for holding this hearing.

I look forward to hearing from Madam Secretary and now I recognize Ranking Member DeGette.

Mr. DUNCAN. And I now recognize Ranking Member DeGette for 5 minutes.

OPENING STATEMENT OF HON. DIANA DEGETTE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF COLORADO

Ms. DEGETTE. Thank you so much, Mr. Chairman.

And Secretary Granholm, thank you so much for joining us today. It is good to see you. I want to commend you and your agency for the critical work that you have been doing in recent years to help us combat the climate crisis and to ensure that Americans continue to have access to the energy that they need as we transition to more renewable forms of electricity.

As I have said countless times before while sitting here at this dais, the climate change is an existential threat to the future of this planet, and we must address it immediately, if not past immediately. We know the only way to meaningfully address this crisis is by significantly cutting our greenhouse gas emissions, and as quickly as possible. We know that to do that we have to transition to clean sources of energy now.

Breaking our reliance on fossil fuels will not only help us stave off the worst effects of the climate crisis, but it will also protect consumers around the country from the sudden increases in the cost of gasoline that can strain families' budgets. And it will help us ensure that all Americans have access to the affordable, reliable energy that they need. And good news, looking at your budget, I believe the Department of Energy's proposed budget for next year will continue to help put us on a path to do exactly that.

By increasing funding for key research projects and initiatives and continuing to focus on industrial decarbonization, supply chain development, and workforce transition, the Department is helping us create a cleaner, more diverse energy portfolio right here in the United States. The agency's plans to invest $9.4 billion for energy programs and $8.8 billion for the Office of Science will help the research, development, and demonstration of clean energy technologies and support the important work that is being done by our national laboratories.

While there is no doubt we still have a long way to go in making this clean energy transition, the investments that will be made under this proposal will provide critical support to this incredibly important endeavor.

It will provide $1.2 billion for industrial decarbonization efforts, including $160 million for the Office of Clean Energy Demonstrations to support large-scale industrial decarbonization projects.

It includes $75 million to launch the Global Clean Energy Manufacturing Initiative, which will help build resilient supply chains for the clean energy future, a critical component of this fight.

And it includes $2 billion to support the clean energy workforce and to help fund key infrastructure projects across the Nation, including millions of dollars to help weatherize low-income communities and retrofit their homes to lower energy costs for communities that have been forced to disproportionately bear the brunt of the climate crisis for far too long.

Each and every one of these proposals will play a critical role in helping us combat the climate crisis. They will also help us not only stabilize the cost of energy here at home but lower it for many Americans by making critical new investments to increase our energy efficiency and drive the innovation of new clean energy technologies.

This budget also makes commonsense investments in cyber and energy system security, as well as environmental health and management for low-income communities.

It includes $156.6 million for the Energy Information Agency, whose work provides critical energy information and data that informs our work.

It includes $56.6 million for the Office of Technology Transmission to help accelerate the commercialization of new clean energy technologies.

And it includes $165.2 million for the DOE Office of the Inspector General to ensure that taxpayer dollars are being used efficiently and effectively.

I believe that this budget will allow the DOE to place the United States where it belongs, as the leader in the clean energy transition. And I want to thank you, Senator—sorry, not Senator, didn't mean to give you a demotion—Secretary Granholm, again, for being with us today, and for explaining how this is going to happen.

[The prepared statement of Ms. DeGette follows:]

Committee on Energy and Commerce

Opening Statement as Prepared for Delivery
of
Subcommittee on Energy, Climate, and Grid Security
Ranking Member Diana DeGette

Hearing on "The Fiscal Year 2024 Department of Energy Budget"

May 11, 2023

Thank you, Chairman Duncan.

And thank you to Secretary Granholm for taking the time to be here today.

I want to commend you and your agency for the critical work you've been doing in recent years to help us combat the climate crisis and ensuring that Americans continue to have access to the energy they need as we transition to more renewable forms of electricity.

As I've said countless times before while sitting here at this dais, the climate crisis is an existential threat to the future of this planet and it's one that must be addressed immediately. We know the only way to meaningfully address this crisis is by significantly cutting our greenhouse gas emissions as quickly as possible.

We know, to do that, we must expedite our transition to clean sources of energy now. Breaking our reliance on fossil fuels will not only help us stave off the worst effects of the climate crisis, but it will also protect consumers across this country from sudden increases in the cost of gasoline that can strain families' budgets, and will help us ensure that all Americans have access to the affordable, reliable energy that they need. And I believe the Department of Energy's proposed budget for next year will put us a path toward doing exactly that.

By increasing funding for key research projects and initiatives, and continuing to focus on industrial decarbonization, supply chain development and work force transition, the Department is helping us create a cleaner, more diverse energy portfolio here in the United States.

The agency's plans to invest $9.4 billion for Energy Programs and $8.8 billion for the Office of Science will help advance the research, development and demonstration of clean energy technologies, and support the work that's being done by our National Laboratories.

While there's no doubt that we still have a long way to go in making this clean-energy transition, the investments that will be made under this proposal will provide critical support to this incredibly important endeavor.

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This budget also makes commonsense investments in cyber- and energy-system security, as well as environmental health and management for low-income communities. It includes $156.6 million for the Energy Information Agency, whose work provides critical energy information and data that informs our work. It includes $56.6 million for the Office of Technology Transition to help accelerate the commercialization of new clean energy technologies. And it includes $165.2 million for the DOE Office of the Inspector General.

As the former top Democrat on the Oversight and Investigations Subcommittee, I understand how robust congressional oversight is to ensure that taxpayer dollars are being used efficiently and effectively.

I believe that this budget will allow the DOE to place the United States as a leader in the clean energy transition, and I thank you, Sec. Granholm, again for being here today and I look forward to today's discussion.

With that I yield back.

Ms. DEGETTE. And I yield back.

Mr. DUNCAN. I thank the gentlelady. And now it is my honor to recognize the gentlelady who is the Chair of the full committee, Chair Rodgers, for 5 minutes for her opening statement.

OPENING STATEMENT OF HON. CATHY MCMORRIS RODGERS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WASHINGTON

Mrs. RODGERS. Thank you, Mr. Chairman.

Secretary Granholm, welcome. Foundational to our lives and our future is access to affordable, reliable, and clean energy. On Energy and Commerce, we have worked since the start of this Congress to achieve that promise, most recently by passing H.R. 1, the Lower Energy Costs Act. Today I am deeply troubled that the Department of Energy under your leadership has put America on a dangerous path that harms our energy security and benefits our adversaries, mainly China.

Since day one, Department of Energy has enabled the President to shut down American energy. Rather than sounding the alarm about America's declining energy security, the administration canceled the Keystone pipeline; begged OPEC, Russia, and Venezuela to produce more oil and gas; supported the completion of Russia's Nord Stream pipeline; and turned to China for solar panels and batteries made with slave labor and dirty manufacturing.

As a result, America's energy prices are higher than ever, and we are less energy secure. Gas and electricity prices remain too high. Our electric grid is becoming unstable, and this is driving inflation and hurting Americans and businesses. Because of this, families every day have to make tough choices about whether to put gas in the car or food on the table.

Earlier this year we heard from a local Virginia farmer, David Hickman, a fifth-generation farm owner whose livelihood has been made worse by these policies. And he told us, and I quote, "This is the most perilous time for American agriculture."

In some places like California, the government is even asking people to ration energy. This should be a warning to the Biden administration.

One of the first orders of business this Congress was the passage of bipartisan bills to stop President Biden and the Department of Energy from mismanaging the Strategic Petroleum Reserve and sending our emergency stockpile to China. Now our SPR is at the lowest level in 40 years. I am equally concerned that this administration is making us more dependent upon China.

America has the highest labor and environmental standards in the world. We value liberty and equality. Madam Secretary, you support waivers for solar panels sourced from China, even when China violates our trade laws, uses slave labor, and pollutes more than any other nation.

The Department of Energy is spending hundreds of billions of dollars of taxpayer dollars to force an energy transition on Americans with a false promise of 100 percent wind, solar, and battery-powered energy, the supply chains for which are basically controlled by adversarial China. And at the same time, the adminis-

tration is threatening to ban natural gas stoves and other home appliances that Americans rely on.

We have seen the future that these proposed policies and government mandates lead to. I have recently visited Europe with other Energy and Commerce Committee members, and it was clear that Europe's rush to green destroyed their energy and manufacturing industries and increased their reliance on adversaries like Russia and China. And now Europe is in an energy crisis following Russia's war with Ukraine. We cannot let Europe's mistakes become America's future.

DOE must return to its core mission, its mission to protect America's energy security and our way of life, which brings us to the budget request for fiscal year 2024. Last year DOE received a 200 percent boost in funding, nearly $100 billion and up to 350 billion in new loan authorities, and that is an additional—to its regular appropriations of 46 billion. This year the request is to increase the budget to 52 billion.

Our constitutional responsibility is to ensure that the Department of Energy carries out its mission, and the mission is for two of our Nation's most critical missions: that is maintaining our nuclear weapons and ensuring America's energy security. Rather than being focused on this core mission, we see the Department prioritizing the implementation of a rush-to-green agenda and rushing to spend money without taking the steps to prevent waste, fraud, and abuse.

The actions taken by Department of Energy and the alarming comments that you have made, Madam Secretary, about commending China and suggesting that the U.S. follow the Chinese Communist Party's lead have failed to reassure me that DOE's priorities are aligned with the needs of Americans or the national and energy security interests of the United States.

We must abandon this dangerous and radical agenda so that people, Americans, have the opportunity for a better life and a secure future.

[The prepared statement of Mrs. Rodgers follows:]

Chair Cathy McMorris Rodgers
Opening Statement
Subcommittee on Energy, Climate, and Grid Security
Hearing on "The Department of Energy's FY 2024 Budget Request"
May 11, 2023
As prepared for delivery

Thank you, Chair Duncan.

Secretary Granholm, welcome.

Foundational to our lives and our future is access to affordable, reliable energy.

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…begged OPEC, Russia, and Venezuela to produce more oil and gas...

…supported the completion of Russia's Nord Stream pipeline...

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We cannot let Europe's mistakes become America's future.

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Which brings us to the budget request for fiscal year 2024.

Last year, DOE received a 200% boost in funding – nearly $100 billion dollars... and up to $350 billion in new loan authorities…

...in addition to its regular appropriations of $46 billion dollars.

This year, the request is to increase that budget to $52 billion.

It's our constitutional responsibility to ensure DOE carries out its mission as Congress intended.

DOE is responsible for two of the nation's most critical missions: maintaining our nuclear weapons and ensuring America's energy security.

Rather than carrying out its core mission...

...the department is prioritizing the implementation of this rush-to-green agenda and rushing to spend all the money the department has received through IRA and IIJA...

...without taking steps to prevent waste, fraud, and abuse.

The actions taken by DOE under your leadership...

...and the alarming comments you've made commending China and suggesting the U.S. follow the Chinese Communist Party's lead...

...have failed to reassure me that DOE's priorities are aligned with the needs of Americans or the national and energy security interests of the United States.

You must abandon this dangerous and radical agenda so people have the opportunity for a better life and secure future.

Thank you, I yield back.

Mrs. RODGERS. Thank you, I yield back.

Mr. DUNCAN. The gentlelady yields back. I will now recognize the ranking member of the full committee, the gentleman from New Jersey, Mr. Pallone, for 5 minutes.

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

Mr. PALLONE. Thank you, Mr. Chairman.

And after hearing from our committee's Republican leadership, I have to say that I support strongly President Biden's energy agenda, which I know is your energy agenda. Frankly, I don't think we would be able to compete in a global economy if we don't—and certainly not compete with China—if we don't move forward with the President's energy agenda.

And I want to also say that I think that H.R. 1 would destroy our economy and certainly reverse the remarkable and robust job creation that we have seen under President Biden. So in my opinion, you are doing everything that is necessary to compete with China and recognize fully well the competition that we face with China.

I wanted to say, with the passage of the Inflation Reduction Act and the Bipartisan Infrastructure Law, we have certainly given the Department of Energy a lot of work to do. And I am looking forward to getting updates on some of these important clean energy programs today.

Let me start with the Bipartisan Infrastructure Law, which invests $1.2 trillion to modernize our Nation's aging and crumbling infrastructure. The law includes important funding for DOE to invest in American manufacturing, increase access to energy efficiency, and make our Nation's electric grid more clean and secure.

Now, that was the first step, and then we followed it up by passing the Inflation Reduction Act. That law provides $369 billion to build more clean energy in America, create clean energy jobs, lower energy costs for American families, and slash greenhouse gas pollution.

And DOE is also playing a major role in implementing these funds that are supporting innovative clean energy projects, that are investing in communities all around the Nation and have helped create 142,000 good-paying, clean energy jobs since the law was enacted in August. They are also providing rebates to consumers for more efficient home appliances to lower energy costs for hard-working American families. And DOE is addressing emissions at America's industrial facilities, as well.

Now, these two laws, the infrastructure bill and the Inflation Reduction Act, are making a real difference in communities all around the Nation, including in Republican congressional districts. But as we know, not one Republican on this committee supported either of these bills. And that was bad enough, but now they are trying to hold our economy hostage by threatening a default crisis if we don't go along with their demands to roll back these crucial investments and to put polluters over people.

Last month, House Republicans passed the Default on America Act that does the bidding of Big Oil and Gas, increases energy costs

for working families, and sets American workers up to be left behind by abandoning our homegrown clean energy industry. The Republican bill will cut important programs that provide rebates to consumers for home appliances and remove funding for workforce programs in these new and developing industries. It also repeals key energy programs from the Inflation Reduction Act, repeals the zero-emission nuclear power tax credit that was praised by our witness at a recent hearing on nuclear issues, and raises taxes on American energy.

Committee Republicans have not only been trying to undermine these new laws, but they have attempted to manufacture scandals that simply do not exist. Last month they even sent a letter to you, Madam Secretary, criticizing you for your "international travel to Puerto Rico." Of course, Puerto Ricans have been U.S. citizens for over 100 years, and with all the energy issues there, we should be commending the Secretary for visiting Puerto Rico and prioritizing their issues.

At the end of the day, Republican energy policies look to the past, while Democrats and the Biden administration are looking to the future with our commitment to the clean energy transition. The President's DOE budget request includes important funding that will help us meet our decarbonization goals and build on the success of both the Inflation Reduction Act and the Bipartisan Infrastructure Law.

So I also want to highlight the good work that the Department is doing outside of these laws. Last year, DOE periodically released crude oil from the Strategic Petroleum Reserve to help lower gasoline prices at the pump for Americans following Putin's invasion of Ukraine. Today the price of a barrel of crude is $34 cheaper than it was a year ago. The price of a gallon of gasoline is nearly 80 cents cheaper than it was a year ago. So, Secretary, thank you for the Department's decisive action in this regard, and thank you again for joining us today.

[The prepared statement of Mr. Pallone follows:]

Committee on Energy and Commerce

Opening Statement as Prepared for Delivery
of
Ranking Member Frank Pallone, Jr.

Hearing on "The Fiscal Year 2024 Department of Energy Budget"

May 11, 2023

After hearing from our Committee's Republican leadership, I have to say I support President Biden's energy agenda. Frankly, I don't think we'll be able to compete in a global economy – certainly not with China – if we don't move forward with it. H.R. 1 would destroy our economy and reverse the remarkable and robust job creation that we've seen under President Biden. So in my opinion, you are doing everything necessary to compete with China and recognize the competition that we face with China.

With the passage of the Inflation Reduction Act and the Bipartisan Infrastructure Law, we've certainly given the Department of Energy (DOE) a lot of work, and I'm looking forward to getting updates on some of these important clean energy programs today.

Let me start with the Bipartisan Infrastructure Law, which invests $1.2 trillion to modernize our nation's aging and crumbling infrastructure. The law included important funding for DOE to invest in American manufacturing, increase access to energy efficiency, and make our nation's electric grid more clean and secure.

That was the first step and then we followed it up by passing the Inflation Reduction Act. The law provided $369 billion to build more clean energy in America, create clean energy jobs, lower energy costs for American families and slash greenhouse gas pollution.

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These two laws are making a real difference in communities all around the nation – including in Republican Congressional districts, but not one Republican on this Committee supported either of these bills. That was bad enough, but now they are trying to hold our economy hostage by threatening a default crisis if we don't go along with their demands to roll back these crucial investments and put polluters over people.

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appliances and remove funding for workforce programs in these new and developing industries. It also repeals key energy programs from the Inflation Reduction Act, repeals the zero-emission nuclear power tax credit that was praised by our witnesses at a recent hearing on nuclear issues, and raises taxes on American energy.

Committee Republicans have not only been trying to undermine these new laws, but they have attempted to manufacture scandals that simply do not exist. Last month, they even sent a letter to you, Secretary Granholm, criticizing your "international travel" to Puerto Rico. Of course, Puerto Ricans have been U.S. citizens for over 100 years and with all the energy issues there, we should be commending the Secretary for visiting the island and prioritizing their issues.

At the end of the day, Republicans' energy policies look to the past while Democrats and the Biden Administration are looking to the future with our commitment to the clean energy transition. The President's DOE budget request includes important funding that will help us meet our decarbonization goals and build on the success of the Inflation Reduction Act and the Bipartisan Infrastructure Law.

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Today, the price of a barrel of crude oil is $34 cheaper than it was a year ago. The price of a gallon of gasoline is nearly 80 cents cheaper than it was a year ago. So, Secretary Granholm, thank you for the Department's decisive action.

Thank you again for joining us today. I yield back the balance of my time.

Mr. PALLONE. And I yield back, Mr. Chairman.

Mr. DUNCAN. I thank the gentleman.

So our witness today is the Honorable Jennifer Granholm, Secretary of the Department of Energy, who I understand drove her electric vehicle up to the Hill to testify today, this year.

So you are recognized for 5 minutes, Madam Secretary.

STATEMENT OF JENNIFER M. GRANHOLM, SECRETARY, DEPARTMENT OF ENERGY

Ms. GRANHOLM. Great, thank you so much, Chair Duncan and Ranking Member DeGette, and members of the subcommittee. I am so honored to be with you today to discuss the President's latest budget request for the Department of Energy.

Over the last 2 years it has been my great privilege to lead the Department in meeting many of our Nation's most pressing needs. From deepening our energy security by reshoring supply chains and manufacturing to strengthening American innovation with cutting-edge research and development to maintaining a strong nuclear deterrent, we are positioning the United States to outmaneuver aggressors, outcompete our rivals, and create new jobs and opportunities for the American people.

The President's budget request for fiscal year 2024 will empower us to drive these endeavors forward, even in the face of emerging challenges. Russia's invasion of Ukraine has sparked a reckoning with our overreliance on fossil fuels. Vladimir Putin has exploited this overreliance, injecting extreme volatility into global markets and leaving working people in the United States bearing higher energy costs.

In response, we are pursuing a strategy of energy security through energy diversity. Congress has made the United States the world's most attractive destination for investment in new energy, and the Department is helping the country capitalize using the resources that you have provided.

Through the infrastructure law, the Inflation Reduction Act, and regular appropriations, we are backing large-scale deployment of solar, wind, electric vehicles, and storage. We are funding demonstrations of next-generation technologies, clean hydrogen, advanced nuclear, carbon capture. We are building a more resilient, reliable grid that can integrate this increasing number of solutions while better weathering disruptions, and we are shoring up supply chains so that no adversaries will be able to threaten our access to energy. This is all to the great benefit of American companies, American communities, and American workers.

In the last 2 years, for example, planned investments in America's battery, solar, and wind supply chains have reached more than $100 billion. Those investments will support thousands of jobs, especially manufacturing technologies that are stamped "Made in the USA."

Still, we know that the more we can improve performance and reduce costs, the faster we can deploy these technologies, the faster the bills for Americans will be lower, and that is why the budget boosts our clean energy research, development, and demonstration programs.

A couple of highlights: Our Office of Fossil Energy and Carbon Management is advancing a suite of CCUS technologies as well as technologies to recover critical minerals from carbon sources; our Office of Science would receive more than $1 billion for fusion research, furthering our work to harness fusion's tremendous potential; and our Office of Nuclear Energy is driving innovation in nuclear fusion and keeping our domestic fleet online so we can make the most of this clean, reliable baseload power.

Programs like the Advanced Reactor Demonstration Program and the Civil Nuclear Credit Program are helping us to cut carbon pollution and boost grid reliability. And through our consent-based siting process, we are getting closer to identifying sites for interim storage of spent nuclear fuel.

Furthermore, the budget provides more than $8 billion for our Office of Environmental Management to treat radioactive tank waste, to address contamination issues across EM sites, and to enhance river protection, particularly at the Hanford site.

I would note that the request aligns with an announcement that we made last week, which is we have reached a conceptual agreement with the EPA and Washington State's Department of Ecology for managing millions of gallons of tank waste at the Hanford site in a safe, effective, and achievable manner, and that achievement would not have been possible without bipartisan support from Congress.

Your support is indispensable to all of our core missions, and we will need it for the work ahead. The President's budget will allow us to shore up our energy security and our national security while reinforcing our efforts to properly implement Congress's legislative actions.

Thank you so much for the opportunity to address you today, and I look forward to your questions.

[The prepared statement of Ms. Granholm follows:]

Testimony of Secretary Jennifer M. Granholm

U.S. Department of Energy

Before the

House Committee on Energy and Commerce

Subcommittee on Energy, Climate, and Grid Security

May 11, 2023

Subcommittee Chairman Duncan, Ranking Member DeGette, and Members of the Subcommittee, it is an honor to appear before you today to discuss the President's Fiscal Year (FY) 2024 Budget request for the Department of Energy ("the Department" or "DOE").

Serving the American people as the 16th Secretary of Energy, I am entrusted with the awesome responsibility to lead a highly talented DOE workforce. I am continuously amazed by their steadfast dedication to our mission and the innovative solutions they bring to some of our nation's most pressing problems. As a result of their tireless efforts, the Department has made significant strides in ensuring America's security and prosperity by addressing our energy, environmental, and nuclear security challenges through transformative science and technology solutions.

Together, we have advanced the energy, economic, and national security of the United States. We are cementing America's place as a trailblazer in the clean energy economy of the future and a leader in the fight against the climate crisis. The scientists and engineers at our National Laboratories, the crown jewels of the nation's research and innovation ecosystem, are paving the way for major scientific breakthroughs that will have an immeasurable impact on the world we live in. Through funding opportunities and in collaboration with States, Tribal nations, institutions of higher education, and local governments around the country, we are helping to

create thousands of good-paying jobs in fields that are critical to the success of the American economy.

The National Nuclear Security Administration (NNSA) does extraordinary work to maintain a safe, secure, reliable, and effective nuclear deterrent, reduce global nuclear threats, and provide our naval fleet with militarily effective nuclear propulsion. It has undertaken a needed modernization of our nuclear arsenal and the infrastructure used for production and science. These new capabilities will position us to execute our challenging missions well into the future. Working closely with allies and partners, the International Atomic Energy Agency (IAEA), and the interagency, NNSA has provided significant support to reduce nuclear risks to Ukraine and the surrounding region since the beginning of Russia's further invasion of Ukraine over one year ago.

The Department is committed to advancing this Administration's energy, climate, and nuclear security and nonproliferation goals. I want to thank Congress for the ongoing, bipartisan support for the Department of Energy and I look forward to working closely with the Committee as you consider the FY 2024 Budget for DOE.

Budget Topline

DOE's FY 2024 Budget Request is $51.99 billion, an increase of $6 billion (13.6%) over the FY 2023 enacted level. The Budget addresses some of the critical opportunities we face, making historic investments in cutting-edge research at National Laboratories, strengthening the Nation's nuclear security enterprise, creating jobs, reducing health and environmental hazards for at-risk communities, and strengthening the cybersecurity and resilience of the energy sector, including advancing critical climate goals. This is urgent work DOE is uniquely prepared to continue.

Making Historic Investments in Cutting-Edge Research at National Laboratories and Universities

Within the historic investment of $23.8 billion for NNSA, funding builds on cutting edge science for NNSA's laboratories to contribute beyond the enduring nuclear missions. For example, the FY 2024 Budget Request includes funding to recapitalize radiation and major environmental test facilities at Sandia National Laboratories used to design and qualify Non-Nuclear Capabilities; and prioritizes the High Explosives Science and Engineering facility at Pantex, including capital equipment purchases, construction, and transition to operate.

The FY 2024 Budget Request will also continue funding maturation of next-generation simulation and computing technologies. Additionally, El Capitan, the first exascale computer for national security, is expected to come online at Lawrence Livermore National Laboratory this year. At over two exaflops it will, for a time, be the world's most powerful supercomputer.

The Budget also provides $8.8 billion for the Office of Science, advancing toward the authorized level in the CHIPS and Science Act to support cutting-edge research at the DOE National Laboratories and the Department's university partners, and to build and operate world-class scientific user facilities.

The Office of Science is uniquely positioned within the federal R&D structure to capitalize on these investments *today* to enhance our nation's innovation capabilities and expand to harness its full research potential from this baseline. This level of funding would support critical advancements in emerging technologies like Quantum Information Science, Artificial Intelligence, and the potential of nuclear fusion. These are all promising game changing technologies for which the National Labs already have strong programs and user facilities.

Within funding for Science, the Budget provides: over $1 billion to achieve fusion on the decadal timescale; provides new computing insight through quantum information science and artificial intelligence that addresses scientific and environmental challenges; expands innovation in the microelectronics ecosystem; leverages data, analytics, and computational infrastructure to strengthen and support U.S. biodefense and pandemic preparedness strategies and plans; furthers the Nation's understanding of climate change; and positions the United States to meet the demand for isotopes.

Finally, the Budget proposes $35 million in the Office of Energy Efficiency and Renewable Energy to initiate planning, outreach, and proposal solicitation for a new national laboratory at a Historically Black College and University, Tribal College and University, or Minority Serving Institution. This 18th national lab is expected to focus on a just and equitable transition for all communities and advancing diversity in the STEM workforce; the lab's expected work will be relevant to EERE's mission given its long history of supporting place-based analytical work, research and development, and community engagement and investment in disadvantaged and marginalized communities.

Creating Jobs Building Clean Energy Infrastructure

The Budget invests nearly $1.2 billion to support clean energy workforce and infrastructure projects across the Nation, including $425 million to weatherize and retrofit low-income homes, $83 million to electrify tribal homes and transition tribal colleges and universities to renewable energy, and $107 million for the Grid Deployment Office to support utilities and State and local governments in building a grid that is more reliable and resilient and that integrates accelerating levels of renewable energy. The newly established Office of State and Community Energy Programs will launch a new Energy Burden Reduction Pilot with $50 million to retrofit low-income homes with efficient electrical appliances and systems. These investments, which complement and build upon the extraordinary funding in the Infrastructure Investment and Jobs Act (IIJA) and Inflation Reduction Act (IRA), will create good-paying jobs while driving progress toward the Administration's climate goals, including carbon pollution-free electricity by 2035.

Advancing Energy Innovation

To support U.S. preeminence in developing innovative technologies that accelerate the transition to a clean energy economy, the Budget invests $9.4 billion, an increase of more than 19.7 percent over the 2023 enacted level of $7.8 billion, in DOE clean energy research, development, and demonstration. These investments would improve clean power technologies, strengthen clean

energy-enabling transmission and distribution systems, decarbonize transportation, advance carbon management technologies, and improve energy efficiency in industry and buildings. This funding would also leverage the tremendous innovation capacity of the National Laboratories, universities, and entrepreneurs to transform America's power, transportation, buildings, and industrial sectors.

Accelerating Industrial Decarbonization

Across the more than $1.2 billion in discretionary DOE industrial decarbonization activities, the Budget reflects the importance of strategically supporting U.S. industrial decarbonization through innovation, targeted investment, and technical assistance. The Budget supports an across-DOE Industrial Technologies joint strategy team to drive adoption of industrial decarbonization solutions including through the Office of Manufacturing and Energy Supply Chains. It also supports expanded research and development efforts in the Office of Energy Efficiency and Renewable Energy's Industrial Efficiency and Decarbonization Office. Within the $1.2 billion mentioned above, the Budget includes $160 million for the Office of Clean Energy Demonstrations to support at least two large-scale industrial decarbonization projects.

Strengthening Domestic and International Clean Energy Supply Chains

The Budget includes a $75 million investment to launch a Global Clean Energy Manufacturing effort within the Office of Manufacturing and Energy Supply Chains that would build resilient supply chains for energy sector components critical to national and energy security through engagement with allies, enabling an effective global response to the climate crisis while creating economic opportunities for the United States to support the global clean technology market.

In addition, the Administration supports the use of the Defense Production Act at DOE to support rebuilding domestic uranium production and enrichment capacity to establish a secure supply for the Nation's current and future nuclear fleet and also to reduce reliance on foreign supplies of uranium, as well as other clean energy technologies to ensure robust supply chains for electrical transformers and other critical grid components. The Budget also includes $75

million in the Office of Manufacturing and Energy Supply Chains for DOE to carry out the President's recent determinations under the Defense Production Act.

Reduces Health and Environmental Hazards for At-Risk Communities

The Budget includes $8.3 billion for the Environmental Management program and reflects this Administration's strong commitment to clean up and protect communities that supported defense production programs and government-sponsored nuclear energy research. As the largest environmental cleanup program in the world, Environmental Management plays a key role in cleaning the environment, contributing to national security priorities, investing in the future and aiding community efforts to build strong economies, growing jobs, and preparing for a clean energy future. This investment will enable the Department of Energy to treat radioactive tank waste, take down contaminated buildings, and ship and dispose legacy waste and clean soil and groundwater across Environmental Management sites.

The Budget includes broad support for underserved communities, including $70 million for Community Capacity Building Initiatives in the Office of Environmental Management and NNSA, to address areas of persistent poverty around the Department's sites.

The Budget also includes $196 million for the Office of Legacy Management to protect human health and the environment by providing long-term management solutions at over 100 World War II and Cold War era sites where the federal government operated, researched, produced, and tested nuclear weapons and/or conducted scientific and engineering research.

Strengthening the Cybersecurity and Resilience of the Energy Sector

The Budget provides $245 million for the Office of Cybersecurity, Energy Security, and Emergency Response to enhance the security of energy technologies and the energy supply chain. The Budget supports increased assistance to States, local governments, Tribes, and Territories for emergency planning and preparation, including for events caused by the impacts of climate change. An additional $301 million is provided for the Strategic Petroleum Reserve,

including $49.8 million in additional funding for the Major Maintenance Program for required upgrades to the West Hackberry Physical Security Program.

Strengthening the Nation's Nuclear Security Enterprise

The Budget makes a historic investment of $23.8 billion for the Nation's nuclear security enterprise to implement the integrated deterrent described in the President's Nuclear Security Strategy, the National Defense Strategy, and the accompanying Nuclear Posture Review (NPR) through support for a safe, secure, reliable, and effective nuclear stockpile combined with nuclear nonproliferation, arms control, and counterterrorism. In addition, the Budget continues robust, executable funding for the recapitalization of NNSA's physical infrastructure, including essential scientific and production facilities to ensure the deterrent remains viable without underground explosive nuclear testing.

NNSA has a broad and complex array of priorities that reflect its expanded mission and the necessity to adapt in today's changing international environment. Our nuclear deterrent remains the cornerstone of our national defense and an assurance for our allies around the globe. NNSA is currently undertaking five warhead modernization programs and a major infrastructure revitalization effort. Once complete, NNSA's modernized infrastructure will enable us to maintain a safe, secure, and reliable stockpile in the face of a wide array of challenges.

Simultaneously, NNSA is continuing progress on its nuclear security, nonproliferation, and counterterrorism efforts. These critical programs ensure that we are aligned with our allies and partners to prevent an arms race, advance global stability, thwart state and non-state actors from acquiring nuclear weapons capabilities, and enhance U.S. and global security.

Stockpile Management

The Budget proposes $5.2 billion in FY 2024 for Stockpile Management to maintain a safe, secure, reliable, and effective nuclear deterrent through five areas that directly support the Nation's nuclear weapons stockpile: stockpile major modernization, stockpile sustainment, weapons dismantlement and disposition, production operations, and nuclear enterprise

assurance. The Budget incorporates $3.1 billion for five major modernization programs that extend the lifetime of the Nation's nuclear stockpile, enhancing security and safety features, and meet modern deterrence needs.

Production Modernization

The Budget includes $5.6 billion for Production Modernization to support modernizing the facilities, infrastructure, and equipment that produce materials and components to meet stockpile requirements and maintain the Nation's nuclear deterrent. The program encompasses five components critical to weapon performance and sustainment of the Nation's nuclear weapons stockpile: primary capability modernization, secondary capability modernization, tritium and domestic uranium enrichment, non-nuclear component modernization, and capability-based investments. The Budget includes $2.8 billion to reestablish the Nation's capability to produce 80 plutonium pits per year as close to 2030 as possible and continue ongoing plutonium operations at Los Alamos National Laboratory.

Stockpile Research, Technology and Engineering

The Budget incorporates $3.2 billion for Stockpile Research, Technology, and Engineering to provide the scientific foundation for stockpile decisions and actions; develop the expert personnel required to support the current and future stockpile; and provide the capabilities, tools, and components needed to support all missions. The funding includes $1 billion in assessment sciences, which funds experiments focused on design and production requirements, continues the implementation of the Enhanced Capabilities for Subcritical Experiments (ECSE) subprogram, and $782 million for Advanced Simulation and Computing, which is preparing for NNSA's first exascale high-performance computing capability.

Infrastructure and Operations

The Budget proposes $2.8 billion for Infrastructure and Operations to maintain, operate, and modernize NNSA infrastructure in a safe and secure manner that supports program execution while maximizing return on investment and reducing enterprise risk. Of this amount, $650 million is included for infrastructure recapitalization to improve the condition and extend the design life of structures, capabilities, and systems to meet program demands; reduce future

operating costs by replacing older facilities with new, more efficient facilities; and reduce safety, security, environment, and program risk. The budget includes funding for the initial phase of the Kansas City Non-nuclear Expansion Transformation (KC NExT), a multi-year effort to increase manufacturing capacity to support the nuclear modernization program. The budget also includes $718 million in Maintenance and Repair for predictive, preventive, and corrective maintenance activities to maintain facilities, property, assets, systems, roads, and vital safety systems.

Restoring American Leadership in Arms Control and Nonproliferation

The Budget includes $2.5 billion for NNSA to reduce nuclear risks and counter the global challenge of nuclear proliferation. As called for in the National Security Strategy, the Budget funds nonproliferation and nuclear risk reduction-related activities across NNSA's Defense Nuclear Nonproliferation, Emergency Operations, and Counterterrorism and Counterproliferation programs, including programs to strengthen the Nation's capability to prevent, counter and respond to nuclear incidents at home and abroad. For the first time in our history, we face two near-peer nuclear powers in Russia and the People's Republic of China (PRC) as well as the expanding nuclear programs of North Korea and Iran. Moreover, Russia's war in Ukraine, nuclear saber rattling, and recent suspension of the New START Treaty are challenging the fundamental framework and principles of the nuclear security and nonproliferation regimes at a time when peaceful uses of nuclear energy are needed more than ever to address critical climate priorities. NNSA is investing in strategic stability, nonproliferation, nuclear and emergency preparedness measures–which are even more important during times such as these when tensions are high, miscalculation is possible, and strategic competition is escalating. This Budget also supports the research and development of next-generation detection, monitoring and verification tools needed to implement high priority efforts, including elements of the Australia-United Kingdom-United States (AUKUS) partnership, and prevent strategic surprise, supports activities with Ukrainian and regional partners associated with radiological and nuclear security, expands efforts in safeguards and security for new advanced nuclear power reactors, and builds on the bioassurance efforts started in FY 2023.

Powering the Nuclear Navy

The Budget includes $1.96 billion for DOE's Naval Nuclear Propulsion Program to ensure safe and reliable operation of reactor plants in nuclear-powered submarines and aircraft carriers. The Budget prioritizes investments in research and development to maintain American dominance while continuing to support improvements to the Naval Nuclear Laboratory infrastructure. This includes long lead-time technology development for the future nuclear fleet, with support for the U.S. Navy's timeline for the next-generation attack submarine.

Supporting Other Defense Activities

The Budget provides $1.1 billion to support defense activities conducted by the Department including Legacy Management (LM), Environment, Health, Safety and Security, Enterprise Assessments, Specialized Security Activities, Hearings and Appeals, and Defense Related Administrative Support (DRAS). DRAS offsets administrative expenses for work supporting defense-oriented activities in Departmental Administration.

Administration and Oversight

Energy Information Agency

The Budget includes $156.6 million for the Energy Information Agency (EIA) to enable EIA to continue delivering the critical energy information products on which its stakeholders rely, including weekly petroleum and natural gas inventory reports, comprehensive monthly forecasts of energy markets, and long-term outlooks for U.S. and global energy production and consumption.

Office of Technology Transitions

The Budget includes $56.6 million to focus on commercialization of promising technologies. This includes funding the Energy Program for Innovation Clusters (EPIC) to encourage growth of regional energy innovation ecosystems, training National Laboratory scientists and engineers on customer outreach and partnership through the private sector through Energy I-Corps, supporting an Energy Tech University prize, supporting market and commercialization analytics, and coordinating tech transfer. Funding is also included within the

Budget for the Foundation for Energy Security and Innovation to accelerate the commercialization of new and existing energy technologies by raising and investing funds through engagements with the private sector and philanthropic communities.

Departmental Administration

The Budget includes $433.5 million for Departmental Administration to fund management and mission support organizations that have enterprise-wide responsibility for international engagement and promotion of global market opportunities, administration, accounting, budgeting, contract and project management, human resources, congressional and intergovernmental liaison, energy policy, information management, life-cycle asset management, legal services, workforce diversity and equal employment opportunity, ombudsman services, small business advocacy, sustainability, and public affairs. In FY 2024 the Budget funds new statistical and trend analysis capabilities within the Office of Policy, with support from the Energy Information Agency.

