

**KEEPING US SAFE AND SECURE: OVERSIGHT OF
THE NUCLEAR REGULATORY COMMISSION**

HYBRID JOINT HEARING
BEFORE THE
SUBCOMMITTEE ON ENERGY
AND THE
SUBCOMMITTEE ON ENVIRONMENT AND CLIMATE
CHANGE
OF THE
COMMITTEE ON ENERGY AND
COMMERCE
HOUSE OF REPRESENTATIVES
ONE HUNDRED SEVENTEENTH CONGRESS
FIRST SESSION

—————
JULY 14, 2021
—————

Serial No. 117–43



Published for the use of the Committee on Energy and Commerce
govinfo.gov/committee/house-energy
energycommerce.house.gov

—————
U.S. GOVERNMENT PUBLISHING OFFICE

51–911 PDF

WASHINGTON : 2023

COMMITTEE ON ENERGY AND COMMERCE

FRANK PALLONE, JR., New Jersey
Chairman

BOBBY L. RUSH, Illinois	CATHY McMORRIS RODGERS, Washington
ANNA G. ESHOO, California	<i>Ranking Member</i>
DIANA DeGETTE, Colorado	FRED UPTON, Michigan
MIKE DOYLE, Pennsylvania	MICHAEL C. BURGESS, Texas
JAN SCHAKOWSKY, Illinois	STEVE SCALISE, Louisiana
G. K. BUTTERFIELD, North Carolina	ROBERT E. LATTA, Ohio
DORIS O. MATSUI, California	BRETT GUTHRIE, Kentucky
KATHY CASTOR, Florida	DAVID B. McKINLEY, West Virginia
JOHN P. SARBANES, Maryland	ADAM KINZINGER, Illinois
JERRY McNERNEY, California	H. MORGAN GRIFFITH, Virginia
PETER WELCH, Vermont	GUS M. BILIRAKIS, Florida
PAUL TONKO, New York	BILL JOHNSON, Ohio
YVETTE D. CLARKE, New York	BILLY LONG, Missouri
KURT SCHRADER, Oregon	LARRY BUCSHON, Indiana
TONY CARDENAS, California	MARKWAYNE MULLIN, Oklahoma
RAUL RUIZ, California	RICHARD HUDSON, North Carolina
SCOTT H. PETERS, California	TIM WALBERG, Michigan
DEBBIE DINGELL, Michigan	EARL L. "BUDDY" CARTER, Georgia
MARC A. VEASEY, Texas	JEFF DUNCAN, South Carolina
ANN M. KUSTER, New Hampshire	GARY J. PALMER, Alabama
ROBIN L. KELLY, Illinois, <i>Vice Chair</i>	NEAL P. DUNN, Florida
NANETTE DIAZ BARRAGAN, California	JOHN R. CURTIS, Utah
A. DONALD McEACHIN, Virginia	DEBBBIE LESKO, Arizona
LISA BLUNT ROCHESTER, Delaware	GREG PENCE, Indiana
DARREN SOTO, Florida	DAN CRENSHAW, Texas
TOM O'HALLERAN, Arizona	JOHN JOYCE, Pennsylvania
KATHLEEN M. RICE, New York	KELLY ARMSTRONG, North Dakota
ANGIE CRAIG, Minnesota	
KIM SCHRIER, Washington	
LORI TRAHAN, Massachusetts	
LIZZIE FLETCHER, Texas	

PROFESSIONAL STAFF

JEFFREY C. CARROLL, *Staff Director*
TIFFANY GUARASCIO, *Deputy Staff Director*
NATE HODSON, *Minority Staff Director*

SUBCOMMITTEE ON ENERGY

BOBBY L. RUSH, Illinois
Chairman

SCOTT H. PETERS, California	FRED UPTON, Michigan
MIKE DOYLE, Pennsylvania	<i>Ranking Member</i>
JERRY McNERNEY, California, <i>Vice Chair</i>	MICHAEL C. BURGESS, Texas
PAUL TONKO, New York	ROBERT E. LATTA, Ohio
MARC A. VEASEY, Texas	DAVID B. MCKINLEY, West Virginia
KIM SCHRIER, Washington	ADAM KINZINGER, Illinois
DIANA DeGETTE, Colorado	H. MORGAN GRIFFITH, Virginia
G. K. BUTTERFIELD, North Carolina	BILL JOHNSON, Ohio
DORIS O. MATSUI, California	LARRY BUCSHON, Indiana
KATHY CASTOR, Florida	TIM WALBERG, Michigan
PETER WELCH, Vermont	JEFF DUNCAN, South Carolina
KURT SCHRADER, Oregon	GARY J. PALMER, Alabama
ANN M. KUSTER, New Hampshire	DEBBIE LESKO, Arizona
NANETTE DIAZ BARRAGAN, California	GREG PENCE, Indiana
A. DONALD McEACHIN, Virginia	KELLY ARMSTRONG, North Dakota
LISA BLUNT ROCHESTER, Delaware	CATHY McMORRIS RODGERS, Washington
TOM O'HALLERAN, Arizona	<i>(ex officio)</i>
FRANK PALLONE, JR., New Jersey <i>(ex officio)</i>	

SUBCOMMITTEE ON ENVIRONMENT AND CLIMATE CHANGE

PAUL TONKO, New York
Chairman

DIANA DeGETTE, Colorado	DAVID B. MCKINLEY, West Virginia
JAN SCHAKOWSKY, Illinois	<i>Ranking Member</i>
JOHN P. SARBANES, Maryland	BILL JOHNSON, Ohio
YVETTE D. CLARKE, New York	MARKWAYNE MULLIN, Oklahoma
RAUL RUIZ, California, <i>Vice Chair</i>	RICHARD HUDSON, North Carolina
SCOTT H. PETERS, California	EARL L. "BUDDY" CARTER, Georgia
DEBBIE DINGELL, Michigan	JEFF DUNCAN, South Carolina
NANETTE DIAZ BARRAGAN, California	GARY J. PALMER, Alabama
A. DONALD McEACHIN, Virginia	JOHN R. CURTIS, Utah
LISA BLUNT ROCHESTER, Delaware	DAN CRENSHAW, Texas
DARREN SOTO, Florida	CATHY McMORRIS RODGERS, Washington
TOM O'HALLERAN, Arizona	<i>(ex officio)</i>
FRANK PALLONE, JR., New Jersey <i>(ex officio)</i>	

C O N T E N T S

	Page
Hon. Bobby L. Rush, a Representative in Congress from the State of Illinois,	
opening statement	3
Prepared statement	4
Hon. Fred Upton, a Representative in Congress from the State of Michigan,	
opening statement	4
Prepared statement	6
Hon. Paul Tonko, a Representative in Congress from the State of New York,	
opening statement	7
Prepared statement	8
Hon. David B. McKinley, a Representative in Congress from the State of	
West Virginia, opening statement	9
Hon. Frank Pallone, Jr., a Representative in Congress from the State of	
New Jersey, opening statement	10
Prepared statement	11
Hon. Cathy McMorris Rodgers, a Representative in Congress from the State	
of Washington, opening statement	12
Prepared statement	14

WITNESSES

Christopher T. Hanson, Chairman, Nuclear Regulatory Commission	15
Prepared statement	17
Answers to submitted questions ¹	
Jeff Baran, Commissioner, Nuclear Regulatory Commission	31
Prepared statement	33
Answers to submitted questions	96
David A. Wright, Commissioner, Nuclear Regulatory Commission	35
Prepared statement	37
Answers to submitted questions	100

¹Mr. Hanson's replies have been retained in committee files and are available at <https://docs.house.gov/Committee/Calendar/ByEvent.aspx?EventID=112900>.

KEEPING US SAFE AND SECURE: OVERSIGHT OF THE NUCLEAR REGULATORY COMMISSION

WEDNESDAY, JULY 14, 2021

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENERGY
JOINT WITH
SUBCOMMITTEE ON ENVIRONMENT AND CLIMATE CHANGE,
COMMITTEE ON ENERGY AND COMMERCE,
Washington, DC.

The subcommittees met, pursuant to call, at 11:30 a.m., in the John D. Dingell Room 2123, Rayburn House Office Building, and remotely via Cisco Webex online video conferencing, Hon. Bobby L. Rush (chairman of the Subcommittee on Energy) presiding.

Members present: Representatives Rush, Tonko (Subcommittee on Energy chairman), DeGette, Schakowsky, Matsui, Castor, Sarbanes, McNerney, Welch, Clarke, Schrader, Ruiz, Peters, Dingell, Veasey, Kuster, Barragán, Blunt Rochester, Soto, O'Halleran, Schrier, Pallone (ex officio), Upton (Subcommittee on Energy ranking member), McKinley (Subcommittee on Environment and the Economy ranking member), Burgess, Latta, Kinzinger, Griffith, Johnson, Bucshon, Mullin, Hudson, Walberg, Carter, Duncan, Palmer, Curtis, Lesko, Pence, Crenshaw, Armstrong, and Rodgers (ex officio).

Also present: Representative Joyce.

Staff present: Jeffrey C. Carroll, Staff Director; Waverly Gordon, General Counsel; Tiffany Guarascio, Deputy Staff Director; Perry Hamilton, Clerk; Zach Kahan, Deputy Director, Outreach and Member Service; Rick Kessler Senior Advisor and Staff Director, Energy and Environment; Mackenzie Kuhl, Digital Assistant; Jourdan Lewis, Policy Coordinator; Tyler O'Connor, Energy Counsel; Lino Peña-Martinez, Policy Analyst; Kaitlin Peel, Digital Director; Tim Robinson, Chief Counsel; Chloe Rodriguez, Clerk; Andrew Souvall, Director of Communications, Outreach, and Member Services; Rebecca Tomilchik, Policy Analyst; Tuley Wright, Senior Energy and Environment Policy Advisor; Sarah Burke, Minority Deputy Staff Director; Michael Cameron, Minority Policy Analyst, Consumer Protection and Commerce, Energy, Environment; Nate Hodson, Minority Staff Director; Peter Kielty, Minority General Counsel; Emily King, Minority Member Services Director; Mary Martin, Minority Chief Counsel, Energy and Environment; and Michael Taggart, Minority Policy Director.

Mr. RUSH. Good morning, all. I am certainly happy to see you all this morning at today's hearing.

There are some preliminary statements that we want to proceed with, but let me, in an official way, call the Subcommittee on Energy and Power and the Subcommittee on the Environment to order, and we will proceed. The joint committee is called to order.

In order to provide our technical and digital staff with notice of the hearing start, I want to count down from five before calling the hearing to order, so let's do it all over again.

Five, four, three, two, and one. The hearing is, once again, called to order.

The Subcommittee on Energy and the Subcommittee on Environment and Climate Change will, for the third time, now come to order, just in case any of you might have missed it earlier.

Today, the subcommittee is holding—subcommittees, rather, are holding a hearing entitled “Keeping Us Safe and Secure: Oversight of the Nuclear Regulatory Commission.”

Due to the COVID-19 public health emergency, Members can participate in today's hearing either in person, or remotely, video online, video conferencing.

Members who are not vaccinated and participating in person must wear a mask and be socially distanced. Such Members may remove their masks when they are under recognition and speaking from a microphone.

Staff and press who are not vaccinated and present in the committee room must wear a mask at all times and be socially distanced.

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

Please note that once you unmute your microphones, anything that is said in Webex will be heard over the loudspeakers in the committee room, and they will be subject to be heard by live stream and by the ever-present and omniscient C-SPAN.

Since Members are participating from different locations in today's hearing, all recognition of Members, such as for questionings, will be in the order of full committee seniority.

Documents for the record can be sent to Lino Peña-Martinez at the conclusion of today's hearing.

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

Today, the Subcommittee on Energy and the Subcommittee on Environment and Climate Change convene for a joint oversight hearing with a focus on maintaining the safety and security of our Nation's nuclear power facilities and nuclear materials.

The committee will gavel—will recess for a moment.

Stand in recess.

[Recess.]

Mr. RUSH. The committee will now resume and reconvene. The committee is now reestablished, and the committee will now be called to order once again.

Let me repeat that our recess was caused by technical difficulties that were experienced by not only the Chair but also various other Members of the subcommittees, and the House Recording Studio has now resolved those issues, so we will proceed again.

The Chair now recognizes himself for 5 minutes, for the remaining 4 minutes, 21—for 5 minutes for purposes of an opening statement.

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

Once again, good morning.

Today, the Subcommittee on Energy and the Subcommittee on Environment and Climate Change convenes for a joint hearing—oversight hearing with a focus on maintaining the safety and security of our Nation’s nuclear power facilities and nuclear materials.

For this important topic, it is indeed a pleasure to have Chairman Christopher Hanson, Commissioner Jeff Baran, and Commissioner David Wright of the NRC before us today.

Chairman Hanson, let me, first of all, take a moment to congratulate you on recently becoming the 18th chairman of the NRC.

Since the NRC’s establishment through the Energy Reorganization Act of 1974, it has functioned at being protection of public health through the licensing and regulation of the civilian use of radioactive material application. Further, it is promoting the protection of the environment and the security of nuclear activities through nuclear waste evaluation and international agreements.

NRC’s continued leadership is essential for these reasons and many, many more. For example, the NRC is a tool in the licensing and regulation of the commercial nuclear power industry, which is a major source of low-carbon electricity. The generation of electricity from carbon-free and low-carbon energy sources, like nuclear energy is critical in the face of the ever-present climate change.

At present, nuclear power is the world’s second-largest source of low-carbon electricity, just behind hydroelectric power. In the United States alone, last year, over 407 million metric tons of carbon dioxide pollution were avoided through nuclear power plants despite the decommissioning and closure of plants like those in my home State of Illinois.

In light of these facts, nuclear power facilities and the low-carbon electricity that they produce are valuable tools as we work to reduce our reliance on fossil fuels, which reduce climate change, reducing greenhouse gas pollution. In addition, the review of developing nuclear technologies, like small modular reactors and advanced reactors, is also equally important.

Taking this all into account, we must make sizable investment in the oversight of nuclear facilities and materials to ensure their safety and security. That is why I am pleased to see the NRC’s fiscal year 2022 budget request, which recommends a budget increase of \$43.4 million above the fiscal year 2021 enacted level.

In addition to this, it is important that the NRC conduct its oversight with deliberate consideration of these—of those populations that have historically borne the brunt of persistent environmental health disparities, which is caused by energy production and other environmental hazards.

In this vein, I applaud the NRC’s leadership for directing staff to review how environmental justice is addressed through the agency’s programs, policies, and activity. Today, I look forward to a progress report on this directive and any related findings.

[The prepared statement of Mr. Rush follows:]

PREPARED STATEMENT OF HON. BOBBY L. RUSH

Good morning. Today, the Subcommittee on Energy and the Subcommittee on Environment and Climate Change convene for a joint oversight hearing with a focus on maintaining the safety and security of our nation's nuclear power facilities and nuclear materials. For this important topic, it is a pleasure to have Chairman Christopher Hanson, Commissioner Jeff Baran, and Commissioner David Wright of the Nuclear Regulatory Commission (NRC) before us today. Chairman Hanson, I would like to take a moment to congratulate you on recently becoming the 18th Chairman of the NRC.

Since the NRC's establishment via the Energy Reorganization Act of 1974, it has fostered the protection of public health through the licensing and regulation of the civilian use of radioactive material applications. Further, it has promoted the protection of the environment and the security of nuclear activities through nuclear waste evaluations and international agreements.

The NRC's continued leadership is essential for these reasons and more. For example, the NRC has a key role in the licensing and regulation of the commercial nuclear power industry, which is a major source of low-carbon electricity. The generation of electricity from carbon-free and low-carbon energy sources, like nuclear energy, is critical in the face of climate change.

At present, nuclear power is the world's second largest source of low-carbon electricity just behind hydroelectric power. In the United States alone, last year, over 470 million metric tons of carbon dioxide pollution were avoided through nuclear power plants—despite the decommissioning and closure of plants, like those in my home state of Illinois.

In light of these facts, nuclear power facilities, and the low-carbon electricity they produce, are valuable tools as we work to reduce our reliance on fossil fuels—which produce climate change inducing greenhouse gas pollution. In addition, the review of developing nuclear technologies, like small modular reactors and advanced reactors, is equally important. Taking this all into account, we must make sizeable investment in the oversight of nuclear facilities and materials to ensure their safety and security. This is why I am pleased to see the NRC's Fiscal Year 2022 budget request, which recommends a budget increase of \$43.4 million above Fiscal Year 2021 enacted levels.

In addition to this, it is important that the NRC conduct its oversight with deliberate consideration for those populations that have historically borne the brunt of persistent environmental health disparities—which have been caused by energy production and other environmental hazards. In this vein, I applaud NRC's leadership for directing staff to review how environmental justice is addressed through the agency's programs, policies, and activities. Today, I look forward to a progress report on this directive and any related findings.

And with that, I yield to my friend and colleague, the Gentleman from Michigan, Ranking Member Upton, for 5 minutes.

Mr. RUSH. And, with that, I yield to my friend and colleague from the great station—great State, rather, of Michigan, our eminent ranking member, Ranking Member Upton, for 5 minutes.

You are now recognized.

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

Mr. UPTON. Well, thank you, my friend, Mr. Chairman.

And this is one of those days where you could—even though this hearing is on Zoom, you could actually be just a few miles south of me in the great county of Berrien County in southwest Michigan, as we are not too far apart.

You know, it has been a couple years since we have heard directly from the Commission, and, for the two of you, Chairman Hanson and Commissioner Wright, this is the first time before the committee as Commissioners, so I want to make sure that we have the welcome mat out for you.

And welcome back, Commissioner Baran. As a former committee staffer, you understand our long interest in effective nuclear policies.

So today's hearing offers the chance to hear how the NRC is rightsizing and adopting the changing industry dynamics and technologies in improving its own performance. The hearing should allow us to discuss your approach to regulating. It should allow us to hear an update on the agency's budget, its work to implement new statutory directives, and its work to transform itself to meet these future challenges.

The NRC's focus on assuring adequate safety of radiological materials serves as a key role in shaping our nuclear future, and its mission to provide reasonable assurance of safety and security is critical for sure to building the public trust in nuclear technologies.

I have seen the good results of the NRC's work. There are three nuclear power reactors in my district, two at D.C. Cook Nuclear Power, just about 10 miles south of where I am right now, and one at the Palisades plant just about 10 miles to the north.

All of the men and women at these sites—the engineers, electricians, professional security workforce—help provide clean electricity for thousands—tens of thousands of Michigan's households. Their dedication to their work and the positive impacts on the surrounding communities is commendable for sure. And they have shown the community value of nuclear power and demonstrated safe, productive operations.

When you consider the amazing benefits of clean, reliable nuclear power, when you think about the quality of work, the pride in the communities that nuclear produces, it is disheartening to watch what is happening to the Nation's operating fleet. Yes, there are now only 93 reactors, down from 104 a decade ago, with several more to close soon, including the Palisades just to my north.

The electricity market structure, renewable tax subsidies, abundant natural gas, reliable stable energy demand produced unprecedented economic impacts on nuclear power generation. The negative effects of this are happening and even impacting the NRC, just as a new class of advanced reactors is emerging on the horizon.

So these are challenging times, and the NRC has got to meet them.

Shortly before our last hearing with the Commission, the NRC's executive director of operations initiated a transformational effort building on other recent reforms that have led to ongoing work to improve its performance. And by the end of 2018, the Nuclear Energy Innovation and Modernization Act also was enacted into law, which required the NRC fee reforms and a steady push for the development of a new advanced reactor regulatory framework.

I would like to know how these efforts are playing out, and what do you think the end result ought to look like? Now, what we want is a nimble agency that ensures its procedures don't become impediments to a robust industry and our energy and national security interests.

During my time as full committee chair, we dealt with some contentious NRC regulatory issues and would focus on NRC's principles of good regulation to guide our oversight. These principles remain as clear a guide as ever for what ought to be expected of the

agency as it develops policies to assure safety. And I would remind you that these were bipartisan.

We can talk about what these mean during the hearing, but I think it is crucial that the agency, under your leadership, focuses on these principles as you update management and regulatory activities that is going to benefit all taxpayers, ratepayers, licensees, and the public.

I look forward to the discussion, and I yield back.

[The prepared statement of Mr. Upton follows:]

PREPARED STATEMENT OF HON. FRED UPTON

It has been a few years since we've heard directly from the Commission.

For two of you—Chairman Hanson and Commissioner Wright—this is the first time before the Committee as Commissioners, so welcome. And welcome back Commissioner Baran. As a former Committee staffer, you understand our long interest in effective nuclear policies.

Today's hearing offers the chance to hear how the NRC is right-sizing and adapting to changing industry dynamics and technologies and improving its own performance. This hearing should allow us to discuss your approach to regulating. It should allow us to hear an update on the agency's budget, its work to implement new statutory directives, and its work to transform itself to meet future challenges.

The Nuclear Regulatory Commission's focus on assuring adequate safety of radiological materials serves a key role in shaping our nuclear future. Its mission to provide reasonable assurance of safety and security is critical to building the public trust in nuclear technologies.

I've seen the good results of NRC's work. There are three nuclear power reactors in my district, two at the D.C. Cook Nuclear Power Plant, just south of my home town of St. Joseph and one at the Palisades Nuclear Plant, just to the north. All the men and women at these sites, the engineers, electricians, and the professional security workforce, help provide clean electricity for thousands of Michigan households. Their dedication to their work and the positive impacts on the surrounding communities is commendable.

They have shown the community value of nuclear power—and demonstrated safe, productive operations. When you consider the amazing benefits of clean, reliable nuclear power. When you think about the quality of work, the pride in communities that nuclear produces, it is disheartening to watch what is happening to the nation's operating fleet.

There are now 93 operating reactors, down from 104 a decade ago, with several more to close soon, including Palisades. Electricity market structures, renewable tax subsidies, abundant natural gas, and relatively stable energy demand produced unprecedented economic impacts on nuclear power generation.

The negative effects of this are happening—and even impacting NRC—just as a new class of advanced reactors is emerging on the horizon. These are challenging times. And NRC has to meet them.

Shortly before our last hearing with the Commission, the NRC's Executive Director of Operations initiated a "transformation" effort building on other recent reforms that has led to ongoing work to improve its performance. By the end of 2018, the Nuclear Energy Innovation and Modernization Act also was enacted into law, which required NRC fee reforms and a steady push for the development of a new advanced reactor regulatory framework.

I'd like to know how these efforts are playing out—and what you think the end result should look like. What we want is a nimble agency that ensures its procedures do not become impediments to a robust industry, and our energy and national security interests.

During my time as Full Committee Chairman, we dealt with some contentious NRC regulatory issues and would focus on NRC's Principles of Good Regulation to guide our oversight. Those principles remain as clear a guide as ever for what should be expected of the agency as it develops policies to assure safety.

We can talk about what these mean during the hearing, but I think it is crucial the agency, under your leadership, focus on these principles as you update management and regulatory activities. This will benefit taxpayers, rate-payers, licensees and the public. I look forward to the discussion. Yield back.

Mr. RUSH. The gentleman yields back.

And the Chair now recognizes Mr. Tonko, the chairman of the Subcommittee on Environment and Climate Change, for 5 minutes for the purposes of an opening statement.

Mr. TONKO. Thank you, Mr. Chair. Am I audible? Can you hear me, Bobby?

Mr. RUSH. No, I can't.

Yes, I hear you now.

OPENING STATEMENT OF HON. PAUL TONKO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Mr. TONKO. OK. Thank you. Thank you, Chairman Rush, for leading today's hearing. It is a pleasure to cohost with you. And welcome to Chairman Hanson and Commissioner Wright, and a special welcome back to Commissioner Baran. We always appreciate your taking time from your important work to update the committee on the NRC's budget request and issues that come before the Commission.

I will start by echoing Chairman Rush's comments about the importance of nuclear power, which accounts for one half of our carbon-free electricity. Nuclear is an important clean part of our energy mix, but as we know, many facilities face economic challenges. Several have closed prematurely in recent years, and several more are planned to close in the 2020s.

We also know the reality that some portion of these plants' power will not be replaced with carbon-free electricity. And, even if it were to be, new clean megawatt hours brought online will backfill those lost clean electrons rather than increasing our overall supply of zero-emissions resources.

So, for the sake of our urgent climate needs, it is, indeed, critical that existing reactors continue to operate through the end of their licenses. I support several potential Federal policies that would enable that to happen by recognizing the positive environmental attributes of nuclear energy.

I also think that the Federal Government can help realize new potential revenue streams for these facilities, such as the production of clean hydrogen, through proper incentives, such as demonstration projects and loan guarantees. But of course, first and foremost, these reactors must continue to operate safely.

In May, I was able to visit the Beaver Valley Power Station in Pennsylvania. I met with the facility's management, the security officials, and IBEW workforce. I was also fortunate enough to be able to spend time with the site's two NRC resident inspectors.

It was clear that the NRC staff are dedicated public servants that care about safety, not only because they are consummate professionals but because they and their families live in the very communities that these facilities operate.

Now, I have the utmost respect for the work of the NRC staff, and I want to ensure the Commission has the resources necessary to keep these onsite inspectors in place. Over the past 16 months, we have learned a lot about the nature of work and how much can be done remotely, including even congressional business. But safety and security inspectors—inspections at nuclear facilities cannot be conducted over Zooms.

So I do hope that NRC inspectors are able to get back to work safely and that the Commission does not pursue actions that would reduce inspections or seek to substitute remote monitoring for in-person inspections and security tests. And, while safe operations are the top priority, I know Members are interested in learning about other proceedings before the Commission, including advanced reactors, environmental justice, and decommissioning.

We also know the Commission, along with DOE and Congress, has a role to play in addressing our Nation's waste challenges. A long-term solution for existing spent fuel, not to mention potential waste from new advanced reactors, will certainly be critical to the long-term viability of nuclear power in this country.

I want to thank the Commissioners again for joining us today and for their commitment to nuclear energy. I look forward to hearing your testimony about issues before the Commission, and I do hope that we can work together to ensure safe and secure nuclear energy continues to play a role in our Nation's effort to reduce air pollution and achieve science-based climate targets.

With that, I thank you, Chair Rush, and I yield back.

[The prepared statement of Mr. Tonko follows:]

PREPARED STATEMENT OF HON. PAUL TONKO

Thank you, Chairman Rush for leading today's hearing.

And welcome to Chairman Hanson and Commissioner Wright, and a special welcome back to Commissioner Baran.

We always appreciate you taking time from your important work to update the Committee on the NRC's budget request and issues before the Commission.

I'll start by echoing Chairman Rush's comments about the importance of nuclear power, which accounts for half of our carbon-free electricity.

Nuclear is an important, clean part of our energy mix.

But we know many facilities face economic challenges, several have closed prematurely in recent years, and several more are planned to close in the 2020s.

We also know the reality that some portion of these plants' power will not be replaced with carbon-free electricity.

And even if it were to be, new clean megawatt-hours brought online will backfill those lost clean electrons rather than increasing our overall supply of zero-emissions resources.

So, for the sake of our urgent climate needs, it is critical that existing reactors continue to operate through the end of their licenses.

I support several potential federal policies that would enable that to happen by recognizing the positive environmental attributes of nuclear energy.

I also think the federal government can help realize new potential revenue streams for these facilities, such as the production of clean hydrogen, through proper incentives, such as demonstration projects and loan guarantees.

But of course, first and foremost, these reactors must continue to operate safely.

In May, I was able to visit the Beaver Valley Power Station in Pennsylvania. I met with the facility's management, security officials, and IBEW workforce. I was also fortunate enough to be able to spend time with the site's two NRC resident inspectors.

It was clear that the NRC staff are dedicated public servants that care about safety not only because they are consummate professionals, but because they and their families live in the communities that these facilities operate.

I have the utmost respect for the work of the NRC staff, and I want to ensure the Commission has the resources necessary to keep these on-site inspectors in place.

Over the past 16 months, we have learned a lot about the nature of work and how much can be done remotely, including even Congressional business.

But safety and security inspections at nuclear facilities cannot be conducted over Zooms.

So, I hope NRC inspectors are able to get back to work safely, and the Commission does not pursue actions that would reduce inspections or seek to substitute remote monitoring for inperson inspections and security tests.

And while safe operations are the top priority, I know Members are interested in hearing about other proceedings before the Commission, including for advanced reactors, environmental justice, and decommissioning.

We also know the Commission, along with DOE and Congress, has a role to play in addressing our nation's waste challenges.

A long-term solution for existing spent fuel—not to mention potential waste from new advanced reactors—will certainly be critical to the long-term viability of nuclear power in this country.

I want to thank the Commissioners again for joining us today.

