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on the
National Nuclear Security Administration's Plan to Address Deferred Maintenance
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Chairman Rogers, Ranking Member Cooper, and Members of the Subcommittee, thank you for the opportunity to discuss the challenges and progress made by the Department of Energy's National Nuclear Security Administration (NNSA) in addressing deferred maintenance across the nuclear security enterprise. We value this Subcommittee's leadership in national security and its strong support for the mission and people of the NNSA.

Safe, reliable, and modern infrastructure at NNSA's national laboratories and production plants is absolutely essential to the accomplishment of our vital national security missions and the well-being of our workforce. Our infrastructure is extensive, complex, and, in many critical areas, several decades old. More than half of NNSA's approximately 6,000 real property assets are over 40 years old, and nearly 30 percent date back to the Manhattan Project era. Many of the enterprise's critical utility, safety, and support systems are failing at an increasing and unpredictable rate, which poses both programmatic and safety risk.

Given competing priorities, the resources available to maintain NNSA's infrastructure have historically not kept pace with growing needs. NNSA's total deferred maintenance on fixed assets (real property) stood at $3.7 billion at the end of Fiscal Year (FY) 2015. Last year, Secretary of Energy Moniz directed that infrastructure investment across all of DOE, including NNSA, be funded at levels sufficient to at least halt the growth of deferred maintenance starting in FY 2016. Significantly, the investments made in FY 2016, requested in NNSA's budget and supported by Congress, will halt the growth of deferred maintenance. And NNSA's FY 2017 budget request, if similarly supported, will actually begin to decrease NNSA's deferred maintenance backlog.

To control deferred maintenance, NNSA is working to reduce existing deferred maintenance and limit the creation of new deferred maintenance by taking the following actions:

- Improving practices to document deferred maintenance in order to enhance accuracy and comparability across all sites;
- Deploying new decision-making tools for more effective use of resources;
- Increasing resources for recapitalization and maintenance efforts and line-item construction;
- Disposing of unneeded facilities; and
- Implementing improved project management systems and all appropriate acquisition options to ensure cost effective delivery of new construction.

NNSA has also introduced an improved infrastructure budget structure, supported by Congress in FY 2016, that separates infrastructure maintenance and recapitalization from day-to-day operations. This new structure improves infrastructure stewardship in two ways. First, it focuses on maintenance to limit the growth of deferred maintenance; second, it emphasizes recapitalization to replace obsolete facilities. The focus on recapitalization also improves minor construction project management by (1) increasing planning requirements prior to project approval and execution; (2) creating smaller, one-to-two-year projects; and (3) closely tracking financial and schedule performance. NNSA has created standard prioritization criteria to better assess each project's relative importance to achieving program results and improving safety.

NNSA also began requesting a higher percentage of funding for recapitalization and maintenance projects starting in FY 2015. These funding increases are essential to decreasing deferred maintenance, arresting the declining state of infrastructure, increasing productivity, improving safety, eliminating costly compensatory measures, and shrinking the NNSA footprint through the disposition of unneeded facilities.

NNSA has made significant progress in the disposition of excess facilities. In FY 2014 and FY 2015, for example, buildings 9744 and 9808 at Y-12 were razed. The Administration's FY 2017 budget also includes $200 million to deactivate and dispose of the Bannister Federal Complex in Kansas City, Missouri. The plan for this project, which has been supported by all four of NNSA's authorizing and appropriating committees, will result in transferal of the property to a private redeveloper in March 2017. Assuming the project goes forward in early 2017, this action alone will save as much as $500 million compared to the cost if the government were to complete the decommissioning on its own.

Broader Infrastructure Requirements

NNSA's nuclear security enterprise requires a right-sized and balanced set of general purpose, programmatic, and security infrastructure that supports mission work at acceptable levels of risk. NNSA's infrastructure is comprised of two types of property – real property, such as buildings, building systems/components (e.g., heating, ventilating, and air conditioning [HVAC], utilities, and roads) and personal property, (e.g., programmatic equipment, gloveboxes, scientific tools, and manufacturing equipment). NNSA's infrastructure requires investments beyond those specifically captured by the deferred maintenance metric, which does not account for the full scope of necessary infrastructure investments. Although this metric captures deficiencies in real property, for instance, it does not reflect deficiencies in equipment, technology obsolescence, or shortfalls in infrastructure capability and capacity. Consequently, we continue to refine our approach to infrastructure recapitalization to address for the full suite of work that must be performed.

Strategic Materials Infrastructure

NNSA's Strategic Materials capabilities – including plutonium, uranium, tritium, and lithium – are central to the U.S. nuclear deterrent. Consequently, NNSA is recapitalizing the facilities that support these materials with projects such as the Chemistry and Metallurgy Research Replacement project at Los Alamos National Laboratory (LANL) and the Uranium Processing Facility (UPF) at the Y-12 National Security Complex (Y-12).

For most of the past 60 years, LANL performed analysis of the chemical and material properties of plutonium in the Chemistry and Metallurgy Research building, a 1950s-era facility that is now at the end of its useful life. The Chemistry and Metallurgy Research Replacement project will move existing functions into newer, safer, and more efficient workspace.

Under NNSA's Uranium Strategy, key uranium capabilities are being revitalized throughout the nuclear security enterprise. NNSA's uranium infrastructure spans several sites: uranium storage and processing mostly occurs at Y-12, with some R&D capabilities located at LANL, Lawrence Livermore National Laboratory, and Oak Ridge National Laboratory. The UPF at Y-12 is vital to modernizing NNSA's uranium infrastructure, providing critical capabilities to the nation's nuclear weapons program, nonproliferation missions, and Naval Reactors. NNSA is committed to ceasing enriched uranium (EU) programmatic operations in Y-12's Building 9212 and delivering UPF by 2025 for no more than $6.5 billion. While NNSA is reducing mission and safety risks in existing facilities to ensure that long-term EU operations continue safely, infrastructure risk reduction efforts must continue to support additional capabilities.

