ORAL STATEMENT
BY KRISTINE L. SVINICKI, CHAIRMAN
UNITED STATES NUCLEAR REGULATORY COMMISSION
TO THE
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
MARCH 21, 2018

Good morning Chairman Barrasso, Ranking Member Carper, and distinguished members of the Committee. My colleagues and I appreciate the opportunity to appear before you today to discuss the U.S NRC's FY 2019 budget request.

The funding we are requesting for FY 2019 provides the resources necessary to accomplish our mission to license and regulate the civilian use of radioactive materials, to ensure adequate protection of public health and safety, and to promote the common defense and security. The NRC's FY 2019 budget request, including resources for the NRC's Office of Inspector General, is $970.7 million. The FY 2019 request represents an overall increase of $59.8 million, yet includes a decrease of 149 full-time equivalent employees, or FTE, compared with the FY 2018 annualized continuing resolution. This requested increase in resources is largely tied to the proposed activities related to the license application for the Yucca Mountain deep geologic repository for spent nuclear fuel and other high-level radioactive waste. Additional funding is also requested for further development of the regulatory infrastructure needed to review advanced nuclear reactor technologies.

The NRC proposes to recover $815.4 million of the requested FY 2019 budget from fees assessed to NRC licensees. This will result in a net appropriation of $155.3 million, with $47.7 million to be derived from the Nuclear Waste Fund.

The FY 2019 request for our largest single budget line – the Nuclear Reactor Safety Program – is $474.8 million, reflecting an overall funding increase of $25.8 million, and a decrease of 123 FTE, when compared to the FY 2018 annualized CR budget.

The FY 2019 budget request for the agency's Nuclear Materials and Waste Safety programs – which includes the Fuel Facilities, Nuclear Materials Users, Spent Fuel Storage and Transportation, Decommissioning and Low-Level Waste, and High-Level Waste programs – is $183.7 million, reflecting an increase of $46.8 million, including an increase of 82 FTE, when compared with the FY 2018 annualized CR budget. This increase is due to resources requested for the High-Level Waste program, as previously mentioned.

In summary, the NRC's budget request reflects our continuing efforts to achieve additional efficiencies while carrying out our core safety and security mission and also preparing for future work. On behalf of the Commission, I thank you for this opportunity to appear before you and your support of our mission. We will be pleased to answer your questions. Thank you.

ORAL STATEMENT
BY KRISTINE L. SVINICKI, CHAIRMAN
UNITED STATES NUCLEAR REGULATORY COMMISSION
TO THE ENERGY AND COMMERCE COMMITTEE
SUBCOMMITTEE ON ENERGY AND SUBCOMMITTEE ON THE ENVIRONMENT
MARCH 20, 2018

Good morning Chairmen Upton and Shimkus, Ranking Members Rush and Tonko, and distinguished members of the Subcommittees. My colleagues and I appreciate the opportunity to appear before you today to discuss the U.S NRC's FY 2019 budget request.

The funding we are requesting for FY 2019 provides the resources necessary to accomplish our mission to license and regulate the civilian use of radioactive materials, to ensure adequate protection of public health and safety, and to promote the common defense and security. The NRC's FY 2019 budget request, including resources for the NRC's Office of Inspector General, is $970.7 million. The FY 2019 request represents an overall increase of $59.8 million, yet includes a decrease of 149 full-time equivalent employees, or FTE, compared with the FY 2018 annualized continuing resolution. This requested increase in resources is largely tied to the proposed activities related to the license application for the Yucca Mountain deep geologic repository for spent nuclear fuel and other high-level radioactive waste. Additional funding is also requested for further development of the regulatory infrastructure needed to review advanced nuclear reactor technologies.

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In summary, the NRC's budget request reflects our continuing efforts to achieve additional efficiencies while carrying out our core safety and security mission and also preparing for future work. On behalf of the Commission, I thank you for this opportunity to appear before you and your support of our mission. We will be pleased to answer your questions. Thank you.

ORAL STATEMENT
BY KRISTINE L. SVINICKI, CHAIRMAN
UNITED STATES NUCLEAR REGULATORY COMMISSION
TO THE
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
DECEMBER 13, 2017

Good morning, Chairman Barrasso, Ranking Member Carper, and distinguished members of the Committee. My colleagues and I appreciate the opportunity to appear before you today to discuss the U.S NRC's licensing and regulatory actions since our last appearance.

The Commission's continued efforts to improve the agency's efficiency and effectiveness have focused on providing the appropriate level of resources to both corporate and programmatic areas while continuing to carry out our vital safety and security mission without diminishment. In June of 2014, the NRC established Project Aim to enhance the agency's ability to plan and execute its mission in a more efficient and effective manner. The agency continues to institutionalize the actions related to Project Aim and pursue additional activities that demonstrate the NRC's continuing commitment to effectiveness, agility, and efficiency.