I look forward to hearing your testimony about issues before the Commission, and I hope that we can work together to ensure safe and secure nuclear energy continues to play a role in our nation's efforts to reduce air pollution and achieve science-based climate targets.

Thank you, Chairman Rush. I yield back.

Mr. RUSH. The chairman on the—of the Environment—on Environment and Climate Change, my friend from West Virginia, Mr. McKinley, for 5 minutes.

OPENING STATEMENT OF HON. DAVID B. MCKINLEY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WEST VIRGINIA

Mr. MCKINLEY. Thank you. Thank you, Mr. Chairman.

Look, there is a fundamental question that I think we need to address, and that is: Is Congress trying to address climate change that can be achieved by reducing carbon emissions, or is it using this debate as an opportunity to eliminate nuclear and fossil fuels? So, if the left wants to address climate change, then we should be embracing nuclear power and carbon capture.

But, on nuclear power, Sanders—Bernie Sanders has said it is a false solution. In 2019, Elizabeth Warren said she hopes to phase out nuclear power by 2035—phase it out. The Sierra Club says it is unequivocally opposed to nuclear energy. Greenpeace calls nuclear power dirty, dangerous, and expensive. And, last month, Biden's hand-picked Environmental Justice Council concluded in its report that it is unalterably opposed to nuclear energy.

So I know people will say one thing, but I want to make sure Congress is doing the right thing. It is clear to me that the left in Congress want to eliminate nuclear power and replace it with wind and solar, but what are the consequences of that, of transitioning to 100 percent by 2030 or 2035?

Let me do the math for you. To replace a typical 1,000 megawatt nuclear power plant with wind turbines and battery backup, we would require 1,430 windmills—wind turbines would need to be installed, and that, according to the National Renewable Energy Laboratory, which says that windmills require two-tenths of a square mile of land on average across the country, so do the math. That is the equivalent of 286 square miles—286 square miles, roughly the size of the land mass in New York City. And also, for Frank Pallone, that is still larger—almost 50 percent larger than his entire congressional district.

And this is just for one of 94 existing nuclear power plants, let alone adding in the fossil fuel power plants that would have to be replaced with land mass. According to this much land, to acquire that by 2030 or 2035, we are—Congress or the utilities and the States would have to have—use eminent domain. And then that would cause extensive litigation.

So the idea of trying to achieve it by 2035 is simply not feasible. And, on top of the land mass grab, if the U.S. did transition to 100 percent renewables by 2030, 2035, it is—we have already had testimony, Mr. Chairman, of course utility bills are going to go up. Thousands of jobs would disappear. The global CO₂ levels would still be a dangerous level—above 350 parts per million, according to John Kerry—and America would still experience extreme weather events, like hurricanes on the East Coast, wildfires, droughts, and flooding.

So—but, if the objective is to reduce carbon emissions, we should be promoting nuclear energy and investing in carbon capture. But in order to have a serious conversation about that, about climate change, the left needs to be honest with the American people about the true motive. Are we trying to reduce carbon emissions, or are we trying to eliminate nuclear and fossil fuels?

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

Mr. RUSH. The gentleman yields back.

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

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

Mr. PALLONE. Thank you, Chairman Rush.

Today, the committee continues its longstanding tradition of conducting oversight of the Nuclear Regulatory Commission, and I want to welcome new NRC Chairman Christopher Hanson, Commissioner Jeff Baran, and former Energy and Commerce staffer and Commissioner David Wright. Thank you for joining us today.

Nuclear power has a role to play in our efforts to tackle the climate crisis. Last year, the power sector accounted for nearly a third of total U.S. carbon dioxide emissions. Studies show that, to achieve 100 percent decarbonization affordably, we need reliable, carbon-free resources that can sustain output for long periods of time.

Now, my home State of New Jersey has three operational nuclear power reactors at the Salem and Hope Creek plants in the southern part of our State. The State is also home to the Oyster Creek Nuclear Plant, which ceased operations in 2018, and is now in the decommissioning process. NRC's oversight of operating reactors and those in the decommissioning process is critical to the health and safety of those in surrounding communities.

One issue that is important to my State and many others that are home to these shuttered nuclear power plants is NRC's proposed decommissioning rulemaking. As more nuclear plants retire, the decommissioning process must work for all stakeholders. And this role has been in the works since 2018, but I remain seriously concerned with several aspects of it.

I believe the rule provides an insufficient role for local communities to participate in the decommissioning process. Further, the lack of official NRC approval or disapproval of a plant's decommissioning plan is both puzzling and disturbing.

I also have concerns with proposed changes of the Commission's Reactor Oversight Process, the program that oversees safety and

security of our Nation's nuclear power plants. I am particularly troubled by proposals that would arbitrarily reduce core safety inspections and reduce the importance of public reporting of so-called white findings, which are safety or security issues of moderate significance.

Effecting fewer safety inspections at nuclear plants, even at the plants with the best safety records, could lead to safety and security gaps that are ultimately missed by nuclear regulators. And multiple white findings at a plant can also point to larger systematic safety or security issues, and therefore we should not underestimate the importance of analyzing these factors.

The nuclear industry frequently touts its safety successes over the past decades, but that success is partly due to the efforts of Federal regulators to stay on top of inspections and safety protocols at plants across the country. Making nuclear power more cost competitive by weakening NRC's safety oversight, I think, is dangerous and ultimately self-defeating.

Now, lastly, NRC announced it would begin to review how the Commission's programs and policies address environmental justice. Underserved communities and communities of color have disproportionately faced the negative effects of energy generation and climate change, and I welcome the NRC's environmental justice review, and I hope it leads to greater consideration and inclusion of the views of these marginalized communities.

We must also find a solution to address our Nation's need to safely store and dispose of spent nuclear fuel. Last year, President Trump drove a stake through the heart of the Yucca Mountain project when he reversed his support for the project and eliminated its funding. Now, I continue to believe interim storage is the best near-term solution to stop the waste stalemate and maintain our commitment to communities and ratepayers.

The NRC is critical to ensuring the safe and reliable robust nuclear energy sector. I look forward to your testimony today as we discuss the path forward, and I yield back the balance of my time, Mr. Chairman.

Thank you.

[The prepared statement of Mr. Pallone follows:]

PREPARED STATEMENT OF HON. FRANK PALLONE, JR.

Today the Committee continues its longstanding tradition of conducting oversight of the Nuclear Regulatory Commission (NRC). I want to welcome new NRC Chairman Christopher Hanson, Commissioner Jeff Baran—a former Energy and Commerce staffer—and Commissioner David Wright. Thank you for joining us today.

Nuclear power has a role to play in our efforts to tackle the climate crisis. Last year, the power sector accounted for nearly a third of total U.S. carbon dioxide emissions. Studies show that to achieve 100 percent decarbonization affordably, we need reliable carbon-free resources that can sustain output for long periods of time.

My home state of New Jersey has three operational nuclear power reactors at the Salem and Hope Creek plants in the southern part of the state. The state is also home to the Oyster Creek nuclear plant, which ceased operations in 2018 and is now in the decommissioning process. NRC's oversight of operating reactors—and those in the decommissioning process—is critical to the health and safety of those in surrounding communities.

One issue that is important to my state and many others that are home to shuttered nuclear power plants is NRC's proposed "Decommissioning Rulemaking." As more nuclear plants retire, the decommissioning process must work for all stakeholders. This rule has been in the works since 2018, but I remain seriously con-

cerned with several aspects of it. I believe the rule provides an insufficient role for local communities to participate in the decommissioning process. Further, the lack of official NRC approval or disapproval of a plant's decommissioning plan is both puzzling and disturbing.

I also have concerns with proposed changes to the Commission's Reactor Oversight Process, the program that oversees safety and security at our nation's nuclear power plants. I am particularly troubled by proposals that would arbitrarily reduce core safety inspections and reduce the importance and public reporting of so-called "white" findings, which are safety or security issues of moderate significance. Conducting fewer safety inspections at nuclear plants—even at the plants with the best safety records—could lead to safety and security gaps that are ultimately missed by nuclear regulators. And multiple white findings at a plant can often point to larger, systemic safety or security issues, and therefore we should not underestimate the importance of analyzing these factors.

The nuclear industry frequently touts its safety successes over the past decades, but that success is partly due to the efforts of federal regulators to stay on top of inspections and safety protocols at plants across the country. Making nuclear power more cost competitive by weakening NRC's safety oversight is dangerous and, ultimately, self-defeating.

Last week, NRC announced it would begin to review how the Commission's programs and policies address environmental justice. Underserved communities and communities of color have disproportionately faced the negative effects of energy generation and climate change. I welcome the NRC environmental justice review and hope it leads to greater consideration and inclusion of the views of these marginalized communities.

We must also find a solution to address our nation's need to safely store and dispose of spent nuclear fuel. Last year, President Trump drove a stake through the heart of the Yucca Mountain project when he reversed his support for the project and eliminated its funding. I continue to believe interim storage is the best near-term solution to stop the nuclear waste stalemate and maintain our commitment to communities and ratepayers.

The NRC is critical to ensuring a safe and reliable U.S. nuclear energy sector. I look forward to your testimony today as we discuss the path forward, and I yield back the balance of my time.

Mr. RUSH. Thank you. The chairman yields back.

The Chair now recognizes the ranking member of the full committee, Mrs. McMorris Rodgers, for 5 minutes for the purposes of an opening statement.

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

Mrs. RODGERS. Good morning.

From clean, reliable power generation to industrial uses, to medical diagnostics and treatment, nuclear technologies are helping America win the future. These benefits extend worldwide, thanks to long-established American leadership.

Sixty-seven years ago, Congress enacted the essential policies that continue to guide safe nuclear development for here at home and that we export abroad. The Atomic Energy Act sought to encourage the widespread use of atomic energy for peaceful purposes, consistent with ensuring our common defense and our public health and safety.

With that policy, we led the world for decades in the development of civilian nuclear technologies. It also set the standard for safety and security that continues to this day. The world we are confronting today, however, presents new challenges to our technological leadership.

For nuclear power generation, there are international challenges, notably from China and other nation states that are working to

dominate emerging nuclear markets. There are domestic economic challenges. Certain Federal and State policies undermine the economic vitality of nuclear reactors in some regions, even if they are necessary to provide reliable, clean, zero-emission power.

This, in turn, threatens long-term American nuclear competitiveness and strategic interests. It risks loss of our nuclear industrial base, future innovation, and workers with operational know-how, not to mention the harmful consequences in communities when nuclear plants shut down.

To be sure, these nuclear policy issues hover outside the purview—some of these energy policies hover outside the purview of the Nuclear Regulatory Commission’s mission as an independent safety regulator.

In keeping the Atomic Energy Act goals, the agencies should operate in ways that do not add to the challenges. As the NRC chairman, Chris Hanson himself, noted in March in a speech that he gave, quote, “The NRC must do its best not to be an impediment to innovation and deployment.” I agree with that.

A key question for this hearing concerns how this agency plans to unleash innovation going forward. Will it update its regulations to account for the best available data and operational experience? Will it establish predictable, clear regulations appropriate to the risk of the technologies it licenses? To address future climate risk, to strengthen our global competitiveness and security, beat China, and win the future of nuclear, there is an urgent need to deploy innovative new technologies.

There is a lot to be excited about. The Pacific Northwest alone hosts a number of advanced nuclear companies working toward demonstrating and licensing. NRC’s actions in the next few years will be critical for these companies. Oregon-based NuScale Power’s small nuclear reactor, the modular reactor, has just reached the last step to finalize NRC’s design certification. TerraPower’s Sodium and X-energy’s Xe-100, both are collaborating with Energy Northwest to develop projects for demonstration.

The safety attributes of these small nuclear technologies promise a range of new deployment opportunities. X-energy also is seeking to certify TRISO fuels, which promise additional safety benefits.

To fully capture these economic, innovative, and climate benefits, the NRC must be prepared to renew, license, and regulate these technologies in a timely and efficient manner. Fortunately, the NRC has been working toward this goal, and it possesses a wealth of information for smart regulations that meet the safety mission appropriately.

Former Commissioner Annie Caputo noted recently that the nuclear industry has more than 4,500 combined years of operational experience with generating nuclear power. Because of the lessons of this experience, the U.S. nuclear fleet is operating at the highest levels of performance and safety in its history.

In 2019 and 2020, the industry produced record levels of power with fewer operating plants. Performance like this is achieved through safe operations, and this experience should continue to inform NRC as it seeks to improve how it performs its mission.

I look forward to this discussion today. And, with that, I yield back the balance of my time.

Thank you, everyone.
[The prepared statement of Mrs. Rodgers follows:]

PREPARED STATEMENT OF HON. CATHY MCMORRIS RODGERS

From clean, reliable power generation to industrial uses to medical diagnostics and treatment, nuclear technologies are helping America win the future.

These benefits extend world-wide, thanks to long established American leadership. Sixty-seven years ago, Congress enacted the essential policies that continue to guide safe nuclear development for here at home and that we export abroad.

The Atomic Energy Act sought to encourage the widespread use of atomic energy for peaceful purposes, consistent with ensuring our common defense and public health and safety. With that policy, we led the world for several decades in development of civilian nuclear technologies. It also set the standard for safety and security that continues to this day.

The world we are confronting today, however, presents new challenges to our technological leadership. For nuclear power generation there are international challenges; notably from China and other nation-states that are working to dominate emerging nuclear markets.

There are domestic economic challenges. Certain federal and state policies undermine the economic vitality of nuclear reactors in some regions-even if they are necessary to provide reliable, clean, zero-emission power.

This in turn threatens long-term American nuclear competitiveness and strategic interests. It risks loss of our nuclear industrial base, future innovation, and workers with operational know-how, not to mention harmful consequences in communities when nuclear plants shut down.

To be sure, these energy policy issues hover outside the purview of the Nuclear Regulatory Commission's mission as an independent safety regulator. In keeping with Atomic Energy Act goals, the agency should operate in ways that do not add to the challenges.

As NRC Chairman Chris Hanson himself noted in a March speech: "The NRC must do its best not to be an impediment to innovation and deployment." I agree with that. A key question for this hearing concerns how this agency plans to unleash innovation going forward.

Will it update its regulations to account for the best available data and operational experience? Will it establish predictable, clear regulations appropriate to the risks of the technologies it licenses?

To address future climate risks, to strengthen our global competitiveness and security, beat China, and win the future of nuclear, there is urgent need to deploy innovative new technologies.

There is a lot to be excited about. The Pacific Northwest alone hosts a number of advanced nuclear companies working towards demonstrating and licensing. NRC actions in the next few years will be critical for these companies.

Oregon-based NuScale Power's small modular reactor has just reached the last step to finalize NRC's design certification.

TerraPower's Sodium and X-Energy's Xe-100 both are collaborating with Energy Northwest to develop projects for demonstration.

The safety attributes of these small modular technologies promise a range of new deployment opportunities. X-Energy also is seeking to certify advanced TRISO [TRY-so] fuels, which promise additional safety benefits.

To fully capture these economic, innovation, and climate benefits, the NRC must be prepared to review, license, and regulate these technologies in a timely and efficient manner. Fortunately, the NRC has been working towards this goal. And it possesses a wealth of information for smart regulations that meet the safety mission appropriately.

Former Commissioner Annie Caputo noted recently that the nuclear industry has more than 4,500 combined years of operational experience with generating nuclear power. Because of the lessons of this experience, the U.S nuclear fleet is operating at the highest levels of performance and safety in its history.

In 2019 and 2020 the industry produced record levels of power, with fewer operating plants. Performance like this is achieved through safe operations. And this experience should continue to inform NRC as it seeks to improve how it performs its mission. I look forward to discussing that today.

Mr. RUSH. The ranking member for the full committee yields back.

It is now the time for our witnesses' testimony, their statements, and I would like to, once again, welcome our witnesses for today's hearing.

Our witnesses are the Honorable Christopher T. Hanson, the Chairman of the NRC; the Honorable Jeff Baran, Commissioner of the NRC; the Honorable David A. Wright, Commissioner of the NRC. I want to thank each and every one of you for joining us today. We look forward to your testimony.

Chairman Hanson, you are now recognized for 5 minutes for the purposes of an opening statement.

**STATEMENTS OF CHRISTOPHER T. HANSON, CHAIRMAN, AND
JEFF BARAN AND DAVID A. WRIGHT, COMMISSIONERS, NU-
CLEAR REGULATORY COMMISSION**

STATEMENT OF CHRISTOPHER T. HANSON

Mr. HANSON. Chairman Rush, thank you very, very much for that introduction. And Chairman Pallone and Chairman Tonko, Ranking Members McMorris Rodgers, Upton, and McKinley, and distinguished members of the subcommittees, Commissioner Baran, Commissioner Wright, and I appreciate the opportunity to update you on the U.S. Nuclear Regulatory Commission's licensing and oversight activities, as well as the fiscal year 2022 budget request.

The NRC is an independent Federal agency established to protect the public health and safety through the regulation of commercial nuclear power plants; research, test, and training reactors; nuclear fuel cycle facilities; and civilian use of nuclear materials.

Additionally, the agency regulates transportation, storage, disposal, and export and import of nuclear materials and waste, and the export and import of nuclear reactors and production facilities, and the export of nuclear facility components.

The past year has been one of change and innovation for the agency. In response to the Department of Health and Human Services declaration of the COVID-19 public health emergency, the NRC took several steps to protect the safety of our workforce, while continuing to perform our important safety and security mission. To ensure that the agency could remain agile and responsive in its regulatory oversight role during the pandemic, the NRC implemented a number of interim processes and procedures.

In addition, the agency was able to remain committed to public service and engagement, despite limitations of in-person meetings due to the public health emergency. Most of our public meetings held over the last 15 months have taken full advantage of communications technology, and effectively reached broad audiences.

In short, while the public health emergency posed some challenges, the NRC has remained committed to its regulatory oversight role and steadfast at adhering to its mission.

In March, the NRC issued annual performance letters to the operators of the Nation's 93 operating commercial nuclear reactors. Eighty-nine reactors reached the highest performance category and fully met our safety and security performance objectives. Only four reactors were in the second and third performance categories, needing additional inspection and oversight. There were no reactors in the fourth performance category, and all continue to operate safely.

Since December 2019, the NRC renewed reactor licenses for three nuclear power plants for a period of—from 60 to 80 years, and is currently reviewing two more applications for subsequent license renewal while performing acceptance review of another.

The staff is also preparing for completion of construction and anticipated transition to operations of the two Vogtle reactor units in Georgia, subject to the agency's regulatory approval process. Inspections are proceeding in accordance with the licensees' continued work at the site.

Further, the agency is hard at work developing the new 10 CFR Part 53, which will define a technology-inclusive, performance-based requirements for advanced nuclear reactors. We anticipate publication of the final rule in October 2024, well ahead of the schedule required by the Nuclear Innovation and Modernization Act.

Working closely with our international counterparts, the NRC regularly engages in a wide range of bilateral and multilateral activities that enhance the safety and security of nuclear activities worldwide. With all this work going on at the agency, we understand the importance of having a highly skilled and committed workforce, with the expertise needed to carry out its duties now and in the future.

To this end, the agency is engaging in strategic workforce planning for the future, and prioritizing an open, inclusive, and collaborative work environment where members of our workforce feel comfortable raising questions or concerns without fear of reprisal or retaliation.

Finally, the NRC's fiscal year 2022 budget request is \$887.7 million, including 2,879 full-time equivalent employees. When compared to the fiscal year 2021 enacted budget and authorized carry-over, this represents an increase of 24.4 million, primarily to support salaries, benefits, and awards adjustments. The budget request reflects the funds needed for important future and ongoing work at the agency. For example, it includes 23 million for the continued development of the regulatory infrastructure for advanced reactor technologies.

In closing, the NRC remains deeply committed to protecting public health and safety and the environment, as well as ensuring the long-term safety and security of nuclear power facilities and nuclear materials. We are closely monitoring the changing environment, tackling new challenges, and taking new approaches to address the issues that confront us.

Chairman Pallone, Chairman Rush, and Chairman Tonko, Ranking Members McMorris Rodgers, Upton, and McKinley, and distinguished members of the subcommittees, I thank you for the opportunity to appear before you today, and we look forward to taking any questions that you might have.

[The prepared statement of Mr. Hanson follows:]

WRITTEN STATEMENT
BY CHRISTOPHER T. HANSON, CHAIRMAN
UNITED STATES NUCLEAR REGULATORY COMMISSION
TO THE
ENERGY AND COMMERCE COMMITTEE
SUBCOMMITTEE ON ENERGY AND
SUBCOMMITTEE ON ENVIRONMENT AND CLIMATE CHANGE
JULY 14, 2021

Chairman Rush and Chairman Tonko, Ranking Members Upton and McKinley, and distinguished members of the subcommittees. My colleagues and I appreciate the opportunity to update you on the U.S. Nuclear Regulatory Commission's (NRC) licensing and oversight activities, as well as the Fiscal Year (FY) 2022 budget request.

The NRC is an independent Federal agency established to regulate commercial nuclear power plants; research, test, and training reactors; nuclear fuel cycle facilities; and civilian use of nuclear materials. Additionally, the agency regulates the transportation, storage, disposal, export and import of nuclear materials and waste; the export and import of nuclear reactors and production facilities; and the export of nuclear facility components. The NRC also works with agencies around the world to enhance nuclear safety and security.

The NRC's FY 2022 budget request is \$887.7 million, including 2,879 full-time equivalents (FTE). When compared to the FY 2021 enacted budget and authorized carryover, this represents an increase of \$24.4 million, primarily to support salaries and awards adjustments.

Before I discuss the specifics of the NRC's FY 2022 budget request, please allow me to briefly address the NRC's response to the COVID-19 public health emergency.

NRC'S RESPONSE TO THE COVID-19 PUBLIC HEALTH EMERGENCY

In response to the Department of Health and Human Services' declaration of the COVID-19 public health emergency, the NRC took a number of actions to protect the safety of our workforce while continuing to perform our important safety and security mission. Our buildings remained open, although most staff performed their duties from home while remaining fully engaged. We stood up a COVID-19 Task Force—a dedicated team of employees focused on tracking and responding to COVID-19 issues pertinent to the NRC and its workforce.

Approximately 95 percent of our staff was able to telework successfully, and most remain in that status today. This success was due in part to actions the agency had taken earlier to provide laptops and train staff on technology for effective work in a virtual environment. The agency also expanded its bandwidth to accommodate the increase in virtual connections, which was made possible by a supplemental appropriation under the CARES Act.

Special attention was given to our inspection staff to protect both their own health and that of the licensees while continuing to carry out their important duties. Resident inspectors at nuclear power plants and Category I fuel cycle facilities employed a risk-informed strategy to provide oversight of these facilities through a routine, onsite presence supplemented by telework flexibilities, as appropriate, to remotely monitor plant data systems, meetings, and other information. Licensees worked with us to provide new mobile technology, which enabled NRC inspectors to remotely monitor plant data systems, attend meetings, and access other information during the public health emergency.

In keeping with our commitment to transparency, the NRC communicated regularly with Congress, the public, industry, and licensees on conditions at sites, plant activities, and plans, including staffing and work outages. In response to the public health emergency, the NRC instituted an expedited exemption process to enable licensees to request relief from certain NRC regulations, such as work-hour limits, subject to thorough NRC review to ensure that reasonable assurance of public health and safety was maintained. The NRC also issued several Enforcement Guidance Memoranda to provide guidance to inspection staff in exercising enforcement discretion for specific cases of noncompliance that may have occurred as a result of the public health emergency. Additionally, force-on-force (FOF) activities were briefly put on hold, but resumed in July 2020 after staff developed a new inspection procedure to provide for limited scope tactical drill exercise inspections that allowed for key elements of nuclear power plant physical protection strategies to be tested in a manner that mitigated the risk of COVID-19 transmission.

While some public meetings were postponed due to the public health emergency, the majority of our public meetings held over the last 15 months have taken full advantage of communications technology to effectively reach broad audiences.

NRC'S CURRENT REGULATORY ACTIVITIES

I would also like to take this opportunity to update the Committee on the NRC's ongoing regulatory activities.

Operating Reactors

In March, the NRC issued annual performance letters to the operators of the nation's 94 operating commercial nuclear reactors. Eighty-nine reactors reached the highest performance category and fully met our safety and security performance objectives. Four reactors were in the second performance category, needing to resolve items of low safety significance. For these four plants, regulatory oversight includes additional inspection and follow-up of corrective actions. One reactor was in the third performance category with a degraded, but still acceptably safe, level of performance. For this plant, regulatory oversight includes increased NRC inspections, senior management attention, and oversight focused on the causes of the degraded performance. There were no reactors in the fourth performance category. The NRC hosted virtual public meetings and will continue to host public meetings near each plant to discuss the details of the annual assessment results.

Additionally, since December of 2019, the NRC renewed reactor licenses for three nuclear power plants for a period from 60 to 80 years: Turkey Point Nuclear Generating Units 3 and 4 in Florida; Peach Bottom Atomic Power Station, Units 2 and 3 in Pennsylvania; and most recently, Surry Power Station, Units 1 and 2 in Virginia. The NRC is currently reviewing two applications for subsequent license renewal for Point Beach Nuclear Plant, Units 1 and 2 in Wisconsin and North Anna Power Station, Units 1 and 2 in Virginia, and is currently performing an acceptance review of the application for Oconee Nuclear Station, Units 1, 2, and 3 in South Carolina.

New Reactors

The staff is actively preparing for the completion of construction and anticipated transition to operation of the Vogtle reactor units in Georgia, and inspections are proceeding in accordance with the licensee's continued work at the site.

Interest in small modular reactors (SMRs) and advanced (non-light-water) reactors has continued to grow, and we are committed to developing a regulatory infrastructure to review these new technologies. The new 10 CFR Part 53 will define technology-inclusive, performance-based requirements for advanced nuclear reactors. The performance-based requirements will support a risk-informed approach that will acknowledge features designed to prevent adverse consequences. We anticipate publication of the final rule in October 2024, well ahead of the schedule required by the Nuclear Energy Innovation and Modernization Act (NEIMA).

Environmental Justice

In addition, the NRC is committed to engaging with a broad range of stakeholders on environmental justice. On April 23, 2021, the Commission directed the NRC staff to systematically review how environmental justice is addressed in the NRC's programs, policies, and activities, and as part of that review, consider the adequacy of the 2004 Policy Statement on the Treatment of Environmental Justice in Regulatory and Licensing Actions. The first public meetings for this effort are scheduled to take place July 15, 2021.

International Activities

The NRC is engaged in a wide range of bilateral and multilateral activities that enhance the safety and security of nuclear activities worldwide. We have bilateral agreements with over 45 regulatory counterparts, including almost every country with a power reactor program. These agreements facilitate technical exchanges, regulatory information sharing, personnel exchanges, and regulatory assistance. The NRC's regulatory approach has long been considered a model for countries operating or considering a nuclear program, and both new and

established regulators routinely seek the NRC's assistance and cooperation. As activities associated with SMRs and advanced reactors continue to increase, the NRC is maintaining an open dialogue with all interested stakeholders, including reactor designers, operators, financiers, and our international regulatory counterparts.

Transformation and Innovation

The NRC has continued its efforts to become a more modern, risk-informed regulator by embracing the use of new technology and diverse ideas in a changing regulatory environment. Advances in innovation include the launch of IdeaScale, which is the NRC's new idea-generating platform to share successful innovations and crowdsource solutions for streamlining and improving our business and regulatory processes. As part of enhancing our use of technology and risk-informing the NRC's regulatory framework, the agency has made significant progress in creating a set of powerful, centrally located, data visualization tools designed to enable the NRC staff to better incorporate data insights into our regulatory decision making and business processes.

NRC Workforce

The agency recognizes the importance of having a highly skilled staff and the need to maintain our unique expertise. Strategic workforce planning is vital to helping the NRC identify the knowledge, skills, and abilities necessary to perform our mission now and into the future. We have looked at skill adequacy and gaps through a modern, enhanced Strategic Workforce Planning process with a 5-year workload planning horizon. We are instituting increased entry-level hiring to ensure a pipeline of talent and advance a 21st century workforce. Finally, we created the Nuclear Regulator Apprenticeship Network (NRAN) program, a full-time, 2-year

training program designed to develop well-rounded regulators by focusing on skill development in multiple program areas across the agency.

Diversity and Inclusion

The agency's "Inclusive Diversity Strategic Plan for Fiscal Years 2021–2026" serves as our blueprint for employees at all levels of the agency, with varying perspectives, education levels, skills, life experiences, and backgrounds to work together to achieve excellence and realize individual and organizational potential. Shortly after becoming Chairman, I issued an all-employees announcement emphasizing my strongly held view that all employees at the NRC must consider diversity and inclusion in agency operations and maintain a work environment free from discrimination, harassment, and intimidation. The goal is to foster an open, inclusive, and collaborative work environment where members of our workforce feel comfortable raising questions or concerns without fear of reprisal or retaliation.