Office of the Inspector General

The Budget includes $165.2 million in discretionary authority. Also, the Office of the Inspector General would receive funding within the Administration's proposed $150 million in mandatory funding.

Conclusion

I want to again thank the Committee for its ongoing and bipartisan support for the DOE mission.

Thank you for the opportunity to be here today. I am happy to answer your questions.

Mr. DUNCAN. The gentlelady yields back, and so now I will begin the questioning portion of the hearing.

Before we do, I would like to enter into the record an article here about the need for domestically sourced enriched uranium, and get away from Russia.

So without objection, so ordered.

[The information appears at the conclusion of the hearing.]

Mr. DUNCAN. So electricity prices in the Nation are 52 percent higher over the last 2 years than they were for the last 4 years, or the only 4 years under the last administration. And for the record I will reiterate that you have increased the budget for the Office of Energy Efficiency and Renewable Energy by 366 million while also cutting 238 million to nuclear energy.

We will get back to nuclear in a minute, but I wonder—why cut nuclear power investments by that amount?

The PJM Interconnection, the Nation's largest grid operator, issued a dire warning earlier this year regarding the premature retirement of dispatchable generation. This report noted that, at the current pace of retirements, the grid operator will potentially face a significant generation capacity shortfall by 2030. PJM noted numerous policies directly impacting these premature generation retirements, including multiple EPA regulations—and we just saw another one today; State rush-to-green policies; and private-sector ESG commitments. Massive tax credits and subsidies are unreliable. Wind and solar are contributing to this problem, as well.

These are all issues that policymakers, the Biden administration, and congressional Democrats specifically are forcing onto the American people, decreasing grid reliability and raising consumer costs. It seems the Biden administration's energy policy is a pay more, get less.

So I know the DOE signed a memorandum of understanding with the EPA regarding coordination on electric reliability, but the agreement seems to do nothing in practice. What specific actions is your Department taking to improve grid reliability?

Ms. GRANHOLM. Several things, thank you. One is we are making sure that we have enough transmission to ensure that the grid is able to take on the additional resources that we want to see continue to be deployed, including clean—but clean energy that includes nuclear, that includes hydroelectric, that includes geothermal, that includes solar, that includes wind, and that includes battery storage.

Mr. DUNCAN. How about some specifics? Those are all general topics, and we could agree with that. But how about some specifics that you are doing?

Ms. GRANHOLM. Well, specifically, we are accelerating the implementation and deployment of the Bipartisan Infrastructure Law, which helps to increase grid reliability. So, for example, we have just announced a series of funding opportunities called the GRIP Program, which will enhance the reliability of the grid by giving grid operators the opportunity to make sure that they also enhance security by potentially undergrounding, by adding additional transmission.

So the tools that have been given to the Department related to grid reliability are very important to be able to ensure that we

have enough access to reliable power and that the transmission grid is able to withstand it.

Mr. DUNCAN. So we are going to need transmission line permitting reform. We also need gas pipeline permitting reform—the statement I referenced concerning lack of natural gas pipeline capacity and its effects on energy reliability, especially dispatchable energy. This committee adopted reforms to the interstate natural gas pipeline permitting process, which ultimately passed the House bipartisanly.

The reliability of our electricity system is closed interconnected with the interstate natural gas—closely interconnected with the interstate natural gas pipeline system. We need to build more to improve electric reliability.

Do you believe insufficient natural gas pipeline capacity harms grid reliability and affordability for consumers?

Ms. GRANHOLM. I think we have to have sufficient infrastructure to make sure that we have the dispatchable power——

Mr. DUNCAN. Infrastructure means——

Ms. GRANHOLM [continuing]. That we need.

Mr. DUNCAN [continuing]. Expansion of pipelines, more pipelines, and——

Ms. GRANHOLM. We are going to need pipelines, certainly, for making sure that dispatchable power gets to the places where it is needed.

Mr. DUNCAN. Where it needs to be to be utilized——

Ms. GRANHOLM. But we also need——

Mr. DUNCAN [continuing]. By the utilities, correct?

Ms. GRANHOLM. We also need to be able to have pipelines for hydrogen, for——

Mr. DUNCAN. Carbon capture.

Ms. GRANHOLM [continuing]. For carbon capture, et cetera. So——

Mr. DUNCAN. Export, you could throw that in there to help the world.

Ms. GRANHOLM. And I would say that your observation about permitting reform is right on. We need to do permitting reform across the board, and I am hopeful that this——

Mr. DUNCAN. I look forward to working with you on that.

Ms. GRANHOLM [continuing]. Congress will be able to get there.

Mr. DUNCAN. So I want to talk on nuclear real quick. I recently chaired a subcommittee on nuclear hearing—on nuclear energy, and it was bipartisan. I was pleased by that. There was widespread agreement, and there is widespread agreement, both chambers and both sides of the aisle.

It has been over 2 years, and the DOE still hasn't complied with the congressional directions to stand up and advance nuclear fuel or HALEU, program. Is that reflective of DOE or administrative policies? And why do we have this delay?

Ms. GRANHOLM. Well, we need to do a whole project with respect to HALEU and uranium, overall, to make sure that we can fuel our current fleet as well as the advanced reactors. We do not want to be reliant on Russia.

We have stood up a uranium—started to set up a uranium reserve. We have asked for and we are—we will be issuing a funding opportunity announcement for uranium——

Mr. DUNCAN. My time is expiring. Let me just ask you this: Why cut nuclear energy funding by $238 million?

Ms. GRANHOLM. Because that funding was—had been used to fund the Advanced Reactor Demonstration Program, and that is now funded over at the—through the Bipartisan Infrastructure Law. And so it would have been duplicative. So it is something that the Department—that the Office of Nuclear Energy actually supported because we didn't need that funding at this moment.

Mr. DUNCAN. Thank you for that.

My time has expired. I will now go to the ranking member, Ms. DeGette, for 5 minutes.

Ms. DEGETTE. Thank you so much.

Madam Secretary, as I mentioned in my opening statement, the climate crisis is an existential threat that has to be addressed as quickly as possible. And you know quite well, because you are on the front line, we have to slash our greenhouse gas emissions and transition to clean energy and provide energy at an affordable rate to Americans.

So I have a couple questions. I assume you agree with me that, to combat the worst impacts of climate change, we have to drastically reduce our emissions. Is that right?

Ms. GRANHOLM. I do.

Ms. DEGETTE. And one way to do that is to rapidly deploy zero-carbon-emitting sources of wind and solar and other sources. Is that right?

Ms. GRANHOLM. Correct.

Ms. DEGETTE. But now—I mean, let's cut to the chase. The last 10 percent of emission reductions will be the hardest. And we don't yet have the technology to be able to say we can get to 100 percent by 2050. So how is the agency positioning itself and its work to actually be able to close that gap and to meet the goals we need to make?

Ms. GRANHOLM. Yes, thank you for that question. I mean, both on the research and development side, through our work at the labs and our work in the Department, as well as on the deployment side, we will be doing both on the difficult-to-decarbonize areas, such as industrial decarbonization, heavy transportation, aviation, et cetera.

Part of the—and thank you for supporting the Bipartisan Infrastructure Law and the Inflation Reduction Act. Those tools will allow for us—and we have just—we have got a funding opportunity announcement out for industrial decarbonization, but it is also the—and the budget actually supports an increased amount for our office of decarbonizing industry. But we also are seeing that, with hydrogen and the hydrogen hubs, that is a tool that can be used to decarbonize heavy industry, cement, et cetera, steel. That tool is important.

And decarbonizing heavy transportation. Our vehicle technologies office and the work that we have done on both electrification as well as fuel cells for transportation, also very, very important. And then I would say carbon capture and sequestration is an-

other tool to be able to help to decarbonize heavy industry, all of which we are working on, both on the research side as well as on the deployment side.

Ms. DEGETTE. That is great. One of the things that we talk a lot about in this committee—and it is a very real concern—is what are we going to do about the fossil fuel workforce?

I represent Colorado, which is traditionally an oil and gas State. But I think that, as we try to move towards a clean energy economy, we have to transition the workforce. So can you talk to me about what is happening, both the investments in the last Congress and also in this budget, to help continuity for the existing energy workforce?

Ms. GRANHOLM. Yes, there are several things that are happening.

One is that there is an all-of-government approach to being able to focus on the skill sets that will be needed for next-generation technologies and making sure we are able to upskill the workers, particularly in fossil communities, but also in communities that have high unemployment.

What we want to do is create sector-specific skill sets and make sure that those are taken in a place-based manner. When grants are awarded, for example, to hydrogen hubs, we need workers to be able to both build as well as to operate facilities. The fossil fuel workforce, for example, those who do natural gas, who extract natural gas, who extract oil from beneath the subsurface, have an expertise in subsurface fuels. They can also be transitioned to geothermal, for example. Those who build offshore wind platforms can also be building offshore—who build offshore oil and gas platforms can build offshore wind platforms. Those skills matches are part of what the Department is working on through our workforce development initiatives, as well as through the skills—the tools that the Congress has given us on—through the Inflation Reduction Act on apprenticeships, et cetera, funding and incentivizing those apprenticeships.

Ms. DEGETTE. Thank you. I have one last question, because we have had a lot of hearings and markups in this committee already this year, for which I commend the chairman, because we have to work on energy. But one thing that folks on the other side of the aisle keep pounding on, we can't do this just through—they keep somehow insinuating the administration is trying to move to zero-carbon emissions program just through solar and wind.

And I want to be clear. Has the administration said we are not going to have nuclear, or hydro power, or other types of things—of energy sources?

Ms. GRANHOLM. On the contrary, the administration is very much in favor of nuclear, hydroelectric power, geothermal power. We want to grow the energy pie by adding diverse forms of sources—of clean energy sources, and to decarbonize the existing fossil fuel sources. We want to do both.

Ms. DEGETTE. Thank you.

I yield back.

Mr. DUNCAN. The gentlelady yields back. I will now go to the Chair of the full committee, Mrs. Rodgers, for 5 minutes.

Mrs. RODGERS. Thank you, Mr. Chairman.

And again, Madam Secretary, I appreciate you being here.

The war in Russia really exposed our energy security vulnerabilities and the danger of relying on adversaries for our energy needs, and I have had numerous conversations with our European allies, you know, and they regret some of the decisions that were made that led them to this place to be dependent, dangerously dependent, on Russian natural gas. And they have been pleading with us for years for America to increase our LNG exports.

Now, in America we are blessed with some of the world's largest and cleanest supplies of fossil fuels, the critical minerals for renewables, plentiful supplies for uranium to power our nuclear reactors. And—but unfortunately, we are falling behind on the processing of those minerals and uranium. China controls more than 90 percent of the critical minerals processing used for renewables and batteries. And the U.S. nuclear fleet imports more than 20 percent of its enriched uranium from Russia. Reliance on Russian-sourced nuclear fuel has weakened our nuclear fuel infrastructure and now puts our whole nuclear security at risk.

Congress imposed a ban on Russian oil and gas imports. Do you support a ban on importing Russian enriched uranium into the U.S., as well?

Ms. GRANHOLM. I would certainly consider that if we have our own—developed our own supply. We want to be energy independent, we don't want to harm——

Mrs. RODGERS. OK. OK, thank you.

Ms. GRANHOLM [continuing]. Existing fleet, but we want to build up that energy supply.

Mrs. RODGERS. OK. I have a——

Ms. GRANHOLM. Hopefully, Congress will work on——

Mrs. RODGERS. Thank you. I am going to take back my time, and I look—we need a—I have a whole bunch of yes-or-no questions here.

Will you commit to supporting with—working with me on legislation to ban the import of Russian-sourced nuclear fuels?

Ms. GRANHOLM. Again, I would support making sure that our fleet is secure and that we have enough supply, and that means making it here. And I hope we can work together on a uranium strategy that ensures that we can have that for our own fleet.

Mrs. RODGERS. Yes, and we got to ban natural gas—or we got to ban the nuclear coming from Russia. And then we got to work on getting supply here too.

Ms. GRANHOLM. Yes.

Mrs. RODGERS. Yes or no, do you agree that because China controls more than 90 percent of the critical materials used to make solar panels and batteries, that America is becoming dependent on one supplier, China, for our energy needs?

Ms. GRANHOLM. I think America is becoming more dependent on ourselves because of the investments that were made through the Inflation Reduction Act. The Loan Program Office has just financed several processing——

Mrs. RODGERS. I don't see—nothing is being manufactured yet.

Ms. GRANHOLM. Well——

Mrs. RODGERS. Yes or no, are you——

Ms. GRANHOLM. But it is going to be. It is going to be. That is what is so exciting, all the announcements that have been made about batteries, battery supply chain——

Mrs. RODGERS. Reclaiming my time, are you aware that China uses slave labor, and is the largest polluter——

Ms. GRANHOLM. I am.

Mrs. RODGERS [continuing]. In the world?

How many critical mineral processing facilities do we have in the United States?

Ms. GRANHOLM. Well, just—that is exactly what I am saying, is that we must build more processing in the United States.

Mrs. RODGERS. OK.

Ms. GRANHOLM. And that is exactly——

Mrs. RODGERS. Let's start, Madam Secretary——

Ms. GRANHOLM [continuing]. What the Inflation Reduction Act and——

Mrs. RODGERS. Reclaiming my time——

Ms. GRANHOLM [continuing]. The Bipartisan Infrastructure Law——

Mrs. RODGERS. We—let's start with how many do we have right now. How many do we have right now?

Ms. GRANHOLM. We just—in fact, the Loan Program Office just financed three additional ones——

Mrs. RODGERS. How many existing processing facilities——

Ms. GRANHOLM. We don't. We have not done that. It has been in Asia. This is exactly why we cannot stand by and allow that to continue. We want to bring——

Mrs. RODGERS. OK, thank you.

Ms. GRANHOLM. We don't disagree, I don't think.

Mrs. RODGERS. Thank you, OK.

Ms. GRANHOLM. We want to bring processing here, and do it here.

Mrs. RODGERS. Thank you, thank you. How long does it take to permit——

Ms. GRANHOLM. Far too long.

Mrs. RODGERS [continuing]. A critical minerals processing facility in the United States?

Ms. GRANHOLM. Far too long, far too long.

Mrs. RODGERS. How many years?

Ms. GRANHOLM. It takes years. It is ridiculous and——

Mrs. RODGERS. How many years?

Ms. GRANHOLM [continuing]. Unacceptable.

Mrs. RODGERS. So how many years——

Ms. GRANHOLM. It shouldn't take——

Mrs. RODGERS [continuing]. Does it take?

Ms. GRANHOLM. [continuing]. As long as it does.

Mrs. RODGERS. How many years?

Ms. GRANHOLM. Let's work on slowing the—excuse me, let's work on speeding up——

Mrs. RODGERS. You don't want to say how many years it takes——

Ms. GRANHOLM. Well, I don't——

Mrs. RODGERS [continuing]. Because we are talking about years.

Ms. GRANHOLM [continuing]. Responsibility for how many years it takes. It takes too long. It is years, and it shouldn't be.

Mrs. RODGERS. OK.

Ms. GRANHOLM. We should be doing it much more quickly.

Mrs. RODGERS. So it is going to be years. And in the meantime——

Ms. GRANHOLM. Unless we do permitting reform.

Mrs. RODGERS [continuing]. There is no processing in the United States of America, which means it all is going to go to China and come back——

Ms. GRANHOLM. No, no, that is exactly what we are not going to happen. That is why we have to do permitting reform——

Mrs. RODGERS. If you don't have processing——

Ms. GRANHOLM [continuing]. And that is why we have to continue to invest.

Mrs. RODGERS [continuing]. In the United States of America, it is——

Ms. GRANHOLM. But we are investing in it right now. That is why all of these new——

Mrs. RODGERS. Thank you, thank you.

Ms. GRANHOLM [continuing]. Battery companies——

Mrs. RODGERS. Reclaiming my time.

Ms. GRANHOLM [continuing]. Have announced they are coming.

Mrs. RODGERS. How—OK. Reclaiming my time here, would you support a prohibition on using taxpayer dollars to purchase renewable energy technologies that are manufactured with slave labor?

Ms. GRANHOLM. No.

Mrs. RODGERS. You won't support a prohibition?

Ms. GRANHOLM. I am sorry, I thought you said would I support—I do not support slave labor making solar panels——

Mrs. RODGERS. OK, would you support——

Ms. GRANHOLM [continuing]. Or us supporting it in any way.

Mrs. RODGERS [continuing]. A prohibition on using taxpayer dollars to do this, to purchase—would you support a prohibition on using taxpayer dollars to purchase renewable energy technologies manufactured with slave labor?

Ms. GRANHOLM. Yes.

Mrs. RODGERS. Would you support a ban on importing renewable energy technologies made with components mined or processed in factories that violate America's environmental standards?

Ms. GRANHOLM. I would have to look specifically at what you are saying on that. But I want for us to be manufacturing in the United States——

Mrs. RODGERS. I do too.

Ms. GRANHOLM [continuing]. All the components, the full supply chain——

Mrs. RODGERS. I do too. I do too.

Ms. GRANHOLM [continuing]. For solar, as well as for batteries.

Mrs. RODGERS. Thank you. Thank you, Madam Secretary. I think my point is it is the difference between what the dream is, or—and what reality is. And the reality is it is not happening here. It is happening—we are dependent upon China. And so we got to—we can't get—we got to get the—we can't get the cart before the horse.

I yield back.

Mr. DUNCAN. The gentlelady yields back. I will now recognize the ranking member, Mr. Pallone, for 5 minutes.

Mr. PALLONE. Thank you, Mr. Chairman.

Secretary, again, thank you for being here. And as I mentioned in my opening statement—and you did, as well—over the last 2 years Congress has passed 2 landmark bills, the Bipartisan Infrastructure Law and the Inflation Reduction Act, that give the Department tremendous resources to lower energy prices for everyday Americans while making our energy cleaner for everyone.

So the budget request from your Department built on these laws by making additional investments in affordable, clean energy made right here in America, which you continue to stress. But the problem is that now the House Republicans' Default on America Act will seriously undermine the progress that we are beginning to make and that you have pointed out.

So on the issue—back in March you wrote to Appropriations Committee Ranking Member DeLauro and said that capping DOE's fiscal year 2024 spending at 2022 levels would have catastrophic impacts on everyday Americans.

And I would like to ask unanimous consent to insert your letter into the record, Mr. Chairman.

Mr. DUNCAN. Without objection, so ordered.

[The information appears at the conclusion of the hearing.]

Mr. PALLONE. Thank you.

So I would ask you, Madam Secretary, could you detail how the DOE budget cuts in the Default on America Act would have a devastating impact on everyday Americans? Do you know how many jobs, for example, might be jeopardized?

Ms. GRANHOLM. Well, first of all, I would say that people care about our investments in research and development. And so the slashing of, for example, 5,000 scientists in research at our 17 national labs would very much hinder our ability to be competitive globally. That is very important. It is my understanding, as well, that there is—there are rollbacks of the Inflation Reduction Act tax credits.

And to the point we were just making, there—since the President has taken office, and this agenda to invest in America, there have been 150 battery companies or battery—excuse me, 160—as of last week, 160 battery companies or supply chain companies that have announced they are coming to the United States, all the way from processing all the way to anode, cathode, separator material, electrolyte, critical—160. That policy works. And the idea of rolling that back would harm Americans all across the country in communities that will be benefiting from the jobs that would have been created by the policies that were supported by members of this panel and others.

Mr. PALLONE. Well, thank you. But you also wrote that the cuts would imperil and reduce the impact of the Bipartisan Infrastructure Law. So can you detail how the budget cuts would impact the bipartisan investments that Congress made just a year and a half ago from that——

Ms. GRANHOLM. Right. I mean, so those investments in next-generation technologies that are in the process of being granted now give the United States a leg up on our competitors. They also make

sure that we are able to deploy these technologies at home to make us more energy secure.

Why would we cut the ability to undo decades of job losses to competitor nations when we now have policy that brings those jobs home and makes us more energy secure and makes products that are stamped "Made in America" and are used here and are perhaps sold elsewhere but we are making them here? That makes us energy secure. And cutting both the Bipartisan Infrastructure Law investments in those technologies as well as the deployment strategies in the Inflation Reduction Act would harm our Nation from an economic point of view as well as from an energy point of view.

Mr. PALLONE. Well, thank you so much. I mean, I started out by pointing out in my opening statement that, contrary to what some of my Republican colleagues are saying, is you are very much aware of the competition from China, you realize the threat, and that, you know, if you implement what the Republicans want to do with this Default Act, it is going to take us backwards, make us less competitive in a global economy, less able to compete with China. And, you know, the job numbers keep coming out.

I mean, just in the last few days the unemployment is at an all-time low, even lower than it was a few months ago. And the jobs just, you know, keep coming in a very robust fashion. And I am just convinced that this Default Act would do just the opposite, completely reverse that in the way that you have outlined.

So thank you so much for being here. I appreciate it.

I yield back, Mr. Chairman.

Mr. DUNCAN. I thank the gentleman. I will go to Texas, Mr. Burgess, for 5 minutes.

Mr. BURGESS. Thank you.

And thanks for being here, Madam Secretary. Let me just ask you, can you just kind of briefly bring us up to date on where the Department is with the work on reprocessing spent nuclear fuel?

Ms. GRANHOLM. Yes, thank you for asking that. We have a research program on that. We are working at the Idaho National Lab on that. It is smallish. It is not huge. I think it can be much larger. I think we should be looking at this to a much greater extent. So we have some initial research that is being done on that, but I think it is something that is worthy of expansion.

Mr. BURGESS. Well, if I can ask, what is holding us back? Why is it smallish? Why isn't it robust?

Ms. GRANHOLM. Historically—that is a good question. Historically, it just hasn't been a huge priority. But I think, with the help of Congress and some investment, we can make it a much more robust program.

Mr. BURGESS. Well, you have addressed the fact that we don't want to be buying our fuel stock for nuclear reactors——

Ms. GRANHOLM. Right.

Mr. BURGESS [continuing]. From Russia.

Ms. GRANHOLM. Right.

Mr. BURGESS. So it seems like the reutilization of spent nuclear fuel would make a lot of economic and geopolitical sense.

I guess my concern is with—as big as a budget that you have and all of the money that has been pumped in with the Infrastructure Act and the Inflation Reduction Act and now the President's

budget request, it just seems like a larger portion should be dedicated to that research because, I mean, if we want abundant, low-carbon fuel, that is the place we are going to get it, correct?

Ms. GRANHOLM. It is one of the places, certainly, and I would support authorization to expand our investment in that area.

Mr. BURGESS. Well, Mr. Chairman, I will just say I hope we can have a meaningful hearing on reprocessing of spent nuclear fuel. I think it made no sense when we were debating the President's big, big bill to be talking about investing all of this money in solar and wind,—geothermal even—and not talking about major investments in nuclear power.

You used the term a few minutes ago, "undergrounding." I think it was in relation to electric transmission lines. So is that—I mean, no one likes to have a big transmission line behind their house. So are you—is the agency studying the underground placement of large transmission lines?

Ms. GRANHOLM. Yes. As part of the resiliency funding that our Grid Deployment Office is administering, the resiliency component with undergrounding, particularly in areas where there's high wildfires, a great risk of wildfires, et cetera, is potentially one solution. Of course, it is more expensive, but it is also very expensive to build back.

There is another component of efficiency that could also, I think, be very beneficial in terms of transmission acceptance, which is reconductoring existing lines to make them twice as efficient on existing infrastructure so that you have less of the NIMBY problem that is concerned with transmission.

Mr. BURGESS. I wasn't aware that reconductoring was a verb, but I appreciate you——

Ms. GRANHOLM. Like "undergrounding," I guess.

Mr. BURGESS [continuing]. You bringing that to our attention.

Well, it just seems like there—again, with all of the substantial investments that are being made into your agency, these are the types of things that I, for one, would be—I would be grateful to see some——

Ms. GRANHOLM. Yes.

Mr. BURGESS [continuing]. Additional work. And we can talk all we want about the other sources of energy, but these are capturing energy efficiency, higher utilization of nuclear power—I mean, these are things that make a lot of sense in the Nation's armamentarium. At least it would seem to me that it would.

I am concerned. We had a hearing in our Oversight and Investigation Subcommittee a few weeks ago, and your inspector general, Department of Energy inspector general, was here. I am really concerned about the—it is not just the amount of money that is going in to the agency but the rapidity with which the money is leaving the agency, so the velocity of spending, not just the amount of spending.

Some of us were here when Solyndra became a four-letter word, really fearful of seeing projects where the money is, in fact, misdirected. Can you give us some insight on how you are controlling that?

Ms. GRANHOLM. Yes. First of all, we are grateful to have a great relationship with our inspector general. And on all of these pro-

grams, we consult with that office in how to make sure that there is no waste, fraud, and abuse, that it is designed in a way that is conducive to making sure that the taxpayer is protected. As you have seen in this budget, her budget has been increased by almost double, which is important, given the size of the Inflation Reduction Act and the Bipartisan Infrastructure Law funds that must go out.

I am happy to continue to work with this committee in any way you deem important to have regular briefings on the cadence.

Mr. BURGESS. She said that wasn't enough. And I know my time is expired, and I am going to yield back, but—and that is the concern. The rapidity of the spending is going so fast, the money is going out the door so fast, the inspector general of the Department of Energy can't keep up with it. She says, "I need more money to keep up with the money you have already invested." I realize that is a longer-term project, or a longer-term question, but we have got to stay focused on that.

Mr. DUNCAN. The gentleman's time has expired——

Mr. BURGESS. Thank you, Mr. Chairman. I will yield back.

Mr. DUNCAN [continuing]. And I now recognize the acting ranking member, Mr. Peters, for 5 minutes.

Mr. PETERS. Thank you, Mr. Chairman.

It is great to see you again, Madam Secretary. Thanks for your good work.

Last year, Congress provided record funding to build a cleaner and more secure energy system through historic legislation like the Inflation Reduction Act and the Infrastructure Investment and Jobs Act. I want to thank you for your responses to the Chair of the committee, because I think there is a lot of room for agreement. Some of the talking points that I have heard from the other side are inconsistent with what you said today in terms of your support for nuclear power, for hydro, and for carbon capture, and all sorts of clean energy strategies and batteries. So I think we should be encouraged by that.

And the other thing you talked about is that you acknowledge that things take too long. And I think in this Congress we need to work on speed. If we don't—we can have all the money in the world, but we will not succeed if we don't build things faster, particularly because a lot of what we want to do on climate action is build stuff, not slow stuff down. So I want to thank you and the White House for recognizing the need for that permitting reform, for using your existing authority to speed deployment, and I want to continue to work with you and your team to advance a bipartisan reform this year that will be durable over time because it is bipartisan.

So first, I just want to make sure that we—you seem to agree that permitting and siting reform for clean energy is essential to meet our climate goals. Isn't that right?

Ms. GRANHOLM. Yes.

Mr. PETERS. Do you think we could solve our permitting challenges simply with funding for agencies, or do we need to both provide funding and additional underlying process and authority reforms?

Ms. GRANHOLM. I think there needs to be process as well as funding.

Mr. PETERS. Maybe you could just give us a little flavor for how permitting challenges impair your ability to deploy clean energy projects, and provide specific examples that might be on top of your mind.

Ms. GRANHOLM. In terms of what I would do to increase efficiency on permitting?

Mr. PETERS. Sure, or what the holdup is now, and how you would——

Ms. GRANHOLM. Yes, I mean, clearly, the holdups are the fact that you have processes that require reviews that are consecutive and not concurrent.

Mr. PETERS. Right.

Ms. GRANHOLM. And so now it takes twice as long, when things can be done concurrently. We want to make sure that we have some, for example, a better use—maybe a more liberal use of categorical, you know, exclusions——

Mr. PETERS. Right.

Ms. GRANHOLM. In particular, types of devices that have the same footprint, we shouldn't have to be doing a whole new study around it, assuming that the area is—you know, that there is not some sort of other violation.

We should be doing a greater job of, for example, programmatic energy assessments to be able to take a swath of area and say, "This is OK to be able to build on."

We should be developing more as more projects, more—bigger goals about how quickly we want to get there, perhaps some kind of time limit.

We don't want to degrade the environmental laws, but we want to be able to administer them in a way that, where there is alacrity——

Mr. PETERS. Right.

Ms. GRANHOLM [continuing]. Where we are moving quickly on them, and we can do that because, of course, slowness is—impacts species because we will not be able to address climate change.

Mr. PETERS. And disadvantaged communities, by the way, sure, right?

Ms. GRANHOLM. Of course.

Mr. PETERS. Who are most affected by the pollution.

Ms. GRANHOLM. Of course, of course.

Mr. PETERS. Also, so you know, we saw something from one study that showed it takes, on average, 10 years to do one interstate transmission line.

Ms. GRANHOLM. Ridiculous.

Mr. PETERS. Seven years of that is process. So you and I see eye-to-eye on this. And I think transmission is going to be one of our big objectives. I passed—help pass the POWER On Act last year to give backstop siting authority to FERC. I think that is a good start.

This week DOE issued a request for information on a new process for designated National Interest Electric Transmission Corridors, and that is going to be helpful and would focus on narrow routes proposed by applicants, as opposed to larger corridors des-

ignated from scratch by DOE. How do you think that approach can help advance and speed up transmission——

Ms. GRANHOLM. Well, first of all, glad to say that the approach is based upon a needs study that has been completed about where the most need is in the country.

Number two is that this step that was taken this week is gleaning information from industry partners about how they think NIETC corridors should best be done. But what we want to do is to give them the ability to apply for NIETC corridor designation. That will happen in the Septemberish area. We close down the funding opportunity—excuse me, the notice of intent and the request for information.

So this year we will have set the stage for rapid movement and designation of those corridors, and then it unlocks resources to be able to do that, whether it is the transmission financing resources, it could be the funding that comes from the Bipartisan Infrastructure Law that helps to fund those transmission lines. So all of that gets unlocked, and that will happen this year.

Mr. PETERS. And I am going to run out of time, but I do want to ask you the same question I have asked Mr. Landrieu, Mr. Podesta, this morning Secretary Raimondo: If there are ways that we need to help you speed things up through legislative changes, please let us know so we can get to work on them as soon as possible. Can you do that?

Ms. GRANHOLM. Absolutely.

Mr. PETERS. Thank you so much, and I yield back.

Mr. DUNCAN. The gentleman's time is expired, and I will now go to Mr. Latta from Ohio for 5 minutes.

Mr. LATTA. Well, thank you, Mr. Chairman.

Madam Secretary, good to have you back. You said a little earlier that we can't ban Russian uranium until we have our own domestic industry built up. But industry has said they can't. They need to have the certainty if they are going to invest in that. Wouldn't Congress passing the ban with possible waivers send that market a signal and help provide the industry with that need, that certainty that we have to have out there?

Ms. GRANHOLM. It is possible, but I am worried—my worry is about the gap, right? We need to build up the supply here. And I think the way to do that is to work with Congress on a uranium strategy that gives us the ability to finance the processing, the conversion, the enrichment in the United States.

So this was—we got a downpayment on that through the $700 million, but it is just the tip of the iceberg. We need about 2.1 billion and a revolving fund to be able to send the message both to industry and to not cut the legs out from under the existing——

Mr. LATTA. Well, because——

Ms. GRANHOLM [continuing]. Fleet——

Mr. LATTA. You know, the fear out there, though, it is the time factor we have. And, you know, if you just keep putting it off, we just—I think we have to have a time limit out there that we make sure that the United States is going to take care of itself.

Let me just go on another point that was brought up a little bit earlier, because I have—this is something I have been very interested and involved in with our spent nuclear rods. You know, you

mentioned about that—you know, the United States is behind. France has been doing this for years. Not only is France doing it, but France is also reprocessing rods for other countries. So why are we lagging?

Ms. GRANHOLM. Yes, I think this is the question. I mean, in France they—it is heavily subsidized by the French Government. And that could be one way of going. I think what we have been looking at in our research is how to commercialize it in a way where private entities can take this on.

However, your point about us thinking differently about how we have done this is very important so that we can be independent, and I would eager——

Mr. LATTA. Well——

Ms. GRANHOLM [continuing]. Be eager to have that conversation.

Mr. LATTA. Well, and it is really important because, again, just to finish up on this point, because, you know, if we go out there and you think about all the rods we have out there right now around the entire country——

Ms. GRANHOLM. Yes.

Mr. LATTA [continuing]. We wouldn't need to worry about uranium for a little while, because we have got it right now.

Let me move on to another area. You know, I am very concerned that the Biden administration and States like California are pursuing policies that will undermine the reliability of the grid. And you also mentioned a little earlier that we have to have enough transmission out there. And we—and, you know, there's proponents out there saying that we need to have EVs by 2035, but we also saw what happened in California around Labor Day of last year, where we saw the Governor saying that people needed to turn their air conditioners up and not plug their cars in.

And then the other problem has been—is that, you know, when you are talking about transmission and where we are going to get it, that, for example, EIA in 2019—in—these are, like, 2019 estimates—that the United States would need to generate at least 50 percent more electricity to power all the electric vehicle fleet. And that is 4 years ago. And we have been seeing, you know, a push for even more.

With the administration pushing for these unreasonable standards, I believe that—and we are seeing today we are going to be shutting down coal and gas-fired power plants around the country and losing that baseload capacity out there. What is the plan to generate the levels of electricity for this country that we are going to need for all of our vehicles and appliances, and especially your home State, Michigan, Ohio, mine? We are heavy manufacturing. We need baseload. It is not intermittent power. Where are we going to get it from?

Ms. GRANHOLM. Yes, so a couple of responses to that.

Number one is that the wind and solar are intermittent. We know that. And we have to add the technology associated with battery storage to make them more like baseload. And we are making great breakthroughs in that. And in many places they have already started to deploy wind/solar combinations that get them a reliable grid.

However, it is clear that we—this is a transition. We cannot flip a switch automatically and expect that everything is going to be 100 percent clean tomorrow. This is why what the EPA did today was to give a ramp that goes to 2040 so that we have the time to be able to develop and deploy the technologies.

Mr. LATTA. Just to reclaim my time, because, you know, when you have been out and heard from the industry and all like that, they said we just can't get there by 2035. And even if it is 2040, they are saying we got a problem.

Let me let me finish up on one other question, because again, I am concerned about some of the proposed actions out there for U.S. consumers that prefer top-loading machines, and the proposed standard would also drastically increase the upfront cost of basic new clothes washers by nearly $200, according to the Department's own estimates, which would have a particularly negative impact on low-income consumers.

Will you commit that any final DOE clothes washer standard will guarantee that consumers will continue to have access to top-loading washers of various capacities without a significant price surge for consumers?

Ms. GRANHOLM. We are always concerned about the price, both short-term in the upfront costs as well as the long-term price that—the savings that are generated, particularly for lower-income people. This is an open proposed rule——

Mr. LATTA. But is it something——

Ms. GRANHOLM. So we are eager to hear——

Mr. LATTA. Just if we can get a yes or no on that, that you will, you know, make sure that we are not going to see these increases, that we need to—DOE be out there saying that we are not going to have these high increase for these people across the country with these top-loading washing machines. Would DOE commit to that?

Ms. GRANHOLM. We are—I would commit that we are not going to raise significantly the price of top-loading washing machines——

Mr. LATTA. OK. Well, Madam Secretary, I am going to take that for a yes. Thank you.

Mr. DUNCAN. I thank the gentleman. I will now go to Mrs. Fletcher from Texas for 5 minutes.

Mrs. FLETCHER. Thank you, Chairman Duncan, and thank you, Secretary Granholm, for being here and for sharing your thoughts with us today.

As we have heard from several folks today, the legislation that we passed in the last Congress has been historic and transformational, and is really important in investing in technologies that are going to power our future while reducing our emissions and helping us address our climate goals and achieve them.

And we have already seen the market respond, in addition to what we are seeing in terms of investments from the Government. We are seeing, I think, $242 billion of new clean energy investments have already been announced. We are certainly seeing that in Houston, and we are seeing some of the challenges, as well. And so I want to follow up on some of the questions that you were just discussing with Mr. Peters, specifically around permitting reform, and drill down a little bit.

I really appreciated your testimony about how to address some of the challenges that we see, and it is certainly something that I hear from my constituents, and one area in particular I wanted to ask you about.

We have seen exploding demand for carbon capture utilization and storage. The Houston Carbon Capture Storage Alliance was recently formed to really take—to advance what is one of, I think, the most—the biggest CCUS opportunities in the world. The collection of energy companies, organizations, academia, and institutions and experts are working together so that the region can store 100 million metric tons of carbon per year by 2040. So this is really an incredible opportunity.

And the work that DOE has done up to this point has made this possible. But there is still work to do, as you have already testified. And I think one of the challenges we see is that, while the technological capabilities exist and the funding to deploy the technology is included in the Infrastructure Investment and Jobs Act, there are still barriers to a functioning ecosystem. And it is primarily relating to permitting, how we build the infrastructure to do this to transport and store the carbon. And you know, also, permitting class 6 wells is hindered by these long regulatory timelines that you were discussing.

And so, while these aren't the primary jurisdiction of the Department of Energy, I understand, I do think the Department has a role in convening the stakeholders and working together with other agencies to really advance a whole-of-government approach to ensuring success for CCUS. So I would love it if you could talk for a minute about what steps you have taken to work with EPA and other relevant agencies to really drive a whole-of-government approach to addressing these challenges, in particular when it comes to CCUS.

Ms. GRANHOLM. Yes, we are in constant contact with EPA about this, because this whole effort to try to sequester is not going to work unless you have a place for it to be sequestered in. And less on EPA, but more for our Loan Programs office, we have the ability now to finance the pipelines to be able to move the CO2, as well—and hydrogen, as well.

