

**Testimony Statement of
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and Administrator of the
National Nuclear Security Administration
U.S. Department of Energy
Before the
Subcommittee on Energy and Water Development
Senate Committee on Appropriations**

April 3, 2019

Chairman Alexander, Ranking Member Feinstein, and Members of the Subcommittee, thank you for the opportunity to present the President's Fiscal Year (FY) 2020 budget request for the Department of Energy's (DOE) National Nuclear Security Administration (NNSA). NNSA appreciates the Committee's strong support for our nuclear security mission and for the workforce and organizations that are responsible for executing it every day.

NNSA's enduring missions are to protect our Nation by maintaining a safe, secure, and effective nuclear weapons stockpile, reducing global nuclear threats, and providing the United States (U.S.) Navy's submarines and aircraft carriers with militarily effective nuclear propulsion. NNSA has numerous strategic partners that enable, contribute to, and benefit from our efforts, yet no other government or civilian organization can accomplish our unique mission on behalf of the American people.

The U.S. nuclear deterrent has been the cornerstone of our national security and global stability for more than 70 years, and its credibility serves as the ultimate insurance policy against a nuclear attack. While the ultimate goal of eliminating nuclear weapons has been an aspiration for generations, we must recognize the reality that foreign nuclear threats are growing. It is imperative that we modernize the U.S. nuclear deterrent and enterprise; our credibility assures our friends and allies and deters those who wish us harm.

Thanks to continued strong support from this Administration and Congress, NNSA is transforming the nuclear security enterprise to be more responsive and resilient. The following highlights: (1) NNSA's accomplishments in calendar year 2018; (2) the budget request for NNSA; (3) Weapons Activities Appropriation; (4) Defense Nuclear Nonproliferation Appropriation; (5) Naval Reactors Appropriation; and (6) NNSA Federal Salaries and Expenses Appropriation.

NNSA's Accomplishments in Calendar Year 2018

Plutonium Pit Production: The highest NNSA infrastructure priority is re-establishing a plutonium pit production and fabrication capability to meet the Department of Defense's (DoD) military requirements. Our national requirement, supported by numerous studies and analyses, requires no fewer than 80 war-reserve pits per year by 2030. Last May, the Nuclear Weapons Council (NWC) endorsed NNSA's recommended alternative calling for plutonium pit production

at Los Alamos National Laboratory (LANL) and the Savannah River Site (SRS). This two-site approach bolsters the nuclear security enterprise's responsiveness and resiliency.

NNSA's Life Extension Programs (LEPs), Modifications, and Alteration: In January 2019, NNSA completed the program of record for the W76-1 LEP, extending the warhead's service life from 20 years to 60 years. The B61-12 LEP, W80-4 LEP, W88 Alteration 370, W87-1 Modification, and the W76-2 Modification continue to remain on budget and schedule. These achievements are a testament to NNSA's ability to deliver on our commitments we have made to DoD and Congress.

Infrastructure Investments: NNSA commenced construction of the main buildings of the Uranium Processing Facility (UPF) at the Y-12 National Security Complex (Y-12). UPF remains on budget and on schedule for delivery by the end of 2025 for no more than \$6.5 billion. NNSA also broke ground on the new Albuquerque Complex, which will house 1,200 employees when complete.

Highly Enriched Uranium (HEU): Working with the International Atomic Energy Agency (IAEA), China, and Nigeria, NNSA was instrumental in the conversion of a Nigerian research reactor from HEU to low-enriched uranium (LEU) fuel. This marks NNSA's 74th research reactor or isotope production facility conversion, which was followed by repatriation of the HEU fuel to China, making Nigeria the 33rd country plus Taiwan to become HEU free.

Nuclear Material Removal: NNSA removed or confirmed disposition of more than 280 kilograms of HEU from four countries, enough material for more than 11 nuclear weapons.

Counterterrorism: NNSA's technical experts were deployed to numerous widely attended public events such as the Super Bowl and the Boston Marathon to provide radiation detection, identification, and technical advice, helping to protect the public from acts of nuclear and radiological terrorism. This level of support requires NNSA's response assets to maintain full operational readiness at all times.

Naval Nuclear Propulsion: NNSA's Office of Naval Reactors continued its record of safe and reliable nuclear propulsion and nuclear fleet support, while contributing expertise to the U.S. Navy's new Columbia-Class program. This next generation nuclear-powered submarine will ensure required sea-based deterrence capabilities for decades to come.