FY 2022 BUDGET REQUEST

I would like to now highlight specific elements of the NRC's FY 2022 budget request.

Nuclear Reactor Safety

The NRC's Nuclear Reactor Safety Program encompasses licensing and oversight of civilian nuclear power reactors, research and test reactors, and other nonpower production and utilization facilities (e.g., medical isotope production facilities) in a manner that adequately protects public health and safety and promotes the common defense and security. This program also oversees the security at these facilities, including evaluating how the facilities provide protection against radiological sabotage. This program contributes to the NRC's safety and

security strategic goals through the activities of the Operating Reactors and New Reactors Business Lines.

Overall resources requested in FY 2022 for the Nuclear Reactor Safety Program are \$477.4 million, including 1,783 FTE. This funding level represents an increase of \$24.6 million, including 28 additional FTE, when compared to the FY 2021 enacted budget and authorized carryover. The budget request also includes \$23 million for the continued development of a regulatory infrastructure for advanced nuclear reactor technologies.

Operating Reactors

The Operating Reactors Business Line for FY 2022 supports the regulation of 94 operating civilian nuclear power reactors and 31 research and test reactors. The NRC is requesting \$388.2 million for operating reactors, including 1,474 FTE, which represents an increase of \$13.8 million and three additional FTE when compared to the FY 2021 enacted budget and authorized carryover. Funding increases primarily support work related to: the construction permit and operating license application reviews for medical isotope production facilities; the Oconee Nuclear Station, Units 1, 2, and 3 subsequent license renewal application; the anticipated St. Lucie Plant, Units 1 and 2 subsequent license renewal application; an increase in licensing actions related to Accident Tolerant Fuel (ATF); digital instrumentation and control regulatory improvements for assessing cybersecurity threats and protective measures at NRC-licensed facilities; implementation of the requirements of the Foundations for Evidence-Based Policymaking Act of 2018 and Federal Data Strategy Action Plan; and an increase in information technology (IT) resources and other related activities to enhance and transform the agency's approach to workload planning and analysis, budgeting, communication and outreach, and decision-making.

New Reactors

The New Reactors Business Line portion of the Nuclear Reactor Safety Program is responsible for licensing and oversight of the design, siting, and construction of new nuclear power reactors, including SMRs and advanced reactors. The New Reactors activities provide the regulatory framework to ensure that new civilian nuclear power reactor facilities are developed and regulated in a manner that adequately protects public health and safety and promotes the common defense and security.

The FY 2022 budget request for new reactors is \$89.3 million, including 309 FTE, a funding increase of \$10.7 million and 25 additional FTE compared to the FY 2021 enacted budget and authorized carryover. Resources increase primarily due to technical reviews of three advanced reactor applications; preapplication activities for two combined license applications; one standard design approval for an SMR for NuScale Power, LLC; nine advanced reactor applications; and continued progress on the technology-inclusive 10 CFR Part 53 rulemaking for advanced reactors.

Nuclear Materials and Waste Safety

The Nuclear Materials and Waste Safety Program is responsible for licensing, regulating, and overseeing nuclear materials in a manner that adequately protects public health and safety and promotes the common defense and security. Through this program, the NRC regulates uranium processing and fuel facilities; research and pilot facilities; other nuclear materials licensees such as medical, industrial, research, and academic uses; and the transportation, storage, and disposal of radioactive materials and waste. This program provides reasonable assurance of the physical security of materials and waste and protection against radiological sabotage, theft, and

diversion. The FY 2022 budget request for the Nuclear Materials and Waste Safety Program is \$130.2 million, including 453 FTE. These funding levels represent an increase of \$4.6 million and a decrease of nine FTE when compared to the FY 2021 enacted budget and authorized carryover.

Spent Fuel Storage and Transportation

The Spent Fuel Storage and Transportation Business Line portion of the Nuclear Materials and Waste Safety Program supports the safe and secure storage of spent fuel and the safe and secure transport of radioactive materials. The FY 2022 budget request for spent fuel and transportation is \$28 million, including 99 FTE. These funding levels represent a decrease of \$0.1 million and three FTE when compared to the FY 2021 enacted budget and authorized carryover. Resources decrease primarily because of completions of the license application reviews for consolidated interim storage facilities and renewals for other Independent Spent Fuel Storage Installations (ISFSIs).

During FY 2022, the staff's major activities will include developing technical bases for transportation packages with batch quantities of ATF in preparation for licensing reviews of ATF designs for use in U.S. commercial power plants. In addition, the NRC expects to review four license applications for ISFSIs and eight spent fuel storage renewal applications and will continue to conduct safety and security inspections of ISFSIs.

Nuclear Materials Users

The Nuclear Materials Users Business Line portion of the Nuclear Materials and Waste Safety Program supports the licensing and oversight of industrial, medical, and academic uses of radioactive materials. The FY 2022 budget request for nuclear materials activities is \$60.3

million, including 198 FTE, a funding increase of \$4.8 million and a decrease of three FTE when compared to the FY 2021 enacted budget. Resources increase primarily to fully fund the Integrated Source Management Portfolio and to support international assistance. The FY 2022 requested funding supports the completion of reviews of approximately 2,000 materials licensing actions including new license applications, amendments, renewals, and terminations; 900 routine health, safety, and security inspections; outreach to existing and potential new Agreement States; and implementation of the NRC's Tribal Policy Statement. In addition, resources will be used to conduct and review high-priority rulemaking activities and coordinate source security activities with other Federal agencies; satisfy international treaty and convention obligations; and support information, knowledge, and technical cooperation with international regulatory counterparts.

Decommissioning and Low-Level Waste

The Decommissioning and Low-Level Waste (LLW) Business Line portion of the Nuclear Materials and Waste Safety Program supports oversight of decommissioning nuclear facilities, licensing and oversight of uranium recovery facilities, and disposition of low-level radioactive waste from all civilian sources. The FY 2022 budget request for decommissioning and LLW is \$22.9 million, including 85 FTE, a funding increase of \$0.1 million and a decrease of one FTE when compared to the FY 2021 enacted budget and authorized carryover. Resources increase primarily to support decommissioning reviews and increased inspection activities for decommissioning nuclear power reactors. In FY 2022, the NRC expects to perform licensing and oversight activities for the decommissioning of three research and test reactors; 22 nuclear power reactors; and ten complex materials sites. Additionally, the NRC expects to perform licensing and oversight activities for one uranium recovery facility and two licensed, but not yet constructed, uranium recovery facilities.

Fuel Facilities

The Fuel Facilities Business Line portion of the Nuclear Materials and Waste Safety Program is responsible for ensuring that fuel cycle facilities are licensed and operated in a manner that adequately protects public health and safety and promotes the common defense and security.

The FY 2022 budget request for fuel facilities is \$19 million, including 71 FTE, which represents a funding decrease of \$0.2 million and two FTE when compared with the FY 2021 enacted budget. Resources decrease primarily because of efficiencies and enhancements to the fuel facility licensing and oversight programs.

Funding in the Fuel Facilities Business Line supports licensing and oversight activities related to fuel conversion, enrichment, and fuel fabrication. This business line also provides licensing and oversight support for additional licensees that possess greater-than-critical-mass quantities of special nuclear material, such as universities and research and test facilities.

CORPORATE SUPPORT

The NRC's Corporate Support Business Line supports centrally managed activities that are necessary for the agency to accomplish its mission and includes administrative services, financial management, human resource management, IT/information management (IM), outreach, policy support, activities of the Commission, training, and acquisitions. The FY 2022 budget request for corporate support comprises 30 percent of the NRC's total requested budget consistent with Section 102(a)(3)(A) of NEIMA. Resources reflect a \$5.1 million decrease, including eight fewer FTE, when compared to the FY 2021 enacted budget. The FY 2022 budget request supports the NRC's commitment and ongoing efforts to manage the IT/IM portfolio; public access to ensure transparency; development and implementation of

cybersecurity policy to mitigate cybersecurity vulnerabilities; and targeted investments such as modernizing IT to enable new capabilities and yield future cost savings.

OFFICE OF THE INSPECTOR GENERAL

The NRC's Office of the Inspector General (OIG) is a statutory entity whose mission is to independently and objectively audit and investigate programs and operations to promote effectiveness and efficiency and to prevent and detect fraud, waste, and abuse. The FY 2022 budget request for the NRC OIG is \$13.8 million, which includes \$11.9 million in salaries and benefits to support 63 FTE and \$1.9 million in program support. These resources will support Inspector General auditing and investigation functions for both the NRC (\$12.7 million) and the Defense Nuclear Facilities Safety Board (\$1.1 million).

FY 2021 FINAL FEE RULE

The NRC's FY 2021 Final Fee Rule, published on June 16, 2021, includes fees to recover, to the maximum extent practicable, approximately 100 percent of the NRC's total budget authority for FY 2021, less the budget authority for certain activities excluded by NEIMA.

The final fee rule reflects a total budget authority of \$844.4 million, a decrease of \$11.2 million from FY 2020. After accounting for exclusions from the fee-recovery requirement and net billing adjustments, the NRC must recover approximately \$708 million in fees in FY 2021. Of this amount, approximately \$190.6 million will be recovered under Part 170 fees for service and approximately \$517.4 million will be recovered through Part 171 annual fees.

CONCLUSION

In closing, the NRC remains deeply committed to protecting public health and safety and the environment, as well as ensuring the long-term safety and security of nuclear power facilities and nuclear materials. We are closely monitoring the changing environment, tackling new challenges, and taking new approaches to address the issues that confront us. Chairman Rush and Chairman Tonko, Ranking Members Upton and McKinley, and distinguished members of the subcommittees, this concludes my testimony. On behalf of the Commission, I thank you for the opportunity to appear before you and for your support of the vital mission of the NRC. We would be pleased to respond to your questions. Thank you.

Mr. RUSH. Thank you so very much.
The Chair now recognizes Commissioner Baran for 5 minutes for purposes of an opening statement.

STATEMENT OF JEFF BARAN

Mr. BARAN. Thank you for the opportunity to testify today. It is great to be back with my colleagues to discuss NRC's important work.

I want to take a few minutes to focus on three pressing challenges affecting NRC: The fight against climate change, the response to COVID-19 pandemic, and the pursuit of environmental justice.

Policymakers and the public are increasingly focused on climate change and on dramatically reducing carbon emissions. The urgency and scale of the climate challenge have led to a public debate about the available emission-reduction technologies and the role of nuclear. Obviously NRC is not charged with setting broad energy policy. We don't get involved in decisions about electricity market design, carbon pricing, or electricity generation portfolios.

Our focus is on ensuring the safety and security of whatever amount of nuclear power is used. But I think it is clear that meeting ambitious climate goals will involve nuclear power. I see NRC's nexus to climate change in two main areas: the operating fleet and new reactors. For the long-term operation of existing nuclear power plants, NRC's role is to provide strong safety and security standards and rigorous independent oversight.

In recent years, there has been a counterproductive emphasis on reducing inspections, cutting costs, and creating ever more restrictive constraints on agency action. In my view, we need to refocus on safety and the basic value of oversight. Instead of contemplating reductions in the frequency or number of vital safety and security inspections, we need to pursue changes that will improve NRC oversight, not weaken it.

The Reactor Oversight Process has generally been an effective safety framework. If we are going to make a particular change, there should be a solid safety case for the change. We should not adjust safety standards or oversight based mainly on cost considerations. This program affects every operating reactor in the country, and we need to firmly focus on the safety and security impacts of our decisions.

Of course, NRC needs to be open to and ready for new technologies that could improve safety. Whether it is digital instrumentation and control, accident-tolerant fuels, sensors, advanced manufacturing techniques, or artificial intelligence, we need to establish a reliable regulatory framework for reviewing these technologies while ensuring that they are adopted safely without introducing any unacceptable risks.

The other main climate-related role for NRC is the licensing and oversight of new reactors. Right now, our main goal is to establish the right regulatory framework for the review and safe operation of new technologies, such as advanced reactors.

NRC's current power reactor regulations were written for light-water reactors, which make up the entire existing fleet. It makes

sense to update those requirements to address different technologies.

New reactor designs have the potential to be safer than existing designs. The challenge is striking a reasonable balance between taking into account the value of new safety attributes and maintaining a prudent degree of defense-in-depth. Some elements of NRC's existing regulations for large light-water reactors won't be appropriate for nonlight-water reactors.

Other requirements reflect enduring defense-in-depth principles that should apply to advanced reactors, such as the need for appropriate emergency planning and siting. This is especially true for new technologies with little or no operating experience.

As Chairman Hanson noted, responding to the COVID-19 pandemic has been another major priority for the agency. To continue our work, the agency has largely been operating virtually with almost all the headquarters and regional staff teleworking. Fortunately we have had the IT in place to carry on effectively.

The toughest balance for NRC to strike has been on inspections. For the first few months of the pandemic, we were conducting very few in-person safety and security inspections, and resident inspectors were on site far less than usual. The resident inspectors are now getting back on site more frequently, and the regions are getting back to in-person team safety and security inspections. I think it is a very positive development that the staff has set a goal of getting back to normal levels of oversight this year.

During the pandemic, some inspections were performed remotely out of necessity. I see that as a temporary measure that made sense during an extremely unusual and challenging public health emergency. As we move into the new normal in the coming months, I think there is broad agreement on the value of and need for in-person safety and security inspections. There is no substitute for having independent NRC inspectors on site.

NRC must also pursue environmental justice. We must meet the moment and be ambitious. We cannot settle for doing things the way they have always been done. We need to ask tough questions about our programs and procedures to understand if they are serving disadvantaged communities or, instead, creating barriers for them to overcome.

I am excited that the Commission unanimously tasked the staff with performing a systematic review of whether environmental justice is appropriately considered and addressed in the agency's programs, policies, and activities. It is my expectation is that the staff will consult with a broad range of stakeholders and develop recommendations to improve how the agency pursues environmental justice. Our goal should be to achieve significant tangible results.

We have a lot of work ahead of us, but I am confident that the NRC will do its part to tackle these challenges.

Thank you, and I look forward to your questions.

[The prepared statement of Mr. Baran follows:]

Statement of Commissioner Jeff Baran
House Committee on Energy and Commerce
Subcommittee on Energy, Subcommittee on Environment and Climate Change
July 14, 2021

Thank you for the opportunity to testify today. It's great to be back with my colleagues to discuss NRC's important work.

I want to take a few minutes to focus on three pressing challenges affecting NRC: the fight against climate change, the response to the Covid-19 pandemic, and the pursuit of environmental justice.

Policymakers and the public are increasingly focused on climate change and on dramatically reducing carbon emissions. The urgency and scale of the climate challenge have led to a public debate about the available emission-reduction technologies and the role of nuclear power. Obviously, NRC is not charged with setting broad energy policy. We don't get involved in decisions about electricity market design, carbon pricing, or electricity generation portfolios. Our focus is on ensuring the safety and security of whatever amount of nuclear power is used. But I think it's clear that meeting ambitious climate goals will involve nuclear power. I see NRC's nexus to climate change in two main areas: the operating fleet and new reactors.

For the long-term operation of existing nuclear power plants, NRC's role is to provide strong safety and security standards and rigorous independent oversight. In recent years, there has been a counterproductive emphasis on reducing inspections, cutting costs, and creating ever more restrictive constraints on agency action. In my view, we need to re-focus on safety and the basic value of oversight. Instead of contemplating reductions in the frequency or number of vital safety and security inspections, we need to pursue changes that will improve NRC oversight, not weaken it.

The Reactor Oversight Process has generally been an effective safety framework. If we're going to make a particular change, there should be a solid safety case for the change. We should not adjust safety standards or oversight based mainly on cost considerations. This program affects every operating reactor in the country, and we need to firmly focus on the safety and security impacts of our decisions.

Of course, NRC needs to be open to – and ready for – new technologies that could improve safety. Whether it's digital instrumentation and control, accident tolerant fuels, sensors, advanced manufacturing techniques, or artificial intelligence, we need to establish a reliable regulatory framework for reviewing these technologies, while ensuring that they are adopted safely without introducing any unacceptable risks.

The other main climate-related role for NRC is the licensing and oversight of new reactors. Right now, our main goal is to establish the right regulatory framework for the review and safe operation of new technologies, such as advanced reactors. NRC's current power reactor regulations were written for light-water reactors, which make up the entire existing fleet. It makes sense to update those requirements to address different technologies.

New reactor designs have the potential to be safer than existing designs. The challenge is striking a reasonable balance between taking into account the value of new safety attributes and maintaining a prudent degree of defense-in-depth. Some elements of NRC's existing

regulations for large light-water reactors will not be appropriate for non-light-water reactors. Other requirements reflect enduring defense-in-depth principles that should apply to advanced reactors, such as the need for appropriate emergency planning and siting. This is especially true for new technologies with little or no operating experience.

As Chairman Hanson noted, responding to the Covid-19 pandemic has been another major priority for the agency. To continue our work, the agency has been largely operating virtually, with almost all of the headquarters and regional staff teleworking. Fortunately, we've had the IT in place to carry on effectively.

The toughest balance for NRC to strike has been on inspections. For the first few months of the pandemic, we were conducting very few in-person safety and security inspections and resident inspectors were onsite far less than usual. The resident inspectors are now getting back onsite more frequently and the regions are getting back to in-person team safety and security inspections. I think it's a very positive development that the staff has set a goal of getting back to normal levels of oversight this year.

During the pandemic, some inspections were performed remotely out of necessity. I see that as a temporary measure that made sense during an extremely unusual and challenging public health emergency. As we move into the new normal in the coming months, I think there is broad agreement on the value of and need for in-person safety and security inspections. There's no substitute for having independent NRC inspectors onsite.

NRC must also pursue environmental justice. We must meet the moment and be ambitious. We cannot settle for doing things the way they have always been done. We need to ask tough questions about our programs and procedures to understand if they are serving disadvantaged communities -- or instead creating barriers for them to overcome.

I'm excited that the Commission unanimously tasked the staff with performing a systematic review of whether environmental justice is appropriately considered and addressed in the agency's programs, policies, and activities. My expectation is that the staff will consult with a broad range of stakeholders and develop recommendations to improve how the agency pursues environmental justice. Our goal should be to achieve significant, tangible results in the areas of equity and environmental justice.

We have a lot of work ahead of us. But I am confident that NRC will do its part to tackle these challenges. Thank you, and I look forward to your questions.

Mr. RUSH. The Chair thanks the Commissioner.
And the Chair now recognizes Commissioner Wright for 5 minutes for the purposes of an opening statement.

STATEMENT OF DAVID A. WRIGHT

Mr. WRIGHT. Thank you. Thank you, Chairman Rush.

And, if I could, before I begin, I would just like to clarify the record maybe really quick. And really, thank you for the warm welcome, but I can't for a minute take credit for the work of Commissioner Baran before this committee when he worked here, I think, under Chairman Waxman. So it was he that worked for the committee, not me. So I just wanted to make that clarification, if I could.

So, with that, good morning, Chairman Rush and Chairman Tonko and Ranking Members Upton and McKinley and esteemed members of the subcommittees, thank you for the opportunity to testify today. And it is wonderful to be here in person too.

I would like to start by thanking my colleagues, my staff, and the NRC staff for their assistance in getting ready for this hearing. I am honored to serve alongside my fellow Commissioners, and I appreciate their collegiality and insights on each of the matters that come before the Commission.

It is bittersweet, though, to be here today with only three of us now. We work best with the full complement of Commissioners. And, although it has only been a couple of weeks since Commissioner Caputo departed, I know we are missing out on the additional perspectives and wisdom two additional Commissioners would bring to our deliberative process.

I would also like to thank the NRC staff for their work and dedication to the agency's critical safety mission. I am humbled by their efforts, particularly during the past year and a half during COVID and the pandemic. So, before the pandemic, I spent considerable time walking the halls of the NRC and visiting facilities. These impromptu meetings and visits provided me invaluable insights into the agency's priorities, successes, and challenges.

I learned that success is easy to define. It is the safe and secure operation of the civilian nuclear fleet. And this is a shared goal of the Commission, our staff, and our licensees. The challenge now is how to reach that goal in the most effective, efficient, and reliable way while dealing with uncertainties, new technologies, and changes in the regulatory environment.

I believe the NRC is up to the challenge, and I am excited by the transformational and innovative initiatives that are going on at the NRC. The staff's hard work and inclusive approach is inspiring to me.

I am also pleased to see the work we are doing to improve our budgeting processes in response to the Nuclear Energy Innovation and Modernization Act.

Finally, I am impressed with how the staff has used challenges from the pandemic to leverage technology and new ways of doing things. I see change—in particular, changes to how we perform our work—as an opportunity. Change allows us to use data and experience to recalibrate our activities and perform our mission in a

smarter way, a more effective as a regulator, ready to regulate both existing and new technologies.

So, with that, I will close and thank you, and I look forward to your questions.

[The prepared statement of Mr. Wright follows:]

Commissioner David A. Wright's Opening Statement
July 14, 2021 House Committee on Energy and Commerce Hearing

Good morning, Chairman Rush and Chairman Tonko, Ranking Members Upton and McKinley, and esteemed members of the Subcommittees. Thank you for the opportunity to testify today. And it's wonderful to be here in person, too.

I would like to start by thanking my colleagues, my staff, and the NRC staff for their assistance in getting ready for today's hearing. I'm honored to serve alongside my fellow Commissioners. I appreciate their collegiality and insights on each of the matters before the Commission.

It's bittersweet to be here today with only three of us now, though. We work best with a full complement of commissioners and, although it's only been a couple of weeks since Commissioner Caputo's departure, I know we are missing out on the additional perspectives and wisdom two additional commissioners would bring to our deliberative process.

I'd also like to thank the NRC staff for their work and dedication to the agency's critical safety mission. I am humbled by their efforts, particularly during the past year-and-a-half during the COVID-19 pandemic.

Before the pandemic, I spent considerable time walking the halls of the NRC and visiting facilities. These impromptu meetings and visits provided me invaluable insights into the agency's priorities, successes, and challenges. I've learned that success is easy to define: it's the safe and secure operation of the civilian nuclear fleet. This is the shared goal of the Commission, the staff, and our licensees.

The challenge is how to reach that goal in the most effective, efficient, and reliable way while dealing with uncertainties, new technologies, and changes in the regulatory environment.

I believe the NRC is up to the challenge and I am excited by the transformational and innovative initiatives that are going on at the NRC. The staff's hard work and inclusive approach is inspiring.

Commissioner David A. Wright's Opening Statement
July 14, 2021 House Committee on Energy and Commerce Hearing

I'm also pleased to see the work we are doing to improve our budgeting processes in response to the Nuclear Energy Innovation and Modernization Act.

Finally, I am impressed with how the staff has used challenges from the pandemic to leverage technology and new ways of doing things.

I see change, in particular changes to how we perform our work, as an opportunity. Change allows us to use data and experience to recalibrate our activities and perform our mission as a smarter, more effective regulator ready to regulate both existing and new technologies.

Thank you, and I look forward to your questions.

Mr. RUSH. This concludes our opening statements.

We will now move to Member questions. Each Member will have 5 minutes to ask questions of our witnesses, and I will begin by recognizing myself for 5 minutes.

The commercialization of small modular and advanced nuclear reactors are indeed promising technologies that could further power our path toward a cleaner economy. However, some experts believe that the licensing of these technologies presents regulatory challenges that may require modification to existing regulatory requirements.

Chairman Hanson, in what ways will the requested fiscal year 2022 NRC budget support the agency in licensing processes or regulations for these varieties of technologies?

Mr. HANSON. Chairman Rush, thank you for that question.

The—our fiscal year 2022 budget request includes \$23 million that is off fee—that is, it is strictly appropriated from taxpayers for the development of a regulatory framework for advanced reactors. One of the key elements of this in the—among the issues that the staff is balancing is, as you said, is ensuring that safety is at the heart of that regulatory framework, also that there are some adjacency to regulatory frameworks that have come before. That is so that vendors and utilities who might come in for those applications can recognize key elements.

But, as also part of that process, Chairman, we are having—we have really changed the way we are developing this regulation by having frequent and substantive interactions with all of our stakeholders early and often as part of that process to get as much feedback so that we can learn about the wide array of technologies that the agency may have to regulate, and understanding the safety aspects of those upfront so that those challenges, those issues, those safety matters can be incorporated into that rule.

And also, so that by the time we get through this process with a draft rule in May 2022 and a final rule in 2024, that stakeholders and the community, both public interest groups, vendors, and utilities, will understand well in advance what that rule is made of.

Mr. RUSH. And small modular and advanced nuclear reactor designs present an opportunity for a commercial nuclear industry to evolve in ways that would enhance aforementioned safety and increase efficiency.

Chairman Hanson, again, how should NRC regulations and licensing process take the evolution of small modular and advanced nuclear reactor designs into consideration?

Mr. HANSON. Yes. Thank you again for that, Chairman Rush.

We really are looking at each of the technologies that both the size components, where we are evaluating what is known as the source term—that is, the constituents of radioactivity that could be released in an accident scenario, also looking at the other aspects of advanced reactors, such as the fact that some of them operate at atmospheric pressure, that they use unique coolants or moderators to control the nuclear reaction, as well as other kind of ancillary technologies that may be bolted onto those reactors, such as molten salt batteries or hydrogen production or other kinds of things.

And we are really kind of taking all of that into consideration to understand the safety aspects and the risks so that we can make a determination so we can create, first of all, a regulatory framework that ultimately allows us to make a determination about the safety of these technologies.

Mr. RUSH. This year, the NRC directed Commission staff to systematically review how environmental justice is addressed in its program, policies, and activities.

Chairman Hanson and Commissioner Baran, will you provide the subcommittee with a brief update of the NRC's environmental justice review?

Mr. HANSON. Happily. As—

Mr. RUSH. Thank you.

Mr. HANSON [continuing]. The Chair noted—yes.

Mr. RUSH. And, in addition—

Mr. HANSON. Yes. The—we have a staff group that is looking at this kind of per-Commission direction, Chairman Rush, that is looking at, as we said, at taking a comprehensive review of the environmental justice issue. That group is underway. There is a charter that has been developed—we are happy to provide that to the committee—that outlines their work.

And I believe there are a couple of public meetings, if not today, then tomorrow on this issue to get public feedback.

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

The Chair now recognizes the chairman of the Committee on Environment, Mr. Tonko, for 5 minutes.

Mr. TONKO. Thank you, Mr. Chair, and thank you again to our Commissioners.

We know the difficulties caused by the COVID-19 public health emergency. But, during this time, the NRC and licensees have continued to operate reliably and safely. So, Chairman, is there anything you have learned from that—from this period that might help to inform how the NRC could better operate or conduct oversight of the industry moving forward?

Mr. HANSON. Yes. Thank you, Chairman Tonko.

We are really accumulating the lessons learned from the public health emergency as we speak. We do have a couple of observations going forward.

I think the first one from our resident inspectors that you mentioned, speaking with two of them at Beaver Valley—and I did so recently as well—that there is kind of no substitute for boots on the ground when it comes to reactor inspection. And we were able to do a lot of that even during the public health emergency where we were able to safely bring on our inspectors on site.

Other activities, such as document reviews—and even online plant performance data was able to be done in some cases on the plant site, but often cases remotely, and that seemed to work fairly well.

So it is that kind of balance where there—you know, we recognize there are some activities that can be done, like I said, like reviewing plant operating data, that can be done remotely. But we also really have an even deeper appreciation for the importance of onsite activities through the public health emergency.

Mr. TONKO. Thank you, Chair.

And, Commissioner Wright, what is your thinking? Any lessons learned from NRC's pandemic response that could be carried forward?

Mr. WRIGHT. Yes. Thank you for the question.

So there is—I was really impressed with how, from day one, the NRC adapted. They went completely telework almost overnight, and they were—I don't think that they skipped a beat. You know, I was very impressed with how engaged all the business lines were, all the managers, all the residents that were having to perform at the plants as well, too, and how they went about doing their job.

And we work very closely with the licensees on—if there had to be exemptions given or certain things so we keep our people safe, and their people remain safe as well.

So there is no doubt that the staff identified things that we can carry forward. You would think, in something like a pandemic, that you are going to learn those things, and you are going to be exposed to those things.

And I agree with Chairman Hanson that boots on the ground, that those—that is the best way to do things, you know. But we did learn that there is a place for technology and to improve the way we do things, and I think he mentioned a couple. I mean, it is like the portals for exemption request, the review of election—of inspection documents and real-time plant data is available to us. So, you know, we have the opportunity to do those things.

So, you know, our inspection program is based on decades of experience and history. And, you know, I don't think—it served us well. It is going to serve us well in the future too. But I—you know, like everything else, it is not static, and it has always evolved over time, and it is going to continue to do so.