Since the initiative began we've endeavored to forecast our work with greater accuracy and identify changes to our resource needs in this dynamic nuclear environment. In light of the uncertainty in work forecast, the agency is pursuing activities such as standardizing and centralizing support staff functions of both our headquarters and regional offices and institutionalizing a common prioritization process to prepare the agency to evaluate emerging work more readily and to staff it more efficiently. We're also implementing an enhanced strategic workforce planning process to improve the training, agility, and utilization of our very capable workforce.

In a separate improvement initiative, the NRC has analyzed its fee setting process to improve transparency, equitability, and timeliness. To improve transparency, the agency has engaged with stakeholders over the past few years to better understand their interests associated with how information is presented on invoices. Based on these engagements, the agency initiated several projects to improve how billable work is tracked and reported.

In our programmatic work, the NRC continues its pursuit of risk-informed regulation, through which we strive to put focus on those issues that are most important based on their safety significance. Currently the NRC staff is evaluating and updating key risk-informed decision-making guidance, developing a graded approach for using risk information in licensing reviews, implementing training requirements for agency staff, enhancing communication of risk activities, and advancing other initiatives across the agency.

The NRC has also taken many steps over the last year to ensure uniform implementation of the agency's backfitting regulations, which govern when the agency can impose additional requirements and are an essential part of the stability of our regulatory framework. In support of this initiative, the staff is undertaking actions to improve oversight by NRC managers and lead to more consistent identification and treatment of potential backfitting issues.

The NRC also continues to evolve its licensing process for operating reactors. For example, the nuclear industry is researching advanced fuel designs aimed at improving safety margins under both normal and postulated accident conditions. Several vendors are exploring candidate designs, which they refer to as Accident Tolerant Fuel. In response, the NRC is developing plans to ensure that we are prepared to effectively and efficiently review these fuels to ensure that their proposed use meets our high safety standard.

The NRC has also received four letters of intent to seek subsequent license renewal, which would authorize operation of commercial nuclear power reactors for up to 80 years. The NRC has been preparing for these reviews for several years and has published final versions of the documents that provide guidance for applicants and for the NRC technical reviewers, respectively.

Regarding NRC's activities associated with new reactors, although the licensees for V.C. Summer Units 2 and 3 decided to discontinue construction of those new units in South Carolina, the NRC's new reactor program continues its focus in support of the activities necessary to ensure the safe construction of the two AP1000 units under construction at the Vogtle site in Georgia. The NRC is also finalizing and testing the regulatory procedures that will be necessary to assess the transition of these plants from the construction phase into their operating status.

We've also docketed the first application for a small modular reactor design and received an application for an early site permit for small modular reactors in Tennessee. Both of these reviews are progressing on schedule. We also continue our pre-application engagement with advanced reactor designers and vendors.

Significant activity in the area of rulemaking is our rulemaking to improve the efficiency of the decommissioning transition process for operating reactors that are shutting down in the next few years. We published the regulatory basis for the development of the proposed rule, and concluded that there is sufficient basis to proceed with new and modified regulations addressing emergency preparedness, physical security, training, and financial requirements, among other areas.

We have received the request from the State of Wyoming to achieve Agreement State status and are working to complete the assessment of that package and it will be provided to the Commission. Staff targets doing that in September of 2018. The State of Vermont has also indicated its intent to purse Agreement State status.

During this active hurricane season the NRC responded to Hurricanes Harvey, Irma, and Maria in accordance with our incident response plans. The NRC dispatched inspectors to the reactors impacted by the hurricanes to provide monitoring of the operators' event response, and we worked closely with federal partners, such as FEMA. We will also, consistent with our practice, evaluate both the agency and licensee responses to the hurricanes and implement any lessons learned to further improve our event response going forward.

In closing, the NRC continues to focus on efforts to achieve additional efficiencies without any diminishment in our important public health and safety, and security missions. On behalf of the Commission, I thank you for this opportunity to appear before you, and we will be pleased to answer your questions at the appropriate time. Thank you.

Remarks of Kristine L. Svinicki, Chairman

U.S. Nuclear Regulatory Commission

INPO CEO Conference

31 October 2017

Good afternoon and thank you for the opportunity to speak with you. I have found great value in my attendance at this conference over the years and now appreciate the opportunity I have to address you.

During my nine years on the Commission, I have observed the NRC respond and react to the changes that take place in the industry we regulate. We do so with a singular focus on our mission of public health and safety. Throughout this continuum of change, the NRC adapts by altering processes, seeking efficiencies, and implementing those actions that are intended to make our improvements durable going forward.

Essential to our efforts has been Project AIM, which by now is well known throughout the industry. Since its inception in June 2014, the implementation of Project AIM has resulted in a decrease of more than 500 full-time equivalent staff positions. This multi-year decrease in agency resources continues in the NRC's Fiscal Year 2018 budget request, which reflects a reduction of $48 million, including 185 staff, from the previous year. Another significant factor in longer-range staffing trends is the merger of the Office of Nuclear Reactor Regulation and the Office of New Reactors, which will be completed by September 30, 2020.

