

HEARING ON THE NUCLEAR  
REGULATORY COMMISSION'S PROPOSED  
FISCAL YEAR 2024 BUDGET

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HEARING  
BEFORE THE  
COMMITTEE ON  
ENVIRONMENT AND PUBLIC WORKS  
UNITED STATES SENATE  
ONE HUNDRED EIGHTEENTH CONGRESS  
FIRST SESSION  
APRIL 19, 2023

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COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

ONE HUNDRED EIGHTEENTH CONGRESS  
FIRST SESSION

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SHELLEY MOORE CAPITO, West Virginia, *Ranking Member*

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# C O N T E N T S

Page

**APRIL 19, 2023**

## OPENING STATEMENTS

|                                                                                |   |
|--------------------------------------------------------------------------------|---|
| Carper, Hon. Thomas R., U.S. Senator from the State of Delaware .....          | 1 |
| Capito, Hon. Shelley Moore, U.S. Senator from the State of West Virginia ..... | 3 |

## WITNESSES

|                                                                             |     |
|-----------------------------------------------------------------------------|-----|
| Hanson, Hon. Christopher T., Chairman, Nuclear Regulatory Commission .....  | 5   |
| Prepared statement .....                                                    | 8   |
| Responses to additional questions from:                                     |     |
| Senator Carper .....                                                        | 18  |
| Senator Whitehouse .....                                                    | 25  |
| Senator Markey .....                                                        | 27  |
| Senator Kelly .....                                                         | 28  |
| Senator Capito .....                                                        | 31  |
| Senator Ricketts .....                                                      | 55  |
| Baran, Hon. Jeff, Commissioner, Nuclear Regulatory Commission .....         | 67  |
| Prepared statement .....                                                    | 68  |
| Responses to additional questions from:                                     |     |
| Senator Carper .....                                                        | 69  |
| Senator Whitehouse .....                                                    | 70  |
| Senator Kelly .....                                                         | 71  |
| Wright, Hon. David A., Commissioner, Nuclear Regulatory Commission .....    | 73  |
| Prepared statement .....                                                    | 74  |
| Responses to additional questions from:                                     |     |
| Senator Carper .....                                                        | 75  |
| Senator Whitehouse .....                                                    | 77  |
| Senator Kelly .....                                                         | 79  |
| Senator Capito .....                                                        | 82  |
| Caputo, Hon. Annie, Commissioner, Nuclear Regulatory Commission .....       | 86  |
| Prepared statement .....                                                    | 87  |
| Responses to additional questions from:                                     |     |
| Senator Carper .....                                                        | 88  |
| Senator Whitehouse .....                                                    | 92  |
| Senator Kelly .....                                                         | 94  |
| Senator Capito .....                                                        | 96  |
| Crowell, Hon. Bradley R., Commissioner, Nuclear Regulatory Commission ..... | 100 |
| Prepared statement .....                                                    | 102 |
| Responses to additional questions from:                                     |     |
| Senator Carper .....                                                        | 104 |
| Senator Whitehouse .....                                                    | 106 |
| Senator Kelly .....                                                         | 107 |
| Senator Capito .....                                                        | 109 |





# HEARING ON THE NUCLEAR REGULATORY COMMISSION'S PROPOSED FISCAL YEAR 2024 BUDGET

WEDNESDAY, APRIL 19, 2023

U.S. SENATE,  
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,  
*Washington, DC.*

The committee met, pursuant to notice, at 10:01 a.m. in room 406, Dirksen Senate Office Building, Hon. Thomas R. Carper (chairman of the committee) presiding.

Present: Senators Carper, Capito, Cardin, Whitehouse, Markey, Stabenow, Kelly, Padilla, Lummis, Sullivan, Ricketts.

## OPENING STATEMENT OF HON. THOMAS R. CARPER, U.S. SENATOR FROM THE STATE OF DELAWARE

Senator CARPER. Good morning, everyone. I am pleased to call this hearing to order. It is good to see each and every one of you.

Today we are pleased to welcome back five members who currently serve on the Nuclear Regulatory Commission, or the NRC, to discuss President Biden's Fiscal Year 2024 budget proposal for the commission. Chair Hanson, Commissioner Baran, Commissioner Wright, Commissioner Caputo, and Commissioner Crowell, welcome. We are delighted to see you. Thank you all for being here with us. Thank you for your willingness to serve in these important roles.

It is great to see you again. We are happy to spend this time with all of you. In particular, it is great to see Commissioner Caputo and Commissioner Crowell join us I think for the first time since their confirmation last year to fill two vacancies on the commission. We know that a full complement of five commissioners allows the NRC to carry out its responsibilities, considerable responsibilities, to the American people effectively. We hope that you are settling in nicely.

We also appreciate that all five of you are able to join us today, because it is important to hear directly from each one of you. Many of us on this committee want to ensure that the NRC has the resources that it needs to maintain the safety of existing nuclear facilities and those that we might build in the future. This includes the work required to develop and deploy the next generation of reactors, as well as new, advanced nuclear technology and materials.

As maybe most of you know, I believe that safe nuclear power plays an essential role in our efforts to address the greatest challenge of our time, that is the climate crisis. I felt this way a long

time ago, since I was an ensign in the Navy, and I still feel that way.

America's nuclear reactors provide about one-fifth of our Nation's electricity and roughly half of all emissions-free energy in our Country. It is no secret that I believe nuclear energy is key to reaching net-zero emissions economy-wide. And the NRC is critical to ensuring that our nuclear energy is safe and reliable.

From my conversations with members of the commission, it is clear that the NRC is hard at work developing a new regulatory structure for the next generation of nuclear power. This new structure is moving us closer to making advanced nuclear power a reality in this Country and doing so without jeopardizing safety.

The NRC is not only on time to deliver a new framework for licensing advanced reactors but ahead of schedule, I am told, when it comes to meeting your statutory requirements.

In addition, I applaud the NRC's recent decision on fusion regulation, which provides a path forward for the deployment of this technology. Going forward, this will help give fusion developers the regulatory certainty that they need to innovate, while also protecting safety, security and public health.

Still, it has been difficult for the NRC to operate under the constraints that the Nuclear Energy Innovation and Modernization Act requires. Last Congress, NRC Chair Hanson testified before our committee. During that time, he expressed concerns about the impact of budgetary caps on the agency's ability to hire the work force of the future and take on the challenges of licensing advanced reactor technologies.

That is why I joined Senator Capito and Senator Whitehouse to introduce the Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy, or ADVANCE Act. Our bipartisan legislation includes provisions that would help ease these restrictive budget caps that Chair Hanson mentioned previously.

The ADVANCE Act would also help ensure that the NRC has the best tools and highly trained staff that it needs to keep up with the speed of innovation and the growing interest in nuclear energy. Further, if we want the U.S. nuclear industry to be successful, we need to invest in its future. That means investing in the nuclear industry's work force. Almost every organization needs a strong and dedicated work force if they are going to be successful, and the NRC is no exception to that.

As we advance the next generation of nuclear technologies, we must also ensure that the NRC has adequate funding to attract and retain the best and brightest talent needed to license and regulate new technologies. The NRC remains the global model for nuclear safety agencies. I am proud of that, and I am sure you are, too. The commission's work to maintain safe and secure nuclear power is an essential tool in our efforts to reduce greenhouse gas emissions.

Today, we look forward to discussing how President Biden's proposed budget for Fiscal Year 2024 will impact the decisions that the NRC makes now, and, ultimately, the future of the agency for years to come.

Before we hear from our witnesses, let me first turn to our Ranking Member, Senator Capito, for her opening remarks. Senator Capito?

**OPENING STATEMENT OF HON. SHELLEY MOORE CAPITO,  
U.S. SENATOR FROM THE STATE OF WEST VIRGINIA**

Senator CAPITO. Thanks, Mr. Chairman, and thank all of you for being here. It is nice to see a full complement. And it is good to see you, Ms. Caputo, Commissioner Caputo, because my first visit to a nuclear plant was with you. So we have been around the bend on this. Great to see you.

Since our last Nuclear Regulatory Commission oversight hearing 16 months ago, major events, both here and abroad, make clear the urgent need for the United States to lead in civil nuclear energy. The first new nuclear unit at Southern Company's Vogtle site in Georgia went critical recently, and it is now connected to the electric grid and is on the brink of commencing commercial operation.

This is the first new commercial nuclear reactor in a generation and I think it is a major achievement for America's nuclear industry. It is also the first new reactor design to be fully developed, licensed, and constructed since Congress established the Nuclear Regulatory Commission nearly 50 years ago.

Advanced reactor development is progressing as numerous States pursue the deployment of advanced nuclear technologies, including my home State of West Virginia. West Virginia is assessing options to deploy nuclear energy, building on our State's proud legacy of serving as a leading energy provider.

While we reinvigorate our domestic nuclear sector, global events necessitate that America really reasserts our international leadership here. Russia's war in Ukraine reinforces the fact that energy security is synonymous with national security.

Russia sought to use Europe's reliance on Russian natural gas to destabilize our allies' resolve to support Ukraine. Instead, we expedited export shipments of American LNG to our European friends and increased energy cooperation.

It is also reported that Rosatom, Russia's state-backed nuclear company, is actively supporting the war. Every dollar that goes to Rosatom is helping Putin and Russia, and Russia has been aggressive in trying to gain political leverage and commercial footholds through the export of its nuclear technologies, services, and fuels abroad.

Meanwhile, our government, alongside American companies, is working to counter Russia's strategic nuclear engagement by building relationships with nations around the world to construct U.S. reactor technology. Doing so will establish decades-long partnerships in the nuclear supply chain, the use of advanced nuclear fuels, and reactor operations.

U.S. companies have already entered into agreements with Romania, Poland, and the Czech Republic, just to name a few. These circumstances dictate that America can, and should, lead in nuclear energy development. Central to realizing the opportunities for new nuclear here and in foreign markets is an effective domestic nuclear safety regulator: you all.

This is why I recently introduced the ADVANCE Act with nine cosponsors as the chairman spoke about, including Chairman Carper and also Senator Whitehouse. And we are picking up sponsors we hope. The bill facilitates greater international engagement by the NRC and other Federal agencies to help win the geostrategic nuclear energy competition. This will position our American businesses to better compete with Russian and Chinese nuclear companies.

This bill helps States like mine, like West Virginia, pursue advanced nuclear technologies by reducing regulatory costs and providing regulatory certainty. The bill assists the NRC in efficiently fulfilling its core nuclear safety mission with expert staff in a predictable and timely manner.

While we look to provide the commission with additional direction and authority, Congress needs to also carefully consider how the agency is functioning. That is why we are here today. So this morning, we will hear from the NRC chair and the commissioners regarding the Fiscal Year 2024 proposed budget.

While the current amount of work the NRC is conducting for its core licensing and regulatory oversight purpose is down, the Commission is asking for significant new funding, in part to prepare for potential licensing work for new reactors. The NRC's budget must become more efficient in order to be ready for that anticipated workload.

Last year, this mystifies me, we will have to get into this, the Commission did not spend more than \$90 million of its allotted funding. That means 10 percent of the NRC's total budget authority went unspent.

I do appreciate that the Commission is proposing to apply some of that carryover funding to this year's budget request. However, when much of the Commission's budget is funded by regulated utilities and ultimately electric ratepayers, the Commission should not, I do not believe, be carrying over large balances from year to year.

Just as important as finding efficiencies in the NRC's management of its money is also how the NRC is addressing and can perform its licensing and regulatory oversight work more efficiently as well.

In January, I requested information regarding the Commission's telework policy and the number of staff that are regularly in the office. Thank you for coming to my office and presenting that report. Nearly 60 percent of the work force is in the office fewer than 3 days per week.

I am concerned that the expansion of, and reliance upon, remote work will have unforeseen negative consequences on operational efficiency.

The NRC is predicting annual attrition rates of 7 percent for the next three to 5 years. In my view, it is imperative that work force development programs enable the new staff to work side-by-side with experienced staff to see firsthand how the Commission's work is performed and to pass along known best practices. Significant reliance on telework and video calls, I believe, will hamper the ability of the staff to efficiently review and approve license applications.

NRC's workload and associated challenges with licensing multiple first-of-its-kind advanced reactors during the next decade is so

significant. Congress has appropriated billions of dollars to facilitate the development of advanced nuclear reactors and therefore timely and effective regulatory review is essential.

All five of the commissioners recently spoke to the NRC's ability to meet the moment and successfully realize the bipartisan congressional support for advanced nuclear policy. Congress must ensure that the moment is not missed, along with you all.

Since the NRC's establishment, a series of reports have consistently identified deficiencies in the NRC's work. For example, about 30 years ago, two reports, the Towers-Perrin and Center for Strategic and International Studies reports, identified major shortcomings in the NRC's effectiveness and posture. The NRC responded to those reports at the time by successfully repositioning the Commission to respond to the dynamic changes that are facing the nuclear industry.

To enable the NRC to effectively carry out its foundational Atomic Energy Act charge, and in light of the forthcoming licensing work, it may be time to undertake another comprehensive analysis to ensure that the Commission, and our Nation, is well positioned to deploy a new generation of nuclear designs.

I look forward to further conversation and appreciate you all coming in today. Thank you.

Senator CARPER. Thanks, Senator Capito.

We are now going to turn to our panel of witnesses, and welcome you all back before us. We are grateful that you are joining us today, grateful that you are willing to serve in this important capacity. We look forward to what you have to say.

I am going to lead off with our chair, Chris Hanson. If I could ask to use about 5 minutes for your remarks, then we will turn to your colleagues on the commission and ask each of you to speak for roughly 2 minutes. Mr. Chairman, you are recognized. Please proceed.

**STATEMENT OF HON. CHRISTOPHER T. HANSON, CHAIRMAN,  
NUCLEAR REGULATORY COMMISSION**

Mr. HANSON. Thank you. Good morning, Chairman Carper, Ranking Member Capito, Senator Stabenow. It is good to be with you all this morning.

My colleagues and I very much appreciate the opportunity to discuss the U.S. Nuclear Regulatory Commission's Fiscal Year 2024 budget request and update you on some of the agency's licensing and oversight activities.

The NRC is an independent Federal agency established to regulate commercial nuclear power plants; research and test reactors; nuclear fuel cycle facilities; and radioactive materials used in medicine, academia, and industry. The agency also regulates the transportation, storage, and disposal of radioactive materials and waste; the export and import of radioactive materials, nuclear reactors and fuel cycle facilities, and the export of nuclear facility components.

The NRC's Fiscal Year 2024 budget request is \$1 billion to support activities focusing on the safety and security of the facilities and materials that we regulate. The budget request represents about a 6.7 percent increase, or \$63.2 million over the NRC's en-

acted budget for Fiscal Year 2023. This is primarily to support increased salaries and benefits, in accordance with the U.S. Office of Management and Budget guidance, and workload changes. The budget request proposes to use \$27.1 million in carryover to offset the Nuclear Reactor Safety budget, resulting in an adjusted gross budget authority of \$979 million.

The NRC expects to recover \$832.2 million of the Fiscal Year 2024 budget from fees assessed to NRC licensees. This will result in a net appropriation of \$156 million, which is an increase of \$19 million when compared to the Fiscal Year 2023 enacted budget.

The Fiscal Year 2024 budget request is anticipated to encompass the regulation of 94 operating power reactors, 31 nonpower production or utilization facilities, 23 power reactor sites undergoing decommissioning, and thousands of other facilities and materials that we regulate.

The NRC realized a number of important accomplishments over the last year and made progress in key areas. To highlight a few, Senator Capito, as you noted, the NRC authorized the operation of Vogtle Unit 3 in Georgia, marking the first time the agency has authorized fuel loading and startup operations for a nuclear power plant with a combined construction permit and operating license.

In another major achievement, the NRC completed NuScale's design certification for its small modular reactor. The agency also renewed the license for Westinghouse's fuel fabrication facility in Columbia, South Carolina.

Senator Carper and Senator Capito, you both noted that the commission recently took a major step in clarifying the regulation of fusion energy in the United States by directing the staff to license near-term fusion energy systems under a byproduct material framework.

I would like to now highlight some specific elements of the NRC's Fiscal Year 2024 budget request. The NRC's nuclear reactor safety program encompasses licensing and oversight of civilian nuclear power reactors and non-power facilities. The Fiscal Year 2024 budget request for the Nuclear Reactor Safety Program is \$530.8 million. A portion of this budget request, about \$34 million, is from off-fee based funds, would support the development of advanced reactor regulatory infrastructure and staff capabilities for licensing of advanced nuclear reactor and fuel cycle technologies.

The Operating Reactors portion of this request will support licensing and inspection. With the inclusion of the carryover used to offset the Fiscal Year 2024 budget request, the NRC is requesting a total of \$425.8 million within this. The portion of the budget request designated for new reactors is \$105 million.

In addition to the development of the new regulatory licensing framework, this request supports numerous pre-application activities as well as resources for technical reviews associated with several licensing activities for advanced reactors.

The Nuclear Materials and Waste Safety Program is responsible for licensing, regulating, and overseeing uranium processing and fuel facilities, research and pilot facilities, and other nuclear materials licensees. The Fiscal Year 2024 budget request for the Nuclear Materials and Waste Safety program is \$153 million.

The NRC's Corporate Support Business Line includes a wide range of necessary functions critical to the agency's work. The Fiscal Year 2024 budget request of \$304 million would comprise 30.2 percent of the NRC's total requested budget which reflects the agency's efforts to comply with the corporate support cap mandated by the Nuclear Energy Innovation and Modernization Act to the maximum extent practicable.

In closing, the Fiscal Year 2024 budget request allows NRC to focus on conducting our mission activities to ensure the safety and security of nuclear power facilities and nuclear materials. On behalf of the Commission, I thank you for the opportunity to discuss the important work we anticipate in the year ahead and for your support of the NRC's vital mission. We would be pleased to respond to your questions.

[The prepared statement of Mr. Hanson follows:]

WRITTEN STATEMENT  
BY CHRISTOPHER T. HANSON, CHAIR  
UNITED STATES NUCLEAR REGULATORY COMMISSION  
TO THE  
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS  
APRIL 19, 2023

Chairman Carper, Ranking Member Capito, and distinguished members of the Committee. My colleagues and I appreciate the opportunity to discuss the U.S. Nuclear Regulatory Commission's (NRC) Fiscal Year (FY) 2024 budget request and update you on some of the agency's licensing and oversight activities.

The NRC is an independent Federal agency established to regulate commercial nuclear power plants; research and test reactors; nuclear fuel cycle facilities; and radioactive materials used in medicine, academia, and industry. The agency also regulates the transportation, storage, and disposal of radioactive materials and waste; the export and import of radioactive materials, nuclear reactors, and fuel cycle facilities; and the export of nuclear facility components.

The NRC's FY 2024 budget request is \$1.006 billion to support activities focusing on the safety and security of the facilities and materials that we regulate. The budget request represents about a 6.7 percent increase, or \$63.2 million over the NRC's enacted budget for FY 2023. This is primarily to support increased salaries and benefits, in accordance with the U.S. Office of Management and Budget guidance, and the workload changes I will describe within each business line. The budget request proposes to use \$27.1 million in carryover to offset the Nuclear Reactor Safety budget, resulting in an adjusted gross budget authority request of



\$979.2 million. The NRC expects to recover \$832.2 million of the FY 2024 budget from fees assessed to NRC licensees. This will result in a net appropriation of \$156 million, which is an increase of \$19 million when compared with the FY 2023 enacted budget. The FY 2024 budget request is anticipated to encompass the regulation of 94 operating power reactors, 31 non-power production or utilization facilities, 23 power reactor sites undergoing decommissioning, and the numerous other facilities and materials that we regulate.

The NRC realized a number of important accomplishments and made progress in key areas over the past year. To highlight a few: the NRC authorized the operation of Vogtle Unit 3 in Georgia, marking the first time the agency has authorized fuel loading and startup operations for a nuclear power plant with a combined construction permit-operating license. Southern Nuclear Operating Company projects Vogtle Unit 4 will be operational by late 2023 or early 2024. In another major achievement, the NRC completed NuScale's design certification for a small modular reactor (SMR). The agency also renewed the license for Westinghouse's fuel fabrication facility in Columbia, S.C. for another 40 years.

Looking ahead, the FY 2024 request supports continued licensing and oversight of operating power reactors and non-power facilities, as well as the licensing of SMRs and advanced reactors. This request also supports the licensing and oversight of uranium processing and fuel facilities; research and pilot facilities; users of nuclear materials for medical, industrial, research, and academic purposes; spent fuel storage; radioactive material transportation and packaging; decontamination and decommissioning of facilities; and low-level and high-level radioactive waste.

Resources will allow the NRC to complete further work in several areas critical to the future of the agency. Specifically, funds will support staff work on the technology-inclusive reactor licensing framework for advanced reactors and other nuclear technologies ahead of the congressionally mandated schedule in the "Nuclear Energy Innovation and Modernization Act." It also will assist ongoing efforts to develop a more risk-informed regulatory infrastructure overall, including development of an alternative physical security requirement for advanced reactors, and a rulemaking for increased enrichment to support accident tolerant fuels and advanced reactor fuel designs. The Commission recently took a major step in clarifying the regulation of fusion energy in the United States by directing the staff to license near-term fusion energy systems under a byproduct material framework. There is also work underway that will prepare the agency for specific anticipated future applications and further coordination with our Agreement State partners in this area.

To support our continued evolution into a more modern risk-informed regulator, the NRC staff proposed the development of a generic environmental impact statement for advanced reactors. This proposal is currently under Commission review. The NRC staff is also revising the generic environmental impact statement for license renewal of nuclear plants to account for the initial license renewal period (40-60 years) and one term of subsequent license renewal (60-80 years), consistent with Commission direction. In addition, the budget request supports engagements with foreign counterparts and other international partners to increase international collaboration on SMR and advanced reactor technical reviews. We have had tremendous success through our Memorandum of Cooperation (MOC) with the Canadian regulator in joint technical reviews, finishing six topical reports in highly complex areas of interest. Funding also will allow the NRC to provide critical international assistance to countries with burgeoning regulatory programs while we rise to emerging challenges around the world.

The budget request supports our goals to continue fostering a healthy organization in a hybrid work environment and building stakeholder confidence in the NRC. With a strong and agile workforce, we will be able to meet the needs of the future. To achieve these goals, we will continue to maintain a highly qualified workforce through recruitment and retention of staff, with a greater emphasis on entry- and mid-career level hiring to address projected attrition and prepare for an anticipated increasing workload in future years. Currently, one-third of NRC's staff is eligible to retire. We are pursuing an ambitious hiring effort over the next number of years to maintain current staffing levels. In 2022 we successfully hired over 250 people and we've met approximately 25% of our hiring goal for fiscal year 2023, with over 100 new employees already on board. Included in this initiative, the agency continued to build its future workforce through implementation of the second cohort of its Nuclear Regulator Apprenticeship Network, a robust summer hire program, and conversion of students in the Co-op Program. In FY 2023, the Commission restarted the Minority Serving Institutions Grant Program, which had been discontinued in 2017. This grant program promotes the inclusion of women, minorities, and individuals with disabilities in science, technology, engineering, mathematics, and other fields of interest within the NRC. Resources in the budget request also support developing a pipeline of specialized expertise in health physics through the Graduate Fellowship Program.

#### **FY 2024 BUDGET REQUEST**

I would like to now highlight specific elements of the NRC's FY 2024 budget request.

##### **Nuclear Reactor Safety**

The NRC's Nuclear Reactor Safety Program encompasses licensing and oversight of civilian nuclear power reactors and non-power facilities, such as medical isotope production facilities.

This program oversees both the safety and security at these facilities and is executed through the activities of the Operating Reactors and New Reactors Business Lines.

The FY 2024 budget request for the Nuclear Reactor Safety Program is \$530.8 million. A portion of this budget request, \$34.2 million, would support the development of advanced reactor regulatory infrastructure and staff capabilities for licensing of advanced nuclear reactor and fuel cycle technologies.

#### Operating Reactors

The Operating Reactors Business Line for FY 2024 is anticipated to encompass the licensing and oversight of 94 operating power reactors and 31 non-power facilities. With the inclusion of the carryover used to offset the FY 2024 budget request, the NRC is requesting a total of \$425.8 million for this business line to support licensing and inspection of activities such as digital instrumentation and controls upgrades and risk-informed initiatives. Resources support conducting review activities for three initial license renewal applications, three subsequent license renewal applications, and developing and updating regulatory guidance for license renewal. Also, the NRC is actively engaged in reviewing one medical radioisotope facility construction permit application, two non-power reactor construction permit applications, and two non-power reactor operating license applications. This is in addition to the agency's work on vendor technical, or "topical," reports, including those related to accident tolerant fuels.

#### 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 budget request for new reactors is \$105 million, with inclusion of the carryover used to offset the FY 2024 budget request. In addition to the development of the new regulatory licensing framework, this request supports numerous pre-application activities, including: one SMR combined license application; one SMR standard design application; two SMR construction permit applications; two advanced reactor combined license applications; and five advanced reactor construction permit applications. The budget request would also provide resources for technical reviews associated with several licensing activities including: one SMR and two advanced reactor combined license applications; one SMR standard design application; one SMR and four advanced reactor construction permit applications; new and advanced reactor licensing support activities such as guidance development and codes and standards activities; and research support for reviews and analysis.

#### Nuclear Materials and Waste Safety

The Nuclear Materials and Waste Safety Program is responsible for licensing, regulating, and overseeing uranium processing and fuel facilities; research and pilot facilities; and other nuclear materials licensees, such as medical, industrial, research, and academic users. This program includes regulation of the transportation, storage, and disposal of radioactive materials and waste. It serves an important security function through regulation of the physical security of materials and waste and protection against radiological sabotage, theft, and diversion. The FY 2024 budget request for the Nuclear Materials and Waste Safety Program is \$152.9 million.

#### Spent Fuel Storage and Transportation

The Spent Fuel Storage and Transportation Business Line portion of the Nuclear Materials and Waste Safety Program supports NRC oversight of spent fuel storage and transport of

radioactive materials. The FY 2024 budget request for these activities is \$28.8 million, which will support reviews for license amendments, transportation packages, storage certificates of compliance, and independent spent fuel storage installation license renewal applications. In addition, it will fund research to support the review of transportation packages containing accident tolerant fuel, oversight activities relating to routine operations, aging management inspections, and initial loading campaigns. Further work will be done to shore up program infrastructure, including revision of inspection guidance, and development and updates of regulations and guidance documents in support of spent fuel storage and transportation.

#### 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 2024 budget request in this area is \$71.4 million, which supports our work on international assistance, with particular emphasis on targeted regulatory capacity building in Central and Eastern Europe and sub-Saharan Africa to complement broader U.S. Government nuclear energy outreach in those regions. This request supports licensing and inspection of the NRC's radioactive materials licensees and oversight of the National Materials Program implemented by 39 "Agreement States" and the NRC. This work includes auditing programs nationwide under the Integrated Materials Performance Evaluation Program and reviewing applications from states seeking to become Agreement States. Three states — Connecticut, Indiana, and West Virginia — have submitted a letter of intent to become an Agreement State. We are also maintaining and improving the Integrated Source Management Portfolio, which provides critical national security infrastructure for managing high-risk radioactive sources nationwide and supports licensing and oversight workload management for the NRC and a growing number of Agreement States. This business line also supports the

agency's Tribal Liaison Program, which implements both Federal law and the agency's Tribal policy statement to ensure we have meaningful engagement with Tribes on our proposed actions.

#### Decommissioning and Low-Level Waste

The Decommissioning and Low-Level Waste Business Line portion of the Nuclear Materials and Waste Safety Program supports decommissioning licensing and oversight activities for 23 power reactor sites, two non-power utilization facilities, four complex materials sites, 28 uranium mill tailings sites, and five uranium recovery sites. The FY 2024 budget request of \$27 million supports the increase in decommissioning work due to accelerated decommissioning schedules. The expected workload includes the review of seven anticipated license termination plans; oversight of 22 decommissioning Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I sites; five decommissioning UMTRCA Title II sites and six Title II Uranium Recovery Sites that are under Department of Energy (DOE) long-term care and maintenance; three rulemaking activities; and guidance and code development.

#### Fuel Facilities

The Fuel Facilities Business Line portion of the Nuclear Materials and Waste Safety Program is responsible for licensing and oversight of fuel cycle facilities, including 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. The FY 2024 budget of \$25.7 million supports activities for nine major fuel facilities and 10 greater-than-critical-mass special nuclear material licensees; continues maintenance and support of the Nuclear Materials Management and Safeguards System; sustains U.S. non-proliferation

activities, including implementation of international safeguards; and licensing the import and export of nuclear materials and equipment.

#### **Corporate Support**

The NRC's Corporate Support Business Line encompasses centrally managed activities that are necessary for the agency to accomplish its mission. This business line includes a wide range of important functions, including administrative services, financial management, human resource management, information technology/information management (IT/IM), outreach, policy support, legal support, activities of the Commission, training, and acquisitions. The FY 2024 budget request of \$304 million would comprise 30.2 percent of the NRC's total requested budget, which reflects the agency's efforts to comply with the corporate support cap mandated by the "Nuclear Energy Innovation and Modernization Act" to the maximum extent practicable. The FY 2024 budget request supports much needed IT modernization efforts that will enhance workforce productivity, strengthen security, improve transparency of Federal IT spending, and encourage the use of data as a strategic asset. This will facilitate reductions in costs over time, increase efficiency, allow for better management of major acquisitions, and support effectiveness of administrative services.

#### **RESEARCH**

The NRC's research activities provide independent expertise and information for making timely regulatory judgments, anticipating potentially significant safety problems, and resolving safety issues. The NRC's research activities also support the development of technical regulations and standards and include the collection, analysis, and dissemination of information about the safety of commercial nuclear power plants and nuclear materials activities. The NRC's FY 2024 budget request of \$96.3 million will support the NRC staff across business lines. For example, this



budget will provide for the development and maintenance of computer code capabilities and models, which allow for safety analysis, engineering, risk assessment of reactors, analysis of spent fuel casks and fuel transportation canisters, and assessment of human health effects. Funding in this area will also allow the NRC to prepare for new technologies, such as artificial intelligence; assess the impact of extreme weather events and seismic hazards; support experimental programs that provide data for advanced fuels and higher burnup; and provide tools to monitor and assess reactor components for long-term operation and operational enhancements.

#### **OFFICE OF THE INSPECTOR GENERAL**

The mission of NRC's Office of the Inspector General (OIG) is to independently and objectively audit and investigate programs and operations to promote effectiveness and efficiency by preventing and detecting fraud, waste, and abuse. The FY 2024 budget request for the NRC OIG is \$18.6 million, which will support Inspector General auditing and investigation functions for both the NRC (\$17.1 million) and the Defense Nuclear Facilities Safety Board (\$1.5 million).

#### **CONCLUSION**

In closing, the FY 2024 budget request allows NRC to focus on conducting our mission activities and recruiting and retaining a highly diverse and skilled workforce to ensure the safety and security of nuclear power facilities and nuclear materials.

On behalf of the Commission, I thank you for the opportunity to discuss the important work we anticipate in the year ahead and for your support of the NRC's vital mission. We would be pleased to respond to your questions.

**Senate Committee on Environment and Public Works**  
**Hearing Entitled, “The Nuclear Regulatory Commission’s Proposed Fiscal Year 2024**  
**Budget”**  
**April 19, 2023**  
**Questions for the Record for Chair Hanson**

**Chairman Carper:**

1. The Nuclear Energy Innovation and Modernization Act (NEIMA) made changes to the Nuclear Regulatory Commission’s (NRC) budget system and requires NRC to develop a regulatory framework for the next generation of nuclear technologies. It is important that this developed framework is risk-informed, performance-based, and technology neutral. This framework also needs to be both workable and useable to help us deploy more safe and reliable nuclear energy.
  - a. In your view, how is the new regulatory framework development process going?

**RESPONSE:**

The NRC’s rulemaking to establish a risk-informed, performance-based, and technology-inclusive regulatory framework for commercial nuclear plants is on target to be completed significantly in advance of the NEIMA required deadline of December 31, 2027. On March 1, 2023, the NRC staff submitted SECY-23-0021, “Proposed Rule: Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors,” to the Commission for its consideration. The NRC staff is recommending the addition of Part 53, “Risk-Informed, Technology-Inclusive Regulatory Framework for Commercial Nuclear Plants,” to Title 10 of the *Code of Federal Regulations*. Part 53 represents an agencywide effort to produce a regulatory framework covering commercial reactors of all types and sizes.

Our staff took a novel approach to development of the draft proposed rule. This is the first time the agency has developed a rule in this manner, engaging stakeholders in real time as draft language was being developed and considered. This approach has been necessarily iterative, and as an agency we are learning from the experience. I commend the staff for trying a new approach focused on engagement, providing the Commission with a draft proposed rule that has significant stakeholder feedback available for consideration.

As I noted at the hearing, we are still in the middle of this process. The staff identified a series of key policy issues during the development of the rule, and the Commission will be providing policy direction in those areas. Commission review and approval of the draft proposed rule is a critical step. Based on direction from the Commission, the staff will revise the draft proposed rule, at which point it will be released for public comment. The public comment process will include direct responses by the agency to each comment and may result in additional changes to the draft final rule text prepared for Commission consideration. The Commission will have another opportunity to provide direction as part of the final rule process.

b. What is going well? Are there any issues of concern?

**RESPONSE:**

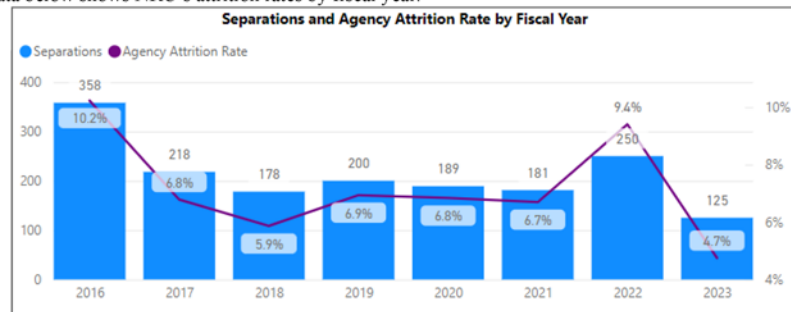
Adding any new part to the CFR is a significant undertaking, and the staff recognized that the creation of Part 53 warranted a unique approach. Over a 22-month period between December 2020 and September 2022, the staff published over 20 iterations of preliminary proposed rule language. The staff updated the preliminary proposed language as appropriate and provided additional releases. In parallel with frequent rule language releases, the staff conducted 24 public meetings. The staff also held 16 public meetings with the Commission's Advisory Committee on Reactor Safeguards (ACRS) to benefit from the views of the Committee. This process provided stakeholders the opportunity to actively engage with the NRC staff during the development of the draft proposed rule language and enabled the staff to create a more refined set of draft regulations.