Mr. TONKO. Thank you.

And, Commissioner Baran, your assessment?

Mr. BARAN. Well, thank you, Chairman Tonko.

I would echo some of what you said earlier and what my colleagues just said. You know, when I had my recent conversations with inspectors and managers, I hear a renewed recognition of the value of in-person safety and security inspections, whether it is the ability to put eyes on vital equipment, talk informally to plant staff, observe performance firsthand, and really, even the intangible but very real benefit of having an independent inspector with an NRC hardhat walking around doing oversight work.

You know, as we have all said, I think remote inspections during this pandemic period were a necessity. But, frankly, they are just not as effective as in-person inspection. And our inspectors find issues in person that they wouldn't be able to detect remotely.

Mr. TONKO. Well, I thank you for that. You know, I know that our NRC employees are incredibly dedicated, and I believe the safety of Federal employees is paramount. With that in mind, I would like to acknowledge the work that has been done over the past 16 months to continue to ensure the safe operations of our Nation's nuclear reactors.

I had some other questions I wanted get into in regard to waste challenges from our nuclear facilities and advanced reactors, but I will forward those to our guests today.

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

Mr. RUSH. The gentleman yields back. The Chair sincerely apologizes to the ranking member of the Energy and Power oversight. So I recognize him. We will go in regular order. It is now my honor to recognize the chairman—the ranking member of the Energy and Power Subcommittee for 5 minutes for the purposes of an opening statement.

Mr. UPTON. Well, thank you, Mr. Chairman, but I am going to be asking questions. And, again, I appreciate the hearing for sure.

I want to follow up on Chairman Rush's question relating to the small modular reactors. You indicated that you expected the final regs to be completed and final by 2024. What is the—assuming that we are able to stay on that timeline—you know, a number of us have been talking that for many, many years, maybe even as long as a decade. What is your expectation? If we are able to follow through by getting those regulations done, what is your expectation as to what the industry's reaction will be in terms of following up and actually looking at following through on a petition to get licensed to begin construction? And what would your timeline idea then be in terms assuming that everything went OK that we would actually have these small reactors online in communities, early prediction for across the country?

Mr. HANSON. Ranking Member Upton, thank you for that question. You know, recognizing that the NRC's crystal ball is somewhat imperfect, let me try and take a stab at answering your question here. And assuming that, you know, part of the idea of this high level of interaction as we develop the rule is that so that industry recognizes what is in the rule as soon as we are able to go public with that, and that the rule is ideally usable and attractive to applicants that come before the Commission.

Recognizing also that there are certainly companies that are looking at submitting applications to us for construction and operations before this rule is actually going to be published. Terrapower is a good example. I think we are expecting their application in the 2023 timeframe before we are final on this.

So, assuming that there was a company that would maybe come in after Part 53 was final and published, our goal is to review, combine operating and license applications in roughly the 3½-year or 42-month timeline. So I think you are talking about something in the order of 2027, 2028.

Of course, applicants still have the option of applying under the old system where they could apply for both a construction and operating permit. So, you know, there is going to be a variety of options for folks there. But, certainly, I would imagine—you know, assuming everything goes well, as you said, Congressman, by the end of the decade.

Mr. UPTON. So if your forecast—let's say, it is rosy, it stays that way, the crystal ball looks good—how many of these would you have online by, like, pick a number, 2035?

Mr. HANSON. That is a great question. I think a lot of it is going to depend on the economics. As I have said in public many times, NRC, we are independent, but we don't want to be an impediment to technological innovation in the nuclear area. We have a critical but certainly very select role in the energy ecosystem, and that is

to ensure safety and security of these facilities. So I am not sure I am able to say by 2035 how likely that is.

Mr. UPTON. OK. I won't hold you to it.

Mr. HANSON. OK.

Mr. UPTON. Let me ask another question. As I understand it, you grew up here in southwest Michigan. And I know that when you were sworn in, we had the full complement of Commissioners. I think all of us are low. We don't have five Commissioners working hard. A lot with abilities, but would you agree with us that we really need to see that full complement of five be confirmed and through the processes as soon as we can see it happen?

Mr. HANSON. Yes, Congressman, I think we work best when we have a full complement. Let me say I think we, among the three of us, have a good working relationship. We are very collegial, and I think we can continue with the Commission's business. But we look forward to the administration and the Congress acting to provide us with two additional colleagues.

Mr. UPTON. OK. Let me just ask one final question. As you know, I am at both of my facilities and have been quite often. And I meet with not only the operating staff and employees, but also very talented NRC residential staff was there. I want to make sure as we come through this pandemic and people finish, it is my understanding that the NRC staff has never been away from us. Right? They have had constant 24/7 oversight at not only my two facilities in western Michigan, but all across the country. Is that not accurate?

Mr. HANSON. That is reasonably accurate, Congressman. I think at the beginning of the pandemic it may have been that we were doing more document review and more remote monitoring of plant performance. But certainly as we got into, say, the second or third month, we were looking for ways for our resident inspectors to get back on site.

You are right, Congressman, I am from southwest Michigan originally. In fact, I was just at D.C. Cook a couple of weeks ago as I was preparing to visit my family before the July Fourth holiday and had the pleasure of meeting with both NRC and plant staff at Cook and would like just to share how impressed I was on both sides.

Mr. UPTON. I know my time has expired, so I yield back. Thank you. Thank you very much.

Mr. RUSH. The gentleman yields back. The Chair now recognizes Mr. McKinley for 5 minutes for questioning the witnesses.

Mr. MCKINLEY. Thanks, again, for being part of this panel today. I think we all understand the complete perspective that U.S. nuclear reactors, we are down to about just 94 units across the country.

Mr. JOHNSON. Mr. McNerney is not in front of his camera. So did you say "McNerney" or "McKinley," because I can't hear McKinley. David, is your microphone turned on?

Mr. MCKINLEY. No, it says I am not muted. Can you hear me? Can anyone else hear me?

Mr. RUSH. Mr. McKinley is recognized.

Mr. MCKINLEY. OK. So we know our plants are 94 years old, and—49 years old, but now we are down to just 30 to 94. So if we

are going to reduce emissions, I don't understand why Congress is not promoting nuclear energy and incentivizing modernizing our aging nuclear fleet.

But, unfortunately, it appears we are being persuaded or influenced by the fear-mongering Hollywood elite and the activists who constantly keep focusing on Fukushima and Chernobyl. Chernobyl was 35 years ago. Or even when they mentioned Three Mile Island, that occurred 52 years ago.

Mr. Hanson—or Chairman Hanson, why isn't the NRC spending more time reaping the benefits of nuclear energy instead of promoting politically polarizing issues like environmental justice? And, secondly, can you envision the NRC denying a new nuclear power plant going to operation because of the differences around such a nebulously defined environmental justice? Can you respond to those two?

Mr. HANSON. Oh, yes, thank you, Ranking Member McKinley. In our authorizing set with the Atomic Energy Act, we have a distinctly nonpromotional role; that is, we are strictly a safety regulator. Now, as part of that mission as a safety regulator, we have certain responsibilities for public participation, particularly as it pertains to environmental reviews and other issues. I think when it comes to issues like siting, you know, there are issues that come into play with regard to public participation and potentially environmental justice, historically, that I think could be relevant here. And, of course, then siting plays into the impacts of potential accident scenarios which we have to take into consideration as part of making a safety determination. So I would say that kind of how those things are linked together.

Mr. MCKINLEY. Mr. Chairman, obviously, maybe we need to have more of a conversation about this because this is—my question primarily was this: Are we going to deny a plant based on environmental justice? So maybe we can have that conversation later, but because of the timeframe, we only have 5 minutes total. So let me continue with this question.

The left has attacked nuclear of spent fuel rods. And, currently, the United States is unfortunate. We don't have a recycling our nuclear waste due to the high cost. The plant has been recycling for years. There are numbers of companies I know that are looking at ways to reduce the cost of this so that we don't have to bury them in the mountain.

So, Chairman Hanson, what is the position of the NRC in facilitating ways of recycling our spent fuel rods and reducing costs? What role do you have?

Mr. HANSON. Yes, thank you, Ranking Member McKinley. Our role in any approach to recycling is going to be primarily that of a safety regulator. So if the United States or private companies endeavor to undertake spent fuel recycling, then under the Atomic Energy Act, that would come to us to make a safety determination for that. We have the staff and the capability available for such an effort should that policy decision or that economic case be made outside of our jurisdiction.

Mr. MCKINLEY. But isn't—OK. I hear you passing on to others the responsibility. But I believe it is part of cost-benefits ratio that

we would have here for America. What is your personal view? Do you think—would you be encouraging recycling for spent fuel?

Mr. HANSON. Yes, we are—unfortunately, Congressman, we are really not in an encouraging or kind of promotional role on this. We are really strictly the safety regulator on that kind of thing.

Mr. MCKINLEY. Mr. Chairman, do you personally feel that this could be advantageous for promoting nuclear power if we could recycle our spent fuel rods? Do you personally?

Mr. HANSON. As chairman of the NRC, I am going to stay strictly, I think, with the—in the safety realm on this. I am very happy to discuss this and other topics with you in any other venue you would like, Congressman.

Mr. MCKINLEY. Sorry you are being evasive, but thank you for being honest enough not to answer questions. So, Mr. Chairman, I yield back.

Mr. RUSH. The Chair now recognizes the chairman of the full committee, Mr. Pallone, for 5 minutes.

Mr. PALLONE. Thank you, Chairman Rush. I want to thank the Commissioners again for joining us today. I mentioned the Reactor Oversight Process, or ROP, in my opening statement. And I sent a letter to the Commission in 2019 outlining concerns I have with that proposal, which is still before the Commission.

Reducing core safety inspections and limiting public reporting of low-level safety issues of plants across the country is unnecessary, in my opinion, and counter to NRC's mission.

So, Chairman Hanson, what is the status of the ROP changes proposed by NRC staff in 2019 at this point?

Mr. HANSON. Yes, thank you, Chairman Pallone. Those papers are still pending before the Commission. I am not aware offhand what the vote record is on that, but they are still under consideration.

Mr. PALLONE. And then let me ask Commissioner Baran, where do you stand on this proposed to ROP changes? Commissioner Baran?

Mr. BARAN. I have pretty significant concerns about several of the proposals. There was a proposal to have licensee self-assessments take the place of independent NRC inspections. I have real concerns about that. I think NRC safety inspections are essential, and that NRC inspectors need to be independently conducting them. And at this point, it has been a couple of years now, I think everyone actually agrees on that. I don't know that anyone is really in favor of that proposal from a couple of years ago. My understanding is that the NRC staff is actually considering withdrawing that paper that seemed to endorse that concept. And I would support their withdrawing that proposal, which I think was pretty flawed. There was also some proposals there to reduce the frequency of some very important inspections, inspections that looked at safety culture, inspections that looked at engineering, looked at the ability of licensees to identify and correct problems, which is just absolutely central to the safety operation of a plant. And my understanding is that the NRC staff is looking at that too, whether it makes sense at this point to withdraw those proposals. And I would be supportive of them withdrawing those proposals.

Mr. PALLONE. Well, thank you. Look, I, frankly, say that I hope that the Commission can withdraw or table these recommendations. That is my opinion. And I would hope that that is what you would do, frankly.

Another topic that is relevant to my State and others would shut down nuclear plants is the decommissioning rulemaking, and I mentioned that before too. It is a proposed rule before the Commission that made several troubling changes of that process, but I wanted to highlight one of them in particular.

State and local governments have always have very little say over the cleanup and decommissioning of nuclear power plants. And the proposal before the Commission fails to properly expand the role of States and local governments in this process, which I think has generational impacts on these communities. So I am concerned about this, and it is something that impacts many States and towns.

So let me ask Chairman Hanson, can you commit to taking a long, hard look at this as the Commission proceeds on this proposed rule whether or not towards giving communities a more meaningful role in the decommissioning process, if you will?

Mr. HANSON. Yes, Chairman Pallone, I am happy to take a very close look at this. I understand the importance of this for local communities and how directly it affects them both for plants undergoing decommissioning and those facing the prospects of shutdown and decommissioning in the future.

Mr. PALLONE. Well, I appreciate that. And I hope improvements can be made to better incorporate these voices into the process. So thank you.

Last question, quickly, the Nuclear Energy Innovation and Modernization Act that Congress passed in 2019 that included a cap on the Commission's corporate support spending for overhead costs that include information technology, agency cybersecurity, and facility upgrades—I am concerned that this arbitrary cap is forcing the Commission to forgo or delay necessary investments in these areas.

Is this corporate support cap—I guess I will ask the chairman again. Is this corporate support cap leading to delays in important investments that would have otherwise occurred sooner prior to the institution of the cap? Actually, anybody can respond, if you would, but let me start with the chairman.

Mr. HANSON. Yes, thank you, Chairman Pallone. We have been able to meet the corporate support caps to date. But as you know, I think in 2022 did 30 percent. In 2023, it goes down 29 percent. Then it declines thereafter. And then it becomes—each percentage point amounts to somewhere between 8 and 10 million dollars in reduced costs for our corporate support. At a time when, I think, we are trying to make investments in IT modernization, there are some indications—and we are looking more closely at this—but our IT costs are going to be going up and that we need to make investments in IT in order to more better risk-inform some of our regulations and modernize our regulatory processes. We need to invest in our people in order to make them—to get them prepared for advanced reactor licensing.

And we need to invest a little bit in our physical space, which hasn't been updated in someplace of 20 to 25 years. So we have been able to meet those caps so far, but it is going to be a very significant challenge, I think, going forward, and I am very concerned about it.

Mr. PALLONE. Well, let me just say thank you. I think that Congress needs to look at reforming this corporate support cap to give the Commission more flexibility for these investments. But time has expired. Thank you, Chairman Rush.

Mr. RUSH. The Chair recognizes the ranking member of the full committee Mrs. McMorris Rodgers, for 5 minutes.

Mrs. RODGERS. Thank you, Mr. Chairman. When it comes to addressing our clean energy goals, our energy and national security interest, nuclear technologies are essential, and many have been speaking to that this morning. And there is promising advances on the horizon—really exciting, innovative new fuels, small reactor technologies that have the promise to revitalize the benefits of nuclear for all of us. And they promise to ensure a more reliable power, a more flexible deployment, which can provide new ways to reduce industrial emissions, all while building up American prosperity and our ability to compete and share our American know-how with the rest of the world. That is what American innovation is all about. And that is why we are working so hard to identify what it takes to remove the unnecessary barriers to deploying these new technologies.

There are several pieces of legislation that my colleagues and I have introduced, are cosponsoring that seek to ensure the NRC performs its safety mission without impeding innovation and deployment. Two years ago Congress required the NRC to implement a risk-informed regulatory framework for advanced reactors.

So I wanted to start by asking each one of you, beginning with Chairman Hanson, can you describe what “risk-informed” means when it come to practice and why you believe it is important for NRC licensing of new reactors?

Mr. HANSON. Thank you, Congressman McMorris Rodgers. To me, risk-informing our regulations means using the incredible body of experience that the NRC and, frankly, our licensees have developed over the last 40 or 50 or 60 years in the use of nuclear technology to inform our efforts going forward so that we can focus on the most safety-significant aspects of any new technology. So that we do have some experience in this country with advanced reactors. We had built some of them in the '50s and '60s and '70s. A lot of the technologies that we are seeing come back around rely on some of those learnings. And we are as an agency and as an industry, I believe, kind of excavating some of that information to apply to these new technologies.

Also, I can say that we are also learning from the significant operating experience of the light-water reactor fleet and understanding what is important for safety in this new regulatory framework. With that, I will let my colleagues respond.

Mrs. RODGERS. Thank you. Yes?

Mr. BARAN. Mrs. Rodgers, sure, I think Chairman Hanson said it very well. I don't know that I have too much to add, but I would just point out, you know, this advanced reactor rulemaking we are

doing right now. It is a major effort. I mean, it is challenging because you want something that is conformed, that is performance based, that is technology neutral. You need to have something that works for molten salt reactors and high-temperature gas coal reactors. You need something that works from microreactors and reactors that could be several hundred megawatts. It is a tough challenge.

And you are asking a question that is one of the core things that comes up in these stakeholder meetings, which is what should it mean to be risk-informed? And some of the stakeholders, some of the vendors think it should really be tightly focused on probabilistic risk assessment, those numerical models. Others want to have more flexibility in how they would present their safety case. Maybe they would say, "Well, our reactors inherently say for the following reasons that these materials are this structure." And so that is not a purely academic question. It actually goes right to the heart of the efforts underway to do this rulemaking.

Mrs. RODGERS. Thank you. Mr. Wright?

Mr. WRIGHT. So I thought about this a little bit. So we are going to be in the best position to continue meeting our important safety and security mission. As you know, the NRC embarked on a transformation journey to help the agency keep pace with the highly dynamic and interconnected environment which we operate. We have got to be prepared to regulate an industry that is innovative and has new technologies. And as an agency, we have to recognize and understand that everything we do, either personally or professionally, carries some degree of risk. Our mission, as you know, is to provide reasonable assurance of adequate protection of the public health and safety and promote the common defense and security and to protect the public. Reasonable assurance acknowledges that there is a risk element. So being a modern risk-informed regulator means we have got to be able to use data, historical and operational experience, other lessons learned in a way to reevaluate the way we conduct business, recalibrate and streamline our processes and procedures, and maximize efficiencies to better serve the American public.

So, I mean, that could include a lot things, right? We have the law in NEPA, which there is a possible cost sharing. But, again, DOE is the promoter. They are the salesman. We are the safety regulators. But that does not mean we cannot work together and work with the Members of Congress in order to—you know, if y'all decide you want to identify that particular technology, we have got to be prepared to regulate it and to provide a pathway.

So regulatory certainty is another thing that we have got to provide as well. So I am going to stop there.

Mrs. RODGERS. Well, yes, and my time has expired. I think it is important just to note that we really have the gold standard in the United States of America, and we want to make sure that we are taking the expertise that we have into consideration. Thank you. I yield back.

Mr. RUSH. The ranking member yields back. The Chair now recognizes the chairman of the O&I Subcommittee, the gentlelady from Colorado, Ms. DeGette, for 5 minutes.

Ms. DEGETTE. Thank you so much, Mr. Chairman, and I want to thank you and Mr. Tonko for having this important hearing. The first thing I want to say is I get really frustrated when my colleagues on the other side of the aisle demagogue this issue for partisan purposes. Because, in fact, many of us recognize that nuclear energy can be an important bridge, fuel toward energy independence and towards reducing carbon. And that is why I am working on a renewable energy bill that is source neutral and could include nuclear energy.

And, frankly, Mr. McKinley and my other colleagues on the other side of the aisle, they know that, because we have talked to them about this bill. But the purpose of this agency the NRC is to make sure that, as we develop nuclear energy, we do it in a safe and protective way. And I want to appreciate the efforts of the agency to do that. And so I have a couple of questions to that end.

Now, the United States has a wonderful record—safety record with nuclear power. But a couple of years ago, I led a group and we went to the Fukushima Nuclear Plant in Japan. And they also thought that they had a really strong protective system at that plant. And of course, in the tsunami, it reached the plant, and they are still 10 years later having issues with water contamination. Earlier this spring, they announced that they are going to start releasing radioactive contaminated water into the ocean. And they are still grappling with how they can control the terrible breach that happened at Fukushima.

So I want to ask you, Chairman Hanson, 10 years out from this accident, what lessons have the NRC and the U.S. nuclear industries learned about the tragedy and acted upon to ensure the safety of our nuclear facilities?

Mr. HANSON. Thank you for that question, Congresswoman DeGette. In short, I think both the NRC and the industry have learned quite a lot in the last 10 years. We have—I can provide you some details on that for the record.

We convened what was known as the Near-Term Task Force within the NRC. We sent a delegation to Japan to learn firsthand about the accident, about the pre—you know the precursors and the other issues associated with the regulatory scheme in Japan so that we could take those back so that we could learn, but also then to help our Japanese counterparts move forward and operate more safely in the future.

Ms. DEGETTE. So could you briefly tell me some of the things you learned? I appreciate that you went over there. What were some of the things you learned?

Mr. HANSON. I can. We made each of our plants conduct an extensive reevaluation of the hazards facing them. So flooding and seismic primarily among them, but also just generally all external hazards.

And we really learned a lot from that. We were able to deploy equipment centrally in United States, in Memphis and in Arizona, to be deployed in the event of an emergency. We had a number of other requirements, including installation of hardened containment vents and also spent fuel—pool monitoring equipment.

So I think there were a number of things. My colleagues were here for that. I don't know if they want to respond.

Ms. DEGETTE. Yes, let me ask Commissioner Baran, do you know we need further steps to prevent any kind of catastrophe in our nuclear system?

Mr. BARAN. Well, you know, I think there is a gap that we still have. With the rule that was—the post-Fukushima rule that was finalized in 2019 provides for additional pumps, generators, hoses at nuclear power plants in case of emergencies. It is a very good step. And I think there is broad agreement that this flex equipment, as it is called, is the single biggest post-Fukushima safety improvement at nuclear power plants.

But there is something that is missing, which is that when we finalized that rule in 2019, we did not require it, we did not require that flex equipment to be protected from the up-to-date flooding and seismic risk.

So we spent all of this time, years and years, getting the latest data on what are the latest flooding risk, what are the latest seismic risks. In the end, the rule didn't go as far as it should have. It did not require that that vital equipment is protected from those risks.

And, you know, with the changing climate, flooding risks are not static. It makes no sense to allow licensees to operate with obsolete flood hazard estimates that are in some cases decades old.

So I do think that is something we should think about revisiting going forward in terms of preparing the plants for the impacts of climate change and just the reality of what we currently know about those hazards at the plant.

Ms. DEGETTE. Thank you so much. I look forward to working with you on those issues, and I yield back, Mr. Chairman.

Mr. RUSH. The gentlelady yields back. The Chair now recognizes the gentleman from Texas, Dr. Burgess, for 5 minutes.

Mr. BURGESS. Thank you, Mr. Chairman. And, Mr. Wright, let me just ask you, you heard the responses of the other two Commissioners on lessons learned from Fukushima and the preparedness. Would you care to have a statement added to that?

Mr. WRIGHT. Yes, thank you very much for the opportunity. So to follow up on Commissioner Hanson, you know, the NRC completed all the Near-Term Fukushima Task Force related reviews in September 2020, and they confirmed that all sites have adequate capabilities, either existing or voluntarily added to cope with all the beyond-design basis of the reevaluated hazards.

You know, the Commission approach in our final rule that we worked on in 2019, I mean, it retains the flex equipment that is already in place at every operating plant in the U.S. It allows for a case-by-case determination about further enhancements to the plant or to the flex equipment. And it is risk-informed.

It is performance-based. It provides licensees for flexibility to address site-specific hazards and other configurations that are specific to that plant. You know, because one in—that plant that is in the Midwest is not going to be the same that is on the Coast.

So it reflects lessons learned since the proposed rule was issued way back. And it is proven effective in maintaining safety. And, in fact, everything that they tried to do was done through the 5054F letters which were in addition to what the rule was talking about,

the things that we did to hard-knock everything else was 2 years earlier than what the rule had required.

Mr. BURGESS. Let me ask you a question. Do you feel as if the plant operators are empowered to make safety decisions real time, or do they have to consult with someone at the Commission?

Mr. WRIGHT. So I would think that because they communicate—and we have got inspectors onsite, right, we have got two inspectors onsite every day—so those conversations can take place. If they think that they have got to make a modification based on new hazard information, flood data, or whatever, they can make those decisions. But if it is something that they think that has to get NRC approval, there is a way to do that.

Mr. BURGESS. Sure. Let me just ask, and here we are, I hope, on the backside of the coronavirus pandemic, and we have all talked about lessons learned. To the extent that your agency has been a learning agency during this time, are there—and this may be a longer question that you want to respond in writing—but are the things that we have learned along the way that I hope we have been a learning legislative body during this time too—I can't say that that has been a hundred percent the case, but I would be—I would be interested in your thoughts.

And, again, it may be a longer question that you need to respond to in writing. But, Chairman Hanson, anything that comes to the top of the mind?

Mr. HANSON. Yes, thank you. I think overall across the agency, the use of technology has really accelerated during the public health agency. So, in some cases, you know, communications technology like we are using today.

But also, you know, we were able to conduct some materials inspections during the height of the pandemic when we were really, particularly, for instance, at hospitals where we may—in order to protect the health and safety of our employees maybe didn't want those people to go into those facilities, we were able—the licensee was able to walk around with their iPhone and show our inspectors remotely the safety and security measures that they had in place so that our inspectors could ensure that that was going on.

I thought that was a very innovative use of technology. You know, I respect and I deeply appreciate the need for boots on the ground, but I think that kind of thing is innovative, and we should maybe think about that going forward.

Mr. BURGESS. Let me just ask you, because it always has been such a headline lately. Has that increased any of cyber vulnerabilities because of the increased use or dependence on technology—to the extent you can answer in this room?

Mr. HANSON. I think at the moment we have adequate cyber defenses. I think we are constantly looking at our posture, the attack surface, if you think about it, for the agency. And our CIO organization is evaluating that and making the investments necessary at this time.

Mr. BURGESS. So, you know, one of the ongoing things in the recovery of the pandemic is going to be the lessons learned. And, again, I will just ask each you if you would be willing to provide to us on the committee, like, kind of a compendium of lessons learned during this time.

It is not just you. I would ask the same questions of many other Federal agencies. We have just come through a time unlike any other. It really tested a lot of us in a lot of different ways. But to the extent we have learned things, let's not let that—let's not let that go unrecorded.

I thank you all for the work that you do, and I appreciate so much that the Atoms for Peace is still alive and well and evolved into the Commission we have in front of us today. Thank you. I yield back.

Mr. RUSH. The gentleman yields back. The Chair now recognizes the gentlewoman from Illinois, Ms. Schakowsky, for 5 minutes.

Ms. SCHAKOWSKY. Thank you, Mr. Chair. I want to talk about decommissioning. And I want to thank Chairman Pallone for raising the issue of how local communities need to participate, and Diana DeGette pointing out that—you know, Mr. McKinley, I know that you think there is some sort of a plot here to undermine nuclear, but we have all seen that there are, in fact, safety and security issues that are involved that have to, if we're responsible, address that.

So there are currently 11 nuclear reactors in my home State and Bobby Rush's home State of Illinois. And I remain optimistic that Illinois will continue to grow its renewable energy production.

But as other technologies have been decreasing in the cost of production and deployment, what we have seen is that nuclear power plants find it increasingly difficult to be cost competitive, while without any—without any subsidies. We see that Exelon has indicated that it will close two of its nuclear power plants earlier than anticipated and may close more if they don't get subsidies. The financial assurances required for decommissioning are based on expected shutdown dates.

So here is my question, Chairman Hanson: How does the NRC intend to ensure that there is sufficient funding available for decommissioning shuttered, if—excuse me—if shutdown dates are accelerated for significant portions of the nuclear fleet?

Mr. HANSON. Thank you for that question, Congresswoman. We get regular updates from our licensees on the status of their decommissioning trust funds. We are in frequent communication with them. But also, before they undertake activities as part of the post-shutdown decommissioning activities report, you know, we are able to look at projected expenditures with the current balance of the funds, and we are able to—for instance, if we think a licensee is getting out in front of the funding that is available, we are able to direct them to scale potentially back their activities so that there is sufficient funding.

We have a number of mechanisms to do that, basically, on a bi-annual basis and then while decommissioning is ongoing on an annual basis so that we get updates of that funding.

Ms. SCHAKOWSKY. Thank you. Some owners and operators of nuclear power plants that have or will soon be shut down are transferring licenses to companies that specialize in decommissioning of nuclear power plants. Usually, the only asset that these specialized companies have is the nuclear decommissioning trust funds.

So, again, Chairman Hanson, how will the NRC ensure that these specialized companies are financially viable? And what will

the NRC do if one of these—if one of these companies, which hold, as I said, only asset, their only asset is that decommissioned plant, what if it files for bankruptcy?

Mr. HANSON. Thank you, Congresswoman, for that. And I will be happy to get back with you with kind of more details for the record on this.

But let me say that as part of the license transfer process, we look at the assets and the ability of the parent company and the ability over the course of decommissioning for the site company, as it were, to have recourse back to the parent and kind of what those guarantees are. I don't have all the details on the regulations on that in front of me, but I would be happy to get back to you or your staff.

Ms. SCHAKOWSKY. Thank you. I think it is very important to consider this because communities can get left holding the bag, and taxpayers can be left holding the bag. So I look forward to talking with you more about this. Thank you. And I yield back.

Mr. HANSON. I would be happy to do it.

Mr. RUSH. The gentlewoman yields back. The Chair now recognizes the gentleman from Ohio, Mr. Latta, for 5 minutes.

