

Testimony Statement of The Honorable Jill Hruby
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Before the
Senate Armed Services Committee Subcommittee on Strategic Forces
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Chairman King, Ranking Member Fischer, and Members of the Subcommittee, thank you for the opportunity to present the President's Fiscal Year 2025 (FY25) budget request for the Department of Energy's (DOE) National Nuclear Security Administration (NNSA). NNSA appreciates the Subcommittee's ongoing support.

Over the last year, NNSA has met urgent and demanding needs in all three of our missions: nuclear weapons, nuclear nonproliferation, and naval reactors. These accomplishments, enabled by support from the Administration and Congress, took dedication, innovation, and collaboration by the members of our talented nuclear security enterprise workforce.

I am proud to report that NNSA delivered over 200 modernized nuclear weapons to the Department of Defense (DoD) this past year – the most since the end of the Cold War. Using the world's most sophisticated tools for nuclear stockpile stewardship and a rigorous surveillance process, we once again certified the U.S. nuclear deterrent is safe, secure, and reliable without nuclear explosive testing. Our extensive infrastructure efforts continue to advance to meet today's needs and, over the longer term, provide a flexible and resilient enterprise for an uncertain future global security environment. Our science is used every day to design, certify, and assess our stockpile and we continue to create newsworthy breakthroughs. The exceptional science in the nuclear security enterprise is foundational to our nation's nuclear deterrence. NNSA collaborates closely and continuously with DoD and the Nuclear Weapons Council (NWC) to synchronize and plan the modernization of our nuclear deterrent, adapt to an evolving environment, and assure our allies and partners.

NNSA also continues advancing our nonproliferation, counterterrorism, and emergency response efforts. We are actively improving our space-based nuclear detonation sensors, advancing tools for enrichment monitoring, expanding nuclear smuggling detection to new relevant global regions, enhancing and enforcing export controls, and red teaming artificial intelligence models for proliferation risks. Importantly, we are now regularly removing surplus plutonium from South Carolina and have implemented a practical strategy for surplus plutonium disposition over the long term. Using previously enacted supplemental funding, our DOE and NNSA teams support Ukraine with emergency preparedness tools and exercises, radiation and nuclear sensors, and equipment for nuclear power plant resilience. Our nonproliferation and counterterrorism efforts increasingly require close collaboration across other NNSA mission areas and the interagency, and this collaboration is critical to our development and deployment of high impact solutions.

The NNSA Naval Reactors program continues to advance reactor technology to provide a competitive edge to the United States military. Reactors that will never need refueling will be delivered on time for the new *Columbia*-class ballistic-missile submarines, reactor designs for the next generation of fast-attack submarines are in progress, and the construction of the Spent Fuel Handling Facility in Idaho is underway. Additionally, using other funding, Naval Reactors continues to support the trilateral Australia-U.K.-U.S. (AUKUS) program in close coordination with the Department of the Navy.

The FY25 budget request reflects the urgent demands on the nuclear security enterprise to deliver and adapt while exercising fiscal restraint and increasing efficiency. NNSA's FY25 budget request is \$25B, an increase of \$862M, or 3.6%, over the FY24 enacted level.¹ The FY25 budget request prioritizes executing the nuclear weapon program of record including the development of the B61-13, responding to a deteriorating security environment, advancing naval nuclear propulsion systems, all while simultaneously revitalizing the infrastructure across the enterprise. In addition, our requested budget supports development and application of emerging technologies such as digital engineering and artificial intelligence (AI) that will increase our efficiency and innovation. The FY25 budget request affirms the Administration's steadfast commitment to a strong national defense and NNSA's critical and evolving missions.

Weapons Activities

The Weapons Activities FY25 budget request of \$19.8B, a 3.9% increase over the FY24 enacted, supports stockpile management; production modernization; stockpile research, technology, and engineering; infrastructure and operations; defense nuclear security and secure transportation; and information management and cyber security.

Stockpile Management

The Stockpile Management budget request of \$5.14B, a decrease of 3.5% from the FY24 enacted, supports stockpile modernization, stockpile sustainment, weapons dismantlement, production operations, and nuclear enterprise assurance. The lower request for FY25 compared to the FY24 enacted is the result of smaller requests for the B61-12 and W88 Alt 370, which reflects these modernization programs approaching the end of component production, as well as the absence of funding for the Sea Launched Cruise Missile Nuclear (SLCM-N).

Stockpile Modernization

The stockpile modernization program budget request of \$2.84B supports six systems in the expanded program of record: B61-12 Life Extension Program (LEP), B61-13, W88 Alt 370, W87-1, W80-4, and W93. Although SLCM-N is not in the budget request due to the timing of the FY24 National Defense Authorization Act (FY24 NDAA) and FY24 budget enactment compared to the development and submittal of the FY25 budget request, NNSA will continue to work with DoD and Congress to assure accordance with FY24 NDAA Section 1640.