In recent years, the NRC has also focused significant attention on the fee setting process and implementing changes to this process in response to stakeholder comments. The Commission has approved a number of process and policy improvements to be implemented over the next four years. One such improvement is a voluntary pilot initiative to explore whether a flat-fee structure could be established for routine licensing matters in the area of uranium recovery. Other improvements include providing additional content in the NRC's Fiscal Year 2018 Congressional Budget Justification to provide greater transparency to the Congress, as well as other stakeholders such as licensees, regarding how the planned workload in the budget will impact fees and fee structures; validating the budgeting process by comparing budgeted with actual amounts in the Congressional Budget Justification; posting the costs of various licensing actions for both the Reactors and Materials Programs on the agency's public website; and publishing both the proposed and final fee rules somewhat earlier in the process. Looking to the future, the agency plans to enhance invoices by adding agency staff names to the January 2018 invoices and transitioning toward electronic invoices.

Transitioning to the topic of small modular reactor licensing, the NRC received the first design certification application for a small modular reactor, or SMR, from NuScale in December of 2016, and the NRC staff is currently conducting Phase 1 of the 6-phase design certification review process. Based on current estimates, the agency staff anticipates that the review will be completed by September of 2020.

The staff is also engaging with external stakeholders on a variety of policy matters related to the licensing and operation of SMRs. For example, earlier this month the NRC made publicly

available the final regulatory basis for the Emergency Preparedness for Advanced Reactors and Other New Technologies rulemaking. The staff is also exploring how security would be impacted by the unique designs of SMRs, as well as attributes such as reduced source term and reduced risk of radiological accidents, which would be strong factors in the siting considerations for SMRs.

With respect to advanced reactors, we acknowledge that the NRC's current regulatory structure – with its origins in the evolution of large light water reactors – may not lend itself to direct application to new and unique technologies and that this would impact the efficient and effective review of these applications. We remain confident, however, that, if required in the nearer term, the current regulations provide the NRC with flexibility to review and make conclusions on the safety and security of new reactor designs. Nonetheless, such inefficiency is undesirable and consequently, the NRC will continue to attempt to modify its existing framework towards a more technology-neutral orientation to provide for efficient non-light water reactor technology reviews.

The agency staff has developed a multi-part strategy to prepare for the review of non-light water technologies. In December of last year, the NRC issued its strategy, entitled, "NRC Vision and Strategy: Safely Achieving Effective and Efficient Non-Light Water Reactor Mission Readiness." The strategy has three objectives: enhancing technical readiness; optimizing regulatory readiness; and optimizing communication. The strategy provides notional schedules intended to align the NRC and U.S. Department of Energy (DOE) non-light water reactor approaches and strategies. The NRC recognizes, however, that non-light water reactor vendors

may wish to commence pre-application activities or submit applications for review in the near-term, in advance of DOE's deployment goal. In those cases, the NRC will work with vendors on design-specific licensing project plans and we may accelerate specific readiness activities, if possible and appropriate.

The strategy has two overarching phases. Phase 1 is the conceptual planning phase used to lay out the vision and strategy, gather public feedback, and finalize the NRC's approach. Phase 2 includes detailed work planning efforts and task execution. The NRC will seek stakeholder input and feedback in a stepwise fashion throughout the planning and execution process. Both phases began in 2016, with a target completion date of not later than 2025 set for Phase 2.

The NRC also continues its broader engagement with vendors and developers of advanced reactor designs. One organization, Oklo, has engaged NRC in pre-application reviews and maintains an active licensing project plan. In the near-term, the agency staff anticipates that Oklo will submit a core design and modeling and simulation report. In addition to Oklo, up to four additional entities are progressing towards pre-application engagement and reviews.

With respect to subsequent license renewal, as facilities approach the end of their second operating license, the industry has indicated its intention to apply for the extended operation (60 to 80 years) of some operating reactors. The NRC and the industry have substantial experience at this point with initial license renewal and the aging management plans that are an outgrowth of that process. This experience has been factored into the staff's work in subsequent license renewal. The NRC has developed the "Generic Aging Lessons Learned for Subsequent License

Renewal Report," which is a guidance document that contains the agency staff's generic evaluation of plant aging management programs and establishes the technical basis for the adequacy of these programs.

The NRC staff has also developed the "Standard Review Plan for Review of Subsequent License Renewal Applications for Nuclear Power Plants." This document provides guidance to agency staff reviewers in assessing the technical aspects of an application in accordance with Title 10 of the Code of Federal Regulations Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants." The purposes of this standard review plan are to ensure the quality and uniformity of agency staff reviews and to present a well-defined base from which to evaluate applicant programs and activities for the subsequent period of extended operation.

Three licensees have informed the NRC of their intent to submit an application for subsequent license renewal by mid-2019. Until that time, we will continue to refine and maintain relevant agency competencies in order to ensure efficient and effective reviews.