In the draft proposed rule package, the staff provided a summary of several issues that were of significant interest to stakeholders, and some are policy issues. Key areas of concern to external stakeholders continue to be related to the inclusion of two, separate regulatory frameworks, the inclusion of the Commission's quantitative health objectives as a safety criterion in Framework A, the inclusion of design requirements to keep radiation doses to the public and plant workers as low as is reasonably achievable, the inclusion of requirements for events termed "beyond-design-basis events" under the current regulations, and the inclusion of requirements for a new program, the Facility Safety Program, in Framework A. The staff provided the Commission with in-depth discussions of each of these issues in Enclosure 4 to SECY-23-0021. This enclosure discusses the issues, provides the rationale for the staff's recommendations within the draft proposed rule, and outlines possible implications of adopting alternative approaches for each issue.

2. As discussed during the hearing, the NRC is facing workforce challenges, including higher-than-average attrition rate and the need to attract the workforce needed for the NRC to continue to accomplish the agency's mission.
- a. Please provide additional demographic information about the workforce retiring or leaving the NRC.

**RESPONSE:**

The data below shows NRC's attrition rates by fiscal year.



In 2016, the NRC offered a Voluntary Separation Incentive Payment (VSIP), which contributed to the large number of separations demonstrated by the chart above. The spike in FY 2022 may be attributed to the expected increase in attrition post re-entry, as the agency shifted from the mandatory telework in place during the pandemic. Historically, NRC's attrition is under 7%/year. Per OPM Fedscope data, the average attrition for large independent agencies of 1,000 or more employees was 8.3% for FY 2021. Complete data for large independent agencies in FY 2022 is not currently available from OPM.

[Additional demographics](#) are attached.

- b. What practices or programs is the NRC deploying to keep and retain staff?

**RESPONSE:**

The NRC has modernized existing programs and developed new programs and guidance to ensure that new employees have a successful start to their NRC career and existing employees continue to remain engaged.

The NRC has developed Onboarding Guidance for use by the hiring manager and support staff, which ensures a new employee has everything they need right from the start, including access to agency systems and IT tools, and an NRC Ambassador to be their mentor and guide. NRC Ambassadors work in partnership with supervisors to ensure a positive and consistent experience

for new employees by providing on-the-job training and introducing the employee to key staff to build their network and provide answers to their questions.

We are currently developing a program for new employees to work in tandem with hiring managers, NRC Ambassadors, and local office programs. The primary goal of this New Employee Immersion and Network Program is to “create a sense of stewardship for our agency and common purpose in fulfilling our mission.” The program will operate at the agency-level to accelerate acclimation to the NRC community and culture. By setting a strong foundation for new employees, the NRC can forge bonds for engagement and retention while ensuring the fulfillment of the agency’s mission.

The NRC also has programs in place to retain employees as they progress in their careers. The NRC maintains a strong mission-based culture that encourages growth by offering rotational opportunities and leadership development programs to foster career learning and engagement. The NRC provides a variety of additional career development programs such as our Employee Journey Platform, a career path planning tool that highlights careers and needed positions; Career Mentoring; and our Guide to Career Enhancement, which is a “one-stop-shop” for the many career development tools provided by the agency.

We also have targeted programs in place to address possible skill gaps identified in our strategic workforce planning efforts. For example, we established the Health Physics Specialties/Graduate Fellowship Program that provides current staff members the option to pursue a degree in Medical Health Physics to make certain we have sufficient staff to carry out mission roles in specialty functions when needed.

The NRC also allows for a variety of work schedules, allowing employees the flexibility to maximize their work-life balance. This is a critical tool in the NRC’s retention toolbox and has been emphasized by employees as very important to their employment decisions. As a result of re-entry, we have engaged with our staff on flexible work model options and concerns about the future of hybrid work at the agency. We are actively seeking to implement changes that respond to feedback from our staff members.

For those employees that are retirement eligible, the NRC’s phased retirement program encourages experienced employees to extend their valuable contributions to the Agency by allowing them to partially retire while continuing part-time work, thus allowing them to transition gradually into retirement while operating as an Agency tool to ensure continuity of operations and facilitate knowledge management. The pension offset waiver program allows for the reemployment of a Federal civilian retiree (annuitant), without reducing the annuitant’s pay, into a position for which there is exceptional difficulty in recruiting or retaining a qualified employee, or when a temporary emergency hiring need exists.

- c. How is the Commission addressing the need to transfer knowledge and expertise to the NRC's new and remaining workforce?

**RESPONSE:**

Knowledge Management (KM) is an integral part of the agency's culture and the responsibility of every employee. To ensure the transfer of knowledge and expertise to new NRC staff and the existing workforce, the agency offers a variety of tools and resources that are readily available to the staff. These efforts are captured by the agency's Knowledge Management Strategy, which contains multiple approaches and tools for use in facilitating a culture that prioritizes knowledge retention and transfer.

For example, Nuclepedia is the NRC's internal wiki platform utilized to store and capture various forms of knowledge, such as job aids, reports, recorded trainings, and many other important items. Nuclepedia is accessible through our intranet, is easily searchable, and attributes knowledge to agency experts with embedded links to authoritative agency documents, such as NUREGs.

Our KM Best Practices Toolkit offers a broad range of KM tools and resources for employees to transfer and share knowledge and complements our KM Toolkit for Supervisors, which is a resource available to management to aid with identifying and implementing successful KM approaches at the NRC to address their organizations' most urgent needs. The toolkit also addresses approaches to mitigate the impact of senior employees' long-term absence and eventual departure while providing valuable assistance for incoming employees or those who have been assigned new tasks.

The NRC is currently undergoing an external evaluation of its KM program to better align the efforts with expected outcomes and to explore various ways to elevate the priority and urgency of capturing critical knowledge and best practices to overall increase KM engagement. KM engagement is critical to the future of the agency and is emphasized as part of the regular duties of our staff.

We are also considering KM as part of our Strategic Workforce Planning (SWP) efforts. The NRC uses SWP to identify potential or future gaps in expertise and prioritizes hiring needs based on that information. The Strategic Prioritization Process is then used to make final decisions on what positions need to be filled most urgently. Where possible, based on prioritization and need, the agency seeks to overlap work in certain areas to ensure that the incoming workforce is able to learn directly from our most experienced staff before they retire or move on to new positions.

3. During the hearing, Commissioner Crowell noted that the Minority Serving Institutions Grant Program is a particularly important and noteworthy investment included in the NRC's Fiscal Year 2024 proposed budget.
  - a. Would you please expand on the role of the Minority Serving Institutions Grant Program in the NRC's efforts to create and maintain a diverse, equitable, and inclusive work environment?

**RESPONSE:**

The Minority Serving Institutions Program (MSIP) was developed in accordance with the Energy Policy Act of 2005. The NRC designated the Minority Serving Institutions Grant Program (MSIGP) as a subprogram of the MSIP, which supports partnerships with MSIs, including Historically Black Colleges and Universities, Hispanic Serving Institutions, Tribal Colleges and Universities, and Asian American and Native American Pacific Islander Serving Institutions, to support the Federal Government's Science, Technology, Engineering, and Mathematics workforce development and diversity inclusion initiatives and to increase MSI participation in the NRC's recruitment efforts, programs and activities, and funding opportunities. The MSIGP provides financial assistance through grants for MSI programs, projects, and activities.

As a workforce development program, the MSIGP allows for the exchange and transfer of knowledge, as well as developing, attracting, recruiting, and retaining a diverse, skilled workforce. Students that benefit from MSIGP are required to sign service agreements and are eligible for noncompetitive NRC appointments, creating a tangible return on investment for the agency. These grants and the associated relationships with schools not only create a pipeline for the NRC, but further the opportunity for diverse and inclusive workforces in the nuclear industry and in underserved communities.

- b. What is your assessment of the NRC's current diversity? What more is the Commission doing to increase diversity, equity, and inclusion?

**RESPONSE:**

The NRC has made some progress in recent years on improving the diversity of the agency and prioritizing inclusion efforts as mission critical. However, the NRC recognizes that for continual improvement in this area, investment and execution is critical and necessarily ongoing.

The agency administers employment and diversity equity and inclusion outreach programs to promote DEIA consistent with provisions, standards, and expectations that agencies must meet to be a "Model Federal EEO Employer." As part of the Federal required reporting process, the NRC's Office of Small Business and Civil Rights (SBCR) reviews and analyzes workforce statistics to learn what the compiled data reveals about the NRC's workforce. The workforce data tables contain snapshots of the gains and losses in the total workforce as well as race, ethnicity, gender, and disability data.

At a high level, the NRC's FY 2022-2026 Inclusive Diversity Strategic Plan helps achieve the agency's mission by setting expectations for management and employee behaviors and decisions.

The agency also engages in a series of culture-focused efforts aimed at promoting inclusivity at all levels of the organization. We proudly support our Equal Employment Opportunity Advisory Committees and Affinity and Resource Groups, which are voluntary and comprised of dedicated members of the NRC staff. These groups develop regular opportunities to highlight the strength of diversity in the agency and in doing so, promote a culture that encourages our staff to bring their whole selves to work. The Diversity DIALOGUE project—which stands for Diversity Inclusion Awareness Leading Organizational Growth, Understanding, and Engagement—provides space for our employees to discuss differences and perspectives and recognize the importance of voicing unique viewpoints with a goal of promoting a more collaborative and understanding work environment. Building on the success of DIALOGUE, the Initiative on Civility, Awareness, Respect and Engagement (ICARE) assists the Agency in facilitating deeper understandings and appreciation for multicultural diversity, equity, and inclusion efforts related to promoting personal and professional growth and effectiveness of employees through the processes of listening, introspection, and building acceptance for the diversity of thought.

The NRC also recognizes that to develop a more diverse and inclusive workforce, we need to build a pipeline of future employees that reflect these values. Continued recruitment at the university level is crucial to the future of the agency. The NRC is investing in this area both at the program level and through individual outreach events. This is one of the main functions of the NRC's reinvestment in the Minority Serving Institutions Grant program, which allows for the exchange and transfer of knowledge, as well as developing, attracting, recruiting, and retaining a diverse, skilled workforce. The NRC has also increased its focus on its University Champions Program, which encourages staff to get involved with recruitment efforts at universities around the country. The Commission continues to support these efforts through resource allocation and specific emphasis.

4. Is there anything else you would like to provide the Committee that was not included in your testimony or discussed during the hearing?

**RESPONSE:**

In response to several questions asked by the Committee, I discussed the importance of the NRC's international work in a changing world. Our expertise and support can be critical to diplomacy as the United States seeks to maintain its position as a leader in the nuclear field. As the NRC works with our federal partners to secure the position of the United States as an authority in this technical area, I thank the Committee for its continued acknowledgement and support for the important role NRC plays in the future of nuclear energy around the globe.



**Senator Whitehouse:**

1. Given legislation such as the Nuclear Energy Innovation Capabilities Act (NEICA) and Nuclear Innovation and Modernization Act (NEMIA), and now the recently introduced Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy (ADVANCE) Act of 2023, are you satisfied with the authorities already given in these bills with respect to speeding up the pace of approval for new fourth generation technologies?

**RESPONSE:**

The NRC has not identified any additional authorities necessary at this time to streamline the NRC's licensing process for advanced nuclear technologies.

- a. Is there something more that can be amended or added to the ADVANCE Act to meet this goal?

**RESPONSE:**

The NRC is grateful for the Committee's continued support with the recent legislation passed. The ADVANCE Act would provide helpful tools for the agency in recruiting and retention. The NRC has not identified any additional authorities necessary at this time to streamline the NRC's licensing process for advanced nuclear technologies. The NRC staff considered whether additional legislation was needed as part of the development of a 2021 report to Congress in response to Section 103(e) of the Nuclear Energy Innovation and Modernization Act, and as noted in that report, the NRC staff had not identified additional legislation needed to implement a new regulatory framework. The NRC staff continues to evaluate additional deployment scenarios, such as transportable microreactors, and will continue to consider whether additional legislation may be needed.

2. What more can Congress do, besides the addition of a spent fuel utilization prize in the ADVANCE Act, so that NRC can be supportive of reused spent fuel in reactors, and remove any disincentives in using it in place of fresh fuel?

**RESPONSE:**

Our current regulatory framework can support review of near-term applications for reprocessing facilities and the NRC is not aware of any disincentives caused by, or within, our regulatory purview. The NRC staff previously evaluated reprocessing of spent fuel for reuse in operating reactors. The staff's evaluation did not identify that legislative changes were needed to review applications related to the reprocessing of spent fuel.

In 2021, the Commission approved the staff's recommendation to discontinue a rulemaking that would have amended the NRC's regulations to add a new part to the existing regulatory framework specific to nuclear spent fuel reprocessing facilities. The rulemaking effort was started at the direction of the Commission in 2013 and precipitated by industry interest in reprocessing at that time; however, this interest waned significantly over the years. Ultimately, the NRC's decision to discontinue the rulemaking was based on the estimated costs to conduct

the rulemaking and the limited interest expressed or expected from industry to build or submit an application for any type of facility involving reprocessing technologies in the near-term.

Recently, a couple of vendors have engaged the NRC with potential plans to submit applications for reprocessing facilities. As pre-application activities progress and the vendors' designs mature, the NRC staff will continue to consider whether additional legislation may be needed from a regulatory perspective.

**Senator Markey**

1. Following up on my question from the hearing, if the Nuclear Regulatory Commission (NRC) had to formally approve the decommissioning activities report, would it be considered a major federal action that would require a new National Environmental Policy Act review?

**RESPONSE:**

If the NRC were to change its regulations to require NRC review and approval of the PSDAR, and if that formal approval of the PSDAR were necessary before a licensee was permitted to perform decommissioning activities, then that approval would be a federal action that likely would require review under the National Environmental Policy Act. Under the NRC's current environmental review criteria, the NRC would evaluate whether such approval would be eligible for a categorical exclusion from the requirement to perform an environmental review or would require an environmental assessment or environmental impact statement.

2. On multiple occasions, the NRC has found that NextEra—the owner and operator of the Seabrook Nuclear Power Station—has failed to take steps required by the Commission to ensure that proper alkali-silica reaction protocols were being followed. Will you continue to ensure that NextEra is properly managing alkali-silica reaction at Seabrook and keep my office updated on this important issue?

**RESPONSE:**

The NRC will continue to inspect NextEra's activities to manage the alkali-silica reaction (ASR) condition at Seabrook to maintain continued operational safety and to independently evaluate whether the licensee's efforts continue to meet NRC requirements. The NRC will also continue to inspect the ongoing modifications designed to mitigate the ASR impact in existing plant structures to evaluate whether the structures continue to meet their intended safety functions. The NRC has conducted many briefings for congressional and state officials and members of the public regarding our oversight and assessment of Seabrook's performance in response to the ASR condition and will continue to maintain a very active role in this area to continue to ensure that all our stakeholders are provided timely and accurate information regarding our activities at Seabrook. The NRC will continue to keep your office updated on this issue.

**Senator Kelly:**

1. The Navajo Nation has been suffering from the effects of uranium mining on tribal land for decades. EPA has secured billions of dollars in settlements to remediate these sites and is allocating superfund funding toward these projects – but with more than 500 abandoned sites just on the Navajo Nation – these resources will not be enough unless we can significantly bring down the per-site cost of cleanup. My understanding is that EPA is currently exploring using a technology that could significantly bring down cleanup costs by mechanically separating hazardous materials from inert rock, and removing just the hazardous materials – at a fraction of the cost. This technology has been demonstrated to great success by EPA on the Navajo Nation. But I understand that NRC staff is recommending that the Commission regulate this technology the same as a uranium mill – which would mean it would take years for this technology to be approved. Do you believe that this remediation technology is the same as uranium milling technology?

**RESPONSE:**

On February 16, 2023, the Commission directed the staff to provide the Commission with a notation vote paper evaluating the advantages and disadvantages of different options for the licensing of emerging technologies used for remediation of mine waste. The Commission also directed the staff to include in the paper an analysis of any legal constraints on the options and a discussion of the viability of alternative statutory and regulatory interpretations. That paper is due to the Commission in June 2023. After the staff provides this paper to the Commission, the Commission will deliberate on the options presented.

- a. Do you agree with the staff recommendation to regulate remediation technology as a mill?

**RESPONSE:**

In response to Commission direction provided in February 2023, the staff is currently developing a paper evaluating different options for the licensing of emerging technologies used for remediation of mine waste. That paper is due to the Commission in June 2023. Following receipt, the Commission will deliberate on the options presented by the staff in the paper and determine if the new technologies must be regulated as milling under the Atomic Energy Act.

2. I understand that the commission recently agreed to move forward with regulating fusion energy systems under the “byproduct materials” framework. This is an important step – because this framework allows for a technology-neutral regulatory approach which does not treat fusion and fission systems the same. Because they’re not. This will help researchers working on fusion systems have certainty about the regulatory future they face. Can you confirm the Commission views this as the long-term approach that the commission will take to fusion energy systems?

**RESPONSE:**

The licensing of fusion energy systems under a byproduct material framework provides for a technology-neutral, scalable regulatory approach protective of public health and safety that can

cover a spectrum of hazards and risks. Given the inherent safety and safeguards characteristics of currently proposed fusion energy systems, imposing the additional requirements associated with fission systems would not be consistent with the relatively low risk of these facilities. The NRC staff will continue to monitor technological developments. If a future fusion design presents hazards sufficiently beyond those of near-term fusion technologies, the NRC may revisit approaches to licensing and regulating such facilities.

- a. Do you believe the Commission has sufficient statutory authority to develop long-term fusion regulations?

**RESPONSE:**

Yes, the NRC has sufficient statutory authority to develop long-term fusion regulations. The Atomic Energy Act of 1954, as amended, provides for the NRC's regulation of atomic energy, and of the byproduct material expected to be produced as part of the normal operation of fusion energy systems (e.g., tritium). The NRC's byproduct material framework, which is currently applied to tritium users and particle accelerators, could be used as a foundation for the licensing and regulation of near-term fusion energy systems. The NRC's planned rulemaking effort will focus on adapting the byproduct material requirements and associated guidance to be commensurate with the hazards and risks posed by fusion energy systems to protect the public health and safety and promote the common defense and security of the United States.

- b. Would it be helpful if Congress provided additional statutory authority or clarity related to fusion?

**RESPONSE:**

At this time, the NRC has not identified any additional statutory authorities necessary to regulate fusion energy systems. The current definition of byproduct material provides a foundation to regulate many planned fusion energy systems. However, there are some fusion devices that utilize aneutronic technologies to sustain fusion reactions that incidentally produce radioactive material that may not meet the current definition of byproduct material. In the meantime, such material could be regulated by the States consistent with their general authorities in statutes and regulations.

3. All nuclear facilities require an Emergency Planning Zone, also called an EPZ, where special considerations and management practices are pre-planned and exercised in case of an emergency. EPZs have traditionally been set at a 50-mile radius around a reactor site; however, with new advanced reactors, some at much smaller sizes than our current gigawatt-sized fleet, it's an open question if they should be required to have the same 50-mile EPZ. NRC staff drafted a rulemaking on this and sent it to the Commission last year, but the Commission has yet to make a decision on it. Can you tell me the current status of that rulemaking and why it's taking the Commission so long to address this?

**RESPONSE:**

The draft final rule on Emergency Preparedness for Small Modular Reactors and Other New Technologies (SECY-22-0001) is currently with the Commission for review. The Commission recognizes the importance of this rulemaking and the significant effort that had been expended in developing this draft final rule. The Commission is actively considering the question of EPZ size and other aspects of emergency planning as it reviews the draft final rule, including the comments received during the public comment period on the proposed rule, and will issue its final decision after completing its review.

**Ranking Member Capito:**

1. Section 274 of the Atomic Energy Act authorizes the NRC to relinquish specific regulatory authority over the licensing, oversight, and use of certain radioactive materials to states. This is known as the NRC's Agreement State program. There are currently 39 Agreement States with three additional states seeking this authority, including West Virginia. The NRC must maintain a regulatory structure to oversee materials licensees for non-Agreement States, Washington, DC, and US Territories. The cost to administer this authority is subject to the NRC's fee recovery requirements, despite a shrinking number of licensees under the NRC's purview.
  - a. Approximately how much does the NRC spend to oversee the current 11 non-Agreement States, Washington, DC, and the US Territories?

**RESPONSE:**

The Nuclear Materials Users (NMU) Business Line supports the nationwide licensing and oversight of industrial, medical, and academic uses of radioactive materials. The NMU Business Line supports activities for both non-Agreement States and Agreement States and consists of both fee-recoverable and non-fee-recoverable activities.

For FY 2023, the NMU Business Line includes \$21.9 million for licensing and oversight, of which \$18.1 million is fee-recoverable and \$3.8 million is non-fee-recoverable. For FY 2024, the requested resources for the NMU Business Line includes \$25.0 million for licensing and oversight, of which \$20.8 million is fee-recoverable and \$4.2 million is non-fee-recoverable.

NRC licensees in the 11 non-Agreement States, the District of Columbia, and U.S. territories, and Federal agencies pay annual fees and service fees to recover costs for the NRC's licensing and oversight activities.

- b. How will those costs differ when the current three applications are approved and the number of remaining non-Agreement States is reduced to eight?

**RESPONSE:**

When Indiana, Connecticut, and West Virginia become Agreement States, the total number of NRC licensees will decrease by roughly 20%. The NRC will no longer expend resources for direct licensing and inspection of licensees within these States, nor will NRC fees be charged to these licensees. The NRC expects its overall budget to decrease, as the programmatic support to Agreement States will not need to increase in the same amount as the decrease from the discontinued direct licensing and inspection.

- c. Is there a point at which it may no longer be justified for fees to be recovered from licensees to cover NRC activities that support a shrinking number of states?

**RESPONSE:**

NRC licensees will continue to pay service fees and annual fees that support direct licensing and inspection activities, as well as these licensees' share of the nationwide regulatory program. The share of the regulatory program associated with the Agreement States will continue to be supported through the following fee-relief activities, which are excluded from the fee-recovery requirement: Agreement State oversight and regulatory support to Agreement States. The balance of fee-recoverable and non-fee-recoverable activities is expected to shift over time as additional States become Agreement States, and NRC licensees will support a smaller share of generic activities such as rulemaking and guidance.

The NRC expects to follow the approaches implemented successfully when other large Agreement States were transitioned. The NRC has demonstrated its ongoing commitment to fair and equitable fees by leveraging fee-relief activities. When Wyoming became an Agreement State in 2018, the NRC expanded fee-relief activities to include additional uranium recovery program budgeted resources. In addition, when Pennsylvania, Virginia, and New Jersey became Agreement States in 2008 and 2009, the amount allocated to fee-relief activities was increased across FY 2009-2011. Additionally, when a new regulatory infrastructure was required for naturally occurring and accelerator produced radioactive material, the NRC increased its budget for regulatory support to Agreement States in FY 2006.

- d. Are there statutory restrictions regarding the NRC's authorities and costs that may need to be amended to provide for a more efficient and equitable administration of this program?

**RESPONSE:**

The NRC has not identified any statutory restrictions that may need to be amended at this time to provide for continued efficient and equitable administration of the Agreement State program. Section 274 of the Atomic Energy Act of 1954, as amended, outlines NRC responsibilities, including:

1. Coordinate development of standards;
2. Authorize entering into an Agreement with the Governor of a State;
3. Determine a finding of adequacy and compatibility of a State program;
4. Grant exemptions necessary or appropriate to carry out an Agreement;
5. Provide funds for training and travel in certain situations for Agreement State staff; and
6. Terminate or suspend all or part of an Agreement (in which case the NRC would regain regulatory authority over those licenses).

These NRC responsibilities align with the categories of fee-relief activities. Therefore, the NRC is able to execute these functions while minimizing fee impacts to remaining NRC licensees.



2. Last year, the Commission reversed a previously settled policy regarding the applicability of its Generic Environmental Impact Statement (GEIS) for reactors seeking to extend their licenses from 60 to 80 years, known as “subsequent license renewal” (SLR). This abrupt reversal, based on no new information, is troubling and runs contrary to the NRC’s “Principles of Good Regulation” – specifically the principle of reliability. As a result of that decision, the NRC staff was directed to update the generic EIS that applies to the NRC’s license renewal process. The Commission recently approved the proposed update. As a condition for its approval, the Commission directed the NRC staff to limit the revised document to just one renewal period, instead of making it more broadly applicable.
  - a. What is the technical basis for limiting the generic EIS to just one renewal period?

**RESPONSE:**

The Atomic Energy Act of 1954, as amended (AEA) authorizes the NRC to issue licenses to operate commercial nuclear power plants for up to 40 years. The AEA and the NRC’s regulations allow for the renewal of these licenses for up to an additional 20 years for each renewal term, which could either be an initial license renewal or subsequent license renewal. There are no limitations in the AEA or the NRC’s regulations restricting the number of times a license may be renewed. The rationale for limiting the GEIS to initial license renewal and one term of subsequent license renewal is that the NRC’s regulatory framework anticipates the LR GEIS will be reviewed and updated every 10 years to account for new information and lessons learned, when it would be most appropriate to consider whether the scope of the LR GEIS should be expanded to cover additional SLR terms beyond the first SLR and to avoid ambiguity. To date, no licensee has sought to renew its license beyond a single SLR term (60 to 80 years of operation); nonetheless, the NRC included a specific question as part of the proposed rule package asking whether the scope of the LR GEIS should be expanded beyond two license renewal terms.

- b. How much money has been spent on activities associated with updating the SLR GEIS since February 24, 2022?

**RESPONSE:**

As of March 2023, the NRC staff has expended approximately 7.6 full time equivalents (\$1.57 million) and \$0.91 million on contract support activities associated with updating the GEIS to address SLR, resulting in a total cost of approximately \$2.48 million.

3. At the end of the last Fiscal Year, the NRC had carryover funding – money Congress previously provided but that went unspent – exceeding \$90 million. This is about ten percent of the NRC’s total budget authority. The NRC’s Fiscal Year 2024 proposed budget would apply about \$27 million of this funding to its future budget. However, as of March 1, the NRC still had more than \$66 million in available carryover. The NRC’s FY24 budget proposal requests an increase of \$52 million.
  - a. Rather than seeking this \$52 million increase, would it be appropriate to instead reallocate an additional amount of the Commission’s remaining carryover funding?

**RESPONSE:**

The control point restrictions follow the funds when they are carried over into the next fiscal year. As such, the agency is limited to how carryover funds can be allocated and obligated. These restrictions have affected the agency’s ability to use carryover to reduce the budget increase requested. The FY 2024 budget request proposes the use of \$27.1 million in carryover from the Nuclear Reactor Safety control point to offset the requested FY 2024 budget for the same control point. The current carryover funding balance by control point is detailed in response to part c of this question below.

- b. The NRC is regularly in communication with the requisite Congressional Committees on Appropriations about the availability of carryover funds that can be used to offset fee collections the coming fiscal year. What specific actions has the Commission pursued to reduce this total level of carryover in future years?

**RESPONSE:**

The main drivers for carryover are typically shifts in licensing schedules and underutilization of Full Time Equivalents (FTEs), largely due to our hiring challenges. To address these issues, resources were formulated in FY 2024 to support medium to high certainty licensing activities and focus on the rulemaking, licensing, and inspection functions necessary to protect safety and security.

The NRC is currently conducting an evaluation of the Strategic Workforce Planning (SWP) process to enhance the effectiveness of the process. The evaluation is expected to be completed at the close of FY 2023.

The Commission will continue to look for opportunities to use budget execution data to inform budget formulation.

- c. Please detail the current level of carryover funding by budget control point.

**RESPONSE:**

The current carryover funding balance by control point is detailed in the table below. Note that these balances are based on what has been allocated to-date. In the University Nuclear Leadership Program (UNLP) control point, the full amount allocated may not be obligated by the end of the fiscal year.

|                                    | <b>\$ in<br/>Thousands</b> |
|------------------------------------|----------------------------|
| <b>Control Points</b>              |                            |
| Nuclear Reactor Safety             | 28,344                     |
| Nuclear Materials & Waste Safety   | 2,966                      |
| Decommissioning & Low-Level Waste  | 6,297                      |
| Corporate Support                  | 2,961                      |
| UNLP*                              | 27                         |
| <b>Programs</b>                    |                            |
| Ukraine Supplemental Appropriation | 1,068                      |
| Office of the Inspector General    | 2,157                      |
| <b>Total</b>                       | <b>43,822</b>              |

\*The FY 2023 Explanatory Statement identified this control point as the "Integrated University Program." Division Z of the Consolidated Appropriations Act, 2021 replaced the Integrated University Program with the UNLP.

- d. Based on current expenditure levels how much carryover, both fee-based and appropriated funding, is projected for the end of the current Fiscal Year by budget control point?

**RESPONSE:**

The table below shows both the fee-recoverable and non-fee-recoverable projected carryover for the end of the fiscal year by budget control point. The projection is based on current information and may be subject to change.

|                                   | <b>Projected Carryover Balances (\$ in Millions)</b> |                             |              |
|-----------------------------------|------------------------------------------------------|-----------------------------|--------------|
|                                   | <b>Fee Recoverable</b>                               | <b>Net Budget Authority</b> | <b>Total</b> |
| <b>Control Points</b>             |                                                      |                             |              |
| *Nuclear Reactor Safety           | 45.2                                                 | 9.5                         | 54.7         |
| Nuclear Materials & Waste Safety  | 4.3                                                  | 2.8                         | 7.1          |
| Decommissioning & Low-Level Waste | 1.5                                                  | 4.8                         | 6.3          |
| Corporate Support                 | 4.3                                                  | -                           | 4.3          |

|                                                                |             |             |             |
|----------------------------------------------------------------|-------------|-------------|-------------|
| **UNLP                                                         | -           | 17.9        | 17.9        |
| <b>Programs</b>                                                |             |             |             |
| Ukraine Supplemental Appropriation                             | -           | 1.5         | 1.5         |
| Office of the Inspector General                                | 1.9         | 0.3         | 2.2         |
| <b>Subtotal</b>                                                | <b>57.2</b> | <b>36.8</b> | <b>94.0</b> |
| *Anticipated use of carryover to reduce FY 2024 budget request | (27.1)      | -           | (27.1)      |
| *Possible carryover used for UNLP                              | (16.0)      | -           | (16.0)      |
| <b>Total</b>                                                   | <b>14.1</b> | <b>36.8</b> | <b>50.9</b> |

\*The agency anticipates applying \$27.1 million of Nuclear Reactor Safety fee-based carryover to reduce the amount of fee-based funds requested in FY 2024. The agency also anticipates that it may be directed to use \$16 million of fee-based carryover for UNLP grants, as the agency has been directed by Congress to do each year since FY 2021. If that is the case, the projected fee-recoverable Nuclear Reactor Safety control point balance would be reduced to approximately \$2.1 million. The total above shows the projected balance after considering these two anticipated uses of carryover funds in FY 2024.

\*\*Although this is a Net Budget Authority program, the funds were originally from fee-based carryover as directed by the FY 2023 Explanatory Statement.

4. Given the NRC's consistent over-projection of work and over-budgeting, is the Agency examining options to shift resources from areas that it consistently over-budgets to those new areas that it legitimately needs resources?

#### RESPONSE:

During the budget formulation process, the agency uses input from licensees and applicants to inform its resource projections to perform the anticipated workload during a particular fiscal year. The NRC continues to examine options for shifting resources as schedules evolve between the budget formulation year and budget execution year. During the execution year, the opportunities to shift resources are:

1. Budget Execution Plan, which is provided to Congress within 30 days after enactment of the NRC's appropriations legislation
2. Congressionally authorized use of carryover to offset budget request (referenced in the Explanatory Statement accompanying the Appropriation)
3. Reprogramming between control points, which requires advance congressional notification if it would cause a control point to increase or decrease by more than \$500K or 10 percent, whichever is less, during the fiscal year
4. Internal reallocation via the agency's Financial Plan Change process, which allows offices to shift resources within a control point
5. Mid-Year/End-of-Year Resource Review process and emergent shortfall requests

- a. How do the gaps resulting from NRC's misalignment of resources associated with pending licensing work and projected licensing and regulatory work in the coming years reflect on the reliance and performance of the NRC's Strategic Workforce Planning process?

**RESPONSE:**

During the budget formulation process, the agency uses input from licensees and applicants to inform its resource projections to perform the anticipated workload during a particular fiscal year. Through the Strategic Workforce Planning (SWP) process, which was implemented in 2019, the NRC annually analyzes current staffing levels, anticipates future hiring needs over 5 years, and implements actions to address those needs. The agency's external environment scan informs the future workforce needs and critical technical skillsets to support future mission activities in the early phases of the SWP process. The NRC is currently conducting an evaluation of SWP to enhance the effectiveness of the process. The evaluation is expected to be completed at the close of FY 2023.

5. The NRC's Office of General Counsel regularly formalizes legal positions relating to the NRC's legal perspectives on licensing, enforcement or other activities that have a binding effect on the public and NRC-regulated entities. Excluding privileged communications and other pre-decisional information, does the Commission believe that the NRC's Office of General Counsel has an obligation to communicate with the public on these legal positions taken by the NRC?

**RESPONSE:**

Yes. The Office of the General Counsel (OGC) provides legal advice and counsel to the agency. This legal advice and counsel inform the Commission and the NRC staff in their decision-making and are generally provided in privileged communications before a final agency decision. The agency's public decision-making documents, including on licensing, enforcement, rulemaking, and other activities, reflect the legal advice and counsel provided during the decision-making process. However, where appropriate, OGC's legal determinations are made public when doing so provides the public with an understanding of the basis for agency decisions and is not otherwise protected by privilege.

In addition, OGC provides public communications on other matters, including areas where the General Counsel is the final decision-maker for the agency, such as on claims under the Federal Tort Claims Act, and areas where OGC is serving in a representational capacity on behalf of the Commission and the NRC staff, such as in federal court litigation and in agency adjudicatory proceedings before the Atomic Safety and Licensing Board and the Commission.

6. Congress made the Chairman the principal executive officer of the Commission and vested the Chair with all executive and administrative functions of the Commission, including supervision of NRC personnel. I understand that general administrative functions were previously delegated to senior agency staff in 1980. Given the broad and potentially profound impact of implementing a blanket telework policy, it is incumbent upon the Chair to revisit that general delegation to staff and establish, with the input of all Commissioners, a durable policy that strikes the appropriate balance between in-person office attendance and flexible work options. Will you reconsider the generally delegated administrative authority for the development and implementation of issues of broad, profound change in how the NRC functions, such as a permanently expanded telework policy?

**RESPONSE:**

The Reorganization Plan No. 1 of 1980, 5 U.S.C. App. 1, required the Chair to delegate the administrative functions of the NRC to the Executive Director for Operations (EDO), subject to the Chair's direction and supervision. While the Reorganization Plan does not define "administrative functions," the NRC has historically understood that term to encompass the day-to-day management of the agency staff, including the management of the agency's plans for implementing its flexible work model. The Reorganization Plan does not authorize the Chair to choose which administrative functions are delegated.

Under the Reorganization Plan, policy formulation functions must remain vested with the Commission. If there is an area of doubt about whether a matter is an administrative function or a policy formulation function, the Commission may resolve that area of doubt by a majority vote. A majority of the Commission could vote to classify the agency's flexible work model as a policy formulation function under section 1(a) of the Reorganization Plan, and this would remove the flexible work model from the delegation of administrative functions to the EDO.

Changes to the agency's flexible work model are also subject to additional legal requirements under the Federal Service Labor-Management Relations Statute and other employment laws, which are handled by the NRC staff rather than the Commission.