¹ FY 2024 Enacted amounts throughout this testimony do not reflect the mandated transfer of \$92.8 million from Naval Reactors to the Office of Nuclear Energy for operation of the Advanced Test Reactor.

NNSA has achieved 100% on-time delivery of the W88 Alteration (Alt) 370 Program and B61-12 LEP to DoD. This represents consistent production progress since our announcement of First Production Units (FPU) in FY21 and FY22, respectively.

Starting with the FY24 budget enactment, NNSA began the B61-13 program in response to the decision to strengthen deterrence and assurance by providing the President with additional options against certain harder and large-area military targets. In coordination with DoD, NNSA will decrease the number of B61-12s built by the number of B61-13s manufactured, resulting in no change to the number of weapons in the stockpile. NNSA appreciates Congress' authorization and appropriation of \$52M in FY24 for the B61-13, allowing us to take advantage of active B61 production capabilities. In FY25, the B61-13 program will progress into Phase 6.4, *Production Engineering*, with FPU expected in FY26.

The W80-4 warhead for the long-range standoff missile entered Phase 6.4, *Production Engineering*, in FY23 and remains on track for FPU in September 2027, aligned with the Air Force schedule for initial and final operational capability dates.

In FY23, the W87-1 entered Phase 6.3, *Development Engineering*, a major milestone. The W87-1 will replace the aging W78 warhead, one of the oldest in the stockpile. The FPU for the W87-1 is currently scheduled for FY31-32. The W87-1 is the first modernized weapon that will have a newly manufactured pit, which will be built at Los Alamos National Laboratory (LANL) and certified by Lawrence Livermore National Laboratory (LLNL).

In May 2022, the W93 entered Phase 2, *Feasibility Study and Design Options*, and remains on track for production starting in the mid-2030s. The NWC has directed effort to accelerate the W93 FPU and the FY25 budget request supports this effort. The W93 is a new warhead program based on existing designs that will not require new underground nuclear explosive testing. The W93 will meet DoD requirements to enhance operational effectiveness of the U.S. ballistic missile submarine force. The W93 will have new pits produced at the Savannah River Site (SRS). The W93 program is being undertaken in parallel with the U.K. Replacement Warhead program continuing our coordination through the U.S.-U.K. Mutual Defense Agreement.

The FY24 NDAA requires a SLCM-N as part of NNSA's program of record. As mentioned earlier, NNSA is coordinating with DoD to determine warhead requirements and meet congressional direction for this new program. We will continue to keep Congress informed as program offices in NNSA and the Navy are stood up and requirements are better defined.

In addition to the seven modernization programs mentioned here, NNSA has also requested \$69M in the Stockpile Research, Technology, and Engineering (SRT&E) program to support two Phase 1 system studies for early exploration of hard and deeply buried target defeat and non-ballistic reentry systems. During these Phase 1 studies, NNSA will evaluate potential weapon design concepts that could meet anticipated deterrence requirements.

To continue to increase efficiency and enable future on-time delivery of weapons, NNSA has initiated two efforts: digital engineering and agile product realization. It is our intent to lower the time and cost to deliver a new weapon as we improve our processes and increase the experience level within the enterprise.

With this budget request, NNSA will continue to deliver modernized nuclear weapons on schedule and at pace and will be positioned to do so through the next decade and beyond.

Other Stockpile Management Activities

The Stockpile Management budget request includes an increase of 10% over the FY24 enacted to Stockpile Sustainment and Production Operations combined, reflecting the increased demands of the existing and modernized stockpile efforts. The Nuclear Enterprise Assurance increased budget request reflects a response to growing threats associated with cyber and digital advances. NNSA has requested over a 50% increase since FY23 to respond to this new reality. Lastly, the FY 25 budget request for Weapons Dismantlement is decreased slightly as we balance the needs of the enterprise.

Production Modernization

NNSA's \$5.9B budget request for production modernization is an increase of \$11.7M, or 0.2%, higher than the FY24 enacted budget. The increase in Production Modernization reflects disciplined priority decisions in the portfolio and the overall Weapons Activities budget, as well as the availability of carryover balances to address FY 2025 requirements. The FYNSP includes production modernization budget requests that grow at a faster pace in future years to meet stockpile modernization demands as the program spends down carryover balances, particularly in major projects.

Plutonium Pit Production

NNSA's highest production modernization priority is re-establishing the capability to produce new plutonium pits that was lost in 1989 when production at Rocky Flats was halted. The pit production plan includes a redesign and refurbishment of Los Alamos plutonium facilities to support a production capacity of 30 pits per year (ppy) while simultaneously establishing the processes to achieve war reserve (WR) qualified pits for the W87-1.