So we are—we have to do all of it. We have got to make sure we have the acceptance, as well, which—obviously, there is acceptance, you know, in Texas, in the Houston area. We have to make sure that we are bringing along the community as we gain that acceptance. We have to make sure we can safely sequester it, and we have to make sure we can transport. All of that infrastructure is necessary, and now we have the tools to be able to help industry get there.

But the permitting side and the government side of this has got to be addressed, and we have to move with greater speed. And I hope—I mean, everybody keeps talking about it—right, left, White House—so I am hopeful that we can all agree that we need to do this and compromise to get that done.

Mrs. FLETCHER. Well, thank you. I hope so too. And I appreciate your commitment to doing that. And I think you really serve in such an important capacity as a convener here. And I know the interest is sincere on our side of the aisle, and it is certainly some-

thing I hear about every day when I talk to my constituents about the challenges and, really, the opportunities that are in front of us.

With that in mind, I want to switch gears a little bit and follow up on a question, touch on something that Mr. Pallone mentioned in his opening remarks. I agree that the Department's use of the Strategic Petroleum Reserve over the last year has been very important in bringing down the cost of gasoline.

Last year, President Biden announced that the administration was targeting a price range of roughly 67 to 72 dollars per barrel of crude to refill the SPR, and that is a $20-per-barrel profit. So I understand that the Department is currently completing long-mandated modernization work on some of the caverns, and that the cavern infrastructure right now is not ready to receive, physically, some oil. But I want to point out that the oil markets are currently backward-dated, and that means that the future prices are lower than the current prices, and oil futures for this fall are currently within the Department's target price range for purchase.

So I would love to ask, and maybe get the answer in the record, how the DOE can take full advantage of the current low oil prices to refill the SPR, and how—or if any additional authorities are needed from Congress to be able to do so.

Ms. GRANHOLM. No, I think we have the authorities to be able to do it.

Right now, in addition to the maintenance that is happening, the life extension program, we are also doing congressionally mandated sales. And that congressionally mandated sale of 26 million barrels will be completed by June. And it is at that point where we will flip the switch and then seek to purchase.

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

Ms. GRANHOLM. So we hope to be able to take advantage——

Mrs. FLETCHER. Thank you.

Mr. DUNCAN. I am going to go to Mr. Guthrie from Kentucky.

Mr. GUTHRIE. Thank you very much.

Thank you, Madam Secretary. Brett Guthrie from Kentucky, but I lived a year in Grand Rapids——

Ms. GRANHOLM. All right.

Mr. GUTHRIE [continuing]. Learning the automotive supply business. And, you know, the EV is exciting in my area. I represent I–65 between Louisville and Nashville—obviously, not south of the Tennessee border, but essentially between Louisville and Nashville—and we have BlueOvalSK, which is locating there in Elizabethtown, and then Envision coming. And so it is important.

But it has been brought up a couple of times, one of our biggest concerns is baseload power just to supply the battery plants, not necessarily—I mean, it is set for what they are constructing, but the issue is for moving forward, and expanding baseload power. So I just think there's a lot of concerns in moving to electric vehicles. There's just a lot of concerns.

And it seems that, when we talk to members of the administration or people who are promoting the fast transition, that a lot of the concerns get just dismissed away—"Oh, we will figure that out and we will move forward." And you used the term we are not going to "flip a switch." I know that you have—that the administra-

tion has put out you are going to be two-thirds battery electric vehicles by 2032. So it is 10 years.

And, you know, it takes about 5 to 7 years to launch a new product for automotive. And that 5 to 7 years actually could be faster, I could tell you that, but it is when you have existing supply base and people just retool their factories. We are talking about building new battery plants, securing lithium, securing a lot of other things. And I don't think many people in automotive, if they are giving you a real answer, would say that is doable in the—by 2032, because that is 10 million vehicles.

So if you take—we sell 15 million cars in America—that is 10 million vehicles. So if we could do half of that, if we could do half of that, which is a big goal if we could do half of that, but half of that means two-thirds of the fleet will be—would be 8 million because you have—half of that would be 5 million electrical vehicles. Or if you even say two-thirds of that, we are talking about selling 10 million cars in America. And I know you were Governor of Michigan in 2009, when we sold 9 million cars in America, and what did that do to Michigan? What did that do to America? And what did it do to the world when the automotive industry shrunk in half?

Now, if you stated two-thirds—if we can't hit that two-thirds goal, you are talking about shrinking the new sales in America to whatever that level of two-thirds is.

Ms. GRANHOLM. So we don't want to put the cart before the horse, as you say. We want to make sure we have a grid that is capable of taking on electrification. We have—want to make sure that the goals—and these are just goals, right—the auto industry put forth a goal of half of its fleet being electric by 2030. Obviously, that is the industry goal. That is the administration's goal by 2030.

We don't know how fast this is going. We know that electric vehicle sales doubled this past year. We know that it is——

Mr. GUTHRIE. Right.

Ms. GRANHOLM [continuing]. Really accelerating. But to your point, we have to make sure that we have a grid that can withstand it and that we have enough electricity on that grid to be able to make it, which is, again, why—I will just be honest—the tools that have been given to be able to incentivize the deployment of additional energy resources are really important. And I am grateful to Congress for those who supported that, because it will help us to be able to ensure that we have a reliable grid.

Mr. GUTHRIE. Well, thanks for saying "goals," because I say that to a lot of people in automotive. This is—you know, I know it is 2032. I don't think anybody can get there, but we are going to move—well, things like this happen in Congress, delays, and I say that, and they say to me, they said, you know, "This is an EPA rule. It is not an administration goal, and we can't invest to a goal. We have to invest to what the rules are." And if you are going to tell me—which I can't tell them, "Hopefully my colleagues here could fix this," but we can't say, "Well, don't invest according to the rules because somewhere down the road we are going to fix this." This is really changing the investment in the automotive industry.

So let's say we get to 5 years down the road, and you are saying, well, maybe just half, or maybe just a third, since we can't get

there. Well, people have already got out of powertrain, people aren't making transmissions anymore. And so you are really risking the supply chain. You are really risking moving forward.

So just to say it is a goal would be one thing, but putting in as a rule, that—you can't get an investment from capital suppliers. I mean, it is really concerning, unless we really think—and if all the automotive people get in the room and say—with honesty and say that we think we can get there in 2032, that is one thing. But I don't think you will hear that if you get a good answer.

Ms. GRANHOLM. Well, I will say that these rules have been modeled, and the technologies that can allow existing baseload to stay online and meet the rules exist. And Congress has given tools to make sure that they are profitable.

So the increase, for example, in carbon—the amount of money for carbon capture, so that you can keep a baseload plant online, that is really quite amazing and will help to ensure that you have a reliable and growing grid.

Mr. GUTHRIE. Well, baseload is one thing. So that is important. But it is also—it is getting the supply chain together to go to two—you are completely changing the automotive industry. It is not—and that is what you want to do, I understand that, but it is not—you can't just flip a switch and—I am just really concerned we are going to really disrupt the automotive chain and the supply chain, which affects, as you know, the economy of America.

Ms. GRANHOLM. Yes, 160 battery companies coming to America. That is pretty exciting.

Mr. GUTHRIE. I agree with you, but I am not sure we are going to get to 10 million cars in 10 years. That is the question. Thank you.

Mr. DUNCAN. The gentleman's time has expired. I will now go to Ms. Matsui for 5 minutes.

Ms. MATSUI. Thank you very much, Mr. Chairman, and thank you, Madam Secretary, for being here and being part of this great discussion.

You know, each year I lead an appropriations letter with Senator Cortez Mastro and Chairman Carper and Congresswoman Clarke supporting increased funding for DOE clean transportation programs. Programs like the Vehicle Technologies Office produce cutting-edge innovations that are crucial to keeping the U.S. one step ahead of our competitors.

Medium- and heavy-duty vehicles are the largest mobile source of smog-forming pollutants, particulate matter, carbon monoxide, and other air toxics. Some heavy-vehicle classes, like busses, are ripe for electrification, while others, like long-haul trucks, are more challenging.

The question is, what is DOE doing to help decarbonize long-haul trucking, and what technology or infrastructure challenges do we need to overcome in order to eliminate pollution from long-haul trucking?

Ms. GRANHOLM. Yes, thanks for that question, too, because our Vehicle Technologies Office has been working on this, and the long-haul trucking largely has been focused on both—biofuels is one——

Ms. MATSUI. Right.

Ms. GRANHOLM [continuing]. But also hydrogen fuel cells, very important, especially for fleet.

And there is a lot of work being done now on large-scale batteries, as well. Those are more expensive. We will see how that goes. But DOE's long-term research in batteries for vehicles tells you we can reduce the cost. Eighty percent has been—the cost has been reduced 80 percent for batteries over the past decade. So the continuation of that is very important, as well as looking at the materials that can build those stronger, bigger batteries——

Ms. MATSUI. Yes.

Ms. GRANHOLM [continuing]. And substitute out for the more expensive materials that are currently in the lithium ion batteries.

Ms. MATSUI. Yes, and I was going to follow up on that vehicle battery research, because research into battery technology for electric vehicles is a significant focus of the fiscal year 2024 budget for the Vehicle Technologies Office.

Now, foreign battery companies have made significant advancements in battery technology in recent years. Madam Secretary, what new-generation battery technologies is DOE working on, and, if commercialized, how would these new technologies potentially impact the range and cost of electric vehicles?

Ms. GRANHOLM. Yes. So obviously, there are batteries for electric vehicles and there are batteries for long-duration storage.

Ms. MATSUI. Right.

Ms. GRANHOLM. And the technologies sometimes they share and learn from one another, and sometimes they are quite different.

For long-duration storage, you can use things like iron, iron flow batteries, because they are bigger and you don't have to worry about putting them into a vehicle, right?

Ms. MATSUI. Sure.

Ms. GRANHOLM. But for vehicles, you want to have substitute materials that lessen your reliance on very expensive materials like cobalt. And so, for example, Argonne National Lab is working on a lithium manganese battery that lessens our reliance on cobalt and that gets you very great performance for larger vehicles. That kind of technology is what we are looking at.

We have got our 17 labs, probably 10 of them are working on next-generation materials and substitutes for both long-duration energy storage as well as for vehicles.

Ms. MATSUI. OK, that is great. Thank you.

My district includes—in Sacramento includes a decommissioned nuclear generating station at Rancho Seco. And I bring this up every year: The power station closed in 1989, but the spent nuclear fuel is still awaiting transport to a consolidated storage facility. Each year I lead an appropriations letter in support of DOE's interim storage program. And after years of inaction, I am pleased to see the recent progress with the consent-based siting approach.

Madam Secretary, can you describe how the $53 million in the fiscal year 2024 budget will advance the consent-based siting approach?

Ms. GRANHOLM. Yes, thank you for that question.

We issued last year a request for information to find out whether there were communities that might be willing to raise their hand. And then we issued a funding opportunity announcement. We got

a number of communities that were willing to enter into those discussions. We will be announcing those awards, I want to say, this spring. And then, after they have the opportunity to do the work that they need to do to prepare, we will then follow up in 2024 with the ability to be able to start the conversation about actually doing interim storage.

Now, we can negotiate, we can have these discussions, but we don't have the authority—DOE does not—Congress needs to give us the authority to actually help site the facilities, both—whether it is interim—and I will say that there is, you know, there is concern if you do an interim one, does that mean I am going to be the long-term place as well?

Ms. MATSUI. Well, yes.

Ms. GRANHOLM. And that authority also needs to be——

Ms. MATSUI. Well, and I am looking at—you know, as the administration pursues a new fleet of advanced reactors, you know, we have to think about the waste storage. I think——

Ms. GRANHOLM. Yes.

Ms. MATSUI [continuing]. Some people are thinking—not knowing that we—what kind of waste are we going to have, how are we going to deal with it? And if we can take care of this, it would be really important for our thinking about the nuclear industry to move in a positive way.

Ms. GRANHOLM. Absolutely.

Ms. MATSUI. Thank you very much.

Ms. GRANHOLM. Thank you.

Mr. DUNCAN. The gentlelady's time has expired. I will now go to Mr. Griffith for 5 minutes.

Mr. GRIFFITH. Thank you very much, Mr. Chairman, and I appreciate it.

Secretary Granholm, are you aware that China reportedly permitted or began construction on coal units equivalent to about 2 coal-fired power plants per week in 2022?

Ms. GRANHOLM. They are the world's largest emitter.

Mr. GRIFFITH. And they are building more coal plants. That is correct, is it not?

Ms. GRANHOLM. That is correct.

Mr. GRIFFITH. And I surmise that last year's renewed construction, based on the reports that I have read, is likely in response to grid failures that China experienced last summer due to heat and drought.

Especially after today's announcement of its newest crackdown on fossil fuel plants, what are we going to do in our country to mitigate coal and natural gas power plant closures and ensure that America doesn't fall prey to grid failures like China did?

Ms. GRANHOLM. A great question, and it is one of the reasons why the funding for carbon capture and sequestration, the amount of money going to $85 per ton for sequestration, is an incentive to install decarbonization technologies on coal plants and on natural gas plants as well. That will enable those plants to keep running.

If they are a plant that has already announced that they are closing, they don't have to install any of that stuff. But if they are going to be long term, I think because of the resources that has

been given, it allows for them to continue to operate, but without CO_2 emissions.

Mr. GRIFFITH. Well, and based on your statement just now, if you are already planning to close, or if you are going to close, you don't have to spend the money. Isn't that actually going to do the opposite, and encourage more plants to close and therefore put our grid at risk?

Ms. GRANHOLM. I think that those are private investment decisions by those—by the operators——

Mr. GRIFFITH. Driven by your policies.

Ms. GRANHOLM [continuing]. Of those plants.

Well, I don't think so. I think we want to make sure that we have decarbonized our electric system, and that is why the technologies exist.

Mr. GRIFFITH. We are just going to have to disagree on that, Madam Chair—or Madam Secretary. I appreciate it.

Cathy McMorris Rodgers and I, in my capacity—her in capacity as Chair of the full committee and my capacity as Chair of the Oversight and Investigations Subcommittee, wrote to you last year requesting a briefing to include specific information regarding the Department's October 2022 announcement of a $200 million award to Microvast and the Department's review of potential ties to the Chinese Communist Party. That requested briefing has not occurred, and your written response from February of this year did not provide the requested information. Instead, the Department stated that it would not provide more information on this award while it was still undergoing a "post-selection, risk-based due diligence review."

Is it a—and here is the question: Is it standard procedure for the Department to begin conducting due diligence reviews more than 3 months after it announces an award?

Ms. GRANHOLM. The Department conducts reviews after the announcement of a selection, because that always happens, and every person, every entity that is selected gets a letter saying that this is not a done deal, you have to go through a due diligence process.

With the additional funds that have been now coming through the Department of Energy and the grant funding, we have set up a process that is informed by the Committee on Foreign Investment in the United States to ensure that we vet everyone that has made it through the technical reviews. So there's several layers of review to be able to be eligible for funding. In the instance you have described, not a dollar has gone out.

So just to be clear: There is a serious process of vetting that is going with everyone that was selected now, and that is a serious looking under the hood to make sure taxpayers are protected and that no IP is going to China.

Mr. GRIFFITH. And has that always been the case when you all do an award?

Ms. GRANHOLM. We have always done vetting, but this time we are—because of the new funding that we have, set up a different and more intense process that is involving the Committee on Foreign Investment in the United States and their process.

Mr. GRIFFITH. And I am not against that, but I am curious. When did you all develop this? Was it before the grants were an-

nounced, or—I forgot the words you just used, but before the grants were——

Ms. GRANHOLM. Selected.

Mr. GRIFFITH. Selected, there you go. Thank you. Before the grants were selected, or was this a process that came about subsequent because of some of the negative press you got about Microvast?

Ms. GRANHOLM. Well, let me just say that we have always had a vetting process. And now—in the fall we set up a more intensive vetting process because of the additional funding that is coming through the Department of Energy and making sure that we can protect the taxpayer and ensure that China is not getting funding from us.

Mr. GRIFFITH. So it would be subsequent to our letter?

Ms. GRANHOLM. Well, again, I don't know when your letter was——

Mr. GRIFFITH. October of 2022.

Ms. GRANHOLM. I don't know exactly.

Mr. GRIFFITH. You can get back to me. My time is up, but you can get back to me.

Ms. GRANHOLM. Yes, for sure.

Mr. GRIFFITH. I would appreciate it. Thank you.

Ms. GRANHOLM. You bet.

Mr. DUNCAN. The gentleman's time has expired. I will now go to Mr. Tonko for 5 minutes.

Mr. TONKO. Thank you, Mr. Chair.

And Secretary Granholm, thank you for your leadership, outstanding leadership, with the agency. Thank you to the Department for all you are doing. You have been in my district, and they really believe in the efforts that you are making, and we see them as strong partnerships that will really get us to this transformation.

Now, we hear a lot of talk today about a vision of a clean energy economy, and then the fundamentals of assets, resources, infrastructure, and the like. But it seems as though we part company where there is a message from some that will make certain that never happens, and others are messaging we are investing in the now and the future to make certain it happens.

So study after study has found that the clean energy transition will require massive investments and buildout of our electric grid, especially transmission lines, which we know can take close to a decade to get through the siting, permitting, and construction process. I would like to ask about some of the actions DOE is taking to accelerate these electric infrastructure projects.

Yesterday the White House permitting announcement confirmed that DOE has entered into an interagency memorandum of understanding using its authority under the Federal Power Act. So, Madam Secretary, can you inform us about anything happening with the MOU?

And what is DOE's role as the lead Federal agency for coordinating the authorization of these transmission lines?

Ms. GRANHOLM. Yes, so the memorandum of understanding involves several of the land agencies and those who do permitting and the Department of Energy. And under the Federal Power Act

section 216(h), it gives the Department of Energy the ability to set a timeframe, a timetable for the granting and the processing of permits. And so we will be shepherding them with more rapidity.

Mr. TONKO. Great. And how will this improve interagency coordination, help permit transmission lines more quickly without sacrificing important environmental reviews?

Ms. GRANHOLM. Well, it is very important to make sure that we do the environmental reviews properly, but we can do them simultaneously. You don't have to wait to do a concurrent. And to get the agencies at the same table on the same project to identify what the barriers are and move through it quickly to develop the mitigation strategies—if they are necessary—together, that helps to move things with greater speed.

Mr. TONKO. Thank you. And offshore wind energy is also going to require major transmission planning and investments. Several studies have found that using a system of shared transmission infrastructure where multiple projects from different developers are connected offshore will be more cost effective and less environmentally disruptive.

Earlier this year, DOE released a major offshore transmission study which identified interoperability of electric equipment as a potential barrier to this vision of shared offshore infrastructure. So can DOE play a role working with project developers and transmission equipment manufacturers to support the development of standards to overcome these interoperability challenges?

Ms. GRANHOLM. Yes, and this is part of what the MOU sets up, is a way for us to work together with the private sector as well as the agencies to move more quickly.

We did a study both on the Atlantic and we are starting one now on the West Coast as well, so that we can have the same kind of speedy process and coordination.

Mr. TONKO. Super. We also need to get more out of our existing infrastructure. Grid-enhancing technologies and reconductoring of existing lines can make them more efficient and reduce line loss. Building new infrastructure faster is critical, but what is DOE doing to ensure that we are getting the most out of the infrastructure that we already have in place?

Ms. GRANHOLM. Yes, I love this question, because I do think it is one of the solutions to how we get around some of the NIMBY problems.

So under the Bipartisan Infrastructure Law, the Grid Deployment Office has $5 billion for enhancements of grid technologies. Reconductoring is one of those. And we are hopeful that we get a number of applicants who are willing to use existing lines just to put twice as much power on them by using more efficient materials.

Mr. TONKO. Great, setting a great tone.

Finally, on the Inflation Reduction Act, I know DOE is working hard to implement all the new programs, including electric appliance rebates for low- and moderate-income households. This program will be administered by State and Tribal governments. Madam Secretary, can you provide any updates on when guidance for this program may be released?

And can you discuss how DOE is working to provide support and tools to States so that their programs will be consistent and useful for both consumers and retailers?

Ms. GRANHOLM. Yes, very important. This is a new program, so we did a request for information to make sure we got the input of stakeholders, and that includes retailers because we want the rebates to be taken at the point of sale. How quickly can we do that? How—what does that look like?

Each State will be administering the rebate programs, and so we want to make sure we set up that guidance in a way that is very clear and consistent across States so that there is not a patchwork. That guidance and the rebate money will flow to the States this fall in order for it to be available for this winter season.

Mr. TONKO. Thank you, and thank you for leading us into a transformational era. Thanks.

Mr. DUNCAN. The gentleman's time has expired. I will go now to the Chair of the environmental subcommittee, Mr. Johnson, for 5 minutes.

Mr. JOHNSON. Thank you, Mr. Chairman, and Madam Secretary, thank you for being here today. I want to discuss a pressing subject that both the Energy Subcommittee and my Environment, Manufacturing, and Critical Materials Subcommittee have been working on for some time now, and that is the issue of critical minerals, rare earths, and the precarious nature of the supply chain. It is a national security issue. This is a defining challenge for policymakers here in the 21st century.

So, Madam Secretary, for the record, do you agree that the United States needs to reduce its dependance on unfriendly nations and secure the supply chains for sometimes volatile global commodities like lithium, cobalt, graphite, and rare earths, among others?

Ms. GRANHOLM. I do.

Mr. JOHNSON. OK, great, because that seems to contradict your remarks a couple of weeks ago before the Senate.

Now, I truly wish we had time to get into your claim, for example, that—in that Senate hearing—that we can electrify the military by 2030. Because based on my 26-year Air Force career, I don't even know how to process that. But in your reasoning for this statement that you made, you said we need to bolster energy security by "reducing our reliance on the volatility of globally traded fossil fuels."

So, Madam Secretary, I am trying to connect the dots. Are you telling us that dependance on globally traded fossil fuels is too volatile and dangerous for our military, therefore we should electrify, but somehow making our military dependent on other globally traded commodities and enormous additional amounts of lithium, cobalt, and rare earths is an improvement of some kind?

Ms. GRANHOLM. I believe we should have the full supply chain——

Mr. JOHNSON. Just a yes——

Ms. GRANHOLM. No, I——

Mr. JOHNSON. Just a yes or no.

Ms. GRANHOLM. First of all, that was a question that was asked of me by Senator Ernst. And the—I was agreeing with what the military wanted.

Mr. JOHNSON. OK.
Ms. GRANHOLM. Because they have said——
Mr. JOHNSON. No, but I am asking you——
Ms. GRANHOLM. Let me just finish this, though.
Mr. JOHNSON. No, I don't want a filibuster——
Ms. GRANHOLM. This is a really important clarification——
Mr. JOHNSON [continuing]. Madam Secretary——
Ms. GRANHOLM [continuing]. Because they have said——
Mr. JOHNSON. I don't want a filibuster.
Ms. GRANHOLM [continuing]. That the——
Mr. JOHNSON. I want you to answer the question.
Ms. GRANHOLM. I am not filibustering, I am clarifying.
Mr. JOHNSON. Do you think that it is responsible to make the military dependent upon those volatile commodities?
Ms. GRANHOLM. No, I think the military should be dependent on——
Mr. JOHNSON. But you said that——
Ms. GRANHOLM [continuing]. Supply chains from here, from here.
Mr. JOHNSON [continuing]. In that hearing.
Ms. GRANHOLM. No——
Mr. JOHNSON. You said they should——
Ms. GRANHOLM. You won't let me explain. That hearing—I believe what the military said, which is they believe they can electrify nontactical vehicles——
Mr. JOHNSON. Well, you just confirmed that.
Ms. GRANHOLM [continuing]. Nontactical vehicles——
Mr. JOHNSON. So would you agree——
Ms. GRANHOLM [continuing]. By 2035, nontactical vehicles——
Mr. JOHNSON. Madam Secretary, reclaiming my time, I am asking the questions, please.
Ms. GRANHOLM. I know, but you won't let me answer.
Mr. JOHNSON. Would you agree that these critical minerals are, in fact, volatile and controlled in many cases by unfriendly nations like China, and become—could become scarce in a conflict? Do you agree with that?
Ms. GRANHOLM. Right now, but that is why——
Mr. JOHNSON. OK, great.
Ms. GRANHOLM [continuing]. We have a strategy to be able to get——
Mr. JOHNSON. So, Madam Secretary, I actually agree with you——
Ms. GRANHOLM [continuing]. Extraction here.
Mr. JOHNSON [continuing]. That we want to become more secure in all our critical energy resources. Let's produce more of it here at home.
Ms. GRANHOLM. Right.
Mr. JOHNSON. But the fact of the matter is we have never, ever been as dependent on OPEC for oil than we are on China right now for the critical materials to do this electrification that you are advocating for.
The 7-year timeframe that you suggested to electrify the military is a recipe for further dangerous dependance on China for these materials that our military and civilian fleets of vehicles, for that matter, would need.

So you told the Senate we need to double down on the status quo and stop being dependent on volatile commodities like fossil fuels, but you just said that you want to secure the supply chain. So which is it? Because you can't do both.

Ms. GRANHOLM. Number one, I support the military's decision——

Mr. JOHNSON. No, but——

Ms. GRANHOLM [continuing]. To try to go electric by 2035.

Mr. JOHNSON. I asked you a different question.

Ms. GRANHOLM. No, you didn't.

Mr. JOHNSON. Which is it?

Ms. GRANHOLM. And number two——

Mr. JOHNSON. Do you think we should be—do we—should secure our supply chains, or——

Ms. GRANHOLM. Here, yes, I do.

Mr. JOHNSON [continuing]. Do you think we should be dependent on China?

Ms. GRANHOLM. And that is exactly what the President's agenda is allowing us to do, is to——

Mr. JOHNSON. Well——

Ms. GRANHOLM [continuing]. Both extract and process here in the United States.

Mr. JOHNSON. You say one thing when you are over in the Senate, and you say another thing when you are over here, and your comments don't match, Madam Secretary. And that is what——

Ms. GRANHOLM. Well——

Mr. JOHNSON [continuing]. Is confusing us.

Ms. GRANHOLM. Unfortunately, you are twisting the words.

Mr. JOHNSON. That is what is confusing the rest of the American people.

For the record, would you commit to working with your agency and your experts to better study our dependance on critical energy resources and identify ways to increase production, refining, and processing of those critical materials right here at home?

Ms. GRANHOLM. We are doing that, and absolutely.

Mr. JOHNSON. Mr. Chair, I yield back.

Ms. GRANHOLM. One point of agreement.

Mr. DUNCAN. The gentleman's time has expired. I now go to Mr. Veasey from Texas for 5 minutes.

Mr. VEASEY. Mr. Chairman, thank you very much.

Madam Secretary, last Congress the Bipartisan Infrastructure Law invested a historic $1.2 trillion in our Nation's infrastructure, and the Inflation Reduction Act provided 369 billion in investments for growing domestic cleaner energy. These laws are already creating new jobs, they are already cutting costs for working families, and they are helping America be more competitive in this space.

Under no circumstances—absolutely under no circumstances do we want China to be the leaders in this space, particularly with the world being so thirsty for a lot of these newer technologies. And so I thank you for being here today to answer these questions. And before I get specifically to mine, I wanted to give you the opportunity to take 30 seconds to clarify your position on the question that Mr. Johnson was asking you.

Ms. GRANHOLM. Number one, I support the military's goal of electrifying the nontactical vehicles by 2035 and the tactical vehicles by 2050. That is a goal. I support the generals.

Number two, I also support the bringing of the supply chain for batteries home so that we are reliant on us, on our land, on our processing, and on our workers to make us energy independent.

Mr. VEASEY. Thank you very much, Madam Secretary.

In the carbon management liftoff report the Department released a few weeks ago, your Department estimated that the U.S. could need up to 1.8 billion tons per year of CO_2 removal by 2050. And right now we only have 20 million. Can you talk about how carbon removal programs that were authorized under the Energy Act and the Bipartisan Infrastructure Law are helping create a domestic carbon removal industry that will be necessary to help us get to the scale of carbon renewal in just 27 years?

Ms. GRANHOLM. Yes, and thank you for your leadership on this, the SCALE Act obviously providing such an impetus for us to be able to use the Loan Program Office to be able to fund the infrastructure necessary for carbon—the movement of CO_2 as well as the sequestration of it, and to be able to finance that in a large-scale manner is very important.

In addition, the ability to be able to finance and pay for the sequestration at $85 per metric—per ton is critical for us to create that market. So we have both now supply and demand, and the ability to be able to move it, that we are working on all at once. But that market is essential for us to get to our decarbonization goals.

Mr. VEASEY. Absolutely. And I also want to zero in on the Carbon Dioxide Transportation Infrastructure Finance and Innovation Act, which I secured the inclusion within the Bipartisan Infrastructure Law. Can you talk a little bit about LPL's implementation of that program and when we might start to see the first loans being put out for that program?

Ms. GRANHOLM. Yes, it is my understanding that there have been several applicants for that provision to be able—and they are in discussions now with the Loan Programs Office. The loan programs process is very rigorous, and so—and we want it to be. And so we hope that we will be able to see some announcements later this year.

Mr. VEASEY. Thank you very much.

Mr. Chairman, I yield back.

Mr. DUNCAN. We are just trying to calculate. Votes have just been called, and we are trying to calculate based on your hard break and Members coming back. We are going to go ahead and take another couple of questions before Members have to go, and then I am going to talk with the staff.

I now Recognize Mr. Bucshon for 5 minutes.

Mr. BUCSHON. Thank you.

Secretary Granholm, thanks for being here. I do want to clarify something about you saying that the generals want to do that. The generals work for the President of the United States, and the ones that don't agree with the President of the United States get replaced by people who do agree with the President of the United States. So for—the American people should know that high-level

generals that are running the DoD in an administration are people that, in general, politically agree with the commander in chief, or they are replaced by someone who does.

So I just think it is really—any time a political party says that you—tries to use our military as a reason they are doing something and—like it is their expertise—yes, it is their expertise, but they agree—these level people you are talking about agree with the commander in chief, or they wouldn't be in their job. So it is just—I just—just don't do that.

As I have stated before, I am strongly supportive of an all-of-the-above energy approach. Look, we need reliable, affordable energy, and we obviously need to decrease our carbon emissions. I think that is a goal that we all have. I just believe that it should be about emissions, not about source.

And America's future, you know, we have to have affordable, reliable, sustainable energy that is cleaner, no doubt, and will require a diverse energy mix.

Have you been recently in Europe or talked to any of your European counterparts in Poland, Germany, Czech Republic, anywhere in Eastern Europe?

And have you—are you aware of what is happening in Eastern Europe related to the fact that they have all now recognized that it is a bad idea to be dependent on energy sources from countries that don't like you?

Ms. GRANHOLM. Absolutely.

Mr. BUCSHON. Well, then you must have a different interpretation of what they have said than I did, because I was just there with Chair Rodgers. And, you know, if you go to the European Union, they are true believers in global warming, the ministers there, I understand that. But when you actually talk to the countries who are at risk of losing their national security based on energy insecurity, what they told us, they are rapidly looking for alternatives to Russian fuel.

And guess where they are looking in the short term? They are going back to coal that they have, or they are reliant—going to rely on LNG imports from around the world. And it is going to, from what they had on their clean energy agenda before, set Europe back by a decade or more on that goal, because they were shortsighted and didn't take an all-of-the-above approach.

And now they have shut down all their nuclear plants and they no longer can rely on Russian gas, although there were protests in Europe, some people loyal to the Russians, that want the European countries to start importing cheap Russian gas. This creates an international instability.

The United States cannot put ourself in a position of being reliant on foreign sources of energy while shutting down our own energy resources in this country, and that is what this administration is doing by all the things they are doing to their rush to green, to eliminate fossil fuel in the short run and the long run.

And what we should be doing is focusing on emissions and not source. And if we don't do that, we are going to end up just like they are over there, scrambling, wondering whether they can keep the lights on and the heat on in the winter. It is just—it just—when I—these hearings, when I hear my colleagues like yourself

and on the other side of the aisle talk about—this isn't—your plans are not doable. Everybody in the—almost everybody we talk to in Europe has now recognized that. It is just not doable without considering an all-of-the-above energy approach, including fossil and nuclear and others.

And so I just—so the Energy Information Administration—I will have one quick question—the way—their modeling doesn't work. So what do you plan to do to update the EIA modeling capabilities to be sure they can provide policymakers and the public accurate information on energy supplies, demand, and related issues central to the administration's agenda and our policymaking decisions?

Ms. GRANHOLM. Well, I would disagree that they don't work. I mean, they——

Mr. BUCSHON. Well, we have—OK.

Ms. GRANHOLM [continuing]. Are experts at——

Mr. BUCSHON. OK. So we have had modeling both on climate and all kinds of things for decades, right? And they have been wrong. All of it has been wrong.

Ms. GRANHOLM. Well, I don't know that all of it has been wrong, but these are——

Mr. BUCSHON. Well, the data shows——

Ms. GRANHOLM [continuing]. Economists and experts that——

Mr. BUCSHON [continuing]. That they are all wrong.

Ms. GRANHOLM [continuing]. Know what they are doing in terms of modeling, and they use very sophisticated tools——

Mr. BUCSHON. OK.

Ms. GRANHOLM [continuing]. To do so.

Mr. BUCSHON. Fair enough. We are going to risk the energy future and national security of the United States based on computer scientists sitting at a computer, modeling things that have been shown not to work.

I yield back.

Mr. DUNCAN. The gentleman yields back. I now will go to Ms. Kuster for 5 minutes.

Ms. KUSTER. Thank you, and thank you very much, Secretary Granholm, for taking the time to testify before this committee. Before I dive into questions, I want to thank you for your efforts to ensure that the hydropower grant program created in the Bipartisan Infrastructure Law reflects Congress's intent.

As you know, section 247, maintaining and enhancing hydroelectricity incentive programs, provides grants to hydropower owners to make dam safety, grid resiliency, and environmental improvements at the facilities. I appreciate your willingness to resolve issues around the draft guidance in the final version to maximize the benefits from these dollars to help preserve the existing hydropower fleet. So thank you for that.

Secretary Granholm, I want to start my questions by talking about two things we need to achieve our clean energy goals: new clean energy generation and long-duration energy storage.

One way to build out new, clean electricity generation is to retrofit some of our 90,000 dams with hydropower generation. According to the DOE's analysis, retrofitting nonpowered dams could add 12 gigawatts of reliable, renewable energy to the grid, enough electricity to power 12 million homes.

In addition to building new, clean energy generation, we need long-duration energy storage. Pumped storage hydropower is a proven, long-duration energy storage technology. There's already 23 gigawatts of pumped storage on the grid, and more than 100 gigawatts in the pipeline.

But retrofitting a nonpowered dam with hydropower or building a new pump storage facility can be very expensive. The Inflation Reduction Act provides a 30 percent investment tax credit for the next 10 years to help developers retrofit nonpowered dams with hydropower generation and build new pumped storage projects.

Madam Secretary, can you speak to how repealing the tax credits in the Inflation Reduction Act would impact the domestic hydropower and pumped storage industries?

Ms. GRANHOLM. Yes, it would be devastating for the industry. I mean, we are just at a point now where we are starting to get the investment decisions to be able to add capacity at dams. And we—this is clean, dispatchable baseload power that could—has blackstart capability. It is 93 percent of our pumps—pump storage is 93 percent of our storage, utility-scale storage. We absolutely have to accelerate the use of hydroelectric power.

Ms. KUSTER. Great. Thank you so much. Rather than spending our time rolling back tax credits for hydropower and pump storage, I think we should focus on improving the licensing process for hydropower facilities. According to analysis by NREL, on average it can take between 7 to 10 years to relicense a hydropower facility. Licensing pumped storage can take even longer.

Madam Secretary, as Congress considers permitting reform legislation, should we also evaluate ways we can improve the licensing process for hydropower and pumped storage facilities?

Ms. GRANHOLM. Absolutely.

Ms. KUSTER. Final question. I was proud to see that Mascoma Valley Regional School in my district won an energy class prize to lower energy costs and improve indoor air quality. How can Congress best support the Department of Energy's work to foster healthier learning environments in our schools?

Ms. GRANHOLM. Well, one of the things you have done is to give the Department of Energy the ability to incentivize more energy-efficient work at schools, at public schools all across the country. We have a funding opportunity announcement out, a huge response to it. I would love to see more of that so more schools can benefit.

Ms. KUSTER. Great. And next time you are in New Hampshire, I invite you to come see the impact of that award on Mascoma Valley Regional School.

And with that, Mr. Chair, I yield back with 1 minute to spare.

Mr. DUNCAN. I thank the gentlelady for yielding back, and we will go to Mrs. Lesko from Arizona for 5 minutes.

Mrs. LESKO. Thank you, Secretary Granholm, for coming here today.

I have seen one analysis that shows that DOE will spend at least $150 billion over the next 5 years, maybe significantly more. In your budget request you use the term "equity" 137 times. President Biden issued an Executive order directing the Federal Government to spend money that is "consistent with applicable law to allocate

resources to address the historic failure to invest sufficiently, justly, and equally in underserved communities."

You have been directed to spend $150 billion by Congress. Will you provide to this committee the specific applicable law passed by Congress that allows these dollars to be spent in a manner to address the historic failure to invest sufficiently, justly, and equally in underserved communities?

Ms. GRANHOLM. One of the laws is through the Inflation Reduction Act. There is a low-income adder that allows for—it is an additional incentive, a 10 percent incentive for those who are building out solar, for example, facilities to locate in communities that have been disproportionately affected, perhaps by—negatively by pollution, or have been a disadvantaged community economically.

Mrs. LESKO. DOE's Justice40 Initiative requires 40 percent of spending to go towards disadvantaged communities. Can you provide me with a specific applicable law passed by Congress that allows such a massive quota system?