Mr. LATTI. Thank you very much, Mr. Chairman, and thank you very much for holding today's hearing. And I also want to thank our witnesses for appearing before us today. I know it has been a while since the NRC appeared before us in committee, and, again, I want to thank them for that.

Chairman Hanson, I want to thank you for your service and for testifying today. And in your testimony, you state that one of the reasons that NRC is requesting an increase in the operating reactor business line for fiscal year 2022 is for digital instrumentation and control, or DINC, improving for cybersecurity threats and increase protection at the NRC-licensed facilities. And as we all know, we all are talking so much more about cybersecurity.

And I have been a long proponent of using DINC to enhance the safety, reliability, and efficiency of our current nuclear fleet in the next generation of the reactors. I believe DINC can offer a host of benefits to licensees, including a reduction of human error.

In 2018, I questioned then-former NRC Chairman Svinicki on the Commission's efforts to reduce regulatory uncertainty when it came to replacing analogue system with advanced digital control.

Now, Chairman, would you provide an update on the progress that has been made in making sure licenses have the certainty—licensees, excuse me, have the certainty they need to make these digital modifications and improvements?

Mr. HANSON. Congressman Latta, thank you very much for that question. Digital INC is a personal interest for me and one of the priorities for my tenure as Chairman. So I am very sensitive to this issue of, kind of, are we there yet on digital INC for the current fleet. And, in fact, just a couple of weeks ago, I went up to the Limerick Plant in Pennsylvania owned by Exelon, where they are implementing digital INC pilot projects in conjunction with the Department of Energy to understand the upgrades that they are planning to make to their control room. And I have emphasized with the staff on several occasions the need to have a clear and reliable regulatory line of sight for the implementation of digital INC.

The NRC, like a lot of agencies and like a lot of us in the world, we learn by doing. And so this project in Pennsylvania is a key part of our efforts to be able to evaluate the technology, understand its safety, understand how it is going to interact with key safety systems within the plant, understand the redundancy as part of that so that we can make those safety determinations, understand in some cases the digital signals that are coming into the control room, how those are redundant and can be made safe.

We also have other licensees—I think the Waterford Plant in Louisiana as well as Turkey Point in Florida have also expressed interest in coming to us on digital INC upgrades. I think as an agency we are absolutely committed to learning further about this and coming up with a safe and reliable and transparent process for licensing the technology.

Mr. LATTA. Chairman—

Mr. BARAN. Let me just add, Mr. Latta, just put a little bit of context to that, because I agree with everything the Chairman said. I arrived on the Commission in 2014, and this had been a challenging issues for years and years and years. And it is in the last couple of years that a lot of progress has been made on this. And I think now you are finally seeing enough issues resolved here that you have licensees wanting to submit applications to go digital on really key safety systems, which they were very reluctant to do previously because they just weren't sure if it would get approved or not, or how long it might take for you to happen and what the outcome might be.

And in these last few years, a lot of progress has been made on that. And we are finally seeing folks coming forward saying, "Yes, we want to upgrade this key system with digital." Which is very good because, I mean, if you think plants operate into 80 years, they need to have modern digital control rooms and other systems. We want to make sure that that is something that is doable.

Mr. LATTA. In my last 40 seconds, let me—this is kind of going, you know, on the timeline because, you know, you have been researching the safety and security of the INC since about 1993. And I know that you want to make sure that, you know, you are getting everything, I will cross all the T's and dotting all our I's. But why is it taking so long in the rulemaking to get this technology out there when you said you want to make sure you have them right but you are talking since '93?

Mr. HANSON. Well, I agree with Commissioner Baran. I think we have made a lot of progress in the last couple of years. As I said, I am very sensitive to the, you know, "Are we there yet?" kind of question on that.

And I think the technical issues are being resolved at the staff level through key documents like branch technical positions and other documents that are going to allow us to move forward, I think, much more efficiently in the future.

Mr. WRIGHT. If I might. This is Commissioner Wright. If I could just maybe add a little bit here. I don't disagree with anything I heard from my colleagues here. And it comes down to, you know, regulatory certainty too. We have got to be sure that there is a way to get to done.

And, you know, we have been doing it for a long time. If you look, the Navy's been doing it for a long time in their subs. They have got—but there is a big difference between what the Navy is doing and how they do it versus what we would have to do in the commercial sector in our industry, because the Navy is totally in control. You know, it is basically a single vendor. They have bigger budgets, obviously, but—and there is more uniformity in design. In our space, it probably would not be a single person. It would probably be multiple innovators out there trying to sell their wares.

So you have got that pipeline that you have got to put in place as well. But the ability to do it is there, we just have to go ahead—and we are at the point where we are almost.

Mr. Latta. My time has expired. And I thank you for your indulgence. Thank you.

Mr. RUSH. The gentleman's time has expired. Ms. Matsui is recognized for 5 minutes.

Ms. Matsui. Thank you very much, Mr. Chairman. I want to also thank Chairman Tonko for convening this hearing. And I want to welcome Chairman Hanson and Commissioners Baran and Wright. It is a pleasure to have you here with us today.

Now, as you know, there are currently 26 decommissioned or soon-to-be-shut-down nuclear plants in States and districts all over the country. However, they still have custody and responsibility to care for the used nuclear fuel that once produced electricity at the sites. Now, this spent nuclear fuel continues to burden communities across the country, and including my own, the Sacramento Municipal Utility District, which maintains the decommissioned Rancho Seco nuclear power plant.

In 2012 President Obama's Blue Ribbon Commission on America's Nuclear Future recommended legislative changes to authorize consolidated interim storage facilities, also known as CISFs, to relieve communities for this fund by transferring the used field commercial nuclear power plants into temporary facilities until a permanent solution is reached.

And so, for this reason, I have historically introduced the STORE Nuclear Fuel Act, which had established the legislative framework to develop a consolidated storage program at DOE. I also helped secure \$20 million to start some of these efforts during fiscal year 2021.

Now, my nuclear storage—my STORE nuclear storage act directs the Secretary of Energy to establish interim knowledge program for high-level radioactive waste and spent nuclear fuel. It will allow DOE to contract with private storage facilities capable of storing such material. Now, my question is, how would the enactment of the STORE Nuclear Fuel Act affect NRC's interim storage efforts?

Mr. Hanson. Congresswoman Matsui, thank you. We are in the position of licensing interim spent fuel storage facilities whether those are constructed or proposed to be constructed by private parties, for instance, like whole tech or interim storage partners in Texas or by the Federal Government under either your act or the Nuclear Waste Policy Act, for example. So we have, obviously, two ongoing applications before us for private spent storage facilities.

We expect to reach licensing decisions on those relatively soon, I think: September for the facility in Texas and January of 2022

for the facility in New Mexico. And, you know, we have the capability to address additional facility applications as they might come in.

Ms. MATSUI. So you are continuing to address this, then? So you have dates certain that you expect to complete this process. Is that correct?

Mr. HANSON. I am sorry, Congresswoman, could you repeat the question?

Ms. MATSUI. Yes, so you have dates set in which you want to complete this process. Is that correct? So we can look forward to having this issue addressed?

Mr. HANSON. That is correct.

Ms. MATSUI. OK. Because we have been waiting for quite some time. So there is no—no feeling that there are other safety benefits served with storing nuclear fuel at CISFs close to storing them in decommissioned nuclear plants as is currently the case? You understand our concern is that we don't want these sitting in our—all over the country?

Mr. HANSON. I understand the concern of local communities that are hosting spent fuel storage facilities at decommissioned or completely removed nuclear reactors like the Rancho Seco site. We have determined that both interim storage—those interim storage facilities as well as the centralized interim storage facility are safe.

Ms. MATSUI. OK. Fine. Thank you very much. I yield back.

Mr. RUSH. The gentlewoman yields back. The Chair now recognizes the gentleman from Illinois, Mr. Kinzinger, for 5 minutes.

Mr. KINZINGER. Thank you, Mr. Chairman. And thank you to our witnesses for being here today. We appreciate having you, and these are very important issues.

At the end of 2018 legislation, I sponsored the NUKE Act that was passed by Congress and signed into law as part of the Nuclear Energy Innovation and Modernization Act, known as NEIMA. This is the first year that the NRC has implemented the reforms for NEIMA, which changed how NRC recovers fees from licensees. Specifically, it directed the NRC to recover approximately 100 percent of the Commission's budget authority, excluding amounts appropriated for certain activities. NEIMA also imposed limits on the NRC's corporate support costs to 30 percent of the Commission's overall budget, but the agency also exceeded this limit by 1 percent for fiscal year 2021.

NEIMA was intended to provide greater transparency and clarity to the NRC's fee development and to ensure that licensees pay fees only for services that the NRC actually performed.

So, Chairman Hanson, great to have you with us, by the way. Let me just ask you, do you believe that the intent of NEIMA is being fully met in the NRC's FY 2021 fee rule? Or does the NRC have more work to do in future fee rules to ensure that the statute's intent is fully satisfied?

Mr. HANSON. Thank you, Congressman Kinzinger. We are absolutely committed to process improvement and transparency in the development of the fee rule. And we have implemented the requirements of NEIMA, particularly with regard, as you mentioned, to the fee relief adjustment in order to increase the predictability for licensees in forecasting, particularly, their annual reactor fees.

So I do believe we are implementing both the letter and the spirit of NEIMA in that regard.

Mr. KINZINGER. Do you think there is any more work to do, or do you feel like you are on the right path for this?

Mr. HANSON. I think we are constantly looking at our processes to see how we can be more reliable and more transparent in our fee setting.

Mr. KINZINGER. OK. So we have seen perfectly operating plants closed throughout the country solely for financial reasons. In my own district I have not one, but two plants that are scheduled to close this year for the same reason. At the same time, we have seen problems arise from the decrease of base load power on the grid, a problem that only worsens as more nuclear power plants shutter.

Chairman Hanson, I will ask, I have two more questions too. What are the existing procedures for bringing recently closed plants back online? Should a different, more efficient licensing process be developed somewhere between a license renewal and a completely new license?

Mr. HANSON. Yes, thank you for that question. We have—we believe our existing regulatory framework and our guidance documents actually provide for bringing a plant back online if a licensee so chooses. There are certainly requirements for maintaining certain safety systems. I don't know that occurs, but we do have the apparatus. We don't think that necessarily a major rulemaking is necessary for that. We believe we have got the guidance and the tools in-house to allow for that should a licensee so choose.

Mr. KINZINGER. So it wouldn't be basically the length of a completely new license? Would it be somewhere in between, then, in that sense, renewal and new?

Mr. HANSON. That is right. As long as the licensee maintained its relationship with the NRC and maintains certain safety systems and other kinds of things, there is a scenario under which they could kind of restart the plant, go back to operations if they chose to.

Mr. KINZINGER. Yes, I am sure there's a lot of variables in there. In cases where reversing the decommissioning process is impossible, what about using these existing sites to host advanced reactors and small modular reactors that will be brought to market soon?

Mr. HANSON. Well, there is certainly a possibility, Congressman, that the existing environmental impact statement for that site could encompass future nuclear uses. And so it might make that part of the process a little more streamlined. I think we would have to evaluate that on a case-by-case basis, but I certainly acknowledge the possibility.

Mr. KINZINGER. OK. Thank you, Mr. Chairman. I yield back. Thank you to the witnesses.

Mr. RUSH. The gentleman yields back. The Chair now recognizes the gentlewoman from Florida, Ms. Castor, for 5 minutes.

Ms. CASTOR. Well, thank you, Chairman Rush and Chairman Tonko, and thanks to Chairman Hanson and Commissioners Baran and Wright for testifying before us today.

It is vitally important that we keep our existing nuclear power plants operating safely while we scale up additional sources of zero-emission electricity to meet our climate goals. At the same time, we must ensure that the nuclear power plants are resilient to the impacts of climate change and extreme weather so we avoid outages and serious consequences like we saw in Texas earlier this year.

I trust that you all have seen the report from the Department of Energy that highlights how heat waves and droughts can threaten the availability of nuclear plant cooling water, leading power plants to have to reduce their electricity output.

Heat-related power reductions happened in New Jersey and Pennsylvania in 2010, in Alabama in 2011, and then New England in 2012. And studies have identified that there are ongoing drought concerns for nuclear power plants in Illinois as well. And then we saw the—on the flip side, the extremely cold weather out of the blue caused the nuclear plant to freeze in Texas earlier this year. And then the add-on flooding in Missouri, wildfires in California also led to shutdowns and evacuations of nuclear power plants. This is very serious that these climate-amplified extreme weather disruptions at our nuclear power plants are reducing the reliability of the electric grid.

So we have made some recommendations from the Select Committee on the Climate Crisis in our Climate Crisis Action Plan, and we recommended that the Congress direct the NRC to complete a fleetwide assessment of extreme weather and climate vulnerabilities to the U.S. nuclear plants and spent fuel based upon projected climate impacts. Two, we suggested the NRC use its existing authority under NEPA to conduct a rigorous climate assessments of reactors seeking license renewals, include a thorough review of vulnerabilities due to potential climate impacts. And then, third, we recommended directing the NRC to require nuclear power plants to take action to address known flood risks, seismic risks consistent with Federal flood risk management standards. And thank you, Mr. Baran, you mentioned this.

So, Chairman Hanson, how is the NRC ensuring that the existing fleet is resilient to climate impacts? And would you consider performing that fleetwide assessment in cataloging the vulnerabilities so we know how to address it?

Mr. HANSON. Thank you, Congresswoman Castor, for that.

We do evaluate climate impacts and impact of greenhouse gases on our plants as part of the NEPA process. So, for example, we considered those issues as part of the Turkey Point license renewal, as well as the Vogtle license for the facility in Georgia.

At this time, following the external hazards analysis following the Fukushima event, you know, all of—all measures necessary for adequate protection of the plant are required at those facilities. Certainly licensees have taken additional voluntary measures, and I acknowledge that, you know, one of the issues of the mitigation on beyond-design-basis events rules is this issue between what is required and what is voluntary.

But at this time, you know, we are working with licensees and with the addition of our inspectors to evaluate all the external hazards facing each of our licensees, whether that is flooding or heat

or tornados. Of course, we had the derecho event in 2020 at the Duane Arnold plant in Iowa, and other kinds of issues.

So this is—this is an issue where we are constantly getting feedback and evaluating that feedback and evaluating the safety posture of our—of the facilities under our oversight.

I don't know if Commissioner Baran or Commissioner Wright want to weigh in on that.

Mr. BARAN. I would just add that, you know, one of the things we learned from Fukushima and all the science that we looked at after that was that—and that we know from climate science—is flooding, hurricanes, snow and ice loads are expecting to pose greater challenges to nuclear power plants and the grid in the future than they have in the past.

And I think, what does that mean for NRC? We need to stay up to date with the latest science and incorporate that knowledge into our standards and our oversight, and that is an important aspect. Part of it is the post-Fukushima you mentioned, but even more broadly than that, just understanding what is the very latest on the potential risks and hazards at these locations, and what does that mean for any changes that need to happen at the plants?

Ms. CASTOR. Yes. We need to expect the unexpected.

Thank you very much. I yield back.

Mr. RUSH. The gentlelady yields back.

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

Mr. GRIFFITH. Thank you, Mr. Chairman, and thank the—I appreciate the Commissioners being here today, and it is good to be in the room with witnesses and actually able to look at folks in the eye, so thank you all very much.

To provide protection against regulatory overreach, the backfit rule requires that the NRC must conduct a cost-benefit analysis to justify the imposition of a modification on an NRC license. The proposed modification can only be imposed if the cost-benefit analysis establishes that there is a substantial increase in safety.

Chairman Hanson, for several years the NRC has been working on updating its guidance document on the backfit rule to provide greater clarity to both the NRC staff and licensees on implementation of the rule. The staff provided its proposed update to the guidance document to the Commission in March of this year.

When will the Commission finalize its votes on the guidance document?

Mr. HANSON. Thank you, Congressman Griffith.

As you noted, it is before the Commission. We are each taking a look at it. Certainly the backfit issue, I can tell you personally, is new to me coming onto the Commission, and so it is something that I look forward to taking a close look at.

I don't know if any of my colleagues have—

Mr. GRIFFITH. Well, the main thing is how long do you think it is going to take before you get it finalized? Is that going to be 2 months, 3 months, 6 months? I mean, I am not going to hold you to it. I am just trying to get an idea—or 5 years?

Mr. HANSON. I am not aware of a particular deadline on that. Of course, each of us prioritizes our work. And, when there is a critical

mass—and, in this case, a critical mass of three—then these issues are resolved.

Mr. GRIFFITH. All right. Well, let me move on. I have got some other questions on that.

Commissioner Wright, it is my understanding that the proposed revisions to this guidance include a substantial discussion on the concept of forward fitting, which occurs when the NRC conditions its approval of a licensee-requested licensing action on the licensee's compliance with the new requirement that was not part of the request. In other words, they make a request to make a change that they think is good for safety and efficiency, and then forward fitting would say, "Well, we are going to add on some extra things."

That being said, do you agree that, without additional guidance on when the NRC may impose a forward fit, licensees may be disincentivized from pursuing licensing actions, including ones that may actually improve the plant performance, if they run the risk of being forced to comply with additional new requirements that was not within the scope of their request?

Mr. WRIGHT. So I absolutely agree with you. The—we have got to stay within our mission, OK? I am—I have umpired baseball for almost 50 years, OK, and I use the analogy that the—our mission is that strike zone right over home plate, right, and everything that we do has to go right to the—to our mission, which is—is reasonable assurance, right?

So, in the forward-fit policy, you know, it is designed to add discipline to the process, imposing some new requirements or staff interpretation's requirements as a condition.

So it is intended to ensure that these new requirements have a direct relationship to the proposed action, but, as you know, sometimes they can overstep bounds. And that has happened. You know that, I know that as well. So we are not going to hide behind that.

But I think that—that the licensee, if he can maintain reasonable assurance that, you know—then he has met his mission, and we should approve it. You know, quite honestly, there is an example I will give you. It is, you know, when a licensee proposes the use of an older version of his—a design code that is currently approved by the NRC, but the staff wants to require a newer version of that code, right?

The staff has got to be able to demonstrate that that is—that there is something in that newer code that absolutely is essential, right? And, if they can't do that, then they have to let the licensee, you know, use the older code. That is the way to go.

Mr. GRIFFITH. And my concern in other arenas and other fields, we have seen where regulations of that set or that nature, where people are afraid, it creates a situation in industries where they just won't come in and ask to make any changes because they are afraid additional, more expensive changes will be added onto them that have nothing to do with the requested change. And so that is a real problem.

So it sounds like to me you would be in support of clarifying the guidance document so that it fits that mold that you were just talking about. Am I correct in that?

Mr. WRIGHT. Correct. Yes. And, by the way, I did take the backfit training that was offered by the staff. So I did it very early. And

I do think that the document—that what is before us that we are considering, I don't think it is too far away, you know. I won't say where we all are in it, but it is—

Mr. GRIFFITH. All right. I appreciate it, and I will continue to keep an eye on this. Thank you so much for your time, and I yield back.

Mr. RUSH. The gentleman yields back.

The Chair is now recognizing the gentleman from Maryland, Mr. Sarbanes, for 5 minutes.

Mr. Sarbanes, you are recognized.

The Chair now recognizes the gentleman from California, Mr. McNerney, for 5 minutes.

Mr. MCNERNEY. Well, I thank the chairs for holding this hearing. And I thank the Commissioners and all the NRC staff for your service.

Chair Hanson, you testified that the final rule for 10 CFR Part 53 is expected by the end of 2024, well ahead of the NEIMA deadline. Could you explain how the final rule will be ready so far ahead of the previous schedule?

Mr. HANSON. Yes. Congressman, I think one of the key ways is by having frequent interactions with stakeholders upfront on key technical issues, on the critical issues with regard to—I think, as Commissioner Baran rightly noted, probabilistic risk assessment versus defense-in-depth, and resolving those issues, and conducting those interactions and, really, the development of rule language in iterative fashion, I think in this case, has the potential to greatly accelerate the schedule. And I think the staff is doing a very admirable job in that.

I do also want to note, however, that it is really important for us to get this rule right, and so, you know, should there be a need for additional time on the 2024 timeline, you know, I have certainly made it—tried to make it clear to staff for my part that, you know, having a framework that—in which we can make safety determinations and security determinations for these advanced technologies is critically important.

Mr. MCNERNEY. OK. Thank you. Well, Chairman, the NRC—is the NRC prepared from a staffing and technical expertise perspectives to meet a growing demand for advanced nuclear?

Mr. HANSON. I think we are getting more prepared every day. We are having frequent interactions with potential licensees. We are encouraging those interactions through the submission of topical reports that address key technical issues on the technologies that could come before us. We are educating our staff by—our staffs by working with the Department of Energy through the memorandum of understanding under the Nuclear Energy Innovations Capabilities Act with the Department of Energy, so that we are more familiar with those technologies. And we are working with the national labs on some of that as well. So we will be ready when they submit.

Mr. MCNERNEY. So, I take it that the NRC is keeping up with the changes in the industry by your answer there.

Moving on, currently, there are over 80,000 tons of nuclear waste in the United States and inventory in insufficiently secure facilities across 35 States. Moreover, it is unlikely that the State of Nevada

will ever allow Yucca Mountain to be used as a nuclear waste repository. This is irresponsible and dangerous to have that quantity of nuclear waste with no realistic plan.

What are any alternative nuclear waste storage methods that would be considered or that have been approved?

Mr. HANSON. Congressman, we have before us a couple of interim storage applications for private, spent-fuel storage facilities, one in Texas and one in New Mexico. We are moving ahead with reviewing those applications, and will make final decisions here in the next few months on both of them, one in September and one in January.

We are open for other applicants who are interested in—whether Federal or private, who might choose to submit an application for one of these facilities going forward.

Mr. MCNERNEY. Are there any other alternatives, such as reprocessing, or horizontal and vertical drilling? You know, it seems like we need more than what you are proposing there.

Mr. HANSON. Well, Congressman, it is really—it is not for the NRC to propose these things. We have strictly a regulatory and safety role under both the Nuclear Waste Policy Act—

Mr. MCNERNEY. OK. I get it. I get that. We have heard that. But what does it take, then, to get a permit for alternative storage methods once they have been approved? What is it going to take to, say, for someone to want to deposit waste in Texas or New Mexico?

Mr. HANSON. Yes. I would have to get back to you on the specific details on what would be required, but I think, in brief, there would have to be a safety case made with regard to isolation from people in the environment of that waste over a certain period of time, whether it is the 40-year initial license period for the facilities in Texas or New Mexico, or if you are talking about horizontal or vertical drillings, perhaps deep geological disposal, under longer timeframes.

Mr. MCNERNEY. All right. Well, thank you.

Mr. Chairman, I yield back.

Mr. RUSH. The gentleman yields back.

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

Mr. JOHNSON. Well, thank you, Mr. Chairman, and thank you to the NRC Commissioners for joining us today.

You know, nuclear power generation along with coal and natural gas are indispensable in providing the American people with reliable, large-scale baseload electricity, and that will remain a fact far into the future.

According to the best estimates, replacing the generation from an average nuclear plant—carbon-free generation, I might add—you would need to cover some 300 to 400 times that amount of land in renewables with wind and solar. Replacing nuclear energy—or coal and natural gas, for that matter—with large-scale wind and solar, as my Democratic colleagues suggest, is not only impossible, it is just simply counterproductive.

Keeping America's nuclear fleet operating is crucial to our energy security and our environment. By nature, the nuclear sector is

uniquely complex and highly specialized with supply chains and lead times that cannot simply be turned on and off.

This is why it is imperative that we safeguard the next generation of nuclear technology, our domestic nuclear industrial base, and America's ability to remain a world leader in exporting innovative nuclear technology.

Also, it bears mentioning that tens of billions of public and private dollars have been invested in American nuclear innovation in recent decades, with many promising technologies around the corner. American taxpayers, consumers, and innovators deserve to get a return on this investment, and the NRC's mission is critical to realizing that goal.

So, Chairman Hanson, today, with about 151 new reactors in the planning phase around the world and over 300 totally around the world being proposed, the U.S. industry faced stiff competition from nation state programs in Russia and China who threaten to dominate emerging markets. America has to take practical steps to maintain our competitive edge.

Part of this involves R&D, and part of it involves updates for licensing so that we can do a better job of deploying new technologies. With the recent awards under DOE's Advanced Reactor Demonstration Program, the NRC will receive multiple license applications for commercial and research reactors in the near future.

So, while the NRC will need to ensure safety and efficiencies in reviews, it will needlessly cause increased costs and cause delays. So my question to you is this, Commissioner Hanson: Is the NRC prepared to review these applications within the next few years, and how will the NRC avoid unnecessary delays?

Mr. HANSON. Congressman, thank you for that question.

I believe we are prepared in the next few years to review these applications.

With regard to the Advanced Reactor Demonstration Program applications that you mentioned, we have had ongoing discussions. In the case of X-energy, we had ongoing interactions with them, even before the ARDP award was made about their technologies.

And, through the submission of technical reports with—in the case of TerraPower, it has been more recent, but we expect to have substantive and ongoing interactions with them as well. This is going to help prepare the agency for when those applications come in to efficiently review them.

I think, as I may have mentioned earlier, the goal with these new technologies is to review and make licensing determinations in about a 42-month timeframe, which is significantly shorter than historically available. And, as I said, we are committed to not being an impediment to these new—to the deployment of these new technologies, you know, consistent with our overall safety mission.

Mr. JOHNSON. OK. And can any of you comment on how the development of Part 53 fits within the Advanced Reactor Demonstration Program's timeline? And what does a successful outcome to licensing the ARDP reactors look like to the Commission?

Mr. HANSON. Thank you, Congressman. That is a great question.

I admit that there is a little bit of a—I don't want to call it a disconnect, but maybe a gap between the development of Part 53 and the ARDP timeline. I would say, I think, TerraPower is still

evaluating how they intend to come to the Commission for a license, but X-energy has certainly already seems to have appeared to make that decision within our existing framework and is communicating with us about which parts of our existing framework may apply to them or not.

So, with regard to Part 53, then, you know, we look forward to having, even before we finish, an understanding from potential applicants about how they intend to engage with that licensing so that, when we are done and when they are ready to submit, we have a clear framework and a clear path forward for addressing those applications.

Mr. JOHNSON. OK. Well, thank you.

Mr. Chairman, I yield back.

Mr. RUSH. The gentleman yields back.

The Chair now recognizes the gentleman from Vermont, Mr. Welch, for 5 minutes.

Mr. WELCH. Thank you very much, Mr. Chairman. I thank all the chairmen for holding this hearing, and also, I want to thank the three Commissioners for being here.

As you know, Vernon, Vermont, is the home to Vermont Yankee, and that was the first commercial plant in the country to be sold for decommissioning, and it is likely the plant will be fully decommissioned within the decade and within budget. That is the way it is looking right now.

But, from the beginning, there has been a real lack of coordination and support from the NRC with the local communities that are profoundly affected by the decommissioning. And I know that you are working on rulemaking to address the decommissioning process.

And I recently sent you a letter, and I just want to outline some of the priorities that I and some of my colleagues mentioned and get your response to them.

We want increase in community involvement. You know, once that plant closes, all those jobs are gone, and it really has an impact on the community. Formal NRC approval of decommissioning plans, licensee financial support for citizen advisory boards, preference for prop decommissioning, DECON over deferred decommissioning, SAFSTOR, and regulations to ensure that the nuclear decommissioning trust is used strictly for statutorily authorized purposes.

How—I am going to ask the Chairman: How would you evaluate the NRC's level of engagement with host communities relative to the engagement with other parties, such as the Nuclear Energy Institute and license holders and matters related to the development of a decommissioning policy?

Mr. Chairman?

Mr. HANSON. Well, certainly, Congressman Welch, we appreciated getting—we appreciated getting your letter on this subject, and the letter signed by the Senators and other parties and as kind of representatives of the local communities. We did also, as part of NEIMA, conduct a series of public meetings around the country about and documented best practices for community advisory boards and were able to, I think, get some useful feedback on our decommissioning processes—

Mr. WELCH. Can you be specific?

Mr. HANSON [continuing]. In that way.

Mr. WELCH. Can you be specific?

Mr. HANSON. I am sorry. Unfortunately, I don't have the details of the community advisory board report in front of me. I would be very happy to get back to you for the record on that.

Mr. WELCH. All right. Let me ask Commissioner Baran. Currently, postshutdown decommissioning activity reports are submitted to the NRC, but the NRC does not offer formal approval of these important outlines for decommissioning.

What is the purpose of not requiring the NRC to formally approve these?