As work continues at Los Alamos, the building designed and constructed to house the Mixed Oxide Fuel Fabrication Facility at Savannah River is being modified and re-purposed to manufacture at least 50 ppy. The W93 pits will be the first manufactured at Savannah River. Although the W87-1 and W93 programs are setting the quantity and schedule of pit production now, other future weapons will also require newly produced pits. Pit production will be needed to support the stockpile as long as nuclear weapons exist.

The FY25 budget request for plutonium modernization is \$2.89B, essentially flat from FY24. The decreased budget request for Los Alamos reflects the use of carryover funding to support increased activity in FY25. The increased budget request for Savannah River offsets the decreased request for Los Alamos. Additionally, the request for Infrastructure and Operations is higher than the FY24 enacted level by \$715M, or 28%, in large part to support the pit production mission.

The completion of pit production capabilities is arguably the largest and most complex undertaking at NNSA since the Manhattan Project. NNSA is working closely with DoD to assure the stockpile will remain safe, secure, reliable, and effective at all times while pit production capabilities are being established.

Los Alamos Pit Production

The FY25 \$1.5B budget request for Los Alamos pit production and the associated line-item projects is \$266M lower than FY24. The decrease includes a reduction in line-item projects of \$417M reflecting the use of carryover balances and consistent with projected execution rates of the line-item projects.

In FY23, more development pits were produced at Los Alamos than ever before – nine full W87-1 development pit builds, with five more partial builds. Los Alamos is on track to “diamond stamp” the first fully qualified WR pit in the second half of 2024. The budget request supports the increased pace of manufacturing work associated with the ramp from FPU to rate production, as well as the increased pace planned for equipment installation. It is expected that Los Alamos will achieve the minimum capability needed to produce 30 ppy in or near 2028 with increasingly dependable capability attained each year through 2032.

Savannah River Pit Production

The requests for Savannah River Pit Production and Savannah River Plutonium Processing Facility (SRPPF) sum to \$1.28B, a total of \$212M, or 20.0%, above the FY24 enacted level.

The requested increase for SRPPF supports the increasing pace of work to support completion of construction and turnover to operations in 2032. We thank Congress for the strong support of this critical project. NNSA used funding provided in FY23 to contract awards for the first set of gloveboxes on the critical path for construction, as well as significant early site and building preparation work. FY24 funding will be used for award contracts for additional long-lead critical-path procurements and preparations. SRPPF’s Process Design is now 90% complete with the 60% overall project Preliminary Design completion anticipated before the first quarter of FY25.

Last year we committed to generating an updated SRPPF cost and schedule estimate, recognizing that there would be large uncertainties because the 60% design is not yet complete. Savannah River Nuclear Solutions (SRNS) has produced a “bottom-up” cost and schedule estimate based on information that was available near the end of FY23. SRNS estimates turnover to operations will occur in late 2032 or early 2033, with a total project cost of \$18.5B. NNSA’s cost range for

Savannah River based on the SRNS estimate, an independent estimate from our Cost Estimating and Project Evaluation (CEPE) office, and our NA-90 organization cost review is \$18-\$25B. These figures represent the macro-level results of the review. The details continue to be refined and will be briefed to the Nuclear Weapons Council in the coming months.

NNSA historical data on cost and schedule, from a very limited set of large projects at a similar stage of development, suggest that SRPPF cost and schedule will increase from today's estimates. We are studying lessons learned from past projects and are implementing new practices to significantly reduce cost and schedule overruns. Examples include early procurement of long-lead items, early site and building work, and construction of the High Fidelity Training and Operations Center. We will continue to identify activities that will effect cost and schedule so the W93 pits can be delivered on time.

Finally, the successful transition of SRS management to NNSA is important to our efforts on SRPPF. NNSA is working closely with our colleagues at DOE's Office of Environmental Management, the Savannah River Field Office, the SRNS leadership team, and local stakeholders to ensure a smooth transition.

Pit Production Integrated Master Schedule and Total Acquisition Cost

The NNSA Integrated Master Schedule (NIMS) has been updated and improved as requested by Congress. Additional logic and linkages are included for the Los Alamos Plutonium Pit Production Project (LAP4), schedules between LAP4 and SRPPF are better integrated, and the paths to FPU and rate production at SRPPF are incorporated. The NIMS contains integrated detailed site schedule logic from Los Alamos, Lawrence Livermore, and the Kansas City National Security Campus (KCNSC) for program scope focused on pit manufacturing and production efforts to attain FPU at Los Alamos. There is less detail in the schedule for SRPPF projects and the later phases of equipment installation at LAP4 since equipment and system designs for this work are less mature. NIMS will continue to integrate higher fidelity schedule logic for those programs and projects as their designs and schedules mature. The current NIMS is an effective management tool for the program and continuous updates will make it an effective tool in the long-term.

Additionally, NNSA has directed an external review of our Plutonium program by the Advisory Committee for Nuclear Security, a Federal Advisory Committee Act group reporting to the Administrator. The initial report from this committee is expected in May 2024.