As technology improves, and faced with the obsolescence of existing analog components, operating reactor licensees are pursuing digital upgrades of various instrumentation and control systems. Many nonsafety-related systems on the secondary side of the plant have already been upgraded and licensees are planning to use the 10 CFR 50.59 process to make digital modifications to safety-related systems. The agency staff will shortly issue a Regulatory Issue Summary, issued as draft earlier this year, to provide additional clarity for situations when common-cause failure is unlikely, thus facilitating 50.59 evaluations by licensees. Additionally,

the staff is coordinating industry representatives on more detailed guidance for 50.59 evaluations in more complicated situations, as well as licensing guidance for major upgrades like digital control rooms.

Consistent with Commission policies on risk assessment and recognizing the evolving capability of licensee and NRC risk models, the NRC is increasing its use of risk information in regulatory decision-making. We had a Commission meeting on this subject in May, where we heard feedback from both agency staff and industry on the opportunities to leverage risk information to make risk-informed and safety-focused decisions. The Commission thereafter directed the NRC staff to prepare a Commission paper describing, among other things, the barriers to increasing this risk-informed approach and the activities the agency staff is undertaking to address these challenges.

After the accidents at Fukushima Dai-ichi, the NRC carefully considered what changes might be needed at operating plants to address the lessons learned from the event. Since 2011, this has been an area of tremendous effort and significant progress by both the NRC and industry. Today, nearly all licensees are in compliance with the mitigating strategies order, meaning that they have the capability to deal with an extended loss of ac power and a loss of the ultimate heat sink. All licensees have complied with an order to provide spent fuel pool instrumentation, and boiling water reactor licensees with Mark I and II containments are now coming into compliance with an order to provide a severe accident capable hardened vent. Furthermore, licensees have looked again at the seismic and flooding hazards at their sites to ensure they can address hazards derived from updated modeling. More than half of the sites have completed their seismic hazard

reevaluations. About a quarter of sites have completed their flooding hazard reevaluations. In response to both flooding and seismic aspects, licensees have taken many interim steps—confirmed by the NRC—to ensure that the hazards are addressed while more detailed analyses and plant improvements are completed.

Within the last year, the Office of New Reactors has achieved many significant milestones in the area of new reactor licensing. Five combined operating licenses were issued: Levy Nuclear Plants Units 1 and 2 in October of 2016, William States Lee III Units 1 and 2 in December of 2016, and North Anna Power Station Unit 3 in June of 2017.

In January of this year, the NRC docketed an application for an early site permit for the Clinch River Nuclear Site in Oak Ridge, Tennessee. A specific reactor design has not yet been selected for the site; as the applicant has elected to use the "plant parameter envelope" approach. The NRC staff established its schedule for review in March of this year, which anticipates completion of the final environmental impact statement by June of 2019.

The staff also continues to make progress on its review of the APR1400 design certification application consistent with its previously established milestone schedule. In May of this year, the staff completed Phase 2 of its review, and is now conducting Phase 4, which involves the development of an advanced safety evaluation report. The review is expected to be completed in September of 2018.

I will close on the topic of high-level waste disposal. The NRC has continued to address the Court's remand regarding the Department of Energy's application for authorization to construct a high-level radioactive waste repository at Yucca Mountain in Nevada as outlined by the U.S. Court of Appeals for the District of Columbia Circuit in its decision in In Re Aiken County. The NRC completed and published the final volumes of the safety evaluation report in January of 2015 and issued an environmental impact statement supplement in May of 2016.

Recently, and in light of the agency's pending request for funds contained in the Fiscal Year 2018 budget request, the Commission approved a modest set of activities to be carried out within existing funds. These activities involve information-gathering related to the possible resumption of the adjudicatory hearing and are intended to enable informed decisions in support of executing any further appropriations of funds for the High-Level Waste Program by exploring issues related to the re-establishment of infrastructure necessary to conduct the hearing.

NRC's history demonstrates an approach to regulating that has ensured the safe, secure use of nuclear power, and which is intended to allow for the industry's necessity to innovate. In light of this need, the NRC continues to engage with you and others, as openly as possible and with due attention to our respective roles.

Thank you for your time and I would be happy to answer any questions you may have.

Remarks of Kristine L. Svinicki, Chairman
U.S. Nuclear Regulatory Commission
Aspen Institute Forum on the Future of Nuclear Energy
September 12, 2017

Thank you for the opportunity to speak with you on the future of nuclear energy from the perspective of the regulator. I would like to discuss the NRC's readiness to address some of the matters before us and those on the horizon. The issues I will discuss are the current status of small modular reactor reviews and regulatory readiness for NRC review of advanced reactor licensing, the NRC's readiness for subsequent license renewal reviews, and the topic of high-level waste.

I'll begin by addressing the status of small modular reactor licensing. To date, we have received an early site permit application submitted by the Tennessee Valley Authority for two or more small modular reactors, or SMRs, at the Clinch River Nuclear site. NRC staff is also currently engaged in reviewing the NuScale SMR design certification application. We also anticipate receiving a Combined License application from Utah Associated Municipal Power Systems referencing the NuScale SMR design to be sited within the boundary of the Idaho National Laboratory.