Supercomputing: Lawrence Livermore National Laboratory (LLNL) unveiled the Sierra supercomputer, ranked the second-fastest in the world according to the Top 500 list.

For more than 70 years, from the early days of the Manhattan Project to the height of the Cold War, the dedicated men and women of the nuclear security enterprise have overcome every obstacle in their way, all while accomplishing a complex and enduring national security mission. With Congress' continued support, NNSA will similarly overcome the nuclear security threats that face us today and into the future.

NNSA's FY 2020 Budget Request

The 2018 Nuclear Posture Review (2018 NPR) calls for the United States to have modern, flexible, and resilient nuclear capabilities that are safe and secure until such a time as nuclear weapons can prudently be eliminated from the world. All previous NPRs highlighted the need to maintain a modern nuclear weapons infrastructure, yet the United States has fallen behind in sustaining a modern infrastructure that is resilient and has the capacity to respond to unforeseen threats. Additionally, the 2018 NPR reiterates the United States' commitment to effective nonproliferation and arms control measures, both of which are equally important as having a credible deterrent.

For the Nation to retain a credible deterrent and prevent, counter, and respond to global nuclear security threats, NNSA will require significant and sustained investments in its nuclear security mission. In pursuit of these goals, the President's FY 2020 budget request for NNSA is \$16.5 billion. This is an increase of \$1.3 billion, or 8.3 percent, over the FY 2019 enacted level.¹

Weapons Activities Appropriation

The FY 2020 budget request for the *Weapons Activities* account is \$12.4 billion, an increase of \$1.3 billion, or 12 percent, over FY 2019 request levels. The programs funded in this account support the Nation's current and future defense posture and the associated nationwide infrastructure of science, technology, engineering, cybersecurity, and production capabilities.

The majority of weapons in today's stockpile have surpassed their intended design life, thereby accumulating increasing risk. The United States has reduced its stockpile by 25 percent since 2010, while potential adversaries have increased their numbers of nuclear weapons and significantly modernized their nuclear capabilities.

Maintaining the Stockpile

In FY 2019, the science-based Stockpile Stewardship Program supported certifying to the President for the 23rd consecutive year that the U.S. nuclear weapons stockpile remains safe, secure, and reliable without the need for nuclear explosive testing. This remarkable scientific achievement is made possible through the work accomplished by NNSA's world-class scientists, engineers, and technicians, and through investments in state-of-the-art diagnostic tools, high performance computing platforms, and modern facilities.

For *Directed Stockpile Work (DSW)*, the FY 2020 budget request is \$5.4 billion, an increase of \$768 million, or 16.5 percent, over the FY 2019 enacted level. Included within this request is funding to support the LEPs, modifications, and a major alteration. These modernization efforts are aligned with the needs outlined in the 2018 NPR and approved by the NWC.

W76-1 LEP: The W76-1 LEP, which directly supports the sea-based leg of the nuclear triad, completed its production run in December 2018. Close-out activities in FY 2020 include

¹ Amounts do not reflect the transfer of funds from Naval Reactors to the Office of Nuclear Energy for maintenance and operation of the Advanced Test Reactor in FY 2019.

archiving production tooling and program records, and completing component overbuilds to support hardware provisioning for the life of the warhead system.

W76-2 Modification Program: The W76-2 is currently on schedule and on budget. The First Production Unit (FPU) was completed in February 2019. By providing the U.S. an assured ability to respond in kind to a low-yield nuclear attack, the W76-2 discourages an adversary from pursuing such an attack and therefore strengthens deterrence. Having credible response options to a nuclear attack of any magnitude ensures no adversary mistakenly believes the U.S. would be deterred from responding to a low-level nuclear attack for fear of escalation.

B61-12 LEP: The B61-12 LEP will consolidate four variants of the B61 gravity bomb and improve the safety and security of the weapon. Currently in Phase 6.4, Production Engineering, this LEP has demonstrated system performance in over 60 integrated ground and flight tests, including eight joint flight test drops. The B61-12 LEP will enter Phase 6.5, First Production, in the fourth quarter of FY 2019, following completion of system qualification and Pantex Plant production readiness activities.

W88 Alteration 370: The FPU is on track for completion by December 2019. This program, which also supports the sea-based leg of the nuclear triad, is currently in Phase 6.4, Production Engineering, and will enter Phase 6.5, First Production, in September 2019.