Uranium

Alongside pit production, the Uranium Processing Facility (UPF) at Y-12 is a top priority. The FY25 budget request for UPF is \$800M, an 122% increase from the FY23 enacted budget and a 5.2% increase from the FY24 request. We greatly appreciate Congressional actions to support the reprogramming of funds in FY23.

The construction of the overall UPF project is now over 60% complete. Gloveboxes are installed in the Main Process Building, and over 97% of all procurements have been delivered. The

current focus of work is bulk electrical installation, with over 60 miles of electrical conduit and cable installed in the last half of 2023. However, due to a variety of issues, including direct and indirect impacts from COVID-19, deficiencies in contractor performance and planning, overly optimistic assumptions on productivity, repeated delays on procurements, and funding uncertainties, the most current UPF project cost estimate is \$10.3B and the estimated date for construction completion is late FY27 with beginning of operations expected in October 2031.

In addition to making progress on UPF, NNSA is advancing its development of centrifuges and cascades for domestic uranium enrichment and its production of tritium with a FY25 budget request of \$662M, an increase of nearly 12% over the FY24 enacted.

Other Production Modernization Programs

Other large-scale projects are either starting or moving forward in line with NNSA's weapon modernization and/or safety and security needs. In late 2023, NNSA broke ground on the Lithium Processing Facility (LPF) at Y-12 with construction expected to start in FY26 and a FY25 budget request of \$260M. The High Explosives Science and Engineering Facility (HESE) at Pantex continues construction with a FY25 budget request of \$15M, and the Power Sources Capability at Sandia has a budget request of \$50M. The Kansas City Non-Nuclear Expansion Transformation (KCNEXT), a new real estate acquisition approach to meet NNSA's space needs that will break ground in Summer 2024. KCNEXT is critical to increase capacity of the non-nuclear components. Each of these projects is key to modernizing facilities to avoid infrastructure failure and to increase capacity. As a reference point, KCNSC delivered components containing more than 300,000 parts in the past year.

NNSA recognizes the FY24 NDAA statutory language for completion the High Explosives Synthesis, Formulation, and Production Facility (HESFP) at the Pantex Plant, and the Tritium Finishing Facility (TFF) at Savannah River. Funding for these project schedules was not factored into the FY25 request as NNSA's strategy was to prioritize funding of a reduced number of critical projects, and both HESFP and TFF are of a lower priority.

Stockpile Research, Technology, and Engineering

The SRT&E portfolio develops and delivers the tools used every day for design, certification, and assessment of the stockpile without underground nuclear explosive testing; evaluates and accelerates future concepts; improves understanding of weapon response to environmental conditions; and matures technologies for warheads and manufacturing processes. The SRT&E budget supports the infrastructure and workforce to deliver scientific and engineering advances, including both experimental and computational capabilities. The FY25 budget request for SRT&E is \$3.17B, a 3.2% decrease from the FY24 enacted and an increase of 7.6% from the FY23 enacted.

In FY23 and FY24, Lawrence Livermore repeated its 2022 fusion ignition breakthrough at the National Ignition Facility (NIF) four times, improving gains and achieving a yield of 5.2 MJ in February 2024. We were excited to have the first NNSA Ignition result highlighted by Google as the "most searched breakthrough" in the past 25 years. Also, in FY23 and FY24, NNSA started

significant efforts to mature technologies to manufacture radiation cases, evaluate new explosives formulations, implement artificial intelligence (AI) in science and engineering programs, and establish AI models and testbeds for unclassified and classified work.

The FY25 budget request of \$890M for Advanced Scientific Computing, a 6% increase from the FY24 enacted budget, enables transitioning LANL's Crossroads system to classified service for weapons assessment and certification, bringing online the first exaflop computer, *El Capitan*, at Lawrence Livermore. Additionally, the request includes \$50M to expand the application of AI to assist in maintaining a safe, secure, and reliable nuclear stockpile while reducing cost and schedule by enhancing scientific and material discovery, design optimization, manufacturing and certification, and expediting the deployment and surveillance phases of a nuclear warhead system.

The FY25 budget request of \$683M for Inertial Confinement Fusion (ICF) will allow NNSA to address near-term weapons physics challenges and build on its repeated success of reaching fusion ignition in the laboratory. The ICF program gives NNSA experimental access to extreme temperature and pressure regimes characteristic of nuclear weapons to support design, certification, and assessment of the stockpile without resuming underground nuclear explosive testing. NNSA is currently recapitalizing and sustaining existing facilities in line with the ICF 10-Year Facility and Infrastructure Plan delivered to Congress in March 2023. The highly visible successes of the ICF program enhance the deterrent by demonstrating world-leading expertise in high energy density science and technology and providing experimental access to weapons-relevant physical conditions previously unattainable in the laboratory.