With respect to advanced reactors, we recognize the broad concern that NRC's current regulatory structure may not lend itself to efficient and effective review of these applications. While these applications admittedly present some uniquenesses, in general the current regulations provide the NRC with flexibility to review and make conclusions on the safety and security of new reactor designs. Nevertheless, the NRC is enhancing its existing framework in a technology-neutral manner to provide for efficient non-LWR technology reviews.

The agency staff has developed a multi-part strategy to prepare for the review of non-light water technologies. In December of last year, the agency staff issued its strategy, entitled, "NRC Vision and Strategy: Safely Achieving Effective and Efficient Non-Light Water Reactor Mission Readiness." The strategy has three objectives: enhancing technical readiness; optimizing regulatory readiness; and optimizing communication. The strategy provides notional schedules intended to align the NRC and DOE non-light water reactor visions and strategies. The NRC recognizes, however, that non-light water reactor vendors may wish to commence pre-application activities or submit applications for review in the near-term, in advance of DOE's deployment goal. In those cases, the NRC will work with vendors on design-specific licensing project plans and the NRC may accelerate specific readiness activities, as needed.

The strategy has two phases. Phase 1 is the conceptual planning phase used to lay out the vision and strategy, gather public feedback, and finalize the NRC's approach. Phase 2 includes detailed

work planning efforts and task execution. The NRC will seek stakeholder input and feedback in a stepwise fashion throughout the planning and execution process. Both phases began in 2016, and a target completion date of not later than 2025 has been set for Phase 2.

With respect to subsequent license renewal, and as facilities approach the end of their second operating license, the industry has indicated its intention to apply for the extended operation (60 to 80 years) of some operating reactors. The NRC has considered the issue of aging plants for many years, and is in the process of updating its guidance for subsequent license renewal for this period of extended operation. The NRC has developed a guidance document entitled, "Generic Aging Lessons Learned for Subsequent License Renewal Report" that contains the agency staff's generic evaluation of plant aging management programs and established the technical basis for their adequacy.

The agency staff also developed the "Standard Review Plan for Review of Subsequent License Renewal Applications for Nuclear Power Plants." This guidance document provides guidance to agency staff reviewers in the Office of Nuclear Reactor Regulation. These reviewers will assess the technical aspects of a plant in accordance with Title 10 of the Code of Federal Regulations Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants." The principal purposes of this standard review plan are to ensure the quality and uniformity of agency staff reviews and to present a well-defined base from which to evaluate applicant programs and activities for the subsequent period of extended operation.

Three licensees have informed the NRC of their intent to submit an application for subsequent license renewal by mid-2019. The agency staff will continue to prepare for those applications and refine its processes in order to ensure efficient and effective reviews.

I will close with the topic of high-level waste disposal. The NRC has continued to fulfill its obligations regarding its review of the Department of Energy's application for authorization to construct a high-level radioactive waste repository at Yucca Mountain in Nevada as outlined by the U.S. Court of Appeals for the District of Columbia Circuit in its decision in *In Re Aiken County*. The agency staff completed and published the final volumes of the safety evaluation report in January 2015. The staff completed and issued an Environmental Impact Statement supplement in May 2016.

Recently, and in light of the agency's pending budget request for Fiscal Year 2018, the NRC has approved further actions related to Yucca Mountain. These steps involve information-gathering activities related to the possible resumption of the adjudicatory hearing. These activities are intended to enable, informed decisions in support of executing any further appropriations of funds for the High-Level Waste Program by exploring issues related to the re-establishment of infrastructure necessary to conduct the hearing.

NRC's history demonstrates an approach to regulating that has ensured the safe, secure use of nuclear power, and is sensitive to the necessity for the industry to innovate. In light of this need, NRC will continue to engage with DOE and with industry as we go forward, as openly as possible and with due attention to our different roles.

Thank you for your time and I would be happy to answer any questions you may have.

Chairman Svinicki Remarks – 38th Annual Award Ceremony

Welcome to the 38th Annual Awards Ceremony at the U.S. Nuclear Regulatory Commission. My Commission colleagues and I believe that this annual event represents an opportunity to highlight the talent and ability of an NRC staff that serves as the agency's most valued resource.

At this event in 1995, then Chairman Ivan Selin reflected on the agency's growth since its inception. Chairman Selin remarked that what had begun as a small staff with the mission of protecting public health and safety had grown over its 20 year existence into "a regulatory program that has earned the agency wide recognition as the world's preeminent independent regulatory body."

In the years following, our numbers have increased and our mission has evolved, but those agency pioneers provided the blueprint for the continued dedication, skill, and experience we witness in the NRC staff today and certainly in each of our honorees.

The past year has been a period of change for the NRC. Programs have been examined, processes streamlined, offices reorganized, and our program of planned work continues to change. This pace of change demands of us – more than ever – extraordinary professionalism and dedication.