Ms. GRANHOLM. It is a goal. It is Justice40, that 40 percent should be directed to communities that have been left behind, that have not had the benefit of the investments that other communities have. So we are trying to achieve that goal, and part of that is through Community Benefit Agreements associated with the grants that we are providing under the Bipartisan Infrastructure Law. We want those who are investing to be able to consult with communities to make sure that there is a workforce strategy——

Mrs. LESKO. So you say it is in the infrastructure law?

Ms. GRANHOLM. Infrastructure law and the Inflation——

Mrs. LESKO. The language.

Ms. GRANHOLM. [continuing]. Reduction Act both provide incentives for locating facilities in disadvantaged communities.

Mrs. LESKO. Thank you. Madam Secretary, you, I think, already know that I am sponsoring a bill, Save Our Stoves—Gas Stoves Act. So far we have 55 cosponsors, and it has bipartisan support, and 29 of my Democratic colleagues voted for a similar amendment—in fact, it was the same language—on H.R. 1 to save our gas stoves.

I wrote a letter with 70 other Members and submitted our comments for the record on your rulemaking that would ban gas stoves in—effectively ban gas stoves in America.

I think it is unfortunate that we have to introduce a bill to reverse an unnecessary anticonsumer choice rule by the Department of Energy. On DOE's website it states claims that the Federal Government is banning gas stoves are absurd, yet here are the facts that I know.

DOE's first approach was to set a requirement of the proposed rule—max tech requirements which DOE itself said would eliminate 96 percent of the products available today. Setting a max tech requirement has never been done before for household appliances. After pushback, it appears that DOE revised their information and subsequently determined half of the products would be eliminated from the market.

It appears DOE pulled this number, quite frankly, out of thin air. I don't know where you got it from. They used—they started counting products on a website that looked like products it tested.

DOE, of course, has no actual basis for knowing if the products it found meet its proposed standard, because it did not test them.

To date, DOE provides no data or substantiation for how it determined the models on retailer websites would meet its proposed standards. This proposed rule puts at risk at least 1,000 manufacturing jobs in just one company in Arizona. And quite frankly, it eliminates consumer choice.

According to DOE's own estimate, the rule will save only $21.89 per stove over a 14-year period, or $1.50 per year, or 12 cents a month. And then DOE said somehow that equates to a saving of $1.7 billion.

Finally, the projected gas emissions reduction is equivalent to about 8 hours of Chinese coal plant emissions.

And so my statement is, why in the world would we want to increase funding for the Department of Energy, when it appears that they are going after consumer choice and, quite frankly, Americans?

Thank you, and I yield back.

Mr. DUNCAN. The gentlelady yields back. I go to Ms. Schrier for 5 minutes.

Ms. SCHRIER. Thank you, Mr. Chairman.

And welcome back, Madam Secretary. Thank you for your service. There are a few topics I would like to touch on today, but I also want to make sure I give you an opportunity to set the record straight on anything you feel like you haven't had an opportunity to be clear about. The topics I wanted to touch on are small modular nuclear reactors, hydrogen hubs, and Hanford. And I will try to be brief, so you have an opportunity.

There is consensus in this committee that nuclear energy is a big part of the solution if we want to curb greenhouse gas emissions and have a clean energy portfolio. And I was really pleased to see additional funding announced this week to help with the deployment of small modular nuclear reactors.

Pacific Northwest National Lab also suggests that this is incredibly important that we have them factory fabricated, delivered on trucks, affordable. And I just wanted you to comment on how do we make this happen in the timeframe that we need it to happen in.

Ms. GRANHOLM. First of all, super important that we continue the research and development on these advanced reactors, super important that we continue to get them licensed by the Nuclear Regulatory Commission. So we have a—we have a process issue that we want to continue to accelerate and continue to do the research.

It also is very important that we have the fuel for these small modular reactors, and that means NALEU, and that means we have to have a national strategy on—uranium strategy for both our larger nuclear fleet, as well as these advanced reactors. That is something I hope I can work with you and the committee on.

Ms. SCHRIER. Thank you. I really appreciate that. And I know that Canada can be a significant source for us, a friendly, next-door-neighbor nation. But I also saw that there was investment in looking for alternative fuels. And so I appreciate those investments.

On that topic, in kind of that same vein, alternative fuels to—or materials to use in batteries, in addition to lithium, do you have any comments on that?

Ms. GRANHOLM. Yes, oh, we are—the labs are all working on substitutes. Not—I mean lithium, but also substitutes for some of the other materials that are critical minerals that we may rely upon other nations for.

So that—I was mentioning earlier that manganese is something that we are researching. Our Critical Minerals Institute at our Ames laboratory is looking at a whole slew of potential substitutes as well as getting critical minerals from tailings of coal from coal separation, from uranium. We want to make sure that we are looking at all potential sources, and I would say including recycling of batteries that currently exist, because that is a circular economy solution that is very promising.

Ms. SCHRIER. Thank you. We had a hearing in here with companies who are ready to do that recycling.

Second, I wanted to put in just another plug for Washington State as a possible hub for green hydrogen. We have abundant hydropower. We also have solar and wind. And ultimately, green hydrogen is our ultimate goal, far better than blue or gray, because of zero fossil fuel, zero greenhouse gas emissions.

And lastly, I just wanted to thank you for your commitment for work at Hanford and working with our State and—to achieve our goals and the administration's goals. And I appreciate your help.

Your—the floor is yours. You have a minute and a half to set the record straight. Anything you would like.

Ms. GRANHOLM. You know what? I don't know that it is necessary.

I will say that the Department of Energy is not banning any gas stoves, that we are doing our duty to make sure that appliances are more energy efficient, as we are required to do under the Energy Policy Conservation Act of 1975. We regulate and add efficiency standards to 60 appliances. This is one. It was required by a consent decree, and nobody is taking my gas stove, nobody will take your gas stove. But in the future, gas stoves that are high end, which is all that we looked at—the high-end gas stoves can be more efficient, and the cost for making a high-end gas stove efficient is about $12.

Ms. SCHRIER. Sounds like a great investment with a good payoff.

I yield back.

Mr. DUNCAN. She yields back. I will go to Mr. Balderson from Ohio for 5 minutes, and this is going to be the last one, and then we are going to break for votes and come back immediately after.

Mr. BALDERSON. Thank you, Mr. Chairman.

Ms. Secretary, thank you for being here. Nice to meet you.

Last year, the Senate Democrats unveiled electric transmission permitting reform provisions that were included in a broader permitting bill. This transmission provision included language to socialize the cost of new projects and give FERC enhanced transmission siting and permitting authority. The same language was just introduced the other week in the Senate.

Regarding the electric transmission siting and permitting, you recently stated, "Community input is important in all of this. We

have to be very intentional about that. And we have got a team that is focused on that, as well." Do you believe granting FERC more authority to unilaterally site and permit electric transmission lines is consistent with the principle of community input, as you previously have stated?

Ms. GRANHOLM. Are you talking about the backstop authority?

Mr. BALDERSON. Yes.

Ms. GRANHOLM. Yes, I do, because I think you can do both. You can have FERC issue the backstop authority, but you do it in a sensitive way.

Mr. BALDERSON. OK.

Ms. GRANHOLM. Including in community.

Mr. BALDERSON. Is granting FERC more authority to impose cost socialization of new transmission infrastructure to those who do not directly benefit from increased reliability or lower costs consistent with the principle of community input?

Ms. GRANHOLM. I think communities need transmission. And the fact that the interconnection queues are completely backed up and that we need to have a cost allocation strategy that is fair is very important.

Mr. BALDERSON. OK, thank you. My next question is I understand that nine Federal agencies, including the Department of Energy, have signed an MOU on facilitating Federal authorizations for electric transmission facilities. This MOU states there is a strong public interest in increasing coordination across Federal agencies to expand our Nation's electric transmission infrastructure.

I am curious why there is such strong interest in increasing coordination, reducing bureaucracy, and moving forward with these projects but not doing the same when it comes to interstate pipelines or nuclear energy projects, which are more essential for grid reliability and for America to meet our energy needs.

Has the Department of Energy signed a similar MOU for coordination on pipeline or nuclear energy projects with other Federal agencies?

Ms. GRANHOLM. No.

Mr. BALDERSON. Why?

Ms. GRANHOLM. Well, the grid and the transmission grid has been utterly and ridiculously lengthy. It is true that it is—takes a long time for these others to get permitted, as well. We are very much in favor of ensuring that we have, as I was discussing earlier, pipelines for a variety of things, including CO_2 as well as hydrogen. We also want to see expedited movement on nuclear, especially these small modular reactors and the microreactors that could be used to decarbonize heavy industry.

Mr. BALDERSON. OK. Secretary, in your testimony you note that the administration supports the use of the Defense Production Act to support rebuilding domestic uranium production as well as other clean energy technologies to ensure robust supply chains for electrical transformers and other critical grid components.

The Inflation Reduction Act provided significant funding to carry out the Defense Production Act with almost no strings attached. The administration decided to give your Department 250 million of these—million dollars of these funds to accelerate electric heat

pump manufacturing. If the administration supports using the Defense Production Act to rebuild uranium production and improve supply chains for electrical transformers and critical grid components, why did President Biden choose to use the DPA funds for your Department entirely on electric heat pumps?

Ms. GRANHOLM. I would say that, if we do a uranium strategy, it is going to require a good deal amount more than that, and then even the 700 million that we initially got under the Defense Production Act. We need a comprehensive strategy, and I hope we can work with you on it.

Mr. BALDERSON. OK. My last thing is kind of a statement, but I am going to run out of time. I want to discuss it is part of this—the goals and the replace the electrical steel piece of the transformers. So I will send this question in to you, because I don't want to go over my time.

So I appreciate you being here, and we will get that over to you. Thank you.

Mr. DUNCAN. All right. The committee will stand in recess, and we will reconvene immediately following the last vote.

[Recess.]

Mr. DUNCAN. The subcommittee will be back in order, and I will now recognize Mr. Walberg from Michigan for 5 minutes.

And thank you for your patience, Madam Secretary.

Mr. WALBERG. Well, thank you, Mr. Chairman.

Michiganians and Michiganders are very patient people. We share that, don't we, Madam Secretary?

Ms. GRANHOLM. Absolutely.

Mr. WALBERG. Yes. Well, thank you for being here, and you and I agree on some things and we don't agree on other things, but that is the way it goes.

I have been listening throughout the hearing thus far, and one thing that just became at least clear to me was that with IRA and IIJA, and all of the forward good thoughts about what this can produce, that is still in the expectation realm.

You know, I look back at what we did in the last administration. There is a case history of energy independence, lowered emissions—which I think we agree on, we want to lower the emissions—and lower prices at the pump and otherwise. And so that is, I think, where the concern comes when we see some of the projected savings, experiences. We know what worked, and a concern about what we are—going forward.

So with the recent EPA emission rules, over two-thirds of the new vehicles have to be all electric in less than 10 years. I know you have said in the past that the rules don't specify what type of vehicle technology, and we hope there is flexibility that remains there. But the OEMs who have been unwilling to stand up and say, "We can't do this"—and I have jumped on them plenty, Ford and GM and Stellantis most recently, and I have lauded Toyota for being willing to look at some alternatives—I worry, with the massive increase in EVs in addition to other forced electrification coming out of your agency and the EPA, our electric grid will not be able to keep up. I think I can say it won't be able to keep up right now.

In going about my new district that goes from Lake Michigan and the Cook Nuclear plant and the mothballing of the Palisades plant that is taking place now, all the way over to Lake Erie with Fermi I and II, and Fermi that has a third license that they spent millions of dollars to get, but they have told me because of permitting, because of cost they are probably not going to do that. So I look at nuclear capabilities, and there's concerns there.

This also comes with the new regulations coming out of the administration last night talking about emissions being cut by 90 percent, or close to that. Today I heard from a constituent company who said they were prepared to put four EV chargers at their filling station convenience store, but the local utility ultimately came in and said, "You can't do it. We can only give you one, because we don't have capacity."

And I could go down the list, and you have heard the same concerns.

I heard something new today, that a similar company—relative to transporting fossil fuels, oil, specifically gasoline, to areas where they have had disaster, hurricane or whatever—FEMA has expressed concerns on meeting emergency needs without fossil fuel capacities and capabilities, because you can't carry a 20-gallon drum of electricity, and even getting the trucks there.

So those are, I guess, preface to my concern about how is the Department of Energy planning to offset both this increase in demand and decrease in supply being forced by administration policies?

Ms. GRANHOLM. Thank you.

First, this is a—and it must be—a managed and thoughtful transition. And it is why these are all proposed rules, and we want to hear from industry so that we get it right and that we don't end up creating insecurity on the grid. Super important.

I will say that, for example in Michigan, the Palisades plant, there is hopefully an effort to try to revive that. That will be coming through our—I think—our Loan Program Office. So we are hopeful that that will not reduce supply. And we need more nuclear online. This—what you have just described with Fermi is new to me, so I am going to dig into that a little bit.

However, I will say this too: One of the things we have not discussed here, and I think that is important, is the electrification of the vehicle fleet is also an opportunity to have virtual power plants to allow for the batteries. This is why all of the OEMs care about bidirectional charging to have the batteries of those vehicles end up having a conversation with the grid when times are tight.

Mr. WALBERG. But that——

Ms. GRANHOLM. And that is an opportunity.

Mr. WALBERG. That is a hope for the future. And right now they are making their assumptions, they are making their plans based upon what we are talking about, and that is why, Madam Secretary, I think we ought to be cautious. We ought to talk with great flexibility before we start putting percentages and timeframes on.

I think we are capable through innovation. We have shown that. We have cleaned up our environment to a great degree, better than any other country in the world with natural gas.

So I have run over my time. And so I must say also, let's—any help you can give us on Line 5? You knew I would bring that up.

Ms. GRANHOLM. I knew you had to.
Mr. WALBERG. We have to have help.
Mr. DUNCAN. The gentleman's time has expired.
Mr. WALBERG. Thank you.
Mr. DUNCAN. I will now go to Mr. Cárdenas for 5 minutes.
Mr. CÁRDENAS. Thank you very much, Mr. Chairman.

Thank you, Secretary Granholm, for being here with us today, and for serving our country so well. Thank you so much for your service.

Last Congress the Infrastructure Investment and Jobs Act and the Inflation Reduction Act authorized the programs and funding necessary to meaningfully address the climate crisis. These two complementary laws have already accelerated our Nation's transition to a clean energy economy powered by American workers, manufacturers, and innovators. We are now beginning to see the impacts of these bills and job creation, clean power, and cost savings for families.

Unfortunately, some of my colleagues on the other side of the aisle are taking steps to undo the strides Democrats made in lowering energy costs for American families, undoing our Nation's legacy of environmental injustice, and transitioning our Nation to a clean energy economy. That includes pushing the Default on America Act, which would repeal environmental review processes and keep provisions from the Inflation Reduction Act.

Republicans have chosen a path that would further line the pockets of Big Oil as they continue to push their polluter—the polluters-over-people agenda. As we look to deliver the America—for the American people, we must preserve these victories for our economy, workforce, environment, and our children, and children's future.

As we know, the budget is a reflection of our values, and I am heartened to see that the Department of Energy is looking to build off the major accomplishments of the last Congress. To deliver on climate action equitably, the Inflation Reduction Act advances the Justice40 Initiative, which sets to deliver 40 percent of investments to disadvantaged communities that have been hurt by polluters for generations.

Secretary Granholm, what is the Department doing to advance Justice40?

Ms. GRANHOLM. Yes, thanks for asking that question. It is—as you know, it is the first Executive order that the President signed, and it is part of this administration's DNA across agencies.

For us, for example, what it means is that when we are offering a grant program—say, the hydrogen hubs as an example—that those who are coming to seek the grant have to demonstrate that they have a Community Benefits Agreement, that the community is at the table and helping to craft it so that they get the benefit of the good instead of, obviously, being the victims of the bad, which has been the case.

The combination of the Community Benefits Agreement and the incentives that are embedded in the IIJA to incentivize the location of good projects in communities that have been disadvantaged is a really strong one-two punch to ensure that the community—the communities are at the table.

Mr. CÁRDENAS. So the administration is looking to do this in a way that creates more equitable and accessible future for all communities?

Ms. GRANHOLM. Absolutely.

Mr. CÁRDENAS. OK, thank you. Speaking of communities, I happen to have been elected to represent the community that I grew up in, the side of town where we have more dump sites in LA County than any other place in the 10-million-person County of Los Angeles. I was the first one to represent that community.

I am very proud to say that I was the first elected official to say no to a landfill expansion, that the first permit said that they are going to put trash in the ground, very deeply into the ground, up to grade. And by the time I got elected, they had so many permits that they were above 100 feet above the ground. The children in the community called it a mountain. It was just a mountain of trash that came from all parts of Los Angeles but was dumped on our side of town. So we cannot do all the wonderful work that you are getting done soon enough for communities like the one that I grew up in, and that I am so blessed to represent.

The Infrastructure Investment and Jobs Act and the Inflation Reduction Act prioritize building out our Nation's workforce by creating good-paying union jobs. This has also been under attack. Most recently in H.R. 1, the Republicans sought to repeal home energy efficiency contractor training grants that we had included in the Inflation Reduction Act. However, to strengthen our Nation's economy and transition into clean energy, it is vital that we build our Nation's workforce, and we must do so in a way that prioritizes diversity and good-paying jobs that families can sustain themselves on.

Secretary Granholm, what steps in the Department—is the Department taking to increase workforce training opportunities for communities of color, low-income communities, and nontraditional students?

Ms. GRANHOLM. We are doing a bunch of things, but I—let me just specify one that is really important, which is these Community Benefit Agreements that I am talking about. They are weighted in the evaluation of the proposal 20 percent that has to demonstrate that the communities there—and part of that includes workforce training for the specific project that may be coming to that area, number one.

And number two, ensuring that there are apprenticeship opportunities for those so they can earn while they learn, so that we can have the next generation, as well, building out, whether it is trades or the specialized kind of work that is necessary in these advanced energy projects. So we are excited about being able to bring everybody along.

Mr. CÁRDENAS. I exceeded my time. I apologize, Mr. Chairman, and I yield back.

Mr. DUNCAN. The gentleman yields back. The Chair will now go to the vice chair of the subcommittee, Mr. Curtis, for 5 minutes.

Mr. CURTIS. Thank you, Mr. Chairman.

Madam Secretary, my compliments for being here. My—also my compliments for your interaction with me and our caucus. I think the first step to overcoming differences is communication and work-

ing together. And I am one who really appreciates your efforts to reach out to us.

I also advocate frequently that we actually agree on far more than it sometimes sounds like between different parties here. One of those vast areas, I think, of agreement is nuclear, and we have had that quite a bit discussed today, but I would like to discuss a specific project.

Thank you for DOE's historic commitment to the Carbon Free Power Project. I have an organization, UAMPS. It actually is Utah Associated Municipal Power Systems—I had to look it up myself, because we all know it is UAMPS—who is 10 years through a permitting process, about halfway through and $100 million into it, couldn't do it without the help of DOE. And this is a big load on municipalities to finance this, and so I am grateful for your support. This is a big deal, if we are able to complete this project.

And that said, I am a little concerned about the overall amount of money towards advanced small nuclear reactors and wanted to kind of hear from you DOE's position and commitment to these small nuclear reactors, which, clearly, I think by everybody's standards, needs to be part of our energy future.

Ms. GRANHOLM. Yes, I couldn't agree more that it absolutely does. I know the—we have a $10 million in there for the UAMPS program, and I know it has been given hundreds of millions over the past years, but we are totally committed to small modular reactors, advanced reactors, and the technologies that are going to not just help the United States, but around the world. We know that we have got allies in countries like in Eastern Europe, et cetera, that are very interested in these technologies, and we want to develop them here. We want to have them made in America, but we also want to be able to export them.

Mr. CURTIS. Clearly, we should all agree on the fact that we want it made here, in America, right?

Ms. GRANHOLM. Yes.

Mr. CURTIS. And exported——

Ms. GRANHOLM. Here, another point of 100 percent agreement.

Mr. CURTIS. Yes, another point of agreement, right, that we all agree on.

So—and it has been brought up today, but let me just touch on Russia being an available source for advanced nuclear fuel. It feels to me like, on one hand, we are trying to get permitting reform in place so we can build all these nuclear facilities. And yet, if we do that, we may not have the fuel.

Ms. GRANHOLM. Yes.

Mr. CURTIS. Can you address that, and——

Ms. GRANHOLM. Yes, this is one of the things that I think we have to work on in a bipartisan fashion, is a uranium strategy. What we have developed is a proposal for a $2.1 billion uranium strategy that would allow for a revolving fund so that we could finance the conversion enrichment, et cetera, all the steps, here in the United States.

We are hopeful—we got 700 million as a downpayment of that, but we are hopeful to be able to work with Congress to fully fund that, perhaps in NDAA or in a supplemental or whatever, because

I think it is really important that we do that if we are to become—to wean ourselves from reliance upon Russian uranium.

Mr. CURTIS. Yes. I—so we are building this facility, and—well, we have the HALEU, right, in place——

Ms. GRANHOLM. Right, right.

Mr. CURTIS [continuing]. When this is done, I think——

Ms. GRANHOLM. Well, as you——

Mr. CURTIS. And I don't know if you have any specific comments on——

Ms. GRANHOLM [continuing]. Are probably aware, we are, at H Canyon, using—we are down-blending highly enriched uranium to get HALEU for the advanced reactors that we have. But it is not going to last long enough. We need a long-term strategy.

Mr. CURTIS. So thank you. I would like to turn to maybe an area where there is not as much agreement, but still vast agreement.

I heard my colleague Mr. Walberg talk about EVs. And I think sometimes when as Republicans we ask questions, we are viewed as not supporting or not wanting solar or wind or EVs and things like that. And I don't think it is the case, but I do think we have questions, right, and we want answers.

I happened to read a Wall Street Journal article today that pointed out that Rivian Automotive is going to lose, this quarter, $75,000 on every vehicle sold. And the value of their company is based—is given $98,000 for every car it expects to sell. But Lotus—Lucid, excuse me, their value of the company is 1.2 million for every car that they expect to sell.

So sometimes, you see, when we hear these things, this is why we bring up questions. And sometimes I think it is perceived as, well, we just don't want EVs. But I think—I would just really like to point out there is a practical part of this that we want answers.

How are we going to charge these? Where is the grid going to come from? Where is the electricity going to come from? And this isn't even speaking to the $7,500 credit.

So I don't know if you have a comment on that. It was just a point I wanted to make.

Ms. GRANHOLM. Well, I would say that this is why we have these 17 jewels, which are the national labs that are expert at modeling all of these different scenarios. And you are right to ask the questions, and it is important to ask the questions, and it is important to get the right answers from those who have expertise.

Mr. CURTIS. Thank you.

Ms. GRANHOLM. And so——

Mr. CURTIS. Madam, I am out of time.

Mr. Chair, I would like to ask unanimous consent to submit for the record "EV Startups Are Proving Warren Buffett Right," Wall Street Journal today.

Mr. DUNCAN. Without objection, so ordered.

[The information appears at the conclusion of the hearing.]

Mr. DUNCAN. And the Chair will now go to Mr. Sarbanes.

Mr. CURTIS. Thank you.

Mr. SARBANES. Thanks very much, Mr. Chairman.

And Secretary Granholm, welcome.

Ms. GRANHOLM. Thank you.

Mr. SARBANES. You are definitely in the eye of the energy transition storm, but doing a terrific job in managing that transition on behalf of our Government. So thanks so much.

It is so vital that we stay at the forefront of the evolving energy industry in developing clean energy technology and the workforce. Critically, to implement it is going to spur tremendous economic growth, as you know, while also promoting our environmental and our national security interests.

But we know that those interests are impacted by the much larger global marketplace, of course. And for more than a year now we have witnessed an upheaval in global energy security in the wake of Russia's invasion of Ukraine. Despite these challenges, many of our European allies have stepped up to the plate to reduce dependance on Russian energy sources. Could you describe some of the recent steps that DOE has taken to bolster European energy security in partnership with our allies?

Ms. GRANHOLM. Yes, for sure.

Number one, we have obviously done a lot of exporting of liquefied natural gas, which has been, I think, a great save to many of them.

We have partnered with them on developing strategies for hydrogen and to systematize the standards related to it so that there can be international trade of clean hydrogen.

We have worked with them on—especially the Eastern Europeans—on advanced nuclear and have partnered with them on, for example, Westinghouse going to Poland to be able to build several of their reactors going forward, all of their focus on diversifying energy supply.

We have been in tandem with them, both on the technology side as well as on the deployment to the extent that we can.

I will say we have learned from them, too, offshore wind efforts that have—that the UK and the Northern Europeans have engaged in, and have been very instructive for us as we consider our own offshore wind strategy. So it has been a mutual arrangement.

Mr. SARBANES. And on that score, in Maryland we have got some really exciting developments in terms of offshore wind production with some of those international partners being in the mix.

We have eastern Mediterranean allies like Greece and Cyprus and Israel, who are playing a very critical role in these efforts, the ones that we are discussing, as you know, and Congress recognized this when it passed the bipartisan Eastern Mediterranean Security and Energy Partnership Act a few years back. And in that we authorized the establishment of the United States Eastern Mediterranean Energy Center.

The Center's goal will be to leverage "the experience, knowledge, and expertise of institutions of higher education and entities in the private sector, among others, to identify opportunities for energy development in the region." Establishing the U.S. Eastern Mediterranean Energy Center will both facilitate the development of cutting-edge clean-energy solutions and promote Europe's energy diversification in accordance with our economic and national security interests.

Could you maybe just comment on why establishing the U.S. Mediterranean Center is so important for international energy pol-

icy, and what resources you think might be necessary to get that center off the ground?

Ms. GRANHOLM. Yes, thanks for that too. I think that across the Mediterranean there is so much happening, and so important to solidify the relationships, especially around energy because of its critical nexus, where it is in the world, and the desire to wean ourselves from energy from Russia. That particular center, the concept of a center, is super important.

I know that there has—we have been authorized to be able to establish it, and looking forward to an appropriation. And I know there has been a suggestion about a $10 million——

Mr. SARBANES. Yes.

Ms. GRANHOLM [continuing]. Appropriation. Our International Affairs Office is in the middle of drafting a concept paper of what this would look like. But the bottom line is the various points of energy, whether it is wind or offshore wind or clean hydrogen transported via ship or solar, obviously, or advanced small reactors, you name it, that region is a fundamental part of our ability to partner with Europe to become energy independent.

Mr. SARBANES. Great, and we look forward to working with you on that. We are seeking the appropriations.

I have got 30 seconds left. So just on another topic real quick, a lot of focus on sort of technology as a way of sequestering carbon, but can you speak to your perspective on making sure we have a good balance of sort of biological solutions in terms of dealing with climate change alongside of technological solutions?

Ms. GRANHOLM. Yes, we have to do biological solutions. We have to do Earth-based solutions. We have to do technological solutions. We have to do everything, everywhere, all at once.

Mr. SARBANES. Great, thanks very much. I yield back.

Mr. DUNCAN. OK. The Chair will go to Mr. Palmer from Alabama for 5 minutes.

Mr. PALMER. Thank you, Mr. Chairman.

First of all, Secretary Granholm, I am very encouraged by your support for next-generation nuclear. I think it is our best option, best opportunity for transitioning to an emissions-free—well, it won't be emissions-free because there's emissions involved in the construction, but there are a number of reasons why I think this is the direction we ought to go.

One, we can recycle spent fuel rods. France is doing that. They use a standard design on their nuclear reactors, which I think helps reduce the cost of the reactors themselves, reduces maintenance costs, but they operate 24/7, where with wind and solar it is intermittent power. And I worked for two international engineering companies prior to running a think tank for 20-something years. And our—we cannot have the economic growth that we want to have, we cannot be able to support the emergence of economies in poor countries with just trying to rely on intermittent power.

And as I was saying, what the nuclear facilities will do for us is 24/7 power generation, except when you shut them down for maintenance. Their operational life cycle will be approximately 80 years, which—Lord knows where we will be with technology in 80 years.

But the other thing that I think we need to take note of is that you can cite one next-generation nuclear facility on 640 acres. It is

about the same amount of space you would use for a natural gas facility. But to generate the same amount of power from that nuclear facility from a turbine farm would require 77,000 acres. And I think you understand the problems we are running into with Not In My Backyard, with potentially a very aggressive use of eminent domain, which I really don't think we want to go that direction.

So my other concern is—about this, and you can address this, is there really isn't a scenario where we are going to be net zero by 2050. The physics don't work, the economics don't work, and the technology doesn't work. Now, that is not to say in the next 20 or so years that the technology won't improve, but there really isn't a way to get there. So it is encouraging to me to see the emphasis on next-generation nuclear, and particularly since we can recycle spent fuel rods.

The Director of the National Nuclear Laboratory was here the week before last, I think it was, Mr. Chairman, and I asked him if he had done any calculations to determine how long we could operate these nuclear reactors using the fuel that is stored now, and he said 100 years. So we don't have to depend on anybody.

The other thing that I want to address is my concern. I know my Democrat colleagues are very dismissive of what we are trying to do with H.R. 1. They are very dismissive of some of the issues that we have brought up about China. I do not believe the existential threat to the world is climate change. I think it is China. And in that regard, I am very concerned about how much we will be dependent on China for our energy resources.

And I have said this many, many times, that the war in Ukraine did not create the energy crisis, it exposed it. It exposed the fact that we have spent a decade and a half neglecting our hydrocarbon infrastructure, particularly natural gas. But it is also instructive that no nation should be dependent on an adversarial nation for anything as important to its economy and its national security as energy. So how would you respond to that?

Ms. GRANHOLM. Well, I couldn't agree more that we should not be reliant upon countries whose values we don't share for our own energy resources. And that is why the importance of the Invest in America agenda, the Inflation Reduction Act has caused all of these companies doing critical mineral processing and battery supply chain work to come to the United States to build up our supply chain here, so that we are energy independent.

I think we could probably all agree that it is important to build up our own supply chain so that we are energy independent——

Mr. PALMER. But my point is we don't need to—we don't have to do that for nuclear.

Ms. GRANHOLM. I am agreeing with you on nuclear.

Mr. PALMER. We have got a major problem with permitting. It will take years to get us where we need to be on the critical minerals.

I am not—I am fine with renewables, but there's certain physics that come into play here. You cannot sustain the economy that we have, much less grow the economy that we need to grow, with intermittent power. Europe is starting to wake up to this.

So I think we need an all-of-the—truly, an all-of-the-above, but we should not cast aside our hydrocarbon resources in this mad

dash, which I think is rather mad to think that we have got to do all this in such a short amount of time, when we really don't.

And Mr. Chairman, I yield back, and I thank you for testifying, and for you holding this hearing.

Mr. DUNCAN. The gentleman's time has expired. I will go to Ms. Blunt Rochester for 5 minutes.

Ms. BLUNT ROCHESTER. Thank you, Mr. Chairman.

And thank you, Secretary Granholm, for attending today's hearing.

On behalf of my State and region, I would like to thank you and the Department for moving forward with the hydrogen hub program, which will help create more jobs and ensure an effective transition to clean energy. Last month the Mid-Atlantic Clean Hydrogen Hub, also known as MACH2, submitted its application to become one of those hubs. And the proposal will transform the energy economy of the State of Delaware and spur massive job growth for my constituents.

And I urge you, Madam Secretary, to ensure that small States like Delaware are also able to benefit from this program.

I would also like to thank you for your testimony's attention to supply chain resiliency. My bill, the Supply Chains Act, would help us solve these problems across the economy, including the energy sector, and I would love to follow up with you in the future to discuss this legislation.

I am glad to—also to have you here. And I heard the conversation with Representative Cárdenas about the efforts of the administration to focus not only on clean energy jobs, but also union jobs, apprenticeships, also the focus on Justice40. I can say from my own constituents how grateful they are for that work and that attention, that focus.

And in your testimony you noted that a $70 million investment for community capacity building initiatives to address areas of persistent poverty. This issue has come up repeatedly when I am talking to folks about the implementation of major bills like the IRA or the Bipartisan Infrastructure Law. And so can you just speak a little bit about what that investment means, what it would do, what—the intention of it? I would love to hear more about that, and also how it ties to the persistent poverty issue, as well.

Ms. GRANHOLM. I mean, one of the great things about policy mattering is that when you adopt great legislation and craft it in the right way, then it can go to the populations that you—that really need it.

So I think, as an example of weatherization—you and I were at a weatherization event—there has been enhancements to the weatherization program that are specific that will impact significantly impoverished communities. For example, allowing impoverished communities to install not just weatherization, but also solar generation, for example, on homes; allowing those who live in manufactured housing to take advantage of those.

So the—we have a State and community energy program that is now—that is as a result of trying to administer these programs where DOE meets the street, if you will, and making sure we are thoughtful about crafting our outreach and our programs to communities that have been left behind, communities that are

fenceline communities—has been a big part of our efforts in our administration of our Justice40 goals.

Ms. BLUNT ROCHESTER. Yes, I really want to zero in, as well, on making sure that dollars get to the communities that need it most, but also that they have the capacity to do it.

Ms. GRANHOLM. Yes.

Ms. BLUNT ROCHESTER. That is one of the things that I have heard most back from constituents is, "I don't know how to do this kind of grant application."

Ms. GRANHOLM. Yes.

Ms. BLUNT ROCHESTER. "I have never done this before." And so that capacity-building part is really, really vital, I think, in this moment.

Ms. GRANHOLM. And I would say streamlining process, so that they don't have to do a huge funding opportunity.

Ms. BLUNT ROCHESTER. Exactly.

Ms. GRANHOLM. Maybe they do a concept paper, maybe you reduce the amount of cost share. All of those are what we are considering as we administer these grant programs.

Ms. BLUNT ROCHESTER. I mean, for me, I think about this from a jobs perspective, I think about it from a health perspective.

Ms. GRANHOLM. Yes.

Ms. BLUNT ROCHESTER. There are so many pieces to—and then there is the justice impact of it, as well.

So thank you for that. I think we have talked before as well about, you know, the efforts to upscale retrofitting, like home performance programs, to include large public buildings. And I will be reintroducing legislation to help DOE do just that. According to the EPA, the building sector accounts for 31 percent of U.S. greenhouse gas emissions. Public buildings such as schools and hospitals tend to be the most energy intensive because they are larger, older, and usually have higher electricity demand.

And so can you talk a little bit about what you have been able to do through the Office of State and Community Energy programs at DOE for schools and hospitals——

Ms. GRANHOLM. Yes.

Ms. BLUNT ROCHESTER [continuing]. And municipal buildings?

Ms. GRANHOLM. This is really important, too, the schools piece. As an example, there is a funding opportunity announcement to be able to allow schools to retrofit for weatherization. It was way oversubscribed. The need is enormous. And so, to the extent that we can work together, Congress can work on upping that so that schools can take advantage of this because their heating bills or cooling bills, depending, are—eat up a huge amount of budget that they could be using for educational resources.

Ms. BLUNT ROCHESTER. I have run out of time, but the last point I will make is about lowering cost. That is the other big point of this is to lower costs for families.

Ms. GRANHOLM. Yes.

Ms. BLUNT ROCHESTER. So thank you so much for your testimony, and thank you, Mr. Chairman.

Mr. DUNCAN. The gentlelady's time has expired. I go to Mr. Weber for 5 minutes.

Mr. WEBER. Thank you. Secretary Granholm, thank you for being here. I echo his comments, John Curtis, about coming to the meeting. I was part of that. I sat right beside you, and you did a good job. Thanks.

And actually, I am part of the Science Committee. I know the Science Committee has been trying to get you there because the Department of Energy's critical R&D programs are about a third of the DOE's annual budget. Do you have plans to meet at the Science Committee?

Ms. GRANHOLM. I know that my Under Secretary—didn't they testify there yesterday, the two Under Secretaries?

Mr. WEBER. OK, well——

Ms. GRANHOLM. I know——

Mr. WEBER. I wanted to get that out of the way——

Ms. GRANHOLM. OK.

Mr. WEBER [continuing]. Because that is important, too.

Do you have any plans to impose a cap on the total volume of U.S. LNG exports?

Ms. GRANHOLM. I do not. I don't have any plans on doing that. We are—we do have a request for information on the street about how we should consider all of this, including how the exports impact natural gas.

Mr. WEBER. Well, we have 2½ LNG plants in my district. I am the gulf coast of Texas, and we export a lot of it, and we got one on the drawing—we got one that is pretty well underway, and then one on the drawing board—so four total, I guess.

I think we can send more gas to Europe to help them wean off of Russian gas. Obviously, you support LNG exports to Europe?

Ms. GRANHOLM. As you have seen, we have granted export licenses to a whole slew. In fact, we have got—for those LNG terminals that are under construction—that will be 20 Bcf of LNG——

Mr. WEBER. Right.

Ms. GRANHOLM [continuing]. To go, which is a huge amount. There is another 20 that have been licensed that aren't even under construction. So there is a universe of LNG that is available for Europe. The question is whether they get a final investment decision.

Mr. WEBER. OK. Well, we—yes, that is absolutely right.

Do you agree with the existing DOE studies that showed the net economic benefits of expanded LNG exports? Have you seen those studies?

Ms. GRANHOLM. The—who wrote the study?

Mr. WEBER. The DOE.

Ms. GRANHOLM. Wait, which—do you know which——

Mr. WEBER. It is the—I don't.

Ms. GRANHOLM. Is it the FECM, the Fossil Energy and Carbon Management?

Mr. WEBER. It may be. You might——

Ms. GRANHOLM. I have to go back and take a look at——

Mr. WEBER. We will look at that later, then. Any plans to revisit those existing studies? I guess you are talking about it now, you will go back and look at them.