W80-4 LEP: In February 2019, the NWC approved the W80-4 LEP to transition into Phase 6.3, Development Engineering. The FY 2020 request for \$899 million will allow the W80-4 LEP to remain on track to achieve FPU completion in FY 2025 in support of the Air Force's Long-Range Stand-Off (LRSO) cruise missile.

W87-1 Modification Program: The W87-1 program will replace the aging W78 warhead, with planned first production in 2030 to support fielding on the U.S. Air Force's Ground Based Strategic Deterrent (GBSD) missile system. In September 2018, the NWC authorized restart of Phase 6.2, Program Feasibility Study, activities on the W78 replacement warhead and renamed it the W87-1. The W87-1 Modification Program will improve the warhead's safety and security, addressing design, material obsolescence, performance, and survivability considerations.

Within DSW, the FY 2020 budget request includes \$636 million for *Stockpile Systems*, an increase of \$36 million, or 6.1 percent above the FY 2019 enacted level. This program sustains the stockpile in accordance with the Nuclear Weapon Stockpile Plan by producing and replacing limited-life components such as neutron generators and gas transfer systems; conducting maintenance, surveillance, and evaluations to assess weapon reliability; detecting and anticipating potential weapon issues; and compiling and analyzing information during the annual assessment process.

The DSW request also includes \$1.1 billion for *Stockpile Services*, an increase of \$76 million, or 7.2 percent, above the FY 2019 enacted level, to support the modernization of capabilities to improve efficiency of manufacturing operations to meet future requirements. This request supports all DSW operations by funding programmatic and infrastructure management, and

maintaining the core competencies and technologies essential for reliable and operable stewardship capabilities.

The FY 2020 budget for *Strategic Materials* is necessary to maintain NNSA's ability to produce nuclear and other strategic materials associated with its weapons programs, as well as refurbish and manufacture components made from these materials. This includes uranium, plutonium, tritium, and lithium.

Strategic Materials Sustainment: The request of \$257 million, an increase of \$41 million, or 18.8 percent, above the FY 2019 enacted level, will develop and implement strategies to maintain the technical base for strategic materials in support of NNSA's nuclear weapons, nonproliferation, and naval nuclear propulsion activities at NNSA's eight sites.

Uranium Program: The FY 2020 budget request of \$909 million for the Uranium Program is comprised of Uranium Sustainment (\$94 million), Process Technology Development (\$70 million), and the UPF project (\$745 million).² Uranium Sustainment supports the program to maintain existing enriched uranium capabilities through enhanced equipment maintenance while preparing to phase out mission dependency on Building 9212, a Manhattan Project-era production facility at Y-12. The funding request will enable NNSA to sustain uranium manufacturing capabilities while accelerating planning and execution of the Building 9212 exit strategy to reduce risks associated with transitioning enriched uranium capabilities to the UPF. Process Technology Development supports key capability transitions out of Building 9212, including chip processing, purified metal production, and recovery of low equity material, into enduring nuclear facilities. Funding for UPF will support peak construction activities in FY 2020 and FY 2021. UPF will provide uranium casting, special oxide production, and salvage and accountability capabilities for the enterprise.

Plutonium Sustainment: The FY 2020 budget request of \$712 million, an increase of \$351 million, or 97.2 percent, above the FY 2019 enacted level, supports continued progress to meet pit production requirements. The requested funding would support efforts to begin the long-term plan to develop a capability to produce no fewer than 80 war-reserve pits per year by 2030, as directed in the 2018 NPR.

The time to move forward is now. Repurposing the Mixed Oxide (MOX) Fuel Fabrication Facility and producing plutonium pits at SRS and LANL is the preferred path to achieve the critical DoD requirement of 80 pits per year by 2030. Even though this approach will require NNSA to fund activities at two sites, any interruption or delay to pit production in the future due to the lack of resiliency will have huge cost increases across the entire nuclear security enterprise. NNSA is investing in the Savannah River Plutonium Processing Facility. The agency is executing conceptual design activities for the repurposed MOX Fuel Fabrication Facility and moving forward with National Environmental Policy Act activities.

NNSA is also investing at LANL to provide all the tools necessary for the enterprise to successfully support an enduring plutonium pit production mission to produce 30 pits per year by

² Process Technology Development is funded under the Advanced Manufacturing Development program, and the UPF project is funded under Infrastructure and Operations.