Mr. BARAN. Yes, I share your question, Congressman. I think collecting a post-shutdown decommission activity report without NRC's substantively assessing its content or making a decision to approve or disapprove it doesn't really do much to protect health and safety. And I think taking public comment on that document and then not taking any kind of action about the adequacy of the report, I do think it kind of is a hollow gesture.

I think there are really a few problems, I think, with the way it is done now with the—with the activity—the decommission activity reports. It leaves NRC no real decisionmaking role on the process of decommissioning, and it has two big effects. You don't have an environmental review upfront. It could wait decades, to the very end of the process, and you don't have an opportunity for communities or others to make any—raise any concerns in the adjudicatory process. That also follows at the very end of the process when all the work is done, all the money is expended, and it has been decades, potentially.

And so I also—you know, I agree with the point you made that we, as part of this decommissioning rulemaking, need to take a real look at that. I think a model where NRC is deciding on a document, a decommissioning plan, a detailed plan, making a regulatory judgment about it also gives us the opportunity to do the environmental review upfront when it makes sense, and engage State and locals.

We could have a requirement, for example, that says, before you submit a decommissioning report to the NRC, you have got to share it with the State government and give them an opportunity to take—make comments on that. I think that would be a great way to really give States a seat at the table.

And then moving up the environmental process, moving up potentially the adjudicatory process gives all the State and local stakeholders an opportunity to engage much, much earlier than they do now.

Mr. WELCH. Thank you, Commissioner.

Mr. Chairman, I am wondering if you could follow up on that, because, again, let me just elaborate a little bit on what is happening in Vernon. It is a huge impact on the community, as you know, when a plant closes down, and there is an effort on the part of the local people to revitalize the economy in the face of those lost jobs, and the citizen engagement is really essential to that.

Can you comment on how you see that fitting into your plans? Mr. Chairman?

Mr. HANSON. Oh, I am sorry. I thought that was a question for Commissioner Baran. I apologize, Congressman Welch.

Mr. WELCH. Yes.

Mr. HANSON. We are going to be—well, let me say, first of all, that the ultimate standard for decommissioning is a free release of the site. That is, an unrestricted use of the site. And, throughout the decommissioning process, that is the standard to which we hold the decommissioning owners, the—our licensees.

And so, I think that is one of the key ways potentially that could benefit local communities, because it makes that site available for reuse. It is not a brownfield at that point. It is actually a greenfield, assuming, right—addressing, of course—I understand there are issues potentially with the spent fuel. But, overall, it does make that site available for a whole variety of uses.

Mr. WELCH. Well, thank you very much.

My request is that, not just with the Vernon facility, but all these others that are coming offline, that the NRC be very responsive to the input from citizen advisory boards that have the best interests of the—our community at stake, and I look forward to working with you and the NRC on that.

Thank you. I yield back.

Mr. RUSH. The gentleman yields back.

The Chair now recognizes the gentleman from Indiana, Mr. Bucshon, for 5 minutes.

Mr. BUCSHON. Thank you, Mr. Chairman.

Commissioner Baran, I just—since you mentioned it a bunch of times, what is your definition of environmental justice, and how is that applicable to the NRC and what you are doing at the NRC?

Mr. BARAN. Sure. I mean, you know, when we are doing—when we are looking at environmental justice, we are looking at potentially disproportionate impacts on disadvantaged communities, on minority communities.

Mr. BUCSHON. OK. Can I interject there?

Mr. BARAN. Yes.

Mr. BUCSHON. I would suggest you look—I represent southwest Indiana, and we have all kinds of ozone alerts and other things. I would suggest you look at that area of the country and look at our demographics—

Mr. BARAN. Uh-huh.

Mr. BUCSHON [continuing]. And make sure that whatever definition you have in—you know, may include areas of the country that may not fit your political narrative, but may also have—be disadvantaged as it relates to air quality and the issues related to that.

So I—again—so that is—you know, I just don't see where the NRC is—has a substantial role to play in this.

Mr. BARAN. Well, can I—if you just—

Mr. BUCSHON. Yes. Go ahead. Sure.

Mr. BARAN. One of the things I think we need to look at is just some of our processes and procedures. If you have got a community that wants to raise a concern, we have got processes for that. Are they set up to be accessible in a way that really works for folks, or is it really tough to engage or requires a lot of—

Mr. BUCSHON. Sure

Mr. BARAN [continuing]. Expertise and lawyers—

Mr. BUCSHON. Fair enough.

Mr. BARAN [continuing]. And stuff. And those are the kinds of things that, you know, Mr. McKinley talked earlier about, is it all about a licensing decision? I think there is a lot of other things that we could look at and make sure that we are responsive to folks who care about these facilities.

Mr. BUCSHON. Yes. I mean, I just—I just think we need to be careful when—that every hearing we have, that we have to some have political talking points as part of our testimony, and I think, without really good definitions, facts, statistics to back that up—and this is one of those—not saying that you are wrong, I am just saying that I am not sure why this is applicable at an NRC hearing.

Mr. BARAN. Well, and the NRC staff is going to take 9 months to look at this. We are not jumping to any conclusions and making any decisions—

Mr. BUCSHON. Understood. Fair enough.

Chairman Hanson, Congress enacted free reform—fee reforms and put a cap on the corporate support in the Nuclear Energy Innovation and Modernization Act. This requires budget discipline. Last year's defense bill required a similar discipline to limit overhead costs on all congressional program increases. The result was the Department of Defense developed better systems to track overhead costs.

What is the NRC doing to better track costs?

Mr. HANSON. Thank you, Congressman, for that.

Yes, we have—we have developed some budget execution tools to better track costs. In addition—from our CFO's office across the enterprise, but also within the programs themselves, we are better tracking actual costs.

So, for specific licensing actions now, we have developed data tools, visualization tools that put—put those tools in the hands of program managers so that they can see the level of effort, so they can see the hours that are being billed against specific licensing actions.

Mr. BUCSHON. Yes.

Mr. HANSON. Not only so that they can track those, but so that our applicants can track those as well, and they can see there is some transparency around that.

Mr. BUCSHON. Great. Thank you very much for that answer.

As the Commission works to develop a new regulatory framework for advanced reactors—and some of this you may have already discussed—what is it doing to ensure the appropriate staff capacity and expertise will be available to address the incoming license applications for 5 years down the line? And, Chairman, I will let you start with that.

Mr. HANSON. Sure.

Mr. BUCSHON. Because that is going to be important, right?

Mr. HANSON. Absolutely, Congressman.

You know, I talked a little bit about free application interactions with licensees. Let me highlight some of the work we are doing in strategic workforce planning, where we are trying to look 2 and 3 and 4 years down the road, and identifying those key skill sets and

identifying whether we can take people within the agency that may have adjacent skill sets and retrain them for those new capabilities down the road or whether we need to go hire or recruit them.

And, whether that is new employee—you know, fresh out of college, master's degree students, which we have—which we are implementing programs for now, or whether that is midcareer people that we need to come and be project managers and leaders and within the agency. So we are really attacking this problem on multiple fronts.

Mr. BUCSHON. Great. Maybe I will go to Commissioner Wright since he hasn't gotten—had a chance to talk yet.

Mr. WRIGHT. And that is perfectly OK, Congressman. Thank you so much.

So I agree—I agree with Chairman Hanson about the—you know, our efforts and strategic workforce planning. And, in the last couple of years—and I have been kind of following this personally, because I actually had some of the summer interns and the NRAN students that we had—they actually came up to my office and sat with me and told me where they thought some of the weaknesses were with the NRC going out and recruiting new talent, because that we were behind the curve, and the other agencies were getting the cream of the crop.

So we have really modified our—the way we are going about recruitment at the college level. We have got high schools involved. And we are—we are utilizing their input, right? And they actually are—and they are coming to work for us.

Mr. BUCSHON. Right.

Mr. WRIGHT. We are identifying people who really can add value to us specifically going into the areas that you are talking about, which is the future.

Mr. BUCSHON. Thank you.

My time has expired. Mr. Chairman, I yield back. Thank you all for the hearing.

Mr. RUSH. The gentleman yields back.

The Chair now recognizes the gentlelady from New York, Ms. Clarke, for 5 minutes.

Ms. CLARKE. Thank you, Chairman Rush, Chairman Tonko, Ranking Member Upton, and Ranking Member McKinley, for holding today's important hearing on the Nuclear Regulatory Commission's fiscal year 2022 budget request.

Let me thank you as well to Chairman Hanson, Commissioner Baran, and Commissioner Wright for joining us to offer your testimony.

The Biden administration has signaled a renewed commitment to nuclear energy as critical to achieving their ambitious climate goals, a commitment that includes the development of new forms of advanced nuclear energy technologies. The administration's fiscal year 2022 budget request would direct \$700 million to the Department of Energy to spur the development of advanced nuclear technology, including \$245 million to build two new advanced nuclear reactors that would be operational within 7 years.

As the agency in charge of protecting public health and the environment from the use of nuclear material, NRC will undoubtedly

have a significant role to play in the licensing and regulation of these advanced facilities.

Commissioner Baran, it is encouraging to hear from your testimony that NRC plans to establish an updated regulatory framework to ensure the safe operation of next-generation facilities. Can you elaborate on how NRC standards and regulations will adapt to these technological advances in nuclear reactor technology?

Mr. BARAN. Sure. Yes. This is—this is the so-called Part 53 rule-making. I hate throwing around regulatory parts at people, but, you know, it is the idea of having basically a third new pathway for licensing advanced reactors. We have got the two existing ones. This will be a third option.

And the idea here is to have something that is risk-and-performance based, technology neutral, so that any of these different types of reactors that might come along or on the scene now in conversations with us would be able to use this same framework. It is not going to be a prescriptive base on a very particular type of technology. It is going to be broader, more performance-based.

And, you know—and we have talked a little bit about some of the key issues there. One is how much are we going to rely or how much is the rule going to rely on quantitative models versus other ways of improving safety, and another thing that we have all alluded to is really striking this balance between how do we take into account potential safety enhancements and new technologies, and how do we balance that with having defense-in-depth, multiple layers of defense against radiological releases.

And those, I think, are a couple of the big elements that are going to be kind of focuses for a lot of the work in that area.

Ms. CLARKE. Well, thank you. I firmly believe that any advancements in nuclear energy should coincide with more stringent environmental and public health standards.

My next question. As you all know, our Nation is facing an onslaught of high-profile malware and ransomware attacks targeting government agencies, critical infrastructure, and private businesses. In addition to the recent high-profile attacks on the Colonial Pipeline and JBS Foods last week, hundreds of American businesses were hit by ransomware attacks that seized troves of security data and forced businesses to shut down their internet servers.

A successful malware attack on a nuclear facility conducted in cyberspace could potentially have devastating and fatal consequences to the physical world.

Chairman Hanson, what steps is NRC currently taking to ensure that cybersecurity requirements for licensees properly address the growing and ever-changing threat landscape of cyber attacks?

Mr. HANSON. Thank you, Congresswoman, for that.

The NRC's regulatory framework with regard to cybersecurity for nuclear power plants focuses on the—what we call critical digital assets, those computer components within the facility that address either safety, security, or emergency preparedness.

Now, in many cases, the—those critical digital assets in a nuclear facility are often air gapped from the rest of the internet. They are—we often see unidirectional technology where information can only flow in one direction. But we also—and we require

either those kinds of measures to be in place or equally protective mechanisms on a plant-by-plant basis.

Ms. CLARKE. So I would like to talk to you a little bit more about that. My time is running out, but I am really interested in understanding what your protocols are with respect to OT versus IT and the convergence of both.

With that, Mr. Chairman, I have many more questions, but my time has elapsed. I am going to yield back the balance of my time.

Mr. RUSH. The gentlelady yields back.

It is the Chair's understanding that the next four Members—Mr. Mullin, Mr. Walberg, Mr. Carter, and Mr. Duncan—are waiving their time, or they pass so that Mr. Palmer, the gentleman from Alabama, will be the next Member to ask questions.

With that, Mr. Chair—the Chair now recognizes Mr. Palmer for 5 minutes.

Mr. PALMER. I thank my colleagues for allowing me to move ahead of them in line, and I thank the chairman for allowing that as well.

Chairman Hanson, under the Nuclear Energy Innovation and Modernization Act, NRC's required to develop new licensing framework for the development of advanced nuclear reactors. However, groups such as Breakthrough Institute have raised concerns about the proposed licensing framework known as 10 CFR Part 53 is overly burdensome and out of step with current technology and climate demands.

They note it is expected that many advanced reactors will provide much larger safety margins relative to existing large light-water reactors, but they should not be required to do so for licensing which would result in substantial ratcheting of regulatory burdens upon licensees for technologies that offer the United States substantial environmental and energy security benefits.

So my question is: Can you ensure that the new licensing framework does not unfairly increase the regulatory burden on these new facilities, which in effect would deny us access to safer and more environmental-friendly facilities?

Mr. HANSON. Congressman, I can commit that the NRC does not intend to be an impediment to the deployment of these new technologies and that we are looking at new ways to make our safety determinations through the enhanced use of data and computer modeling and other kinds of information that the—you know, the kinds of information that a lot of these reactor vendors are equipped with.

Mr. PALMER. Well, I raise that question in the context of a couple things. One—and I will address this later about environmental justice, but the other in the context of losing our advantages in nuclear technology for—to Russia and China. And by that I mean Russia has, a few years ago, entered into an agreement with Saudi Arabia. And I think our technology, and particularly on the safety side—and this is where the NRCC, I think—I mean, the NRC—excuse me—the NRC would be particularly interested in helping it streamline the regulatory requirements for our advanced nuclear to build those in the United States but also to offer those to the rest of the world, because they are the safest.

Mr. HANSON. Congressman, the NRC—we have the privilege and I might say the burden of being the gold standard of nuclear regulation throughout the world. As I have come into this job and started to interact with my international counterparts, I see that more and more.

It is my feeling that I think that the NRC should be part of the value proposition for nuclear exports. That is, we can help countries also regulate these technologies as we export them, and I am—

Mr. PALMER. You—

Mr. HANSON. Go ahead, I am sorry.

Mr. PALMER. But you understand that, if you impose unnecessary regulatory burdens on the advanced nuclear reactors, that it not only hurts us here in the U.S. and our ability to provide CO₂—reduced CO₂ emissions, to provide environmentally friendly power, and particularly in areas that—where we talk about environmental justice. To deny people access to this power, particularly in lower-income areas, is an energy injustice. It is an economic injustice, and that leads me into this next point about, as part of the effort of your staff review, whether environmental justice is appropriately considered in the agency's adjudicatory procedures, environmental reviews, and whether the NRC should consider implementing environmental justice outside of the NEPA policy.

Have you considered the impact on lower-income communities by forcing them—having them to wait longer for affordable, clean, and safe energy?

And I know there's areas around the country that don't even have access to natural gas. And I brought this up in several hearings. I think that is an important consideration here, with all due respect to each of you, that we make sure that this regulatory process works in the favor of American consumers, and, particularly, people who don't have access to reliable energy. And I will—any one of you, or all three of you can respond to that.

Mr. WRIGHT. Do you want me to take it?

Mr. HANSON. Go ahead, Commissioner Wright.

Mr. WRIGHT. So I agree with you. And I think that we as an agency, because we are safety experts, right—we are not promoters. We need to be sure things are done safely. Our staff is the NEPA expert, right, and everything that we do, we need to stay within our swim lane. We need to stay consistent with our mission, and that includes the staff review on environmental justice as well.

You know, we can't be a barrier to innovators and innovation. We have got to be able to allow there to be regulatory certainty to get these things to market. You know, our—we have principles of good regulation that we have to operate by, but that does not preclude us or prohibit us from being part of the value chain that the Chairman referred to.

So we have got to—you know, if there is opportunities through existing laws like NICA and other ways for us to do work with DOE better, to work with other agencies, work with you, then we need to be open to doing that. But we have got to stay within our swim line as an agency, which is the reasonable assurance standard.

Mr. PALMER. My time has expired again.

I thank the chairman and my colleagues who allowed me to go ahead of them. I yield back.

Mr. RUSH. The gentleman yields back.

The Chair now recognizes the gentleman from Oregon, Mr. Schrader, for 5 minutes.

Mr. Schrader, you are recognized.

The Chair now recognizes Mr. Ruiz from California for 5 minutes.

Mr. Ruiz, you are recognized.

The Chair now recognizes Mr. Peters from California for 5 minutes.

Mr. PETERS. I gotcha, Mr. Chairman. Thank you very much. I appreciate that.

Thanks to the witnesses for being here. I want to talk a little bit about spent nuclear fuel and the storage of spent nuclear fuel. It is a top priority for my constituents and for me. There are several decommissioned or decommissioning nuclear reactors that have spent fuel stored on site. It needs to be moved from sensitive locations either to interim or permanent storage.

San Diego County, as in some of the other places that have been mentioned already, the San Onofre Nuclear Generation Station, or SONGS, is within 100 feet of the ocean. It is near a dense population center. It is near multiple fault lines, which poses an earthquake risk. And climate change, including sea level rise, could also pose a threat to SONGS and other sites across the Nation.

Simultaneously, next-generation nuclear energy could be a key component of our clean energy future. In 2020, nuclear energy provided over 50 percent of the country's zero-emission electricity. And, in the future, advanced reactors could help us produce less nuclear waste and provide cheaper electricity. Hundreds of my constituents are working today on these advanced technologies in San Diego.

So, today, I wanted to ask a couple questions about exactly where we are, and I will focus maybe to Chairman Hanson. Can you tell us what the risks are that are associated basically with the storage of spent nuclear fuel at decommissioned or decommissioning facilities, like the San Onofre facility in San Diego? What are the risks associated with that storage?

Mr. HANSON. Congressman, you know, let me first, by saying that I think that the—we have determined that the spent fuel stored at the San Onofre Nuclear Generating Station and other sites around the country is safe, that it is being stored safely.

That doesn't mean that there is zero risk, as you pointed out, but those risks are being monitored and managed, both by the NRC through requirements that we impose on our licensees.

Mr. PETERS. Great. I am happy to hear that.

I want to know a little bit, though, about what is it that you are watching to make sure that something doesn't go wrong? What are the things that you have your eyes on in particular that, if you weren't watching, could cause a health risk or environmental risk?

Mr. HANSON. So, for example, part of our oversight process really looks at the integrity of the facility over time, both the external structure, such as the overpacks for the spent fuel canisters, as well as the canisters themselves. We require our licensees to have

robust monitoring programs, and we oversee those problems as well as conduct inspections on those facilities ourselves.

Mr. PETERS. If the containers were deemed, or if the—were ultimately—did not have integrity, what would be the result? What could happen?

Mr. HANSON. You know, we would have to evaluate that, but it is certainly possible that that container would have to be repackaged or—or inserted in another canister potentially.

Mr. PETERS. I understand that.

Mr. HANSON. We evaluate that on a case-by-case basis.

Mr. PETERS. Sure. Sure, but obviously your—the thing we are worried about is a leak of contamination, right? That is what we are trying to avoid—

Mr. HANSON. Yes, that is right.

Mr. PETERS [continuing]. In these containers. Isn't that right?

Mr. HANSON. That is right. OK.

Mr. PETERS. OK. And, also, that is presumably true with respect to the outside containment. And I guess what I am interested in knowing is, we have got a lot of fuel there. If we weren't taking these precautions, I assume that could present a Fukushima-type risk to people in the district, right?

Mr. HANSON. I would have to get back to you on what the specific accident scenarios would be.

Mr. PETERS. Well, obviously, we are—OK. Well, I mean, I am not suggesting that that is happening, sir. I am just saying that those are the kinds of things that we have to look at. And I understand that part of your purview is not locating ultimate—ultimate disposal, or long-term disposal like Yucca or interim disposal, but I would also be curious if we are stuck with this because, on—you know, the Biden and Trump administrations have both withdrawn support for Yucca, or are against it. We are supposedly going to go down the line of asking people to please take it, based on some sort of consent.

Are there ways that we can improve the oversight of these decommissioned or decommissioning facilities so that we are sure that they are safe?

Mr. HANSON. You know, we have determined that our oversight processes for these spent fuel facilities and for the ongoing decommissioning activities are safe—

Mr. PETERS. All right.

Mr. HANSON [continuing]. Congressman.

Mr. PETERS. Is this an ideal place for long-term storage, in your opinion?

Mr. HANSON. I would—I am not sure that on site at these reactor facilities were originally envisioned as long-term storage facilities, no.

Mr. PETERS. All right. Well, my time has expired, and thank you for being here.

Mr. RUSH. The Chair now recognizes the gentleman from Oklahoma, Mr. Mullin, for 5 minutes.

Mr. MULLIN. Thank you, Mr. Chairman.

And, Mr. Peters, I was actually kind of intrigued with your line of questioning there. I am not sure we ever got the answers you

were looking for, but I was definitely intrigued by what you were saying.

We might be coming from two separate ends, but I definitely appreciate your line of questioning.

Chairman Hanson, I just—I want to add to that just a little bit. You had made mention it wasn't ideal. How much—how much is the United States Government, through NRC, right now, paying in fines for storing these in—on site?

Mr. HANSON. Congressman, I appreciate the question.

The way the arrangement works in the United States actually is that the power plant licensees actually have contracts with the Department of Energy, and they are—and the Department of Energy, I think, is obligated to perform against that contract.

For the NRC, for our part, it is our job to ensure the safety of ongoing operations, including spent-fuel storage at those facilities, so—

Mr. MULLIN. So I probably asked that question wrong.

Mr. HANSON [continuing]. I honestly—I honestly couldn't tell you what the U.S. is paying.

Mr. MULLIN. Yes, but I probably asked that question wrong.

Do you know how much we are spending in fines or settlements with these—with these sites, storing it on site?

Mr. HANSON. Honestly, Congressman, I don't, because that is not really in the purview of the Nuclear Regulatory Commission.

Mr. MULLIN. OK. Well, let me ask another line of questions, then.

Russia and China are rapidly exporting their nuclear technology around the world, and, as you know, this creates a very lasting partnership when this kind of technology is shared and the facilities are built.

How is the NRC working to improve this technology quicker so we can export our own technology around the globe?

Mr. HANSON. The safety reviews that the NRC conducts are—on all of these technologies, both existing and new technologies, are watched around the world. We—and I and my colleagues regularly communicate and collaborate with our colleagues around the world on the status of those reviews and what we are finding and what we are learning.

Mr. MULLIN. Do you have concern with Russia and China's growing, I guess, influence in the nuclear technology right now, especially with countries that are an interest to both of us?

Mr. HANSON. I think the NRC's approach to—you won't be surprised to hear—approach to nuclear regulation is the right one, and I think it is worth sharing around the world for our partners, whether we are expert in technology or not.

Mr. MULLIN. Well, what is the right one, because—well, but what is the right one, because what we are doing is we are shutting down nuclear plants all over the country right now, where I think seven more are slated to be shut down. So what is our approach?

Mr. HANSON. We are continuing to risk-inform our approach to nuclear reactor regulation.

Mr. MULLIN. Well, no. But you said was that is the right one.

Mr. HANSON. We have—that is a lifelong experience.

Mr. MULLIN. Chairman, I am not trying to be difficult here. I am just saying that you said you take the right approach. What is that right approach?

Is that right approach no nuclear power, because nuclear is clean, and it is reliable if it is done right. And if the NRC is convinced that they can do it right, then why are we shutting down plants and why other countries are building them? Why aren't we bringing new ones online?

Mr. HANSON. I am sorry, Congressman. I guess I would argue that the decisions to shut down nuclear plants in the United States aren't related to the NRC, that these are largely due to economic factors outside of the NRC's purview.

Mr. MULLIN. I am—I am almost shocked that you said that. I am—honestly, I am—because of the heavy regulations and the cost of meeting requirements that the NRC has put in place has literally made it worse, not economically feasible for these plants to be built, much less maintained, and NRC doesn't have any role in that?

Mr. HANSON. I won't say that we don't have any role, but I don't think we are the decisive factor in that, no, Congressman.

Mr. MULLIN. That might be a big problem why we are losing nuclear power around here. If you are the Chairman and you don't—and NRC doesn't see a role that they play in this, or a way to figure out how to make this work, be viable, because energy is increasing as we are bringing down fossil fuel plants and generators where there is more reliability on nuclear. I spent just—I spent the last 15 months in California. And it is funny, when I left, we started having rolling blackouts at 7 o'clock because solar went offline.

Nuclear could easily fill that gap, and for your response that, I am just taken—I am taken aback. The NRC has a role to play in this. As the Chairman—as the Chair of it, you should see that. I mean, that is part of your role.

But, with that, Mr. Chairman, I know I am out of—I am out of time, and I yield back.

Mr. RUSH. The gentleman yields back.

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

Ms. KUSTER. Thank you so much, Mr. Chairman, and thank you for being here, Chairman Hanson, Commissioner Baran, and Mr. Wright.

The Nuclear Regulatory Commission plays an important role regulating nuclear power plants and the civilian use of nuclear material, and I appreciate the dedication of NRC staff to keeping Americans safe.

One of the plants your agency is responsible for overseeing is here in New Hampshire, the Seabrook Nuclear Power Station.

Now, I will start with the good news. Seabrook is an important source of baseload power in New England and generates enough electricity to power more than 1 million homes. The power station provides tax revenue for New Hampshire and is a good job creator for our seacoast region. More than 4 million people, including many of my constituents, live within a 50-mile radius of this power station.

But nuclear—Seabrook Nuclear Power Station also has the unfortunate distinction of being the first nuclear power station in the United States to experience an alkalinized silica reaction, or ASR, in the concrete structure that houses the power station. ASR causes tiny cracks in concrete which over time can weaken the structural integrity of buildings.

The NRC and Seabrook's owner have known about this issue for more than 12 years, and before recently granting a 20-year license renewal to extend Seabrook Power Station's operations from 2030 to 2050, the NRC conducted an extensive review of ASR cracking at Seabrook.

As a result of this review, it exposed a number of safety conditions related to ASR cracking at the facility, including 6-month evaluations, rebar analysis to screen for additional stress placed on the facility, and analysis of the concrete.

Dr. Victor Saouma, a leading expert on ASR work, on behalf of the public safety group C-10, recommended the NRC impose additional safety conditions on Seabrook's license renewal to ensure ASR cracking at the nuclear power plant is properly monitored. But, in a frustrating November 2020 opinion, the Atomic Safety Licensing Board dismissed these safety provisions largely on procedural grounds.

Commissioner Baran, in your testimony, you outlined that in recent years there has been a counterproductive emphasis on reducing inspections and cutting costs at the NRC, but you state that you believe the NRC should, quote, "improve oversight, not weaken it."

What steps can be taken by the NRC to improve ASR cracking monitoring at Seabrook Station here in New Hampshire?

Mr. BARAN. Well, I am glad you asked the question. I am actually going to be visiting Seabrook in about 3 weeks. And I am looking forward as part of that tour to see, you know, the manifestations of ASR, ask all the right questions. We are reaching out to a number of the groups in the area before we go to see what questions they have, what do they want me to ask the residents, what do they want me to ask the licensee there? We are going to be looking around and asking those kinds of tough questions.

Our Atomic Safety and Licensing Board has some terrific experts, and I know they took a very hard look at this, but I want to ask those kinds of follow-up questions when I am visiting there in August.

Ms. KUSTER. Good. Well, we welcome your visit. Commissioner Baran, given that Seabrook is the first nuclear power plant to experience issues with ASR cracking, has the NRC worked with independent experts to determine the best oversight regime to ensure the safety of Seabrook Nuclear Power Station and my constituents here in New Hampshire?

Mr. BARAN. If I may, we will check with our staff and get back to you on the record for the record for that. I want to make sure I don't—I will give you kind of a comprehensive listing of all the work the staff has done on that. I know they have done extensive safety analysis. But you asked a very good question, which is to what extent have they gone outside the building and talked to oth-

ers about that. To be honest, I don't know the answer to that, but I am happy to get back to you with that answer.

Ms. KUSTER. Thank you. And please provide that list of experts to the committee.

And, finally, has the NRC consulted with the operators of other major facilities that are experiencing ASR cracking like Hydro-Quebec to determine the best practices for monitoring?

Mr. BARAN. I believe the answer is yes. But when we get back to you on the specifics of the outreach of the staff, we will make sure we include that as well.

Ms. KUSTER. Thank you. Thank you so much, and I yield back.

Mr. RUSH. The gentlewoman yields back. The Chair now recognizes the gentleman from Michigan, Mr. Walberg, for 5 minutes.

Mr. Walberg, you are recognized.

The Chair now recognizes the gentleman from Georgia for 5 minutes. Mr. Carter, you are recognized.

Mr. Carter, you are recognized.

The Chair now recognizes the gentleman from South Carolina, Mr. Duncan. Mr. Duncan, you are recognized for 5 minutes.