Ms. GRANHOLM. Well, we are looking at—I mean, we want to look at the impacts, because we are really blessed, as you know,

with a huge amount of natural gas. And the question is, how does—how do exports impact the greenhouse gas emissions? How does methane? You know, how do we deal with all of that, and what does it do in terms of domestic pricing for natural gas?

So it——

Mr. WEBER. We want to be careful with that. In our rush to go green, we want to make sure that we don't do a number on our energy industry. So we want to be careful with it.

Ms. GRANHOLM. I understand.

Mr. WEBER. Do you believe that cooking—the cooking products rule is far reaching and deserves a complete transparent rulemaking process from the DOE, which would include sufficient time for comments?

Because there's a lot of people in Texas that are going to be unhappy if you—if the regulations for gas—I was an air conditioning contractor for 35 years. I know what super-high efficiency ratings did to the cost of equipment. It was hardest on the lowest-income people because they never planned to replace their air conditioning, and when the equipment became more expensive, it was hard on them.

But anyway, do you believe the cooking products rule is far reaching? And will there be a good comment period on it?

Ms. GRANHOLM. There is a comment period on it, and we are always—in fact, we just extended the comment period for another one, because we want to make sure that we get all of the feedback necessary before issuing any final rule.

Mr. WEBER. OK, good to hear that. Are you aware that households that use natural gas, which—we have a lot of LNG in Texas—for heating, cooking, and clothes drying save an average of $1,068 per year over electric appliances, $1,068 a year in savings—natural gas cooking, heating, clothes drying—over electricity.

Ms. GRANHOLM. And——

Mr. WEBER. That is not a small amount.

Ms. GRANHOLM. And the electric and the gas furnaces, we want—furnaces, excuse me, the gas stoves, we want them to be efficient too. And that is what the rule was about, it is about creating—but those are for—it was for higher-end gas stoves.

Mr. WEBER. Well, it is a little harder to get efficiency up on them as it is furnaces, which wound up with a 90 percent AFUE rating. So I was very familiar with the SEER ratings and what the——

Ms. GRANHOLM. Sure.

Mr. WEBER. I sold my company 5 years ago. It is hard on people. The more expensive the appliances and stuff are, the more it hurts those who can least afford it.

Well, I have got about 49 seconds. So are you aware that switching from gas to electricity costs thousands of dollars in a home? When we went into a house, if they had an electric furnace and they wanted to go gas, then you are talking about a gas company, you are talking about a plumber, you are talking about a gas meter, you are talking about a lot more labor. You know that that is pretty expensive, right?

Ms. GRANHOLM. Well, I would say that, with the incentives that are about heat pumps, for example, to reduce the cost, the—what

we have seen in the modeling is that, in fact, it reduces on average cost——

Mr. WEBER. Well, I will tell you that heat pumps are a lot more expensive than regular conventional air conditioners.

Ms. GRANHOLM. That is what I am saying, is the incentives for the heat pumps really bring down the cost. The rebates that will be there can reduce by half, in many cases, especially for poorer or lower income, it can replace almost the full thing.

Mr. WEBER. But if you are going all electric and you have got to go to natural gas, it is expensive.

I am out of time, and I got a plane to catch. Thank you for being here.

I yield back.

Ms. GRANHOLM. Very good, thank you.

Mr. DUNCAN. Mr. Armstrong is recognized for 5 minutes.

Mr. ARMSTRONG. Thank you, Mr. Chairman. I think before I start I will just point out that everything is cheaper if it has a rebate and incentive, a tax break or a subsidy, not just green energy. And I will continue to say that when we talk about cost competitiveness.

But the EPA had a rule 2 weeks ago, a proposed rule that is going to have two-thirds of all car sales be electric by 2032. You spoke earlier about 160 battery companies coming to the United States, which I actually think is great, and dealing with all of this. But the top five critical minerals in a car battery are lithium, nickel, cobalt, graphite, and manganese.

Lithium: Australia produces 52 percent, Chile produces 25 percent, China produces 13 percent. But China actually has a stranglehold on the lithium supply chain, and they have invested $6 billion worth of assets in lithium in Chile, Canada, and Australia and currently holds north of 60 percent of the refining capacity. There is one mine in the United States, and it cannot cover 20 percent of the current EV consumption.

And I agree with the aspirational growth. I—permitting reform, if we had DoT or EPA in here, I would be asking about transmission infrastructure and how we are actually going to charge these cars when they are on the road. I don't. I have you in here, Madam Secretary. And so, under current—under the current construction and regulatory construct, how much lithium are we going to mine in the United States in 2032?

Ms. GRANHOLM. I don't know by 2032. But I do know that there is a huge amount of lithium resources in the United States that——

Mr. ARMSTRONG. There is a ton of lithium resources——

Ms. GRANHOLM. Right.

Mr. ARMSTRONG [continuing]. In the United States. I don't think we will have a lithium mine permitted by——

Ms. GRANHOLM. Well, that is the whole thing. Let's work together on that. Let's work together on reforming the Mining Act.

Mr. ARMSTRONG. Well, except—but that is the whole policy point behind this, is—it is like we are blowing up the bridge, and then we are going to figure out a way to cross the river.

Ms. GRANHOLM. But I would imagine——

Mr. ARMSTRONG. We should have the permitting reform before we have the EPA mandate to make two-thirds of all new car sales electric by 2032.

Ms. GRANHOLM. Well, I disagree. I think we can do it if we can come together, Democrats and Republicans, to reform the Mining Act, for example, and speed up permitting.

Mr. ARMSTRONG. The top three places in the United States to mine cobalt are Congo, Russia, Australia. How much cobalt are we going to mine in the United States by 2032?

Ms. GRANHOLM. Well, we may not. It may be that we have a friend, like in Australia or——

Mr. ARMSTRONG. Yes.

Ms. GRANHOLM [continuing]. Like in Canada.

Mr. ARMSTRONG. When you are looking at the rare earth mineral list, we better not anger the Aussies, or we are going to be in a real, real difficult problem.

Nickel: Indonesia, Philippines, Russia, New Caledonia, Australia, Canada, China. How much nickel are we going to mine in the——

Ms. GRANHOLM. A number of those——

Mr. ARMSTRONG [continuing]. United States?

Ms. GRANHOLM [continuing]. Are very friendly countries that want to have those arrangements. That is why Canada is very interested. Australia is very interested. Japan is very interested.

Mr. ARMSTRONG. How much nickel are we going to mine in the United States by——

Ms. GRANHOLM. I hope we mine a good amount by then.

Mr. ARMSTRONG. Manganese: South Africa, Australia, China, Gabon, Brazil. How much manganese are we going to mine in the United States?

Ms. GRANHOLM. I hope we do what we need, and we onshore the rest.

Mr. ARMSTRONG. Graphite: China, Madagascar, Mozambique, Brazil, South Korea, Russia, Canada. How much graphite are we going to mine in the United States?

Ms. GRANHOLM. Same answer.

Mr. ARMSTRONG. Hope is not a policy.

I want to just talk a little bit about the Northeast Gasoline Supply Reserve, which was established in 2014 to address supply issues following Hurricane Sandy. The budget requests an 8 percent increase to support a 1 million barrel reserve. Do you know approximately how many days the northeast gas life consumption the reserve would support?

Ms. GRANHOLM. It is not very much.

Mr. ARMSTRONG. It is like one day, I think, isn't it?

Ms. GRANHOLM. It is a small amount.

Mr. ARMSTRONG. The gasoline reserves are commingled in tanks with commercial supplies costing about $13 per barrel a year to maintain. If a storm disrupts the supply at commercial Raritan Bay facility, the DOE reserves would almost certainly face disruption because the gasoline is commingled. Doesn't this place the reserve at the same level of risk as the commercial supply they are meant to supplement?

Ms. GRANHOLM. Well, I would say this, that it is important for that area to feel like they have a bit of an insurance policy, given

that it is an area that often is difficult to get supply to. So it is important for them, and that is one of the reasons why it exists.

Mr. ARMSTRONG. But citing previous operational concerns, the Department of Energy officials told GAO in 2022 that the current administration was considering its position on whether to continue our recommended closing the gasoline product reserve. Has the administration determined its position on the gasoline reserve?

Ms. GRANHOLM. I think they are going to keep it open.

Mr. ARMSTRONG. Between the limited scale, commingled supplies, and excessive cost per barrel, the Northeast Gasoline Supply Reserve merits significant review. I mean, we have to figure it out.

Ms. GRANHOLM. Yes.

Mr. ARMSTRONG. The very disruptions we are trying to protect are going to have the same problems for our actual reserve.

And then I would just comment, instead of permitting the necessary infrastructure to diversely move products to the northeast, we have a commingled supply that will end up being under the same consequences as the—of a natural disaster of what we are trying to get to. So I just would hope the Department would focus on existing operational maintenance challenges associated with the—dump money into ineffective product reserves.

And with that, I will yield back.

Mr. DUNCAN. I thank the gentleman. I will now go to Mr. Pfluger from Texas for 5 minutes.

Mr. PFLUGER. Yes, thank you, Mr. Chairman.

Secretary, thank you for being here. Would you consider yourself the principal adviser to the President for energy matters?

Ms. GRANHOLM. Well, I am the Secretary of Energy. I am one of the main advisors, but he has got a few.

Mr. PFLUGER. OK, but you are the principal advisor.

Ms. GRANHOLM. Well, I don't know that I would say that. I think he has got some very good advisors in the White House.

Mr. PFLUGER. I believe in this position. I represent the Permian Basin. We have had this conversation before. You know, we produce about 43 percent of the country's crude oil. It is the most secure supply of oil and gas in the entire world. And in fact, I would also go a step further, that it is probably the only thing that has kept this economy going, despite the policies that we have seen. I am very concerned about those policies. And I just have a couple of questions for you based on, you know, being the Secretary of Energy.

When the President went to Saudi Arabia and asked OPEC+ to increase production, was that your recommendation to him to do that?

Ms. GRANHOLM. I think the President wanted to see greater production in the United States also.

Mr. PFLUGER. We have that ability.

Ms. GRANHOLM. And——

Mr. PFLUGER. That is why H.R. 1——

Ms. GRANHOLM [continuing]. He has been asking for it.

Mr. PFLUGER [continuing]. Is so important. And Madam Secretary, you are the Secretary of Energy. We are blessed, as a country, to have the most enormous amount of reserves, not just of oil and gas but of so many other critical minerals and things that have

been discussed today. Did you recommend that he go to Saudi Arabia and ask for them to produce more oil?

Ms. GRANHOLM. I was not in that conversation.

Mr. PFLUGER. So he did not ask the Secretary of Energy for——

Ms. GRANHOLM. I was not in the conversation.

Mr. PFLUGER [continuing]. Your recommendation?

Ms. GRANHOLM. But I will say this: He has been very strong about asking for greater supply here in the United States.

Mr. PFLUGER. We have that capacity to do that. I am extremely troubled with the fact that, for a political emergency, the President released almost half—over half of our SPR.

At what point in time will you make a recommendation to the President or act upon current law to refill?

Ms. GRANHOLM. We will be refilling, as you are probably——

Mr. PFLUGER. What is the—do you have a timeline?

Ms. GRANHOLM. As soon as we are finished with the current congressionally mandated sale, which we are required to do before the end of the fiscal year, as soon as that is done—because, as you are probably aware, you can't take in and release at the same time—we will begin the process of——

Mr. PFLUGER. I would like for you to follow up for the record on that one, to let us know what that timeline looks like.

I am going to move to the next question——

Ms. GRANHOLM. Starting this summer.

Mr. PFLUGER. You said we cannot flip a switch today, but the administration has actually tried to flip that switch.

You know, just a couple of questions for you when it comes to—what is the total amount of electricity that our country needs on an annual basis?

Ms. GRANHOLM. Well, right now we have about 1,400 gigawatts on our grid.

Mr. PFLUGER. On an annual basis, what does that equate to?

Ms. GRANHOLM. Well, 1,400 gigawatts on the grid, so how much electricity do—I mean, we have a bunch of different sources of electricity that are provided. We use about 3——

Mr. PFLUGER. It is about 4 trillion kilowatt hours per year.

Ms. GRANHOLM. Oh, OK.

Mr. PFLUGER. And I would expect you to know that because we have a 2032 mandate to get to electric vehicles, like my colleague just mentioned.

My next question is, what will the increase in that total amount of annual——

Ms. GRANHOLM. We have to double the size of the electric grid by 2035.

Mr. PFLUGER. Double.

Ms. GRANHOLM. Mm-hmm.

Mr. PFLUGER. So what portion of our grid is serviced by hydrocarbons right now?

Ms. GRANHOLM. About 40—no, 40 percent is natural gas. About 17 percent is coal, and the rest is clean.

Mr. PFLUGER. OK, so it is about 20 percent—22 percent coal——

Ms. GRANHOLM. No, 17 percent.

Mr. PFLUGER [continuing]. Nineteen percent nuclear——

Ms. GRANHOLM. As of right now.

Mr. PFLUGER. This is from you all's website.

Ms. GRANHOLM. Well, the——

Mr. PFLUGER. Thirty-eight percent natural gas and 20 percent renewable.

So what—in 2032, if we have to double—and thank you for that answer. That is actually more than I was expecting you to say. If we have to double the amount of electricity, where is that going to come from?

Ms. GRANHOLM. That is going to come from growing our energy pie.

Mr. PFLUGER. And what——

Ms. GRANHOLM. Increasing——

Mr. PFLUGER [continuing]. Pieces of pie will grow?

Ms. GRANHOLM. We want to increase clean.

Mr. PFLUGER. Clean.

Ms. GRANHOLM. So——

Mr. PFLUGER. So what does that mean? What does clean——

Ms. GRANHOLM. So that means let's increase nuclear, let's increase hydroelectric power, let's increase geothermal.

Mr. PFLUGER. What about——

Ms. GRANHOLM. Let's increase——

Mr. PFLUGER. What about in places that don't have hydro?

Ms. GRANHOLM. Well, that is why you have a transmission grid, to be able to bring electricity from where it is generated to where it is needed.

Mr. PFLUGER. When was the last time you visited the Permian Basin?

Ms. GRANHOLM. I have not been to the Permian Basin.

Mr. PFLUGER. It is the most prolific production area for energy in this country.

Ms. GRANHOLM. Will you invite me?

Mr. PFLUGER. I have invited you.

Ms. GRANHOLM. Ah, I didn't know that.

Mr. PFLUGER. I invited you last year, when I saw you in a meeting.

Ms. GRANHOLM. Great.

Mr. PFLUGER. And I will invite you again.

This area helped us win World War II. This area has lifted a billion people out of poverty. This administration is choosing to not use the best-of-the-above strategy. I am not an all-of-the-above kind of person, I am a best-of-the-above. And that is different for different places. Hydrocarbons in some places, clean natural gas. Maybe if you have hydroelectric. We have more wind energy in my congressional district than the entire State of California. Come see it. It doesn't always work. The wind in west Texas in July, when it is 110 degrees in the middle of summer, doesn't blow.

Ms. GRANHOLM. But your sun shines.

Mr. PFLUGER. But—it does. And give me a battery that works for more than 4 hours that services the largest electric——

Ms. GRANHOLM. We are working on that.

Mr. PFLUGER [continuing]. Grid in the country.

Ms. GRANHOLM. Yes.

Mr. PFLUGER. We don't want to be like Europe. We don't want to be like California. That is why we are trying to use a best-of-the-above approach.

My time is expired, but I would like to see, Mr. Chairman, the timeline for when the SPR is going to be refilled. I yield back.

Mr. DUNCAN. The gentleman yields back. We will go to Mr. Carter from Georgia.

Mr. CARTER. Thank you, Mr. Chairman. I appreciate you letting me waive on to this committee.

Madam Secretary, thank you for being here. I believe I am your last questioner, so——

Ms. GRANHOLM. I don't think so.

Mr. CARTER. One more? Oh, you got one more, OK. Well, nevertheless, I am your next to last. And I want to ask you, as I am sure you are aware, on another subcommittee that I serve on we had EPA Administrator Regan before us just a couple of days ago, just the other day. And it is my understanding that the Department of Energy and the EPA have signed a joint memorandum of understanding on electric reliability and that your announcement of this MOU highlights the challenges of transitioning to clean energy.

And—but, you know, I find it interesting. Since that MOU was announced in March, it seems like the EPA has announced as many new rules or changes that it can that would threaten grid reliability. I mean, just today EPA announced a new power plan rule that is going to put significant new requirements on our baseload generation. I am really concerned about this. This is after a holiday season that saw nine States experience blackouts and brownouts.

I mean, even in the State of Georgia—fortunately, we didn't have any blackouts or brownouts, but the EMCs tell me that we were at peak capacity, that we could not have done any more than what we did. And we are a growing State. My district is a growing State. I just had the largest economic development project ever announced in the district, in the State of Georgia. So we are growing, and we are going to need reliability. We are going to need that in our State, and the rest of the country is going to need it, as well.

Last week, FERC Commissioner Mark Christie said that the problem is not the addition of intermittent resources but the rapid subtraction of dispatchable resources like coal and gas. He also said, and I quote, "The U.S. is heading for a reliability crisis because dispatchable generating resources are retiring far too quickly and in quantities that threaten our ability to keep the lights on." Do you agree that the U.S. is heading for a reliability crisis?

Ms. GRANHOLM. No, I think we have to do it right, and I think that is why——

Mr. CARTER. Do you think we are doing it right?

Ms. GRANHOLM. Well, I think what the EPA rule did was to say we want to reduce emissions. And it didn't say how. We have been working on all of this technology to decarbonize. And whether it is coal or natural gas, we want clean baseload power.

I heard a number of Members of this side of the aisle say this is about emissions. So let's work on that. Let's decarbonize and allow for baseload power to exist.

Mr. CARTER. Well, I am encouraged to hear you say that, because I believe that. I don't believe it is about fewer choices, I believe it is about less carbon——

Ms. GRANHOLM. And more technology.

Mr. CARTER [continuing]. Not less choices. So I am encouraged to hear you say that. But then I see the rules that are being implemented here by the EPA that concern me, because it is putting our grid reliability at risk here.

You know, I had the opportunity to go to Europe last year as a member of the Conservative Climate Caucus, and we saw and witnessed in Europe what has happened there. And they have allowed their policies to get ahead of their innovation, resulting in a mess, to be quite honest with you. They closed down their nuclear plants and ended up going back to coal.

Ms. GRANHOLM. Yes.

Mr. CARTER. Very important lessons to be learned there, and I certainly hope we are paying attention and learning those lessons.

Ms. GRANHOLM. Yes, we certainly are. And I agree with you. We have to be thoughtful about this transition.

Mr. CARTER. But, you know, again, the Biden administration has said that they—by 2030 they want 80 percent renewable energy. And right now you said it is how much of our portfolio?

Ms. GRANHOLM. We want to get to 100 percent by 2035 with an 80 percent reduction in greenhouse gas emissions.

Mr. CARTER. OK, OK. And what are we at right now?

Ms. GRANHOLM. In terms of—we are at—in terms of clean, we have 20 percent that is nuclear, we have 20 percent that is renewable.

Mr. CARTER. Are you still confident that that is an achievable goal?

Ms. GRANHOLM. I do—I am, I am, because of the policies that were just adopted. I know you didn't vote for them, but——

Mr. CARTER. No, and——

Ms. GRANHOLM [continuing]. Are incentivizing——

Mr. CARTER [continuing]. I am not going to vote for them, because I believe that we are going to make the same mistake that they made in Europe and allow our policies to get ahead of our innovation. And we can't do that. We can't afford to do that.

Look, I would submit to you, Madam Secretary, that what has happened in our economy is a direct result of the policies of this administration. It is self-inflicted. Day one, this administration declared war on fossil fuels, resulting in higher gas prices, resulting in higher inflation, resulting in higher interest rates. And now we have got the problems that we have got here, whereas my colleague just pointed out we have got an abundance of oil here, we have got an abundance.

And again, here we are in a nation that has decreased our carbon emissions more in the last decade than the next 12 countries combined, while growing our economy.

Ms. GRANHOLM. And we have also—we are still a record producer of oil and of natural gas. So declaring war has not happened. In fact, we are at record production.

Mr. CARTER. We are at record production, but we can do even better is the point. And we can—we don't need to decrease choices, we need to decrease carbon. That is what we should be doing.

Ms. GRANHOLM. Let's work on it.

Mr. CARTER. Madam Secretary, thank you for being here.

Ms. GRANHOLM. Thank you.

Mr. CARTER. And I am willing to work on it with you, and I look forward to that.

Ms. GRANHOLM. Great.

Mr. DUNCAN. The gentleman's time has expired, and I will go to the last congresswoman of the day, Ms. Barragán, for 5 minutes.

Ms. BARRAGÁN. Thank you, Mr. Chairman.

Madam Secretary, I have been here for a short time, but very impressed at your ability to respond to very specific questions.

Madam Secretary, do you know what environmental justice means?

Ms. GRANHOLM. I do.

Ms. BARRAGÁN. That would be that would mean that you know more than the last administration's Energy Secretary that sat before this committee and couldn't describe it or explain it. So when I hear these very direct questions about specific numbers and places, I am very impressed.

Secretary Granholm, the infrastructure law President Biden and Democrats in Congress passed included 84 million for demonstration projects that use enhanced geothermal technology. There is a lot of geothermal potential in California and other parts of the country. How is the Department of Energy using these funds to meet its enhanced Geothermal Shot goal to cut geothermal energy costs? And what more can Congress do to support your work?

Ms. GRANHOLM. I am so glad you asked this question, because I am such a huge fan of geothermal, the heat beneath our feet, which is 24/7 dispatchable, baseload, clean power. We need to do more.

So we do have this Earthshot. The Earthshot is to reduce the cost of geothermal so that we can see more of it happen.

We also have the ability through the Inflation Reduction Act and the Bipartisan Infrastructure Law to help invest in facilities that be—that are able to get to that geothermal.

Honestly, the oil and gas companies should be embracing this, given their expertise in frack—in hydraulic fracturing. They know where the hotspots are, and they know how to get to them, and they know the subsurface, and they have employees who have a skill set that is ready to go.

So we are very enthusiastic about continuing the technology advances, particularly on the drill bits as well as on the extraction processes, whether it is enhanced or advanced geothermal, closed loop or open loop. We are very interested in all of it.

Ms. BARRAGÁN. Oh, great. And I understand that today the Department of Energy is holding an Enhanced Geothermal Shot Summit. And so I want to thank you for your commitment to this clean energy resource.

And the followup to that, if the Department of Energy can meet the cost reduction goals of enhanced geothermal, I believe that is going to unlock 24/7 power in many parts of the United States.

How significant would this be for our climate and clean energy goals?

Ms. GRANHOLM. Yes, it is—you know, to all of the questions that we were just talking about clean, dispatchable baseload power, it would unlock so much. There is the potential for geothermal, no matter how far down you go—it all depends on how far down you go—it is everywhere. And so if we could really unearth that, if we could really crack the code on it, it could be the Holy Grail.

Ms. BARRAGÁN. Great. And this is a bipartisan issue. It is something I have been working on with my colleague across the aisle on—who represents Utah, Mr. Curtis.

I want to chat with you about marine energy. Secretary Granholm, the infrastructure law also provided $70 million to further develop marine energy. There is a lot of wave energy potential off the coast of California, and a pilot project soon underway at AltaSea in my district, which is at the Port of Los Angeles. Can you tell me how the Department of Energy is using these funds to advance marine energy?

And what more can Congress do to support the marine energy research and development?

And just to give you an idea, I recently had a company from Israel come and share their—what they are doing there to bring down to the Los Angeles port that can basically produce energy from waves.

Ms. GRANHOLM. Yes.

Ms. BARRAGÁN. And I think it is pretty remarkable. And so I just thought I would ask about that.

Ms. GRANHOLM. Yes, it is hugely—you know, the—just the ability for machines under—at the floor of the seabed to be able to harness that energy is a huge opportunity. We are trying to reduce the costs of those machines so that it becomes affordable.

But here is what we have done. The Water Power Technology Office, they have actually issued now three funding opportunities to support the impact of the expansion of low-impact hydropower and pumped storage hydropower, whether it is—there's dams, but there is also—you can have pumped storage on a smaller sort of distributed manner. All of those are technology advances that we are focused on.

We also have put $40 million in the budget for the National Marine Energy Centers, and the marine energy R&D is that 40 million—excuse me, 70 million funding opportunity that we announced this week.

Ms. BARRAGÁN. Great. Well, thank you, and I appreciate that you mentioned that in the Inflation Reduction Act Democrats have included billions in home electrification incentives with priority for low- and moderate-income households so they can make that switch.

Again, thank you for your time.

Ms. GRANHOLM. Thank you.

Ms. BARRAGÁN. And with that I yield back.

Mr. DUNCAN. I thank the gentlelady, she yields back.

I ask unanimous consent to insert in the record the documents included on the staff hearing document list.

Without objection, that will be the order.

[The information appears at the conclusion of the hearing.]

Mr. DUNCAN. I will remind Members they have 10 business days to submit questions for the record, and I ask the witness to respond to the questions promptly. Members should submit their questions by the close of business on May 25th.

And Madam Secretary, thanks for being here. Thanks for bearing with us during votes.

Ms. GRANHOLM. Thank you, Mr. Chairman.

Mr. DUNCAN. And we will stand adjourned.

[Whereupon, at 5:46 p.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

U.S. House Committee on Energy and Commerce
Subcommittee on Energy, Climate, and Grid Security
Fiscal Year 2024 Department of Energy Budget Request
[May 11, 2023]

Documents for the record

At the conclusion of the hearing, the Chair asked and was given unanimous consent to include the following documents into the record:

1. An article from The Wall Street Journal, entitled, "The West Needs Russia to Power Its Nuclear Comeback," May 10, 2023, submitted by Chair Duncan
2. A letter from Department of Energy Secretary Jennifer M. Granholm to Ranking Member Rosa L. DeLauro, House Committee on Appropriations, submitted by Ranking Member Pallone.
3. An article from The Wall Street Journal, entitled, "EV Startups Are Proving Warren Buffett Right," May 11, 2023, submitted by Rep. Curtis
4. A letter to Secretary Granholm from distribution transformer supply chain stakeholders, February 15, 2023, submitted by the Majority
5. A Report entitled "Energy Transition in PJM: Resource Retirements, Replacements & Risks," February 24, 2023, submitted by the Majority

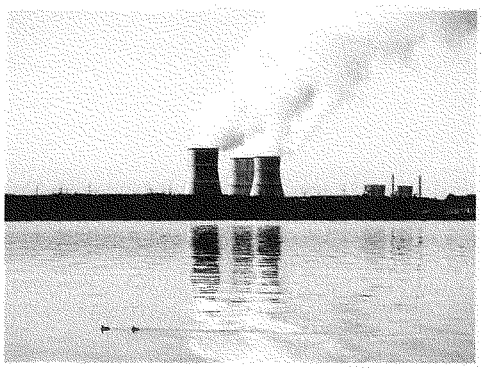
WORLD

The West Needs Russia to Power Its Nuclear Comeback

U.S., Europe add reactors but still heavily dependent on Moscow for crucial ingredients to produce fuel

By Jennifer Hiller Follow , *Daniel Michaels* Follow *and Kim Mackrael* Follow

Updated May 10, 2023 5:22 pm ET



Nuclear fuel is one of the few Russian energy sources not banned by the West amid the war in Ukraine. PHOTO: SEZGIN PANCAR/ANADOLU AGENCY/GETTY IMAGES

Nuclear power in the West is having a long-awaited revival, with new reactors opening in the U.S. and Europe and fresh momentum toward building more soon.

A gaping hole in the plan: The West doesn't have enough nuclear fuel—and lacks the capacity to swiftly ramp up production. Even more vexing, the biggest source of critical ingredients is Russia and its state monopoly, Rosatom, which is implicated in supporting the war in Ukraine.

Nuclear power supplies nearly 20% of U.S. electricity, and roughly 25% of European electricity, but in recent decades has struggled to gain traction in most of the West as a green

alternative to fossil fuels, for reasons ranging from cost to waste disposal and an erosion of expertise in building reactors.

Pockets of stiff resistance remain: Germany closed its last reactors in April, in a phaseout that began more than a decade ago.

But there are signs of a shift back in nuclear power's direction, as governments are drawn to its carbon-free electricity as a tool for fighting climate change and lessening dependence on Russian oil and gas.

In the U.S., after years of delays and billions in cost overruns, a nuclear reactor in Georgia in March began splitting atoms for the first time, a crucial step toward reaching commercial operation. Another reactor at the facility, owned by a unit of Atlanta-based Southern, is scheduled to be operational next year.

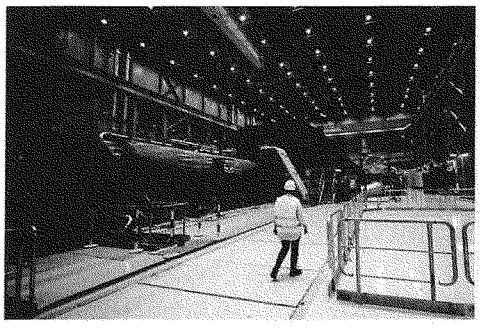
Finland last month started regular electricity output at Europe's largest nuclear reactor, the continent's first to open in 16 years, which will eventually produce one-third of the country's electricity.

Poland in November chose the U.S. company Westinghouse Electric to build its first nuclear-power plant, which will include three reactors and cost about $20 billion.

A recent Gallup poll found that Americans are more supportive of the technology than at any point in the past decade.

Westinghouse, a storied pioneer of electric power, has struggled in the nuclear sector and repeatedly changed hands amid market swings and tighter industry regulation after the reactor accidents at Three Mile Island, Chernobyl and Fukushima.

A group including private-equity firm Brookfield Asset Management bought Westinghouse for almost $8 billion in October, in a move billed as a bet on nuclear power's resurgence.



Finland has begun regular electricity production at Europe's largest nuclear reactor. PHOTO: OLIVIER MORIN/AGENCE FRANCE-PRESSE/GETTY IMAGES

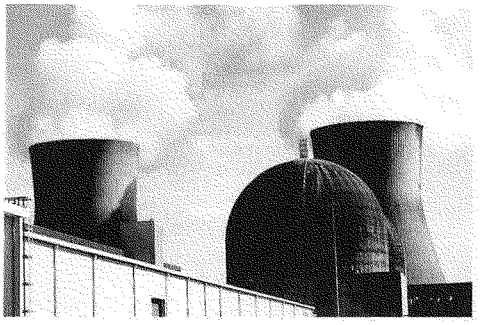
Westinghouse said this month that it next plans to launch a line of smaller reactors that could cost as little as $1 billion each.

Westinghouse Chief Executive Patrick Fragman said there is a growing public acceptance of nuclear power and that the company has corrected previous mistakes. "We are in a radically different place and we have taken a lot of the lessons of the past," he said in an interview.

Despite the industry's progress, the dependence on Russian enriched uranium for nuclear fuel has proven intractable.

Nuclear fuel is one of the few Russian energy sources not banned by the West as a result of the war in Ukraine. The reason is rooted in a program from the early 1990s, soon after the Cold War ended, aimed at shrinking the threat of Soviet nuclear warheads falling into the wrong hands.

Under the 1993 deal, the brainchild of a Massachusetts Institute of Technology researcher named Thomas Neff and dubbed Megatons to Megawatts, the U.S. bought 500 metric tons of highly enriched uranium, enough for 20,000 warheads, and had it converted into reactor fuel.



A nuclear reactor in Georgia started to split atoms in March after years of delays and billions in cost overruns. PHOTO: JOHN BAZEMORE/ASSOCIATED PRESS

Arms-control advocates hailed it as a win-win: Moscow got urgently needed cash, Washington reduced its proliferation headache and U.S. utilities got inexpensive fuel. It remains one of the world's most successful nuclear-disarmament programs.

The deal "did what was promised," Dr. Neff said in an interview. "We have many fewer nuclear weapons and stuff to make them out of than we did."

The problem, critics said, was that the deal delivered Russian nuclear fuel so cheaply that rival suppliers struggled to compete. Before long, U.S. and European companies were scaling back and Russia was the world's biggest supplier of enriched uranium, with nearly half of global capacity.

Before the deal ended in 2013, Russian suppliers, now organized as Rosatom, signed a new contract with the U.S. private sector to provide commercial fuel beyond the government-to-government program. Rosatom still supplies as much as one-fourth of U.S. nuclear fuel.

U.S. companies collectively sent almost $1 billion last year to Rosatom, according to a recent analysis from Darya Dolzikova at the Royal United Services Institute in London.

Russia has seized Ukraine's Zaporizhzhia nuclear-power plant, the largest in Europe. PHOTO: ASSOCIATED PRESS

"That's money that's going right into the defense complex in Russia," said Scott Melbye, executive vice president of uranium miner Uranium Energy and president of the Uranium Producers of America, an industry group. "We're funding both sides of the war."

Rosatom was formed by Russian President Vladimir Putin in 2007 from various parts of the country's nuclear-power industry and is closely controlled by the Kremlin. Its top managers have been deeply involved in running Ukraine's Zaporizhzhia nuclear-power plant, Europe's largest, which Russia seized last year and has used as a base for attacks on territory controlled by Kyiv.

Pressure is growing to expand Western uranium-enrichment capacity, not only because a big part of the U.S. economy relies on Russian fuel. A proposed new generation of reactors, which proponents and investors including Microsoft founder Bill Gates are touting as less risky and more environmentally friendly than current reactor designs, requires a special type of fuel that is the nuclear equivalent of high-octane gasoline.

The only source of that fuel today is Rosatom.

"We need fuel to turn our reactor on," said Jeff Navin, director of external affairs at TerraPower, the Gates-backed company that plans to build its first reactor in Wyoming. He said the U.S. is paying the price for its yearslong unwillingness to build a domestic supply chain for nuclear fuel. "Our options are either build it out now, or hope for some magical solution emerging in another country," Mr. Navin said.

Russian President Vladimir Putin meeting last year with Alexey Likhachev, CEO of state-run nuclear company Rosatom. PHOTO: MIKHAIL KLIMENTYEV/AGENCE FRANCE-PRESSE/GETTY IMAGES

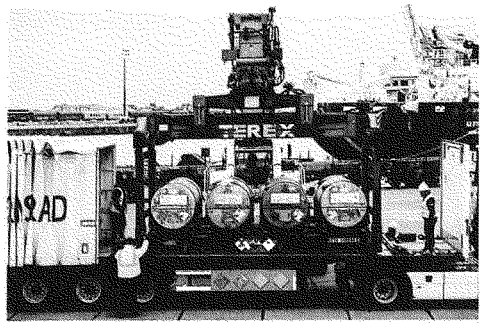
The multinational Urenco owns one of only two uranium-processing facilities in the U.S., in Eunice, N.M., just across the Texas border. The company says it is spending roughly $200 million on new capacity and can invest much more if Russian uranium is sanctioned.

The catch: It wants government guarantees on quantities allowed in the market.

Urenco's fear, said Kirk Schnoebelen, head of U.S. sales, is that in several years low-price Russian enriched uranium might swamp world markets, tanking prices.

Mr. Schnoebelen said the concern is born of history. Urenco in the 1990s began planning what was to be the first new uranium-enrichment plant in the U.S. in decades.

But because of the Megatons deal, "the business case for that project was utterly destroyed," he said. Today that history "absolutely" informs the U.S. nuclear industry's thinking and makes corporate boards reluctant to invest the necessary billions, he added.



Cylinders of Russian uranium were loaded on a truck in Dunkirk, France, earlier this year. PHOTO: SAMEER AL-DOUMY/AGENCE FRANCE-PRESSE/GETTY IMAGES

A bipartisan group in Congress is now pushing legislation to ban U.S. use of Russian uranium, build a national uranium reserve, boost domestic ability to refine uranium into fuel and add uranium to the country's critical minerals list.

"When the Ukraine war is over, it is not going to be over," said Idaho Sen. Jim Risch, a Republican and co-author of the legislation. "It's going to take generations before there's any trust again in the Russians."

Westinghouse's Mr. Fragman said the legislation is long overdue.

"Governments need to keep an eye on what is going on in the nuclear industry," he said. "At some point when a certain number of Western facilities shut down there should have been an alarm bell."

Write to Jennifer Hiller at jennifer.hiller@wsj.com, Daniel Michaels at Dan.Michaels@wsj.com and Kim Mackrael at kim.mackrael@wsj.com

Corrections & Amplifications

Uranium processor Urenco wants government guarantees on import quantities of Russian uranium to limit their impact on pricing. An earlier version of this article said Urenco wants government guarantees on uranium pricing. (Corrected on May 10)

The Secretary of Energy
Washington, DC 20585

March 17, 2023

The Honorable Rosa L. DeLauro
Ranking Member
Committee on Appropriations
United States House of Representatives
Washington, DC 20515

Dear Representative DeLauro:

I share the concern expressed in your letter dated January 19, 2023, about potential impacts of proposals that would cap fiscal year (FY) 2024 discretionary spending at the FY 2022 enacted levels. While Congressional Republicans have not released a specific plan, cuts on this scale would have very real and damaging impacts on our families, our communities, our economy, and our competitiveness—undermining a broad range of critical services the American people rely on in their everyday lives.

President Biden's FY 2024 Budget, which he released on March 9, details his plans to invest in America, continue to lower costs for families, protect and strengthen Social Security and Medicare, and reduce the deficit. Meanwhile, Congressional Republicans have reportedly proposed unprecedented cuts in FY 2024 funding for key services, programs, and protections such as education, public safety, research, nutrition and more. Such action would have serious consequences for Department of Energy programs and initiatives at the Federal, state, Tribal, and local levels, and would jeopardize recent bipartisan gains targeted at improving the lives of everyday Americans.