2026. NNSA anticipates \$3 billion in total funding over the next five years to enable this, and LANL is actively installing pit production equipment and has begun hiring to meet future work scope. As the Nation's plutonium center of excellence for research and development, LANL plays a critical role in early design efforts for pit production.

In addition, NNSA's budget request includes funding for the Chemistry and Metallurgy Research Replacement project at LANL, which supports our plan to cease operations in buildings dating back to the Manhattan Project, in the height of the Cold War, and transition to modern facilities.

Tritium Program: The FY 2020 budget request of \$269 million, a decrease of \$21 million, or 7.3 percent, below the FY 2019 enacted level, will provide the tritium necessary for national security requirements. Tritium must be replenished regularly because it radioactively decays at 5.5 percent per year. Tritium availability is dependent on both the production of new tritium and the recovery and recycling of tritium from returned warhead components. Mission requirements necessitate that tritium production double by the mid-2020s. NNSA's tritium strategy focuses on increasing tritium production in Tennessee Valley Authority reactors and modernizing infrastructure at SRS to support the tritium supply chain.

Lithium Program: The FY 2020 budget request of \$29 million, a decrease of \$335,000, or 1.1 percent below the FY 2019 enacted level, supports a lithium bridging strategy to maintain the production of lithium. The FY 2020 budget request includes \$32 million for the Lithium Processing Facility (LPF), which will replace 1940s infrastructure at Y-12 and house lithium processing capabilities by 2030. NNSA completed an Analysis of Alternatives (AoA) for the LPF and is preparing for Critical Decision 1, establishing the preferred alternative design and estimated budget.

Domestic Uranium Enrichment (DUE): The FY 2020 budget request of \$140 million, an increase of \$90 million, or 180 percent above the FY 2019 enacted level, will continue efforts to make available, when needed, the necessary supplies of enriched uranium for a variety of national security needs. The DUE program schedule is driven by the nearest-term defense need—unobligated low enriched uranium for tritium production. Other Departmental needs for enriched uranium (e.g., research reactors, naval fuel) are supported by this effort as well.

For *Research, Development, Test, and Evaluation* (RDT&E), the FY 2020 budget request is \$2.3 billion, an increase of \$264 million, or 13.1 percent above the FY 2019 enacted levels.

Increases to the *Science Program* (\$587 million) provide additional funding to support subcritical experiments for pit reuse and advanced diagnostics for subcritical hydrodynamic integrated weapons experiments that produce data for stockpile certifications.

The *Engineering Program* (\$234 million) sustains NNSA's capability for creating and maturing advanced toolsets and technologies to improve weapon surety and support annual stockpile assessments.

In FY 2020, the *Inertial Confinement Fusion Ignition and High Yield Program* (\$481 million) will continue to maintain essential experimental capabilities and expertise in high energy density

stockpile science. These efforts continue to provide data to reduce uncertainty in calculations of nuclear weapons performance and improve the predictive capability of science and engineering models in high-pressure, high-energy, high-density regimes.

The FY 2020 request includes \$840 million for the *Advanced Simulation and Computing* (ASC) Program, which continues NNSA's close collaboration with DOE's Office of Science to implement the Exascale Computing Initiative. The ASC Program supports stockpile stewardship by developing and delivering predictive simulation capabilities for nuclear weapons systems in addition to deploying increasingly more powerful supercomputers at Sandia, Los Alamos, and Lawrence Livermore National Laboratories.

The *Secure Transportation Asset* (STA) program provides safe, secure movement of nuclear weapons, special nuclear material, and weapon components to meet projected DOE, DoD, and other customer requirements. The Office of Secure Transportation has an elite security workforce that performs sensitive and demanding work; our agents are among the most highly trained and dedicated national security personnel operating within the United States. The FY 2020 budget request is \$317 million, of which \$80 million continues our efforts to modernize and replace the existing fleet of transporters with the Mobile Guardian Transporter (MGT). The MGT will be used for the containment and transport of nuclear weapons, weapons components, and/or special nuclear materials.

Improving Safety, Operations, and Infrastructure

An effective, responsive, and resilient nuclear weapons infrastructure is essential to the U.S. capacity to adapt flexibly to shifting requirements. Such an infrastructure offers tangible evidence to both allies and potential adversaries of U.S. nuclear weapons capabilities and can help to deter, assure, hedge against adverse developments, and discourage adversary interest in arms competition.