Mr. DUNCAN. Thank you, Mr. Chairman. And I want to thank Scott Peters for recognizing the nuclear waste issue. Nuclear waste sits at 121 sites in 39 States, and we need a long-term repository. And ratepayers have paid tens of billions of dollars into a fund to construct and maintain a long-term repository. That is ratepayer money, not taxpayer money that Members need to realize.

Also, let me also mention that we need to not cede the development of advanced nuclear technologies to China. Nuclear technologies like molten salt reactors, which they continue to construct, and we continue to down-blend the seed material known as U-233 that we have in this country that would need to be seed stock for future thorium reactors should the United States decide to go that route. So that needs to be on the Members' radar screen.

Commissioner Wright, you know as well as I do the State of South Carolina is a leader in nuclear energy. We produced nearly 56 percent of South Carolina's electricity, 95 percent of the State's carbon-free electricity. And I am a big supporter of nuclear energy as a critical part of the energy matrix both from a reliability and environmental perspective. If we are serious about reducing emissions, nuclear has to be part of the equation. I think we have heard that over and over today from other Members on both sides of the aisle. So I look forward to working with them as we move forward on modernizing and advancing our nuclear technology across the country.

But I want to address modernization efforts at NRC. As we strive for more reliable clean power across the United States, we must make the NRC a more modern and efficient regulator. One area I believe we can modernize is the burdensome environmental review process for nuclear reactor licensing. The cost of environmental review processes have tripled over the last 10 years, and its completion takes an average of 4 years. I think this plays into something that Markwayne Mullin was talking about: the rising costs, the economic factor that the chairman mentioned, it relates to the length of time and the costly environmental review process.

I have a bill currently that would change some of that interstate—directs interstate examine and promulgate a final rule that would allow for categorical exclusion of environmental assessments and environmental impact statements in lieu of the IS's to be used in permitting actions when appropriate. It is to help lower costs, expedite permitting processes for nuclear power.

So, Commissioner Wright, why is the current environmental review process so duplicative?

Mr. WRIGHT. Thank you for the question. And, Go Tigers, by the way. It is good to see you again, Congressman. So I agree with you that there is a lot that can be done in this arena here. And the staff has already—maybe you are aware, maybe you are not—but the staff has already developed several proposals to do just that. The Commission is currently considering the staff's recommendation to transform its environmental review process, which is the first wholesale relook at our regulations since they were promulgated back in the 1980s, I think.

So just so you know, the NRC is also at work developing a notice of proposed rulemaking on the expanded use of categorical exclusions. They are considering the use of environmental assessments for additional types of licensing actions. They are developing a generic environmental impact statement for advanced reactors. They are updating a GEIS as well for license renewals to include additional items that can be resolved generically. And they are performing internal processes as well to focus on improvements to, as you have indicated, to modernize our review processes. So those are some of the things that we are doing right now. And, you know, we look forward to working with you. And if your bill does pass and become law, we will absolutely follow the law.

Mr. DUNCAN. Hopefully, we can get some Democrats to sign onto to that and get moved to a hearing.

Mr. Chairman, as this committee looks to address climate change, we need to look make sure that any legislation that alters our energy markets doesn't threaten existing nuclear plants, like we have seen in Illinois, across the Midwest. The actors continue to go offline, as we have heard. And those markets—I don't want that to happen in South Carolina—they are put into perspective. Newberry station in my district houses three nuclear reactors, produced more than 2,500 megawatts of carbon-free electricity. Nuclear generation capacity is at 92½ percent. Other carbon-free sources don't even come close to what nuclear does.

So it has got to be a part of our clean energy future. We need to ensure our licensing regulations are modernized, as Commissioner Wright says, and we need to keep our reactors online. And with that, I yield back.

Mr. RUSH. The gentleman yields back. The Chair now recognizes the gentlelady from California, Ms. Barragán for 5 minutes.

Ms. BARRAGÁN. Thank you, Chairmen Rush and Tonko, for holding this important oversight hearing on the Nuclear Regulatory Commission. It is critical that we regulate our nuclear power industry to ensure it is safe, secure, responsive to the public, and well-prepared for the future.

It was good to see the Nuclear Regulatory Commission's announcement last week that you will conduct a review of how the

agency's programs, policies, and activities address environmental justice.

Earlier, there was an exchange with one of my colleagues across the aisle about the need or why, asking why environmental justice was being considered by the Nuclear Regulatory Commission. We know there are community impacts from nuclear power plants, including potential exposure in the case of an accident. The mining industries that produce uranium, and communities in the past have transported nuclear waste.

It is important the Commission take these factors into consideration when deciding—when making decisions about siting and license renewals, particularly, when the impacted community is an environmental justice community already facing environmental impacts. Now, these impacted communities far too often have been low-income communities or communities of color.

Commissioner Baran, did you need additional time to respond to my colleague Representative Bucshon's question about the purpose of conducting an environmental justice review?

Mr. BARAN. Well, I am happy to talk more about it. I do think it is very important, and I emphasize it was—all the Commissioners agreed, there were four at the time, we all agreed it made sense to do this review. And no one is prejudging the outcome of what we think makes sense. But I think there is a lot to look at.

You know, right now, in NRC's licensing decisions, environmental justice is basically just a small part of an environmental impact statement. And that is pretty minimal treatment, and I am not sure that that is inspiring a lot of confidence among stakeholders in disadvantaged communities that those factors are really playing a meaningful role in our decisions.

Our adjudicatory process, you know, the mechanism for raising concerns, whether they be safety concerns, health concerns, environmental concerns, you know, it has been characterized over the years as strict by design, really hard, a lot of hurdles, a lot of procedural, it is very complex. Is that just another way of saying that the agencies made it hard for interested stakeholders to engage with us and express their concerns? I worry that that is exactly what it is.

And, you know, the environmental justice policy statement we have right now is from 2004. I think it definitely needs to be updated. It is a pretty negative document, if you read it. And it basically reads like a legal brief of all the things we are not going to do on environmental justice. Many stakeholders criticized that document at the time, including the Bush EPA thought it was too narrow.

So I think that is a lot to look at. I understand some of the concerns folks are raising. Is this going to be the decisive fact that determines whether a license gets granted or not? I don't know the answer to that. We need to look at the review. But I do think that there are a lot of our more procedural aspects of the way in which people can raise concerns that are pretty tough right now for people to engage. And I think we—

Ms. BARRAGÁN. Thank you.

Mr. BARAN [continuing]. Need to take a look at that.

Ms. BARRAGÁN. Thank you for that.

Chairman Hanson, as part of the Commission's environmental justice review, the announcement said the Commission will be holding two public meetings on July 15—that is tomorrow—and taking public comments. Can you tell me—yes or no because I am running low on time—has the agency reached out directly to the environmental justice community to inform them about these opportunities for public comment?

Mr. HANSON. I certainly hope so. And I will get back to you for the record, yes or no, on that, Congresswoman.

Ms. BARRAGÁN. Well, given that this is tomorrow, this is a little concerning to hear. Because, you know, the outreach is a critical part of getting public input from the communities most impacted by the review of the Commission and what they are undertaking.

So, you know, depending on the attendance on the public meetings and those of tomorrow, I do encourage you to offer additional opportunities for the public to weigh in, particularly environmental justice communities who live near power plants, uranium mining, or transportation routes, spent nuclear fuel.

Chairman Hanson and Commissioners Baran and Wright, a 2019 United States War College Report found that 60 percent of the country's nuclear reactors are at high risk of permanent or temporary closure due to climate threats or sea level rise and severe storms.

In an earlier response to Representative Castor, you said that flooding concerns are looking to license renewals. However, the renewals only happen every 20 years. We need to react faster to changing climate. Could maybe you respond in writing or in future on how the regulatory—the Nuclear Regulatory Commission is taking action to ensure that all of our existing nuclear power plants are prepared for climate impacts in between license renewals?

I know my time has expired, so I am go to yield back, but I do hope to get a response later on those questions. Thank you. Mr. Chairman, I yield back.

Mr. RUSH. The gentlewoman yields back. The Chair now recognizes the gentleman from Utah, Mr. Curtis, for 5 minutes.

Mr. CURTIS. Thank you, Mr. Chairman. I know that we have talked about this a lot, but I need to emphasize it again that nuclear is a very important base load in energy, and it can generate incredible amounts of carbon-free power. I find it just so ironic that the exact time our President has asked us to cut our carbon emissions in half, we will have also cut our nuclear energy in half from 20 percent down to 10 percent of the power that we use. It gets even more crazy when you read the Environmental Justice Report issued by the White House. The report says that the communities will not benefit from nuclear carbon capture research and development or highway expansion.

Back toward nuclear plants, I know many of my colleagues have—I know that the places that I have seen, the communities—as a matter of fact, those communities who do not want nuclear in their backyard—I will invite those facilities to come to my district where they would be welcomed. And I think that is an important consideration.

Mr. Chairman, how do you expect the declining nuclear reactor fleet will impact the NRC's budget and therefore impact your ability to permit future nuclear?

Mr. HANSON. Congressman, thank you for that question. Since the height of the reactor fleet and what we thought was the nuclear renaissance back in 2013 or 2014, the reactor fleet has declined by about 10 or 11 reactors in this country, 10 or 11 percent from 104 down to 93. The NRC's budget and staffing, we have reduced staff by 25 percent, and we have reduced our budget by 22 percent. So we have adjusted already to the declining fleet. And we think that we still have the resources we need to ensure the safety of that fleet and stay focused on our mission.

Mr. CURTIS. So, let me clarify the question. It is like, how does that impact your ability to deal with future applications?

Mr. HANSON. Yes, sorry, very good question. Obviously, we have gotten some additional funds from Congress to help us prepare for those new applications. And we are looking at staff. We are—as people come in, they will pay us fees, and we will use those fees to pay a staff to review those applications.

Mr. CURTIS. And I hate to cut you off, but you know we are all so short on time. Would you consider options for adjusting your licensing fee model to incentivize and account for the public benefit that comes from nuclear? And is that something that you would consider?

Mr. HANSON. We are happy to work with you and other Members of Congress on any changes you would like to consider to our fee structure.

Mr. CURTIS. There is an organization in Utah called UAPS. It is an acronym. It represent 49 cities, municipal power cities. Over 5 years ago, they had the forward-thinking idea and acknowledged the importance of advanced nuclear. They submitted a 12,000-page document. Forty-two months later, the NRC issued its final safety evaluation. In total, their DCA cost over \$500 million. And you can see how—why some of my colleagues are concerned about barriers out there. Ultimately, they created the first-ever NRC license project in the country. We are pretty proud of that for Utah. Do you agree that licensing new advanced reactors provides an important public benefit?

Mr. HANSON. I am sorry? Provides what kind of benefit, Congressman? I didn't quite catch that.

Mr. CURTIS. An important public benefit.

Mr. HANSON. I think we have a role in determining the safety of these technologies. And I think that the safety determination provides a public benefit.

Mr. CURTIS. Well, no, the question is, licensing new plants, is that an important public benefit?

Mr. HANSON. We are not in the—unfortunately, Congressman, we are not in the policymaking benefit or area of this for—

Mr. CURTIS. I am not asking you to make—

Mr. HANSON [continuing]. The reactors we want to be as efficient as possible in our review.

Mr. CURTIS [continuing]. I am not asking you to make policy. Listen, let me cut to the chase. I hope that you will evaluate the fee structure and the barriers to innovative technologies that are keep-

ing this nuclear from coming into real reality. You can see with a 12,000-page document and \$500 million, how many people can actually really do that? And, I am sorry, I am out of time. Mr. Chairman, I yield.

Mr. RUSH. The gentleman yields back. The Chair now recognizes the gentlewoman from President Biden's home State, Ms. Blunt Rochester of Delaware, for 5 minutes.

Ms. BLUNT ROCHESTER. Thank you very much, Mr. Chairman, and thank you also to Chairman Tonko for calling this very important hearing. And I also want to thank the witnesses.

As we have heard throughout hearing, climate change has made extreme weather events more frequent and more intense. And as the country continues to witness an unprecedented heat wave and battle a record-breaking wildfire season, it is clear that we need to be better prepared and that our nuclear infrastructure needs to be prepared against future climate change vulnerabilities.

Climate change considerations need to be incorporated into the design, planning, and ongoing maintenance of nuclear facilities to ensure the resiliency of these facilities and the safety of the surrounding communities.

I want to follow up on questions from Ms. Castor as well as Ms. Barragán.

Commissioner Baran, we know that nuclear power plants, many use large quantities of water for cooling, and they are especially vulnerable to extreme climate events. Increasing temperatures like we have seen this summer have forced reactors to go offline and reduce capacity in the past. How is the NRC helping to support the nuclear power industry in preparing and retrofitting their facilities for rising air and water temperatures?

Mr. BARAN. Well, it is a good question, and I would just kind of distinguish between two types of extreme weather we would be focused on and concerned about with climate change. One, our extreme weather events, like, say, hurricanes or flooding that could threaten in a very immediate way the safety of a plant. And there, there has been so much post-Fukushima done to better improve the safety of the plants to deal with those kinds of situations.

As I mentioned earlier, I think there is still something to do there to better protect that additional equipment that we have onsite to make sure that it is protected against the latest science about flooding hazards, in particular, but also seismic hazards.

There is a separate question you raised—not to say it is not important, but it is a little different—which is what about rising temperatures of the water that is used for cooling water, or what about the level of the water if you have drought? And there it is a little different. Because you don't have that acute safety threat. It could affect, though, whether the plant can operate or not, right? If you don't have enough cooling water, or if your cooling water is warmer than the plant needs it to be or is established in our technical specifications, the plant may have to reduce power or shut down for a period.

So those are both things that we look at. Me, I work—I am focused, in particular, on that first piece to make sure we have the right protections and resilience for equipment onsite to ensure safety, even if you have an event that, you know, maybe what used to

be a once-in-a-century event and now we are seeing much more common.

Ms. BLUNT ROCHESTER. Right, right. You actually preempted my next question which was going to be about floods and hurricanes. But I want to dig a little bit deeper. First of all, I want to ask about site planning for future nuclear waste repositories and what kinds of things are you incorporating. And maybe even a larger question I have is sort of like the connectivity between what you do and those who are looking at the trends in our weather and how it has been exacerbated and moving much rapidly.

Can you talk a little bit about both the future and what kind of things the NRC is doing to incorporate these concerns into site planning? But also could you talk about who you partner with? And is there data available that shows, you know, these trends that are coming?

Mr. BARAN. Sure. This is really one of the lessons we had learned from Fukushima is that on the latest science of natural hazards, we were, as an agency, just too reactive. We would wait for folks to submit additional information to us and then evaluate it and see did something need to be done. One of the things we have done post-Fukushima is to be much more proactive, to go out there and make sure our folks are really aware of the latest science. So if it is a flooding, we are interacting with other Federal agencies that are the experts in flooding. We are going out and getting the data. We are interacting with academia. We are interacting with international organizations to make sure we are getting all the latest information, cataloging that, and then proactively figuring out, OK, based on what we now know, do we need to look at whether anything needs to be adjusted at any of the nuclear power plants to make sure they are adequately protected? And that kind of information is much more proactive and continuous than it used to be. And I think it is a really positive development. It is an important part of being ready for climate change impact.

Ms. BLUNT ROCHESTER. Thank you so much for sharing that. I will follow up with you afterwards. But I just want to share, I was actually in Shanghai when Fukushima happened and understand how—what a threat this can be and why it is so important for proactive planning. So I look forward to working with you all in the future. Thank you. I yield back.

Mr. BARAN. Thank you.

Mr. RUSH. The gentlelady yields back. The Chair now recognizes the gentleman from my birth State, the great State of Georgia, Mr. Carter, for 5 minutes.

Mr. CARTER. I didn't realize that, Mr. Ranking Member. Thank you. I'm glad to know that.

Mr. RUSH. Albany.

Mr. CARTER. Albany. Great, great. Great area. Well, thank you for this hearing, and I am glad that we are finally having this hearing on—with the NRC today. It is really a great opportunity for us to show how important nuclear energy is and really because we know that it is the only energy source that delivers reliable 24-hour carbon-free energy, and that is extremely important. And solar, wind, and power and all the other renewables are certainly important, and we don't deny that, but in all-of-the-above energy

strategies for us to reduce our emissions, nothing beats the reliability that nuclear energy gives us.

I want to thank you also, all of you for mentioning Vogtle and the construction of the only two nuclear reactors right now in the United States, the construction of them here in the State of Georgia, and I am very proud of that. Because not only are they going to be able to provide baseload power, but they also are providing good-paying jobs and reliable rates for customers in Georgia for many years to come.

I want to start, first of all, with—I guess, I will ask Commissioner Wright this one. Commissioner Wright, we all know that large light-water reactors such as this and at Vogtle 3 and 4 are expensive and time-consuming to build. But isn't it also true that when they are completed that Vogtle 3 and 4 will be a significant source of energy that is for electricity that is carbon-free?

Mr. WRIGHT. Thank you very much. In a previous life, I was an economic regulator in South Carolina too, so I have some knowledge of how—what happens to plants when they get older and the—how the costs goes—gets lower and gets, you know, actually provides a huge benefit. So I am agreeing with you that, you know, once it goes online and as it goes into the life of the plant, it will become much more valuable, let's put it that way.

Mr. CARTER. Well, that is my next question, and thank for acknowledging that, because don't we need both our existing fleet and new reactors like Vogtle 3 and 4 to meet our national carbon monoxide goals?

Mr. WRIGHT. So, and I am going to answer your question. I am not going to dodge it. But I do want to preface it by—again, this is my opinion—we are safety regulators. So we have got to make sure that whatever is there is operating safely within our mission.

But, yes, I do agree with you there. You know, I do think that we have got to have everything available. And we need to be sure that with them doing what we need to do as regulators at the NRC, that we provide, you know, the pathway, the regulatory certainty and performing our mission that we are not a barrier to innovators or innovation. And be it advanced reactors, microreactors, you name it, we don't know what else other technologies that are out there that are going to be coming. But, you know, our goal and our—we have to endeavor to be ready for whatever comes.

Mr. CARTER. Well, very quickly, don't you agree that the successful completion of units 3 and 4 at Vogtle will mean that we reestablish our Nation's international leadership and credibility on nuclear safety and nonproliferation?

Mr. WRIGHT. Yes, and it has come up a couple of times today too that the reference to the importance of national security. So, you know, if we do our job—and, you know, we have to be able to work with Congress, with DOE and others to be sure that we are, again, not a barrier, that if we can license and allow these technologies to get to market where they can do what they have to do, you know, what we are involved in can be exported along with it. And that is our expertise to make sure that they are operating safely around the world.

Mr. CARTER. Good. Good. Thank you, Commissioner.

And, Chairman Hanson, I want to ask you very quickly. I have just got a little time here left. You mentioned in your testimony that the NRC's budget request includes an increase partially for an increase in licensing actions related to accident-tolerant fuel. Accident-tolerant fuel is—as you know, Southern Company in Georgia has done significant work with this in testing. Could you provide—can you just give us very quickly the status on the accident-tolerant fuel?

Mr. HANSON. Congressman, that will be hard. I could talk about accident-tolerant fuel all day, but I won't. We are proceeding at pace with a lot of interactions with potential licensees on this subject. There are probably nine different technologies out there. We are working with both the Department of Energy and our licensees on the results tests of those technologies. We have got a project plan that I think prepares us to license these accident-tolerant fuel technologies in a 2023 timeframe. This is a personal interest and a personal priority of mine. So I think we are moving ahead, and I am paying close attention to this effort.

Mr. CARTER. And we appreciate you paying close attention, because it is extremely important. So I thank all of you, and thank you for this hearing again today, Mr. Chairman. Thank you.

Mr. RUSH. The gentleman yields back. The Chair now recognizes the gentleman from Florida, Mr. Soto, for 5 minutes.

Mr. SOTO. Thank you, Chairman. Nuclear power is key to help us achieve net carbon neutral by 2050. That is why President Biden included it in the American Jobs Plan, specifically included funding for development of advanced and small modular nuclear reactors and for clean electricity standard, the same type of clean electricity standard we are working on in this committee—not saying that there is any type of energy that is prohibited, but making sure that the results lead to us getting further reduced in carbon.

There was a little bit of bickering back and forth from the committee. You think that we are not as close as we are. But it is really important to recognize this is a bipartisan opportunity. Because speaking for the Democrats on the committee, I know we support continuing nuclear into the future, and I know we have heard from our Republican colleagues in a passionate way today.

According to the Department of Energy, these advanced reactors envision to varying size from tens of megawatts to larger can be used for power generation to process heat, desalinization for power generation, for other industrial uses. So when you think about everything from resolving water issues in the West and desalinization, to helping with smaller units that may be specifically for specific factories into helping with their industrial base, that is real exciting.

The American Jobs Plan calls for \$15 billion for research and development priorities, including advanced nuclear and rare earth element recovery technologies. The recycling that we have all been talking of nuclear materials.

So my question for all three of our NRC Commissioners, starting with Chairman Hanson: Would this \$15 billion that is called for in the American Jobs Plan help us expedite development of modular nuclear power?

Mr. HANSON. Congressman, thank you for that. I am not familiar explicitly with the terms of the American Jobs Plan.

Mr. SOTO. Would a \$15 billion investment help jump-start this still, generally, even if you weren't familiar?

Mr. HANSON. Standing outside even as the safety regulator, it seems like it would, yes.

Mr. SOTO. Thanks. And Commissioner Baran, your thoughts on the investment.

Mr. BARAN. Yes, I agree. I mean, obviously, one of the key challenges to deploying the new technologies is just the financial side of things. So, you know, a significant investment like that, I would imagine, would have a significant effect.

Mr. SOTO. Commissioner Wright, do you believe that a \$15 billion investment would help us move along on modular nuclear?

Mr. WRIGHT. Well, intuitively, you would say yes, it would. I think it matters to exactly how it is invested and where it comes from. And, you know, you have got to also have vendors, you know, who are willing to, that want to go down that road. So, intuitively, yes, you probably think it might, but I think the devil is in the detail on that.

Mr. SOTO. Certainly, and I agree. It has got to be crafted correctly.

Also, I see a compromise that could form from this committee. You know, we have existing nuclear power plants that are decommissioning, and ones that are recently decommissioned that could be utilized in helping us achieve net carbon neutral, combat climate change. But the reason they are shutting down isn't a great mystery. It is because right now it is costing about 25 cents per kilowatt hour with nuclear, while natural gas is about 6.5 cents per kilowatt hour.

So I believe, Chairman, there could be a compromise in providing for subsidies on nuclear power to make sure that we are keeping these online, keeping them safe, as part of our overall efforts to combat climate change. And I think that is something we may be able to get other committee members on.

The road I don't want us to go down is trying to do a major deregulation of protections of nuclear power. That is something that will put Americans in danger. So I think the key is to make sure we are putting our money where our mouth is by passing the American Jobs Plan, investing in research and development from nuclear advanced power, such as modular, and for the recycling that we have talked about so much today. We can do it together. I know there is a bipartisan proposal that we will get to vote on soon, and I hope all of you will be able to support that. And with that, I yield back, Chairman.

Mr. RUSH. The gentleman yields back. The Chair now recognizes the gentlewoman from Arizona, Mrs. Lesko, for 5 minutes.

Mrs. LESKO. Thank you, Mr. Chairman, and thank you for the Commissioners for not only being here today but for all the work that you do. Palo Verde Nuclear Plant is located really close to my congressional district, right outside my congressional district here in Arizona. And it produces the most power of any kind in the Nation for the last 25 years. I think it is 32 million megawatt hours

annually that can power more than 4 million people—energy for more than 4 million people.

One of my questions—and I guess I will direct it to Commissioner Hanson—is, as the number of nuclear operating plants goes down, there is a fee that is assessed to all the operating nuclear plants. And so as the number goes down, are you planning on reducing your overhead budget so that the fees of the ones that are left operating are not going to go up and skyrocket?

Mr. HANSON. Congresswoman, that is a question, that is a very good question, and we are very sensitive to the issue of shutdown plants and those costs being spread to raise a fewer number of reactors out there in the world. And so we are paying close attention to our overhead costs and trying to be very prudent about where we are spending money and also trying to make investments for the future in things like IT and the development of our people so that we can focus on advanced reactors. We really are trying to kind of do—kind of pulled in multiple directions, I think, budgetwise here, and we are trying to balance those and not impose undue costs on any particular party.

So I would say that we are sensitive to that issue and recognize also that, you know, there is a certain level of fixed costs for the work that we do. So, you know, we recognize potentially the need to bring down some of those overhead costs as plants go offline, but also there is going to be a limit to which we can reduce those overhead costs as well.

Mrs. LESKO. Well, I am glad you are looking at it because to me it just doesn't seem fair if you have less operating plants but you don't reduce your budget, because to me it seems like you would have less people inspecting and that type of thing. And I understand how you want to increase your budget in the new technologies, but I don't necessarily know if it is fair to charge the others more. So I am glad you are looking at it, and I am glad you think it is important.

My next question is, as the U.S. works to achieve clean energy commitments, it is clear that the development of intermittent renewable energy is part of it, but it can't be all of the plan. I believe nuclear energy has to be part of a clean future, and that is what most of my Democrat colleagues seem to be agreeing with us. So that is fantastic. I do agree with Mr. Soto, this is something that we can work on in a bipartisan basis.

So what is the Commission doing to ensure regulatory reviews are timely, and there is regulatory certainty regarding new nuclear design, construction, and operation? And I will ask it to you, again, Mr. Hanson.

Mr. HANSON. Thank you, Congresswoman, for that. We have talked off and on today about the development of a new regulatory framework for advanced reactors. As part of that development, we really are building on the long wealth of history that we have in the NRC of regulating nuclear technology and focusing on the most safety significant aspects so that we can provide for our applicants and licensees timely, efficient, and transparent reviews.

As I have said multiple times today—and I have said it because I really do believe that we are independent of other policy functions—but we don't want to be an impediment to any decisions that

administrations or the private sector wants to make. We want to be able to make our safety determinations—

Mrs. LESKO. And thank you.

Mr. HANSON [continuing]. In that context. I will let my colleagues comment.

Mrs. LESKO. And, Mr. Hanson, one last question. We have 14 seconds left. Nuclear waste remains a hurdle, a concern for increasing nuclear power. And so there was a blue-ribbon commission under both, I think, President Obama and Bush that recommended a separate Federal commission deal with the research and development and those type of things on nuclear waste. And I think one of the ideas was moving it over to your Commission, the NRC. What are your thoughts on that?

Mr. HANSON. Thank you for that, Congresswoman. I wasn't aware of that recommendation, and I am happy to discuss that with you or other Members of Congress should it arrive. Commissioner Baran might have some thoughts on this.

Mr. BARAN. Yes, I think the blue-ribbon commission is a separate entity they were contemplating, was going to be like a government corporation, not NRC, which would still be the safety regulator, but a separate government corporation that would be focused exclusively on, like, siting issues.

Mr. RUSH. The gentlelady's time has expired. The Chair now recognizes the gentleman from Oregon, Mr. Schrader, for 5 minutes.

Mr. SCHRADER. Thank you, Mr. Chairman, I appreciate that. Great hearing here today.

I have just one question really for Mr. Hanson. I understand the administration's requested a 5 percent increase in the NRC budget. I am just curious how the NRC is going to use that funding to streamline and maybe improve the application process along the lines of some of the previous questions we have had. And is there a way we can reduce the need for applicants to resubmit redundant information on new designs that use a lot of their previously reviewed technical parameters?

For example, last August, the Nuclear Regulatory Commission completed a safety review of NuScale's design, power reactor design. And I understand NuScale is going to come in with a new design application that uses a lot of the technical design parameters you have already approved. How does the NRC plan to work with NuScale to reduce the time and make this more efficient, yet a very safe process?

Mr. HANSON. Thank you, Congressman, for that. My understanding of NuScale's kind of what you called their new application is really kind of a power increase for their existing technology going from, I think, 50 megawatts per unit to up to 77. And because we have already done, as you noted, an extensive review of the 50 megawatt technology, my understanding from the NRC staff is that the review of kind of the change in operations and whatever other technical aspects of the technology might need to be implemented would be really pretty efficient and streamlined.

Mr. SCHRADER. OK. Very good. Very good. No, I appreciate the tenor of the hearing and the fact you are trying to get things done in a timely manner—a safe manner, but also a very timely manner,

because this process seems to take almost forever. So I appreciate the Commission's attention. And I yield back, Mr. Chairman.

Mr. RUSH. The gentleman yields back. The Chair now recognizes the gentleman from Texas, Mr. Crenshaw, for 5 minutes.