7. I wrote the Commission in January to request information about the development, approval, and implementation of the NRC's telework policy. I am concerned about how this policy and work schedule will impact the ability of the Commission to efficiently fulfill its core nuclear safety mission.
  - a. What *specific* metrics to track and evaluate performance has the Commission established to monitor NRC employee performance since November 1, 2022?

**RESPONSE:**

Since November 1, 2022, no new metrics have been established to monitor NRC employee performance. While flexible work requires that we manage performance differently, the agency has metrics in place to monitor performance in a hybrid work environment. Supervisors monitor workforce productivity based on milestones and deadlines, individual performance reviews, as well as the tracking of labor hours through the agency time and attendance system. While modifying or rescinding telework flexibilities would have to be done in compliance with the Agency's Collective Bargaining Agreement, organization and individual performance can be managed effectively using current technology and communication tools.

It is recognized that employee performance can be one of the many potential factors that contribute to performance targets not being met. Supervisors have, and will continue to provide, an important role in ensuring that the workforce is successful in achieving the agency mission.

Recently, in response to OMB Memo M-23-15, agencies are engaged in a government-wide approach to "ensure that agency decisions regarding work environments continue to improve organizational health and organizational performance." In compliance with OMB direction, the NRC submitted its Work Environment Plan on May 15, 2023. This Work Environment Plan outlines the agency's flexible work model and describes the metrics currently in place to address employee performance. The agency is also developing a set of key indicators that are designed to measure, monitor, and improve organizational health and organizational performance. A combination of the metrics already in place alongside those developed as part of this effort will be used to track and evaluate performance going forward.

- b. Are you confident that this system will identify problems *prior* to impacting the NRC's core licensing and regulatory responsibilities?

**RESPONSE:**

The NRC continuously achieves its safety and security mission as demonstrated through established performance indicators. The agency's performance management process includes conditions that would result in senior leadership taking appropriate actions when performance indicators show a decline in performance at the agency, business line, product line, or office level. These appropriate actions would include addressing performance issues if any resulted from telework. The agency's performance indicators use targets to establish performance thresholds that trigger appropriate action if the target is not met, or results begin to decline toward the target over time. This allows the agency to measure organizational health and

performance in real time in the context of specific projects, while keeping a wider perspective on the trajectory of the agency as a whole. Using the information gleaned from its designed indicators, the NRC can refine its approach and make adjustments as necessary. The NRC's Quarterly Performance Reviews provide a mechanism for senior leadership to remain focused on agency priorities, identify problems and opportunities through analysis, learn from experience, and determine next steps to enhance performance and productivity.

8. As part of last year's Ukraine supplemental appropriations bill, Congress provided the NRC with funds to provide regulatory and technical support in Ukraine. Please generally describe the NRC's engagement and activities with respect to Ukraine's civil nuclear energy program.

**RESPONSE:**

The NRC has a longstanding relationship with its Ukrainian regulatory counterpart, the State Nuclear Regulatory Inspectorate of Ukraine (SNRIU) and SNRIU's technical support organization, the State Scientific and Technical Center for Nuclear and Radiation Safety. Currently, the NRC and its Ukrainian counterparts have or are planning cooperative engagement on a variety of topics, including radioactive source inventory development and tracking; licensing of new reactor designs including the AP1000 and SMRs; fuel licensing; aging management, operational events analysis; and physical protection of both nuclear power plants and radioactive sources. Many of these activities support Ukraine's efforts to end its reliance on Russian material and equipment, including nuclear fuel, and its plan for future new builds using U.S. technology. The SMR engagement, which is in early stages, is in coordination with other U.S. Government agencies, including the Department of State's Foundational Infrastructure for Responsible Use of Small Modular Reactor Technology program.

Following the Russian invasion of Ukraine, the NRC provided a total of \$500,000 via the International Atomic Energy Agency's Response and Assistance Network to purchase critical supplies and equipment such as cell phones, laptops, and personal protective equipment. The NRC plans to provide additional funding for computer hardware, software, and office infrastructure in support of the SNRIU Department of Nuclear Safety's move to a new, more secure office building where the staff can continue their work even if required to shelter in place. The NRC is in regular contact with SNRIU, including frequent engagement between Chair Hanson and Acting SNRIU Chairman Oleh Korikov, to stay abreast of the situation and current challenges on the ground from the regulator's perspective.



9. The Nuclear Innovation Alliance (NIA) recently issued a report titled “Improving the Effectiveness and Efficiency of the Advisory Committee on Reactor Safeguards” that included a series of recommendations to improve and focus the work of NRC’s Advisory Committee on Reactor Safeguards (ACRS) on novel and safety-significant issues. A number of those recommendations can be implemented by the Commission, the NRC staff, and by the ACRS itself.

- a. Are you familiar with the NIA report? If so, what are your views on the report’s recommendations and if not, will you review the report?

**RESPONSE:**

The ACRS is receptive to input for improving effectiveness and efficiency as it provides independent advice to the Commission. There are many recommendations in the NIA report the ACRS supports. In fact, a number of these items were identified by ACRS members, NRC staff, and applicants in recent years, and actions were implemented to address them. As noted in several ACRS letter reports and in ACRS Commission briefings since December 2019, significant progress has been made in areas such as enhancing focus on safety significant matters, reducing duplicative meetings, increasing Commission and EDO awareness of ACRS activities, increasing communications with staff, reducing costs, increasing member diversity, and ensuring members conduct tasks professionally and in an effective and efficient manner.

In the case of design-centered reviews involving new reactor license applications, factors affecting the ACRS’s ability to transform its review process and the scope of any changes include the complexity of the facility design and the potential hazards it poses; the completeness and clarity of an application; and the technical ability of the applicant to address safety issues (including the applicant’s ability to resolve unique approaches in a timely manner and, optimally, before submitting the application or its related topical reports to NRC). On these reviews, the ACRS and NRC staff continue to streamline processes to focus on risk-significant issues.

- b. Do you believe that there are some commonsense modifications to ACRS processes and procedures, as well as how the NRC staff engages with the ACRS, to make better use of the ACRS’s expertise and limited time?

**RESPONSE:**

The ACRS continues to identify and take actions that improve its effectiveness and efficiency. ACRS is open to input from all stakeholders and common-sense modifications to ACRS processes and procedures are made as they are identified. As part of enhancing our regulatory processes and implementing lessons learned, the staff and ACRS have made significant strides and improvements associated with re-envisioning the staff’s engagement with the ACRS over the past two years. The staff and ACRS worked together on aspects associated with planning and implementation of meetings and technical reviews. Through these proactive efforts, the staff and ACRS have focused on reviews of safety-related documents (e.g., topical reports, design certifications, standard design approvals, combined licenses, constructions permits, limited work authorizations). Furthermore, ACRS and the staff have worked together to consolidate the two

ACRS review phases into one phase in recent reviews. These enhancements were successfully implemented during the later stages of the NuScale design certification review, and more recently in the staff's review of the SHINE operating license and Kairos test reactor construction permit applications. Their implementation has proven effective in providing both time and cost savings to new small modular and advanced reactor applicants.

10. During the NRC's recent Regulatory Information Conference, each NRC Commissioner spoke about the enormous challenges and opportunities facing the Commission in the coming years as numerous new reactor designs are submitted to the Commission for review and approval. Chair Hanson, how do you, as the Chairman and chief executive of the NRC, view your leadership role and how are you demonstrating that leadership to prepare and enable organizational success during this pivotal period?

**RESPONSE:**

As the Chair and official spokesperson of the agency, I see my role as using open and transparent communication to create and sustain a culture of trust, confidence, and innovation. I am dedicated to making holistic and lasting changes that will allow the NRC to address emerging needs while maintaining its focus on the mission and its service to the American people. The current nuclear landscape is dynamic, and change is on the horizon. It is incumbent on me to assure that as things shift, the NRC can adapt while maintaining its world-renowned reputation as the gold standard in nuclear regulation.

Ultimately, the NRC is nothing without a committed and engaged workforce. Leading by example, I communicate expectations at all levels of the agency, both formally and informally. I believe building trust with the NRC staff is important to the future of the agency and sets an example for senior leadership at the agency to follow. This includes speaking with staff in various forums and listening to their feedback regarding the trajectory of the agency's future. It also includes emphasizing the importance of the mission in the work of every staff member, regardless of their position or subject matter expertise.

I am deeply committed to agency efforts that prioritize diversity and inclusion and emphasize the importance of differing perspectives to the mission of the NRC. Focusing on strength in transformative and creative thinking is critical to the agency's desire to encourage a culture of change. In leading this agency, it is my prerogative to include the workforce in the agency's journey to become a more modern risk-informed regulator.

It is also important to foster stakeholder confidence, which is explicitly acknowledged in the agency's most recent Strategic Plan. I regularly share my views and perspectives with the public, both in my personal capacity and in my capacity as Chair. As the agency adapts and makes changes, we need to make sure that the public is fully informed and given an opportunity to engage in the agency's evolution in an open and transparent manner. This outreach can take the form of public meetings, vote records, press releases, and speeches.

11. Part of the NRC's mission is to enable nuclear energy to contribute to the common defense of the nation. Currently, two of the major builders of nuclear reactors are China and Russia. The United States needs to regain its leadership in this field, for national security as well as economic purposes.
- a. How do you view the NRC's ability to fulfill its mission and meet the policy Congress established in the Atomic Energy Act in the context of geostrategic civil nuclear competition?

**RESPONSE:**

On a daily basis, the NRC engages at a variety of levels with partners at the National Security Council, Department of State, Department of Energy, and others, to stay cognizant of current U.S. nuclear energy policy and the geostrategic priorities that inform it. Though the NRC is an independent regulatory agency, this engagement is essential to ensure that the NRC is aware of broader U.S. Government policy. It is equally important for other agencies to understand the NRC's role and the boundaries of our regulatory responsibilities when developing policies, such as import or export restrictions.

The NRC recognizes that its domestic work in advanced reactor and fuel licensing is of significant interest to the wider U.S. Government as it seeks to counter Russian and Chinese influence in the supply chain and offer U.S. technology and fuel as viable alternatives for countries around the world. The assistance the NRC provides to international partners needs to be part of the value proposition as the U.S. Government seeks to reduce Russian and Chinese influence in nuclear markets. This is something we are already working to leverage internationally, and we have had recent success in this area in our interactions with the Polish government. The Commission continues to use its international travel to build strong relationships with regulators around the world, extending technical expertise and support as diplomatic offerings.

The NRC acknowledges that its expertise is highly sought after internationally and works to support a broad variety of mutually beneficial bilateral and multilateral cooperation and assistance activities to share best practices and lessons learned with other regulatory programs. In countries with burgeoning programs, we make it a priority to assist in developing and supporting strong, technically competent, and independent regulators. There is an unprecedented demand for capacity building and assistance for licensing and safe use of nuclear materials. For our counterpoints with significant expertise, we engage in collaboration and technical information sharing in accordance with the larger U.S. Government's interest in maintaining its status as a world leader in nuclear energy. The importance of these efforts led the NRC to request an increase in its International Programs budget for FY24.

- b. How can the NRC modernize its regulations to allow for quicker and more efficient reviews of an increasingly large number of applications as a tool to demonstrate America's ability to lead internationally?

**RESPONSE:**

With regard to global deployment of U.S. designs, the NRC continues to demonstrate its ability to lead internationally. The following are a few examples.

- Ongoing collaboration between the Canadian Nuclear Safety Commission (CNSC) and the NRC under a Memorandum of Cooperation is intended to reduce duplication of licensing review efforts, jointly utilize third party verification, identify areas for collaborative verification, share expertise, and leverage analysis performed by each organization.
- The NRC staff led efforts to develop a Nuclear Energy Agency report, "Regulatory Perspectives on Nuclear Fuel Qualification for Advanced Reactors," and later adopted this report as NRC guidance in NUREG-2246, "Fuel Qualification for Advanced Reactors." The NRC staff is leveraging this guidance in its review of advanced reactor fuel qualification submittals and as the foundation for its cooperative efforts with the CNSC to develop common regulatory positions on tri-structural isotropic (TRISO) fuel qualification to support advanced reactor licensing applications.
- The NRC staff proposed an option in the draft proposed 10 CFR Part 53 rulemaking that more closely aligns with international standards to facilitate applicants submitting applications in multiple countries.
- The NRC staff is supporting the IAEA Nuclear Harmonization and Standardization Initiative to harmonize and standardize regulatory and industrial approaches in support of the effective global deployment of safe and secure advanced nuclear reactors. The goal is to develop an international framework for sharing regulatory information, leveraging other regulators' reviews, and conducting pre-licensing reviews of generic designs that may be built in multiple countries.

12. On March 16, 2023, the Director of the NRC's Office of Nuclear Reactor Regulation responded to the Nuclear Energy Institute regarding an ongoing concern about the applicability of a "backfit" policy that imposes new regulatory requirements without a proper analysis. The letter ignored the NEI's legitimate concerns with the policy and simply listed previous NRC correspondence or positions.

- a. How do you view the NRC's responsibility to substantively respond to licensees or associations that represent licensees?

**RESPONSE:**

Consistent with NRC's Principles of Good Regulation, the NRC is committed to listening and responding to the concerns of all external stakeholders.

- b. Do you agree that the NRC is obligated to meaningfully consider and respond to substantive comments made by licensees, and that simply reiterating the agency's prior position on an issue – as was the case here – would not satisfy that obligation?

**RESPONSE:**

The NRC should meaningfully consider and respond to substantive comments made by licensees, as was the case here. In the circumstances referenced, which involved the staff's interactions with the industry regarding Regulatory Issue Summary (RIS) 2022-02, "Operational Leakage," the staff held several public meetings on the substance of the issues in question during the development of the RIS. NEI and the industry consistently engaged in dialogue with the staff during those public meetings and provided their comments on the draft RIS when it was published in the *Federal Register* for public comment.

As part of the process for issuing the final RIS, the staff issued extensive, detailed responses to all public comments that had been received. In addition, the NRC's Committee to Review Generic Requirements (CRGR) afforded NEI and the industry their own public meeting with the CRGR on May 13, 2022, to express their concerns regarding any backfit issues associated with the RIS. So, while the letter in question may have been brief, the issues raised by NEI in its letter were meaningfully considered by the agency. The NRC's response letter was not intended to document the entirety of the exchange between the industry and the NRC staff on the matter.

- c. The NRC's "Committee to Review Generic Requirements" (CRGR) is tasked with reviewing policies that may be considered backfit applications. The CRGR met last June to discuss the policy with NRC staff addressed in the NEI's letter. This CRGR meeting was not open to the public. I recognize there may be some portions of a meeting that could be considered pre-decisional; however, NRC staff routinely have meetings that are partially open to the public. Will you consider modifying the CRGR meeting policy to increase transparency and openness by making the CRGR's meetings public?

**RESPONSE:**

The CRGR is chartered to ensure that proposed facility-specific or generic backfits imposed on power reactors or selected nuclear materials facilities are appropriately justified based on backfitting and issue finality provisions of applicable NRC regulations. The CRGR's primary responsibilities are to: (1) recommend to the NRC's EDO either approval or disapproval of staff proposals related to backfitting, and (2) provide guidance and assistance to the NRC program offices to help them implement the Commission's backfitting policy. As these responsibilities are focused on internal processes, the CRGR's deliberations are not conducted in a public forum.

The NRC is committed to transparency and openness; and information from CRGR meetings (e.g., meeting summaries, staff's presentation slides and analysis) is made public upon the public release of the reviewed documents. This provides stakeholders with transparency into the CRGR deliberations and information shared with the Committee. Further, in 2017, CRGR updated its procedures to allow for meetings with external stakeholders, at the request of stakeholders or the initiative of the CRGR or EDO, to gain additional insights on the issue under review. These public meetings are transcribed and included in the CRGR record. The Committee has conducted five of these public meetings to expand stakeholder participation in the CRGR review process and plans to continue to support these interactions in the future. As noted above, the NRC's CRGR afforded NEI and the industry their own public meeting with CRGR on May 13, 2022, to express their concerns regarding any backfit issues associated with RIS 2022-02.

13. Please provide a list of all reactor initial license renewals and all subsequent license renewals reviewed by the NRC. Please include:

- a. the duration of the review;
- b. the date of the approval;
- c. the hours billed to the applicant;
- d. the total contractor costs; and
- e. the total cost for each review.

**RESPONSE:**

Information for renewed licenses and subsequent license renewals is provided in the tables below. Due to a legacy billing system as well as the way activity codes were previously tracked internally, the renewals issued before March 2015 only include total costs for each review.

| Initial License Renewals                      |                               |                                                  |                           |                        |                           |
|-----------------------------------------------|-------------------------------|--------------------------------------------------|---------------------------|------------------------|---------------------------|
| Plant Name and Unit(s)                        | Renewed License Issuance Date | License Renewal Application Review Time (Months) | Hours Billed to Applicant | Total Contractor Costs | Cost Billed to Applicants |
| Calvert Cliffs 1 & 2                          | 03/23/2000                    | 23                                               | N/A                       | N/A                    | \$2,504,158               |
| Oconee 1, 2, & 3                              | 05/23/2000                    | 23                                               | N/A                       | N/A                    | \$2,279,751               |
| Arkansas Nuclear One 1                        | 06/20/2001                    | 17                                               | N/A                       | N/A                    | \$2,326,580               |
| Turkey Point 3 & 4                            | 06/06/2002                    | 21                                               | N/A                       | N/A                    | \$2,905,768               |
| Edwin I. Hatch 1 & 2                          | 06/15/2002                    | 28                                               | N/A                       | N/A                    | \$1,935,890               |
| North Anna 1 & 2 and Surry 1 & 2 <sup>1</sup> | 03/20/2003                    | 22                                               | N/A                       | N/A                    | \$3,066,292               |
| Peach Bottom 2 & 3                            | 05/07/2003                    | 22                                               | N/A                       | N/A                    | \$2,753,373               |
| St. Lucie 1 & 2                               | 10/02/2003                    | 22                                               | N/A                       | N/A                    | \$2,608,824               |
| Fort Calhoun                                  | 11/04/2003                    | 22                                               | N/A                       | N/A                    | \$1,818,034               |
| McGuire 1 & 2 and Catawba 1 & 2               | 12/05/2003                    | 30                                               | N/A                       | N/A                    | \$3,794,516               |
| H.B. Robinson 2                               | 04/19/2004                    | 22                                               | N/A                       | N/A                    | \$2,357,673               |
| V.C. Summer                                   | 04/23/2004                    | 21                                               | N/A                       | N/A                    | \$3,108,422               |
| R.E. Ginna                                    | 05/19/2004                    | 22                                               | N/A                       | N/A                    | \$2,113,027               |
| Dresden 2 & 3 and Quad Cities 1 & 2           | 10/28/2004                    | 22                                               | N/A                       | N/A                    | \$2,487,039               |
| Joseph M. Farley 1 & 2                        | 05/12/2005                    | 20                                               | N/A                       | N/A                    | \$1,173,083               |
| Arkansas Nuclear One 2                        | 06/30/2005                    | 21                                               | N/A                       | N/A                    | \$2,420,662               |
| D.C. Cook 1 & 2                               | 08/30/2005                    | 22                                               | N/A                       | N/A                    | \$2,220,419               |
| Millstone 2 & 3                               | 11/28/2005                    | 22                                               | N/A                       | N/A                    | \$2,726,787               |
| Point Beach 1 & 2                             | 12/22/2005                    | 22                                               | N/A                       | N/A                    | \$3,409,479               |
| Browns Ferry 1, 2 & 3                         | 05/04/2006                    | 28                                               | N/A                       | N/A                    | \$4,739,727               |

| Initial License Renewals     |                               |                                                  |                           |                        |                           |
|------------------------------|-------------------------------|--------------------------------------------------|---------------------------|------------------------|---------------------------|
| Plant Name and Unit(s)       | Renewed License Issuance Date | License Renewal Application Review Time (Months) | Hours Billed to Applicant | Total Contractor Costs | Cost Billed to Applicants |
| Brunswick 1 & 2              | 06/26/2006                    | 20                                               | N/A                       | N/A                    | \$3,754,813               |
| Nine Mile Point 1 & 2        | 10/31/2006                    | 29                                               | N/A                       | N/A                    | \$4,050,987               |
| Monticello                   | 11/08/2006                    | 20                                               | N/A                       | N/A                    | \$2,805,493               |
| Palisades                    | 01/17/2007                    | 22                                               | N/A                       | N/A                    | \$2,245,506               |
| FitzPatrick                  | 09/08/2008                    | 26                                               | N/A                       | N/A                    | \$3,386,101               |
| Wolf Creek 1                 | 11/20/2008                    | 26                                               | N/A                       | N/A                    | \$3,325,036               |
| Shearon Harris 1             | 12/17/2008                    | 25                                               | N/A                       | N/A                    | \$2,147,153               |
| Oyster Creek                 | 04/08/2009                    | 45                                               | N/A                       | N/A                    | \$4,601,456               |
| Vogtle 1 & 2                 | 06/03/2009                    | 24                                               | N/A                       | N/A                    | \$2,508,307               |
| Three Mile Island 1          | 10/22/2009                    | 22                                               | N/A                       | N/A                    | \$2,188,222               |
| Beaver Valley 1 & 2          | 11/05/2009                    | 27                                               | N/A                       | N/A                    | \$2,773,656               |
| Susquehanna 1 & 2            | 11/17/2009                    | 38                                               | N/A                       | N/A                    | \$3,019,046               |
| Cooper                       | 11/29/2010                    | 26                                               | N/A                       | N/A                    | \$4,030,940               |
| Duane Arnold                 | 12/16/2010                    | 27                                               | N/A                       | N/A                    | \$3,098,536               |
| Kewaunee                     | 02/24/2011                    | 30                                               | N/A                       | N/A                    | \$3,313,314               |
| Vermont Yankee               | 03/21/2011                    | 62                                               | N/A                       | N/A                    | \$4,350,379               |
| Palo Verde 1, 2, & 3         | 04/22/2011                    | 28                                               | N/A                       | N/A                    | \$4,227,488               |
| Prairie Island 1 & 2         | 06/27/2011                    | 38                                               | N/A                       | N/A                    | \$3,708,362               |
| Salem 1 & 2                  | 06/30/2011                    | 22                                               | N/A                       | N/A                    | \$3,480,335               |
| Hope Creek 1                 | 07/20/2011                    | 23                                               | N/A                       | N/A                    | \$2,509,289               |
| Columbia Generating Station  | 05/22/2012                    | 28                                               | N/A                       | N/A                    | \$4,919,175               |
| Pilgrim 1                    | 05/29/2012                    | 76                                               | N/A                       | N/A                    | \$3,489,044               |
| Crystal River 3 <sup>2</sup> | ****                          | 50                                               | N/A                       | N/A                    | \$4,390,546               |
| Limerick 1 & 2               | 10/20/2014                    | 40                                               | N/A                       | N/A                    | \$5,369,834               |



| Initial License Renewals  |                               |                                                  |                           |                        |                           |
|---------------------------|-------------------------------|--------------------------------------------------|---------------------------|------------------------|---------------------------|
| Plant Name and Unit(s)    | Renewed License Issuance Date | License Renewal Application Review Time (Months) | Hours Billed to Applicant | Total Contractor Costs | Cost Billed to Applicants |
| Callaway 1                | 03/06/2015                    | 39                                               | N/A                       | N/A                    | \$6,862,537               |
| Sequoyah 1 & 2            | 09/24/2015                    | 32 <sup>3</sup>                                  | 23,446                    | \$230,246.93           | \$6,654,388               |
| Byron 1 & 2               | 11/19/2015                    | 29 <sup>3</sup>                                  | 14,489                    | \$168,894.47           | \$4,130,008               |
| Davis-Besse 1             | 12/08/2015                    | 63 <sup>3</sup>                                  | 24,826                    | \$221,556.73           | \$6,845,903               |
| Braidwood 1 & 2           | 01/27/2016                    | 31 <sup>3</sup>                                  | 17,733                    | \$290,715.31           | \$5,141,609               |
| LaSalle 1 & 2             | 10/19/2016                    | 22                                               | 17,424                    | \$337,865.38           | \$5,134,225               |
| Grand Gulf 1              | 12/01/2016                    | 61 <sup>4</sup>                                  | 20,805                    | \$465,818.29           | \$6,071,203               |
| Fermi, Unit 2             | 12/15/2016                    | 31 <sup>5</sup>                                  | 19,679                    | \$298,239.08           | \$5,724,270               |
| South Texas Project 1 & 2 | 09/28/2017                    | 83 <sup>6</sup>                                  | 29,355                    | \$441,007.74           | \$8,295,501               |
| Indian Point 2 & 3        | 09/17/2018                    | 136 <sup>7</sup>                                 | N/A <sup>9</sup>          | N/A <sup>9</sup>       | \$9,388,378               |
| River Bend                | 12/20/2018                    | 18                                               | 19,735                    | \$89,362.36            | \$5,297,802               |
| Waterford 3               | 12/27/2018                    | 33 <sup>4</sup>                                  | 19,642                    | \$168,657.21           | \$5,398,211               |
| Seabrook 1                | 03/12/2019                    | 105 <sup>8</sup>                                 | 28,182                    | \$135,107.03           | \$7,639,411               |

**Notes:**

<sup>1</sup>North Anna 1 & 2 and Surry 1 & 2 submitted individual license renewal applications on May 29, 2001; however, the NRC reviewed the applications jointly and issued one safety evaluation report for both sites.

<sup>2</sup>The Crystal River 3 application was withdrawn by the applicant on February 6, 2013.

<sup>3</sup>Extended duration was due to suspension of renewed license issuances in response to New York v NRC, 681 F.3d 471 (D.C. Cir. 2012).

<sup>4</sup>Extended duration of review was due to issues related to reactor vessel fluence calculations that required a license amendment request to be reviewed and approved prior to completing the license renewal application review.

<sup>5</sup>Extended duration of review was due to issues related to environmentally assisted fatigue time-limited aging analyses and the applicant's Bonaflex Monitoring Program.

<sup>6</sup>Extended duration of review was due to issues related to selective leaching of buried aluminum bronze piping and fittings.

<sup>7</sup>Extended duration of review was due to the need to resolve novel issues, including issues raised in hearing requests related to the license renewal application.

<sup>8</sup>Extended duration of review was due to issues related to alkali-silica reaction and hearing requests on the same topic.

<sup>9</sup>The NRC does not have legacy records for tracking the number of hours billed or readily accessible records for tracking total contractor costs billed to the applicant for Indian Point similar to the renewed licenses issued through March 2015 in the staff's response to Senators Inhofe and Capito (ADAMS

Accession No. [ML15086A177](#)).

| Subsequent License Renewals |                               |                                                  |                           |                        |                           |
|-----------------------------|-------------------------------|--------------------------------------------------|---------------------------|------------------------|---------------------------|
| Plant Name and Unit(s)      | Renewed License Issuance Date | License Renewal Application Review Time (Months) | Hours Billed to Applicant | Total Contractor Costs | Cost Billed to Applicants |
| Turkey Point 3 & 4          | 12/04/2019                    | 22                                               | 30,391                    | \$435,238.40           | \$8,641,868               |
| Peach Bottom 2 & 3          | 03/05/2020                    | 19                                               | 21,352                    | \$45,038.42            | \$5,913,237               |
| Surry 1 & 2                 | 05/04/2021                    | 30 <sup>1</sup>                                  | 24,969                    | \$43,830.31            | \$6,933,504               |

Notes:

<sup>1</sup> NRC's safety and environmental reviews were completed within the established schedule. The extended duration was due to delays in the state issuing its coastal zone management approval, which was needed before the NRC could issue the renewed license.

14. The Inflation Reduction Act of 2022 (IRA) included several provisions that incentivized power uprates of the current fleet of power reactors. How is the NRC preparing to address the potential increase in power uprate applications in response to the IRA?

**RESPONSE:**

The NRC has a well-established process for reviewing and approving power uprate applications, as demonstrated in the 124 uprates that have been approved since 2000.

The staff intends to employ its existing guidance for reviewing power uprate applications, NRR Office Instruction, "Power Uprate Process," (LIC-112) which is intended to strengthen the coordination of all aspects of power uprate activities and identify roles and responsibilities for power uprates.

Historically, the NRC has generally been able to complete the Extended Power Uprates (above 7%) within two years, while Stretch and Measurement Uncertainty Recapture Uprates can be completed within one year. The staff intends to continue leveraging its proven process for future reviews.

Although there are currently no applications pending with the agency, the NRC staff continues to engage with licensees in preparation for the potential increase in power uprate applications in response to the Inflation Reduction Act.

15. The Commission and NRC staff continue to pursue a "Transformation Initiative." This initiative is intended to make the NRC become a more modern, risk-informed regulator. I am concerned that this initiative is no longer providing for meaningful change and is instead fostering an appearance of progress rather than providing a real vehicle to refocus how the Agency meets its mission today.

- a. What is your vision for the NRC's ongoing pursuit of the "Transformation Initiative?"

**RESPONSE:**

The NRC's ongoing pursuit of the transformation initiative continues to support our important safety and security mission, in a highly dynamic, interconnected environment. Transformation is more than just an initiative; it is a fundamental change in agency culture. The NRC is seeing cultural shifts happen in real time, which is resulting in real change in the way the NRC conducts business. This includes the increasing embrace of risk-informed thinking in across the agency. We are implementing new processes to accomplish our work effectively and efficiently by encouraging different perspectives and supporting new ideas. A focus on transformation allows the NRC to continue to modernize and sustain innovation and progress.

- b. Please describe what you view as the Initiative's primary measure of success.

**RESPONSE:**

The agency's transformation initiative is rooted in making cultural changes in the way that the NRC does its work. At a large-scale organizational level, success in transformation can be tracked through shifts in agency processes that result in more risk-informed and durable regulatory decisions.

The objectives and key results methodology that was implemented in 2020 is one way the NRC seeks to quantify the transformation initiative's success. This methodology correlates to annual goals and identifies measures of success by key results in a given year. In 2020, one agency-level objective was selected with three corresponding key results, which laid the foundation for the transformation journey by identifying the broad goals associated with fundamental concepts. Thereafter, each annual iteration of agency-level objectives and key results were designed to successively build upon the prior year's transformational successes. The objectives and key results methodology has allowed for a focused and coordinated agencywide approach to achieving the NRC's vision of becoming a more modern, risk-informed regulator.

The objectives and key results methodology has allowed the agency to strategically drive agencywide alignment and engagement while identifying targeted progress areas within the four transformation focus areas (i.e., Be riskSMART, Innovation, Focus on Our People, and Use Technology). It has also allowed the agency to maximize use of the resources and tools that it has developed to support transformation efforts. For example, the 2020 objectives and key results were intentionally broad and intended to help employees understand what the transformation vision of becoming a more modern, risk-informed regulator meant in practice. This first iteration of objectives and key results enabled the agency to develop the roadmap by identifying and implementing the tools and resources necessary for the transformation journey.

The tools and resources that were developed in 2020 include the Be riskSMART framework, IdeaScale innovation platform, and the Guide to Career Enhancement. These tools and resources helped provide the necessary infrastructure to support the agency's transformation. This important foundational work served as the springboard for the 2021 objectives and key results, which were crafted, in part, to collect data on the staff's use of transformation tools as well as external stakeholder views on the agency's efforts. These were the next strategic steps in helping transformation take root throughout the agency by empowering the staff at all levels and across all organizational sectors, while gathering insights into how transformation has improved the efficacy and efficiency of agency operations. The 2022 objectives and key results were intended to sustain transformational progress in the long term and further reinforced the four transformation focus areas. The 2023 agency-level objectives and key results are focused on our organizational health, particularly in the areas of staff retention and engagement as well as recruitment and hiring.

16. I applaud the NRC's efforts on the very low safety significance issue resolution process. They are important to ensuring NRC staff and the nuclear industry focus resources on matters most to safety.
- a. What is the status of the very low safety significance issue resolution process and is it being applied as it was intended across the regions?

**RESPONSE:**

The very low safety significance issue resolution (VLSSIR) process was developed to address a specific gap that was identified in the agency's risk-informed application of resources. The VLSSIR process is used to determine whether the NRC staff can discontinue evaluation of an issue involving a licensing basis question when the issue is expected to be of very low safety significance, if found to be valid. Information to date indicates that it is successfully achieving its intent. The VLSSIR process has been used 19 times since its inception in 2020 (6 in 2020, 4 in 2021, 6 in 2022, and currently 3 in 2023), successfully demonstrating the ability of the process to use risk to inform the application of inspection resources. The VLSSIR process has been used across all the regions with Region I using the process 2 times, Region II 9 times, Region III 5 times, and Region IV 3 times.

In August 2022, the VLSSIR process was expanded to include issues that would screen as having no or relatively inappreciable consequences using traditional enforcement, and relevant guidance was revised to clarify that the VLSSIR process can be used to document issues that could have generic aspects that are better addressed using other processes.

- b. What is the status of the risk-informed process for evaluations?

**RESPONSE:**

By memorandum dated January 7, 2021, the Office of Nuclear Reactor Regulation established a new process for addressing issues of very low safety significance that are within the licensing basis of a plant. This process, referred to as RIPE (Risk-Informed Process for Evaluations), is available to licensees that have a technically acceptable probabilistic risk assessment and have established an integrated decision-making panel.

To date, one application has been submitted by a licensee under RIPE; that application was for a proposed exemption request. In addition, a pre-application meeting was held in April 2023 to discuss a different licensee's plan for a potential second submittal under RIPE. Based on observations from the first RIPE review, the staff identified a few recommendations and best practices to provide for a more efficient and effective review of future applications submitted under RIPE. The recommendations do not change the fundamentals of RIPE but enhance the implementation of the process. The staff shared these recommendations and best practices at a public meeting with the Nuclear Energy Institute Regulatory Issues Task Force in April 2023.

The staff expanded RIPE to include Technical Specification changes and made the associated updated guidance publicly available on May 10, 2022. Under the RIPE expansion, any Technical

Specification change would still have to meet the current RIPE criteria for review. The staff is also considering expanding RIPE to include the development of a generic process that could support the efficient reviews of topical reports of low safety significant issues. The Pressurized Water Reactor Owners Group (PWROG) submitted their proposed approach for such an expansion to the NRC for review. The PWROG's approach is to develop a RIPE-like process, described as the Risk Assessment Process for Review of Topical Reports, or RAPTR. The goal would be to develop publicly available guidance that could be used by industry to submit topical reports and by the NRC staff to review these reports in an efficient and effective manner commensurate with the safety significance of the issue. This effort is preliminary and dependent on the NRC staff's evaluation of the proposed process. A public meeting is being planned to discuss PWROG's proposal in the summer of 2023.

- c. Is the NRC pursuing other ways to further address licensing reviews and oversight matters of very low safety significance?

**RESPONSE:**

The NRC continues to look for ways to further enhance our ability to handle matters of very low safety significance. For example, we leveraged our experience with the VLSSIR process by expanding it to include reactor issues that involve traditional enforcement, materials issues, and generic communications. The NRC issued an update to Inspection Manual Chapter 0612 Appendix B in August 2022 to expand the VLSSIR process to also consider reactor issues that would screen as having no or relatively inappreciable consequences using traditional enforcement. This use has been demonstrated once in a Region I April 2023 inspection report on an in-service inspection issue involving the removal of insulation on containment liners. The NRC staff is also engaging with the American Society of Mechanical Engineers code committee to resolve this issue generically.