The FY25 budget request for Enhanced Capabilities for Subcritical Experiments (ECSE) of \$240M coupled with the \$73M U1a Complex Enhancements Project (UCEP) request will support expansion, construction, and system installations at the Principal Underground Laboratory for Subcritical Experimentation (PULSE) at the Nevada National Security Site. ECSE includes development of the Z-Pinch Experimental Underground System (ZEUS) and Advanced Sources Detectors (ASD) Scorpius instruments. Experiments with these tools at PULSE will provide capabilities for system-level plutonium aging experiments at the end of the decade and will provide an important capability to assess system designs for ongoing modernization programs.

Academic Programs and Community Support

The budget request for Academic Programs and Community support is \$128M, an increase of 5% over FY24 enacted. It is critical for NNSA to support external mission-relevant research, generate a talent pipeline in key areas of science and engineering, and support our communities. This funding is targeted at workforce needs projected to be the most critical.

Infrastructure and Operations

The NNSA budget request for Infrastructure and Operations is \$3.3B, including \$3.16B for operations and \$144M for a portfolio of smaller infrastructure projects. The Operations request is 26% above the FY24 enacted level. This includes increases for operations of facilities, safety

and environmental operations, maintenance and repair of facilities, and recapitalization. To deliver our stockpile program from our legacy infrastructure base, especially while revitalization and new construction are underway, this increase is essential. As noted above, increases to both operations of facilities and maintenance and repair of facilities are largely tied to increased requirements associated with plutonium pit production. The other main contributor for the increases is the transition of management of the Savannah River Site from Environmental Management to NNSA. Funding throughout operations of facilities, maintenance and repair of facilities, and recapitalization is critical to ensure that NNSA can transition SRS to an enduring mission site to support pit production and the broader nuclear modernization program. Additionally, \$240M of the \$778M requested for Recapitalization will fund the second phase of KCNExT, including real estate acquisition of the first manufacturing facility in the KCNExT portfolio.

NNSA continues to innovate on mission-enabling construction of commercial-like projects to save time and taxpayer dollars while upgrading key capabilities. In 2023, NNSA successfully completed the final three projects initiated under the 2019 Enhanced Minor Construction and Commercial Standards (EMC²) pilot project: new emergency operations centers at Y-12 and Sandia National Laboratories and a new fire station at Y-12. NNSA experienced up to a 30% cost avoidance on these pilot projects. In August 2023, NNSA established a new policy institutionalizing the streamlined oversight and management practices from EMC² for line-item construction projects up to \$100M, opening the door for future cost and time savings in smaller-scale non-nuclear construction.

Enterprise Blueprint

To better understand, synchronize, and communicate the enterprise's infrastructure needs, NNSA is developing an Enterprise Blueprint. The Blueprint will describe a 2050 vision, including facilities needed across the enterprise and their ties to mission needs. This will help reinforce NNSA's underlying philosophy of responsiveness, flexibility, and resiliency required to meet dynamic demands. A fully developed Enterprise Blueprint is expected in the latter half of 2024. The Blueprint will guide future investment priorities and budget requests.

Defense Nuclear Security and Secure Transportation

The FY25 budget request of \$1.18B for Defense Nuclear Security, an increase of 14% over the FY24 enacted, reflects both the transition of responsibility for safeguards and security at the Savannah River Site from EM to NNSA, and the need to keep pace with new threats, particularly uncrewed aircraft systems. The budget request also includes an 8% increase for the West End Protected Area Reduction (WEPAR) project.

NNSA is transitioning to a next-generation counter uncrewed aircraft system (CUAS) that will employ an open architecture systems-based approach to address the evolving threat uncrewed aircraft systems present to NNSA facilities and personnel. Open architecture provides the data fusion and integration of open and proprietary sensors to allow NNSA to select the best available mitigation capabilities: radio frequency, directed energy, kinetic, and radar. Combining these approaches will prevent NNSA from relying on a single capability and allows for swift

adjustments to incorporate advanced technology. The flexibility gained by this approach allows security planners to customize systems for each management and operating contract mission partner lab, plant, or site, based on unique location conditions. In FY25, NNSA will finalize the development of a permanent facility at the Idaho National Laboratory for CUAS testing and evaluation to help security planners identify possible next-generation solutions, outline continuous testing requirements, and improve NNSA's existing CUAS platform.

The FY25 budget request of \$371M for Secure Transportation is increased by 4% from the FY24 enacted. NNSA's Secure Transportation is essential to assure the security of weapons during delivery and return from the DoD and to meet our schedule commitments.

Information Technology and Cyber Security

The FY25 budget request of \$646M for Information Technology (IT) and Cyber Security is 12% higher than the FY24 enacted in recognition of the increasing threats to cyber security and the ever increasing needs to improve information technology, including technology to support our digital engineering initiative. This request is 45% above the FY23 enacted to provide increased protection to our high security enterprise.