More than half of NNSA's facilities are over 40 years old, and roughly 30 percent date back to the Manhattan Project. It will take sustained, significant resources to modernize NNSA's nuclear weapons infrastructure.

Thanks to the support of the Administration and Congress, NNSA is making progress in repairing, replacing, and modernizing NNSA's facilities and stabilizing deferred maintenance; yet much more remains to be done. The FY 2020 budget request for *Infrastructure and Operations* is \$3.2 billion, an increase of \$121 million, or 3.9 percent above the FY 2019 enacted level. It includes \$1.1 billion for line item construction and over \$580 million for minor construction and equipment recapitalization needs. Delivering these projects on budget and schedule is contingent upon stable and predictable funding profiles, and support for the President's budget request.

Many of NNSA's excess process-contaminated facilities will ultimately be transferred to DOE's Office of Environmental Management (EM) for disposition. For example, EM commenced efforts to remove Building 280 Pool Type Reactor and ancillary facilities at Lawrence Livermore

National Laboratory. NNSA identified five (including Building 280) of the top ten highest risk excess facilities at Lawrence Livermore National Laboratory.

In the interim, NNSA is focusing on reducing risks where possible. NNSA has made critical investments to stabilize high-risk process-contaminated facilities until ultimate disposition, including at Y-12's Alpha 5 and Beta 4 facilities. In FY 2020, NNSA is using the authority Congress provided in the FY 2018 National Defense Authorization Act (NDAA) to pursue disposition of several high-risk process-contaminated excess facilities with a project cost of less than \$50 million. NNSA also remains committed to reducing the risk of non-process contaminated facilities by dispositioning facilities where possible. For example, NNSA completed the Pantex Drummond Office Building (formerly known as the Administrative Support Complex) at the Pantex Plant outside of Amarillo, Texas in 2018. This building provides 1,000 employees with modern, energy efficient workspace. As a result, NNSA is now disposing of dilapidated, 1950s-era buildings and eliminating approximately \$20 million in deferred maintenance. In FY 2020, NNSA plans to fund the disposition of 24 additional facilities totaling 75,000 gross square feet.

Defense Nuclear Security's FY 2020 budget request is \$778 million, an increase of \$88 million, or 12.7 percent, over the FY 2019 enacted amount. To execute its enterprise security program, DNS provides funding to the sites for: protective forces; physical security systems; information security and technical security; personnel security; nuclear material control and accountability; and security program operations and planning. While NNSA faces challenges replacing and refreshing aging physical security infrastructure, we are making key investments in recapitalizing this infrastructure through the Security Infrastructure Revitalization Program (SIRP). SIRP projects address aging high-priority security systems and related security infrastructure and equipment needs at all NNSA sites. NNSA will continue to execute ongoing line-item security projects as well, including the effort to reduce the Y-12 Protected Area and use security resources more efficiently. In addition, NNSA will sustain counter unmanned aircraft systems implementation and operation at sites possessing Category 0/I quantities of special nuclear material.

Information Technology and Cybersecurity enable every element of NNSA's missions. The FY 2020 budget request is \$309 million, an increase of \$88 million, or 40 percent over the FY 2019 request. This increase will continue cybersecurity enhancements, bolster cybersecurity capabilities, and support the continuation of IT modernization efforts. NNSA is making steady progress in enhancing and upgrading the components of the Enterprise Secure Computing environment to ensure that nuclear security enterprise missions can be completed without disruption. As NNSA mission requirements expand in scope, the IT and cyber programs require modernization, expansion, and innovation in a commensurate fashion. Cybersecurity is a defense and deterrence mechanism and a powerful tool. In the current threat environment, NNSA cannot afford to neglect its cybersecurity capabilities, which serve as frontline assets that protect the information, systems, and networks NNSA depends on to execute our mission.

Defense Nuclear Nonproliferation Appropriation

The FY 2020 budget request for the Defense Nuclear Nonproliferation account is \$2 billion, an increase of \$63 million, or 3.3 percent, above the FY 2019 request. Defense Nuclear

Nonproliferation account activities address the entire nuclear threat spectrum by helping to prevent the proliferation of nuclear weapons, counter the threat of nuclear terrorism, and respond to nuclear and radiological incidents around the world. The FY 2020 budget request funds two program mission areas under this account: the Defense Nuclear Nonproliferation (DNN) Program and the Nuclear Counterterrorism and Incident Response (NCTIR) Program.