The Office of Nuclear Material Safety and Safeguards (NMSS) has applied VLSSIR to an issue involving short-term operations and tornado hazards at independent spent fuel storage installations (ISFSIs). Region II recently issued an inspection report that successfully dispositioned one of these ISFSI issues, the first report utilizing the VLSSIR process for NMSS. NMSS has also formed a working group effort to formalize their VLSSIR process to all NMSS programs. The working group is currently finalizing its report.

**Senator Ricketts:**

1. The FY 2024 Corporate Support request is approximately 30.2 percent of the agency's total budget authority compared to a cap of 29 percent necessary to fully comply with the corporate support cap of Section 102(a)(3)(B) of the Nuclear Energy Innovation and Modernization Act (NEIMA). In an October 4, 2021 letter to Congress on the implementation of NEIMA, the agency identified significant challenges associated with meeting the corporate support cap, including subsidized rent payment for non-NRC occupants in 3WFN that account for approximately 1.6 percent of all corporate support costs. These subsidies limit the NRC's ability to invest in other corporate support areas with an expenditure that does not support the agency's mission and that continue to escalate over time.
  - a. Please provide a table listing corporate support costs as indicated in the NRC's Congressional Budget Justification, corporate support costs as indicated in the NRC's fee recovery rule, rent subsidies and total budget authority for each of the last 15 years.

**RESPONSE:**

Corporate support costs as indicated in the NRC's Congressional Budget Justification

| <b>Fiscal Year</b> | <b>Corporate Support<br/>CBJ<br/>(\$M)</b> |
|--------------------|--------------------------------------------|
| 2010               | 339.4                                      |
| 2011               | 343.0                                      |
| 2012               | 334.1                                      |
| 2013               | 357.2                                      |
| 2014               | 363.6                                      |
| 2015               | 362.0                                      |
| 2016               | 360.0                                      |
| 2017               | 319.1                                      |
| 2018               | 301.4                                      |
| 2019               | 299.6                                      |
| 2020               | 292.6                                      |
| 2021               | 271.4                                      |
| 2022               | 266.3                                      |
| 2023               | 285.3                                      |
| 2024               | 304.0                                      |

Corporate support costs as indicated in the NRC's final fee rule based on the enacted budget

| <b>Fiscal Year</b> | <b>Corporate Support<br/>(Fee Rule)<br/>(\$M)</b> |
|--------------------|---------------------------------------------------|
| 2010               | 319.5                                             |
| 2011               | 295.5                                             |
| 2012               | 296.2                                             |
| 2013               | 315.3                                             |
| 2014               | 337.3                                             |
| 2015               | 349.2                                             |
| 2016               | 302.8                                             |
| 2017               | 298.5                                             |
| 2018               | 296.4                                             |
| 2019               | 293.0                                             |
| 2020               | 279.4                                             |
| 2021               | 271.4                                             |
| 2022               | 266.3                                             |
| 2023*              | N/A                                               |
| 2024**             | N/A                                               |

\*The FY 2023 final fee rule is under development. The FY 2023 proposed fee rule was published for comment on March 3, 2023 (88 FR 13357).

\*\*The FY 2024 final fee rule will be under development during FY 2024.

Estimated rent subsidies for Three White Flint North (3WFN)

| <b>Fiscal Year</b> | <b>3WFN Subsidy<br/>(\$M)</b> |
|--------------------|-------------------------------|
| 2014               | 0.3                           |
| 2015               | 1.4                           |
| 2016               | 2.2                           |
| 2017               | 2.2                           |
| 2018               | 2.9                           |
| 2019               | 3.5                           |
| 2020               | 4.2                           |
| 2021               | 4.3                           |
| 2022               | 4.3                           |
| 2023               | 5.7                           |
| 2024*              | 5.7                           |
| 2025*              | 5.7                           |
| 2026*              | 5.7                           |

\*Projected



Total budget as indicated in the NRC's Congressional Budget Justification

| <b>Fiscal Year</b> | <b>Total Budget<br/>CBJ<br/>(SM)*</b> |
|--------------------|---------------------------------------|
| 2010               | 1,071.1                               |
| 2011               | 1,053.6                               |
| 2012               | 1,038.1                               |
| 2013               | 1,053.2                               |
| 2014               | 1,055.0                               |
| 2015               | 1,059.5                               |
| 2016               | 1,032.2                               |
| 2017               | 982.3                                 |
| 2018               | 952.0                                 |
| 2019               | 970.7                                 |
| 2020               | 921.1                                 |
| 2021               | 863.4                                 |
| 2022               | 887.7                                 |
| 2023               | 929.2                                 |
| 2024               | 979.2                                 |

\*Includes Office of the Inspector General

Total NRC budget authority

| <b>Fiscal Year</b> | <b>Total Budget<br/>Authority<br/>(SM)*</b> |
|--------------------|---------------------------------------------|
| 2010               | 1,066.9                                     |
| 2011               | 1,054.1                                     |
| 2012               | 1,038.1                                     |
| 2013**             | 985.6                                       |
| 2014               | 1,055.9                                     |
| 2015***            | 1,049.5                                     |
| 2016               | 1,002.1                                     |
| 2017***            | 940.1                                       |
| 2018***            | 937.0                                       |
| 2019***            | 931.2                                       |
| 2020***            | 895.6                                       |
| 2021***            | 879.4                                       |
| 2022***            | 905.7                                       |
| 2023***            | 943.2                                       |
| 2024****           | N/A                                         |

\*Includes Office of the Inspector General

\*\* Includes sequestration

\*\*\* Includes authorized carryover

\*\*\*\* Appropriations legislation has not yet been enacted for FY 2024

2. The CBJ refers to separate research projects without much clarity as to what level of resources each will consume or why they have been initiated. Please provide a list of all ongoing research projects in the NRC's Office of Research and any others within the agency. Please indicate how much each project has cost to date, how much is budgeted for each project for FY 2024, and an estimate to complete any projects that may extend beyond FY 2024. Please also indicate for each project whether it supports operating reactors and/or new reactors (i.e., was initiated in response to a program office user request).

**RESPONSE:**

In response to the request for additional transparency concerning the NRC research projects, please find the following high-level descriptions of the research activities and budget information and the associated enclosures. Specifically: 1) a summary of agency research activities; 2) a section providing all planned research activities proposed for FY24; 3) a section providing the open inventory of work requests, and; 4) a summary of research budget execution information for FY22 and FY23 to date. The research planning documents provide some details on the timing of specific projects.

Summary of Agency Research Activities

The total NRC proposed research budget in FY24 is \$41.3M in contract support and 149.2 FTE, which includes funds for activities primarily within the Office of Nuclear Regulatory Research (RES) that support NRR, NMSS, and NSIR. Research work complements NRC licensing, inspection, and rulemaking activities that support incorporation of advanced technology, evaluation of licensing activities, and incorporation of new engineering methods.

A summary of planned research activities can be found in the *Research Prospectus FY22 through FY24* (ML22235A651) which provides a strategic overview of research activities, goals, and budget information for the public's information and awareness.

List of Planned Research Activities proposed for FY24

In support of the budgeting and annual review of research activities, the NRC takes several steps to ensure research activities are properly planned, prioritized, and funded.

The NRC uses a planning tool to prioritize research projects during the budgeting process which focuses on activities that provide the greatest benefit to the mission with consideration of enterprise risk. The research prioritization tool is used to screen and assess future research plans by considering factors such as safety/risk benefits, uncertainties in the state of knowledge, programmatic needs, the degree to which the research activity can be leveraged, and the level of applicability of the research work to the operating fleet. The tool provides insights into the relative importance of individual projects throughout the agency budgeting process.

A prioritized list of planned research activities is developed and reviewed by agency management and leadership. Enclosure 1 provides this list of research activities.

Open Inventory of Research Work Requests

Work Requests are developed to identify research scope, deliverables, and resources. The Work Request is then reviewed and approved by senior managers in both RES and the Program Offices in the Office of Nuclear Reactor Regulation (NRR), the Nuclear Material Safety and Safeguards (NMSS), or the Office of Nuclear Security and Incident Response (NSIR).

Enclosure 2 provides the titles of the open inventory of User Need Requests, which includes projects that exceed 300 staff hours or \$500k of program support. Additionally, the open and closed User Needs are provided to the Committee in the quarterly Status Report on the Licensing Activities and Regulatory Duties of the U.S. NRC. For work request completions, the costs, deliverables, and findings are included in the quarterly report. For work request starts, the work request goals, planned activities, and resources are provided.

Summary of Research Budget Execution for FY22 and FY23 (to Present)

To support budget planning and execution of research activities, RES activities are tracked using accounting structure referred to as the Enterprise-wide Project Identifiers (EPIDs). The EPIDs structure facilitates tracking and reporting on the use of staff time and contract funds and provides insights into trends where resources are increasing or decreasing within a research area. Multiple research work requests are tracked within an EPID research area.

Enclosure 3 provides the EPID execution data in each research area for FY22 and FY23 projections through the end of the fiscal year.

3. The NRC Principles of Good Regulation state, in part, that: “The American taxpayer, the rate-paying consumer, and licensees are all entitled to the best possible management and administration of regulatory activities. The highest technical and managerial competence is required and must be a constant agency goal.” NRC’s practice, however, seems to be out of step with this principle. The NRC has had documented failures in applying best practices in managing licensing reviews. For example, the first 44 initial license renewals were completed in, on average, 16,000 review hours. Most recently, review hours for initial license renewals have been estimated to be 23,000 review hours – representing an increase of approximately 44 percent. Most surprising, NRC review of subsequent license renewal applications -- which should realize efficiencies based in the initial license renewal screening, safety, and environmental review as well as aging management programs, -- have averaged over 25,000 hours.

- a. Please provide a list of all reactor initial license extensions reviewed by the NRC. Please include the duration of the review, the date of the approval, the number of requests for additional information issued, and the hours billed to the applicant for each review. Please provide the same information for all subsequent license extensions.

**RESPONSE:**

The NRC has completed 94 initial license renewals (LRs) for operation from 40 to 60 years since the first application for a renewed license was submitted in 1998.

The overall average review time for initial LR application is 33 months. Based on license renewals since 2015, the average hours billed to the applicant for a review is 21,394. Due to a legacy billing system as well as the way activity codes were previously tracked, the renewals issued before March 2015 only include total costs for each review.

| Initial License Renewals                      |                               |                                                  |                           |                                                          |
|-----------------------------------------------|-------------------------------|--------------------------------------------------|---------------------------|----------------------------------------------------------|
| Plant Name and Unit(s)                        | Renewed License Issuance Date | License Renewal Application Review Time (Months) | Hours Billed to Applicant | No. of Request for Additional Information Letters Issued |
| Calvert Cliffs 1 & 2                          | 03/23/2000                    | 23                                               | N/A                       | 38                                                       |
| Oconee 1, 2, & 3                              | 05/23/2000                    | 23                                               | N/A                       | 41                                                       |
| Arkansas Nuclear One 1                        | 06/20/2001                    | 17                                               | N/A                       | 9                                                        |
| Turkey Point 3 & 4                            | 06/06/2002                    | 21                                               | N/A                       | 16                                                       |
| Edwin I. Hatch 1 & 2                          | 06/15/2002                    | 28                                               | N/A                       | 4                                                        |
| North Anna 1 & 2 and Surry 1 & 2 <sup>1</sup> | 03/20/2003                    | 22                                               | N/A                       | 8                                                        |
| Peach Bottom 2 & 3                            | 05/07/2003                    | 22                                               | N/A                       | 12                                                       |
| St. Lucie 1 & 2                               | 10/02/2003                    | 22                                               | N/A                       | 6                                                        |
| Fort Calhoun                                  | 11/04/2003                    | 22                                               | N/A                       | 2                                                        |
| McGuire 1 & 2 and Catawba 1 & 2               | 12/05/2003                    | 30                                               | N/A                       | 17                                                       |
| H.B. Robinson 2                               | 04/19/2004                    | 22                                               | N/A                       | 2                                                        |
| V.C. Summer                                   | 04/23/2004                    | 21                                               | N/A                       | 21                                                       |
| R.E. Ginna                                    | 05/19/2004                    | 22                                               | N/A                       | 4                                                        |
| Dresden 2 & 3 and Quad Cities 1 & 2           | 10/28/2004                    | 22                                               | N/A                       | 12                                                       |
| Joseph M. Farley 1 & 2                        | 05/12/2005                    | 20                                               | N/A                       | 18                                                       |
| Arkansas Nuclear One 2                        | 06/30/2005                    | 21                                               | N/A                       | 13                                                       |
| D.C. Cook 1 & 2                               | 08/30/2005                    | 22                                               | N/A                       | 21                                                       |
| Millstone 2 & 3                               | 11/28/2005                    | 22                                               | N/A                       | 5                                                        |

| Initial License Renewals     |                               |                                                  |                           |                                                          |
|------------------------------|-------------------------------|--------------------------------------------------|---------------------------|----------------------------------------------------------|
| Plant Name and Unit(s)       | Renewed License Issuance Date | License Renewal Application Review Time (Months) | Hours Billed to Applicant | No. of Request for Additional Information Letters Issued |
| Point Beach 1 & 2            | 12/22/2005                    | 22                                               | N/A                       | 27                                                       |
| Browns Ferry 1, 2 & 3        | 05/04/2006                    | 28                                               | N/A                       | 27                                                       |
| Brunswick 1 & 2              | 06/26/2006                    | 20                                               | N/A                       | 5                                                        |
| Nine Mile Point 1 & 2        | 10/31/2006                    | 29                                               | N/A                       | 32                                                       |
| Monticello                   | 11/08/2006                    | 20                                               | N/A                       | 13                                                       |
| Palisades                    | 01/17/2007                    | 22                                               | N/A                       | 28                                                       |
| FitzPatrick                  | 09/08/2008                    | 26                                               | N/A                       | 11                                                       |
| Wolf Creek 1                 | 11/20/2008                    | 26                                               | N/A                       | 18                                                       |
| Shearon Harris 1             | 12/17/2008                    | 25                                               | N/A                       | 12                                                       |
| Oyster Creek                 | 04/08/2009                    | 45                                               | N/A                       | 16                                                       |
| Vogtle 1 & 2                 | 06/03/2009                    | 24                                               | N/A                       | 6                                                        |
| Three Mile Island 1          | 10/22/2009                    | 22                                               | N/A                       | 13                                                       |
| Beaver Valley 1 & 2          | 11/05/2009                    | 27                                               | N/A                       | 25                                                       |
| Susquehanna 1 & 2            | 11/17/2009                    | 38                                               | N/A                       | 39                                                       |
| Cooper                       | 11/29/2010                    | 26                                               | N/A                       | 22                                                       |
| Duane Arnold                 | 12/16/2010                    | 27                                               | N/A                       | 12                                                       |
| Kewaunee                     | 02/24/2011                    | 30                                               | N/A                       | 19                                                       |
| Vermont Yankee               | 03/21/2011                    | 62                                               | N/A                       | 15                                                       |
| Palo Verde 1, 2, & 3         | 04/22/2011                    | 28                                               | N/A                       | 20                                                       |
| Prairie Island 1 & 2         | 06/27/2011                    | 38                                               | N/A                       | 21                                                       |
| Salem 1 & 2                  | 06/30/2011                    | 22                                               | N/A                       | 35                                                       |
| Hope Creek 1                 | 07/20/2011                    | 23                                               | N/A                       | 25                                                       |
| Columbia Generating Station  | 05/22/2012                    | 28                                               | N/A                       | 42                                                       |
| Pilgrim 1                    | 05/29/2012                    | 76                                               | N/A                       | 18                                                       |
| Crystal River 3 <sup>2</sup> | ****                          | 50                                               | N/A                       | 27                                                       |
| Limerick 1 & 2               | 10/20/2014                    | 40                                               | N/A                       | 35                                                       |
| Callaway 1                   | 03/06/2015                    | 39                                               | N/A                       | 32                                                       |
| Sequoyah 1 & 2               | 09/24/2015                    | 32 <sup>3</sup>                                  | 23,446                    | 23                                                       |
| Byron 1 & 2                  | 11/19/2015                    | 29 <sup>3</sup>                                  | 14,489                    | 43                                                       |
| Davis-Besse 1                | 12/08/2015                    | 63 <sup>3</sup>                                  | 24,826                    | 38                                                       |
| Braidwood 1 & 2              | 01/27/2016                    | 31 <sup>3</sup>                                  | 17,733                    | 43                                                       |
| LaSalle 1 & 2                | 10/19/2016                    | 22                                               | 17,424                    | 15                                                       |
| Grand Gulf 1                 | 12/01/2016                    | 61 <sup>4</sup>                                  | 20,805                    | 52                                                       |
| Fermi, Unit 2                | 12/15/2016                    | 31 <sup>4</sup>                                  | 19,679                    | 37                                                       |
| South Texas Project 1 & 2    | 09/28/2017                    | 83 <sup>4</sup>                                  | 29,355                    | 45                                                       |

| Initial License Renewals |                               |                                                  |                           |                                                          |
|--------------------------|-------------------------------|--------------------------------------------------|---------------------------|----------------------------------------------------------|
| Plant Name and Unit(s)   | Renewed License Issuance Date | License Renewal Application Review Time (Months) | Hours Billed to Applicant | No. of Request for Additional Information Letters Issued |
| Indian Point 2 & 3       | 09/17/2018                    | 136 <sup>4</sup>                                 | N/A <sup>5</sup>          | 34                                                       |
| River Bend               | 12/20/2018                    | 18                                               | 19,735                    | 15                                                       |
| Waterford 3              | 12/27/2018                    | 33 <sup>4</sup>                                  | 19,642                    | 18                                                       |
| Seabrook 1               | 03/12/2019                    | 105 <sup>4</sup>                                 | 28,182                    | 30                                                       |

Notes:

<sup>1</sup> North Anna 1 & 2 and Surry 1 & 2 submitted individual license renewal applications on May 29, 2001; however, the NRC reviewed the applications jointly and issued one safety evaluation report for both sites.

<sup>2</sup> The Crystal River 3 application was withdrawn by the applicant on February 6, 2013.

<sup>3</sup> Extended duration was due to suspension of renewed license issuances in response to *New York v NRC*, 681 F.3d 471 (D.C. Cir. 2012).

<sup>4</sup> Extended duration was due to resolution of complex technical issues during staff review.

<sup>5</sup> The NRC does not have legacy records for tracking the total number of hours billed to the applicant for Indian Point.

The NRC has reviewed six subsequent license renewals (SLRs) for operation from 60 to 80 years since the first application for subsequent license renewal was submitted in 2018. Based on the first three applications, the average review time is approximately 24 months and 25,000 review hours. The staff are currently reviewing two SLR applications.

Information for the SLR reviews is provided in the table below.

| Subsequent License Renewals |                               |                                                  |                           |                                                          |
|-----------------------------|-------------------------------|--------------------------------------------------|---------------------------|----------------------------------------------------------|
| Plant Name and Unit(s)      | Renewed License Issuance Date | License Renewal Application Review Time (Months) | Hours Billed to Applicant | No. of Request for Additional Information Letters Issued |
| Turkey Point SLR 3 & 4      | 12/04/2019                    | 22                                               | 30,391                    | 11                                                       |
| Peach Bottom SLR 2 & 3      | 03/05/2020                    | 19                                               | 21,352                    | 2                                                        |
| Surry SLR 1 & 2             | 05/04/2021                    | 30 <sup>1</sup>                                  | 24,969                    | 4                                                        |

Notes:

<sup>1</sup> NRC's safety and environmental reviews were completed within the established schedule. The extended duration was due to delays in the state issuing its coastal zone management approval, which was needed before the NRC could issue the renewed license.

- b. Please provide an explanation and justification for why subsequent license renewal reviews require more time and resources than the initial license renewal reviews.

**RESPONSE:**

The overall average review time for initial LR application reviews is 33 months. Based on license renewals since 2015, the average hours billed to the applicant for a review is 21,394. These numbers are close in line with what we are currently seeing for the first three subsequent license renewals (SLR) evaluated by the agency, which averaged a review of 24 months with 25,000 hours of time billed to the applicant. While some areas covered in the initial license renewal review may be streamlined during the SLR review, the staff has found that the new and unique variables introduced during the SLR review at a minimum balance out any efficiencies, and in some cases add additional review time. SLRs may require more hours than initial license renewals for a variety of reasons, including unique aging considerations related to the longer operating period (as identified by operating experience, updated codes and standards, and research results). SLR reviews may also require more complex reviews due to aging differences between 60 and 80 years. There are six additional aging management programs, three new technical areas, and nine technical areas that are more challenging to review for 60-80 years than they were for 40-60 years.

However, as the agency progresses through additional SLR reviews, lessons learned will increase efficiencies in future reviews. Notably, the staff has developed revised guidance for subsequent license renewal reviews and plans to issue it shortly for comment. If finalized, this guidance would provide optimized aging management activities to address operating experience and incorporate insights from plant implementation of initial LR and SLR activities. Further, the staff is also moving swiftly to address Commission direction to expand the scope of the LR generic environmental impact statement (GEIS) to cover one term of subsequent license renewal. The final rule is expected in FY2024 and will further aid in streamlining reviews.

- c. For initial license renewal reviews, the NRC established performance goals for timely review using a standard resource estimate and review time and reported its performance against these goals in the periodic review of licensing activities to Congress. Please describe what actions the Commission has taken or plans to take to identify the root cause of these lengthy reviews and restore the timeliness and predictability of subsequent license renewal reviews.

**RESPONSE:**

Unforeseen, plant-specific aging issues have significantly extended certain license renewal reviews. Examples can be found in the table included in the response to QFR 3.a above. These plant-specific aging issues required the staff to review and approve aging management activities prior to issuing the renewed licenses. In two cases, the plant-specific aging issues required license amendments prior to completion of the staff license renewal application review, significantly delaying completion of the reviews. These significant issues could not be identified until the staff started its review. However, over the last several years, the staff has been evaluating the license renewal process to identify areas that could be more efficient and to update

applicable guidance. The renewal review process should become more efficient and predictable as a result of these efforts.

Several improvements are already showing benefits. For example, the staff has expanded their use of requests for confirmation of information (RCIs). RCIs are a unique type of request for additional information that is used when the staff has identified specific non-docketed information that is necessary to support a regulatory finding during the review. Staff and industry feedback indicates that the use of RCIs has reduced staff resources needed for developing information requests and applicant resources in responding to those requests. Additionally, for SLR applications, the NRC staff and the Advisory Committee on Reactor Safeguards have streamlined meetings, now only holding a full committee meeting as opposed to meeting with a subcommittee and then the full committee. Also, the increased use of remote communications is reducing the time required for staff to travel to and from the reactor site. These remote communications have included the use of online portals to review documents and using teleconferencing and videoconferencing for audit discussions between the staff and applicants.

Finally, the upcoming revision to the staff review guidance on subsequent license renewal is anticipated to lead to a more efficient review process, as several issues that previously have been addressed on a plant-specific basis will be addressed by generic guidance that has been informed by stakeholder input.

4. The Inflation Reduction Act of 2022 included several provisions that incentivized power uprates of the current fleet of power reactors. Please provide your strategy or steps being taken to address the potential increase in power uprate applications in response to the IRA.

**RESPONSE:**

The NRC has a well-established process for reviewing and approving power uprate applications, as demonstrated in the 124 uprates that have been approved since 2000. The staff intends to employ its existing guidance for reviewing power uprate applications, NRR Office Instruction LIC-112: "Power Uprate Process, which is intended to strengthen the coordination of all aspects of power uprate activities and identify roles and responsibilities for power uprates.

Historically, the NRC has generally been able to complete the Extended Power Uprates (above 7%) within a two-year review while Stretch and Measurement Uncertainty Recapture Uprates can be completed within one year. The staff intends to continue leveraging its proven process for future reviews.

Although there are currently no applications pending with the agency, the NRC staff continues to engage with licensees in preparation for the potential increase in power uprate applications in response to the Inflation Reduction Act.



5. Separate from the rulemakings associated with Part 50, 52, and 53 that are intended to address long-standing concerns about the viability of NRC's licensing framework for new and advanced reactors, there are opportunities for the NRC to modify existing policies, procedures and practices that would greatly improve the efficacy and timeliness of NRC's regulatory reviews without compromising safety. Please describe any planned changes to existing licensing processes, guidance, practices and/or organization, under current regulations, that are intended to streamline licensing reviews and enable NRC to become the modern, risk-informed regulator it aspires to be.

**RESPONSE:**

The NRC continues to develop guidance, resolve policy issues, and enhance review processes to ensure that licensing reviews of new and advanced reactors under the current regulations are risk-informed, safety-focused, and streamlined, including the following efforts:

- Endorsement of the Nuclear Energy Institute (NEI) 18-04 technology-inclusive, risk-informed and performance-based Licensing Modernization Project (LMP) methodology for establishing the licensing basis of new non-light-water reactors (non-LWR) in Regulatory Guide (RG) 1.233, "Guidance for a Technology-Inclusive, Risk-Informed, and Performance-Based Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Non-Light-Water Reactors"
- Issuance of RG 1.247 (for trial use), "Acceptability of Probabilistic Risk Assessment Results for Non-Light-Water Reactor Risk-Informed Activities," endorsing the American Society of Mechanical Engineers /American Nuclear Society RA-S-1.4-2021, non-LWR probabilistic risk assessment (PRA) standard
- Developing the NRC's Advanced Reactor Content of Application Project (ARCAP) to focus the content of an application on the most safety and risk-significant equipment and in turn to focus the NRC's staff's review to facilitate a more effective and efficient review process. The ARCAP encompasses endorsement of the industry-led Technology-Inclusive Content of Application Project (NEI 21-07, Revision 1, "Technology Inclusive Guidance for Non-Light Water Reactors Safety Analysis Report Content for Applicants Utilizing NEI 18-04 Methodology"). Both ARCAP and TICAP are intended to support non-LWR applicants seeking to use the LMP methodology under the existing regulations, although both ARCAP and TICAP may be revised in the future for use by Part 53 applicants as well
- Implementing the NRC's Be riskSMART initiative as a systematic approach for risk-informed decision-making throughout the NRC
- Using PRA insights to focus staff review efforts on areas of greatest safety significance for licensing reviews, such as the Kairos Hermes construction permit application and the NuScale standard design approval application

- Development of guidance on population-related siting and development of alternative physical security and emergency preparedness requirements
- Enhancements to review processes to address lessons learned from prior reviews, including the use of regulatory audits for effective and efficient communication of information needs, the use of core review teams, implementation of a technical advisor, robust preapplication interactions, and early engagement with the ACRS. Enhancements such as these have allowed the NRC to streamline reviews and to establish and execute timely review schedules.

Senator CARPER. Thanks, Mr. Chairman.  
Now, Commissioner Baran, you are recognized.

**STATEMENT OF HON. JEFF BARAN, COMMISSIONER, NUCLEAR  
REGULATORY COMMISSION**

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

It is an exciting time to be doing our important work. With more potential applications for advanced reactors, small modular reactors, subsequent license renewal, new fuel designs, power uprates, and risk-informed programs expected, NRC's overall workload is increasing. Our budget request is structured to allow us to take on this new work.

NRC has a key role to play in tackling climate change. It is our job to ensure the safety and security of nuclear power in the U.S. energy mix. When utilities and vendors tell us that we should expect numerous new designs and reactor applications, we need to be ready with sufficient resources and the right expertise to review them, and an efficient and effective licensing process that can handle whatever volume comes our way. That is an important NRC responsibility.

So NRC is busy preparing the regulatory framework for advanced reactors and small modular reactors. At the same time, the NRC staff is reviewing applications that have already been submitted.

For the operation of existing nuclear power plants now and into the future, NRC's job is to provide strong safety and security standards and rigorous independent oversight. In this period of change, 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.

As NRC does its work, the agency is focused on its work force. We are facing a significant hiring challenge. We have a large number of employees who are eligible for retirement. With higher employee attrition, the agency's efforts on external hiring are crucial. Significant external hiring is necessary for the agency to do the work we have in front of us now and to be ready for the work coming our way.

Thank you, and I look forward to your questions.  
[The prepared statement of Mr. Baran follows:]

**Statement of Commissioner Jeff Baran  
Senate Committee on Environment and Public Works  
April 19, 2023**

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

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NRC has a key role to play in tackling climate change. It's our job to ensure the safety and security of nuclear power in the U.S. energy mix. When utilities and vendors tell us that we should expect numerous new designs and reactor applications, we need to be ready with sufficient resources and the right expertise to review them, and an efficient and effective licensing process that can handle whatever volume comes our way. That's an important NRC responsibility. So NRC is busy preparing the regulatory framework for advanced reactors and small modular reactors. At the same time, the NRC staff is reviewing applications that have already been submitted.

For the operation of existing nuclear power plants now and into the future, NRC's job is to provide strong safety and security standards and rigorous independent oversight. In this period of change, 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.

As NRC does its work, the agency is focused on its workforce. We're facing a significant hiring challenge. We have a large number of employees who are eligible for retirement. With higher employee attrition, the agency's efforts on external hiring are crucial. Significant external hiring is necessary for the agency to do the work we have in front of us now and to be ready for the work coming our way.

Thank you, and I look forward to your questions.

**Senate Committee on Environment and Public Works**  
**Hearing Entitled, “The Nuclear Regulatory Commission’s Proposed Fiscal Year 2024**  
**Budget”**  
**April 19, 2023**  
**Questions for the Record for Commissioner Baran**

**Chairman Carper:**

1. The Nuclear Energy Innovation and Modernization Act (NEIMA) made changes to the Nuclear Regulatory Commission’s (NRC) budget system and requires NRC to develop a regulatory framework for the next generation of nuclear technologies. It is important that this developed framework is risk-informed, performance-based, and technology neutral. This framework also needs to be both workable and useable to help us deploy more safe and reliable nuclear energy.
  - a. In your view, how is the new regulatory framework development process going?
  - b. What is going well? Are there any issues of concern?

**Response:**

My colleagues and I are reviewing and digesting the draft proposed rule prepared by the NRC staff. Stakeholders and the staff have focused on several key issues, including the appropriate performance standard, the role of ALARA (as low as reasonably achievable) in design and operations, the facility safety program, and the approach of having two separate frameworks. I have not reached any firm conclusions on these issues yet. I want to hear what my colleagues and stakeholders think. In fact, we recently held a Commission meeting on Part 53 with several stakeholder panelists. I am focused on getting the substance of the rule right because we need an efficient and effective framework for advanced reactors.

2. Is there anything else you would like to provide the Committee that was not included in your testimony or discussed during the hearing?

**Response:**

This is an exciting time to be at NRC. I think we all recognize that this is a critical moment for the energy sector and for the country. There is important work to be done and a positive outlook for nuclear power. I am eager to contribute on several key initiatives, including the framework for advanced reactors and small modular reactors, and finalizing efforts to get subsequent license renewals on solid legal footing.

**Senator Whitehouse:**

1. Given legislation such as the Nuclear Energy Innovation Capabilities Act (NEICA) and Nuclear Innovation and Modernization Act (NEMIA), and now the recently introduced Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy (ADVANCE) Act of 2023, are you satisfied with the authorities already given in these bills with respect to speeding up the pace of approval for new fourth generation technologies?
  - a. Is there something more that can be amended or added to the ADVANCE Act to meet this goal?

**Response:**

As Chair Hanson indicated in his response to these questions, NRC has not identified any additional authorities necessary at this time to streamline its licensing process for advanced nuclear technologies.

2. What more can Congress do, besides the addition of a spent fuel utilization prize in the ADVANCE Act, so that NRC can be supportive of reused spent fuel in reactors, and remove any disincentives in using it in place of fresh fuel?

**Response:**

As Chair Hanson indicated in his response to this question, NRC's current regulatory framework can support review of near-term applications for reprocessing facilities.

**Senator Kelly:**

1. The Navajo Nation has been suffering from the effects of uranium mining on tribal land for decades. EPA has secured billions of dollars in settlements to remediate these sites and is allocating superfund funding toward these projects – but with more than 500 abandoned sites just on the Navajo Nation – these resources will not be enough unless we can significantly bring down the per-site cost of cleanup. My understanding is that EPA is currently exploring using a technology that could significantly bring down cleanup costs by mechanically separating hazardous materials from inert rock, and removing just the hazardous materials – at a fraction of the cost. This technology has been demonstrated to great success by EPA on the Navajo Nation. But I understand that NRC staff is recommending that the Commission regulate this technology the same as a uranium mill – which would mean it would take years for this technology to be approved. Do you believe that this remediation technology is the same as uranium milling technology?
  - a. Do you agree with the staff recommendation to regulate remediation technology as a mill?

**Response:**

In my view, we need to regulate remediation technologies in a way that makes sense. As a matter of policy, we want to incentivize the cleaning up of mine waste. We obviously need to comply with the Atomic Energy Act. But I am not convinced that the statute requires NRC to apply a regulatory framework to remediation technologies that is not suited to those technologies. I think the Commission has the latitude to develop a more appropriate policy. Toward that end, we have directed the NRC staff to think creatively and provide us with some legally viable options.

2. I understand that the commission recently agreed to move forward with regulating fusion energy systems under the “byproduct materials” framework. This is an important step – because this framework allows for a technology-neutral regulatory approach which does not treat fusion and fission systems the same. Because they’re not. This will help researchers working on fusion systems have certainty about the regulatory future they face. Can you confirm the Commission views this as the long-term approach that the commission will take to fusion energy systems?
  - a. Do you believe the Commission has sufficient statutory authority to develop long-term fusion regulations?
  - b. Would it be helpful if Congress provided additional statutory authority or clarity related to fusion?

**Response:**

As Chair Hanson indicated in his response to these questions, NRC has sufficient statutory authority to develop long-term fusion regulations. In my view, the Commission’s recent decision to regulate near-term fusion energy systems under the Part 30 byproduct material framework should provide regulatory certainty for the foreseeable future.

3. All nuclear facilities require an Emergency Planning Zone, also called an EPZ, where special considerations and management practices are pre-planned and exercised in case of an emergency. EPZs have traditionally been set at a 50-mile radius around a reactor site; however, with new advanced reactors, some at much smaller sizes than our current gigawatt-sized fleet, it's an open question if they should be required to have the same 50-mile EPZ. NRC staff drafted a rulemaking on this and sent it to the Commission last year, but the Commission has yet to make a decision on it. Can you tell me the current status of that rulemaking and why it's taking the Commission so long to address this?

*Response:*

The Commission is actively deliberating on this matter. I anticipate that the Commission will issue its decision on the draft final rule very soon.



Senator CARPER. Thank you, Commissioner Baran.  
Commissioner Wright, please. Two minutes, please.

**STATEMENT OF HON. DAVID A. WRIGHT, COMMISSIONER,  
NUCLEAR REGULATORY COMMISSION**

Mr. WRIGHT. Good morning, thank you so much, Chairman Carper and Ranking Member Capito, Senator Stabenow, and the other honorable members of the committee. Thank you for the opportunity to appear before you today.