NNSA faces an increasingly sophisticated and targeted cyber threat environment. We are recapitalizing our information technology (IT) and cybersecurity environments to provide a more resilient and flexible set of capabilities. The FY25 budget request prioritizes investments in the IT and cybersecurity workforce, enterprise-scale cyber infrastructure, implementation of zero trust architecture, digital transformation, classified and unclassified commercial cloud-based technologies, and classified wireless systems to improve mission outcomes across the nuclear security enterprise. NNSA is also conducting cyber exercises, including red teaming, to stress test NNSA's cybersecurity posture. We are making these investments to remain poised to address cyber threat and respond to cyber incidents.

Defense Nuclear Nonproliferation

The Defense Nuclear Nonproliferation budget request of \$2.46B continues critical investment for our nonproliferation, counterterrorism, and emergency response programs at this difficult time in global strategic stability. The FY25 request is \$116M below the FY24 enacted level. These changes reflect realistic planning for the pit disassembly and processing element of the surplus plutonium disposition program, responsible use of prior year funds, a one-time \$50M increase for molybdenum-99 (Mo-99) production in FY24, and lower legacy pension costs. The new investments are aimed at responding to the current and anticipated security environment.

NNSA's Defense Nuclear Nonproliferation (DNN), Emergency Management, and Counterterrorism and Counterproliferation Programs (CTCP) are working in lockstep with our allies and partners, interagency counterparts, and international organizations like the IAEA to maintain and advance U.S. global nuclear threat reduction leadership in a shifting international landscape. This work includes cooperation on countering malign state and non-state capabilities, advancing the peaceful uses of civil nuclear energy and nuclear technology while managing

proliferation and security risks, minimizing global stocks of excess weapons-usable nuclear material, advancing national technical capabilities in arms control and proliferation detection, and reducing nuclear risks in Ukraine.

Material Management and Minimization

The core objective of the Material Management and Minimization portfolio is eliminating weapons-usable materials or replacing them with less attractive material both domestically and internationally. The Material Management and Minimization FY25 budget request is \$377M, a decrease of \$119M, or 24%, from the FY24 enacted level. The primary reason for the decrease is the decision to delay the design and construction of a Pit Disassembly and Processing (PDP) Facility as part of the Surplus Plutonium Disposition (SPD) program. The PDP delay, to be re-evaluated in ten years, allows us to prioritize the removal of material from South Carolina. Part of the rationale for this decision involves the need to prioritize pit production construction and rate production during the same ten-year period that would be needed to stand up PDP capability. This would stress the construction, operational and human resources beyond reasonable capacity at Los Alamos and Savannah River. Although we are delaying PDP, real progress in SPD has been made. We are especially pleased that, following years of extensive planning and coordination, last year the first shipment of down-blended surplus plutonium was transported from K-Area at SRS in South Carolina to the Waste Isolation Pilot Plant (WIPP) in New Mexico for final disposition and shipments have continued on a planned schedule. A total of 111.6 kgs of NNSA surplus plutonium was dispositioned during FY23.

Another key activity over the past several years has been assisting the final major global producer of the medical isotope Mo-99 to convert from using highly enriched uranium (HEU) to low enriched uranium, helping to ensure a stable supply of a critical medical isotope while eliminating an associated proliferation risk. A related effort to establish a reliable supply of domestically produced Mo-99 in the United States received a one-time increase in FY24 as mentioned earlier, and a plan to utilize this increase is being established in consultation with Congress. NNSA continues to work with partners who have converted research reactors and medical isotope production processes by supplying the high-assay, low-enriched uranium (HALEU) they need to operate. This increasingly includes countries that are looking to alternatives to Russian supplies of HALEU.

In FY25, we plan to use the Mobile-Melt-Consolidate system developed by NNSA to begin to eliminate inventories of excess HEU in Norway that previously lacked a disposition pathway. To date, NNSA has eliminated over 7,340 kg of HEU and plutonium globally; the material equivalent to eliminating hundreds of nuclear weapons.

Global Material Security

The FY25 budget request for Global Material Security is \$544M, a 3.8% increase over the FY24 enacted. Much of the requested growth is in the nuclear smuggling detection and deterrence portfolio. The FY25 request is \$196M, an increase of \$15M, or 8.3%, over the FY24 enacted level. NNSA has increased focus on Southeast Asia, the Middle East, and Africa to counter

Russian and Chinese activity and influence in those regions. NNSA began cooperation with 16 new partners in the past two years, and by the end of FY25, NNSA will deploy 78 new counter nuclear smuggling systems.

In addition to the requested growth in nuclear smuggling detection, Global Material Security had a smaller requested increase of approximately \$3M in International Nuclear Security to expand the nuclear power plant initiative to address sabotage and energy security. This program is taking the lessons from Ukraine to examine vulnerabilities of large nuclear power plants and mitigating risk posed by malign actors who might seek to disrupt or damage these facilities.