Impacts would be felt across the country and could rise to the level of jeopardizing the Department's ability to do its part in protecting national security interests from energy security and nuclear security threats.

Capping funding at this level would also hamper our ability to cut energy costs for families and businesses across the country, reduce the number of everyday Americans that can access tax breaks for clean energy, and reduce the impact of the Bipartisan Infrastructure Law.

Specific examples of potential impacts are listed below.

Scenario 1: *Across-the-board cap on FY 2024 discretionary spending at FY 2022 levels. Example impacts are listed below.*

- A reduction to FY 2022 funding levels would delay all National Nuclear Security Administration (NNSA) major construction projects of at least one year, increasing operational risks and the likelihood of cost increases. The FY 2022 funding level represents a 1/3 reduction from planned execution in FY 2024.

- The W93 and W87-1 warhead modernization programs would be delayed at least 1-2 years, with significant risks for the aging U.S. stockpile, DoD plans for delivery system modernization, and U.S. support for the United Kingdom's Replacement Warhead.

Hundreds of Energy Efficiency and Renewable Energy research projects and 2-3 large infrastructure projects at national labs would be cancelled or paused, resulting in up to one thousand (1,000) layoffs within the labs, partner organizations, and the local construction and support workforce across the country. This would negatively impact the ability of the national laboratories to continue to advance cutting edge research.

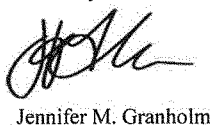
Scenario 2: *Across-the-board 22 percent reduction to current enacted funding levels (FY 2023) for FY 2024. Example impacts of this scenario are listed below. Scenario 1 impacts would also be intensified.*

- At a minimum, research at Office of Science national laboratories and universities would be reduced by about $700 million, resulting in substantial reduction of nearly 5,200 scientists, students, and technical staff.
    - Many of the Administration research priorities would receive significantly less funding resulting in curtailed research efforts in the areas of Climate Change; Artificial Intelligence; High Performance Computing; emerging technologies in Quantum Information Science, Microelectronics, and Biotechnology; Fusion Energy; and Isotope Production.
- At a minimum, Office of Science facility operations funding would be reduced, resulting in only 68 percent of operational funding and a substantial reduction of over 6,000 users of the over 38,000 annual users at the 28 scientific user facilities across the national laboratories.
    - All facilities would have a significant reduction in force of personnel, with loss of critical expertise. A review would be required to determine which facilities to close to maintain adequate operations at the remaining user facilities. Facilities cannot operate safely at this funding level. This action would result in major economic impact to the Unites States, both in the short-term and in the long-term as the U.S. will be subject to loss of scientific talent and leadership.
- At a minimum, thousands of low-income households (anywhere from 4,400-8,800) would be deferred from weatherization services, and reductions in state energy programs more broadly would limit efforts to cut energy costs for families and businesses, disproportionately affecting smaller states and US territories.
- Reductions of this magnitude would have significant setbacks of U.S. geopolitical competitiveness to adversarial nations like Russia and China.
    - This would include the reduction of the Idaho National Laboratory operational status to the minimal allowable for safe and secure support of DOE and national security programs and research.

It would also include elimination of all efforts to support the deployment of American nuclear energy technologies as the preferred alternative to Russian and Chinese technologies in countries looking to implement large scale power sources.

These are a few examples of the serious impacts of these scenarios on ongoing efforts by the Department in the areas of national security, safety of critical infrastructure, threats to the Nation's competitive edge, and impacts on consumers and industry.

Sincerely,



Jennifer M. Granholm

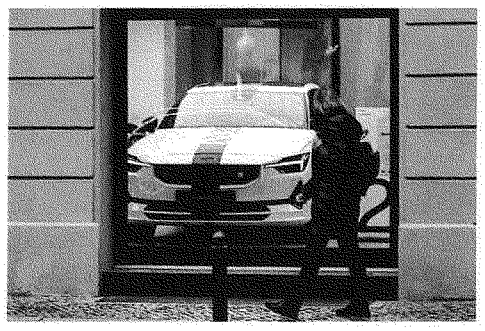
MARKETSHEARD ON THE STREET

EV Startups Are Proving Warren Buffett Right

Polestar became the latest electric-vehicle manufacturer to cut its outlook for 2023

By Stephen Wilmot Follow

Updated May 11, 2023 1:16 pm ET



Polestar, which went public last June, is one of the healthiest EV startups. PHOTO: KRISZTIAN BOCSI/BLOOMBERG NEWS

"The auto industry is just too tough." That was Warren Buffett's response to a question about the opportunities presented by the shift to electric vehicles at Berkshire Hathaway's annual meeting last Saturday. A few days of earnings reports from EV startups later, it is hard to disagree.

Polestar Automotive PSNY **-12.47%** ▼ became the latest manufacturer to cut its outlook for 2023 alongside first-quarter results Thursday. Volvo Cars, one of Polestar's major shareholders, needs more time to perfect the software for a new production platform that Polestar will use for its new sport-utility vehicle, Polestar said. The Polestar 3 will now hit the market in 2024 rather than later this year as previously hoped.

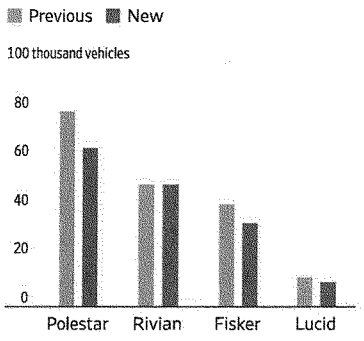
Chief Executive Thomas Ingenlath also said market conditions were deteriorating, which means the Swedish company can't make up the shortfall by selling more of its existing Polestar 2 sedans. "We don't intend to push cars into the market at any price just to achieve a

volume that we once announced," he said in an apparent reference to Tesla's price-cutting strategy.

Polestar, which went public via a special-purpose acquisition vehicle last June, is actually one of the healthiest EV startups out there. That is because it can lean on the assets of its dominant shareholders, Volvo and China's Geely—a huge advantage in such a capital-intensive endeavor as launching a car company, even if it does put Polestar at the mercy of others' schedules. The Polestar 2 is made in a Geely factory in China and the coming Polestar 3 will be made both in China and a Volvo factory in Ridgeville, S.C., for example.

California startups Lucid Group LCID **-1.40%** ▼ and Fisker FSR **-2.09%** ▼ also downgraded their production forecasts earlier this week. Luxury sedan maker Lucid burned through over $1 billion while delivering just 1,406 vehicles in the first quarter amid signs of weakening demand. Fisker is only just starting to deliver cars, though at least it has the advantage of an experienced production partner in contract manufacturer Magna International.

Deceleration
Targeted production in 2023



Notes: Mid-point of guidance where applicable; Lucid expects production of more than 10,000
Source: the companies

Rivian Automotive on the other hand relieved investors by sticking to its 2023 production target of 50,000 vehicles. It also narrowed its quarterly gross loss by more than expected to about $75,000 per vehicle sold, following aggressive cost cuts. After an initial jump, the shares closed up less than 2% Wednesday, but that was a nice contrast with Tuesday's falls for Lucid, Fisker and embattled truck startup Nikola, which announced the sale of its European factory stake. Polestar stock fell 11% at the open Thursday.

After precipitous declines over the past 18 months, Rivian and Lucid both have market values of about $13.1 billion. But Rivian has a lot more cash, so its enterprise value, which strips that out, is only $4.9 billion, compared with $12.5 billion for Lucid. On that basis, Rivian shares appear much more attractively valued at about $98,000 for every car it expects to produce this year, compared with more than $1.2 million per car for Lucid.

Rivian shares are still extremely risky as the company burns through billions of dollars a quarter on its way toward a goal of making its first gross profit late next year. Even with $11.2 billion of cash and equivalents, it will need to raise more—and that is if everything goes right. Shorting Lucid could be a better option for investors, but that comes with the risk that its dominant Saudi Arabian shareholder gives up on the public market and takes it private.

Polestar, which already makes gross profits, probably has the best shot at surviving in its current form. But Thursday's update was a reminder that much still lies beyond its control.

Write to Stephen Wilmot at stephen.wilmot@wsj.com

Corrections & Amplifications

Lucid Group and Fisker downgraded their production forecasts earlier this week. An earlier version of this article incorrectly said they downgraded delivery forecasts. Also, Rivian and Lucid shares are valued by one metric at about $98,000 and more than $1.2 million, respectively, for every car the companies expect to produce this year. An earlier version of this article said the figures referred to the value for every car expected to be sold. (Corrected on May 11)

February 15, 2023

Secretary Jennifer Granholm
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Dear Madam Secretary:

On behalf of a broad coalition representing critical stakeholders in the distribution transformer supply chain, we seek your immediate attention on an issue that could significantly impact national security and grid reliability. We write to strongly urge the Department of Energy (DOE) to reconsider its intention to increase energy conservation standards for distribution transformers, as signaled in its recent Notice of Proposed Rulemaking (NOPR).[i]

Our coalition, comprised of the National Electrical Manufacturers Association (NEMA), American Public Power Association (APPA), National Rural Electric Cooperative Association (NRECA), Edison Electrical Institute (EEI), Leading Builders of America (LBA), National Association of Homebuilders (NAHB), and GridWise Alliance (GridWise), is an assemblage of organizations whose members are at the forefront of the clean energy transition. Utilities and energy service providers, represented by APPA, EEI, and NRECA, provide electricity to all Americans. LBA and NAHB represent homebuilders constructing affordable and energy-efficient communities. Grid component manufacturers, represented by NEMA and GridWise, produce the critical equipment, including distribution transformers, needed to ensure its safe and reliable delivery.

Since 2021, our organizations have been communicating with DOE regarding the severe and ongoing supply chain challenges that have prolonged and complicated distribution transformer production and availability. The inability to quickly manufacture and deliver these critical components threatens the ability of the electric sector to service current and planned housing markets, swiftly recover and restore service following natural disasters, and deliver the benefits of economy-wide electrification.

Last June, working with electric service providers, you directed the Electricity Subsector Coordinating Council to establish a "Tiger Team" to examine the supply chain crisis. It concluded that current transformer production is not meeting demand—demand that is expected to increase for the foreseeable future. Moreover, both the electric and manufacturing sectors have raised awareness of the risks caused by lengthy lead-times in the production, procurement, and deployment of transformers. Under existing production output capabilities, manufacturers estimate the current order-cycle for most new distribution transformers to be longer than 16 months.

The Administration also recognized the severity of this crisis by issuing the June 6, 2022, Presidential Determination through the Defense Production Act (DPA) to prioritize the domestic production of transformers to bolster grid resiliency and national security. In response to that Determination and a subsequent Request for Information issued by DOE, manufacturers provided numerous recommendations on how best to scale up production. One such proposal included the standardization of "emergency-use" products, or transformers built to lower energy conservation standards to meet DPA expectations of greater output.[ii] Similarly, in a joint letter to you by APPA and NRECA on October 19, 2022, these organizations encouraged DOE to

reprioritize some Inflation Reduction Act funds under the DPA designated for heat pumps to distribution transformer production, including labor recruitment and retention.[iii]

Despite this information and our organizations' close work with DOE to explore short and long-term solutions to this crisis, on January 11, 2023, the Department issued a NOPR that would, through its various requirements, further exacerbate the supply chain situation. The proposed rule would dictate that manufacturers increase the efficiency of distribution transformers by a mere tenth of a percentage point.

DOE *already* mandates distribution transformers be manufactured to incredibly high efficiency standards. Currently, NEMA calculates a three-phase liquid-immersed distribution transformer with a kilovolt-ampere (kVA) output rating of 2500 is already 99.53% efficient; a similar single-phase type with a kVA of 833 is 99.55% efficient.[iv] Importantly, due to the intricate ways transformers are designed and assembled, increasing their efficiency even by a fraction of a percentage point could add months to an already lengthy order-cycle.

Our organizations agree that energy efficiency standards play an important role in reaching decarbonization benchmarks while transitioning our nation to a clean and increasingly electrified economy. However, as proposed, the rule would delay the realization of these benefits by worsening supply chain complications already well known to DOE.

Additionally, the proposed rule would require manufacturers to transition to a different type of steel, which is largely untested, less flexible, and more expensive.[v] Further, the existing supply chain of this alternative steel is very limited and mostly foreign-sourced. This rule would impose unnecessary cost burdens and further delay the delivery of such critical products. Simply put, this DOE proposal does nothing to address, and is likely to exacerbate, the current distribution transformer shortage crisis.

Given the unprecedented demand for distribution transformers, our organizations urge DOE to maintain the current efficiency levels required of these products. Getting these already highly efficient products into the market more quickly should be the highest priority and will result in the realization of electrification benefits much sooner—benefits that will far outweigh any gains achieved through a fractional percentage increase in efficiency.

Thank you for your time and consideration of this issue. We welcome the opportunity to discuss this with you further and appreciate your leadership in this area.

Sincerely,

American Public Power Association
Edison Electrical Institute
GridWise Alliance
Leading Builders of America
National Association of Home Builders
National Electrical Manufacturers Association
National Rural Electric Cooperative Association

CC: Rep. Kevin McCarthy – Speaker of the U.S. House of Representatives
Rep. Hakeem Jeffries – U.S. House Minority Leader
Sen. Charles Schumer – U.S. Senate Majority Leader
Sen. Mitch McConnell – U.S. Senate Minority Leader

Rep. Cathy McMorris Rogers – Chair, Energy and Commerce Committee
Rep. Frank Pallone – Ranking Member, Energy and Commerce Committee
Rep. Kay Granger – Chair, Appropriations Committee
Rep. Rosa DeLauro – Ranking Member, Appropriations Committee
Sen. Patty Murray – Chair, Appropriations Committee
Sen. Susan Collins – Ranking Member, Appropriations Committee
Sen. Joe Manchin – Chair, Energy and Natural Resources Committee
Sen. John Barrasso – Ranking Member, Energy and Natural Resources Committee
Alejandro Moreno – Asst. Sec. (Acting), Energy Efficiency & Renewable Energy, DOE
John Podesta – Sr. Advisor to the President: Clean Energy Innovation & Implementation
Elizabeth Sherwood-Randall – White House Homeland Security Advisor

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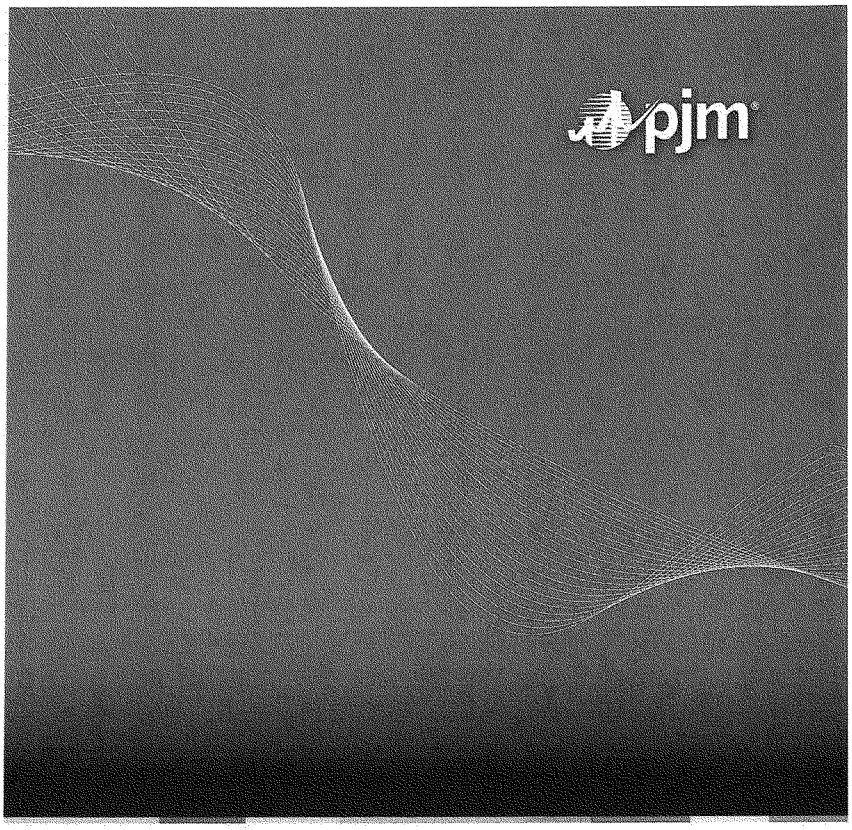
[i] *Energy Conservation Program: Energy Conservation Standards for Distribution Transformers*, 88 *Fed. Reg.* 1722 (Jan. 11, 2023).

[ii] https://www.nema.org/docs/default-source/advocacy-document-library/nema-gridwise-comments-doe-dpa-rfi-11.30.22.pdf?sfvrsn=2969fc7b_4

[iii] https://www.cooperative.com/news/Documents/Trades%20Letter%20Supply%20Chain%20DPA%20Final.pdf

[iv] https://www.nema.org/docs/default-source/nema-documents-libraries/doe-transformer-efficiency-regs.pdf?sfvrsn=8253222a_0

[v] U.S. Dep't of Energy, DOE Proposes New Efficiency Standards For Distribution Transformers, https://www.energy.gov/articles/doe-proposes-new-efficiency-standards-distribution-transformers (DOE explains that "[a]lmost all transformers produced under the new standard would feature amorphous steel cores").



Energy Transition in PJM:
Resource Retirements, Replacements & Risks

Feb. 24, 2023

For Public Use

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Contents

Executive Summary

Driven by industry trends and their associated challenges, PJM developed the following strategic pillars to ensure an efficient and reliable energy transition: facilitating decarbonization policies reliably and cost-effectively; planning/operating the grid of the future; and fostering innovation.

PJM is committed to these strategic pillars, and has undertaken multiple initiatives in coordination with our stakeholders and state and federal governments to further this strategy, including interconnection queue reform, deployment of the State Agreement Approach to facilitate 7,500 MW offshore wind in New Jersey, and coordination with state and federal governments on maintaining system reliability while developing and implementing their specific energy policies.

In light of these trends and in support of these strategic objectives, PJM is continuing a multiphase effort to study the potential impacts of the energy transition. The first two phases of the study focused on energy and ancillary services and resource adequacy in 2035 and beyond. This third phase focuses on resource adequacy in the near term through 2030.[1]

Maintaining an adequate level of generation resources, with the right operational and physical characteristics[2], is essential for PJM's ability to serve electrical demand through the energy transition.

Our research highlights four trends below that we believe, in combination, present increasing reliability risks during the transition, due to a potential timing mismatch between resource retirements, load growth and the pace of new generation entry under a possible "low new entry" scenario:

- The growth rate of electricity demand is likely to continue to increase from electrification coupled with the proliferation of high-demand data centers in the region.
- Thermal generators are retiring at a rapid pace due to government and private sector policies as well as economics.
- Retirements are at risk of outpacing the construction of new resources, due to a combination of industry forces, including siting and supply chain, whose long-term impacts are not fully known.
- PJM's interconnection queue is composed primarily of intermittent and limited-duration resources. Given the operating characteristics of these resources, we need multiple megawatts of these resources to replace 1 MW of thermal generation.

[1] See Energy Transition in PJM: Frameworks for Analysis | Addendum (2021), and Energy Transition in PJM: Emerging Characteristics of a Decarbonizing Grid | Addendum (2022).

[2] See previous work on Reliability Products and Services, including PJM's Evolving Resource Mix and System Reliability (2017), Reliability in PJM: Today and Tomorrow (2021), Energy Transition in PJM: Frameworks for Analysis | Addendum (2021), and work completed through the RASTF and PJM Operating Committee (2022).

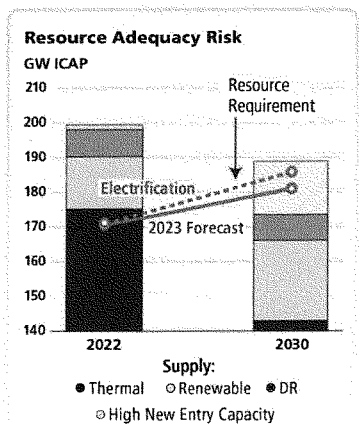
The analysis also considers a "high new entry" scenario, where this timing mismatch is avoided. While this is certainly a potential outcome, given the significant policy support for new renewable resources, our analysis of these long-term trends reinforces the importance of PJM's ongoing stakeholder initiatives, including capacity market modifications, interconnection process reform and clean capacity procurement, and the urgency for continued, combined actions to de-risk the future of resource adequacy while striving to facilitate the energy policies in the PJM footprint.

The first two phases of the energy transition study assumed that PJM had adequate resources to meet load.

In this this third phase of this living study, we explore a range of plausible scenarios up to the year 2030, focusing on the resource mix "balance sheet" as defined by generation retirements, demand growth and entry of new generation.

The analysis shows that 40 GW of existing generation are at risk of retirement by 2030. This figure is composed of: 6 GW of 2022 deactivations, 6 GW of announced retirements, 25 GW of potential policy-driven retirements and 3 GW of potential economic retirements. Combined, this represents 21% of PJM's current installed capacity[3].

In addition to the retirements, PJM's long-term load forecast shows demand growth of 1.4% per year for the PJM footprint over the next 10 years. Due to the expansion of highly concentrated clusters of data centers, combined with overall electrification, certain individual zones exhibit more significant demand growth – as high as 7% annually.[4]



The projections in this study indicate that it is possible that the current pace of new entry would be insufficient to keep up with expected retirements and demand growth by 2030.

On the other side of the balance sheet, PJM's New Services Queue consists primarily of renewables (94%) and gas (6%). Despite the sizable nameplate capacity of renewables in the interconnection queue (290 GW), the historical rate of completion for renewable projects has been approximately 5%. The projections in this study indicate that the current pace of new entry would be insufficient to keep up with expected retirements and demand growth by 2030. The completion rate (from queue to steel in the ground) would have to increase significantly to maintain required reserve margins.

In the study, we also consider generation entry beyond the queue using projections from S&P Global. Those projections indicate that, despite eroding reserve margins, resource adequacy would be maintained if the influx of renewables materializes at a rapid rate and gas remains the transition fuel, adding 9 GW of capacity. The analysis performed at the Clean Attribute Procurement Senior Task Force (CAPSTF) also suggests that further gas expansion is economic and competitive.[5]

[3] Unless otherwise noted, thermal capacity values are expressed in ICAP, without adjustment for EFORd.

[4] PJM Load Forecast Report, January 2023.

[5] CAPSTF Analysis, Initial Results; Emmanuele Bobbio, Sr. Lead Economist – Advanced Analytics, PJM, Dec. 16, 2022.

Balance Sheet Summary (2022–2030)

Retirements	New Entry Wind/Solar	New Entry Storage[6]	New Entry Thermal	Load Growth
40 GW **60% Coal** **30% Natural Gas** **10% Other**	**Low =** 48 GW-nameplate / 8 GW-capacity **High =** 94 GW-nameplate / 17 GW-capacity	**Low =** 3 GW **High =** 4 GW	**Low =** 4 GW **High =** 9 GW	**2023 Forecast =** 11 GW **Electrification Forecast =** 13 GW

Unless otherwise noted, thermal capacity values are expressed in ICAP, without adjustment for EFORd.

For the first time in recent history, PJM could face decreasing reserve margins should these trends continue. The amount of generation retirements appears to be more certain than the timely arrival of replacement generation resources and demand response, given that the quantity of retirements is codified in various policy objectives, while the impacts to the pace of new entry of the Inflation Reduction Act, post-pandemic supply chain issues, and other externalities are still not fully understood.

The findings of this study highlight the importance of PJM's ongoing stakeholder initiatives (Resource Adequacy Senior Task Force, Clean Attribute Procurement Senior Task Force, Interconnection Process Subcommittee), continued efforts between PJM and state and federal agencies to manage reliability impacts of policies and regulations, and the urgency for coordinated actions to shape the future of resource adequacy. The potential for an asymmetrical pace in the energy transition, in which resource retirements and load growth exceed the pace of new entry, underscores the need to enhance the accreditation, qualification and performance requirements of capacity resources.

The composition and performance characteristics of the resource mix will ultimately determine PJM's ability to maintain reliability. It is critical that all PJM markets effectively correct imbalances brought on by retirements or load growth by incentivizing investment in new or expanded resources.

[6] Includes hybrid projects with battery storage

Background

Resource adequacy is the ability of the electric system to supply the aggregate energy requirements of electricity to consumers at all times, taking into account scheduled and reasonably expected unscheduled outages of generation and transmission facilities. To achieve the goal of resource adequacy, PJM maintains an Installed Reserve Margin in excess of the forecast peak load that achieves a loss-of-load expectation (LOLE) of one day in 10 years. This LOLE standard is consistent with that prescribed in the ReliabilityFirst Corporation standard for planning resource adequacy.[7]

Long-term reliability and resource adequacy are addressed through the combined operation of PJM's electricity markets, and in particular the capacity market, called the Reliability Pricing Model (RPM). Each PJM member that provides electricity to consumers must acquire enough power supply to meet demand, not only for today and tomorrow, but for the future. Members secure these capacity resources for future energy needs through a series of base and incremental capacity auctions, as well as Fixed Resource Requirement plans.

The capacity market ensures long-term grid reliability by procuring the appropriate amount of power supply resources needed to meet predicted energy demand up to three years in the future. These capacity resources have an obligation to perform during system emergencies, and are subject to penalties if they underperform. By matching generation with future demand, the capacity market creates long-term price signals to attract needed investments to ensure adequate power supplies. This exchange provides consumers with an assurance of reliable power in the future, while capacity resources receive a dependable flow of income to help maintain their existing capability, attract investment in new resources, and encourage companies to develop new technologies and sources of electric power.

Methodology

The size, composition and performance characteristics of the resource mix will determine PJM's ability to maintain reliability. This study explores a range of scenarios in the context of resource adequacy, focusing on the resource mix "balance sheet" as defined by demand growth, generation retirements and new entry of generation. Using the methodology described in this section, PJM evaluates the future of resource adequacy by estimating the amount of capacity required to cover load expectations versus expected capacity for the years 2023 through 2030.

The study's initial supply levels are 192.3 GW of installed capacity from generation resources and 7.8 GW of installed capacity from demand response capacity resources. The generation mix is approximately 178.9 GW of thermal resources and 13.3 GW of renewables and storage.[8]

[7] RFC Standard BAL-502-RF-03: Planning Resource Adequacy Analysis, Assessment and Documentation

[8] This value includes the capacity value of run-of-river hydro, pumped storage hydro, solar, onshore wind, offshore wind and battery energy storage.

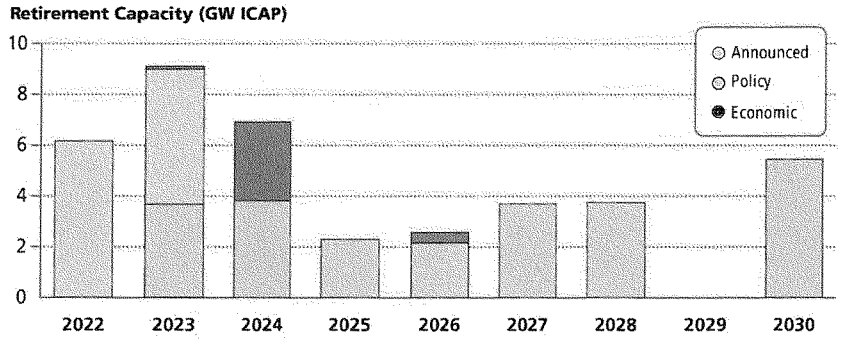
Supply Exits

PJM is undergoing a major transition in the resources needed to maintain bulk power grid reliability.

Historically, thermal resources have provided the majority of the reliability services in PJM. Today, a confluence of conditions, including state and federal policy requirements, industry and corporate goals requiring clean energy, reduced costs and/or subsidies for clean resources, stringent environmental standards, age-related maintenance costs, and diminished energy revenues are hastening the decline in thermal resources.

This study estimates anticipated retirements through 2030 by adding announced retirements with retirements likely as a result of various state and federal policies, and then with those at risk for retirement due to deteriorating unit economics. Potential policy-driven retirements, in this context, reflect resources that are subject to current and proposed federal and state environmental policies, in which it is conservatively assumed that the costs of mitigation and compliance could economically disadvantage these resources to the point of retirement. **Figure 1** highlights the 40 GW of projected generation retirements by 2030, which is composed of: 12 GW of announced retirements[9], 25 GW of potential policy-driven retirements[10] and 3 GW of potential economic retirements. Combined, this represents 21% of PJM's current installed capacity.[11] This section describes each category of potential retirements in more detail.

Figure 1. Total Forecast Retirement by Year (2022–2030)



[9] Includes 6 GW of 2022 retirements.

[10] Note that 7 GW of the 25 GW of supply with policy risk was also identified to have more immediate economic risk. The year that these 7 GW of potential policy retirements shown in **Figure 2** is based on timing identified in the economic analysis. In **Figure 4**, these 7 GW are shown in terms of the regulatory compliance timeline alone. The timeline of these potential quantities of resource retirements does not factor in any reliability "off-ramps" that may be included in established policies.

[11] In this study, PJM assumes that a resource that exits would not return to service in a future delivery year, even if operational conditions improve. Historically, a small percentage of retiring units would instead enter a "mothball" or standby state, in which the unit is put into a state where it may not operate for one or more years; however, in order to obtain an operating permit renewal, the mothballed unit would have to comply with the most recent environmental standards, likely requiring costly upgrades, making investing in newer, cleaner technologies more inviting.

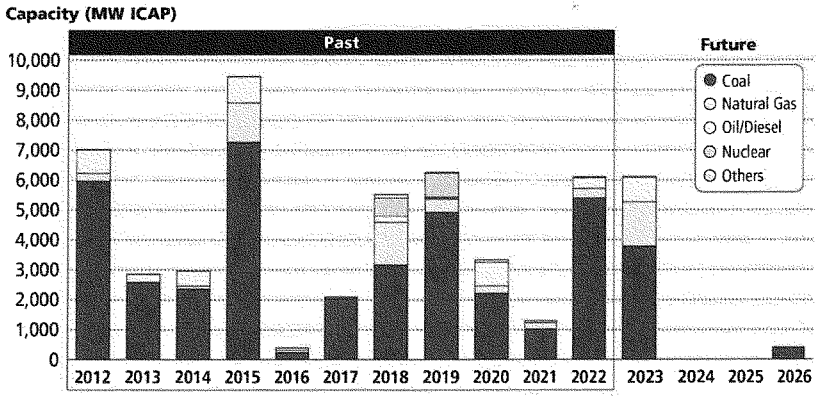
Announced Retirements

One of PJM's responsibilities is to ensure the continued reliability of the high-voltage electric transmission system when a generation owner requests deactivation. Through its Generation Deactivation process,[12] PJM identifies transmission solutions that allow owners to retire generating plants as requested without threatening reliable power supplies to customers. PJM may order transmission upgrades or additions built by transmission owners to accommodate the generation loss. PJM has no authority to order plants to continue operating. However, in some instances, to maintain reliability, PJM may formally request that a plant owner continue operating, subject to rates authorized by the Federal Energy Regulatory Commission (FERC), while transmission upgrades are completed.

Plant owners considering retirement must notify PJM at least two quarters before the proposed deactivation date. PJM and the transmission owners complete a reliability analysis in the subsequent quarter after notification to PJM. Generator retirements and any required system upgrades to keep the grid running smoothly are included in the PJM Regional Transmission Expansion Planning process and are reviewed with PJM members and stakeholders at the PJM Transmission Expansion Advisory Committee.

Between 2012 and 2022, 47.2 GW of generation retired in PJM, as detailed by fuel type in **Figure 2**. In 2022, approximately 6 GW of generation deactivated and an additional 5.8 GW announced ("future") deactivations over the 2023–2026 time frame. The deactivations are slightly above the 10-year average of 4.3 GW, but well under the historical annual peak of 9.5 GW in 2015. Coal-fired resources account for approximately 89% of retired capacity in 2022.

Figure 2. Past and Announced Future Retirements



[12] See process details in PJM Manual 14-D, Section 9, and tracking of deactivation requests at https://www.pjm.com/planning/services-requests/gen-deactivations.

Potential Policy Retirements

An analysis of federal and state policies and regulations with direct impacts on generation in the PJM region yielded the largest group of potential future retirements in this study.[13] As highlighted in **Figure 3**, the combined requirements of these regulations and their coincident compliance periods have the potential to result in a significant amount of generation retirements within a condensed time frame. These impacts will be reevaluated as these policies and regulations evolve. PJM will continue to work with both federal and state agencies on the development and implementation of environmental regulations and policies in order to address any reliability concerns.

Below are the policies and regulations included in the study:

EPA Coal Combustion Residuals (CCR): The U.S. Environmental Protection Agency (EPA) promulgated national minimum criteria for existing and new coal combustion residuals (CCR) landfills and existing and new CCR surface impoundments. This led to a number of facilities, approximately 2,700 MW in capacity, indicating their intent to comply with the rule by ceasing coal-firing operations, which is reflected in this study.

EPA Effluent Limitation Guidelines (ELG): The EPA updated these guidelines in 2020, which triggered the announcement by Keystone and Conemaugh facilities (about 3,400 MW) to retire their coal units by the end of 2028.[14] Importantly, but not not included in this study, the EPA is planning to propose a rule to strengthen and possibly broaden the guidelines applicable to waste (in particular water) discharges from steam electric generating units. The EPA is expecting this to impact coal units by potentially requiring investments when plants renew their discharge permits, and extending the time that plants can operate if they agree to a retirement date.

EPA Good Neighbor Rule (GNR): This proposal requires units in certain states to meet stringent limits on emissions of nitrogen oxides (NOx), which, for certain units, will require investment in selective catalytic reduction to reduce NOx. For purposes of this study, it is assumed that unit owners will not make that investment and will retire approximately 4,400 MW of units instead. Please note that the EPA plans on finalizing the GNR in March, which may necessitate reevaluation of this assumption.

Illinois Climate & Equitable Jobs Act (CEJA): CEJA mandates the scheduled phase-out of coal and natural gas generation by specified target dates: January 2030, 2035, 2040 and 2045. To understand CEJA criteria impacts and establish the timing of affected generation units' expected deactivation, PJM analyzed each generating unit's publically available emissions data, published heat rate, and proximity to Illinois environmental justice communities and Restore, Reinvest, Renew (R3) zones. For this study, PJM focuses on the approximately 5,800 MW expected to retire in 2030.

[13] Policies impacting forward energy prices, such as the Regional Greenhouse Gas Initiative and Renewable Energy Credits, are implicitly included in economic analysis but are not explicitly included in analysis of policy-related retirements.

[14] See State Impact PA, Nov. 22, 2021. These facilities have not filed formal Deactivation Notices with PJM.

New Jersey Department of Environmental Protection CO_2 Rule: New Jersey's CO_2 rule seeks to reduce carbon dioxide (CO_2) emissions of fossil fuel-fired electric generating units (EGUs) through the application of emissions limits for existing and new facilities greater than 25 MW. Units must meet a CO_2 output-based limit by tiered start dates. The dates and CO_2 limits are:

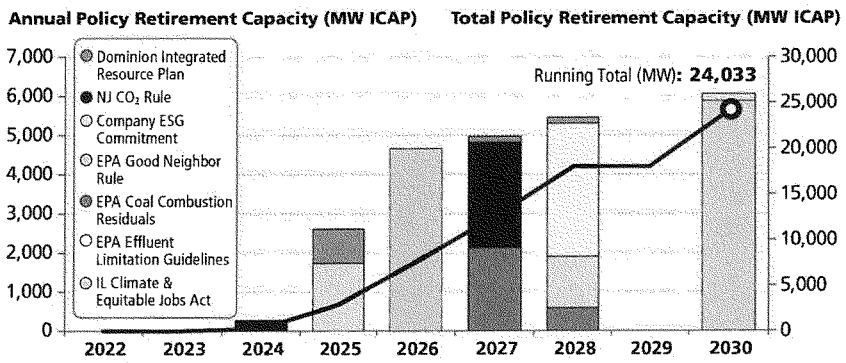
- June 1, 2024 – 1,700 lb/MWh
- June 1, 2027 – 1,300 lb/MWh
- June 1, 2035 – 1,000 lb/MWh

PJM used emissions data found in EPA Clean Air Markets Program Data to evaluate unit compliance. Where a unit's average annual emissions rate was greater than the CO_2 limit on the compliance date, the unit was assumed to be retiring. In this study PJM, estimated retirements at approximately 400 MW in 2024 and approximately 2,700 MW in 2027.

Dominion Integrated Resource Plan (IRP) commits to net zero carbon in its Virginia and North Carolina territory by 2050. PJM studied Dominion's Alternative Plan B retirement schedule, approximately 1,533 MW, for this analysis. Alternative Plan B proposes "significant development of solar, wind and energy storage resource envisioned by the VCEA," (Virginia Clean Economy Act of 2020), while maintaining natural gas generation for reliability, which is reflected in our analysis.

Company ESG (Environmental, Social, Governance) commitments are included where there is a commitment to retire resources per legal consent decree or other public statement. This includes the elimination of coal use and the retirement of the Brandon Shores, 1,273 MW, and Wagner, 305 MW, facilities in Maryland and the retirement of Rockport, 1,318 MW, in Indiana.

Figure 3. Potential Policy Retirements



Potential Economic Retirements

The third category of retirements in this study, beyond those formally announced and made likely by policy implementation, were identified through an analysis of revenue adequacy, the ability to economically cover going-forward costs from the wholesale markets. A net profit value was calculated for each existing generation resource using an estimate of future revenues and historical costs.

$$Net\ Profit = (\ Gross\ Energy\ \&\ Ancillary\ Service\ Revenue - Production\ Costs\ ) + (\ Capacity\ Revenue\ ) - (\ Fixed\ Avoidable\ Costs\ )$$

The results reveal that a portion of the thermal fleet is at risk of becoming unprofitable in the coming years.