This is an exciting time for the Commission. The policy decisions that we have in front of us will play a pivotal role in shaping the energy future of this Country, as well as beyond our borders. I am honored to be a part of that process. By working together, the five of us can help meet the moment in time to enable the safe use of nuclear technologies while we continue to meet our mission of reasonable assurance of adequate protection of public health and safety and to promote the common defense and security and to protect the environment.

On behalf of me and my team, I want to thank my colleagues and their staffs for their willingness to work together on important issues before us, such as advanced reactors, accident-tolerant fuel, fusion, cleanup of legacy uranium mines, and spent fuel storage, just to name a few.

I am also grateful to the NRC staff, who are truly some of the smartest and most talented people that I have ever been around. They do an outstanding job of monitoring the day-to-day safety of our nuclear facilities, and I want to take this moment to thank them publicly. Going forward, I look forward to the continued excellent support and insights that they provide us.

And with that, I look forward to your questions.  
[The prepared statement of Mr. Wright follows:]

**Statement of Commissioner David A. Wright  
Senate Committee on Environment and Public Works  
April 19, 2023**

Chairman Carper, ranking-member Capito, and honorable members of the committee, thank you for the opportunity to appear before you today.

This is an exciting time for the Commission. The policy decisions that we have in front of us will play a pivotal role in shaping the energy future of this country, as well as beyond our borders, and I'm honored to be a part of that process. By working together, the five of us can help meet this moment in time to enable the safe use of nuclear technologies while we continue to meet our mission of reasonable assurance of adequate protection of public health and safety and to promote the common defense and security and to protect the environment.

On behalf of me and my team, I want to thank my colleagues and their staffs for their willingness to work together on important issues before us, such as advanced reactors, accident-tolerant fuel, fusion, cleanup of legacy uranium mines, and spent fuel storage, just to name a few. I'm also grateful for the NRC staff, who are truly some of the smartest and most talented people that I've ever been around. They do an outstanding job of monitoring the day-to-day safety of our nuclear facilities, and I want to take this moment to thank them on the record. Going forward, I look forward to the continued excellent support and insights that they provide us.

And with that, I look forward to your questions.

**Senate Committee on Environment and Public Works**  
**Hearing Entitled, “The Nuclear Regulatory Commission’s Proposed Fiscal Year 2024**  
**Budget”**  
**April 19, 2023**

**Questions for the Record for Commissioner Wright**

**Chairman Carper:**

1. The Nuclear Energy Innovation and Modernization Act (NEIMA) made changes to the Nuclear Regulatory Commission’s (NRC) budget system and requires NRC to develop a regulatory framework for the next generation of nuclear technologies. It is important that this developed framework is risk-informed, performance-based, and technology-neutral. This framework also needs to be both workable and usable to help us deploy more safe and reliable nuclear energy.

- a. In your view, how is the new regulatory framework development process going?

**RESPONSE:**

The draft rule is now in front of the Commission for review and consideration. I agree with you that the rule needs to be usable and useful, so my staff and I are conducting a thorough review of the staff’s draft rule to see what improvements, whether minor or significant, can be made. My staff is going to talk to the people who are potentially going to be using this rule. This is an opportunity to be more efficient in licensing novel designs in order to meet energy demands, and I look forward to working with my colleagues on this rule.

What we do matters, not just to the NRC and the United States but also to countries of like mind around the world. In fact, it’s not lost on me that this is a matter of national security, which means that we can’t be a barrier to progress. It’s not enough to just get to the right outcome; we have to get to the right outcome in a timely manner.

- b. What is going well? Are there any issues of concern?

**RESPONSE:**

Since the proposed Part 53 was provided to us, the Commission offices have been having regular dialogue. In terms of issue of concern, a couple come to mind. First, external stakeholders do not feel they have been listened to, and they don’t feel that their concerns have been taken seriously. Since they are the end-users of this rule, I will be talking to them and listening. The second area of concern is that different perspectives from within the staff may not have been reflected in the rulemaking package that we have. I recognize that not all dissenting views can be accommodated, but I would like to at least have the opportunity to hear the different perspectives that are out there so that I can consider them and make the most informed decision possible. My staff and I are interested in this subject, and we’ll be speaking to those NRC staff that may have alternative views on the rule.

2. Is there anything else you would like to provide the Committee that was not included in your testimony or discussed during the hearing?

**RESPONSE:**

There are two points that I would like to bring up. First, there was a discussion during the hearing about the NRC's declining Federal Employee Viewpoint Survey (FEVS) scores. I agree that our FEVS scores need to improve. There is no denying that, because the scores dropped. That said, we didn't get a chance to discuss some of the positive things that we've learned from the most recent FEVS. For example, our first line supervisors scored quite well, earning a score of 87.1 in the *Effective Leadership: Supervisors* category. That placed us in 8<sup>th</sup> out of the 24 agencies in our group. During a Commission meeting last month, I asked one of our senior leaders what we as an agency can learn from what our first line supervisors are doing right. He shared several initiatives that are underway to capture some of the best practices being demonstrated by our first line supervisors. Obviously, we still have a way to go in improving our overall FEVS scores, but I did want to highlight one of the positive areas that I think our agency can learn from.

Second, during the hearing, we discussed the NRC's need to hire additional people. I agree that this is important, and the Executive Director for Operations (EDO)'s target of hiring 400 people in 2023 makes sense to me. I do not think that we should hire 400 people just for the sake of hiring. It is important we hire the right people and train them how to be effective regulators and that we give them meaningful, mission-related work. Also, we must not be complacent; we cannot fall into the trap of thinking that we can hire our way to efficiency. Simply hiring more people is not the answer; we need to hire the *right people*, and we need to coach and mentor our new hires so that they can help meet the moment in front of us.

**Senator Whitehouse:**

1. Given legislation such as the Nuclear Energy Innovation Capabilities Act (NEICA) and Nuclear Innovation and Modernization Act (NEMIA), and now the recently introduced Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy (ADVANCE) Act of 2023, are you satisfied with the authorities already given in these bills with respect to speeding up the pace of approval for new fourth generation technologies?

**RESPONSE:**

I appreciate the active role Congress has played in providing the NRC with the tools that we need in order to meet the moment when it comes to advanced reactors. I believe that the tools contained in these bills are sufficient for reviewing and approving advanced reactors. When it comes to hiring, I do think that we can do a better job of using the tools that we already have in our toolbox. My understanding is that we have only sparingly used our student loan repayment program, step increases for outstanding work, temporary promotions, retention bonuses, and Direct Hire Authority. We have the opportunity to more actively use these tools to recruit and retain top talent, particularly in hard-to-fill specialty areas such as fuel design, thermal-hydraulics, and non-LWR reactor physics.

I believe that the ADVANCE Act has some positive features when it comes to providing the NRC with the ability to attract new talent; however, I do think we need to be careful here. As I mentioned in my response to the previous question, we cannot hire our way to efficiency. Therefore, it will be important to select the right people with the right skill sets. In my opinion, this means selecting folks with a range of experience from entry level to senior employees. I also think that it is important that we go at the right speed. It takes time to train and acclimate new employees and we need to be thoughtful here as we are already planning to hire 400 new employees in 2023 alone.

- a. Is there something more that can be amended or added to the ADVANCE Act to meet this goal?

**RESPONSE:**

There are a number of potential changes to the ADVANCE ACT that could help speed up processes, particularly as the industry and applicants move from a design and research focus to a large-scale deployment focus. For example, the ADVANCE Act could improve efficiency by eliminating the requirement that the Advisory Committee on Reactor Safeguards review every construction permit and operating license application. Removing this requirement would allow the committee to focus on more novel, safety-significant issues.

Additionally, as I explained in my vote on transformation of the NRC's environmental review process, I think that more of the agency's NEPA obligations can be met through the preparation of an environmental assessment instead of an environmental impact statement, particularly for some advanced reactor applications or reactor designs that have a well-established impact. Explicit direction to pursue this in the ADVANCE Act could help expedite this improvement.

2. What more can Congress do, besides the addition of a spent fuel utilization prize in the ADVANCE Act, so that NRC can be supportive of reused spent fuel in reactors, and remove any disincentives in using it in place of fresh fuel?

**RESPONSE:**

I agree with you that we should not be disincentivizing recycled spent fuel. Spent fuel is not waste; it is a resource. The NRC stands ready to support any applications for spent fuel reprocessing (recycling) to ensure these potential facilities are constructed and operated safely. My understanding from staff is that our current regulatory framework is adequate to support a fuel reprocessing facility application, and they remain aware of and engaged in work and issues surrounding spent fuel recycling. However, as far as any economic incentives, as you know, DOE is the agency to support those efforts. Although the NRC cannot be a promoter, we should not be an obstacle or barrier either.

**Senator Kelly:**

1. The Navajo Nation has been suffering from the effects of uranium mining on tribal land for decades. EPA has secured billions of dollars in settlements to remediate these sites and is allocating superfund funding toward these projects – but with more than 500 abandoned sites just on the Navajo Nation – these resources will not be enough unless we can significantly bring down the per-site cost of cleanup. My understanding is that EPA is currently exploring using a technology that could significantly bring down cleanup costs by mechanically separating hazardous materials from inert rock and removing just the hazardous materials – at a fraction of the cost. This technology has been demonstrated to great success by EPA on the Navajo Nation. But I understand that NRC staff is recommending that the Commission regulate this technology the same as a uranium mill – which would mean it would take years for this technology to be approved. Do you believe that this remediation technology is the same as uranium milling technology?

**RESPONSE:**

No, I do not. Under the current definitions provided in the Atomic Energy Act, I believe there is flexibility for the NRC to differentiate between certain remediation technologies and milling, particularly when remediation involves purely mechanical separation. Removing or eliminating hazardous materials from legacy sites is an important public health and safety goal, and these new technologies should prompt the agency to take a fresh look at the relevant statutory and regulatory requirements. Absent a clear prohibition, the NRC should use the tools at our disposal to enable the safe use of these technologies.

To that end, the Commission directed staff to evaluate licensing of new remediation technologies, including looking at legal constraints. The NRC staff plans to submit this evaluation to the Commission this month. I remain open to the results, and I will be carefully reviewing that evaluation to determine what actions we need to take going forward. But I believe the NRC has an opportunity here to exercise our discretion in this area.

- a. Do you agree with the staff recommendation to regulate remediation technology as a mill?

**RESPONSE:**

At this time, I do not think that we are required to regulate all remediation technologies as milling. Our purpose is to enable the safe use of nuclear technologies — not be a barrier to innovation. The NRC may have missed an opportunity here to demonstrate that we are not a barrier to innovation. As mentioned above, I am looking forward to receiving the staff's evaluation of this issue so we can determine the best path forward. If we determine there is an unambiguous requirement that these remediation technologies must be treated as milling, then Congress should consider taking further action to clarify or improve the law.

2. I understand that the commission recently agreed to move forward with regulating fusion energy systems under the “byproduct materials” framework. This is an important step –

because this framework allows for a technology-neutral regulatory approach which does not treat fusion and fission systems the same. Because they're not. This will help researchers working on fusion systems have certainty about the regulatory future they face. Can you confirm the Commission views this as the long-term approach that the commission will take to fusion energy systems?

**RESPONSE:**

I agree. Fusion and fission are very different technologies, and we should not treat fusion systems or devices like we treat fission reactors. As noted in my vote, I believe that we know enough about fusion to determine that fusion energy devices should be treated under the byproduct materials framework. The staff identified a number of important characteristics of fusion energy systems, such as the lack of fissionable material and the lack of a need to maintain active post-shutdown cooling of structures. Fusion is a rapidly developing field, so the NRC will continue to monitor the landscape of fusion energy systems going forward. I view this as a long-term approach for the future of fusion energy systems.

- a. Do you believe the Commission has sufficient statutory authority to develop long-term fusion regulations?

**RESPONSE:**

Yes, the Commission currently has sufficient statutory authority to develop long-term fusion regulations.

- b. Would it be helpful if Congress provided additional statutory authority or clarity related to fusion?

**RESPONSE:**

At this time, I do not believe that the Commission needs any additional statutory authority or clarity related to fusion.

3. All nuclear facilities require an Emergency Planning Zone, also called an EPZ, where special considerations and management practices are pre-planned and exercised in case of an emergency. EPZs have traditionally been set at a 50-mile radius around a reactor site; however, with new advanced reactors, some at much smaller sizes than our current gigawatt-sized fleet, it's an open question if they should be required to have the same 50-mile EPZ. NRC staff drafted a rulemaking on this and sent it to the Commission last year, but the Commission has yet to make a decision on it. Can you tell me the current status of that rulemaking and why it's taking the Commission so long to address this?

**RESPONSE:**

The emergency preparedness rulemaking for small modular reactors (SMRs) and other new technologies is currently under review by the Commission. I believe that the staff has done a good job researching this issue and that they have provided us with a risk-informed, graded



approach to emergency preparedness in this draft final rule, which is commensurate with the relative radiological risk, source term, and potential hazards of SMRs.

I have already cast my vote, but in the interest of collegiality, I respect and understand that not all of my colleagues have completed their review. I'm happy to give them time to carefully consider all options.

**Ranking Member Capito:**

1. The Nuclear Innovation Alliance (NIA) recently issued a report titled “Improving the Effectiveness and Efficiency of the Advisory Committee on Reactor Safeguards” that included a series of recommendations to improve and focus the work of NRC’s Advisory Committee on Reactor Safeguards (ACRS) on novel and safety-significant issues. A number of those recommendations can be implemented by the Commission, the NRC staff, and by the ACRS itself.
  - a. Are you familiar with the NIA report? If so, what are your views on the report’s recommendations and if not, will you review the report?

**RESPONSE:**

I am familiar with the report by the Nuclear Innovation Alliance, and I agree with many of the recommendations from the report. Specifically, the NRC should work to improve predictability by focusing ACRS attention on new and novel issues and more clearly defining and outlining the role of ACRS reports in Commission decision-making.

Specifically, I believe Congress should explore amending Section 182b of the Atomic Energy Act so that the ACRS does not need to review every construction permit and operating license application submitted to the Commission. While I believe this requirement made sense historically, this additional step may not be needed for all applications, especially when the NRC has previously licensed reactors of the same designs.

I do continue to support the mission and value the ACRS brings to the NRC. Having a group of outside experts can help avoid groupthink within the NRC and can challenge technical assumptions made by the NRC staff, especially in new and novel situations. That said, the ACRS exists to advise the Commission on technical matters, but oftentimes the NRC staff has had a similar depth of expertise and experience as the ACRS. It is important that the Commission emphasize, and the NRC staff recognize, that ACRS approval is not required for actions to move forward, and that the agency should not spend an unreasonable amount of time trying to satisfy the needs of the ACRS.

- b. Do you believe that there are some commonsense modifications to ACRS processes and procedures, as well as how the NRC staff engages with the ACRS, to make better use of the ACRS’s expertise and limited time?

**RESPONSE:**

Yes, there are many smaller common sense modifications that we can make internally, in addition to the broader changes mentioned above. Even before learning of NIA’s work on this report, I offered and voted for changes to update the ACRS charter to help improve efficiency by giving agency staff more authority to ensure that meetings of the ACRS are consistent with the published agenda. While most ACRS members have strong academic backgrounds, it is important to recognize that ACRS review should not be treated as a thesis defense. Giving more authority to the NRC staff to help focus meetings is a modest reform that could reduce the adversarial nature of some ACRS meetings.

Other reforms, such as plainly defining the scope of meetings, establishing clear deadlines and milestones, increasing training, and improving the dialogue between the Commission and the ACRS are more targeted, simple reforms that taken together, can significantly improve the overall process. I plan on working with my colleagues to help encourage and enable these improvements.

2. At the end of the last Fiscal Year, the NRC had carryover funding – money Congress previously provided but that went unspent –exceeding \$90 million. This is about ten percent of the NRC’s total budget authority. The NRC’s Fiscal Year 2024 proposed budget would apply about \$27 million of this funding to its future budget. However, as of March 1, the NRC still had more than \$66 million in available carryover. The NRC’s FY24 budget proposal requests an increase of \$52 million.
  - a. What specific actions do you support to reduce this total level of carryover in future years?

**RESPONSE:**

In general, I believe the staff can do a better job in their budget forecasting. Doing this work upfront will go a long way in reducing our need to make corrections later or carry over funds for the next year. As the Chair mentions, the Commission will continue to look at how budget execution data can better inform budget formulation in the future. I agree with him that the main reasons for carryover are often changes in licensing schedules and underutilization of full-time equivalents (FTEs). As Commissioner Caputo notes, it’s important that the agency improve its understanding of predicted licensing actions for the coming year, and I look forward to the results of the evaluation of the Strategic Workforce Planning process. In addition, I agree with Commissioner Caputo that the NRC needs to continue to find ways to streamline agency operations and innovate agency processes. Also, we recently welcomed Howard Osborne to the NRC as our new Chief Financial Officer. Mr. Osborne has experience implementing data strategies to enhance decision-making, which I think will be a great asset to us as we move forward. I look forward to working with Mr. Osborne.

3. During the NRC’s recent Regulatory Information Conference, each NRC Commissioner spoke about the enormous challenges and opportunities facing the Commission in the coming years as numerous new reactor designs are submitted to the Commission for review and approval. How do you consider your role as a Commissioner in the context of providing leadership to NRC staff and senior management during this pivotal period?

**RESPONSE:**

I believe that we have some outstanding people in our senior management team, and I trust their ability to manage the day-to-day operations of the NRC. I feel that the best way that I can help them do their jobs is to provide clear and consistent direction on the all-important question of “how safe is safe enough?” It is my job to make that call on any number of matters ranging from cybersecurity to spent fuel to advanced reactors. In doing this, I take a risk-informed approach, and I make sure that we are following the core values the agency was built on — to enable the safe use of nuclear power, not disable it. I am also a big believer in leading by example and

helping NRC be a great place to work. I do this by connecting with staff from across the agency and listening to them about the work they do, as well as what can be done better. It is important that we continue to build a workplace that attracts the best and the brightest so we can recruit and retain the staff we need to help license these new reactor designs and meet the current challenges.

4. Part of the NRC's mission is to enable nuclear energy to contribute to the common defense of the nation. Currently, two of the major builders of nuclear reactors are China and Russia. The United States needs to regain its leadership in this field, for national security as well as economic purposes.
  - a. How do you view the NRC's ability to fulfill its mission and meet the policy Congress established in the Atomic Energy Act in the context of geostrategic civil nuclear competition?

**RESPONSE:**

During my plenary speech at the NRC's March 2023 Regulatory Information Conference, I pointed out that our job is not to disable the use of nuclear power, but to enable its safe use. I meant that. If the NRC is an impediment to licensing safe advanced reactor designs in our country, those designs could become less likely to be exported to our partners overseas. If that happens, countries like Russia and China, that do not share our values, will have more opportunities to export their reactors and other nuclear-related services. I do not believe that outcome is good for the United States or its allies.

- b. How can the NRC modernize its regulations to allow for quicker and more efficient reviews of an increasingly large number of applications as a tool to demonstrate America's ability to lead internationally?

**RESPONSE:**

The NRC must continue its evolution into a more modern, risk-informed regulator. I see two major steps in front of us. First, we need to continue our efforts to incorporate lessons learned into 10 CFR Part 50 and Part 52. These two regulatory frameworks have been used to license the current fleet, and as we discussed during a recent Commission meeting, there are improvements that can be made to incorporate lessons learned from the past 15 years of new reactor licensing experience. I support the NRC staff's efforts in this area and believe this is something that we have to get right because the first wave of advanced reactor vendors has told us that they intend to apply for NRC approval under one of these two frameworks.

For the longer term, we need a risk-informed, technology-inclusive framework that will allow us to license the myriad of advanced designs that are being discussed without the need for large amounts of exemptions. The staff sent the draft proposed version of this rule (known as Part 53) to the Commission in February.

As a Commissioner, it is very important to me that the rule provides reasonable assurance of adequate protection and is understandable, usable, and useful to the stakeholders that will have to comply with it (i.e., reactor vendors and licensees). This is why, I suggested — and my

colleagues agreed — to hold a Commission meeting on Part 53 on May 16, 2023, to discuss this topic. During that meeting, we heard of positive elements in the draft proposed rule, but we also heard some fairly serious concerns that I do not believe have been fully addressed at this time. I look forward to working with the other Commissioners on editing and improving the draft proposed rule so that it provides reasonable assurance of adequate protection, while not hindering the safe use of nuclear technology.

Senator CARPER. Thanks, Commissioner Wright.  
Commissioner Caputo.

**STATEMENT OF HON. ANNIE CAPUTO, COMMISSIONER,  
NUCLEAR REGULATORY COMMISSION**

Ms. CAPUTO. Good morning. Thank you, Chairman Carper, Ranking Member Capito, and members of the committee for the opportunity to come before you today.

This Committee has demonstrated strong bipartisan support for advanced reactors, and a sense of urgency driven by both climate change and energy security concerns. NRC's role as gatekeeper to the future of advanced reactors is a role that we must get right.

While the primacy of our mission to protect public safety and security and the environment is indisputable, we must find ways to innovate how we will regulate advanced reactors to allow safe nuclear energy deployment on a scale warranted by our national and global clean energy needs.

Congress directed the NRC to develop a new regulatory framework for advanced reactors. The proposed rule under consideration by the commission is a complex, 1200-page undertaking. This will require considerable work on the part of my colleagues and I to meet Congress's intent with a sense of urgency. I pledge to work collegially with my fellow commissioners to shape a framework that is simpler, reflecting the inherent safety found in advanced designs, and enabling predictable, efficient reviews.

Our Principles of Good Regulation State that "The American taxpayer, the rate-paying consumer, and licensees are all entitled to the best possible management and administration of our regulatory activities." At the end of Fiscal Year 2022, as Senator Capito mentioned, the agency had a carryover balance of \$92 million. This means the agency collected roughly \$58 million from licensees and \$34 million from taxpayers that we did not need to fulfill our mission.

I share the Committee's concern that the agency be adequately resourced and staffed to meet our mission. However, my longstanding view remains that the agency needs to improve its financial stewardship of its resources and the fairness of the fees billed to licensees and applicants. I look forward to working with Chairman Hanson and my fellow commissioners to improve that issue.

Thank you.

[The prepared statement of Ms. Caputo follows:]

**U.S. SENATE COMMITTEE ON THE ENVIRONMENT AND PUBLIC WORKS**

Hearing: Proposed Fiscal Year 2024 Budget

Opening Statement

Commissioner Annie Caputo

April 19, 2023

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**Senate Committee on Environment and Public Works**  
**Hearing Entitled, “The Nuclear Regulatory Commission’s Proposed Fiscal Year 2024 Budget”**  
**April 19, 2023**  
**Questions for the Record for Commissioner Caputo**

**Chairman Carper:**

1. The Nuclear Energy Innovation and Modernization Act (NEIMA) made changes to the Nuclear Regulatory Commission’s (NRC) budget system and requires NRC to develop a regulatory framework for the next generation of nuclear technologies. It is important that this developed framework is risk-informed, performance-based, and technology neutral. This framework also needs to be both workable and useable to help us deploy more safe and reliable nuclear energy.

- a. In your view, how is the new regulatory framework development process going?

**RESPONSE:**

On March 1, 2023, the staff submitted SECY-23-0021, “Proposed Rule: Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors (RIN3150-AK31),” that recommends amending the regulations in Title 10 of the Code of Federal Regulations (10 CFR) to add Part 53, “Risk-Informed, Technology-Inclusive Regulatory Framework for Commercial Nuclear Plants” (Part 53). The staff spent approximately four years developing the draft proposed rule. During this period, there was extensive stakeholder engagement that included the release of several iterations of draft preliminary proposed rule text for the purpose of informing the draft proposed rule that would be sent to the Commission. However, based on my discussions with our stakeholders, it is their belief – and I agree – that instead of addressing their major concerns, the draft proposed regulation: (1) increases regulatory burden without a commensurate increase in safety, (2) unnecessarily excludes licensing approaches and technologies, (3) includes the use of rule language that reduces regulatory clarity and flexibility, and (4) lacks a clear vision and regulatory philosophy. Subjecting advanced reactors to more stringent regulations than those for the current fleet of reactors is contrary to direction given by the Commission in 2020 at the outset of the rulemaking initiative. These concerns and other issues need to be addressed to ensure that Part 53 is a useful rule that meets the requirements of the Nuclear Energy Innovation and Modernization Act (NEIMA).

In a joint November 2021 letter, the Nuclear Energy Institute and the Nuclear Industry Council provided substantial comments on the NRC’s preliminary rule language. In a joint August 2022 letter, they reiterated what they view as the six most significant concerns with the draft proposed rule. All six of these concerns, they stated, would need to be addressed “to create a viable Part 53.” Nonetheless, the Commission has before it a draft proposed rule that does not address all of these concerns. As I review the draft proposed rule, I am focusing on the issues that have been raised by these and other stakeholders to ensure that the rule ultimately issued by the Commission meets the requirements of NEIMA, serves as a useful and predictable licensing



pathway that will provide for the safe development and operation of advanced reactors, and make the best use of NRC and applicants' resources.

b. What is going well? Are there any issues of concern?

**RESPONSE:**

What is going well is that my colleagues and I are working closely and expeditiously to evaluate the staff's draft proposed Part 53 rule and we have a team of staff professionals at NRC capable of addressing our concerns. To the staff's credit, parts of the proposed Part 53 rule can be beneficial to the creation of a modern, risk-informed, and performance-based framework. The draft proposal provides technology-inclusive requirements, favorable organization and structure, and an increase in the use of performance-based approaches.

My primary areas of concern relate to the usability and usefulness of this rule. We must continue to follow the Commission's longstanding policy of ensuring that we regulate advanced reactors to the same standards as the existing fleet. If we establish an alternate framework that would have stricter standards, we will not have been successful in this effort. As a result, potential applicants may choose to instead continue to license under the existing regulations using numerous exemptions.

My concerns with the current draft of the proposed rule can be bifurcated into structural and technical issues. From a structural standpoint, the proposed rule has a deterministic framework as well as the risk-informed framework responsive to NEIMA. While the two frameworks have considerable similarities and shared wording, the subtle and not so subtle differences between them has the potential to generate confusion and complications first in the rulemaking process and ultimately, if adopted, in the use of Part 53. I believe we should avoid inserting the complications and potential confusion and focus on achieving the risk-informed technology-inclusive rule that complies with NEIMA.

There are also technical issues that, if not addressed, would be detrimental to the proposed rule's usability. The draft proposed rule would (1) add design requirements for advanced reactors that are satisfied by operational programs for current reactors; (2) impose additional operational programs; and (3) codify as safety criteria certain safety goals from Commission policy. Thus, a prospective applicant may favor licensing under existing regulatory pathways with necessary exemptions. This, in turn, diminishes the potential that the rule would provide a more efficient and effective licensing pathway for scalable deployment of advanced reactors.

There are clearly areas that the Commission needs to address as part of its review of the staff's draft proposed rule in order to ensure it follows the high-level guidance previously provided by the Commission. The direction provided to the staff will ultimately determine the form of the proposed rule that is issued for public comment. In light of the need for an efficient and effective rule that follows Congressional direction in NEIMA, I believe this direction should be done in a precise manner (e.g., line-by-line edits) as opposed to sending the draft proposed rule back to the staff with high-level guidance it must decipher to formulate responsive changes. Line-by-line edits and precise direction will ensure that Commission direction is accurately reflected in the

proposed rule and that the deadlines established by Congress in NEIMA for the timely issuance of a new regulatory framework will be satisfied.

2. Is there anything else you would like to provide the Committee that was not included in your testimony or discussed during the hearing?

**RESPONSE:**

If I were to add anything to this important discussion not already mentioned in my testimony or discussed during the hearing, I would add that as a nuclear engineer, I have never been more encouraged about the prospects for nuclear power than I am today. I am not alone in this sentiment. Across the community of nuclear professionals – the nuclear power industry, nuclear medicine, national research laboratories, university nuclear engineering departments, and various government agencies, not to mention international colleagues – it is understood that now is the time for action and to have a coherent strategy for navigating a growing nuclear future.

Also encouraging is how others outside the nuclear community – environmental groups, national security organizations, and government offices at every level – have begun to recognize the necessary role nuclear must play if global net zero carbon emission goals are to be met. Not only are these new proponents of nuclear energy encouraging the advancement of nuclear, they are also driving discussions and forging the path forward.

Senators have repeatedly expressed the need for the U.S. nuclear industry to compete with China and Russia in exporting civil nuclear technology. This indicates a growing recognition that federal government policies should enable the U.S. to be the global leader in nuclear technology development, exports, and safety and security standards.

If the U.S. is to regain its role as a global leader in nuclear energy, the NRC must continuously improve and become more innovative; more data-driven and risk informed in its decision-making; and improve our financial stewardship. We must cultivate a workforce built upon our nation's best talent and brightest minds dedicated to high performance in executing our mission to protect public safety and security, and the environment.

I will offer a few thoughts on each of these items. First, innovation. Innovation in nuclear technology is well underway in both fission and fusion, and using our established regulations, procedures, practices, and precedents, NRC will be ready to handle new applications. But simply 'being ready' is not the same as being innovative. Congress directed us to develop a technology-neutral, risk-informed, performance-based framework for advanced reactors. This is the Part 53 draft proposed rule now before the Commission. Significant work remains to develop the risk-informed framework Congress envisioned, one that reflects the inherent safety of advanced designs and is efficient, enabling timely decision-making to enable safe nuclear energy deployment on a scale warranted by our national and global clean energy needs. I will work with my colleagues to help shape a simpler, risk-informed, innovative rule that will be the foundation for predictable and timely safety reviews merited by these advanced designs.

While Part 53 may be the highest profile innovation underway at the agency, I believe there is much that can be done to innovate how we operate. I fear that the transformation effort, while

well-intentioned, has burdened staff with busywork that has produced few measurable outcomes. I believe the agency needs to engage in a back-to-basics effort to renew our focus on safety significant mission-direct work and examine internal operations to reduce unnecessary busywork. Getting back to basics would relieve staff from overly burdensome low priority activities, could create efficiencies, and would likely improve job satisfaction for our employees. The agency must also have effective leaders who can innovate and not fall prey to groupthink, who can implement and sustain change to ensure the agency becomes the modern risk-informed regulator the American public requires. As the safety and security regulator, we are the gatekeepers enabling the safe development of advanced reactors and other novel technologies. How we operate in our role as gatekeepers will greatly influence whether the U.S. can regain its role as the global leader in commercial nuclear power.

Second, we should grow our data-driven, risk informed decision-making. Processes and outcomes should be objective, reliable, and reproduceable. External stakeholders should be able to review our work and understand how we reached our conclusion. By “risk informed” we mean “Regulatory activities should be consistent with the degree of risk reduction they achieve,” as stated in our Principles of Good Regulation. It is balancing the constant desire to know more with the threshold of knowing enough; *absolute* safety versus our statutory mandate of *adequate* safety.

If the NRC is to become successful in making data-driven, risk informed decisions for regulatory activities that are truly consistent with the risk reduction they achieve, I would expect the following outcomes in operating reactors to include:

- Focusing inspections and licensing reviews on matters that are safety-significant;
- Using risk-informed decision tools to resolve matters;
- Consistently adhering to the Backfit Rule;
- Producing complete, high-quality regulatory analyses to support decision-making;
- Enabling wide-spread implementation of digital I&C; and
- Executing predictable, efficient 10 CFR 50.69 reviews to risk inform the categorization and treatment of structures, systems, and components.

For advanced reactors, we must not let the pursuit of absolute safety undermine our ability to reach decisions. Rather, we should continue to pursue our statutory mandate of adequate protection, achieving the same level of safety as that required of operating reactors.

Third, I believe there is a continuing need to improve our financial stewardship. I have addressed the issue of carryover funding in a separate response to Senator Capito, so I will not revisit that discussion here. However, I do want to point to what our Principles of Good Regulation state: “The American taxpayer, the rate-paying consumer, and licensees are all entitled to the best possible management and administration of our regulatory activities.” I do not believe that concluding a fiscal year with over \$90 million in carryover reflects the best possible management and administration.

Our budget should fully align with our strategic plan, be performance-based, and accurately depict our mission needs. We must focus on using actual expenditures to inform budget development with a measure of detail commensurate with truly informed decisions. This requires

the agency to take a hard look at necessary activities and services that support our core mission and use data-driven decision-making to ensure effective outcomes.

Lastly, we must cultivate a workforce and culture built with the best talent and brightest minds dedicated to executing our mission with high levels of performance. This might be our greatest challenge in the years to come as the agency competes with other government agencies and the private sector for talent. In this regard, I believe three key issues must be addressed:

- Hiring the right people required for NRC to accomplish its mission. It is incumbent upon the agency to plan for success in meeting our safety and security mission. This means finding highly qualified applicants, offering salary and benefits comparable to the private sector or nearest competitor, and a timely, informative, and helpful onboarding process that delivers new employee buy-in from the very start. Our success as an agency lies within our workforce and organizational culture. It would be a disservice to our highly skilled and dedicated workforce not to have a sufficient strategy to enable successful mission execution.
- Innovative programs and initiatives to attract and retain talent. The NRC has been directed by the Committee to answer numerous questions on its programs and initiatives intended to improve hiring and reduce attrition. While I agree with Chair Hanson that the agency is attempting to address this issue through a variety of initiatives, I believe that the NRC needs to implement metrics to measure the success of such initiatives. A lack of meaningful metrics limits our ability to reach data driven decisions and ensure success.
- Morale. Two quotes come to mind: “You can’t manage what you don’t measure.” And “People will meet expectations.” We have brilliant and dedicated staff. They will strive to meet the goals we set for them. I believe we need to do a much better job of setting ambitious goals and using meaningful metrics to spur performance improvement. In 2008 and 2009, when NRC was “the best place the work,” it was the start of the renaissance when the agency was executing a heavy workload with challenging schedules and a sense of urgency. Recognition of success is a strong contributor to job satisfaction. I think demonstrating that we can achieve recognized success is the surest path to improve morale.

Thank you for allowing me to provide these additional comments.

**Senator Whitehouse:**

1. Given legislation such as the Nuclear Energy Innovation Capabilities Act (NEICA) and Nuclear Innovation and Modernization Act (NEMIA), and now the recently introduced Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy (ADVANCE) Act of 2023, are you satisfied with the authorities already given in these bills with respect to speeding up the pace of approval for new fourth generation technologies?
  - a. Is there something more that can be amended or added to the ADVANCE Act to meet this goal?

**RESPONSE:**

It is my view that the authorities given in NEICA, NEIMA, and introduced in the ADVANCE Act of 2023 provide the agency with the authority to review new reactor technologies efficiently and effectively. However, there may be additional opportunities to provide the Commission with discretion for certain activities that would increase overall efficiencies while maintaining the NRC's safety and security mission. Section 189a of the Atomic Energy Act requires the Commission to conduct hearings (sometimes referred to as mandatory hearings) for certain applications regardless of whether the application references a standard design or is a license application for an additional, identical facility at the same site. It would be helpful if Congress provided discretion to the Commission to determine on a case-by-case basis whether such hearings are warranted.