NNSA also remains on track to meet the congressionally mandated deadline to replace all cesium-based blood irradiators in the United States by 2027. NNSA's success here goes beyond just cesium-based blood irradiators, in fact, NNSA eliminated over 100 blood and other types of radioactive-source-based devices in FY23 in the United States and abroad and expects another 85 removals by the end of FY24. NNSA has expanded its work to find technical capable tools to replace those materials posing the greatest risk of radiological terrorism with a greater focus on alternatives to cobalt-60 replacements.

Nonproliferation and Arms Control

The FY25 budget request for Nonproliferation and Arms Control is \$225M, an increase of 6% or \$13M over the FY24 enacted. The increased budget request will support new activities to improve safeguarding uranium enrichment plants and develop policy and technical solutions to address risks associated with the global expansion of nuclear energy. The growth is offset by a one-time FY24 plus up of \$12M to accelerate the scope of nuclear verification efforts.

The budget includes funding for Project Carousel, a unique multilateral capability that will allow the IAEA to test and validate technologies and train safeguards inspectors. This facility will come on-line at a critical time to help IAEA explore techniques for monitoring the large growth in civil nuclear energy.

NNSA personnel have been closely involved in efforts to counter Russian and Chinese disinformation and illegal actions while promoting U.S. and allied interests. This includes working with the Department of State (DOS) and other interagency partners to counter Chinese disinformation campaigns aimed at undermining the AUKUS security partnership. NNSA will continue collaborating with DOS and DoD to advance the goals of the partnership while adhering to our obligations under the Nuclear Nonproliferation Treaty and as a responsible nuclear power. NNSA has also lent its expertise to the Global Export Control Coalition to improve the detection of Russia's attempted sanctions evasion to acquire material to support its ongoing invasion against Ukraine.

NNSA supports the expansion of civil nuclear energy to responsible partners globally. Last year, NNSA was instrumental in forging a civil nuclear cooperation agreement between the United States and the Philippines. We provide support to DOS on the negotiation and implementation of nuclear cooperation agreements. NNSA also helps U.S. companies manage their international engagements without sharing sensitive technology. Importantly, NNSA is working directly with

nuclear reactor developers to build in international safeguards concepts from the beginning, lowering the longer term deployment costs, increasing safeguards effectiveness, and improving the competitiveness of American industry for foreign deployment.

Nuclear Nonproliferation Research and Development

The FY25 budget request for Nuclear Nonproliferation Research and Development is \$803M, an increase of 4.8% or \$37M over the FY24 enacted.

The FY25 request will continue to support the Nonproliferation Stewardship Program at about the same level as in FY24. The Forensics Research and Development (R&D) budget request is reduced by \$7M while maintaining existing research life cycle plans and making use of available carryover.

The FY25 request for Nuclear Detonation Detection (NDD) is \$323M, an increase of \$37.5M, or 13.1%, over the FY24 enacted level. NNSA delivered to the U.S. Space Force (USSF) the first newly completed next-generation Global Burst Detector (GBD IIIF) payload for space-based nuclear detonation monitoring. This new sensor will provide an order of magnitude increase in capabilities at reduced size, weight, and power. The USSF will integrate the GBD IIIF onto the first GPS Block IIIF satellite as part of the United States Nuclear Detonation Sensor (USNDS). These improved capabilities are increasingly important as tactical nuclear weapons proliferate and the threat of regional nuclear wars increase.

Building from this sensor capability, the R&D budget in FY25 request includes increased support for monitoring and verification capabilities for space situational awareness to reinforce arms control and verification missions in support of current treaties, like the Outer Space Treaty. This work protects our national interests and assets, providing information on activities all the way to the lunar surface and beyond.

While Russia routinely violates its arms control commitments and exhibits norm-violating behavior and China has been unwilling to engage in meaningful bilateral or multilateral arms control, NNSA continues to invest in developing infrastructure, human capital, and advanced technologies to meet current and future monitoring and verification needs and prepare for potential future arms control negotiations. Last year, NNSA reached an important scientific and engineering milestone by successfully conducting a chemical explosive test in P Tunnel at the Nevada National Security Site. This experiment advanced our ability to detect very low-yield underground nuclear explosive tests around the world.

The R&D request also includes \$15M for developing capabilities to produce assessments of how AI models may present nuclear and nonproliferation risks and provide recommendations for mitigating the potential AI threats to national security in light of the rapid pace of rapid technological advancement and innovation.