Nonproliferation Efforts

The Office of Defense Nuclear Nonproliferation works to: remove or eliminate vulnerable nuclear material; improve global nuclear security through multilateral and bilateral technical exchanges and training workshops; help prevent the illicit trafficking of nuclear and radioactive materials; secure domestic and international civilian buildings containing high-priority radioactive material; provide technical reviews of U.S. export license applications; conduct export control training sessions for U.S. enforcement agencies and international partners; strengthen the IAEA's ability to detect and deter nuclear proliferation; advance U.S. capabilities to monitor arms control treaties and detect foreign nuclear programs; and maintain organizational readiness to respond to and mitigate radiological or nuclear incidents worldwide.

The *Material Management and Minimization (M3)* program provides an integrated approach to addressing the risk posed by nuclear materials. The FY 2020 budget request is \$334 million, an increase of \$40 million, or 13.5 percent above the FY 2019 enacted level. The request supports the conversion or shut-down of research reactors and isotope production facilities that use HEU and the acceleration of developing new, non HEU-based molybdenum-99 production technologies in the United States. Additionally, the request for M3 supports the removal and disposal of weapons-usable nuclear material, with priority on expediting the removal of surplus plutonium from the State of South Carolina and continuing the transition to the dilute and dispose strategy for surplus plutonium disposition.

The *Global Material Security* program works with partner nations to increase the security of vulnerable nuclear and radioactive materials and improve the ability to deter, detect, and investigate illicit trafficking of these materials. The FY 2020 budget request of \$342 million, a decrease of \$65 million, or 15.9 percent, below the FY 2019 enacted level and includes efforts to secure the most at-risk radioactive material in U.S. high-threat urban areas by the end of FY 2020.

The *Nonproliferation and Arms Control* program develops and implements programs to: strengthen international nuclear safeguards; control the proliferation of nuclear and dual-use material, equipment, technology and expertise; verify nuclear reductions and compliance with nonproliferation and arms control treaties and agreements; and address enduring and emerging proliferation challenges requiring the development of innovative policies and approaches. The FY 2020 budget request for this program is \$137 million, an increase of \$6 million, or 5.8 percent, above the FY 2019 enacted level. This increase serves to advance and complete development of the new Export Compliance Assistance Program to deploy export control training across DOE and NNSA facilities, implement new 10 CFR Part 810 civil penalty authority pursuant to the FY 2019 NDAA, and establish and maintain a nonproliferation

enrichment testing and training platform in cooperation with the IAEA and select foreign partners.

The *Defense Nuclear Nonproliferation Research and Development* program supports innovative unilateral and multilateral technical capabilities to detect, identify, and characterize foreign nuclear weapons programs, illicit diversion of special nuclear material, and nuclear detonations worldwide. The FY 2020 budget request for this program is \$495 million, a decrease of \$80 million, or 13.9 percent, below the FY 2019 enacted level. This decrease is due to shifting the HEU Reactor Conversion program to M3, as it is no longer in the research and development phase.

Nonproliferation Construction consolidates construction costs for DNN projects. The FY 2020 budget request is \$299 million, an increase of \$79 million, or 35.9 percent, above the FY 2019 enacted level. Last year, NNSA terminated activities for the MOX Fuel Fabrication Facility project to pursue the dilute and dispose option to fulfill the U.S. commitment to dispose of 34 metric tons of plutonium. The \$220 million for the MOX Fuel Fabrication Facility will be used to continue termination activities. The request also includes \$79 million for the Surplus Plutonium Disposition project, which supports the dilute and dispose strategy.

Nuclear Counterterrorism and Incident Response (NCTIR)

The Office of Counterterrorism and Counterproliferation (CTCP) provides effective capabilities to respond to any nuclear or radiological incident in the United States or abroad by applying the unique technical expertise found in NNSA's nuclear security enterprise. Highly trained personnel with specialized technical equipment maintain readiness to support lead federal agencies to find and render safe potential nuclear and radiological threat devices, to effectively manage the consequences of nuclear or radiological emergencies, and to support enhanced security operations for National Security Special Events (NSSE).