The capacity market's Variable Resource Requirement (VRR) represents the set of prices for which load is willing to procure additional supply beyond the minimum reliability requirement. There are three points in the sloped demand curve, the first of which is anchored at a price 1.5 times the Net Cost of New Entry (Net CONE). Should the auction clear at this price level, the auction result signals that demand is willing to pay for the construction of new supply, minus the expected energy revenues the resource should expect to earn in the energy markets. As such, it is important to align the revenue expectations for the marginal resources with forward revenues, especially under PJM's continually changing landscape of business rules.

Energy & Ancillary Services Revenue and Production Cost

This study used a scaling approach to estimate forward unit-specific energy and ancillary services (E&AS) revenues from historical energy and ancillary service revenues by applying the following:

$$Fwd\ Unit\ E\&AS\ Revenue = Hist\ Unit\ E\&AS\ Revenue * \frac{Fwd\ Reference\ E\&AS\ Revenue^{15}}{Hist\ Reference\ E\&AS\ Revenue} * \frac{Reference\ Avg\ Heat\ Rate}{Unit\ Avg\ Heat\ Rate}$$

For a given reference resource type, unit dispatch was simulated using both historical and forward energy hub-adjusted energy prices. For the equivalent production cost model, the relative ratio of revenues and heat rates indicate the net effects of both rising fuel costs and energy price revenue. A unit on the margin in the energy markets, typically a natural gas unit, would set a locational price near its short-run marginal costs. Infra-marginal units, potentially coal units, would receive higher revenues as price-taking resources, and thus may see increased profitability. This is reflected in the analysis, in which a reference coal unit's forward revenues increased an average of 139% over previous revenue estimates.

[15] The forward energy and ancillary services revenue calculation used in this study is the method that was developed for use in the Forward Net Energy & Ancillary Services Offset calculation originally developed in 2020, and filed as part of the most recent Quadrennial Review.

Capacity Revenues and Fixed Avoidable Costs

Unit-specific capacity revenues were calculated from prices and cleared quantities in the 2023/2024 Base Residual Auction (BRA). The study used the published 2023/2024 BRA Default Gross Avoidable Cost Rate (ACR) values as representative total fixed costs ($/MW-day) required to keep the generating plant available to produce energy. In other words, these are projected costs that could be avoided by the retirement of the plant. Avoidable costs represent operational factors like operations and maintenance labor, fuel storage costs, taxes and fees, carrying charges, and other costs not directly related to the production of energy. When available, unit-specific ACR values from the 2023/2024 BRA supply offer mitigation process were used, otherwise the class average Gross ACR was used.

Results and Estimated Impact

This study assumes that a simulated economic loss would result in a retirement of the resource at the next available delivery year in which the unit is not committed for capacity. As such, a unit with a revenue loss that did not clear in the 2023/2024 BRA would exit in 2023, while a unit with a revenue loss that cleared in the 2023/2024 BRA would exit in 2024. While units that do not clear a single BRA may remain energy-only resources, this conservative assumption was used to provide awareness.

The economic analysis identified approximately 10 GW of supply in immediate economic risk, of which 7 GW of supply is also affected by policy risk, and 3 GW of supply is economic risk only. In aggregate, 6 GW are steam resources, and 4 GW represent combustion turbines and internal combustion resources. Several of the units identified were older steam boilers that had once converted from coal-fired to natural gas fuel; these resources are less efficient than a modern heat-recovery steam generator in a combined cycle unit. Fifty-three percent of the resources identified for economic risk did not have a PJM capacity obligation in Delivery Year 2023/2024, either through the FRR process or market clearing.

Supply Entry

The composition of the PJM Interconnection Queue has evolved significantly in recent years, primarily increasing in the amount of renewables, storage, and hybrid resources and decreasing in the amount of natural gas-fired resources entering the queue. The PJM New Services Queue stands at approximately 290 ICAP GW of generation interconnection requests, of which almost 94% (271 ICAP GW) is composed of renewable and storage-hybrid resources.

Natural Gas Headwinds

In the last decade, resources in the PJM region have benefitted from the proximity to the Marcellus Shale, an area that extends along the Appalachian Mountains from southern West Virginia to central New York. Beginning around 2010, gas extraction from hydraulic fracturing transformed this region into the largest source of recoverable natural gas in the United States. This local fuel supply decreased the prices for spot market natural gas in much of the PJM region, and prices in the PJM region often trade at negative basis to the Henry Hub spot price.

The entry of natural gas resources in the PJM region peaked in 2018, with 11.1 GW of generation commercializing that single year. From 2019 to 2022, a total of 8.1 GW of natural gas generation began service, or about a third of the 23 GW observed from 2015–2018. Queue proposals have also declined; over the last three years, only 4.1 GW of new natural gas projects entered the queue, while 15.1 GW of existing queue projects withdrew.[16]

Recent movement in the natural gas spot markets across the U.S. and Europe add another degree of uncertainty to future operations. In 2022, European natural gas supply faced many challenges resulting from the war in Ukraine and subsequent sanctions against Russia. Liquefied natural gas (LNG) imports into the EU and the U.K. in the first half of 2022 increased 66% over the 2021 annual average,[17] primarily from U.S. exporters with operational flexibility. This international natural gas demand is a new competitor for domestic spot-market consumers, resulting in significantly higher fuel costs for PJM's natural gas fleet.

This study assumes that, of the approximately 17.6 GW of natural gas generation in the queue, only those that are proposed uprates of existing generation, or currently under construction, will complete.[18] This results in 3.8 GW of entry from under-construction natural gas resources to be completed for the 2023/2024 Delivery Year. While 12 GW of natural gas have reached a signed Interconnection Service Agreement (ISA) stage, it is unclear what percentage of this capacity may move forward. If significantly more natural gas capacity achieved commercial operation, it could help avoid reliability issues.

Renewable Transition

PJM's projected resource mix continues to evolve toward lower-carbon intermittent resources. Entry into the queue from renewable and storage resources has been growing at an annualized rate of 72% per year since 2018, or 199 GW of capacity entry versus 2.8 GW commercializing and 42.1 GW withdrawn. This influx of renewable projects has led to a joint effort between PJM and its stakeholders to enact queue reforms intended to clear the backlog of projects, improve procedures around permitting and site control, simplify analysis by clustering projects, and accelerate projects that don't require network upgrades. FERC approved the proposed package in November 2022, with expected implementation in 2023.

Commercial Probability and Expanding Beyond the Queue

PJM staff developed several forecasts of the rate by which projects successfully exit the queue (the "commercial probability" of reaching an *In-Service* state). Since 1997, the PJM New Services Queue has tracked proposed generation interconnection projects from their submittal and study stages to completion of an ISA and Wholesale Market Participation Agreement (WMPA) and construction. At any point in the process, a resource may withdraw from the queue, effectively ending its commercial viability.

[16] This capacity represents natural gas projects that were submitted prior to 2020 and withdrawn in the 2020–2022 time frame.

[17] Europe imported record amounts of liquefied natural gas in 2022, U.S. Energy Information Administration, June 14, 2022.

[18] Under construction includes the New Service Queue *Partially in Service – Under Construction* and *Under Construction* statuses.

The study utilized a logistical regression classification algorithm to predict the probability of a project reaching an *In-Service* entry (or *Withdrawn* exit) based on several properties of the project. A logistical regression searches for patterns within training datasets, resulting in a model that can forecast a probability of a result. After applying the logistical regression model for 10 years of historical project completion (Y-queue to present) without project stage, approximately 15.3 GW-nameplate/8.7 GW-capacity were deemed commercially probable out of 178 GW of projects examined.

The model results for thermal resources were reasonably in line with expectations. However, the model produced extremely low entry from onshore wind, offshore wind, solar, solar-hybrid and storage resources. The uncertainty of completion rates of newer resource types, like offshore wind, likely plays a role in these model outcomes. After adjusting the new renewable capacity by Effective Load Carrying Capability (ELCC) derations, this commercial probability analysis estimates net 13.2 GW-nameplate / 6.7 GW-capacity to the system by 2030, as shown in **Figure 4**.

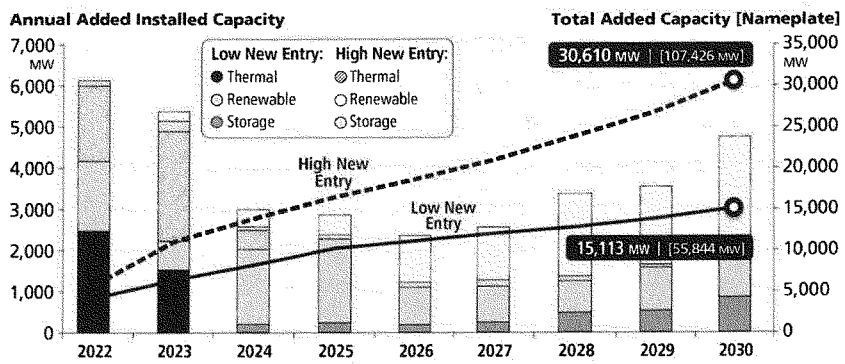
Given that this process may not capture recent policy changes and fiscal incentives toward renewable and storage development, and that the existing queue has fewer resources entered after 2026, PJM staff utilized two S&P Global Power Market Outlook analyses' generation expansion models. As estimates of future entry beyond the queue, these models are used to provide additional insight for the two scenarios: "Low New Entry" utilizes the "Planning Model,"[19] and "High New Entry" utilizes the "Fast Transition" model.[20] Based on these models, PJM added additional capacity to its commercial probability data in each scenario.

These forecasts of generation expansion are economic resource planning solutions, which take state RPS requirements and capacity margins into account to ensure new renewable builds. Over the study period, the Low New Entry scenario adds 42.6 GW-nameplate/8.4 GW-capacity to supply expectations, resulting in total entry of 55.8 GW-nameplate/15.1 GW-capacity. The High New Entry scenario adds 107 GW-nameplate/30.6 GW-capacity after ELCC derations. Net natural gas entry was approximately 5 GW, and renewables was 48.5 GW-nameplate/10.4 GW-capacity, as shown in **Figure 4**.

[19] S&P Global, North American Power Market Outlook, June 2022, planning model. This planning case incorporated effects from the 2021 Infrastructure Investment and Jobs Act, but not the 2022 Inflation Reduction Act.

[20] S&P Global, North American Power Market Outlook, Sept. 2022, Fast Transition model. This planning case assumes carbon net neutrality by 2050 through the IRA and additional policies, such as state clean energy policies, and as such assumes adjustments for increased electrification of heating, tax credits for renewable generation and higher levels of fossil retirements.

Figure 4. Forecast Added Capacity



Impact of Capacity Accreditation on Existing Renewables and Storage

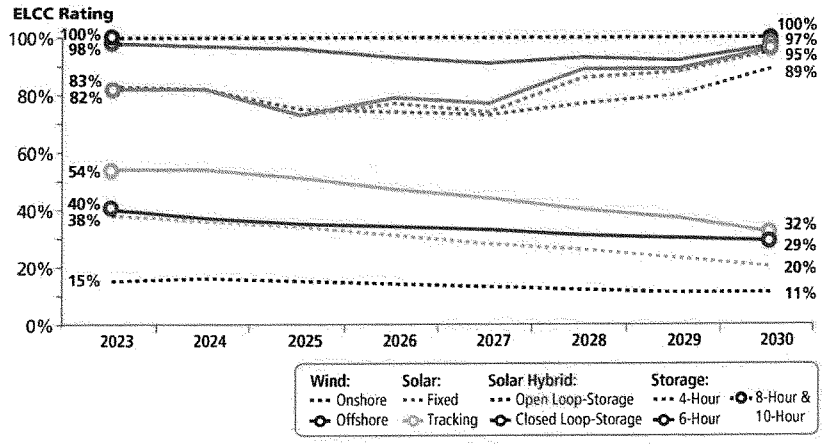
In July 2021, FERC accepted PJM's ELCC methodology for calculating unforced capacity values for intermittent and energy storage capacity resource classes. The ELCC analysis[21] examines load and resource performance uncertainty, and calculates an hourly loss-of-load probability (LOLP) to meet a one-in-10 year loss of load expectation (LOLE) adequacy criteria. The ELCC method examines the alignment of a given resource type's capacity to high risk hours, as well as the change in risk hours proportional to the changes in portfolio size. The adjustments to accredited capacity went into effect in the 2023/2024 BRA executed in June 2022.

This study examined the current renewable generation fleet for the impact of future changes in capacity accreditation. Today, there are approximately 3.5 GW of onshore wind and solar capacity resources participating in the RPM capacity market as intermittent resources. From 2022 to 2030, this accredited capacity is expected to decline by 1.2 GW to 2.3 GW due to portfolio effects resulting in the increase of entry from other intermittent renewable resources.[22] This adjustment is consistent with the renewable expectations presented in the December 2021 Effective Load Carrying Capability (ELCC) Report.

[21] Manual 20, Section 5: PJM Effective Load Carrying Capability Analysis

[22] Approximate nameplate needed to replace 1 MW of thermal generation: Solar – 5.2 MW; Onshore Wind – 14.0 MW; Offshore Wind – 3.9 MW. These are average values.

Figure 5. Effective Load Carrying Capability (ELCC) Rating by Resource Type



Demand Expectations

Load forecasting is an important part of maintaining the reliability of the bulk electric system. Forecasting helps PJM make decisions about how to plan and operate the bulk electric system in a reliable manner, and how to effectively administer competitive power markets. PJM's Resource Adequacy Planning Department publishes an annual Load Forecast Report, which outlines "long-term load forecasts of peak-loads, net energy, load management, distributed solar generation, plug-in electric vehicles and battery storage."

Along with the energy transition, PJM is witnessing a large growth in data center activity. Importantly, the PJM footprint is home to Data Center Alley in Loudoun County, Virginia, the largest concentration of data centers in the world.[23] PJM uses the Load Analysis Subcommittee (LAS) to perform technical analysis to coordinate information related to the forecast of electrical peak demand. In 2022, the LAS began a review of data center load growth and identified growth rates over 300% in some instances.[24] The 2023 PJM Load Forecast Report incorporates adjustments to specific zones for data center load growth, as shown in **Figure 5**.

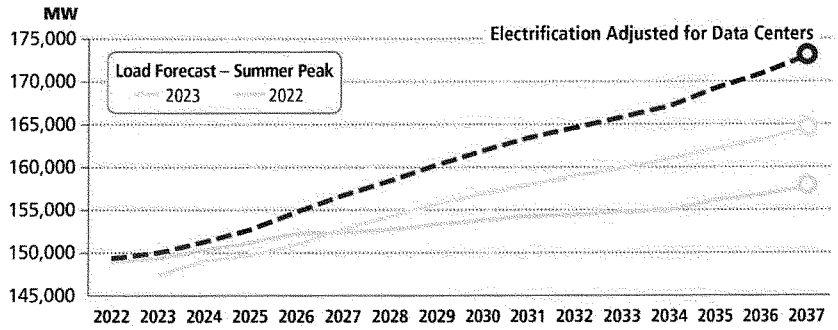
[23] See Loudoun County Department of Economic Development, 2023.

[24] Load Analysis Subcommittee: Load Forecast Adjustment Requests, Andrew Gledhill, Resource Adequacy Planning, Oct. 27, 2022

Additionally, PJM is expecting an increase in electrification resulting from state and federal policies and regulations. The study therefore incorporates an electrification scenario in the load forecast to provide insight on capacity need should accelerated electrification drive demand increases.[25] This accelerated demand increase is consistent with the methodology used in the Emerging Characteristics of a Decarbonizing Grid paper.[26] That paper found electrification to have an asymmetrical impact on demand growth, with demand growth in the winter, mainly due to heating, more than doubling that in the summer. This would move the bulk of the resource adequacy risk from the summer to the winter.

Figure 6 highlights how updated electrification assumptions and accounting for new data center loads have impacted the summer peak between the 2022 and 2023 forecasts.[27]

Figure 6. Impacts of Electrification and Data Center Load on Forecasts



What Does This Mean for Resource Adequacy in PJM?

PJM projects resource adequacy needs through the Reserve Requirement Study (RRS). The purpose of the RRS is to determine the required capacity or Forecast Pool Requirement for future years or delivery years based on load and supply uncertainty. The RRS also satisfies the North America Electric Reliability Corporation/ReliabilityFirst Adequacy Standard BAL-502-RFC-03, Planning Resource Adequacy Analysis, Assessment and Documentation, which requires that the Planning Coordinator performs and documents a resource adequacy analysis that applies a LOLE of one occurrence in 10 years. The RRS establishes the Installed Reserve Margin values for future delivery years. For this study PJM used the most recent 2022 RRS, as well as the 2021 RRS for comparison.

[25] Electrification assumptions are 17 million EVs, 11 million heat pumps, 20 million water heaters, 19 million cooktops in PJM by 2037, built on top of the 2022 Load Forecast.

[26] Energy Transition in PJM: Emerging Characteristics of a Decarbonizing Grid, May 17, 2022.

[27] 2023 Load Forecast Supplement, PJM Resource Adequacy Planning Department, January 2023.

Combining the resource exit, entry and increases in demand, summarized in **Figure 7**, the study identified some areas of concern. Approximately 40 GW PJM's fossil fuel fleet resources may be pressured to retire as load grows into the 2026/2027 Delivery Year. At current low rates of renewable entry, the projected reserve margin would be 15%, as shown in **Table 1**. The projected total capacity from generating resources would not meet projected peak loads, thus requiring the deployment of demand response. By the 2028/2029 Delivery Year and beyond, at Low New Entry scenario levels, projected reserve margins would be 8%, as projected demand response may be insufficient to cover peak demand expectations, unless new entry progresses at a levels exhibited in the High New Entry scenario. This will require the ability to maintain needed existing resources, as well as quickly incentivize and integrate new entry

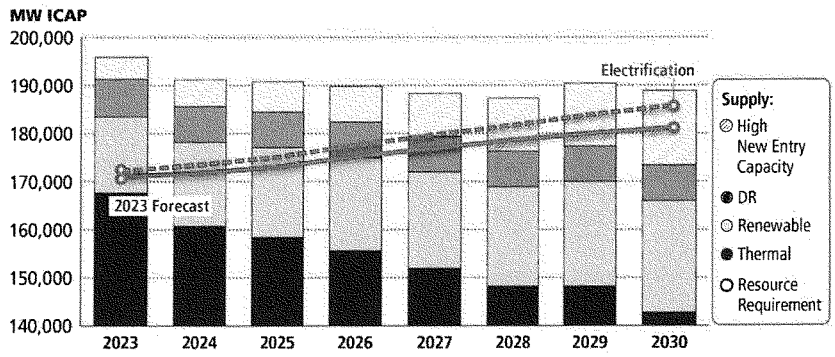
Table 1. Reserve Margin Projections Under Study Scenarios

Reserve Margin	2023	2024	2025	2026	2027	2028	2029	2030
Low New Entry								
2023 Load Forecast	23%	19%	17%	15%	11%	8%	8%	5%
Electrification	22%	18%	16%	13%	10%	7%	6%	3%
High New Entry								
2023 Load Forecast	26%	23%	21%	19%	17%	16%	17%	15%
Electrification	25%	22%	20%	18%	15%	14%	14%	12%

As witnessed during the rapid transition from coal resources to natural gas resources last decade, PJM markets provide incentives for capacity resources. The challenge will be integrating the level of additional resources envisioned to meet this demand, and therefore addressing issues such as resource capacity accreditation is critical in the near term. The low entry rates shown in our Low New Entry scenario are illustrative of recent completion history applied to the current queue. RTO capacity prices in recent auctions have been low for several delivery years, and capacity margins have historically reached around 28% of peak loads. As capacity reserve levels tighten, the markets will clear higher on the VRR curves, sending price signals to build new generation for reliability needs.

The 2024/2025 BRA, which executed in December 2022, highlighted another area of uncertainty. Queue capacity with approved ISAs/WMPAs is currently very high, approximately 35 GW-nameplate, but resources are not progressing into construction. There has only been about 10 GW-nameplate moving to in service in the past three years. There may still be risks to new entry, such as semiconductor supply chain disruptions or pipeline supply restrictions, which are preventing construction despite resources successfully navigating the queue process.

Figure 7. The Balance Sheet



For the first time in recent history, PJM could face decreasing reserve margins, as shown in **Table 1**, should these trends – high load growth, increasing rates of generator retirements, and slower entry of new resources – continue. The amount of generation retirements appears to be more certain than the timely arrival of replacement generation resources, given that the quantity of retirements is codified in various policy objectives, while the impacts to the pace of new entry of the Inflation Reduction Act, post-pandemic supply chain issues, and other externalities are still not fully understood.

The findings of this study highlight the importance of PJM's ongoing stakeholder initiatives (Resource Adequacy Senior Task Force, CAPSTF, Interconnection Process Subcommittee), continued efforts between PJM and state and federal agencies to manage reliability impacts of policies and regulations, and the urgency for coordinated actions to shape the future of resource adequacy.

The potential for an asymmetrical pace within the energy transition, where resource retirements and load growth exceed the pace of new entry, underscores the need for better accreditation, qualification and performance requirements for capacity resources.

The composition and performance characteristics of the resource mix will ultimately determine PJM's ability to maintain the reliability of the bulk electric system. Managing the energy transition through collaborative efforts of PJM stakeholders, state and federal agencies, and consumers will ensure PJM has the tools and resources to maintain reliability.

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QUESTIONS FROM REPRESENTATIVE JEFF DUNCAN

Q1. I want to ask you about the Low Dose Rate Radiation Research Program at the DOE Science Office. This research work has important implications across the board for nuclear power, cleanup standards, and even everyday nuclear medicine. We understand that the DOE is not conducting this program as authorized by Congress and as recommended by the National Academy of Sciences.

Q1a. Will you commit to examining this program and ensuring that it gets implemented in a way that fits with the Congressional Directive and the NAS recommendations?

A1a. Yes, we are committed to implementing a Low Dose Radiation research program. DOE has requested funding for low dose research in the President's Budget Request for FY 2024. The activity is within the Biopreparedness Research Virtual Environment (BRaVE) activity. BRaVE encompasses two separate efforts, one on addressing environmental biothreat scenarios and another on Low Dose Radiation research. Longer term low dose research program planning is now beginning in earnest and will include other agencies. We continue to coordinate with the National Cancer Institute (NCI) on advanced computational techniques for cancer research and adapting these capabilities to low dose radiation research. These efforts could also be expanded to include other agencies, such as NASA, with existing research programs in low dose radiation exposure.

Q1b. Will you report back to us on this within 60 days?

A1b. Yes, we can report back to you within 60 days of the Committee's receipt of this response with any updates on our planned activities for the FY 2024 enacted funding.

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QUESTIONS FROM REPRESENTATIVE TIM WALBERG.

Q1. Electric vehicle (EV) components are less standardized across the industry, requiring auto makers to enable greater flexibility in their EV component manufacturing lines as compared to internal combustion engine (ICE) vehicles. Will the Department of Energy ensure that the Domestic Manufacturing Conversion grant program provides funding for facilities to establish EV research and testing capabilities and small-scale, flexible, manufacturing capabilities?

A1. The Department released the funding opportunity announcement (DOE-FOA-0003106) "Domestic Manufacturing Conversion Grants" on August 31, 2023. Per the FOA, the grants would strengthen the domestic manufacturing of electrified vehicles of these given types, including light, medium, and heavy-duty vehicles, and create good-paying clean energy jobs with the free and fair chance to join a union. The overall scope in this FOA concerns commercial facilities, including those for vehicle assembly, component assembly, and related part manufacturing. Applicants should consider and identify domestic sources of equipment, feedstock and/or materials as well as potential downstream domestic customers of their parts or product.

Q2. The Department recently issued a proposed rule, *Energy Conservation Program: Energy Conservation Standards for Distribution Transformers.* There are significant concerns that this efficiency rule will further offshore our energy supply chain, raise costs for consumers, increase supply chain problems, and threaten our grid reliability.

Q2a. Why did the Department of Energy decide to push this transformer regulation?

A2a. DOE was required by statute to either publish a proposal to amend the current standards for distribution transformers or finalize a rule not to amend standards by April 18, 2019. DOE has subsequently entered into a Consent Decree which requires issuance of a final rule by June 30, 2024.

Q2b. The proposed amorphous steel (AM) cores are heavier than the current grain oriented electrical steel (GOES) cores. Utilities have found that due to this weight change they will have to replace a significant number of poles. How does the Department plan to address this additional burden if a final rule is issued?

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A2b. DOE's analysis factors in the cost of pole replacement where necessary. Even with these costs considered, DOE's analysis concludes that the rule will save $15 billion over 30 years of shipments.

Q2c. There is a significant supply chain shortage of transformers. Please detail how this efficiency standard will impact that shortage.

A2c. Currently there is one domestic supplier of grain-oriented steel (GOES) and one domestic supplier of amorphous steel. In partnership with utilities, the examination of the ongoing distribution transformer supply-demand imbalance has led to the recognition that current GOES supply, a key input for many of today's distribution transformers, is not as readily available for manufacturers, leading to longer wait times and higher prices to produce distribution transformers. Using amorphous steel in distribution transformers will not only reduce losses and improve distribution system efficiency but could potentially result in a more resilient material supply chain for distribution transformers.

Q2d. Will this rule help the electricity system operate as efficiently and inexpensively as possible?

A2d. As required by the Energy Policy and Conservation Act (EPCA), DOE's proposed standards were **developed** using data-driven analyses and seven statutory factors governing the appliance standards rulemaking process. Ultimately, DOE is proposing efficiency levels that are economically justified and technologically feasible for each of the three types of distribution transformers. Over 30 years, the proposed standards are estimated to generate over 10 quads of energy savings and deliver approximately $15 billion in savings to the nation. Additionally, DOE's analysis of the proposed standards **demonstrates** positive life-cycle cost savings that will benefit both utilities and their customers.

Q3. In the rush to green, I fear that the Department is not fully considering cybersecurity. Many "green" technologies are digitized, like solar inverters, EVs, smart meters, and rooftop solar panels. All of these new connections open up more entry points for

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cyberattacks that could extend to our entire grid and do irreparable damage. How is DOE prioritizing cybersecurity?

A3. The U.S. Department of Energy's (DOE's) Office of Cybersecurity, Energy Security, and Emergency Response (CESER) leads the Department's efforts to strengthen the security and resilience of U.S. energy infrastructure against all threats and hazards, mitigate impacts from cybersecurity, physical, supply chain, and climate-based events, and assist with response and restoration activities. Cybersecurity is a primary focus for the office and the Department. As we continue to accelerate the clean energy transition, both DOE and CESER are working to ensure the clean energy systems are resilient and cybersecure.

CESER plays a critical role in conducting advanced risk analysis; representing the Department at National Security Council (NSC) meetings on national-level security and resilience policies; mitigating risks by informing Federal and State, Local, Territorial, and Tribal (SLTT) national security and resilience policies; researching, developing, and demonstrating (RD&D) tools and technologies; and supporting energy sector (electricity, oil, and natural gas) emergency preparedness and response efforts. CESER accomplishes its mission through strong partnerships with energy sector owners and operators, States and local communities, intra-agency partners, interagency partners, manufacturers, technology companies, academia, and international partners.

In terms of distributed energy resources (DER) and electric vehicles, CESER has a number of efforts underway to ensure the cybersecurity of those systems. On the policy front, CESER is working closely with industry and States to develop cybersecurity baselines for distribution systems and distributed energy resources. In terms of tools and technologies, CESER works with distributed energy resource (DER) and electric vehicle and associated infrastructure companies on cybersecurity standards, threat information sharing, and designing those systems through testing and emulation.

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In September 2023, CESER announced an award of $39 million of funding for nine new National Laboratory projects to advance the cybersecurity of distributed energy resources (DER).

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QUESTIONS FROM REPRESENTATIVE DEBBIE LESKO

Q1. Did DOE test any stoves for compliance with the proposed cooking products rule that were manufactured within the last two years?

A1. As of February 2023, 15 of the 24 (63%) gas cooktop models and 10 of the 22 (45%) electric cooktop models in DOE's test sample are currently on the market.

Q1a. Did DOE use the results from testing it conducted prior to finalizing the test procedure to develop the proposed energy conservation standards?

A1a. All cooktop testing in support of the proposed rule was performed in accordance with the finalized test procedure.

Q1b. When were the test procedures made available for public comment? Was this before or after the comment period on the rule itself?

A1b. The proposed test procedure was made available for public comment November 4, 2021, through February 17, 2022. The comment period for the proposed standards was open from February 1, 2023, through April 17, 2023.

Q2. How did DOE determine the number of stoves that might comply with the proposed cooking products rule?

A2. In light of the practical limitations of testing every model on the market, DOE used the data from its representative test sample to determine how key product characteristics affect product efficiency. DOE then conducted a model-by-model evaluation of every model currently on the market to determine which models would be expected to comply with the proposed standard based on their product characteristics.

Q3. Which products did DOE analyze in order to determine compliance?

A3. DOE's test sample includes a wide range of products: 24 gas cooktop models and 22 electric cooktop models from 18 different brands. These products span the breadth of the market in terms of product characteristics and features, energy efficiencies, and whether they are standalone or part of a range.

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Q3a. What are the serial numbers and model numbers for products analyzed by the Department?

A3a. DOE typically does not release serial numbers of individual models due to the sensitivities expressed by industry with divulging performance-related information publicly on specific models. DOE has released deidentified information regarding the cooking products it tested.

Q3b. Why were those units chosen?

A3b. The models were selected to reflect a wide cross section of the market in terms of product characteristics and features, energy efficiencies, and whether they are standalone or part of a range. DOE's study focused on those products most likely to be impacted by the standards.

Q4. How does the Department come by its claim that only "high end" stoves are impacted by this rulemaking?

A4. DOE tested products spanning the full range of product characteristics. This testing showed that "high end" products were generally less efficient and would therefore be more impacted by the proposed standards. Conversely, DOE's testing showed that non "high end" products generally already meet the proposed efficiency standards, would therefore not be impacted.

Q4a. How does the Department define "high end"?

A4a. For this purpose, DOE defines "high end" as having continuous cast-iron grates and at least 1 high-input-rate burner (which DOE defines as a burner with an input rate greater than or equal to 14,000 Btu/h).

Q4b. Does the department classify "high end" by cost for the unit or by product features?

A4b. DOE defines "high end" by product features. Namely, DOE defines "high end" based on the product feature of having continuous cast-iron grates and at least 1 high-input-rate

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burner (which DOE defines as a burner with an input rate greater than or equal to 14,000 Btu/h).

Q4c. Is it the Department's view that it is acceptable to reduce features and functionality on "high end" stoves such that they become essentially the same as "low end" stoves?

A4c. No. DOE deliberately proposed a standard level that would preserve the key features and functionality of "high end" stoves, including continuous cast-iron grates and high-input-rate burners.

Q4d. According to DOE's analysis, which currently available models would comply with the proposed rule and are they ranges or standalone cooktops?

A4d. Although DOE cannot share specific model numbers, nearly half of currently available models on the market would comply with the proposed standard and include both ranges and standalone cooktops.

Q4e. Where are those models manufactured?

A4e. Models that would comply with the proposed standards are manufactured in a range of locations, both within the U.S. and internationally.

Q4f. Has DOE analyzed the impact of its proposal on US manufacturers, retailers, and installers?

A4f. Yes, DOE has conducted extensive analysis into the likely impacts of the proposed rule on manufacturers, retailers, and installers. The results of this analysis are published in the notice and technical support document.

Q5. Secretary Granholm claimed the "fix" to ensure compliance with the rulemaking would cost only $12; how did DOE come to this determination?

A5. DOE conducts detailed reverse-engineering "teardowns" in which DOE analyzes the individual parts of models spanning the whole range of efficiencies on the market. DOE also conducts confidential manufacturer interviews to confirm its cost estimates.

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Q6. Please confirm that there is no increased cost from EL1 to EL2 partly because EL2 anticipates manufacturers will further reduce the number of high input rate burners on a cooktop in order to meet a standard at that level.

A6. There being no increased cost from EL 1 to EL 2 is not due to any potential difference in the number of high input rate burners between those two levels, but rather a reflection of DOE's finding that there is no difference in product manufacturing cost between EL 1 and EL 2.

Q7. What product features would be impacted or eliminated under the proposed rule?

A7. DOE deliberately proposed a standard level that would preserve the key features and functionality of "high end" stoves, including continuous cast-iron grates and at least one high-input-rate burner. DOE is currently analyzing comments received in response to the February 2023 supplemental notice of proposed rulemaking (SNOPR) to determine whether any particular features would be impacted or eliminated as a result of the proposal.

Q8. Does DOE believe that looking at photos on the websites is an effective way to understand if a product would meet a DOE standard level for their verification and enforcement purposes?

A8. Any verification and enforcement actions would be based on testing conducted at a certified laboratory.

Q9. Does DOE believe eliminating half of available products on the market constitutes a reduction in consumer choice?

A9. The proposed standard would not limit the availability of products on the market. It would only require a redesign of certain low-efficiency products to be more efficient.

Q10. Does DOE believe this rulemaking and related rulemakings deserve a complete 75-day comment period?

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A10. To give stakeholders adequate time to comment on this rulemaking, DOE provided a total of 75 days for comment on the February 2023 SNOPR, between February 1, 2023, and April 17, 2023.

Q11. Does DOE believe the test procedure should be determined prior to the public comment period?

A11. The test procedure was finalized on August 22, 2022. The comment period for the proposed standards opened on February 1, 2023.

Q12. Has DOE tested any ranges (i.e., cooktop with an oven in the same product) that would meet DOE's proposed standards?

A12. DOE testing indicates that both ranges and standalone cooktops have the same efficiency characteristics.

Q13. Does DOE believe a low-input burner for simmering and cooking sauces is a consumer feature that should be protected under EPCA?

A13. DOE is currently analyzing comments received in response to the February 2023 SNOPR to determine whether any particular features would be impacted or eliminated as a result of the proposal.

Q14. Does DOE believe that consumers value savings of less than two dollars per year on their gas bills?

A14. As stated in the February 2023 SNOPR, DOE's analyses indicate that the proposed standards would save a significant amount of energy in the aggregate, as is required by EPCA. DOE estimates that the proposed standards will result in national energy savings of 0.46 quads, the equivalent of 19 million residential homes' annual energy use.

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QUESTIONS FROM THE HONORABLE JOHN CURTIS

Secretary Granholm, in May 2022, the Government Accountability Office (GAO) assessed the functionality of the Strategic Petroleum Reserve, particularly through the lens of regional response capabilities. In the report, GAO considered "Alternative Actions," such as "*different reserve sizes, geographic locations, fuel composition, ownership structure, or release criteria...[and] coordinating with or supporting the efforts of states, other federal agencies, commercial suppliers, and others with key roles in mitigating supply risks.*" (Page 6-7)

Q1. What are DOE's plans for responding to this report, and what steps are you taking to examine the optimal size and configuration of the reserve, particularly as it relates to vulnerable communities and regions, such as Utah, Nevada, Idaho, and other western states?

A1. As noted in the GAO report, the Department of Energy continues to analyze alternative options for strategic petroleum reserves. However, in many cases, the existing infrastructure is not adequate. Having the current Strategic Petroleum Reserves located in the area with the largest refinery capacity in the world provides the maximum flexibility to respond to supply disruptions.

Q2. Has DOE examined the cost-effectiveness or feasibility of government-owned or commercial salt dome storage in the West to establish regional reserves?

A2. DOE continues to analyze these options as we continue to work toward replenishing the Strategic Petroleum Reserves.

Q3. Would DOE work with Congress to find solutions to ensure the availability of refined fuels in the West during an emergency or times of refinery outages?

A3. The Department of Energy (DOE) plays a crucial role in ensuring the availability of refined fuels during emergencies or times of refinery outages and is always willing to work with Congress on policy proposals. In many instances, a regional disruption is more of a logistical issue, rather than a supply issue. Adding additional supplies would often not alleviate the disruption, which would normally be mitigated within a few days anyway once the logistical constraints are removed.

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In the event of an emergency or refinery outage, DOE works closely with industry stakeholders, such as fuel producers and distributors, to prioritize fuel delivery to affected areas. With support from Congress, DOE facilitates research and development in alternative fuel sources and technologies, aiming to diversify the energy mix and enhance long-term resilience to help build a more sustainable and reliable energy system that can better withstand emergencies or disruptions.

Overall, DOE's continued collaboration with Congress is essential for effectively addressing challenges related to the availability of refined fuels during emergencies or refinery outages in the western region, ensuring the well-being and stability of communities.

Q4. There are some groundbreaking private sector advancements happening in Utah related to radioisotope production that could, among other things, really revolutionize how we treat cancer and dramatically reduce our reliance on foreign sources of radioisotopes. The CHIPS Act makes some major investments – including within the Department of Energy – to ensure we have a reliable domestic supply of radioisotopes.

Where do things stand on implementation of the CHIPS radioisotope provisions and, most importantly, some specific examples of how the Department of Energy is working with the private sector manufacturers to ensure a stable domestic supply and the next generation of research in this critical area?

A4. The Department of Energy Isotope Program (DOE IP) has made great strides in implementing the CHIPS radioisotope provisions. DOE IP continues to work closely with industrial, federal, and academic stakeholders to assess isotope supply and demand, and address disruptions in isotope supply chains exacerbated by the Russian invasion of Ukraine. Coordinated efforts with the Office of Nuclear Energy to assess options for demonstrating isotope production in different types of reactors and accelerators at national labs and universities is advancing. Progress continues on the two projects mentioned in the CHIPS Act, the Stable Isotope Production and Research Center and the Radioisotope Production Facility at a pace aligned with FY 2023 Congressional Appropriations.