Nuclear Counterterrorism and Counterproliferation

Counterterrorism and Counterproliferation's (CTCP) core capabilities are to counter nuclear terrorism and nuclear proliferation and respond to any nuclear or radiological incident or accident worldwide. The FY25 budget request of \$536M for the Nuclear Counterterrorism and Incident Response Program, an increase of 6.6%, supports planned investments for the second phase of the Capability Forward initiative by developing a standardized Nuclear Emergency Support Team technical training program focused on actions to secure and defeat weapon of mass destruction (WMD) devices for Federal Bureau of Investigation field office responders. The FY25 request also supports technical and policy solutions to counter nuclear proliferation, capability enhancements to counter nuclear and radiological threats – including improved tools to locate, characterize, defeat and conduct forensics on these threats – and training delivery and capacity building for domestic and international partnerships on nuclear counterterrorism and emergency preparedness and response.

NNSA is advancing the Administration's *Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence*. As outlined in the Executive Order, NNSA is working with our colleagues across DOE to develop tools to better understand and mitigate the risk of AI being misused to assist in the development or use of chemical, biological, radiological, and nuclear (CBRN) threats

The FY25 request for CTCP's efforts in this area is \$15M for developing the capabilities to provide recurring assessments of how AI models may present nuclear risks and provide recommendations for mitigating the potential AI threats to national security in light of the rapid pace of rapid technological advancement and innovation.

As Russia's full-scale invasion against Ukraine enters its third year, DOE/NNSA's Ukraine Task Force is working to reduce nuclear risks in Ukraine. This includes providing equipment, training, and technical guidance to enable the safe and secure operation of Ukraine's nuclear power plants remaining under its control, protect its critical infrastructure, particularly the electric grid, provide situational awareness of any nuclear emergency that occurs in the country, and enhance the emergency preparedness and response capacity of our Ukrainian partners to respond to a nuclear event.

Naval Reactors

The Naval Reactors budget request of \$2.1B, an increase of \$173M, or 8.9% over the FY24 enacted level, supports NNSA's close partnership with the U.S. Navy in key areas. The agency is advancing naval nuclear propulsion capabilities to keep the U.S. nuclear fleet on the cutting edge of warfighting capability, maintaining the assured second-strike capability of the sea-based leg of the nuclear triad, and building the next generation of infrastructure to enable continued operational success.

The FY25 request supports technology development work critical to delivering improvements in reactor performance and reliability, and to support in-service and future submarines and aircraft

carriers' obsolescence and capability needs. The FY25 request for Naval Reactors Development is \$868.4M, an increase of \$48M, or 5.9% over the FY24 enacted level.

The FY25 request supports the continued safe and reliable operations, maintenance, and oversight at Naval Reactors' four Naval Nuclear Laboratory sites and the associated contractor workforce. The FY25 request for Naval Reactors Operations and Infrastructure is \$763.3M, an increase of \$51M, or 7.2%, over the FY24 enacted level.

The funding request also supports requirements for major initiatives: *Columbia*-class reactor systems development; development of future advanced submarine technology to support next generation designs; and continued progress on base technology development, infrastructure recapitalization at program sites, and decontamination and decommissioning efforts.

Finally, Naval Reactors continues to support the AUKUS partnership through reimbursable work with Australia and the U.K. NNSA will continue its collaboration with DOS and DoD to advance the goals of the agreement while adhering to our obligations as a responsible nuclear power and a party to the Nuclear Nonproliferation Treaty.

Federal Salaries and Expenses

The Federal Salaries and Expenses budget request of \$565M, an increase of 13% over FY24 enacted, supports the recruiting, retention, and development of high-quality federal staff required to meet NNSA's growing mission requirements and commitments, maintain the overall health of the federal workforce, and ensure NNSA is able to provide effective oversight, which is essential to controlling costs and schedule. The increased request helps address the perennially lowest score that NNSA receives in the Federal Employee Viewpoint Survey question that states "my workload is manageable."

A portion of the increased request is associated with the SRS landlord transition from DOE Environmental Management (EM) to NNSA. We anticipate the SRS transition will include a transfer of 85 FTEs.

NNSA aims to recruit and retain a highly skilled workforce by offering a compelling mission, collaborative work environment, and incentives to compete with the private sector for a limited pool of in-demand talents. NNSA is adjusting its hiring practices to be more proactive to get the right people in the right time frame.

NNSA appreciates Congress's support to raise the Excepted Service cap in the FY24 NDAA.

Conclusion

Not since the Manhattan Project has there been a more challenging moment for the nuclear security enterprise. As the only U.S. Government organization capable of designing and manufacturing nuclear weapons, developing technical solutions to nonproliferation, and delivering naval reactors to the fleet, NNSA has a unique role in protecting our Nation and our allies and partners. The FY25 budget request recognizes the significantly expanded scope of

work in NNSA along with expected increases in efficiencies and fiscal responsibility. NNSA is determined to be proactive rather than reactive in promoting deterrence, strategic stability, and domestic and global security. We appreciate your continued support for the mission and people of NNSA.

Thank you for the opportunity to appear before you today.