NNSA's Aerial Measuring System (AMS) provides airborne remote sensing in the event of a nuclear or radiological accident or incident within the continental United States, as well as in support of regularly scheduled NSSE. The AMS fleet consists of three Beechcraft B200 fixed-wing aircraft with an average age of 33 years and two Bell 412 helicopters with an average age of 24 years. The age of the current aircraft leads to unscheduled downtime resulting in reduced mission availability. A 2017 AoA on the AMS aircraft determined that recapitalization of the aging aircraft fleet is necessary to continue to provide Federal, State, and local officials with rapid radiological information following an accident or incident. In FY 2019, the fixed-wing aircraft will be replaced, and the rotary-wing aircraft will be replaced in FY 2020. The FY 2020 budget request for AMS recapitalization is \$35.5 million.

NNSA, in conjunction with the Federal Bureau of Investigation (FBI), supports render safe teams at FBI field offices in 11 major American cities that are specially trained and equipped to identify and mitigate the function of a nuclear or radiological device (i.e., "stabilization"). CTCP will conduct stabilization training and operations and begin transitioning to the Capability Forward initiative, under which lifesaving responses to a nuclear threat device will be accelerated. Under this initiative, NNSA will provide additional training, equipment, and

technical support to the current 11 stabilization cities – eventually growing to 14 U.S. cities by FY 2022 – to allow FBI teams to execute render safe operations more rapidly. CTCP will also improve and expand NNSA training facilities to accommodate the increased training requirements associated with regional render safe capabilities.

The Nation’s nuclear incident response teams require the ability to communicate classified technical assessments in deployed, and often austere, environments using highly secure means. Information requirements encompass both nuclear device design information and intelligence assessments. The equipment used by NNSA’s nuclear incident response teams is aging, resulting in increasing maintenance costs and heightened risks to the emergency response mission. This budget includes funding for recapitalization of incident response equipment consistent with lifecycle planning to maintain operational readiness. The budget also includes funding for state-of-the-art, secure, deployable communications systems that are interoperable with FBI and DoD mission partners that will help provide decision makers with real-time technical recommendations to mitigate nuclear terrorist threats.

CTCP maintains an operational nuclear forensics capability in three distinct areas: (1) pre-detonation device disassembly and examination; (2) post-detonation assessment; and (3) analysis and characterization of nuclear materials. The program maintains readiness to deploy device disposition and device assessment teams, conduct laboratory operations in support of analysis of bulk actinide forensics, and deploy subject matter expertise and operational capabilities in support of ground sample collections that support attribution of a nuclear detonation.

The *Emergency Operations* program’s FY 2020 budget request includes \$35.5 million under NCTIR to support NNSA’s Office of Emergency Operations. This funding will support NNSA’s all-hazard emergency response capabilities that positively impact the Department’s emergency management continuity and devolution programs, enhance the ability of the Department to respond to, and recover from, catastrophic emergencies or other man-made hazards or natural disasters.

Naval Reactors Appropriation

Advancing Naval Nuclear Propulsion

Nuclear propulsion for the U.S. Navy’s fleet of submarines and aircraft carriers is critical to the security of the United States and its allies as well as the security of global sea lanes. The Office of Naval Reactors remains at the forefront of technological developments in naval nuclear propulsion by advancing new technologies and improvements in naval reactor performance. This preeminence provides the U.S. Navy with a commanding edge in naval warfighting capabilities.

The *Naval Reactors* FY 2020 budget request is \$1.65 billion, a decrease of \$140 million or approximately 8 percent, below the FY 2019 enacted level. This request reflects reductions to planned funding levels following additional funding enacted in FY 2018 for the S8G Prototype Refueling Overhaul and Spent Fuel Handling Recapitalization Project. In addition to supporting today’s operational fleet, the requested funding is the foundation for Naval Reactors to deliver

tomorrow's fleet and recruit and retain a highly-skilled workforce. One of Naval Reactors' three national priority projects, continuing design and development of the reactor plant for the Columbia-Class submarine, featuring a life-of-ship core and electric drive, will replace the current Ohio-Class fleet and provide required deterrence capabilities for decades. The project to refuel a research and training reactor in New York will enable 20 more years of research, development, and training for fleet operators. Funding will also be used to support construction of a new spent fuel handling facility in Idaho that will facilitate long term, reliable processing and packaging of spent nuclear fuel from aircraft carriers and submarines.