The employees receiving these Distinguished and Meritorious Service Awards today have each, in their respective categories, demonstrated sustained superior competence in their positions and dedication and commitment to the mission of the NRC. Together they represent a cross-section of the skills, functions, and offices that support the successful operation of this agency. As we honor those who are being recognized today, let us remember that each of us, as employees of the NRC, are the guardians of our important health and safety mission. Our efforts, individually and collectively, ensure our ability to retain the trust placed in us by the American people.

As the Commission conducts this year's awards ceremony we are proud of the women and men whose performance we are honoring in this ceremony. My colleagues and I are also grateful for all NRC employees and their dedication to public service. We look forward to working with all of you in carrying out our important service to the Nation.

Mexican Nuclear Society Conference:
New Technologies for a Nuclear Expansion Program
June 19, 2017 – Mexico City

Chairman Kristine L. Svinicki
U.S. Nuclear Regulatory Commission

Buenos dias. Good morning Mr. Guerra, distinguished panelists, colleagues, and guests. Es un placer estar aqui. My thanks to the Mexican Nuclear Society and the Latin American Section of the American Nuclear Society for inviting me to this event, where we will discuss issues faced by countries that are considering the advancement of new nuclear technologies and innovations. I know also that this conference emphasizes the importance of our persistent focus on maintaining a high level of nuclear safety in all that we do.

On behalf of the United States Nuclear Regulatory Commission, or NRC, I am pleased to present a summary of some of the near-term issues being addressed by our agency. This overview will provide insights into the multifaceted efforts the NRC makes in ensuring nuclear safety and security in our country.

Since the focus of the conference is on new technologies, I will begin by discussing activities that are underway in the area of new reactor licensing. Following that, I will address activities in the area of reactors that are currently operating.

Also, in the past decade and a half the NRC grew to the largest size in our agency's history in expectation of a surge in regulatory activities. Some of these forecasted activities did not come to fruition. Therefore, the NRC has undertaken efforts to adjust the size of the agency to address numerous fact-of-life changes. Since some countries are facing similar challenges, to conclude my remarks, I will share the NRC's experience and insights on this topic.

NEW REACTOR LICENSING

One of the key elements of our regulatory program is new reactor licensing. NRC policy acknowledges that the next generation of reactors will achieve stronger safety performance than currently operating reactors. To that end, the NRC has conducted rigorous safety reviews to ensure that new reactor designs and applications meet our safety and security requirements. Safety and environmental reviews for new reactor designs are underway, and some are completed at this point, and have proceeded in a manner that protects public health and safety.

In 2012, the NRC issued its first combined licenses authorizing construction and operation of plants at two sites in the U.S. – two units at the Vogtle site in Georgia and two units at the Summer site in South Carolina. Both sites have currently operating reactors. Since then, the NRC has issued combined licenses for new reactors at five additional sites. One application for two new units remains under NRC review.

To date, we have issued five early site permits and are currently reviewing one early site permit application submitted for the Clinch River site near Oak Ridge, Tennessee. The NRC has also issued design certifications for five reactor designs and is currently actively reviewing three applications. Our agency has engaged in varying degrees of pre-application activities with several small modular reactor designers over the past several years. In January of this year, the NRC received the first design certification application for a small modular reactor, the NuScale design, and we have accepted the application as sufficient to begin our review.

With respect to more truly novel and advanced reactor designs, as the NRC prepares to review and regulate this potential new generation of non-light water reactors, a coherent vision and strategy is needed to assure NRC readiness to carry out this work efficiently and effectively. In January of this year, the NRC issued its "Vision and Strategy for Safely Achieving Effective and Efficient Non-Light Water Reactor Mission Readiness." The NRC has also prepared implementation action plans to identify the specific activities the NRC will need to conduct to achieve its goal of regulatory readiness.

The NRC is also preparing a regulatory review roadmap to help reactor developers in their interactions with the NRC staff. In addition, the agency is coordinating a number of outreach activities. For example:

- The U.S. Department of Energy and the NRC established a joint initiative to develop General Design Criteria adapted to the unique attributes of advanced reactor designs. As a result of this effort, the NRC plans to issue regulatory guidance by the end of 2017, which is expected to reduce regulatory uncertainty for advanced reactor developers and improve guidance for NRC staff reviewing the applications.
- The NRC and the U.S. Department of Energy have conducted three advanced reactor workshops to discuss roles and responsibilities, to explore experience with non-light water reactors, and to identify critical information gaps and needed research.
- Our agency also participates in international fora such as the Nuclear Energy Agency's Group on the Safety of Advanced Reactors and the International Atomic Energy Agency's Small Modular Reactor Regulators Forum.

The NRC will continue these and other pre-application activities to develop and establish the needed regulatory preparedness.