In addition, section 182b of the Atomic Energy Act requires the Advisory Committee on Reactor Safeguards (ACRS) review of certain applications, again regardless of whether the application references a standard design or is for an identical facility at the same site. ACRS provides valuable input to the Commission, and, in my view, its focus should be on novel rather than routine issues. Thus, it would be helpful if Congress provided discretion to the Commission to determine whether it needed ACRS input on a particular review. With such discretion, the Commission could help ensure the Committee's considerable expertise and limited time is focused on new or novel issues and less likely to be overburdened with repetitive reviews such as the addition of additional modular reactors at a given site.

Last, I understand that applicants seeking manufacturing licenses may wish to test the reactors at the manufacturing site prior to shipping them to the sites where they would be licensed to operate. Microreactor developers have communicated they may pursue this licensing approach, given the potential that a manufacturing license holder could rapidly scale reactor deployment by fabricating several reactors at a manufacturing facility. It is not clear whether section 192 of the Atomic Energy Act provides the Commission with the authority to issue temporary operating licenses to holders of manufacturing licenses to allow such testing at the manufacturer's site. Clarifying the NRC's authority might enable more efficient development of manufactured microreactors.

2. What more can Congress do, besides the addition of a spent fuel utilization prize in the ADVANCE Act, so that NRC can be supportive of reused spent fuel in reactors, and remove any disincentives in using it in place of fresh fuel?

**RESPONSE:**

It is my understanding that one of the major disincentives for licensees regarding the use of reused spent fuel is that it has historically been cost prohibitive. The ADVANCE Act of 2023, as introduced, provides a mechanism for the NRC and Department of Energy to coordinate and share technical expertise and knowledge on advanced reactor fuel which would include fuels derived from spent fuels. Such coordination would allow NRC staff to stay informed about the reprocessing technologies currently being pursued. Through the ADVANCE Act of 2023, the NRC would also inform Congress of its assessment of the agency's preparedness to review and license fuels derived from spent nuclear fuel.

Between 2007-2016, the NRC engaged in a rulemaking process to update the agency's regulatory framework for licensing a reprocessing facility. At the time, there were two potential applicants and other stakeholders supporting the development of the regulatory framework. In June 2021, the Commission approved the staff's request to discontinue these rulemaking efforts (SRM-SECY-21-0026; ML21175A065) due to lack of interest in licensing, constructing, and operating a spent fuel reprocessing facility. The NRC staff identified 10 CFR Part 50, with anticipated exemptions, as the only applicable regulatory framework to license and regulate reprocessing facilities because it concluded that a reprocessing facility is a type of production facility. If there is renewed interest from stakeholders, the agency will need to reassess whether it should either resume development of a reprocessing licensing framework or license reprocessing facilities under the 10 CFR Part 50 framework.

**Senator Kelly:**

1. The Navajo Nation has been suffering from the effects of uranium mining on tribal land for decades. EPA has secured billions of dollars in settlements to remediate these sites and is allocating superfund funding toward these projects – but with more than 500 abandoned sites just on the Navajo Nation – these resources will not be enough unless we can significantly bring down the per-site cost of cleanup. My understanding is that EPA is currently exploring using a technology that could significantly bring down cleanup costs by mechanically separating hazardous materials from inert rock and removing just the hazardous materials – at a fraction of the cost. This technology has been demonstrated to great success by EPA on the Navajo Nation. But I understand that NRC staff is recommending that the Commission regulate this technology the same as a uranium mill – which would mean it would take years for this technology to be approved. Do you believe that this remediation technology is the same as uranium milling technology?
  - a. Do you agree with the staff recommendation to regulate remediation technology as a mill?

**RESPONSE:**

Any technology that could safely remediate abandoned mine sites should get thorough consideration given the safety and environmental benefits of successful remediation. On January 26, 2023, the Commission requested the staff to provide a notation vote paper evaluating the advantages and disadvantages of different options for the licensing of emerging technologies used for remediation of mine waste. The paper should analyze any legal constraints on the options and discuss the viability of alternative statutory and regulatory interpretations. I commit to work closely with my colleagues on this important issue.

2. I understand that the commission recently agreed to move forward with regulating fusion energy systems under the “byproduct materials” framework. This is an important step – because this framework allows for a technology-neutral regulatory approach which does not treat fusion and fission systems the same. Because they're not. This will help researchers working on fusion systems have certainty about the regulatory future they face. Can you confirm the Commission views this as the long-term approach that the commission will take to fusion energy systems?

**RESPONSE:**

I believe that the existing 10 CFR Part 30 byproduct material framework is appropriate for regulating fusion energy systems currently under development. The byproduct material framework provides a scalable, safe, and efficient approach consistent with the current fusion energy systems' low level of risk. If a future fusion design presents hazards sufficiently beyond those of near-term fusion technologies, the staff will notify the Commission and make recommendations for taking appropriate actions as needed.

- a. Do you believe the Commission has sufficient statutory authority to develop long-term fusion regulations?

**RESPONSE:**

Yes, I believe the NRC has sufficient statutory authority to develop long-term fusion regulations given the technologies of which we are currently aware. The Atomic Energy Act of 1954, as amended, provides for the NRC's regulation of atomic energy, and of the byproduct material expected to be produced as part of the normal operation of fusion energy systems (e.g., tritium). The NRC's byproduct material framework, which is currently applied to tritium users and particle accelerators, could be used for the licensing and regulation of near-term fusion energy systems. As previously stated, I believe that the existing 10 CFR Part 30 is appropriate for regulating fusion energy systems currently under development.

- b. Would it be helpful if Congress provided additional statutory authority or clarity related to fusion?

**RESPONSE:**

Based on what we know today about the current fusion energy systems under development, I believe the 10 CFR Part 30 framework is appropriate. At this time, I am not aware of any additional statutory authorities necessary to regulate fusion energy systems. In the event the staff identifies a new technology that does not fit within the 10 CFR Part 30 framework, it would notify the Commission. In the event that a need for further legislative authority comes to light, the Commission would need to request such authority from Congress.

3. All nuclear facilities require an Emergency Planning Zone, also called an EPZ, where special considerations and management practices are pre-planned and exercised in case of an emergency. EPZs have traditionally been set at a 50-mile radius around a reactor site; however, with new advanced reactors, some at much smaller sizes than our current gigawatt-sized fleet, it's an open question if they should be required to have the same 50-mile EPZ. NRC staff drafted a rulemaking on this and sent it to the Commission last year, but the Commission has yet to make a decision on it. Can you tell me the current status of that rulemaking and why it's taking the Commission so long to address this?

**RESPONSE:**

I recognize the importance of this rulemaking and the significant effort that was expended in developing the draft final rule. The Commission is actively considering the draft final rule on

Emergency Preparedness for Small Modular Reactors and Other New Technologies (SECY-22-0001), including the comments received during the public comment period on the proposed rule, and will issue its final decision after completing its review. As I noted in my vote on the related proposed rule (SECY-18-0103), the staff's proposed final rule "creates an alternative EP framework that is consequence-oriented, risk-informed, performance-based, and technology inclusive" in line with Congressional direction in NEIMA.

**Ranking Member Capito:**

1. The Nuclear Innovation Alliance (NIA) recently issued a report titled "Improving the Effectiveness and Efficiency of the Advisory Committee on Reactor Safeguards" that included a series of recommendations to improve and focus the work of NRC's Advisory Committee on Reactor Safeguards (ACRS) on novel and safety-significant issues. A number of those recommendations can be implemented by the Commission, the NRC staff, and by the ACRS itself.

- a. Are you familiar with the NIA report? If so, what are your views on the report's recommendations and if not, will you review the report?

**RESPONSE:**

I am familiar with the NIA report and the four main recommendations made in the report. I appreciate the NIA's assessment of how we could best utilize the expertise afforded to the Commission by the ACRS and will carefully consider the recommendations that were provided to the agency for potential Commission action. Similarly, in the interest of continuous improvement, I expect that the NRC staff and the ACRS will also consider the recommendations made by the NIA that may enhance the effectiveness and efficiency with which the ACRS conducts its important functions. ACRS serves an important role, and its limited time and significant expertise should be used wisely, preferably focused on new and novel issues.

- b. Do you believe that there are some commonsense modifications to ACRS processes and procedures, as well as how the NRC staff engages with the ACRS, to make better use of the ACRS's expertise and limited time?

**RESPONSE:**

Yes. Implementing changes to ACRS policies and procedures can assist in improving its efficiency and effectiveness. This is critical to ensuring that the Committee maintains its ability to provide sound advice to the Commission on key technical matters associated with reactor regulation. In my view, the Committee should focus its efforts on advising the Commission on important new or novel applications and not get mired in routine, insignificant issues. As noted in my response to Senator Whitehouse, were Congress to decide to provide the Commission with additional discretion to determine whether ACRS review is warranted on a particular application, the Commission could help ensure that the Committee's time and expertise is focused on new or novel applications.



2. At the end of the last Fiscal Year, the NRC had carryover funding – money Congress previously provided but that went unspent –exceeding \$90 million. This is about ten percent of the NRC’s total budget authority. The NRC’s Fiscal Year 2024 proposed budget would apply about \$27 million of this funding to its future budget. However, as of March 1, the NRC still had more than \$66 million in available carryover. The NRC’s FY24 budget proposal requests an increase of \$52 million.

- a. What specific actions do you support to reduce this total level of carryover in future years?

**RESPONSE:**

I appreciate the responses provided by the Chair and look forward to working with him and my other colleagues on further actions to strengthen our fiscal discipline. Specifically, I support the following actions:

- Continued engagement between NRC staff and appropriators to identify if additional carryover funding can be utilized to further offset the FY 2024 request;
  - Ensuring future budget requests are commensurate with our strategic plan, aligned with our priorities, and in compliance with legislative mandates such as NEIMA;
  - Development of budget requests focusing on using budgetary actuals to inform decision-making and scrutinizing mission indirect spending and anticipated licensing work;
  - Greater emphasis on Full Time Equivalent (FTE) needs for the agency to ensure that critical skillset needs are being met; and
  - Continuing to identify opportunities to enhance efficiencies in agency operations and processes, focusing on mission-direct work and reducing overly burdensome low-priority tasks.
3. During the NRC’s recent Regulatory Information Conference, each NRC Commissioner spoke about the enormous challenges and opportunities facing the Commission in the coming years as numerous new reactor designs are submitted to the Commission for review and approval. How do you consider your role as a Commissioner in the context of providing leadership to NRC staff and senior management during this pivotal period?

**RESPONSE:**

I believe it is incumbent on the Commission to ensure the staff is prepared and has the resources it needs to accomplish our safety and security mission. I will continue to look for opportunities to: innovate agency processes; prepare the agency for advanced technology applications; use data-driven and risk informed approaches to decision making; improve our financial stewardship; empower our culture; and improve our work environment for all employees.

The agency must have effective leaders who innovate and do not fall prey to groupthink. The agency must empower leaders who can implement and sustain change to ensure the agency becomes a modern risk-informed regulator and effectively manages its workload consistent with growing domestic and global needs for clean energy. However, there is a growing pattern of

applicants viewing our processes as unpredictable and financially risky. The Department of Energy (DOE) has instituted several programs over the years to reduce regulatory risk including but not limited to: Nuclear Power 2010; the Next Generation Nuclear Plant; the Advanced Reactor Demonstration Project; and their current support of efforts to implement digital instrumentation and control for reactor safety systems. This pattern of applicants' reluctance to pursue certain regulatory approvals without DOE support indicates a need for the agency to engage in greater introspection and strive to improve the predictability and efficiency of our reviews. While our transformation efforts have been well-intentioned, I do not believe current efforts have addressed this dynamic. This is an area that would benefit from leadership focus. Reducing regulatory risk is an area where the NRC should be leading, in line with our Principles of Good Regulation including Clarity, Efficiency, and Reliability. Taxpayers are not well-served by a continuing need for DOE to subsidize applicants' efforts to navigate our processes.

4. Part of the NRC's mission is to enable nuclear energy to contribute to the common defense of the nation. Currently, two of the major builders of nuclear reactors are China and Russia. The United States needs to regain its leadership in this field, for national security as well as economic purposes.
  - a. How do you view the NRC's ability to fulfill its mission and meet the policy Congress established in the Atomic Energy Act in the context of geostrategic civil nuclear competition?

**RESPONSE:**

In the context of the domestic and global need for clean energy, the efficient execution of our mission should take on a renewed sense of urgency. In the global context, the NRC communicates, as needed, with other federal partners such as the Department of State or National Security Council, to stay apprised of geostrategic policies related to the agency's work. Last, the agency works with international counterparts and other regulatory programs to share best practices and lessons learned. As an agency, our work with international counterparts, spurs the export of safety principles and assists countries with the development of their own independent safety regulatory bodies.

- b. How can the NRC modernize its regulations to allow for quicker and more efficient reviews of an increasingly large number of applications as a tool to demonstrate America's ability to lead internationally?

**RESPONSE:**

The best way for the NRC to lead internationally is to demonstrate its ability to effectively and efficiently reach licensing decisions domestically. The Commission is developing a new risk-informed, performance-based, and technology-inclusive framework for licensing the next generation of commercial nuclear plants. I am working with my colleagues on the Commission to review the staff's draft proposed Part 53 rule that was submitted to the Commission on

March 1, 2023. My goal is to ensure that Part 53 results in simpler, more efficient, and predictable reviews.

In developing Part 53, the Commission has an opportunity to ensure that deployment of new commercial nuclear plants is not hampered by ineffective and inefficient licensing processes. One opportunity is the manufacturing license pathway. I understand that microreactor developers have communicated they may pursue this licensing approach, given the potential that a manufacturing license holder could rapidly scale reactor deployment by fabricating several reactors at a manufacturing facility. Improving the technical and administrative aspects of this licensing pathway, as compared to its current form in 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," would therefore be beneficial for the NRC and prospective vendors seeking to deploy these designs.

Senator CARPER. Thank you so much.

Now we are going to hear from Brad Crowell also for 2 minutes. Thank you.

**STATEMENT OF HON. BRADLEY R. CROWELL, COMMISSIONER,  
NUCLEAR REGULATORY COMMISSION**

Mr. CROWELL. Thank you, Chair Carper, Ranking Member Capito, and members of the Committee. Thank you for the opportunity to testify today.

Since taking office last year, I have had the pleasure of building positive working relationships with my fellow commissioners. It has been apparent that a genuine spirit of collegiality among the Commission forms the foundation for successfully executing the NRC's mission with maximum effectiveness and efficiency.

Strong collegiality is further enhanced when operating with the full complement of commissioners. With five commissioners since last August, the Commission has made progress on pivotal issues related to the existing reactor fleet while also forging ahead on establishing a responsible regulatory framework to support the next generation of nuclear technologies.

Chair Hanson highlighted these topics in his testimony and many other notable recent accomplishments by the NRC, while also emphasizing the robust work schedule ahead for Fiscal Year 2024 and beyond. The NRC has a central role to play in the future viability of nuclear energy, both in the U.S. and abroad. As the Nation's regulator for the safe and secure operation of civilian nuclear technologies, the NRC is committed to ensuring the public can have confidence that all NRC licensees operate in manner that minimizes risk and maximizes safety.

The foundational mission of the NRC must always be the uncompromising protection of public health and safety, security, and the environment. But that mission can no longer be applied through the narrow lens that has been used in past decades at the NRC. The NRC must quickly adapt to embrace the shared responsibility of our Nation's collective effort to address climate change and energy security.

The potential for nuclear energy to make a meaningful and enduring contribution to reducing carbon emissions and stabilizing our energy grid is real. But in doing so, time is of the essence and there is much to accomplish across the full NRC mission space.

To be successful, the NRC must embrace a contemporary sense of purpose that embodies the challenges and opportunities before us. As an essential part of this effort, the NRC must restore, build, and maintain public trust through proactive and meaningful interactions with the public, other government agencies, and the full spectrum of stakeholders.

The NRC must also maintain a commitment to safely regulating the full fuel cycle by asserting commensurate focus on issues from mining to waste in its regulatory decisions and research activities. Proactive engagement on used fuel management, decommissioning, and waste disposal is critical to enhancing public confidence.

I am excited by the challenge of what we can, and must, accomplish by the end of this decade. But we must get to work now and

maintain this level of commitment in subsequent years to succeed. I am confident the NRC staff is up to the challenge.

The Fiscal Year 2024 budget request is an important next step to ensure we have the resources necessary to meet this pivotal moment.

Thank you, and I look forward to your questions.

[The prepared statement of Mr. Crowell follows:]

**Statement of Commissioner Bradley Crowell  
Senate Committee on Environment and Public Works  
April 19, 2023**

Chair Carper, Ranking Member Capito, and distinguished members of the Committee – thank you for the opportunity to testify today.

Since taking office last year, I’ve had the pleasure of building positive working relationships with my fellow Commissioners. It has been apparent that a genuine spirit of collegiality among the Commission forms the foundation for successfully executing the NRC’s mission with maximum effectiveness and efficiency.

Strong collegiality is further enhanced when operating with the full complement of Commissioners. With five members since last August, the Commission has made progress on pivotal issues related to the existing reactor fleet while also forging ahead on establishing a responsible regulatory framework to support the next generation of nuclear technologies.

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The NRC must also maintain a commitment to safely regulating the full fuel cycle by asserting commensurate focus on issues from mining to waste in its regulatory decisions and research activities. Proactive engagement on used fuel management, decommissioning, and waste disposal is critical to enhancing public confidence.

I am excited by the challenge of what we can, and must, accomplish by the end of this decade. But we must get to work now and maintain this level of commitment in subsequent years to succeed. I am confident the NRC staff is up to the challenge.

The FY '24 budget request is an important next step to ensure we have the resources necessary to meet this pivotal moment. Thank you, and I look forward to your questions.

**Senate Committee on Environment and Public Works Hearing Entitled, “The Nuclear Regulatory Commission’s Proposed Fiscal Year 2024 Budget”**

**April 19, 2023**

**Questions for the Record for Commissioner Crowell**

**Chairman Carper:**

1. The Nuclear Energy Innovation and Modernization Act (NEIMA) made changes to the Nuclear Regulatory Commission’s (NRC) budget system and requires NRC to develop a regulatory framework for the next generation of nuclear technologies. It is important that this developed framework is risk-informed, performance-based, and technology neutral. This framework also needs to be both workable and useable to help us deploy more safe and reliable nuclear energy.
  - a. In your view, how is the new regulatory framework development process going?
  - b. What is going well? Are there any issues of concern?

**RESPONSE:**

As Chair Hanson indicated in his response to this question, on March 1, 2023, the NRC staff provided the Commission with a draft proposed rule for a new Part 53, “Risk-Informed, Technology-Inclusive Regulatory Framework for Commercial Nuclear Plants,” to Title 10, following extensive engagement with stakeholders to inform the rulemaking. I commend the staff and stakeholders for their detailed commitment to this lengthy and complex rulemaking and for providing important and insightful feedback. On May 16, 2023, the Commission held a public meeting that highlighted some of the key concerns from stakeholders on the draft proposed rule. My colleagues and I are closely examining the draft proposed rule package and evaluating next steps for advancing a workable, common-sense rule that will facilitate the safe and timely review of new and advance reactor applications.

2. During the hearing, Commissioner Crowell noted that the Minority Serving Institutions Grant Program is a particularly important and noteworthy investment included in the NRC’s Fiscal Year 2024 proposed budget.
  - a. Would you please expand on the role of the Minority Serving Institutions Grant Program in the NRC’s efforts to create and maintain a diverse, equitable, and inclusive work environment?

**RESPONSE:**

Chair Hanson outlined the genesis and application of the Minority Serving Institutions (MSI) program at NRC. I would like to highlight a few additional points made by the National Academies of Sciences, Engineering, and Medicine (NASEM) in its 2018 report on MSIs. As of the time of that report, MSIs educated nearly 30 percent of the nation’s undergraduate students and about one-fifth of STEM students, and they do so with significantly fewer resources as compared to non-MSI schools. Despite this disparity in resources, MSIs have successfully provided a multifaceted return on investment for students, the STEM workforce, and communities. NASEM goes on to recommend targeted, long-term investments from federal and other sources to “enable MSIs to recruit and retain high-quality faculty, to procure and maintain state-of-the-art laboratories and facilities, to offer needed academic and social supports to



students, and to compete effectively for access to federal grants and contracts that fuel important research discoveries and innovation.”<sup>1</sup> The importance of MSI’s in training and educating the next generation of the STEM workforce is a critical component of the NRC’s ability to maintain and expand its workforce in the increasingly constrained and competitive fields of nuclear health, science, and engineering.

- b. What is your assessment of the NRC’s current diversity? What more is the Commission doing to increase diversity, equity, and inclusion?

**RESPONSE:**

In general, federal employment and STEM employment across the public and private sectors trends predominantly white male. NRC’s diversity (according to self-reported demographics from employees noting how the employee chooses to identify) is mostly in line with these demographics, with the NRC workforce consisting of approximately 41% female and over 61% white employees. When looking at NRC’s STEM-related occupational series, the percentage of female employees drops significantly to about 29%, and the percentage of white employees increases to 63%. In terms of age groups, only 20% of NRC employees and 23% of STEM employees are under 40. These demographics underscore the need for the NRC to prioritize diversity and continue efforts to improve hiring and retention of a diverse workforce across all programs, regions, and grade levels at the NRC. Chair Hanson’s response outlined many of the actions currently underway at the NRC for improving diversity and inclusion.

3. Is there anything else you would like to provide the Committee that was not included in your testimony or discussed during the hearing?

**RESPONSE:**

I have nothing further to provide at this time.

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<sup>1</sup> <https://www.nationalacademies.org/news/2018/12/minority-serving-colleges-and-universities-are-positioned-to-serve-as-a-greater-resource-for-meeting-u-s-stem-workforce-needs-but-increased-attention-and-investments-are-needed>

**Senator Whitehouse:**

1. Given legislation such as the Nuclear Energy Innovation Capabilities Act (NEICA) and Nuclear Innovation and Modernization Act (NEMIA), and now the recently introduced Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy (ADVANCE) Act of 2023, are you satisfied with the authorities already given in these bills with respect to speeding up the pace of approval for new fourth generation technologies?

**RESPONSE:**

I concur with Chair Hanson's response to this question.

- a. Is there something more that can be amended or added to the ADVANCE Act to meet this goal?

**RESPONSE:**

Based on my current knowledge of the ADVANCE Act, as of the Committee's business meeting held on May 31, 2023, I do not have any recommendations I would view as essential for inclusion at this stage of the legislative process.

2. What more can Congress do, besides the addition of a spent fuel utilization prize in the ADVANCE Act, so that NRC can be supportive of reused spent fuel in reactors, and remove any disincentives in using it in place of fresh fuel?

**RESPONSE:**

I concur with Chair Hanson's response outlining how the current NRC regulatory framework can support review of near-term applications for reprocessing facilities. I stand by ready to support implementation of any Congressional direction on utilization of spent fuel and to review any DOE action on spent fuel, as appropriate.

**Senator Kelly:**

1. The Navajo Nation has been suffering from the effects of uranium mining on tribal land for decades. EPA has secured billions of dollars in settlements to remediate these sites and is allocating superfund funding toward these projects – but with more than 500 abandoned sites just on the Navajo Nation – these resources will not be enough unless we can significantly bring down the per-site cost of cleanup. My understanding is that EPA is currently exploring using a technology that could significantly bring down cleanup costs by mechanically separating hazardous materials from inert rock and removing just the hazardous materials – at a fraction of the cost. This technology has been demonstrated to great success by EPA on the Navajo Nation. But I understand that NRC staff is recommending that the Commission regulate this technology the same as a uranium mill – which would mean it would take years for this technology to be approved. Do you believe that this remediation technology is the same as uranium milling technology?
  - a. Do you agree with the staff recommendation to regulate remediation technology as a mill?

**RESPONSE:**

I concur with Chair Hanson's response to this question.

2. I understand that the commission recently agreed to move forward with regulating fusion energy systems under the "byproduct materials" framework. This is an important step – because this framework allows for a technology-neutral regulatory approach which does not treat fusion and fission systems the same. Because they're not. This will help researchers working on fusion systems have certainty about the regulatory future they face. Can you confirm the Commission views this as the long-term approach that the commission will take to fusion energy systems?
  - a. Do you believe the Commission has sufficient statutory authority to develop long-term fusion regulations?

**RESPONSE:**

I concur with Chair Hanson's response to this question.

- b. Would it be helpful if Congress provided additional statutory authority or clarity related to fusion?

**RESPONSE:**

I concur with Chair Hanson's response to this question. I will also note that, as the NRC and our Agreement State partners begin to license and oversee operation of near-term fusion energy systems, we will inevitably gain new insights that may necessitate or benefit from additional statutory authorities or clarity for ensuring the responsible regulation of fusion energy systems.

3. All nuclear facilities require an Emergency Planning Zone, also called an EPZ, where special considerations and management practices are pre-planned and exercised in case of an emergency. EPZs have traditionally been set at a 50-mile radius around a reactor site; however, with new advanced reactors, some at much smaller sizes than our

current gigawatt-sized fleet, it's an open question if they should be required to have the same 50-mile EPZ. NRC staff drafted a rulemaking on this and sent it to the Commission last year, but the Commission has yet to make a decision on it. Can you tell me the current status of that rulemaking and why it's taking the Commission so long to address this?

**RESPONSE:**

The Commission is actively considering this issue, including comments received during the public comment period on the proposed rule.

**Ranking Member Capito:**

1. The Nuclear Innovation Alliance (NIA) recently issued a report titled "Improving the Effectiveness and Efficiency of the Advisory Committee on Reactor Safeguards" that included a series of recommendations to improve and focus the work of NRC's Advisory Committee on Reactor Safeguards (ACRS) on novel and safety-significant issues. A number of those recommendations can be implemented by the Commission, the NRC staff, and by the ACRS itself.
  - a. Are you familiar with the NIA report? If so, what are your views on the report's recommendations and if not, will you review the report?
  - b. Do you believe that there are some commonsense modifications to ACRS processes and procedures, as well as how the NRC staff engages with the ACRS, to make better use of the ACRS's expertise and limited time?

**RESPONSE:**

I am familiar with the report and appreciate the time NIA devoted to providing a suite of recommendations for improving ACRS. As Chair Hanson noted in his response to these questions, the ACRS has already made some improvements and supports many of the other recommendations outlined in the NIA report. I support common sense modifications to ACRS processes and procedures and agree wholeheartedly that ACRS is a highly specialized technical body with tremendous expertise that should be leveraged in the most effective way possible. While ACRS should always strive for efficient reviews, it is important to recognize the important role played by the ACRS, which in turn helps to build and maintain public trust in the NRC's commitment to protecting public health and safety. I have discussed these issues at length with the current ACRS Chair, Dr. Joy Rempe, and I am confident she fully appreciates the current and future workload challenges for the ACRS, and she is actively leading the Committee to meet these challenges in an effective and timely manner.

2. At the end of the last Fiscal Year, the NRC had carryover funding – money Congress previously provided but that went unspent – exceeding \$90 million. This is about ten percent of the NRC's total budget authority. The NRC's Fiscal Year 2024 proposed budget would apply about \$27 million of this funding to its future budget. However, as of March 1, the NRC still had more than \$66 million in available carryover. The NRC's FY24 budget proposal requests an increase of \$52 million.
  - a. What specific actions do you support to reduce this total level of carryover in future years?

**RESPONSE:**

I support continuing to improve the NRC's budget formulation processes and utilizing existing carryover as much as possible to reduce the need for new funding. I am optimistic the NRC's newly hired CFO will help improve the NRC's overall budget management and forecasting abilities by working in close coordination the Executive Director for Operations and relevant division and program leadership.

3. During the NRC's recent Regulatory Information Conference, each NRC Commissioner spoke about the enormous challenges and opportunities facing the Commission in the coming years as numerous new reactor designs are submitted to the Commission for review and approval. How do you consider your role as a Commissioner in the context of providing leadership to NRC staff and senior management during this pivotal period?

**RESPONSE:**

The role of the NRC Commission includes formulation of policy, issuance of regulations and orders, and adjudication of legal matters. Nonetheless, I believe policy matters encompass the full suite of policies, including setting agency goals and metrics, and ensuring operational policies and procedures developed by the Executive Director of Operations or other NRC staff are in the best interest of the agency's mission and are meeting the NRC Principles of Good Regulation. Going forward, I would like to see both the NRC Commission and the NRC's senior career leadership more fully embrace this broader view of what is included in policy matters. Doing so will help enhance the working relationship between senior staff and all Commission offices, as well as provide greater leadership, guidance, and consistency for all agency staff. Every NRC employee should feel comfortable articulating their specific role at the agency and how their job fits within the broader mission and goals of the NRC.

4. Part of the NRC's mission is to enable nuclear energy to contribute to the common defense of the nation. Currently, two of the major builders of nuclear reactors are China and Russia. The United States needs to regain its leadership in this field, for national security as well as economic purposes.
  - a. How do you view the NRC's ability to fulfill its mission and meet the policy Congress established in the Atomic Energy Act in the context of geostrategic civil nuclear competition?
  - b. How can the NRC modernize its regulations to allow for quicker and more efficient reviews of an increasingly large number of applications as a tool to demonstrate America's ability to lead internationally?

**RESPONSE:**

Chair Hanson's response covers various international efforts where the NRC is participating or leading, and the importance of understanding the NRC's role and the boundaries of our jurisdictional and regulatory responsibilities. I would like to add some thoughts regarding the fundamental question – how can the NRC be more efficient and timely in approving applications as a precursor to global deployment? Beyond Russia and China, the majority of the world generally looks to the United States, via the NRC, as the "gold standard" for regulating commercial nuclear power based on the agency's foundational mission to provide reasonable assurance of public health and safety and to promote the common defense and security. As many nations now look to expand their use of nuclear power or seek to generate nuclear power for the first time, it is important for the United States to maintain its historic leadership in safely regulating commercial nuclear power. However, to maintain U.S. leadership, we must demonstrate our ability to protect public health and safety in a more timely and efficient manner commensurate with the broader public policy objectives driving the renewed interest nuclear power – e.g., addressing climate change by expanding access to baseload, carbon-free nuclear power and enhancing energy security. The U.S. must lead by example, and the NRC has a

crucial role to play as part of the overall U.S. response to the increasingly dynamic and complex geopolitics of commercial nuclear energy.

5. You spoke at the NRC's recent Regulatory Information Conference of the NRC's role as it relates to the imperative to reduce carbon dioxide emissions through the safe licensing and oversight of advanced nuclear reactor technologies. While the NRC is working to establish a new regulatory framework for the predictable and efficient licensing of advanced reactors (known as Part 53), nuclear companies will be required to utilize the existing regulations, known as "Parts 50 and 52."
  - a. What is the NRC doing to prepare to review and approve advanced nuclear reactors under the existing Parts 50 and 52 regulations to achieve emissions reductions?

**RESPONSE:**

While much of the NRC's activities to prepare to review and license advanced nuclear reactors predate my tenure on the Commission, I acknowledge significant work has been done in licensing guidance development for Parts 50 and 52. Specifically, the NRC engaged with the Licensing Modernization Project (LMP) led by Southern Company, coordinated by the Nuclear Energy Institute (NEI), and cost-shared by the U.S. Department of Energy (DOE). This engagement resulted in "Guidance for a Technology-Inclusive, Risk-Informed, and Performance-Based Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Non-Light Water Reactors," published as Regulatory Guide 1.233 and issued in the Federal Register on June 9, 2020. This guidance endorsed the methodology described in NEI 18-04, Revision 1, "Risk-Informed Performance-Based Guidance for Non-Light Water Reactor Licensing Basis Development," as an acceptable approach for informing the licensing basis and determining the appropriate scope and level of detail for parts of applications for licenses, certifications, and approvals for non-light water reactors. The NRC staff is currently working on a related activity, the Advanced Reactor Content of Application Project (ARCAP), which encompasses the industry-led Technology-Inclusive Content of Application Project (TI-CAP). Combined, these two projects build on the LMP and will be used to support the development and review of an advanced reactor application under existing Parts 50 and 52. ARCAP is a long-term project that will support near-term advanced reactor applicants under Part 50s and 52 and will also support the 10 CFR Part 53 rulemaking effort.

Additionally, several other rulemaking efforts are underway that will support NRC's review and licensing of advanced reactors. These activities include developing a proposed rule that would offer voluntary performance-based alternatives for meeting certain physical security requirements for advanced reactors licensed under Parts 50 and 52, and a proposed rule that would add new emergency preparedness requirements for small modular reactors and other new technologies such as non-light-water reactors and non-power production or utilization facilities under Parts 50 and 52. The NRC is also developing a GEIS for advanced nuclear reactors in order to streamline the environmental review process for future advanced nuclear reactor environmental reviews.

- b. Are you confident that there is sufficient expertise, communication, and organizational readiness to enable the timely approval of new reactors?

**RESPONSE:**

NRC staff has sufficient expertise, but hiring additional staff with needed expertise will likely be necessary if the NRC experiences an increase in applications for nuclear reactor licenses as currently projected by industry stakeholders. It is important for the NRC to be ahead of this curve as much as possible rather than reacting to staff capacity shortcomings in real time. Similarly, strong communication and organizational readiness can help mitigate staffing shortfalls and are key areas any government agency should focus on for continuous improvement. While current efforts to review advance reactor applications have met established timeline milestones – e.g., the NuScale design certification was approved on schedule in 42 months – communication and preparedness through pre-application engagement between NRC staff and potential applicants will help support continued timely reviews, especially under the likely scenario of reviewing multiple license applications concurrently.

- c. Are there certain recommendations that you have to make the development and implementation of the new framework a success?

**RESPONSE:**

The Commission is currently reviewing the NRC staff's draft proposed rule (10 CFR Part 53) to establish a new alternative regulatory framework as required by Congress in the Nuclear Energy Innovation and Modernization Act (NEIMA). A major element of the Commission's review includes review of numerous and in-depth stakeholder comments to understand how the staff addressed stakeholder feedback in whole or part within the context of the draft proposed rule language, or, alternatively, to understand the rationale for why staff did not address a stakeholder concern within the draft and how this feedback was provided to stakeholders. It is important to remember that the NRC is still in the early stages of the rulemaking process. As we move forward, the NRC will need continued engagement from all interested stakeholders as the rulemaking process matures. As is the case with any complex federal rulemaking it is not possible to fully meet the expectations of every stakeholder. However, it is incumbent upon the agency to clearly and proactively engage stakeholders to communicate how and why key decisions were made. As an independent, Commission-led agency, the NRC was specifically designed to empower the Commission to offer input or make final determinations on the most challenging policy elements of a rulemaking. With the draft proposed rule now before the Commission for review, I believe many of the most challenging issues can be resolved by maintaining an honest, collegial dialogue among Commissioners that remains focused on the paramount goal of crafting a clear, common-sense, and usable final rule.

6. I am concerned that a broad reconsideration of how the NRC examines environmental justice issues as part of the Agency's licensing and regulatory program will signal that there is a two-tiered system to protect public health – either a member of the public is part of an environmental justice community, thus providing special consideration of how NRC requirements apply, or a member of the public is not part of such a community. This bifurcation will serve only to muddle risk communication unnecessarily. The NRC is charged with ensuring the safety of all communities, regardless of circumstance.