Naval Reactors has requested funding in FY 2020 to support these projects and fund necessary reactor technology development, equipment, construction, maintenance, and modernization of critical infrastructure and facilities. By employing a small but high-performing technical base, the teams at Bettis Atomic Power Laboratory in Pittsburgh, Pennsylvania; Knolls Atomic Power Laboratory and Kesselring Site in New York; and the spent nuclear fuel facilities in Idaho can perform the research and development, analysis, engineering, and testing needed to support today's fleet at sea and develop future nuclear-powered warships. These laboratories also perform the technical evaluations that enable Naval Reactors to thoroughly assess emergent issues and deliver timely responses to provide nuclear safety and maximize operational flexibility.

NNSA Federal Salaries and Expenses Appropriation

The FY 2020 budget request for *Federal Salaries and Expenses* is \$435 million, an increase of \$25 million, or 6.0 percent, over the FY 2019 enacted level. NNSA's workforce is critical to the success of the Nation's nuclear security enterprise. NNSA must have a sufficient workforce, with the right capabilities, to ensure it can modernize the nuclear deterrent, recapitalize an aging infrastructure, and continue to meet the requirements of our nonproliferation and counterterrorism programs. The 2018 NPR highlighted the need to properly support civilian personnel who protect the United States against nuclear threats. Effective deterrence would be impossible without the vital contributions our personnel make to the United States' nuclear capabilities and deterrence.

If NNSA is to be successful, funding alone will not be enough. NNSA will need to have the necessary human resource authorities to attract and retain the best and brightest workforce from around the country, fostering interest through internships or skilled trade programs, and clearing them for classified work as quickly as possible. This includes jobs not just in science, technology, and engineering but also manufacturing, maintenance, project and program management, and construction.

Meeting NNSA's growing mission requirements, as described in the 2018 NPR will require an aggressive hiring strategy for the next two years. Since 2010, NNSA's program funding has increased 50 percent, while staffing has decreased 10 percent. The FY 2020 request increases NNSA staffing to 1,753 full-time equivalents (FTEs), an increase of 95 FTEs from the current on-board level of 1,658 Federal employees. NNSA would benefit from the elimination of the overall cap on FTEs and excepted service personnel.

Last year, two independent studies identified NNSA's unmet critical staffing needs. The Office of Personnel Management (OPM) and NNSA's Office of Cost Estimating and Program Evaluation (CEPE) found that NNSA was understaffed across all functions. The number of additional staff recommended in both studies would exceed the statutory cap on NNSA's full-time equivalent employees. In March 2019, the Government Accountability Office (GAO) endorsed both OPM and CEPE's staffing analyses' conclusions of critical staff shortfalls and needs across multiple NNSA functions. GAO's endorsement supports NNSA's request for additional hiring authorities that would eliminate personnel caps, which would allow us to put significant resources behind our mission priorities. NNSA is focusing on developing a concrete strategic staffing plan based on the information provided by the two independent studies and GAO's report.

Management and Performance

Since 2011, NNSA has delivered approximately \$2 billion in projects, a significant portion of NNSA's total project portfolio, under budget. We are committed to encouraging competition and increasing the universe of qualified contractors by streamlining major acquisition processes. NNSA will continue to focus on delivering timely, best-value acquisition solutions for all programs and projects, by using a tailored approach to contract structures and incentives that are appropriate for the special missions and risks at each site. NNSA's Office of Acquisition and Project Management continues to: lead improvements in contract and project management practices; provide clear lines of authority and accountability for program and project managers; improve cost and schedule performance; and ensure that Federal Project Directors and Contracting Officers possess the appropriate skill mix and professional certifications to manage NNSA's work.

Conclusion

NNSA's diverse missions are critical to the national security of the United States: maintaining the safety, security, reliability, and effectiveness of the nuclear weapons stockpile; reducing the threat of nuclear proliferation and nuclear terrorism around the world; and providing naval nuclear propulsion to the U.S. Navy's fleet of aircraft carriers and submarines. NNSA is mindful of its obligation to improve acquisition, safety, and security practices continually, and to use in a responsible manner, the resources entrusted to it by Congress and the American people. By investing in our nuclear security enterprise and continuing our efforts to modernize our scientific, technical, and engineering capabilities and infrastructure, NNSA will continue to deliver on its nuclear security mission.