TRANSITION FROM CONSTRUCTION TO OPERATION

The NRC is also preparing the regulatory procedures necessary to shift plants from construction to operating status. Maintaining continuity of oversight during the transition is a critical element of this process. The NRC has developed an integrated plan that identifies all regulatory functions necessary to support the transition. This integrated plan includes 21 readiness issues with associated options and recommendations. In response to the readiness issues identified, the NRC intends to issue, by the end of this year, a final implementation plan establishing the agency process to transfer regulatory oversight and licensing for the AP1000 design center from our Construction Reactor Oversight Program to our Reactor Oversight Process.

LONG TERM OPERATION AND SUBSEQUENT LICENSE RENEWAL

Over the past decade, the United States has continued to expand its experience with extended operation of nuclear power plants beyond their initial 40-year license period. To date, 87 reactor units have received approvals for a 20-year period of extended operation. In reviewing license renewal applications, the NRC review has as its central focus whether the licensee can demonstrate that the reactor will operate safely throughout the period of extended operation, with careful scrutiny of the effects of aging on important passive structures, systems, and components. The NRC utilizes its Generic Aging Lessons Learned Report and its Standard Review Plan for License Renewal to guide these safety evaluations.

The NRC has a very robust license renewal program and is actively cooperating with the international community in the areas of long term operation and aging management. In 2016, the NRC hosted a workshop on life extension with the participation of countries in Latin America. The NRC plans to host a follow-up workshop at the end of August here in Mexico. These workshops provide a platform to exchange lessons learned and thereby enhance regulatory capability in our region.

With some U.S. licensees now having entered the period of extended operation, industry representatives have expressed interest in operating nuclear power plants beyond 60 years. In considering the possibility that licensees may seek this subsequent license renewal, the Commission affirmed that the current regulatory framework for the first license renewals is sufficient to support the review of subsequent license renewals.

To prepare for the review of the first subsequent license renewal application, which is expected in 2018, the NRC is conducting confirmatory research with both domestic and international partners to provide for independent confirmation of licensee data and to verify safety margins. The NRC has concluded that the major technical issues for nuclear power reactor operation beyond 60 years are:

- Reactor pressure vessel neutron embrittlement at high fluence,
- Irradiation assisted stress corrosion cracking of reactor internals and primary system components,
- Concrete and containment degradation, and
- Electrical cable qualification and condition assessment.

TRANSITION FROM OPERATION TO DECOMMISSIONING

Decommissioning is another active element of our regulatory program. Within the U.S., six reactors have permanently shut down since 2013 and are transitioning to decommissioning and seven others have announced plans to shut down permanently prior to the expiration of their operating licenses.

During the transition period, numerous site-specific licensing actions are required to revise the plant's licensing basis to reflect the limited potential for accidents and reduced risk after

permanent shutdown and defueling. Our current process establishes an appropriate regulatory framework for decommissioning a plant; however, the NRC has initiated a decommissioning rulemaking that could reduce the numerous licensing actions needed during the transition period. As part of the rulemaking, the NRC staff is also examining the timeframe for decommissioning, the role of state and local governments and nongovernmental stakeholders, and other issues. A draft proposed rule is expected to be provided by the NRC staff for the consideration of our Commission in May of next year.

PROJECT AIM

To this point, my remarks have primarily focused on regulatory programs for power reactors. But an organization must also look to the future in order to position itself for success. Let me now briefly turn to the NRC's efforts to continuously examine and improve agency efficiency.

As a result of the 2001 terrorist attacks in the United States, the NRC grew significantly to support our efforts in security and incident response. In addition, in the mid-2000s, the NRC began preparing for a projected surge in applications for new nuclear power plants, fuel cycle facilities, and uranium recovery facilities.

Within a decade, the NRC's budget had nearly doubled and the agency's staffing had increased by 25 percent. However, by 2011, commercial interest in licensing and building new nuclear facilities had begun to decrease in response to a number of external drivers, including the reduction in the price and increase in availability of domestic natural gas supplies. By 2013, several companies had announced the premature termination of reactor operations. Concurrent with these developments, the commodity cost for uranium continued to slide lower, from its high value in 2007, due to a reduction in projected demand.

Offsetting these trends, however, some U.S. utilities pressed forward with licensing and construction of new nuclear power plants -- the Vogtle, V.C. Summer, and Watts Bar units -- and several mining companies continued with licensing applications for new in-situ recovery projects for uranium. Consequently, as 2014 closed, the projected workload for new nuclear facilities remained substantial but was less than had been forecast just a few years earlier.

The downward forecast in growth prompted the NRC to launch an initiative called Project Aim to enhance the agency's ability to plan and execute its mission while adapting in a timely and effective manner to numerous fact-of-life changes.

In January 2015, the agency established that we could function more efficiently while:

- right-sizing the agency and retaining mission-critical skills,
- streamlining processes to use resources more wisely, and
- improving timeliness in regulatory decisionmaking.

Among the Project Aim activities to implement these proposals, the Commission directed the staff to undertake a broad review of the agency's workload to identify work that can be eliminated, deferred, or done with fewer resources.