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There are many examples of how the DOE IP continues to work closely with private sector manufacturers to promote domestic supply chains and related research. DOE IP has provided rare isotope feedstock to industry to enable entry or continuation in the radioisotope market, such as radium-226 for actinium-225 production. When industry is not able to meet market demand due to technical difficulties, the DOE IP has provided a back-up source of materials for certain isotopes; an example is strontium-82 for cardiac heart imaging. The Program has shared technical information with industrial entities to advance commercial efforts in radioisotope production such as making available a "plug and play" target station for the new promising medical isotope, astatine-211. On numerous occasions, the DOE IP has also stepped in to provide critical isotopes to industry when Russian isotope supply chains have been disrupted, such as promethium-147 for nuclear batteries.

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QUESTIONS FROM THE HONORABLE RANDY WEBER

The Department of Energy recently requested information in anticipation of a proposed rulemaking that will, in part, address new standards for gas-fired instantaneous (or tankless) water heaters. See Docket No. EERE–2017–BT–STD–0019 / RIN 1904–AD91. Some advocates have asked the Department to set a standard that essentially cannot be met by any non-condensing gas-fired instantaneous (or tankless) water heaters.

Q1. Is the Department actively considering a proposed rule that would disadvantage or otherwise render uncompetitive non-condensing gas-fired instantaneous (or tankless) water heaters, such as those used in temperate states like Texas? Upon what data sources would such a decision be made? Has that data been subject to the rigorous requirements of the Data Quality Act?

A1. The proposed standards for consumer water heaters, which were presented to DOE as part of a consensus agreement between manufacturers and other stakeholders, were chosen based on data-driven analysis and DOE's seven statutory factors governing the appliance standards rulemaking process. As required by the EPCA, DOE is proposing efficiency levels that are economically justified and technologically feasible for each of the four product classes of consumer water heaters. The proposed standards would generate 27 quads of energy savings and deliver approximately $161 billion in savings to the nation from 30 years of shipments. Additionally, DOE's analysis demonstrates positive life-cycle cost savings for consumers in all four product classes at the proposed energy efficiency levels.

Q2. Is the Department aware that if such instantaneous (or tankless) water heaters became less viable in the marketplace, that particularly middle- or lower-income households or small businesses would be forced to utilize or retain tank water heaters that are significantly less efficient? We request that the Department promptly calculate any such potential efficiency loss and report it to this Committee. Has the Department considered that such a standard may violate the letter and intent of the Energy Policy and Conservation Act (EPCA) (42 U.S.C. **6292(a)**)? Please make any applicable legal analyses available to the Committee as soon as possible.

A2. For gas instantaneous water heaters, DOE's analysis found that low-income households would save more money over the life of the water heater than the general population. See section V.A.1.b of the notice for detailed results of DOE's subgroup analysis.

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Q3. Under Executive Order 12866 (1993), the Department is required to "tailor its regulations to impose the least burden on society, including individuals, businesses of differing sizes, and other entities (including small communities and governmental entities), consistent with obtaining the regulatory objectives, taking into account, among other things, and to the extent practicable, the costs of cumulative regulations." Has the Department considered less burdensome mechanisms to ensure overall improvements in efficiency in the water heater market?

A3. As part of its analysis, DOE considered a wide range of alternatives to the proposed rule. The results of this analysis can be found in section V. I.B.6 of the notice.

Q4. Utilities, transformer manufacturers, and homebuilders in my state are raising concerns about a DOE rulemaking on the efficiency of distribution transformers that could further exacerbate existing transformer shortages due to supply chain and labor issues. The Biden administration recognized this was a major issue last year when the President invoked Defense Production Act authorities to include transformers and grid components.

However, the impact of your agency's rulemaking, which I'm told has little efficiency benefits – certainly not the 20 percent DOE asserts – is causing real world impacts. The draft rule would require amorphous steel, which currently accounts for only 5 percent of U.S. supply, and steel suppliers are telling transformer manufacturers they will not invest in new capacity until DOE either delays or finalizes this rule in June 2024. If finalized, companies may also be forced to source amorphous steel from foreign nations, including China.

The June 2024 timeline is too far away and creates uncertainty that creates national security, grid reliability, and storm resiliency issues – and is also an impediment to our nation's economic recovery. For example, in Texas this issue is hampering home builder's ability to build more housing stock. While I recognize DOE is under a consent order, it did not have to propose the standards it did. Every day that your department delays resolving this self-made crisis has the potential to impact electric service across the nation.

You have the ability to push this off until 2027. Can you commit to delaying this impractical rule and when can you render a decision? Telling stakeholders that DOE won't have a decision until June 2024 is unacceptable.

A4. The proposed rule, if finalized, would not require compliance with amended standards until 3 years after the publication of the final rule. Based on the consent decree deadline this would not occur until at least May 2027.

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QUESTIONS FROM THE HONORABLE AUGUST PFLUGER

Q1. The Department of Energy recently announced it plans to purchase up to 3 million barrels of oil for the SPR. Please provide the timeline and process DOE will use to fully replenish the remainder of the SPR.

A1. The U.S. Strategic Petroleum Reserve is a valuable tool to protect the American economy and consumers from supply disruptions. As we are thoughtful and methodical in the decision to drawdown from our emergency reserve to provide relief when needed most, we are similarly strategic in replenishing the supply to ensure it remains ready to deliver on its mission.

In January 2023, DOE outlined its comprehensive buyback strategy which includes: (1) Direct repurchases with revenues from emergency sales; (2) Exchange returns that include a premium to volume delivered; and (3) Securing legislative solutions that avoid unnecessary sales unrelated to supply disruptions to strategically maintain volume. In taking these steps, the Administration is focused on replenishing the SPR in a way that provides the best deal for taxpayers by aiming to repurchase crude at a lower price than it was sold for, while providing certainty to the industry in a way that helps encourage near-term production.

These actions will bring in tens of millions of barrels back into the SPR by the end of next year – on top of the 140 million barrels that DOE secured in cancelled sales. The SPR remains the largest known reserve in the world.

Q2. What action is DOE taking to address the maintenance required as a result of the rapid drawdowns?

A2. After extensive research it was determined that the sales that took place in 2022 did not damage our Strategic Petroleum Reserve (SPR) pipelines and caverns. The nation's top geoscientists at the Department of Energy (DOE)'s Sandia National Laboratory continue to closely monitor cavern integrity, and the SPR remains operationally ready to respond to future supply disruptions, should they occur.

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It is important that we continue to make investments to modernize the SPR in order ensure it continues to be operationally ready to address global energy supply chain disruptions in addition to future Congressionally mandated sales. DOE continues to prioritize maintenance and life extension project work to maintain the integrity and availability of the SPR for years and decades to come.

Q3. When will DOE restart the Congressionally mandated examination of the SPR, known as Life Extension II?

A3. Construction on Life Extension II began at the Bayou Choctaw SPR site in February 2023 and Bryan Mound SPR site in May 2023.

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QUESTIONS FROM REPRESENTATIVE GREG PENCE

The National Electric Vehicle Infrastructure (NEVI) program through the Joint Office of Energy and Transportation has projected a national network of 500,000 chargers by 2030. In addition, the administration's goal is for electric vehicles to make up at least 50 percent of new car sales by 2030.

Q1. What is your department's projection for the electricity generation needed to maintain a network of 500,000 electric vehicle chargers while maintaining grid reliability?

A1. A 2019 report published by the U.S. DRIVE partnership, a voluntary government-industry partnership, concluded that "based on historical growth rates, sufficient energy generation and generation capacity is expected to be available to support a growing EV fleet as it evolves over time, even with high EV market growth."[1] With this general conclusion in mind, we expect incremental needs will be highly localized and site specific in some cases. Additional research and analysis being completed by DOE and the national laboratories is examining longer-term needs from the electric grid, particularly as medium- and heavy-duty vehicles electrify.

Q1a. Does your department envision a need for states to increase electricity generation to accommodate increased users on the grid?

A1a. Yes, electrification of the transportation sector will increase demand, load, and the required capacity of the grid and its components. Regions and States are evaluating the generation, transmission, and distribution capacities that are currently available and will be needed to meet future demand.

Q2. Has your department analyzed potential charging behaviors and market demand for charging equipment?

A2. Yes, this is an ongoing and continually improving analysis effort. The DOE Vehicle Technologies Office has conducted extensive research on the market for electric vehicles, key supporting technologies and components, and the charging needs of drivers. A

[1] https://www.energy.gov/eere/vehicles/articles/summary-report-evs-scale-and-us-electric-power-system-2019

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recently released National Renewable Energy Laboratory study, sponsored by the Joint Office of Energy and Transportation, provides a comprehensive review of the type, use case, and approximate locations of the required charging infrastructure.[2]

Q2a. How, if at all, will your department ensure that funding to construct charging stations through NEVI ensure station locations will be highly utilized over the lifetime of their operation?

A2a. We expect that, like many retail operations, there will be varying demand for EV charging stations based on their location. As part of core EV charging programs at the Department of Transportation, such as NEVI, the Joint Office will receive additional information on the utilization of federally funded charging stations, which will result in increased visibility on overall network needs and performance. The data will also be utilized to inform future technical assistance and to make recommendations on Federal program design.

Q3. The American energy industry faces 12–18-month delays for electrical transformers, an ongoing workforce shortage of electricians, and pre-mature baseload generation retirements. Meanwhile, automotive companies have consistently reported underwhelming EV sales compared to their projections.

How have these issues impacted your administration's timeline of 50 percent of new car sales to be EV's by 2030 and a national network of 500,000 chargers by 2030, or the timeline to finish EV charging infrastructure construction 6 months after a state's procurement of funding through the NEVI program?

A3. While the United States is on a path to achieving the 2030 goals, continued investments in U.S. charging infrastructure are necessary. U.S. electric vehicle sales have increased sharply in recent months and years. The EV share of total light-duty vehicle sales has more than tripled in the last three years, from 2.3% in 2020 to 4.3% in 2021, 7% in 2022, and 8.6% in the first quarter of 2023. Supporting a robust domestic supply chain that supports American manufacturing jobs is a priority of the Biden Administration and has

[2] https://driveelectric.gov/files/2030-charging-network.pdf and https://www.whitehouse.gov/briefing-room/statements-releases/2023/06/27/fact-sheet-biden-harris-administration-driving-forward-on-convenient-reliable-made-in-america-national-network-of-electric-vehicle-chargers/.

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been a core consideration in the deployment of Federal EV charging programs. Recent announcements about a nationwide strategy to encourage domestic EV charging equipment manufacturing indicate that the U.S. EV industry is priming for widespread adoption.[3] Since the President took office, companies have announced $700 million in EV charging investments in the United States.[4] The Administration is taking a government-wide approach to ensure a robust domestic supply chain, including the need for key components such as transformers, which are also in high demand due to the surge in solar, wind, and energy storage projects. President Biden has invoked the Defense Production Act (DPA) on transformers and electric grid power components, and Congress may consider the opportunity to appropriate DPA funds for this purpose. Additionally, since the President took office, the private sector has announced more than $30 billion in electric vehicle and component part manufacturing investments spread across more than 80 facilities and more than $100 billion in battery manufacturing investments spread across more than 190 facilities.[5] These significant Federal and private investments will enable infrastructure expansion through the growth of the domestic manufacturing base.

[3] https://www.whitehouse.gov/briefing-room/statements-releases/2023/02/15/fact-sheet-biden-harris-administration-announces-new-standards-and-major-progress-for-a-made-in-america-national-network-of-electric-vehicle-chargers/
[4] https://www.whitehouse.gov/briefing-room/statements-releases/2023/06/27/fact-sheet-biden-harris-administration-driving-forward-on-convenient-reliable-made-in-america-national-network-of-electric-vehicle-chargers/
[5] https://www.energy.gov/invest

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QUESTIONS FROM REPRESENTATIVE FRANK PALLONE, JR

Q1. In the Energy Act of 2020, Congress passed a provision authorizing the re-establishment of a low-dose radiation research program at the Department. Research into low-dose radiation has important implications across the board for nuclear power, cleanup standards, and potentially everyday medicine. Congress appropriated $20 million in FY23 to support this research – can you provide a status update on the Department's low-dose radiation research efforts, and how the Department is implementing the recommendations contained within the National Academy of Sciences report on low-dose radiation that was published last year?

A1. DOE has supported national laboratory led efforts at Argonne National Lab, Brookhaven National Laboratory and Oak Ridge National Laboratory in Fiscal Years (FY) 2020-2023.

These projects expand funding to include a separate DOE-funded effort in low dose radiation research within an existing DOE - National Cancer Institute (NCI) collaborative effort to use high performance computing (Artificial Intelligence and Machine Learning) capabilities to help advance the understanding and treatment of cancer. These techniques are now being adapted to the understanding of low dose radiation exposure. The projects are developing an enabling capability for low dose radiation exposure research that could place new findings in the context of known published literature and datasets in this field, point to new directions for radiation biology research and aid development of new epidemiological studies.

The National Academies of Sciences, Engineering, and Medicine (NASEM) produced a report that will be used by many agencies, including DOE, to help guide research efforts in this area. The computational efforts DOE has funded so far in connection with an existing collaborative effort with NCI relevant to low dose research are aligned with the NASEM's recommendations but encompass only a small part of the much larger NASEM plan that will require collaborative efforts with other agencies.

DOE has requested funding for low dose radiation exposure research in the President's Budget Request for FY 2024. Longer term program planning is beginning in earnest and

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will include other agencies. We are continuing interactions with NCI and could also include other agencies with basic research programs in low dose radiation, such as NASA.

Furthermore, we have charged the Biological and Environmental Research Advisory Committee (BERAC) to examine existing community-based plans, like the NASEM study, in the context of DOE mission needs and capabilities. The report will help define our future research direction. We anticipate that the report will be completed and approved by BERAC in May 2024.

Q2. The Inflation Reduction Act that we passed last year included a number of tax provisions designed to spur investments in clean energy. How is the Department of Energy working with the Treasury and the IRS to ensure that the tax credits, including the clean hydrogen production credit and the zero-emission nuclear power production credit, will maximize the production of clean energy while not disadvantaging legacy clean energy assets?

A2. The Department of Energy is working closely with Treasury and IRS to provide energy-related technical and analytical expertise to support the implementation of tax provisions included in the Inflation Reduction Act. This includes leveraging the technology specific expertise within the Department of Energy to support the implementation of the Section 45U Zero-emission Nuclear Power Production Credit and the Section 45V Clean Hydrogen Production Credit.

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QUESTIONS FROM REPRESENTATIVE PAUL D. TONKO

Hydrogen and Fuel Cell Technologies:

Q1. President Biden's Fiscal Year 2024 Budget Request includes $163 million for Hydrogen and Fuel Cell Technologies Offices activities in the Office of Energy Efficiency and Renewable Energy with additional cross-cutting hydrogen initiatives across a variety of other offices.

Q1a. How will these investments continue to support growth in hydrogen and fuel cell technology adoption?

A1a. These investments are a key pillar of our national clean hydrogen strategy—as laid out in the *U.S. National Clean Hydrogen Strategy and Roadmap*[6]—and they are aligned with the priorities of the Hydrogen Interagency Task Force,[7] which is coordinating a whole-of-government approach to advancing clean hydrogen. The *Strategy and Roadmap* was required by the Bipartisan Infrastructure Law and sets annual domestic clean hydrogen demand targets of 10 million metric tons (MMT) by 2030, 20 MMT per year by 2040, and 50 MMT by 2050.

The investments will further strengthen and grow the essential foundation of research, development, and demonstration (RD&D), which continues to drive down the cost of clean hydrogen toward the Hydrogen Earthshot goal of $1 per kilogram within a decade. In addition to these RD&D efforts, this funding will support activities focused on enabling deployments, which together will help DOE (in partnership with other agencies) execute on key strategies, including (1) targeting strategic, high impact uses for clean hydrogen; (2) reducing cost through technology innovations and scaling; and (3) focusing on regional networks. The outcome of these investments will be to help to catalyze both innovation and growth in scale, stimulate private sector investments, spur development across the fuel cell hydrogen supply chain, and reduce the cost of clean hydrogen—all of which are critical to accelerate the adoption of hydrogen and fuel cell technologies.

[6] https://www.hydrogen.energy.gov/national-strategy
[7] https://www.hydrogen.energy.gov/interagency

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Q1b. In addition to the ongoing implementation of the H2Hub program, how else will DOE continue to invest in infrastructure needed to support growing hydrogen demand?

A1b. In addition to the H2Hubs, DOE will continue to support advancement of the underlying technologies that will be essential for the success of the H2Hubs and other large-scale deployments. For example, DOE will continue developing critical components for fueling stations, materials for pipelines, and other critical H2 storage, delivery, and utilization technologies. Advances in these areas will ensure that the H2Hubs and other large scale domestic deployments have the best technology not just today, but over the near-, mid-, and long-term. In addition to developing cutting-edge technologies, DOE will also continue to pursue important work to enable the deployment of infrastructure, including advancing safety practices, facilitating technically sound codes and standards, and supporting workforce development. DOE will also continue to engage with other agencies to drive broad and robust advancements in this sector. For example, the Joint Office of Energy and Transportation (which combines the expertise of DOE and the U.S. Department of Transportation) will continue to support the development of fueling corridors that include hydrogen and work with the EPA to develop hydrogen infrastructure at ports.

Carbon Dioxide Removal:

Q2. The Explanatory Statement of the Fiscal Year 2023 Omnibus Appropriations bill included the following: "The Department is directed to establish a competitive purchasing pilot program for the purchase of carbon dioxide removed from the atmosphere or upper hydrosphere, in support of carbon dioxide removal projects authorized in section 969D of the Energy Policy Act of 2005."

Q2a. Can you please provide an update on DOE's response to this direction?

A2a. DOE has briefed the House and Senate Appropriations Subcommittees on Energy and Water Development on a proposed implementation plan to establish a competitive purchasing pilot program for carbon dioxide removal (CDR). DOE is actively working to leverage available funds from the Infrastructure Investment and Jobs Act and annual base

appropriations to develop a prize competition for CDR purchasing. The design and implementation of the program will be consistent with the Explanatory Statement of FY23 Omnibus Appropriations bill and official prize rules will likely be issued early in FY24.

Q2b. Has DOE begun work to develop a procurement program (or alternative program structure) to spur demand for carbon dioxide removal services?

A2B. Yes. As of September 29, 2023, DOE has established a competition for Carbon Dioxide Removal (CDR) Purchase Pilot Prize. The purchase pilot will provide demand-side support for commercial CDR technologies, enable assessment of the CDR market, and allow DOE to evaluate how it can most impactfully deploy available funds for CDR deployment and commercialization. The CDR pilot purchasing competition will also leverage private sector resources to enhance DOE's CDR development efforts, while also establishing best practices and methods for vetting and purchasing CDR credits.

Mesonet:

Q3. The New York Independent System Operator (NYISO) is already leveraging weather forecasts and data from Mesonet to support the operation and reliability of New York's electricity system. New York Mesonet's 126 stations throughout the state make more than one million observations each day, providing a powerful tool to assess and plan for the impacts of weather conditions on wind and solar energy generation, availability, and reliability.

Q3a. Has DOE provided any technical or financial assistance in support of weather-related data collection and forecasts to support greater integration of variable energy resources into the electricity mix?

A3a. DOE has over a decade of experience supporting the development of forecasting tools that enable grid operators to safely and reliably balance electricity demand and generation to maintain a healthy grid.

- The **Wind Forecast Improvement Project** (WFIP) is a DOE-led multi-project research program whose overarching goals are to improve the accuracy of short-term wind energy forecasts and to demonstrate the economic value of these improvements.

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Data collected during field campaigns between 2011 and 2018 led to significant improvements in the main weather forecasting model used by the National Weather Service. In the latest project phase, DOE is funding the collection of first-of-its-kind high-quality wind resource datasets off the coasts of Massachusetts and Rhode Island to reduce uncertainty in offshore wind resource assessment and forecasting.

- DOE and NYSERDA created the **National Offshore Wind Research & Development Consortium**[8] in 2018 to produce industry-focused research to advance U.S. offshore wind. Related projects[9] include using artificial intelligence to predict wind plant output and facilitate grid integration; developing more accurate hurricane prediction models to mitigate risks; and creating a 20-year atlas of U.S. offshore wind resources.
- The **Atmosphere to Electrons to Grid Project** [10] (2019–2022) combined forecasting tools with aerodynamic and economic models to allow wind power plant operators to maximize grid services and energy production.
- The **Dynamic Line Rating**[11] program (2013–present) developed tools to optimize transmission capacity, reduce congestion and minimize curtailment using sensors and weather forecasts.
- The **National Inter-Hour Wind Power Production Database** (2021–2023) is combining wind turbine models and atmospheric models to improve wind power forecasts.
- The **Solar Forecasting funding program**[12] (2012) improved the accuracy of solar generation forecasts.

[8] National Offshore Wind R&D Consortium | Department of Energy (https://www.energy.gov/eere/wind/national-offshore-wind-rd-consortium)
[9] https://nationaloffshorewind.org/wp-content/uploads/NOWRDC-Project-List-3.pdf
[10] https://www.nrel.gov/docs/fy23osti/84826.pdf
[11] Dynamic Line Rating (https://inl.gov/national-security/dynamic-line-rating/)
[12] https://www.energy.gov/eere/solar/improving-accuracy-solar-forecasting-funding-opportunity

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- The **Solar Forecasting 2 funding program**[13] (2017) developed forecasts for solar irradiance and power production that enable grid operators to calculate the reserve power needed to maintain a reliable and resilient electric grid.
- The **SETO FY2020 funding program**[14] (2020) developed behind-the-meter solar forecasts using artificial intelligence and machine learning techniques.
- The **Solar Forecasting Prize**[15] (2021) incentivized solar forecast providers to develop and commercialize tools to forecast solar irradiance and power availability.
- The **American-Made Net Load Forecasting Prize**[16] (ongoing) is designed to promote the widespread adoption of state-of-the-art in net load (load minus distributed solar generation) forecasting tools to design more efficient and resilient power systems.

These tools build on DOE-supported resources like the National Solar Radiation Database and Wind Integration National Dataset (WIND) Toolkit,[17] maintained by the National Renewable Energy Laboratory. Similarly, the National Solar Radiation Database provides critical measurements of solar irradiance nationwide and has done so for over 25 years.

Q3b. Has DOE partnered with the National Weather Service or the National Mesonet Program as part of these efforts?

A3b. Yes. The National Weather Service is a partner in DOE's Wind Forecast Improvement Project, along with NOAA laboratories and partners from the private sector and universities.

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[13] https://www.energy.gov/eere/solar/solar-forecasting-2
[14] https://www.energy.gov/eere/solar/solar-energy-technologies-office-fiscal-year-2020-funding-program-seto-2020
[15] https://www.energy.gov/eere/solar/american-made-solar-forecasting-prize
[16] https://americanmadechallenges.org/challenges/net-load-forecasting
[17] Wind Integration National Dataset (WIND) Toolkit (https://www.nrel.gov/grid/wind-toolkit.html)

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- In collaboration with Brookhaven National Laboratory and other partners, DOE has developed and deployed sky-imager technology for solar forecasting, which complements data from New York's Mesonet.

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QUESTIONS FROM THE HONORABLE ANN M. KUSTER

Q1. Solar power will be critical in the U.S. clean energy transition. It is cheap and renewable, but it is not without its drawbacks. Floating solar solves many of traditional solar's problems, saving land, increasing energy efficiency, and conserving water. With the U.S.'s 264,837 square miles of water, this power source seems ideal for accelerating our path to a greener energy system. What does the Department of Energy see as the potential of floating solar in the US? What is the Department doing to expand research into this electricity source?

A1. The National Renewable Energy Laboratory has estimated that floating photovoltaic (FPV) systems on suitable human-made U.S. water bodies could produce almost 10% of current national electricity generation.[18] When deployed on bodies of water, FPV systems can reduce evaporation and leverage otherwise unused space, reducing land-use concerns. FPV on wastewater bodies can also create on-site energy to treat the contaminated water. In drought-stricken regions with underutilized hydro-generating capacity, floating PV can leverage existing transmission infrastructure and remove supply and transmission constraints. DOE's FPV investments advance U.S. competitiveness in the emerging floating solar market.[19]

Q2. In NH and Northern New England, we have long been at 'the end of the pipeline.' We've faced a unique dependence on delivered fuels that tend to come from far away and are subject to price volatility. NERC has warned that New England could face reliability challenges on the coldest days. How is your department directing investments to solve these problems, and deliver affordable, reliable, clean energy to the Granite State?

A2. The Department of Energy's Office of Cybersecurity, Energy Security, and Emergency Response (CESER) has been tracking the issue of New England energy security and has been working directly with all New England states, including New Hampshire, to collaboratively identify solutions that ensure the reliability of the electric grid through all operating conditions.

[18] Floating Photovoltaic Systems: Assessing the Technical Potential of Photovoltaic Systems on Man-Made Water Bodies in the Continental United States | Environmental Science & Technology (acs.org)
[19] Dual-Use Photovoltaic Technologies | Department of Energy

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Section 40108 of the Infrastructure Investment and Jobs Act, also known as the Bipartisan Infrastructure Law, introduced a new requirement for states to submit State Energy Security Plans to receive federal financial assistance under the Energy Policy and Conservation Act Title III Part D.

State energy security plans (SESP) are an essential part of energy security planning. SESPs describe the state's energy landscape, people, processes, and the state's strategy to build energy resilience. More specifically, the plans detail how a state, working with energy partners, can secure their energy infrastructure against all physical and cybersecurity threats; mitigate the risk of energy supply disruptions to the State; enhance the response to, and recovery from, energy disruptions; and ensure that the state has secure, reliable, and resilient energy infrastructure.

CESER, in coordination with the Office of State and Community Energy Programs, has been working directly with States, including New Hampshire, to develop plans that meet the requirements identified within statute.

Additionally, CESER has coordinated and convened monthly discussions with energy stakeholders in New England to identify issues and work through identified challenges and will continue to facilitate and convene discussions ahead of the 2023-2024 winter.

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QUESTIONS FROM THE HONORABLE KIM SCHRIER

State Energy Offices:

Q1. The state energy offices are just starting to receive their formula allocations from the $500M that Congress provided on a bipartisan Basis from the IIJA. The bill was passed in the Fall of 2021. Can you explain what efforts you are undertaking to speed the release of funds?

A1. DOE released guidance documents outlining the IIJA formula allocations, application process and deadlines on August 26, 2022, and requested that the state energy offices submit their applications by December 5, 2022. The review process for the IIJA awards entails thorough programmatic, technical, and financial information reviews, and can involve iterative discussions after submission with each state energy office to ensure the application is complete. At this time, DOE has made IIJA awards to 42 of the 56 state energy offices. While DOE is working to complete the IIJA awards, it is also managing a separate set of applications for the annually appropriated State Energy Program funding before each state energy office's program year start date.

Building Energy Codes and IRA:

Q2. Congress provided $1 billion for building energy codes in the Inflation Reduction Act. These funds were directed through the State Energy Program. We understand your preliminary determination is to conduct a competitive solicitation. However, in light of the delays on competitive funding and your shortages of personnel, would you consider allocating a substantial portion of these funds to the states via formula?

A2. On March 20, 2023, DOE published a request for information and a notice of intent seeking comment on a variety of topics with regards to program design and administration supporting the $1 billion in building energy code support from the Inflation Reduction Act. DOE received feedback from a number of different stakeholders that emphasized the importance of streamlining the grant application process and reducing administrative burden. DOE is incorporating this feedback and is actively working on a streamlined approach to the grant application process to support adopting

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the latest building energy codes, zero energy codes, or equivalent energy codes and building performance standards.

Q3. Is DOE supporting BPA's engagement in the litigation stay extension discussions, protecting the region's interests in BPA's role to supply low-cost, emission free hydropower for our growing economy?

A3. The Department of Energy, including BPA, is engaged in the litigation stay extension discussions. The Department understands the important role of hydropower in a region that is decarbonizing from any remaining fossil fuels as low-cost as possible, expanding electrification, attracting large load industries, and attracting green hydrogen among other renewable and carbon-free industries. The Department supports the region's decarbonization goals and is participating in the stay extension discussions.

Q4. Will you urge State Department and the Administration to avoid any attempts to subsidize the cost of flood risk management from power ratepayers?

A4. BPA has conveyed to State Department and other Administration officials that it has no authorization for flood risk management, and thus is statutorily unable to pay any costs of flood risk management.

Fusion:

Q5. What is DOE doing to support the commercialization of fusion and how can research institutions, including research universities support your efforts?

A5. The Office of Science (SC) Fusion Energy Sciences (FES) program has been supporting the growing U.S. private fusion sector in multiple ways. In FY 2019, FES established the Innovation Network for Fusion Energy (INFUSE) voucher program which enables private fusion companies to access and leverage the world-class expertise and capabilities in fusion science available at the DOE national laboratories and, since FY 2022, at U.S. universities. Under this program, FES has made 90 awards, totaling $19.3 million, enabling 10 DOE national laboratories and 10 universities to collaborate with 26 private

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fusion companies. In addition, FES launched the Milestone-Based Fusion Development program in FY2022 in response to the Administration's Bold Decadal Vision for commercial fusion energy. In May 2023, FES announced awards to eight companies totaling $46 million. Funding will be provided only after the companies demonstrate that they meet pre-negotiated milestones. Within the first 18 months of the program, these awards will enable the companies to develop preconceptual designs of fusion pilot plants and technology roadmaps as well as demonstrations of significant performance improvement of their fusion concepts. Key partners in these awards include DOE national laboratories and U.S. research universities. Finally, in the FY 2024 Budget Request, FES proposed the establishment of four fusion energy R&D centers in the areas of materials science, fusion nuclear science, enabling technologies, and advanced simulations. These centers will foster strong collaborations among research universities, national laboratories, and private fusion companies to resolve critical fusion science and technology challenges that will help accelerate the path toward commercial fusion energy as well as contribute to the development of a diverse workforce for this emerging clean energy technology.

Q6. **Higher Education and IRA Applicability:**

The IRA represents a great opportunity to address climate change problems. Yet, there remain a lot of questions about who is eligible for the different programs. For example, the higher education sector is potentially a tremendous partner in fighting climate change but questions remain about whether institutions of higher education, both public and private, are even eligible entities for many of the new opportunities, and if so, which ones. In so many locations across the country, campuses function as mid-sized cities. Are you willing to work with the higher education community to maximize their potential contributions?

A6. Yes, the Department is currently working with institutions of higher education, including universities, community colleges, and trade schools, to deploy investments provided by Congress in the Bipartisan Infrastructure Law (BIL) and Inflation Reduction Act (IRA) and stands ready to continue that work in partnership with Congress. As you note, institutions of higher education have a key role to play in our nation's clean energy

transition. These institutions are eligible to apply for many of the funds from IRA and BIL that are relevant to the development and expansion of the clean energy transition as they consider the buildout of relevant infrastructure and facilities within their campuses.

In particular, BIL allocated $150 million to expand the Industrial Research and Assessment Centers (IAC) Program. Small- and medium-sized manufacturers are eligible to receive a no-cost energy assessment provided by DOE IACs. Teams located at 37 universities around the country conduct these energy assessments to identify opportunities to improve productivity, reduce waste, and save energy. On average, IACs identify more than $130,000 in potential annual savings opportunities for every manufacturer assessed, nearly $50,000 of which is implemented during the first year following the assessment. Over 20,000 IAC assessments have been conducted since the program's inception.

IAC assessments are in-depth evaluations of a manufacturing facility conducted by engineering faculty with upper class and graduate students from a participating university. After a remote survey of the plant, the team conducts a one or two-day site visit to take engineering measurements. The team performs a detailed process analysis to generate specific recommendations with estimates of costs, performance, and payback times. Within 60 days, the plant receives a confidential report detailing the analysis, findings, and recommendations. In six to nine months, the IAC team calls the plant manager to verify what recommendations have been implemented.

By involving students in this process, IACs train the next generation of energy-savvy engineers, more than 60 percent of whom pursue energy-related careers upon graduation.

Through the Office of Manufacturing and Energy Supply Chains (MESC), the Department has announced five new Regional IAC Centers of Excellence at institutions of higher education across the country. As Centers of Excellence, these institutions and their partners will help to coordinate and enhance the IAC Program's efforts to train

regional clean energy workforces while identifying best practices and energy-saving opportunities for small- and medium-sized manufacturers.

In addition, the **National Laboratory Education Directors (NLED)** council was established in September 2020 to coordinate national lab STEM education activities that advance STEM outreach and K-12, university, and workforce development programming. This program concretely advances the diversity, equity and inclusion goals of DOE's National Laboratories. The NLED established a working group to develop a portal for National Lab educational resources, in response to a recommendation by the Secretary of Energy's Advisory Board. This portal will make valuable educational resources more widely available to stakeholders. Two examples of labs proactively focusing on building a pipeline into STEM are the apprenticeship programs at Princeton Plasma Physics Laboratory (PPPL) and high school internships at Idaho National Laboratory (INL).

"Section 45V" Hydrogen Production Tax Credit:

Q7. Consistent with congressional intent, permit the acquisition and retirement of renewable energy credits (RECs) for "unspecified" purchases that comprise up to 12% of electricity to load under the program's standards. RECs could be purchased by the utility or the hydrogen producer.

For hydrogen producers using RECs, power purchase agreements or similar mechanisms to lower their carbon intensities, we encourage USDOE and Treasury to require annual matching of resources to electrolysis load, making space for future refinements as necessary and as markets and technologies mature.

Many utilities in the Pacific Northwest provide electricity to customers using a generation mix that is almost completely free of carbon dioxide emissions, except for a limited amount of unspecified wholesale power purchases made in western markets or from the Bonneville Power Administration mostly for balancing to ensure that electricity supply

constantly matches power demand. Despite using some of the lowest carbon electricity anywhere in the world, electrolytic hydrogen production powered by these clean utilities may narrowly miss qualifying for the full value of the 45V production tax credit.

The tiered incentive rates in I.R.C. § 45V(b)(2) establish a standard of less than 0.45 kilograms (kg) of carbon dioxide equivalent (CO2e) per kg of produced hydrogen to qualify for 100 percent of the production tax credit (PTC). The feasibility of qualifying for the full PTC for hydrogen from electrolysis hinges on the carbon intensity (CI) of electricity.

Much of the "carbon ledger" for Northwest utilities is driven by their participation in the wholesale electricity market, which enhances regional grid reliability and resiliency. As an example, depending on how the Department of Energy (USDOE) and the Department of Treasury (Treasury determine the carbon intensity (CI of a utility's electricity, a green hydrogen producer using electricity from a utility that is typically 97 or 98 percent carbon-free – could narrowly fail to qualify for the full PTC.

Q7a. Will your department commit to working with me and my colleagues to identify implementation solutions that meet the intent of Congress on the Section 45V Production Tax Credit?

A7a. Implementation of the Section 45V Hydrogen Production Tax Credit is under the purview of the Department of Treasury. DOE is committed to continue providing technical and analytical guidance to accelerate progress to Treasury on this topic and appreciates your input. DOE would be pleased to provide points of contact at the Department of Treasury and facilitate technical discussion which allows stakeholders to provide feedback.

Q7b. Can you provide the Committee with your best information as to when the final guidance for the Section 45V tax credit will be available?

A7b. The Treasury Department has purview over release of the final guidance for Section 45V tax credit.

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QUESTIONS FROM THE HONORABLE YVETTE D. CLARKE

Q1. As we look towards the clean energy future, it's important that we also prioritize maximizing benefits for consumers, the environment, and our climate. One key metric that stands out for this purpose is efficiency. Electric vehicles are inherently more efficient than their gas counterparts, but some EV models are continuing to push the limits of what's possible. Higher levels of efficiency mean that EVs can travel further while using less energy and fewer critical minerals per each mile traveled. The American-made Lucid Air, which achieves an unprecedented EPA-rated 140 miles-per-gallon electric equivalent (MPGe), demonstrates how technological innovation and an efficiency focus can enable EVs to increasingly maximize on energy stored within the battery.

Q1a. From DOE's perspective, what are the important benefits of more energy efficient EVs that can travel further distances while using less energy, and how could this help to achieve the Administration's ambitious goals around EV adoption, renewable energy deployment, and grid reliability/resilience?

A1a. Improving the per mile energy efficiency of Electric Vehicles (EVs) increases the EV's range per charge, reducing the cost per mile of driving, and enables the reduction of the onboard battery's size and weight, which could result in further cost reductions and efficiency improvements. Vehicle efficiency improvements also support the development of charging infrastructure and integration with the grid by enabling traveling farther per charge.

Q1b. What research or policy efforts are being considered or currently underway at DOE to better understand and support the benefits of further increases to EV efficiency?

A1b. The Department continues to fund research to improve the per mile efficiency of all EVs. For example, DOE is funding:

- Advanced battery research and development (R&D) to improve battery performance while reducing cost, weight, volume, and the need for critical materials;
- The EVs@Scale Laboratory Consortium to develop advanced high-power charging solutions and integrated on-board charging/drivetrain systems;
- R&D on lightweight materials to reduce energy requirements; and

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Questions for the Record for Secretary Jennifer Granholm

- The SuperTruck 3 projects with Ford, GM, Volvo, Daimler Trucks, and PACCAR to improve the energy efficiency of medium- and heavy-duty electric drive vehicles.

Q2. In FY23, report language was included to require the Joint Office of Energy and Transportation (Joint Office) to complete a nationwide assessment on EV charging infrastructure in underserved & disadvantaged areas and provide a briefing to the Senate & House Appropriations Committees on that assessment. Will DOE and the Joint Office commit to providing a briefing to interested members of the E&C Committee on the progress and findings of the assessment?

A2. Yes, the Joint Office commits to providing a briefing on the findings when the assessment is complete.