- a. What in the NRC's statutory authority requires the Agency to consider environmental justice concepts in its licensing and regulatory responsibilities, particularly as it relates to maintaining reasonable assurance of adequate protection of public health and the environment?

**RESPONSE:**

For me, environmental justice (EJ) means the fair treatment and meaningful involvement of all interested stakeholders with respect to potential federal actions and decision-making processes. This includes equal access to information and ensuring that information and processes are both timely and understandable. The goal is not to improve accessibility for only members of certain groups, but to raise the baseline for all interested stakeholders who choose to engage in any capacity in the future of their respective communities.

The National Environmental Policy Act (NEPA) obligates the NRC to consider environmental impacts, including EJ-related issues, in its licensing and regulatory actions. The Commission is currently considering recommendations from the NRC staff on enhancing its approach to EJ based on the staff's systematic review of how agency programs, policies, and activities address environmental justice (SECY-22-0025, ADAMS Accession No. ML22031A063). One such recommendation is to update and revise the NRC's 2004 EJ policy statement in part to clarify that there may be other statutory authorities beyond NEPA that may be pertinent to environmental justice matters.

- b. Does the concept of NRC applying its regulatory process differently – or providing separate considerations for what is necessary to meet the NRC's statutory authority based on proximity to certain communities – create different standards for fulfilling NRC's statutory mission?

**RESPONSE:**

No. The NRC holds applicants and licensees to the same standards as applicable and appropriate for each licensing or regulatory action. The NRC is not contemplating any changes that would result in disparate application of regulatory processes or standards. That said, outside of implementing regulatory requirements, when the NRC is working with communities that have very limited or no prior experience in the NRC regulatory process, the agency should take extra measures to reach out to community leaders and members to offer education and information regarding a proposed project or NRC decision and the roles and responsibilities of the NRC, applicant or licensee, and other stakeholders with respect to the full lifecycle of a proposed facility.

- c. Are you concerned that public perception that there may be different standards for different kinds of communities may undermine confidence in the NRC's regulatory regime or even civil nuclear energy more broadly?

**RESPONSE:**

In addition to my response to the previous question, I believe a key role of the NRC is to ensure fair and equitable treatment of all applications based on a common set of standards necessary to provide adequate protection of public health and safety. My goal in emphasizing EJ is to

improve public confidence by improving public access to and understanding of the NRC's jurisdiction, processes, proposed actions, and standards that applicants and licensees must meet. If the public perceives we are treating applicants or licensees differently based on EJ considerations or for any other reason, I do think we need to address the root cause of that perception. I would be open to working with any members of the public or stakeholders, including your office, to assess how we can clarify and properly communicate the goals of EJ as described above to stakeholders.

7. At the NRC's recent Regulatory Information Conference, you stated your support for additional environmental justice considerations as part of the NRC's licensing review. You stated that such a review would not be expected to prolong the length of time necessary for the NRC to review and approve license applications.
  - a. How do you propose that NRC staff assess additional, qualitative, or even subjective considerations as part of a licensing decision, without prolonging the review?

**RESPONSE:**

The NRC staff's proposed enhancements and updates to how the NRC addresses EJ would not create new considerations for licensing decisions, but rather would improve existing processes. If done effectively, this should not increase timelines for any reviews and should help the public better understand the basis for NRC decisions. Furthermore, by incorporating more robust and impactful efforts to work with communities in the pre-application and application review phase, such efforts can help reduce the overall timeline of reviews. As a general principle, the most efficient regulatory undertakings are those based on a clear, transparent bases, including frequent communication and education among all stakeholders, and maintaining as much consistency as practicable.

- b. Would requiring additional environmental justice conditions in the NRC's license review and approval process increase costs for applicants?

**RESPONSE:**

The NRC does not contemplate requiring additional environmental justice conditions as part of the license review and approval process. Any NRC decision to approve, deny, or condition a license or to require mitigation measures must be premised upon its authority under the Atomic Energy Act of 1954, as amended (AEA), or other applicable legislation to protect public health and safety and security. I do believe, however, that it is incumbent on applicants and the NRC to ensure that the public understands the proposed actions, has access to the decision-making processes, and understands the basis for the NRC's ultimate decision. In fact, building and maintaining public confidence can often reduce a project's overall timeline, and therefore cost, by reducing unnecessary procedural processes based on lack of information or misinformation with respect to a given project. I believe such proactive engagement is part of the NRC's core responsibility as a public agency and is critical to the long-term success of the agency.

- c. Do you believe that any environmental justice considerations of the NRC's activities should take into account the impacts:
- i. on protecting public health and the environment when a nuclear facility is not licensed or takes longer to commence operation, prolonging the use of existing and potentially more emissive sources of electric power;
  - ii. on low-income households and communities when energy costs increase, or potential employment opportunities are made unavailable as a result of NRC regulatory decisions that are unnecessary for ensuring reasonable assurance of adequate protection of public health and the environment; and
  - iii. on the negative economic impacts on workers, businesses, and communities if the construction and operation of nuclear facilities are delayed?

**RESPONSE:**

The NRC currently considers the socioeconomic impacts of a proposed action as well as the alternatives to a proposed action, including the no-action alternative, in its implementation of NEPA. The NRC's environmental impact statements assess impacts to resource areas, including environmental justice, for each alternative assessed in the environmental review, as appropriate and applicable for each regulatory or licensing activity. This may include assessing whether alternatives to the proposed action would result in disproportionately high and adverse environmental, human health, and socioeconomic impacts to minority and low-income populations. However, while NEPA requires an agency to evaluate the environmental impacts of proposed major Federal actions significantly affecting the quality of the human environment, it does not mandate a particular result or outcome. Moreover, while the NRC may consider EJ impacts, any NRC decision to approve, deny, or condition a license or to require mitigation measures must be premised upon its authority under the AEA or other applicable legislation to protect public health and safety and security.

8. The NRC staff's memo entitled "Systemic Review of How Agency Programs, Policies and Activities Address Environmental Justice" raises the issue of creating a federal advisory committee for environmental justice. The NRC currently utilizes a broad set of tools to engage with the public to hear from *all* members of the public. What specific deficiencies exist in the NRC's public meetings and involvement policies presently that would necessitate the establishment of a new advisory committee?

**RESPONSE:**

During the NRC staff's outreach in preparing this memo (SECY-22-0025), staff heard from members of the public on a range of issues, including mechanisms for public engagement. The NRC staff learned that, despite the multiple methods of communication that the NRC currently uses, there are both real and perceived gaps in the NRC's ability to engage in meaningful dialogue with environmental justice communities and Tribal nations. For example, commenters shared that NRC engagement is not always in a manner accessible or understandable to

environmental justice communities and Tribal nations or tailored to meet community needs. Commenters also noted that an external panel could help to identify, shape, and provide advice to the NRC from an outside perspective, including from environmental justice communities on environmental justice-related programs, policies, and activities. One particular concern of mine on this topic is the notion of "procedural justice." I believe the NRC's current public engagement efforts could be significantly improved to enhance the public's understanding regarding the agency's complex regulatory, licensing, and oversight processes. The NRC must improve in this area by using plain language and establishing appropriate procedures or metrics to ensure public communication and stakeholder engagement has been effective in the eyes of the public for whom we serve.

Senator CARPER. Thank you all for those comments. I am going to turn back to Chairman Hanson for the first couple of questions.

The NRC's work to maintain the safety and security of our Nation's nuclear power facilities and materials is critical to ensuring that nuclear energy remains an important part of our clean energy supply. Unfortunately, the Nuclear Energy Innovation and Modernization Act, affectionately known as NEIMA, which was signed into law January 2019, placed limitations on the NRC's administrative costs known as corporate support.

To fix this, I worked with Ranking Member Capito on language, and our staffs worked together on language included in the ADVANCE Act that would ease these restrictive caps with the goal of providing greater flexibility for the NRC to ensure that it has the best tools and the work force that is required.

Would you take a moment or two to describe for us how easing these corporate support restraints will support the NRC's efforts to modernize and hire the highly skilled workers needed to carry out the NRC's important work both now and well into the future?

Mr. HANSON. Chairman Carper, thank you very much for that question. I appreciate the committee's focus on corporate support in the ADVANCE Act. Continued focus on our overhead costs and keeping those down to the maximum extent practicable is certainly something we are continuing to do and we will do into the future.

What we have proposed in the Fiscal Year 2024 budget is a couple of modest adjustments really in the area of HR. We have undertaken an effort to hire staff, hire the right staff, up to our authorized levels. We need some additional corporate support resources in order to be able to do that.

I would note that the corporate support request in this budget is right around \$300 million. So as I said, about 30 percent. That is actually \$30 million less than the Fiscal Year 2016 level, and actually adjusted for inflation, it is about \$120 million less than Fiscal Year 2016. So we have brought these costs down and we are going to continue to focus on that as part of our efforts.

Additionally, a 1 percent reduction in corporate support then on \$1 billion dollars is roughly about \$10 million. That equates to as many as anywhere, depending on contracting costs and other kinds of things, as many as 30 to 50 full-time positions. Those are people that we really need to be able to hire people, bring them on board, vet them for security, make sure they have the IT resources and other kinds of things that they need. So modest relief in the corporate support area is really critical to our ability to hire folks.

Back in 2021, we had about 180 hiring actions, but only about 100 of those were external. In 2022, we had about 200 external hiring actions, and that requires a lot of additional resources to bring folks in, not a lot, a modest amount of additional resources to bring folks into the government.

We also, through attrition, had 250 people leave the agency. So actually at the end of 2022, we were still down about 40 positions agency wide. So you can see we are trying to bring people in, even as I think a number of people noted our work force is aging, and we are trying to get our arms around this staffing issue to accomplish the mission.

Senator CARPER. You are not the only entities trying to get their arms around this staffing issue. Senator Capito and my colleagues and I returned on Monday from a recess, and I suspect that they did something similar to what I did, I covered my State from one end to the other. It is easy in Delaware, because we are only 100 miles from north to south and 50 miles wide.

We visited businesses large and small, and our congressional delegation would ask really three questions of the businesses that we visited, like how are you doing in business, and we would say, how are we doing, congressional delegation, Federal Government, State government, and what can we do to help. On the third question, almost without exception, the response to what can we do to help is, we just need people to come to work. We need people to come to work who are trained or trainable and will do a day's work for a day's pay. We heard that again and again and again.

I say that as background, but as the NRC looks to recruit the best and the brightest, what has been critical in attracting and training a work force that is able to understand today's technology and the technology of the future? What more could we do to help on the congressional side, help you and the NRC attract and retain the kind of talent that is required?

Mr. HANSON. Senator, thank you. The additional authorities provided in the ADVANCE Act will certainly help with that. Work-place flexibilities I think will also continue to help. We face stiff competition from other government agencies and from industry. So being able to offer some level of telework is important.

Commissioner Caputo mentioned the strong bipartisan support of this committee for nuclear. I think that is also important, because that shows that this industry is getting a lot of attention. That is good for us.

When I go out and talk to people, I emphasize the mission of the NRC, the safety mission, and the importance of public service, and that maybe it is not something that folks will want to go do for their entire career, but to go and serve their Country for a period of time and help us ensure the safety and security of these advanced technologies and of the current fleet is a good and noble calling.

Senator CARPER. Thank you. Just as an aside, I mention my experience with the Navy. I was in airplanes, chasing nuclear submarines. We have Dover Air Force Base, which is just outside Dover, Delaware, in the middle part of our State. About every week, they hold a forum they call transition assistance for people that are timing out, that are going to retire, that are going to move from active duty to reserve duty. But we didn't have anything like that when I timed out of the Navy, at the end of the Vietnam War.

But there is a considerable work force coming off the Dover Air Force Base. We have 5,000, 6,000 people who work there, civilian and otherwise. So that provides a fertile field, if you will, a supply of employees.

There are a lot of people who were in the nuclear Navy, and some of them stay for a career, some stay for 10, 20, 30 years, as you know. Some don't. Some of them become reservists. Do you ever take a look at how working with the Navy, people in uniform

who have timed out from the nuclear Navy, and to see if they might be appropriate in working with the NRC?

Mr. HANSON. We are doing that. We have about 25 percent of our work force that are military veterans, most of those from the Navy and the nuclear Navy. We have been great beneficiaries of that program over time in the agency.

Senator CARPER. I find when I visit nuclear power plants, a lot of the folks who work at nuclear power plants are folks with Navy nuclear experience.

This is a question for the entire panel. We will start with you, Commissioner Baran. The Nuclear Energy Innovation and Modernization Act requires NRC to develop a regulatory framework for the next generation of nuclear technologies. We want to see a regulatory framework that is risk-informed, performance-based, and technology neutral. Importantly, this framework needs to be both workable and usable to help us deploy more safe and reliable nuclear energy.

Here is my question for the entire panel, starting with you, Mr. Baran. Could each of you please take a brief moment and tell us how the new regulatory framework development process is going, what is going well, and are there any issues of concern you would like to bring to us? Commissioner Baran?

Mr. BARAN. Thanks for the question. It is something we obviously are all very focused on. I think we are all reviewing and beginning to digest the draft proposed rule. I agree with you completely: the result needs to be an efficient and effective licensing framework going forward.

I think we have heard throughout this process, as the staff has developed the draft proposed rule, there are several issues we hear about a lot from a lot of stakeholders, concerns or areas where it is clear that the commission is going to need to make a decision about how to proceed. Everything from, we are going to have a performance-based regulation, what is the overall performance standard, what should it be. There is a debate about that.

There is a question about the role of, as low as reasonably achievable doses, how does that play in. Do we have two frameworks, a framework A and a framework B? If so, how does framework B look? Security, there are multiple, big issues. But probably half a dozen or so that get the most attention from stakeholders, and I think that the staff has spent the most time on.

So I know we will all be focused on those issues and trying to figure out, how do we strike the right balance, how do we have a good rule in the end that is going to work and be efficient and effective.

Senator CARPER. Thanks. My time is expired. I am going to come back and pick this up after each of my colleagues have had a chance to ask their questions.

Senator Capito, please.

Senator CAPITO. Thank you, Mr. Chairman. Thank you all.

Chair Hanson, I wanted to ask specifically about the State of West Virginia, because West Virginia recently notified the commission of its interest in becoming an agreement State. Agreement States assume responsibility to exercise certain regulatory authori-

ties over nuclear materials. It has a process, and you all review that.

In your letter to our Governor, Governor Justice, you welcomed the State's interest. I appreciate that. I would just ask for your assurance that you will provide all the necessary attention and resources to help review that application that West Virginia has made, as well as frequent communications with the State as we are going through this process.

Mr. HANSON. Yes, Senator, you have my commitment with that. The process really kicks off on June 1st, and that is going to be followed by a series of monthly status meetings between the State and NRC staff. Not only will we be reviewing their application, but we are going to provide training to State staff for them to get up to speed on reviewing materials licenses and becoming inspectors.

Senator CAPITO. Right. For our State, this is new territory for us. That is very helpful.

How many States have State agreements already?

Mr. HANSON. We have 39 fully in place. We have two more in process. West Virginia is going to be joining Indiana and Connecticut who are in the middle of that process right now.

Senator CAPITO. All right. Thank you.

There has already been a lot of conversation about what is known as Part 53 of the new regulation, the 1,800 pages that have come forth for a regulatory framework for advanced nuclear reactor technologies. I think this is absolutely essential.

It has come to our attention, Commissioner Baran, I think you just mentioned this, that stakeholders have been consistently identifying some key issues where they have some issues that need to be resolved before the final rule would move forward. You want a rule that is workable, we are really putting a lot of eggs in this basket to be able to move forward, not just here but as I mentioned in my opening statement, globally.

I want a simple yes or no response from all of you that you agree, obviously, I think, that a successful regulatory framework must be a rule that can be used. But will you commit to addressing the widely acknowledged issues with the proposed rule and provide specific direction to fix those rules? If I can just go down the dais, say yes or no on that.

Mr. HANSON. Yes, Senator, we will be tackling those issues.

Senator CAPITO. Thank you.

Mr. BARAN. Yes, of course.

Senator CAPITO. Yes.

Mr. WRIGHT. Yes.

Ms. CAPUTO. Yes, I will.

Mr. CROWELL. Yes.

Senator CAPITO. Thank you. Before I ask about telework, I want to ask about this \$92 million carryover. You mentioned, Chairman, that \$21 million of that is carried over. Well, I can do the simple math here. That leaves another \$71 million. Where does that go? Where is that? If you're only using \$21 million to carry over into this year's budget.

Mr. HANSON. I see. The \$27 million we proposed in the 2024 to kind of offset that. But that does still leave some additional carryover.



Senator CAPITO. It is significant. That is significant. If I am not seeing this right, it is a \$70 million unused still. Is that correct? Close to that?

Mr. HANSON. Senator, at about halfway through the year, we have now obligated about half of that \$90 million already to new work here in Fiscal Year 2023.

Senator CAPITO. So you are using that now?

Mr. HANSON. We are using that, yes. It does not consistently accumulate. We will take unobligated funds and dedicate those to existing work.

Senator CAPITO. Commissioner Caputo, I would like you to weigh in here because you mentioned it in your statement, how you feel about that method of paying for things.

Ms. CAPUTO. I think what the chairman is referring to is spending the older money first. But I also think what that does is push forward the dates when we start using the appropriations that we are given for the fiscal year. So it sort of pushes carryover through to the end of this fiscal year.

So considering that we ended the year with \$92 million in carryover and received a budget increase in Fiscal Year 2023, I would expect us again to have carryover at least on that order, if not higher.

Senator CAPITO. Yes, and you mentioned that that carryover dollars represents not just the corporate, if I am saying this correctly, the corporate contribution, which you mentioned ratepayers and——

Ms. CAPUTO. Yes.

Senator CAPITO. Will you explain what that means? That is the taxpayer, right, the person who is receiving the service?

Ms. CAPUTO. Yes. There is a portion of our budget that is paid for by taxpayers which is in the neighborhood of 15 percent, and the remainder of it is collected from licensees and applicants. What I mentioned in my statement was the breakdown between the activities where we had excess funds that were taxpayer funded versus those that we, as mandated under law, have to recover in fees.

So when our budget is issued, we have to recover the fees regardless of whether or not we use the money.

Senator CAPITO. OK. Can I ask one more question? Chairman Hanson, the statistics that you generated and that I mentioned in my opening statement, I think as you look further into some of that, there is a great, vast majority of NRC employees that are not in the office 6 days out of 2 weeks' pay period. I mentioned concerns of mentoring.

We see this popping up a lot in corporate America. A lot of people are bringing everybody back. I understand, when we had this conversation earlier, your response to me was, it needs to be an all-of-government response. In other words, I can not respond at the NRC one way and then have the Department of Energy doing something else, because they are going to pick off my talent, is the bottom line here.

Mr. HANSON. Yes.

Senator CAPITO. Do you not agree that to have, I know to have a blended work, yes, but to have more people actually in the office

mentoring new employees, talking about new technologies that are coming online, is a much more effective way to actually get a better result?

Mr. HANSON. Senator, I definitely agree that there are a lot of advantages of in-person interactions. We want those interactions to be purposeful. We brought the staff back to the office about 2 days a week just about a year ago now. What we found was there was a lot of uneven distribution about who was in the office when and folks were sitting in their cubes by themselves on Teams meetings with other people who weren't around.

So what we have tried to do is develop a model of interaction where people are coming together for a particular reason. Like you said, I think mentoring is a great example of that, celebrating achievements, completing work together on big efforts. We are trying to develop a flexible work model that directs, encourages, and guides those kinds of meaningful interactions.

Senator CAPITO. Do you make those decisions yourself? Or are those made within the agency by the different siloed areas of the NRC?

Mr. HANSON. Our Executive Director of Operations and the leadership team of career civil servants is making those decisions. But they are keeping the commission informed.

Senator CAPITO. So it is a consistent policy across the commission?

Mr. HANSON. That is the idea, yes, that it is a consistent policy across the agency.

Senator CAPITO. Well, the President made a statement on it the other day, and then he said, well, when you come into work, it has to be for a meaningful purpose. I was like, isn't every day supposed to be a meaningful purpose at work?

[Laughter.]

Senator CAPITO. I sort of thought, who goes to work for unmeaningful purposes? It sounds sort of wasteful to me.

Thank you very much.

Mr. HANSON. Thank you.

Senator CARPER. Thanks, Senator Capito.

Senator Stabenow, you are next. Welcome. It is nice to see you.

Senator STABENOW. Thank you. Good morning and thanks to all of you. I hope every day is meaningful, as we are coming in to work together.

Thank you for all of your work and leadership. I am a supporter of the use of nuclear power. I think we have great new opportunities now, and certainly attacking the climate crisis using the new technologies that you have been talking about I think give us some real opportunities.

I want to ask my first question about something close to home in Michigan. I know, Chairman Hanson, as a Michigan native yourself, we are glad to say, I know you are well aware of how we feel about our Great Lakes in terms of the economy. We like to say the Great Lakes are really in our DNA, and that we do everything we can to protect this unparalleled natural resource for the next generations.

That is why I for years now have led efforts working with our Canadian friends to stop proposals to bury high-level nuclear waste

in the Great Lakes Basin. We have had meetings, I have had meetings in Canada, in Michigan, phone calls, good conversations. The good news is we were successful in stopping one proposal. Unfortunately, Canada continues now to consider a separate proposal to store highly radioactive waste at a site just off of Lake Huron. They are only months away from finalizing a decision on the matter.

Now, I understand you are looking at two sites, one is not in the Great Lakes Basin, one is near Lake Huron. Obviously, we would prefer, Canada is a big country, and as I have said to my Canadian friends, you have a lot of options on where you would locate a site. It does not have to be right next to the Great Lakes, right next to Lake Huron. Particularly when we talk about threatening the drinking water supply of more than 40 million people in the U.S. and Canada, as you know.

So my question is, will you commit to work with me, to work with us, work with other Federal partners, including the State Department, to engage with our Canadian allies on this issue in an effort, hopefully a successful effort, that this waste will not be permanently stored in the Great Lakes Basin?

Mr. HANSON. Senator, yes, I commit to work with you and the State Department and our interagency partners to bring the breadth and depth of the expertise of the NRC to this issue.

Senator STABENOW. Great. Well, this is really important, and hopefully as we move forward with new technologies and so on, maybe the issues around waste will not be what they are today. But certainly we are very concerned about the Great Lakes.

I did want to go back to what the leadership of our committee has talked to you about, and you have mentioned, but just a little bit more on work force, which is a challenge, of course, for all of us, every business, every entity, certainly in Michigan and in the Federal Government and so on. But when I learned that one-third of the NRC staff is eligible for retirement, it was like, ouch, that is a challenge. That is a very big challenge. A lot of expertise to replace, for sure.

I wondered if the chairman, also Commissioner Baran, you spoke about this specifically as well, but what does this mean for your ability to develop and implement standards? We have talked about some strategies. I am glad you are reaching out to the Navy, my dad was in the Navy as well, as the chairman knows, and reached out to others.

What else can we do to support you to be able to get you what you need in terms of the expertise that is necessary?

Mr. HANSON. Thank you, Senator, very much.

In terms of bringing folks into the agency, we have a broad across-the-board approach where we are really actively engaging recent college graduates. I am visiting universities, I know my colleagues are as well, to try and get folks on the nuclear track and interested in public service. But we are also working hard to recruit and retain mid-career folks as well, folks with expertise already that can come in the door and maybe hit the ground running a little bit more.

Certainly, competitive pay and benefits, maybe not everything that industry can do, but certainly the benefits that the Federal

Government has there. But also things like student loan repayment and other kinds of Federal tools that we might be able to use to retain folks.

We also have specific programs for specific skill sets. It is not just folks in general, but we are looking for people like reactor systems analysts that were health physicists. We have specific initiatives aimed at getting those folks in the door.

Senator STABENOW. Right. Commissioner Baran, do you want to add to that?

Mr. BARAN. I do not know that I can add too much. I agree with everything Chair Hanson said.

I would just note for a little bit of context, for a number of years, the agency has been shrinking. We had been doing very little external hiring. So only these last couple of years have we been starting to ramp this up. Because of attrition and a growing number of folks retiring, we need to hire a couple hundred people a year just to stay flat. That is much more than we have been doing in the last several years.

So as the chair said, the folks we have, and to get our hiring ramped up again, and do it in new, smarter ways, how we bring in lots of folks that are going to be highly qualified and get them where we need them is really important. As he said also, I think the additional hiring flexibilities in the ADVANCE Act are really great, and we certainly appreciate that support as well.

Senator STABENOW. Thank you. Thank you very much.

Senator CARPER. Senator Ricketts, good to see you.

Senator RICKETTS. Thank you, Chairman Carper, Ranking Member Capito.

I always say I love being on this committee. We are not going to talk about ethanol today.

[Laughter.]

Senator STABENOW. I would be happy to join you in doing that.

[Laughter.]

Senator RICKETTS. Thank you, Commissioners, for serving in this role and for being here with us today. Nebraska is very proud of our nuclear power that we have that is clean, safe, and reliable. Our Cooper Nuclear Station is an 835-megawatt facility that can generate power for about 385,000 residences, even in the hottest part of summer. So we are very proud of our nuclear power, and look to continue to see how we can expand it going forward into the future.

Chairman Hanson, this question is going to be for you. I am going to start by quoting what Commissioner Caputo said, which is the principles of good regulation State that the American taxpayer, the rate-paying consumer and licensees are all entitled to the best possible management and administration of regulatory activities. The highest technical and managerial competence is required, and must be a constant NRC goal. That is the NRC's practice, or stated goal there.

However, in looking at the review process here, there are some questions I have about it. I will give you a little bit of background. As Governor of Nebraska, we were very focused on process improvement and how we could streamline our operations to be able to do a better job. The NRC has, looking at the time it takes in

licensing hours for the initial renewals, and it does not appear that you are living up to what the goal here is. Because it says, the first 44 initial license renewals were completed in or on an average of 16,000 review hours. Most recently, review hours for initial license renewals have been estimated to be 23,000, an increase of 44 percent.

Then another thing I would like to you to answer, Chairman Hanson, is in subsequent license renewal applications which I would think, and granted, I am a layman, so I do not know, I am not an expert on this stuff, but you would think you would be able to realize the efficiencies based upon the initial license renewal screening, safety, environmental review as well as the ongoing management of the programs that they have. Those have averaged 25,000. So for me, there is a disconnect between initial licensing being shorter than the follow-on licensing. I would think that would be easier to do.

Why have these subsequent license renewal reviews required more time and resources than the initial ones? Why is it taking longer just in general to do these initial license reviews?

Mr. HANSON. Senator, those are very good questions. I recently have become aware of this discrepancy in the hours myself. I am focusing on it and working with the career staff to find out what the issues are here. Oftentimes, the way we will approach these things is to look at the differences between like things, an initial license renewal for a particular reactor and then a subsequent, well, OK, what has changed, and look and dive into those.

So I do not have an answer for you today, but I will get back to you for the record on what exactly is going on there. I can share my concern about that as well. I want to understand better exactly what is going on there.

Senator RICKETTS. OK, well, I appreciate you following up on that. Again, we leverage Lean Six Sigma; there are a lot of other process improvement methodologies out there that you can implement agency-wide to be able to drive better productivity, streamlining operations, reducing the number of steps it takes to do things, and not sacrificing anything with regard to the quality of the output or anything like that.

And of course, I think you are going to find broad support for the nuclear industry, especially, Commissioner Baran was talking about some of the exciting new technologies that are coming online, Nebraska is passing laws to be able to try and attract that to our State, when we are talking about some of these advanced nuclear programs. So we are really excited about this stuff.

So, if you could, get back to me and describe some of those things. I am running close to my time, so I am not going to go over, because we also have some other people here. But I do want to say, if you would get back to us on that, and just followup on some of the steps you will do there.

Then another question, as long as you are doing that, in the Inflation Reduction Act there are several provisions to incentivize power uprates of the current fleet of power reactors. Can you provide your strategy for how you are going to address the potential increase in power uprate applications in line with the Inflation Reduction Act?

Mr. HANSON. Yes. We have not gotten formal notification yet from licensees about power uprates, but we have had some informal interactions. I know the Nuclear Energy Institute has a survey out there as well that folks are going to be pursuing those. In our operating reactors group, we are already starting to look ahead for that and make sure that we have the right skill sets in place. It is also part of our hiring strategy. I mentioned reactor systems analysts earlier. Those are going to be some of the critical skill sets that we are going to need to be able to move those in a risk-informed, performance based and timely way while keeping our safety mission front and center.

Senator RICKETTS.

Yes, again, it would seem to me you can create a template for anybody who applies for the uprates about what they would have to do and where they could get to go with regard to this. Again, this is something that I think is, as we have increasing energy demands, I think it is something important for my State and the Nation to be able to accomplish.

Mr. HANSON. We have done that in other areas, Senator, where we have kind of gone through almost like a pilot process with a single licensee, then other licensees can follow that pattern, and it becomes more efficient over time.

Senator RICKETTS. Great, fantastic. Thank you very much, Chairman.

Senator CARPER. Thanks for those questions.

Senator Cardin, you are recognized.

Senator CARDIN. Thank you, Mr. Chairman. Let me thank all the commissioners for your work. We appreciate it very much. I am proud of your location in our State of Maryland and the work force, many of which live in Maryland.

I want to talk about the work force issues. I know it has been brought up. I want to mention three issues and then try to get your response on how you are dealing with it.

The NRC has a higher-than-average attrition rate. We have a problem with attrition generally in Federal service, but your rates are higher than the norm.

We have a morale problem. In all the recent ratings in regard to the best places to work, the NRC has dropped in its rating, I think it is 21st out of 27 right now, and according to OPM, the Federal Employees Viewpoint Survey dropped from 81.8 in 2010 to 66.5 in 2022. There is a moral issue problem at the NRC.

Last, you have an age factor. One-third of your work force, as I understand it, is eligible for retirement. The number of workers that you have that are under the age of 30 is about 4 percent, if my numbers are correct.

So what steps are you taking in an effort to try to reverse these three trends, the attrition, the age of the work force, and the spirit of the work force to work under difficult circumstances because it is a good place to work?

Mr. HANSON. Senator, thank you. Let me try and tackle each one of those, if I can. You are right, attrition has gone up. I think last year we got up to about 9 percent, which is, you are right, higher than normal. I would say in terms of the age factor there, the average age of new hires in the agency is about between 36 and 39. So

the folks that we are bringing in are significantly younger than a lot of the other folks in the agency.

We are also focused on knowledge management. This commission has been focused on it as well, so that the knowledge and the expertise of some of those older workers who are eligible to retire and will retire is getting transferred down so that we can continue to keep our safety mission front and center.

Finally, in terms of our FEV (Forced Expiratory Volume) scores, I acknowledge those. Ten years ago or so, we were No. 1 in FEV as the best place to work in government. We were also growing a lot. There was a lot of promotion potential, we were looking at the nuclear renaissance, we were 25, 30 percent bigger than we are now. We have shrunk a lot.

As the agency shrunk and we weren't sure about the future of nuclear, well, the nuclear for energy and climate security reasons really picked up. But at that same time, the pandemic hit, and folks were forced to go home. Now we are in a hybrid work environment. The key to really making that environment work, I think, is really about trust and about making the staff know that we trust them to do a good job, that we trust them to come into the office when they need to, that we trust them to accomplish the mission.

That is really the theme throughout this. Before the pandemic, we were accomplishing the mission. During the pandemic, we accomplished the mission. And we are accomplishing it now. We are going to continue to do so going forward. And helping folks understand the importance of that mission in this dynamic time that I think each of my colleagues talked about is really important. I hope it can be a morale booster going forward.

Senator CARDIN. I am a strong supporter of your work force. I will continue to be a strong supporter for what you need. The challenges you are talking about have been confronted by many agencies in government. We have seen the decline in many of our agencies. Your relative score is dropping, and your absolute score has dropped pretty dramatically.

The building blocks you just mentioned are very important points. That has to be a key part. But it needs to be first acknowledged that you have a problem. You then need to work with the work force to find out the reasons for what is happening here and then have a strategy so that people want to work for your agency and that you can attract the young people that are going to be necessary to give you the continuity in a field that is very dynamic.

This is an area that is just absolutely essential in recruitment. If you have a reputation that it is not a good place to work, it is going to make it even more difficult for you to get the talent you need to meet the missions in the future.

So I would hope that you would share with us a strategy to take this issue on head-on with the work force so it is not dictating how they should feel, but understanding how they feel and then deal with the challenges that you have moving forward.

Mr. HANSON. I am happy to provide more details on some of the things we are doing in that area, Senator.

Senator CARDIN. Thank you. Thank you, Mr. Chairman.

Senator CARPER. Thanks for those comments, Senator Cardin.

We have been joined by Senator Lummis, then Senator Whitehouse has slipped in here. Senator Lummis, good morning. How are you?

Senator LUMMIS. Thank you, Mr. Chairman. Welcome, thank you for being here, commissioners.

In Wyoming, we are really looking forward to the advanced reactors like TerraPower's sodium reactor coming to Kemmerer, Wyoming. Much to be excited about.

Chairman Hanson, for agreement States like Wyoming, would it be possible for States to do early site permitting to grease the wheels for future reactors in communities that want them? Would that require agreement amendments, or is this allowed under current NRC regulations?

Mr. HANSON. Senator, I would have to get back to you with the specifics on that. I think the NRC retains authority for early site permits for reactors. So I think under the Atomic Energy Act that is not eligible for an agreement State. But as part of the early site permit process, we would work with and consult State and other parties throughout that.

Senator LUMMIS. Great. I will look forward to following up with you on that. That will be great.

Ms. CAPUTO. Senator, if I may?

Senator LUMMIS. Yes.

Ms. CAPUTO. Under our regulations, any individual can pursue an ESP. That definition of individual does include States and State entities. So it would be possible for the State, as an agreement State, to pursue an early site permit.

Generally, there is a requirement to have control over the land, so there would need to be some sort of an agreement, either possession of the property in question or some sort of an agreement with the owner that would allow work and site characterization necessary to achieve a permit to go forward. There are precedents for that. I believe the reactor vendor Oklo has some sort of an agreement like that with the DOE site at Idaho National Lab.

But it is possible for a State to proceed and actually pursue an early site permit.

Senator LUMMIS. Thank you for that answer and also thank you for coming to Wyoming and looking at some of the in-situ recovery sites in Wyoming.

Ms. CAPUTO. That is always my pleasure.

Senator LUMMIS. My staff really enjoyed spending time with you. For anybody who hasn't seen it, it is always such a surprise. It was the first time I saw in situ, because we are used to visualizing a typical mining operation.

You go see an in-situ operation, it is like you are going out and looking at a bunch of beehives. It is very low profile, on the surface, and there is no surface disturbance that you can see. It is absolutely amazing. So for anyone who hasn't seen it, we would love to have you out and show it to you further.

I want to talk a little bit about remediation of legacy uranium sites. I know that the commission has had numerous public statements supporting remediation. Members of this committee also share that goal, especially given the development of technology that can finally cleanup the roughly 15,000 waste rock piles in the west.



One of the technologies that is used is called high pressure slurry ablation, or HPSA. I am sure you know that, it was a new term to me.