Mr. CRENSHAW. Thank you, Mr. Chairman. Thank you to everybody for being here, and thank you to our witnesses. It is a great topic. I do see a lot of surface consensus on the issue of nuclear and the need to build more advanced nuclear in the United States I think is the answer to lowering carbon emissions globally.

So I just want to lay out a few facts and why nuclear is so important. It is safe. It is reliable. It is carbon-free energy. More energy can be produced per square foot than other carbon-free energies. In fact, solar requires 450 times more land than nuclear and wind—oh, sorry. And wind requires 400 times more land than nuclear when producing the same amount of energy. It is also worth noting that as far as subsidies go, solar receives 250 times more subsidies than nuclear does. And nuclear energy is reliable as its capacity factors into the 90th percentile.

So really a lot of the—where there is some disagreement is I think over the misunderstandings of how safe nuclear is. Commissioner Wright, could you speak to that for a minute, please? Do you believe nuclear energy is safe? Why do you believe nuclear energy is so safe? Do you believe that under the current safety framework that an incident like Chernobyl could ever occur in the United States?

Mr. WRIGHT. Well, personally, yes, I do believe that it is extremely safe or I wouldn't be in the business of what I am doing right now. And, you know, I believe that what we have heard today from the other colleagues here and from some of the Congressmen that have spoken is we were the gold standard, right? We are it. And we have to do everything we can to maintain that.

And to that end, you have to be passionate about what you do, and that is what our staff does every day when they come to work. And that is what the licensees and their workers at the plants do every day. And that is what the resident inspectors do at the plant every day. They are doing everything they can to ensure the safe operation of those plants.

And you and I both know that a plant that is run safe stays out of, you know, white findings or any other findings that add to the cost and add to the oversight. And, again, they are peer reviewed by their own people. So that is an additional layer of, I guess, regulatory oversight. And you don't want to—from what I understand, you don't want to be the plant that is on the bottom of the list when you go to those INPO meetings.

So we need to share information. We need to learn from each other, not just from the licensees but also from the people like INPO, people that are involved in other aspects of this sector. So yes, you know, I do believe it is safe.

Mr. CRENSHAW. Thank you, Commissioner. Commissioner Baran, I want to ask about—well, first, I want to get your philosophy. I think we would all agree from a policy perspective, from a general national interest perspective, that we should be licensing a lot more reactors and really trying to get more advanced reactors on-line. Would we agree on that?

Mr. BARAN. Well, I agree that NRC's role is to be ready for that.
Mr. CRENSHAW. Right.

Mr. BARAN. As the Chairman has mentioned several times, we don't promote nuclear energy, but we have got to be ready for the applications that could come before us.

Mr. CRENSHAW. Right—and OK. And that is good. That is good to hear. I want us to be on the same page on that because I do think that sometimes we say we approve of it, but sometimes regulations get in the way.

And I want to refer to your comments on energy planning zones and then the regulations regarding such emergency planning zones. You mentioned small modular reactors need 10 miles of EPZs just like their whitewater counterparts. And I understand the need to mitigate risks, but if we are going to be building more reactors, why would we use more potentially unnecessary land, which means more expenses and we are not going to end up with more reactors? Can you comment on that?

Mr. BARAN. Sure. Yes. I hope I didn't leave you with the impression that I thought it all had to be exactly the same for with new reactors, because I don't believe that. I think new designs could potentially be safer than current large water reactor designs. And it makes sense to have a graded approach that accounts for potential safety improvements, whether it be in small modular reactors or advanced reactors.

My point is just I think with the possible exception of, like, microreactors with very small amounts of radioactive material, I don't see completely eliminating offsite emergency planning or siting constraints. I think you may have a graded, but going all the way to zero is a different story. I think it is a balance to strike there.

Mr. CRENSHAW. OK. That is different from your comments before, so I do appreciate that. You know, I come from the Navy. You know, the nuclear Navy has logged 5,400 reactor years of accident-free operations, traveled over 130 million miles on nuclear energy without accident. And so I am glad to hear you change some of your past comments a little bit on that. I am already out of time. That goes quick. Thank you, Mr. Chairman. I yield back.

Mr. RUSH. The gentleman yields back. The Chair now recognizes the gentlelady from Washington State, Ms. Schrier, for 5 minutes.

Ms. SCHRIER. Thank you, Mr. Chairman, and thank you to our witnesses. My first question is about international collaboration. This is for Chairman Hanson. In 2019, NRC and the Canadian Nuclear Regulator, CNSC, signed a memorandum of cooperation to increase collaboration on a technical review of the advanced reactors including small modular and microreactors. And Canada has an aggressive advanced reactor licensing deployment program and is moving forward with a demonstration of a number of advanced small modular reactions—reactors, excuse me—including Ultra Safe Nuclear Corporation's gas cool reaction at the Chalk River site.

So my question for Chairman Hanson is, does the NRC plan to leverage this cooperative agreement with CNSC and lessons learned from our key international partners like the U.K., for example, to share information related to the licensing review process

to accelerate deployment of small modular reactors and maximize opportunities for greater efficiencies and streamlining here at home?

Mr. HANSON. Congresswoman, thank you for that question. I am really excited about our cooperation with the Canadian Nuclear Safety Commission. As part of that cooperative agreement, I think we have eight or nine areas on different technologies that we are evaluating together, recognizing that each country will make its own safety determination, but we have also really seen the value of some shared reviews and some shared understanding of technical tools and other kinds of methodologies.

I have developed, I think, a close relationship with President Rumina Velshi of the CNSC, and this is the progress on the memorandum of cooperation is a regular topic of conversation between us. As you note, I agree, I think we can go farther together than we can separately when it comes to some of these new technologies.

Ms. SCHRIER. I agree. It has been really helpful, for example, under COVID, with COVID to see vaccine development in multiple countries and how we have collaborated in a lot of ways there, even though each country has its own approval process. Are there any other ways that you are collaborating with other countries, for example?

Mr. HANSON. Thank you for that. I mean, as part of our cooperation with the Canadians, we are starting to bring in our colleagues in the United Kingdom. They have a strong interest in this. Of course, as you may have heard, they are looking at SMRs as well, and so they are interested in the reviews that we are conducting together. Right now, the U.K. are our observers in the process that is going on between the United States and the Canadians, but I would expect greater participation in the future as we move forward on that.

Ms. SCHRIER. Great. Thank you. My next question is going to be for Commissioner Baran, which is about timing and whether we can meet some deadlines. Because, again, in contrast to what a lot of my colleagues are saying, we understand that we need a vast portfolio, that nuclear is part of that portfolio, particularly for industry, and it has got to be part of the solution if we are going to hit our goals.

And so what we are seeing is a lot of development across the country. The Department of Energy's Advanced Reactor Demonstration Program has driven the speed of these new reactors. Like just this year, New Skilled Power and Grant County Public Utility District here in Washington signed a memorandum of understanding to explore nuclear energy deployment here in Washington. In addition, Energy Northwest, Grant County PUD and X Energy LLC also signed a memorandum of understanding establishing a partnership. And these agreements can be affirmed. The increase in demand and the fact that we are headed that way.

Now, we know that the research part is progressing quickly, but then there is this element where, as soon as one gets approval, they have to start operating within 7 years. What are the chances we are going to meet those kinds of deadlines? Can we do it?

Mr. BARAN. Well, you are right. I think that part, the big question there I think, what are the plans of the specific companies,

right? So, you know, if a utility wants to build a new reactor, they are going to come to us for licensing. If it is a vendor, they may ask us to certify a design. If it is a utility, they may seek a license to build at a specific location. We are going to our licensing review, the safety environmental piece. If they get a license, then, really it is up to them to decide whether they want to actually build it, and that will depend on a variety of factors, business factors, economics of it. We don't make that decision. That is a decision they make. And then, of course, they are the ones who really build it, right? I mean, they have got to actually do the construction, and that would be on the time frame they would set up. Our job would be to oversee that construction as we are doing it right now for the two reactors being built at Vogtle.

Ms. SCHRIER. And you will have the personnel do that. I am out of time. Thank you very much. I yield back.

Mr. RUSH. The gentlelady yields back. The Chair now recognizes the gentleman from North Dakota, Mr. Armstrong, for 5 minutes.

Mr. ARMSTRONG. Thank you, Chairman Rush. And I think one of the things that we often get into in these instances, just rest assured, we don't want deregulation of the nuclear—I think when we talk about the regulatory environment, we don't talk enough about—it is not that we want answer—or don't want the answers to be known, but oftentimes is how long it takes to say yes. So I want to follow up a little bit on what Congresswoman Lesko said and what Congressman Schrader were talking about.

Listen, we don't have nuclear reactors or fuel cycle facilities in North Dakota. But as a matter of policy, it is important to make sure that there is a clear, predictable set of rules for nuclear innovators. The NRC should be a reliable and predictable regulator, which will help foster innovation. We have heard multiple times today about what the NRC is doing to prepare for advanced reactors. And the advanced reactor that is the furthest along is the NuScale small modular reactor, which is in the final steps of receiving design approval from the NRCC, or NRC.

The certification will have taken 5 years so far and \$70 million in upfront licensing. This is equivalent to 10 to 15 years of fees charged by operating facilities. Going forward, it makes no sense to have reviews as time-consuming and costly to incremental new technologies like NuScale.

Chairman Hanson, applicants must have a good understanding of how long and how much money it will cost to get a license at the beginning of the licensing process. And you talked earlier about having a more timely, efficient, and streamlined review, and that we don't want the NRC to be an impediment to these progresses. But, specifically, how is the NRC putting together workable and predictable project schedules for advanced reactor reviews? And 5 years is a long time.

I can't hear. Can anybody hear?

Mr. RUSH. I can't hear either.

Mr. ARMSTRONG. I am sure this is really smart, and I want to hear it.

Mr. HANSON. Sorry. My light is on.

Mr. RUSH. Now we hear you. We hear you now.

Mr. BARAN. I will have the Chairman take my spot, and he can answer the question.

Mr. HANSON. I am sorry, Congressman. I am going to sit in Commissioner's Baran seat here for just a second. I will have to get back to you on the specific—for the record, on the specific mechanisms we used to help licensees. But we do break down each application that we get into the component parts and develop detailed schedules and cost estimates for each of those so that we have transparency for our licensees. And I apologize, I don't have the details on that in front of me. But I would be happy to get back to you for the record on exactly how we do that.

Mr. ARMSTRONG. No, and I appreciate that because really one of things is we want a reasonable regulatory environment, but it has to have—I mean, we talk about 25 cents a kilowatt hour versus 6 cents, but—and even in reading in the majority memo for this, the economic situations facing nuclear is gas, renewable, and flat energy demand. But we don't factor in other things like how much of that 25 cents is regulatory, competing against production tax credits, repower provisions, primacy on the grid. So, I mean, there are more factors into a lot of this.

Chairman Hanson, I am going to just ask this question of everybody quick. The NRC has also provided principles of good regulation, which include requirements for reliable and clear regulatory activity. Do you commit to upholding these requirements, and can the committee hold you to them moving forward?

Mr. HANSON. Absolutely, Congressman. They are posted in my office. I look at them and read them every day.

Mr. ARMSTRONG. Thank you.

Chair—or Commissioner Baran, you have got to get—hop skip mikes. I am sorry about that.

Mr. BARAN. I was going to have to give the Chairman my proxy on that. Yes, we—you know, there is not a day that goes by that we don't hear about the principles of good regulation and think about them. It is definitely part of the conversation and always has been at NRC.

Mr. ARMSTRONG. Thank you. I hope to end timely. Commissioner Wright?

Mr. WRIGHT. Yep. I brought a copy with me. I keep them with me, so yes.

Mr. ARMSTRONG. Thank you all very much.

I yield back.

Mr. RUSH. The gentleman yields back.

Now the Chair recognizes the gentleman from Pennsylvania, Mr. Joyce, for 5 minutes.

Mr. JOYCE. First, I want to thank you, Chairman Rush, for allowing me to waive onto this joint subcommittee hearing, and I want to thank the Commissioners for appearing.

It is impossible to understate how important nuclear power is to the future of American energy production. It is the cleanest source that we can produce significant quantities of power around the clock, rain or shine, 365 days a year.

In 2019, nuclear power was responsible for 36 percent of total electricity produced in my home State of Pennsylvania. It sup-

ported 4,500 jobs and accounted for 92 percent of carbon-free electricity in our Commonwealth.

If my colleagues are serious about trying to cut down on carbon emissions, nuclear power is clearly a safe and effective solution, and yet nuclear power plants across the country are in danger of closing.

In my State, Three Mile Island has already begun the decommissioning process, and others are close to following suit. It is imperative that the NRC provides a stable regulatory environment so that our existing fleet of plants can continue to produce safe and clean energy for Americans.

My first question is for Chairman Hanson. As you witnessed and mentioned that you recently visited Limerick, Exelon is undertaking a significant digital modification project at this generation station that will set industry precedent for modernizing the existing fleet of plants. By itself, Limerick, the generating station there, has two nuclear reactors that produce more than 2,300 megawatts of zero-emission energy, enough carbon-free electricity to power 2 million homes here in Pennsylvania.

How does digital modernization contribute to plant safety? And that is a question for you, please, Chairman Hanson.

Mr. HANSON. Thank you, Congressman, for that.

I think it contributes in a number of ways.

First of all, it can increase the reliability of plant components. It reduces the size and the number of components that need to be maintained within the plant, particularly on the auxiliary system side, so a lot of the pumps and motors and other kinds of things. It can help provide information on maintenance schedules and conditions remotely for plant staff, so that that information can augment then onsite inspections and other kinds of maintenance activities that plant staff undertake.

I think there is a wide range of the kinds of information, and I think we are going to learn a lot over the next few years about the kinds of information that you can get from these systems that could potentially enhance system safety and overall operational efficiency of these facilities.

Mr. JOYCE. Chairman Hanson, recognizing that important information, are DOE or you at NRC doing anything to incentivize nuclear power plants to make the transition to digital?

Mr. HANSON. Congressman, I will note, I think as my colleagues have, it is not our role necessarily to incentivize, but I can tell you it is a priority for me to create and for the NRC to refine and have a clear regulatory line of sight for the licensing of these technologies. That may—having that regulatory line of sight may create an incentive in and of itself.

Mr. JOYCE. Thank you for recognizing that.

My next question is for Commissioner Wright. And, as the relief pitcher and on the heels of last night's All-Star Game, Commissioner Wright, you mentioned that you are an umpire outside of the office, and in a lot of ways your role at the NRC is to be an umpire for the nuclear power industry.

As you know from your time on the diamond, there is nothing worse than an unpredictable strike zone. What lessons are being implemented to make sure that the licensing renewal process is

even more predictable and straightforward while still ensuring safety and thus allow nuclear power to play its best game for all of the American people?

Mr. WRIGHT. I like the analogy. I think that is really good. Very good job.

Mr. JOYCE. Thank you.

Mr. WRIGHT. The—so, I mean, our job is to—really to call the balls and strikes, but we have to do it within what our mission is, and that is the reasonable assurance. It is no more, and it is no less.

And, you know, although it is not defined, you know, just like everybody's strike zone is different, it is still over the plate, in that same general area. So we have got to be sure that we are doing everything that we can at every level. I mean, from the—

Mr. JOYCE. And just allow me to interrupt. So is that meaning that the licensing renewal process can be even more predictable and more straightforward?

Mr. WRIGHT. I believe so, yes. We have to provide, you know, regulatory certainty for whoever comes before us and a pathway to do what they need to do if it is in the advanced reactor space. We are not going—and each of my colleagues have said it as well—it is not our desire to be an impediment to innovation or innovators.

Mr. JOYCE. Thank you. My time has expired, and I yield.

I think, Chairman Rush, you are still muted.

Mr. RUSH. That concludes the witness questioning, and I certainly want to thank Chairman Hanson, Commissioner Baran, and Commissioner Wright for your excellent testimony. This has been a great, informative, and necessary hearing, and I want to thank you all for joining us today, Mr. Chairman and the Commissioners.

I remind Members that, pursuant to committee rules, they have 10 business days to submit additional questions for the record to be answered by the witnesses who have appeared before us today.

And I also ask each witness to respond promptly to any such questions that you may receive.

Without objection, the subcommittee is hereby adjourned.

[Whereupon, at 3:45 p.m., the subcommittees were adjourned.]

[Material submitted for inclusion in the record follows:]

Additional Questions for the Record

**Subcommittee on Energy and
Subcommittee on Environment and Climate Change
Hearing on
“Keeping Us Safe and Secure: Oversight of the Nuclear Regulatory Commission”
July 14, 2021**

The Honorable Jeff Baran, Commissioner, Nuclear Regulatory Commission

The Honorable Ann M. Kuster (D-NH)

1. Commissioner Baran, given that Seabrook is the first nuclear power plant that has experienced issues with ASR cracking, has the NRC worked with independent experts to determine the best oversight regime to ensure the safety of Seabrook Nuclear Power Station? Please provide a complete list of those independent experts.

RESPONSE:

After consulting with the NRC staff, my understanding is that they engaged with the following independent experts about ASR at Seabrook:

- Due to the first-of-a-kind nature of ASR in the U.S. nuclear fleet, the Advisory Committee on Reactor Safeguards (ACRS) reviewed the NRC staff's draft Safety Evaluation for the licensee's ASR-related license amendment request. Established by the Atomic Energy Act, ACRS is independent of the NRC staff and reports directly to the Commission, which appoints its expert members. The ACRS's subcommittee on Plant License Renewal met with the NRC staff and NextEra and its consultants, on October 31, 2018, to conduct a review of past, current, and future actions to address ASR at Seabrook.

The Honorable Jeff Baran

Page 2

- NRC's Office of Nuclear Reactor Regulation (NRR) conducted an audit during the review of the license amendment request. This audit was supported by a technical specialist from Brookhaven National Laboratory.

 - NRC sponsored a research project at the National Institute of Standards and Technology (NIST) entitled "Structural Performance of Nuclear Power Plant Concrete Structures Affected by Alkali-Silica Reaction (ASR)" that began in May 2014. This research had five tasks related to structural and material aspects of ASR including assessing the effects of ASR on in-situ mechanical properties of concrete; assessing development and lap-splice lengths of reinforcing bars in ASR-affected concrete; and evaluating cyclic seismic response characteristics of ASR-affected concrete structural members. The staff reports that the research is complete, but that its review of the NIST report is ongoing.

 - NRC's Office of Research works to stay abreast of ongoing ASR research performed or sponsored by other independent organizations, such as DOE Oak Ridge National Laboratory, Electric Power Research Institute, and Canadian Nuclear Safety Commission. The NRC staff has participated in several seminars, workshops, and conferences that included ASR material and structural experts in order to increase its knowledge of ASR.
2. Commissioner Baran, has the NRC consulted with the operators of other major facilities that are experiencing ASR cracking, like Hydro-Quebec, to develop cross-industry best practices for monitoring ASR cracking? Please provide a complete list of other organizations the NRC has consulted with about best practices for monitoring ASR cracking.

The Honorable Jeff Baran

Page 3

RESPONSE:

My understanding from the NRC staff is that there have not been direct consultations with operators like Hydro-Quebec, which experienced ASR issues at the Gentilly-2 nuclear power plant. However, the NRC staff is aware of the approach taken to address the ASR issue at Gentilly-2 when the plant was operating through the available literature and participation by NRC's research staff in international cooperative research activities under the Committee for the Safety of Nuclear Installations (CSNI) of the Nuclear Energy Agency (NEA). According to the NRC staff, a CSNI initiative informed its evaluation and oversight of ASR at Seabrook.

CSNI led an activity related to concrete degradation: "Assessment of Structures Subjected to Concrete Pathologies" (ASCET) to make general recommendations for aging management of concrete nuclear facilities, taking into account the effect of concrete pathologies on structural degradation.

ASCET Phase 1 concluded with an international workshop held at the NIST campus in Gaithersburg, MD from June 29 to July 1, 2015. The workshop, which was led by the Canadian Nuclear Safety Commission (CNSC) and NRC's Office of Research, included presentations and group discussions by global experts on concrete pathologies including ASR. Experts from Hydro-Quebec also presented their analyses and evaluations for the Gentilly-2 nuclear power plant as well as for other facilities owned and operated by Hydro-Quebec.

Building in part on recommendations from Phase 1, Phase 2 of ASCET's work consisted of pre-test and post-test analyses by various organizations around the world doing research on nuclear safety, including a series of structural tests of structural walls with and without ASR. This work was conducted at the University of Toronto under a program sponsored by the CNSC. NRC's

The Honorable Jeff Baran
Page 4

Office of Research participated in this work. Phase 3 involved similar analyses for all post-testing conditions.

Additional Questions for the Record

**Subcommittee on Energy and
Subcommittee on Environment and Climate Change
Hearing on
“Keeping Us Safe and Secure: Oversight of the Nuclear Regulatory Commission”
July 14, 2021**

The Honorable David A. Wright, Commissioner, Nuclear Regulatory Commission

The Honorable Cathy McMorris Rodgers (R-WA)

1. During the July 14, 2021, Committee on Energy and Commerce Hearing, Committee Chairman Representative Frank Pallone asked Chairman Hanson about the status of the Reactor Oversight Process (ROP) changes proposed by the staff in 2019. Representative Pallone also asked Commissioner Baran for his views on the proposed ROP changes.
 - a. Please provide your perspectives on the staff's ROP enhancement initiatives, including any recommendations before the Commission related to self-assessments, the status of the papers before the Commission, and any concerns you have with the initiatives.

RESPONSE:

I appreciate the opportunity to provide my perspectives on the staff's Reactor Oversight Process (ROP) enhancement initiatives, which are outlined in SECY-19-0067 (ROP enhancement paper). I will also touch on the staff's recommendations related to ROP engineering inspections outlined in SECY-18-0113. Finally, I will provide an update on the status of the papers. As an initial matter, I am troubled by what I view as an incomplete representation of the ROP enhancement initiatives. Most troubling is the claim that the objective or outcome of the ROP enhancement initiative is to weaken oversight. That is not the case. The objective of the staff's

The Honorable David A. Wright
Page 2

ROP enhancement initiative is to use risk insights to develop smarter samples, thus maintaining or improving safety while also improving efficiency. This objective is consistent with the NRC Principles of Good Regulation and past ROP efforts and changes. Since its inception in 2001, the ROP has used a sampling approach and has constantly been assessed for improvements, with inspections being added, eliminated, or modified based on fleet performance and external conditions (e.g., September 11th, Fukushima), typically as part of the agency's normal work practices through the NRC's transformation activities, stakeholder correspondence, feedback from ROP public meetings, and the annual ROP self-assessment program. The NRC staff conducted an integrated, holistic review of the ROP to identify areas for improvement and increased effectiveness and provided support for those changes in SECY-19-0067 and its enclosures.

Another claim is that the ROP enhancement initiative did not account for stakeholder input. The staff's ROP enhancement initiative included extensive interaction with stakeholders and consideration of their views. Since launching the enhancement initiative in 2018, the NRC has held approximately 50 public meetings which have been attended by the NRC staff, licensee personnel, vendors, state governments, Nuclear Energy Institute, media, and non-governmental organizations such as the Union of Concerned Scientists (UCS).¹ In March 2019, the NRC held a dedicated public session at the Regulatory Information Conference on ROP enhancement. Dr. Ed Lyman of UCS was one of the presenters. The staff also leveraged over two decades of historical ROP data and experience in assessing plant performance. The staff then developed the ROP enhancement paper, which proposed modest recommendations to enhance the ROP and included a discussion of external stakeholder views and alternative views on those recommendations.

¹ This total number includes public meetings held by the Office of Nuclear Security and Incident Response, the Regional offices, and the meetings listed on the NRC's ROP Enhancement webpage.

The Honorable David A. Wright
Page 3

There is also a misconception that the staff's ROP enhancement recommendations included proposals to replace NRC engineering inspections with licensee self-assessments. The ROP enhancement paper makes no recommendations about these self-assessments. A separate paper on ROP engineering inspections (SECY-18-0113) described an option that would substitute a licensee self-assessment for a focused engineering inspection *once every four years*. For context, that would amount to a reduction in direct inspection of less than 2%.² The staff communicated at a public meeting on July 31, 2019 that it was no longer considering the industry proposal of using industry self-assessments to supplement or replace selected ROP engineering inspections. Further, no other proposal related to self-assessment has been provided for Commission consideration since that time. Therefore, the Commission is not considering approving self-assessments as part of the ROP enhancement initiative or otherwise. If at any time in the future the staff or industry wish to pursue licensee self-assessments in lieu of independent inspections, the Commission would have to approve such a change.

Perspectives on the ROP Enhancements Outlined in SECY-19-0067

I have no concerns with the staff's ROP enhancement recommendations in SECY-19-0067. The staff's recommendations covered several areas, including assessment, inspection, and emergency planning and were made after an extensive review of the effectiveness of NRC inspections. In my view, these recommendations are primarily a matter of staff's technical judgment rather than a policy matter. The staff's recommendations were thoughtful, risk-informed, data-driven, and informed by extensive engagement with internal and external stakeholders. I especially value the insights provided by our NRC Resident Inspectors, who perform daily on-site inspections and monitoring at the nuclear power plants.

² SECY-18-0113 projected that a focused engineering inspection would require 210 hours of direct inspection. A reduction of 210 hours every four years equates to an annualized reduction of 210 hours / (4 x 3000 hours) = 1.7% reduction in direct inspection effort.

The Honorable David A. Wright
Page 4

I believe the staff's assessment recommendations related to the treatment of Performance Indicators and descriptions of inspection findings would increase the reliability and clarity of our assessment process and would encourage nuclear power plant operators to correct plant problems in a more timely manner. With respect to inspection and emergency planning, I believe the staff's recommended changes were supported by data and would focus inspectors' efforts on the most important and safety significant issues and eliminate redundancies. In my view, eliminating unnecessary redundancy and focusing on risk significant issues are risk-informed changes that increase our effectiveness as a regulator and provide appropriate flexibilities.

Current Status of SECY-18-0113 and SECY-19-0067

On August 3, 2021, the staff notified the Commission that there is new information and activities relevant to its recommendations and requested approval to withdraw both SECY-18-0113 and SECY-19-0067. On August 5, 2021, the Commission approved the withdrawal of both papers. I supported withdrawal of the papers for several reasons. First, in any matter I consider, it is critical to have full and accurate information from the staff. Given the evolving nature of the ROP and the time elapsed since the papers were submitted, it is not surprising that the staff has additional insights to provide to the Commission on its previous recommendations and any other possible ROP enhancements. I appreciate the staff's evaluation of this information and its reengagement with internal and external stakeholders. Second, it is my understanding that the staff has the authority to implement certain items described in both the engineering inspections paper and the ROP enhancement paper without Commission approval and therefore does not need to wait for Commission action to implement some of the enhancements. For example, my understanding is that the staff has already implemented several of the inspection procedure revisions like eliminating redundant adverse weather inspection samples, clarifying inspection resource estimates, incorporating lessons learned into security baseline procedures, and

The Honorable David A. Wright
Page 5

making minor revisions to the supplemental inspection guidance outlined in Inspection Procedure 95001. I also understand that the staff has the authority to and may implement other recommended changes, such as revisions to sample sizes and resources for several baseline inspection procedures and implementation of the Focused Engineering Inspection and the Combined Engineering Team Inspection concepts, before the next inspection cycle. I support the staff's efforts to implement those items expeditiously if the staff continues to support their implementation after considering the new information and activities noted in the withdrawal request. I look forward to engaging with the staff on any new recommendations that require Commission approval.

2. Given the nature of the hearing, you were not always provided time to respond to Member questions. Upon reflection, do you have any additional comments you would like to provide for the record to respond to issues raised at the hearing?

RESPONSE:

I appreciate the opportunity to provide additional comments for the record to respond to issues raised at the hearing which I did not have an opportunity to address.

There were statements made at the hearing that there is a "gap" with respect to post-Fukushima safety measures at nuclear power plants. I do not share this view. Instead, I believe that the plants are protected given the measures already in place and the site-specific analyses done on the reevaluated flooding and seismic hazards. If the NRC identifies any new information suggesting that more is required to address the hazards, it has the authority and tools to take appropriate action.

The Honorable David A. Wright
Page 6

I was also asked about what could be done to ensure that subsequent license renewal (SLR) continued to be efficient. I believe the NRC should continue to leverage lessons learned from the first SLR application reviews, including updating the generic environmental impact statement on license renewal to clarify its applicability to SLR and adopting best practices in preparing the site-specific supplemental environmental impact statements (e.g., beginning consultations early).

Finally, I would like to thank the staff for its dedication and efforts during the COVID-19 pandemic. I could not be prouder of the way the agency pivoted to almost 100% telework and adapted our reviews, inspections, and practices to accommodate COVID-19 related issues. I appreciate the staff's thoughtful consideration of which of these practices should continue going forward.