In the coming years, continued shifts in technologies, safety issues, and security threats are expected, which will drive some changes in the workforce. For example, greater reliance on digital instrumentation and control systems will necessitate having more employees with the associated competencies. Such growth, however, will likely be offset by contractions in other disciplines that are less in demand.

Throughout the Project Aim experience, the NRC has focused on the following points:

> First, organizations must be sufficiently agile to have the right number of people with the right skills at the right time. Existing resources need to be balanced with future expectations.
>
> Second, early in the process of growth or reduction, it is important to maintain transparency and to solicit feedback broadly, including from government, industry, and other involved stakeholders.
>
> Third, and most important, while we undertake these improvement initiatives, we must maintain focus on our primary safety and security mission for the work we have ongoing right now.

Although implementing the Project Aim initiative has not been easy, the NRC has carried forward in a manner that has kept our safety and security mission in the forefront of everything we do.

Once again, thank you for inviting me to be with you. I appreciate your continued interest in NRC's regulatory program. The responsibility for nuclear safety ultimately rests with each individual nation but by coming together and exchanging our ideas and experiences at conferences such as this one, we advance the interests of nuclear safety worldwide.

ORAL STATEMENT
BY KRISTINE L. SVINICKI, CHAIRMAN
UNITED STATES NUCLEAR REGULATORY COMMISSION
TO THE
SENATE APPROPRIATIONS COMMITTEE
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
JUNE 7, 2017

Good afternoon, Chairman Alexander, Ranking Member Feinstein, and distinguished members of the Subcommittee. My colleagues and I appreciate the opportunity to appear before you today to discuss the U.S Nuclear Regulatory Commission's Fiscal Year 2018 budget request.

The NRC's statutory mission is to license and regulate the civilian use of radioactive materials in the United States, to ensure adequate protection of public health and safety, and to promote the common defense and security. The resources we are requesting for FY 2018 fully support that mission. The NRC's FY 2018 budget request is $952 million and 3,284 full-time equivalent employees, or FTE. This request represents an increase from the FY 2017 enacted budget, due to the inclusion of $30 million for Yucca Mountain activities. At the same time, the NRC's FY 2018 budget request represents a *decrease* of $48.3 million, including 311 fewer FTE, when compared to the FY 2017 Annualized Continuing Resolution budget. Consistent with the Omnibus Budget Reconciliation Act of 1990, as amended, the NRC plans to recover $814 million of the FY 2018 budget from fees assessed to NRC licensees.

Since we last appeared before you, the NRC has continued its efforts to further enhance the efficiency of agency processes. Chief among these efforts is Project Aim 2020. In June 2014, the NRC established Project Aim 2020 to enhance the agency's ability to plan and execute its mission in a more effective and efficient manner. The agency's efforts have resulted in reductions to the agency's budget through Commission-approved work activities that can be shed, deferred, or completed with fewer resources. Through these actions, the agency has

decreased its size by more than 500 FTE since 2014 and is working on the implementation of additional actions to make these improvement efforts durable in the years beyond FY 2018.

Other efforts to improve effectiveness and efficiency include establishing Centers of Expertise to increase our ability to respond quickly and effectively to current, emerging, and unanticipated work; ensuring Commission involvement early on in the rulemaking process before significant resources are expended; and continuous evaluation of the agency's internal structure as evidenced by the Commission's approval of the reorganization plan and the business case for the proposed merger of the Office of Nuclear Reactor Regulation and the Office of New Reactors by September 30, 2020. These and other similar initiatives are evidence of our commitment to operate in the most efficient and effective manner possible.

I would now like to highlight specific portions of the NRC's FY 2018 budget request.

Nuclear Reactor Safety Program

The FY 2018 request for the Nuclear Reactor Safety Program – our largest budget item which includes our Operating Reactors and New Reactors programs – is $466.7 million, reflecting a decrease of $53.3 million, including a decrease of 214.5 FTE, when compared to the FY 2017 annualized CR. These requested resources reflect the completion of much of the agency's Fukushima-related work and provide for the anticipated continued review of NuScale Power's design certification application for their small modular reactor, a first-of-a-kind submission.

Nuclear Materials and Waste Safety

The FY 2018 budget request for the agency's Nuclear Materials and Waste Safety programs – which includes the Fuel Facilities, Nuclear Materials Users, Spent Fuel Storage and

Transportation, Decommissioning and Low-Level Waste, and High-Level Waste programs – is $171.1 million, reflecting an increase of $22.4 million, including an increase of 19.5 FTE, when compared with the FY 2017 annualized CR budget. This increase is due to resources requested for the High-Level Waste program for activities associated with the proposed Yucca Mountain deep geologic repository, totaling $30 million, including 71 FTE.

CLOSING

This budget request reflects our continuing efforts to achieve additional efficiencies while maintaining public health and safety and the security of our nation. On behalf of the Commission, I thank you for this opportunity and for your support of the vital mission of the NRC. We are pleased to respond to your questions. Thank you.