But one of those technologies, which is basically a car wash for rocks, was recently declined a multi-site license by the NRC staff. You recently directed staff to reconsider and present options to the commission. My question is, who sets the policy for the NRC? Is it the NRC staff, or is it the commissioners?

Mr. HANSON. Senator, the policy matters reside with the commission. That was one of the reasons why we directed the staff, Commissioner Baran was actively involved in this issue, to provide us a paper with options and policy implications on this matter. Because there were some issues about legal authority and definitions in the statute, et cetera. We wanted to better fully understand that and fully understand what our options were.

Senator LUMMIS. May I ask you then, Commissioner Baran, does the commission believe it has the authority to revise its own interpretation of byproduct materials to exclude beneficial remediation technologies from being considered milling? It seems like that word milling has come into question in all of this.

Mr. BARAN. We need to regulate remediation technologies in a way that makes sense. As a matter of policy, I think we want to incentivize the remediation, the cleanup of mine waste. We obviously need to comply with the Atomic Energy Act. That is kind of the issue with these definitions.

But I am not convinced that the statute requires us to apply a regulatory framework here that wouldn't make sense or does not fit. I know you have legislation that looks at this, and I think that would be very good legislation.

I do not think the Congress should need to act in this area. I think the commission has the latitude to develop a more appropriate policy. We have directed the NRC staff to think creatively about this and provide us with some viable options.

Senator LUMMIS. Thank you. Thanks very much for being here.

Ms. CAPUTO. Senator, this was one of the technologies that I was able to visit last week in Wyoming. I agree with the chairman and Commissioner Baran. It is difficult under the initial legal review by our Office of General Counsel, it is difficult to envision any remediation technology not falling under that interpretation for milling, which would necessitate functionally a milling license for cleanup of each and every uranium remediation site that is out there, and there are thousands.

So I do believe that there is room to look at this and perhaps get a fresher legal interpretation that would enable remediation.

Senator LUMMIS. Thank you very much. Commissioners, thank you so much for being here. I appreciate your testimony today.

I yield back, thank you.

Senator CARPER. You bet. Senator Whitehouse, then Senator Padilla.

Senator WHITEHOUSE. Thank you, Chairman. Chair Hanson and members of the commission, welcome. Particularly welcome to Commissioner Crowell, who is returning to this committee from his position here years ago.

The legislative status is that we got you both the Nuclear Energy Innovation and Capabilities Act and the Nuclear Innovation and Modernization Act, and we have pending Senator Caputo's ADVANCE Act, which I have been helpful and supportive with. I am one of her Democratic cosponsors, if not her lead one.

I would like to know with respect to speeding up the pace of approval for new fourth generation technologies, are you satisfied with the authorities that we gave you, or is there something more that you need? I invite you, since there are five of you, to make that a question for the record and just let us know, are those two bills adequate? What more do you need? Because the ADVANCE Act is filed, but it can still be amended. If there is more that you need, we could consider putting other things that you think would be helpful into the ADVANCE Act. So I would like to get your official views on that as individual chair and commissioners.

The second issue I want to raise with you is one that I raise pretty much every time, which is my worry that by relying so much on private sector initiative, we rely enormously on economic signaling and we could be in a situation in which two technologies, one which requires new fuel, and another technology, which would allow the re-use and reprocessing of spent fuel, of our existing nuclear waste stockpiles, that the spent fuel technology will fail the economic test because it will be cheaper to get new fuel. And that economic test will not have taken into consideration the very important national security and public safety values of finding out what we can do to make use of our spent fuel.

I am worried that that becomes a mistake because the economic signals are poorly aligned. In the same way that we saw safely operating nuclear plants shut down so that natural gas plants could light up, only because the natural gas plants were so-called cheaper, only because they were polluting for free and the nuclear plants got zero value for being pollution free, you could end up with decision-making that is driven by false economics.

So what more can we do? We established a prize in our bill to encourage that form of re-use of spent fuel in new technologies. Beyond having a prize, what more can we do to make sure that the value of figuring out how to use spent fuel gets baked into your preferences, even if it does not flow through into the narrow cost benefit analysis of the actual operator?

Again, time will run out, I am happy to have the chair lead off and if anybody does not have a chance to answer, then it is a question for the record, because you have 1 minute.

Mr. HANSON. From a regulatory perspective, I think the opening stakes here are that we are actively engaged with folks who are pursuing reprocessing technologies, so that we are not an impediment, and that we make sure our regulations can ensure safety, but that they are clear and transparent and efficient in that regard.

So I think we can have some influence on the economics. We talked about economic signals, you talked about economic signals, that being kind of important there.

I will hand it off to Commissioner Caputo.

Senator WHITEHOUSE. I think there is a real danger of misaligned economic signals because the value of getting into that nu-

clear waste stockpile and figuring out more productive uses for it is not one that accrues to the operator. So we have to make sure you are pushing in that direction firmly to overcome that built-in economic disincentive.

Ms. CAPUTO. Senator, I would just like to say that my first position out of school was in fact working in fuel procurement. The difference between the market price for uranium and reprocessed uranium was the difference between roughly \$10 and several hundred dollars a pound.

But there are advanced reactor technologies out there that are looking at how to include some means of recycling in terms of how they use fuel and how they use the reactor. So with these other technologies in combination with advanced reactor design, I think there are opportunities there that may propel a different value chain to make that decision more economically competitive.

And I do not think those technologies have come before us yet in terms of requesting a review for a processing facility. But I do think there is potential there for improved economics and proliferation resistance with some of these recycling technologies.

Senator WHITEHOUSE. Good. Well, it is not exactly entirely last call at the old ADVANCE Act saloon, because it has just been filed. But we are going to try to move it. The sooner you can get to us any advice on what we can do in addition to the prize in that bill to encourage utilization of spent fuel, we would love to hear from you to try to make our own judgment about the wisdom of putting that into the bill.

Thank you, Chairman.

Senator CARPER. Thanks very much for raising those points. Very timely and on target.

Senator WHITEHOUSE. Well, much appreciation to our Ranking Member, who was so essential to it.

Senator CARPER. Senator Markey, are you in need of permission from Senator Padilla to go ahead of him in line? Are you in a rush?

Senator MARKEY. If you do not mind.

Senator CARPER. All right, thanks. Senator Padilla, thanks for that. Senator Markey.

Senator MARKEY. Thank you.

In December 2021, Holtec, the company in charge of decommissioning the Pilgrim Nuclear Power Station, announced that it planned to discharge approximately 1 million gallons of radioactive wastewater into Cape Cod Bay. This news was met with concerns and questions from nearby families, fishermen, business leaders, and State and local elected officials who were worried about how such a large discharge of radioactive wastewater could affect public health, marine species, and the region's economic engines, including tourism and fishing.

Given these understandable concerns, local residents and businesses called for an independent expert analysis of the proposed discharge.

Chairman Hanson, is it true that effluent testing and analysis are generally considered legitimate decommissioning activities that can be paid for by a nuclear decommissioning trust fund as long as expenditures would not reduce the value of the trust below an

amount necessary to maintain the reactor in safe storage condition, and ultimately release the site and terminate the license?

Mr. HANSON. As long as there are sufficient funds to conduct the decommissioning safely, then yes, those activities could be withdrawn from the decommissioning trust fund.

Senator MARKEY. Thank you. For decades, ratepayers paid into Pilgrim's decommissioning trust fund to support the decommissioning process. Now they are demanding independent answers about the risks of Holtec's proposed discharge. Holtec's refusal to fund this robust independent study has violated its commitment to our communities to ensure an open and transparent decommissioning process.

While we are on the topic of eligible expenses for decommissioning trust funds, I would also like to express my concern over the Nuclear Regulatory Commission's reconsideration of an industry request to use decommissioning trust funds to pay for the maintenance of nuclear power plants that are still operating. Allowing licensees to use decommissioning trust funds to pay for major radioactive components disposal during plant operations is completely out of line with NRC regulations. Decommissioning trust funds are only authorized to be used for radiological decommissioning, not ongoing plant operations and maintenance.

Chairman Hanson, is it true that in 2021, the Nuclear Regulatory Commission denied a petition to change the decommissioning funding assurance regulation for that purpose?

Mr. HANSON. We did decline to pursue a rulemaking in that area, yes, Senator.

Senator MARKEY. Well, I would strongly discourage the Nuclear Regulatory Commission from reopening that decision. It was the correct decision. I will encourage the commission not to bend the rules on decommissioning trust funds and funding assurance. I think that we should keep a very bright line; nuclear plant operators should not be pilfering funds reserved for decommissioning of the plant to protect their profits during operation. That is just two separate categories altogether. It is just wrong.

In the latest version of the proposed decommissioning rule, the Nuclear Regulatory Commission would have no ability to approve, change, or deny plants decommissioning proposals, assuming post-shutdown decommissioning activity reports based on their content and feasibility. The NRC would simply acknowledge receipt and look at whether these critical reports checked the boxes for complete.

Chairman Hanson, is it true that under this rulemaking, the Nuclear Regulatory Commission just checks to make sure all the necessary parts of the shutdown and decommissioning plan are in the report, without having to formally approve the plan?

Mr. HANSON. Senator, that is the approach in the proposed rule. We have gotten a lot of comments in this area. I appreciated the opportunity to speak with you about this issue in your office. I think we had a very substantive conversation about this.

What I took away from our conversation was the importance of providing the public with an opportunity to weigh in at the beginning of the decommissioning process, whether that is through the PSDAR (Post-Shutdown Decommissioning Activities Report) some-

thing else. I understand the staff is taking into account those comments along the lines of those that you submitted and others at this area about the best way or a number of options for doing that.

Senator MARKEY. My feeling is that it is like having a mechanic who checks to make sure you have all four tires on your car and tells you that you are good to go, without having checked to make sure those tires do not have a hole in them. It is a policy designed ultimately for a crash.

Chairman Hanson, if the NRC had to formally approve the Decommissioning Activities Report, would it be considered a major Federal action that would require a new national Environmental Policy Act review?

Mr. HANSON. I am sorry, Senator, I will have to get back to you on the specifics of that for the record.

Senator MARKEY. I hope the answer is yes. Although companies have to certify their belief that the decommissioning activities are bounded by previous NEPA reviews. I would conclude that that was the correct position.

Mr. HANSON. Yes.

Senator MARKEY. Chairman Hanson, if the NRC had to formally approve the Decommissioning Activities Report, would that provide an opportunity for stakeholders to challenge the activities outlined in the report through an adjudicatory hearing?

Mr. HANSON. Yes, if we had to approve that, that would be an action in which the public could challenge that or intervene in that process.

Senator MARKEY. So it makes a lot more sense to me to conduct an environmental review and give the public an opportunity to weigh in before the decommissioning process begins. Otherwise, you get situations like we have in Massachusetts of potential boondoggle when nearby communities are feeling unheard and under threat by nuclear power plant operators. As I have expressed to you on multiple occasions, I sincerely hope the commission requires the NRC to approve post shutdown decommissioning activity reports in the decommissioning rulemaking.

Thank you, Mr. Chairman.

Senator CARPER. You are welcome.

Senator Padilla, thank you for yielding so that Senator Markey could ask those questions. You are recognized.

Senator PADILLA. Thank you, Mr. Chairman.

We have heard about Massachusetts, let's talk about California. California is very proud of the recent scientific breakthrough at the National Ignition Facility at Lawrence Livermore National Lab. I particularly want to recognize Livermore's director, Kim Budil, and her team, who made history for achieving fusion ignition and unlocking, Mr. Chairman, this new milestone for the future of clean energy.

Last week, the NRC voted unanimously to create a new regulatory pathway for fusion energy, separate and apart from the existing framework around fission energy. Mr. Chair, we will go straight to the top, can you describe how the separate regulatory pathway will provide the certainty needed to ensure that fusion energy can continue to advance in the years ahead?

Mr. HANSON. Thank you, Senator. I am really looking forward, I have a planned trip to Livermore, and I know Dr. Budil fairly well. I look forward to catching up and seeing that facility again in June.

By establishing this in what we call a byproduct material framework, it really recognizes the fact that there is not the risk associated with an ongoing fusion reaction. Oftentimes with these facilities, if you have a loss of power that the plasma just dissipates and that there is actually a relatively low inventory of nuclear material, oftentimes deuterium or tritium, something that poses much less risk to workers and the public than say, a typical fission reactor, although those operate safely, of course, as well.

By doing that, and by saying that we can regulate the materials involved, or like a particle accelerated, say used in a research facility or hospital, then that provides a certainty in the knowledge of technology developers that they will be then kind of outside of a lot of the big power reactor type requirements, that the focus really will be on the materials used in those things as well. Hopefully, then that allows that technology to develop and reach commercial scale and we can satisfy our safety requirements.

Senator PADILLA. All in the next 3 weeks.

Mr. HANSON. All in the next 3 weeks. You got it.

Senator PADILLA. That was a joke, for people watching at home. [Laughter.]

Senator PADILLA. On a serious note, can you describe the resources you will need to be able to fully support this new pathway? Obviously, if additional support from Congress is necessary, please articulate that as well.

Mr. HANSON. Thank you. No, we have the resources we need. That was incorporated into our Fiscal Year 2024 budget request. We have some resources from 2023 to get started on this. But of course, as you just noted, the commission just gave the staff direction, so they are going to get rolling here in pretty short order.

Senator PADILLA. Wonderful. Another topic, also California-specific, not sorry. As you all know, there have been several recent developments surrounding Diablo Canyon, the nuclear plant in California. This includes dual tracking the process of relicensing and decommissioning, and the NRC's recent determination to allow Diablo Canyon to keep operating under its current license as PG&E seeks full approval to extend its lifespan.

Mr. Chair, given your previous work on this side of the dais, you are well aware of the strong feelings that many people in California have about Diablo Canyon. Can you discuss your view of the recent events surrounding Diablo Canyon, and more specifically how the NRC will continue to maintain safety standards at the facility?

Mr. HANSON. Thank you, Senator. We are going to continue to conduct our normal inspection activities. In fact, we have series, I believe, of special inspections going into the fall that may normally happen after someone had submitted a license renewal application, but because of the timing of that we are going to move, those are going to get moved up a little bit. Of course, we will do that in full and open view of the public, as we always do.

We are also going to be participating in the public meeting out at Diablo Canyon on May 3d. Our staff will be there to talk to the public about that license renewal process and what that means and how we are going to continue our oversight activities during that process.

Senator PADILLA. And in the same spirit but more specifically, not just maintaining safety standards more broadly, but continuing to be operationally safe with specific concern about seismic risk, which we have talked about for years here, and maintaining of that. Any comments here would be helpful. Also a friendly reminder to anticipate that when you do have these public hearings.

Mr. HANSON. Of course. We are going to be looking at updated safety information as part of that license renewal process. We did require all plants to take a look at the enhanced, re-look at their risks after Fukushima. Diablo, of course, did look at their seismic risk and we will take another look at that as part of the license renewal process.

We also have a process, it is the process on natural hazards information, basically, it is kind of an ongoing information gathering on external hazards to plants, where we look at that in conjunction with the licensee about maybe any changing conditions at the plant with regard to external hazards to make sure we are incorporating that into our safety bases.

Senator PADILLA. Thank you very much. Thank you, Mr. Chair.

Senator CARPER. Thanks very much for joining us today, and for your comments.

Senator Capito?

Senator CAPITO. Thank you, Mr. Chairman.

Commissioner Wright, I remember when you came before the committee, you said your mother was watching remotely. So in case she is watching, I wanted to make sure you got a good question.

[Laughter.]

Senator CAPITO. The bill that we have been talking about, the ADVANCE bill that Senator Whitehouse, Senator Carper, and I are on, among others, directs the NRC to consider options to enable the timely licenses of new nuclear facilities at brownfields sites. This is where our State of West Virginia could really have some interesting prospects for retired conventional energy facilities.

First of all, are you aware of that in the ADVANCE Act? And can you give some examples of what States would be looking at if they were looking at retired power plants that might be perfect sites for these kinds of developments?

Mr. WRIGHT. Senator, thank you for the question, and thank you for saying hello to Mom. I hope she is watching.

[Laughter.]

Mr. WRIGHT. This is a really interesting time, and West Virginia is trying to be a leader here in looking at brownfields sites to put these plants at. There are some concerns that the NRC needs to really take a hard look at and be sure. Because if you are putting multiple units at one site, I would like to be sure and would be encouraging staff to look at whether or not an EIS is required for each one of these things. I do not think that would be necessary, that might be a little bit of overkill.

But from a prudence standpoint, from a State regulator kind of perspective, they are going to be looking at things that are of benefit to the ratepayer in the end. You have access to transmission; you have a site. It has already been used before. So those are benefits to the ratepayers and the State.

Whatever these uses are going to be for these different reactors could have additional benefits, depending on whether you are in a vertically integrated State or a market State.

Senator CAPITO. Thank you.

Commissioner Crowell, do you have a comment on that?

Mr. CROWELL. Thank you, Senator Capito.

I think the other thing that the NRC could do well to prepare for the eventually of using brownfields sites is to start working now with the EPA to sort out where the jurisdiction lines are and the liabilities, so that we can move quickly for approving re-use of such a site if we receive an application to do so.

I do not think we want it to get stuck in an endless process of whose jurisdiction is whose, because the idea of re-using these sites is for expediency.

Senator CAPITO. I think that is an excellent point. I think we run into this in other kinds of permitting when there is overlapping jurisdiction or not even overlapping, but maybe new jurisdictions that we are unsure where one ends and where the other begins.

So I would encourage the commission and the staff to begin those conversations. Because that is the vision that I think we and other States probably have in terms of being able to be a player here, to be able to use this development. Thank you.

Chairman Hanson, just one last question, a slight beef here. We had written a letter to you on the draft rule, or the final rule establishing the emergency preparedness requirements, encouraging you all to make a decision. We got five sentences back. It didn't really exude enthusiasm for what we were trying to say, or much information.

So in the spirit of independence, openness, effectiveness, and clarity, which are your principles of good regulation and reliability, we have also received some questions from others in the stakeholder community, where some of the responses have been lacking. So I would just ask you to review that rule of openness to make sure that we are getting as good communication as we possibly can.

Mr. HANSON. Yes, Senator, I apologize for the paucity of that response. It is certainly not our intention to provide those kinds of meager answers. Certainly, it is my intention in my interactions with the staff, and I know my commissioners share this, to share all the available information with the committee and with you.

Senator CAPITO. Thank you. Thank you all.

Senator CARPER. Thanks, Senator Capito. And thank you again for your leadership on our new legislation, the ADVANCE Act. I think it is well-titled, and I am excited about working with you and Senator Whitehouse and others on its passage.

We have been joined by Senator Sullivan, and I am going to yield to him for his questions. Welcome.

Senator SULLIVAN. Thank you, Mr. Chairman. I appreciate the commissioners all being here.



My State, the great State of Alaska, has a very diverse energy portfolio. All of the above energy, oil, natural gas, coal, renewables, hydro, wind, solar. But one thing is missing from the mix in Alaska, and that is nuclear energy.

Despite our very incredible natural resources for Alaska, America, the world, we have the second highest electricity costs in the Country, 20 cents per kilowatt hour. The average in the U.S. is 11. And we have 190 rural communities in my State that do not have access to the power grid, 250 communities that are not connected by a road. We are very unique. My colleagues here hear this from me about every damned day. So almost all those communities use power generation through diesel generators.

So we are very interested in the process for microreactors, which we think has a lot of potential. Our Governor recently signed into legislation a law that would help streamline the approval process for microreactors in Alaska rural communities.

But the big dog in terms of approval for any kind of nuclear reaction is all of you. So I am just really going to ask an open question that relates to the promise of microreactors for rural communities, but more prominently, and I know Senator Capito is really working hard on this, which is great, we have this amazing potential resource, it is a great resource we use, but as you all know, because you are right in the middle of it, the permitting process by which to bring more nuclear power online, whether large scale or micro, is very, very time-consuming, cumbersome. I think it is discouraging in order to enable capital investments and capital formation that is needed to back these kinds of projects or innovations.

So my question to all the commissioners is, what should we do about it? How can we address it? Micro, broader, just a very open-ended question. I am always about trying to get more efficient, timely permitting for anything in America. That is really an Achilles heel for our Country. We need to do more, especially in your area.

So I will start with you, Commissioner.

Ms. CAPUTO. Senator, I would just like to make the observation, this is not the first time that Alaska has looked at microreactors. Certainly, when I first started working in the House for the Energy and Commerce Committee on Energy Policy Act 2005, there was a lot of interest in Galena, Alaska and microreactor design.

Senator SULLIVAN. Yes. Correct.

Ms. CAPUTO. I think it was basically just ahead of its time. A lot more designs are out there now.

Senator SULLIVAN. And by the way, Iverson Air Force Base has requested a proposal to conduct a 2.5-megawatt microreactor. So we are kind of back to the future right now.

Ms. CAPUTO. Indeed. Yes, I think there is a fair amount of competition in this area and a range of designs.

I do think it is really incumbent upon us as a regulator to look at ways to create more regulatory predictability. There are a lot of issues and requirements in our regulations that really should not apply when you get down to that scale.

Senator SULLIVAN. Should not?

Ms. CAPUTO. Right.

Senator SULLIVAN. Right. So that is the big question. It is not one size fits all.

Ms. CAPUTO. Exactly. So the challenge, I think, comes from the fact that some of these technologies are different, and they will need different sets of exemptions, which means it becomes an open question which of our requirements will apply and which will not. So I think we need to do a lot more to create clarity in the applicability of our regulations, so that applicants know exactly what they need to include in their applications, so that they can have more predictable and timely decisions.

Senator SULLIVAN. Great. Anyone else? Yes, sir.

Mr. HANSON. Senator, I think the key piece of this as well, in addition to some of the clarity and predictability around this, which I completely agree about, is the standardization.

So maybe we do a detailed look on the safety of the first one of these, but the next of those, if they are the same and the deployment is the same, then that becomes a pretty routine and very, very quick and efficient exercise. So the standardization on the part of vendors and designers I think will be critical.

Senator SULLIVAN. Is that happening?

Mr. HANSON. We are starting to see that. We are making progress I think on both fronts. There are some bright spots there.

Senator SULLIVAN. Great. Anyone else who has a thought? Mr. Wright?

Mr. WRIGHT. Thank you so much, Senator. In my opinion, we are supposed to enable the safe use of nuclear technologies, not inhibit it or discourage it.

Senator SULLIVAN. Right.

Mr. WRIGHT. So I agree with Commissioner Caputo and my colleague, Chair Hanson, that we have to take a really hard look at the efficiency of what we are trying to do and make it a more efficient process. There are things that staff is looking at to do that. I know that the vendors and people who are looking at these technologies are certainly encouraging us to meet that moment.

Senator SULLIVAN. Great. Anyone else?

Mr. BARAN. I agree with all that my colleagues said. We are getting this framework in place. We need to have a framework that is going to be effective and efficient, not just for 1,000 megawatt reactors, but for 1 or 2 or 10 megawatt reactors.

Senator SULLIVAN. Yes.

Mr. BARAN. It is tricky and a lot of work has gone into that, and we have a lot more work to do on that big kind of rulemaking, the Part 53 rulemaking. But a lot of our first movers that are likely to move on advanced reactors and small modular reactors, they are going to be using the existing regulations. We call that Part 50 and Part 52.

We have other efforts underway to optimize those, because we know those are going to be the regulations people use first. Part 53, we need to get right. It is critical. Part 50 and 52 have to work, too, for the new designs, and we are on that as well.

Senator SULLIVAN. Great. Thank you. Thank you, Mr. Chairman, thank you, commissioners.

Senator CARPER. You bet. As an aside, a number of years ago I was visiting my old Naval air station, Moffett Field out in Cali-

fornia, and stumbled on a re-used building there, it used to be the hobby shop on the base. It was being used for research on energy projects for creating energy on Mars.

Out of that came technology which involves something called Bloom Boxes that use fuel cells and enable it to operate at widely divergent temperatures. I am going to make sure somebody from Bloom Energy reaches out to your office to explore and see if there is something there.

Senator SULLIVAN. I am a huge fan of Bloom Energy and the CEO there. They did their first experimentation on their big technology actually in Alaska. They have an Alaska connection. Senator Stevens was very helpful with those guys.

So I think their combination of technology, natural gas, coming together to produce electricity is very low-emissions, is very—it is outstanding.

Senator CARPER. All right, thanks.

Senator SULLIVAN. Thank you.

Senator CARPER. I was asking a question earlier in the hearing, and I think I called on Commissioner Baran to respond to the question. I said we would come back and pose the same question for other members.

I am going to mention again that question. I am going to ask the other members to respond for the record. Then I have some other questions I will ask you to respond to right here.

The question I asked Commissioner Baran to respond to was would you please take a moment to describe how easing these corporate support restraints will support the NRC's efforts to modernize and hire the highly skilled workers needed to carry out the NRC's important work now and into the future.

Again for the other members of the commission, I will ask you to respond to that, as Mr. Baran has already responded to it verbally.

I am going to come back to Chairman Hanson. We have had some discussion already on fusion, we might want to come back and revisit a little bit. I will ask you to respond to this. I think I speak for a lot of my colleagues, I am excited, and God knows, the Senator from California who was here with us earlier is excited about the potential for nuclear fusion to provide safe, clean, reliable energy to power our cities and our industries. That is one of the reasons why I am encouraged to see the commission's unanimous decision on the fusion regulation, which appears to balance safety on the one hand while providing a path for the deployment of fusion in the energy systems.

My question, Mr. Chairman, would be, what resources does the NRC need to both establish the basic rules of the road for commercial fusion applications that are anticipated within the coming years, while also laying the foundation for long-term regulation of fusion energy systems?

Mr. HANSON. Senator, thank you. We have the resources we need in the Fiscal Year 2024 budget, or we are requesting the resources we need. I can get you the specific number for the record on what those resources are. And we are able to leverage some resources here in Fiscal Year 2023 as well to get rolling on that regulatory framework.

I would expect there will be a lot of public interaction as well. Both the commission and the staff will be working and communicating with both industry and the Department of Energy on technological developments to kind of understand and make sure that we have that framework in place in a time that is conducive for technology deployment.

Senator CARPER. OK. Thank you, sir. I think I misspoke when I said I was going to ask some of you to respond for the record. The question that I would ask Commissioner Baran to respond to would be to ask you all to take a moment to tell us how the new regulatory framework development process is going, and what is going well, what is an issue of concern. He responded in person. I am going to ask the rest of you to respond for the record.

I have two more questions, then we are going to wrap it up, so I can go to the Finance Committee and ask questions there, and we have a vote underway. So there is quite a bit going on.

Again, I am excited that you are here. It is great to see you here. I think it is an exciting time for the folks who work at the NRC, and I think it is definitely a glass half full, maybe more than half full.

This question is for Commissioner Baran and Commissioner Crowell. Looking at the budget for Fiscal Year 2024, would you like to highlight for us any investments that you see as particularly important or noteworthy?

Mr. BARAN. I would point to a couple, and Brad may have others. I would point to the investments throughout the budget request on recruitment, retention, and hiring. We talked a lot about that today. It is really critical for the work we need to do now and in the coming years. We are doing a lot more hiring than we used to just to kind of break even with staffing. Those investments I think are really important.

The other thing I would note is we talked a lot today about new reactor designs, new reactor applications. This is a budget request where you start to see those showing up. It is a request to perform technical reviews on a number of designs, construction permits, combined license applications that are expected.

So it starts to get real, I think, in this budget, that kind of anticipation that we have been talking about.

Senator CARPER. All right, thank you. Commissioner Crowell, same question.

Mr. CROWELL. Thank you, Mr. Chair. While agreeing with Commissioner Baran's response, I would also highlight something in the budget which is specific to the Minority Serving Institutions Grant Program, which is part and parcel to the future of the work force at the NRC. I think the more we can do in the space of promoting the upcoming generation to be in the fields that are important to the NRC, it is going to serve our purposes well. So that budget item is an important one for the NRC.

Senator CARPER. Thank you. Let me ask in closing, starting with the chairman and going right down the line, any final thoughts, anything else you want to share with us on the committee? Just briefly, any final thoughts, please, before we close.

Mr. HANSON. Thank you, Chairman Carper, for the opportunity to be here.

I would just like to highlight the NRC's international activities briefly, and how important they are both for the agency in terms of the things that we receive with our counterparts around the world, but also the kinds of expertise that we are able to provide.

I would highlight three main countries very briefly. The first is Poland, obviously. They signed an agreement to buy a Westinghouse AP1000. There were a lot of things that went into that deal.

But I would note the decade-long relationship that the NRC has had with the Polish regulator, and how we have ramped up the intensity of that relationship to prepare them to safely license and oversee U.S. technology. We value that relationship a lot.

The second one I would highlight is Ukraine. I appreciate the support the Senate has given both for Ukraine generally but also for the NRC's activities to support our Ukrainian regulatory counterparts, from an active communication with them about the status and the safety status of those plants in Ukraine. We are providing things, both technical expertise but also just some basic things like equipment and helping them keep their offices staffed and the lights on and so forth. That is a great privilege for us to be able to support our Ukrainian counterparts. Thank you very much.

Senator CARPER. Thank you. Every day I get up and get dressed and I put a lapel pin here, some of you can probably see it, it is our flag, it is the Ukrainian flag. My wife and I, along with a lot of other Americans, are supporting with their own modest means the folks in Ukraine. I applaud the efforts that you are doing there to be of support and encouragement to them.

Mr. Baran?

Mr. BARAN. Just very briefly, I know it is not a legislative hearing, but we talked a lot about the bipartisan ADVANCE today. I would close by saying I think there are some terrific provisions in that bill. We talked about several of them, but easing corporate support restrictions, additional hiring flexibilities, the brownfields program, I think those are all really beneficial.

Another one that we didn't talk about at all today that I think is a really good provision is modernizing the foreign ownership control and domination restrictions that have been on the books since the 1950's. That is a provision there that really recognizes there is a global nuclear market today that wasn't there back when the Atomic Energy Act first was enacted. So I think that is another really thoughtful and well-designed provision.

I would just say, I think there is a lot of good work that went into that bill and a lot of provisions that will be very beneficial.

Senator CARPER. Good, thanks.

Commissioner Wright, any closing thoughts you have?

Mr. WRIGHT. Thank you so much. One of the things I love about hearings with you is that you ask this question. Thank you for this.

Really to steal your line a second ago, it is an exciting time to be a safety regulator. There is no place that I would rather be than right here, right now. We have an opportunity, the five of us, to meet a very special moment in time, not just here in the U.S., but to our allies around the world.

Doing things a certain way because that is the way we have always done them is not a recipe for success. Myself, any person,

much less an agency, we are not going to be able to grow if we continue to do things the way we have always done them.

Now, having said that, safety is our mission. That is our focus. Reasonable assurance of adequate protection is the standard, that is the floor and the ceiling, and our strike zone over home plate. So it is non-negotiable.

How we do things, though, how we do things at every level should always be up for discussion and debate and ways to be innovative, novel, transformative, and to just be better and improving effectiveness and efficiency, and using our resources that we have been entrusted with.

Thank you for your interest and your support and your help.

Senator CARPER. Our pleasure. Thanks.

Ms. Caputo?

Ms. CAPUTO. I would like to add my thanks to Commissioner Wright's, that it is wonderful how you ask this question at the end. I would respond with two quotes: you can not manage what you do not measure, and people will meet expectations. We have a brilliant and dedicated staff at the NRC, and they will strive to meet the goals set for them. I think we need to do a much better job of setting ambitious goals and using meaningful metrics to spur performance improvement.

In 2008 and 2009, when the NRC was the best place to work, it was the start of the renaissance and the agency was executing a heavy workload with challenging schedules and a sense of urgency. I believe recognition of success is a strong contributor to job satisfaction, and I think demonstrating that we can achieve recognized success is the fastest path for us to improve our morale.

So I would leave you with that thought.

Senator CARPER. That is good. You were prepared for that question.

Ms. CAPUTO. Yes, I was.

Senator CARPER. Commissioner Crowell?

Mr. CROWELL. Thank you, Mr. Chair, and thank you for giving the most junior member of the commission the last word.

[Laughter.]

Mr. CROWELL. I think what I said in my opening statement, which is as we sit here, in what we all hope is a meaningful and lasting, the precipice of a meaningful and lasting nuclear renaissance, the NRC really needs to double down on its efforts in public engagement and building public trust. That needs to apply not just to the existing reactor fleet and advanced reactors, it needs to apply to all of the things that the NRC oversees. Because if we are not doing things well in the waste management and decommissioning and materials space, we are not going to have the trust of the public to do all the other, more high-profile things that we talk about in these hearings.

So I think the NRC needs to look at how they can do engagement with the public and build that trust in a new way.

Senator CARPER. Good. Thank you for that.

I would just conclude by thanking each of you. Mr. Chairman, thank you and each of the commissioners, Commissioner Baran, Commissioner Wright, Commissioner Caputo and Commissioner Crowell, we are grateful to you for your appearance today, for your

preparation and your responses to our questions and willingness to work forward on this as we go forward.

We especially appreciate your insight regarding the Nuclear Regulatory Commission's proposed budget for the upcoming fiscal year. A well-functioning nuclear industry is critical for the future of our economy, and I think for the future of our planet. We look forward to continuing to work with you and your team to ensure that this future is realized and to ensure that the NRC has the assets and resources that you need to carry out your critical responsibilities.

Before we adjourn, some housekeeping. Senators will be allowed to submit questions for the record through the close of business on Wednesday, May 3d. We will compile those questions, we will send them to each of you, and ask that you reply to those questions by Wednesday, May 17th.

As my colleagues know and our staffs know, I like music a lot. I used to promote concerts, the first one at Ohio State when I was 21 years old, and my last one when I turned 64. We had a great concert with the three best rock and roll bands in Delaware at the Queen Theater. At the end of the evening, 1,000 people sang "When I'm 64," which was huge fun.

I go back and forth on the train just about every day, and I drive to the train usually pretty early in the morning in Wilmington. I am always listening to music, it is about a 10, 12-minute drive. Interestingly, I heard a great song by Carly Simon, some of you remember Carly Simon, whose husband was James Taylor. What a combination they made.

But there is a Carly Simon song called "Coming Around Again" that some of you have heard. I see people nodding in the audience. I was thinking that might be an appropriate theme song here for this industry that is coming around again. At a time when we see great threats to our climate from the threat of climate crisis, we need every arrow in our quiver to be there, to be available. I think nuclear maybe this time may be coming around again at a time when we really need that.

So we want to make sure that we make the most of that, and we work actively and use other ways as well as we address climate change.

The last thing, whenever we talk about climate change, I mention jobs, economic opportunity. I do not care whether you are creating electric vehicles or you are deploying charging stations or whatever, there is a lot of economic opportunities and job creation coming out of our climate change work.

There is economic activity and job creation potential coming out of what we are talking about here today. If we are smart, we will not only do the right thing for our planet and for the people who are here now and will live here in the future, but we will make sure that future generations have some great jobs that will flow from this activity.

With that, I want to thank our staffs for the work you have done in preparing us for this. We look forward to driving off into a brighter future with all of you.

With that, this hearing is adjourned. Thanks so much.  
[Whereupon, at 11:59 a.m., the hearing was adjourned.]