At the Savannah River Site, NNSA is employing the Tritium Responsive Infrastructure Modifications Program to mitigate infrastructure risks at the site. In FY 2015, NNSA approved CD-0 for the Tritium Production Capability (TPC) line-item project, which mitigates potential risks to the NNSA's Stockpile Stewardship Programs stemming from conducting operations in outdated facilities that have exceeded their planned useful lives. Capabilities and processes related to, but not including, loading of reservoirs with tritium are currently housed in H-Area Old Manufacturing (HAOM), a 1950s-era building that does not meet current codes and standards and presents a risk to the tritium mission due to the age of the building and systems as well as susceptibility to seismic events and severe weather. We are nearing completion of the Analysis of Alternatives (AoA), which will inform the conceptual design phase of the project. Alternatives considered in the AoA include repair and upgrade of existing facilities, new construction, modification of existing facilities, and off-site capabilities.

With respect to lithium, NNSA has developed a strategy to increase the supply and sustain the infrastructure needed to fabricate lithium components. Lithium is processed and stored at Y-12 in a Manhattan Project-era building that is well beyond its design life. The building has experienced rapid structural and process equipment degradation in the last 15 years. Additionally, the purification process was placed in cold standby in FY 2013 due to increasing maintenance costs and degrading reliability of the equipment. Direct material recycle is currently the only source of lithium for warhead life extension programs (LEP). NNSA's Lithium Production Capability (LPC) project will re-establish capabilities to produce enriched lithium-6 to meet the needs of NNSA and other government agencies. NNSA is currently conducting an AoA that is considering new technologies, various facility options, and off-site capabilities to inform options for the path forward.

Enterprise Security

NNSA is conducting a Site Condition Review (SCR) of the physical security systems at all NNSA facilities to develop a security refresh strategy. Given the sizeable anticipated expense, we are focused on identifying less expensive options that preserve necessary levels of security.

NNSA has tasked the Center for Security Technology Analysis, Response, and Testing (CSTART) to perform much of the planning to assess needs and integrate solutions. This effort will determine the condition of critical security equipment (e.g., sensors, barriers, and cameras) and infrastructure (e.g., fiber optic wiring, lighting systems, and uninterrupted power source systems), as well as establish schedules for recurring maintenance, necessary replacements, and strategic upgrades over a 10-year cycle.

Cost containment efforts will include competing the construction work needed to replace security infrastructure and strategic planning to minimize the footprint where feasible. This comprehensive review will also identify sustainment needs that can be addressed to maintain system performance until recapitalization is complete. Based on a site condition review, NNSA will continue to make prioritized investments in security infrastructure and technology.

Deploying New Decision-Making Tools and Management Systems

NNSA's traditional measures of facility condition are based on financial metrics that do not capture the actual condition or the relative importance of the asset. To correct this deficiency, NNSA is moving to a risk-based model that evaluates each asset's ability to support core capabilities. As part of this effort, NNSA is implementing several decision-making tools to make better data-driven, risk-informed management decisions. These new tools include: Enterprise Risk Management (ERM) – composed of the Mission Dependency Index (MDI) and BUILDER – and the G2 program management system.

NNSA started using an ERM methodology in 2015 to inform its programming decisions for future budgets, beginning with FY 2017. The ERM methodology uses MDI to measure "consequence to mission" and uses the BUILDER tool to measure the "likelihood of the consequence occurring," providing a more accurate picture of where the enterprise currently stands and helping to prioritize future investments. MDI combines the impact to the NNSA mission if the asset were lost, the difficulty of replacing the asset, and the interdependency of assets. BUILDER is a Knowledge-Based Condition Assessment tool developed by the U.S. Army Corps of Engineers and recommended by the National Academy of Sciences. The tool will standardize data collection and reporting on facility condition at the major building component level (e.g., roof, HVAC, structure), providing much greater insight into a facility's condition and its risk of failure. Additionally, BUILDER will allow NNSA to better predict repairs at the optimal time in each component's lifecycle, allowing us to better prevent deferred maintenance from occurring in the first place and to prioritize investments to quickly reduce deferred maintenance when it occurs. Further, BUILDER will allow NNSA to better prioritize investment decisions based on current and future capability and capacity shortfalls.

Additionally, NNSA issued a Safety, Infrastructure, and Operations Program Management Plan, which standardizes terminology, increases consistency in cost reporting, and improves transparency into direct and indirect funded infrastructure investments. To support the new program management methodology, NNSA deployed the G2 program management system in FY 2015, which empowers Management & Operating (M&O) partners to manage at the project level with appropriate transparency. The system also provides NNSA senior management a common and transparent picture of the allocation and execution of NNSA's infrastructure spending.

Finally, NNSA is expanding on the success of its Roof Asset Management Program (RAMP) to address the needs of other common building components that can benefit from supply chain management efficiencies and lower repair costs. In FY 2015, NNSA expanded strategic procurements beyond RAMP to Cooling and Heating Asset Management (CHAMP) and plans to expand this approach to water systems in the future. NNSA will issue the Request for Proposal for CHAMP this year.

Practices for Documenting Deferred Maintenance

In 2013, the Federal Real Property Council (FRPC) chaired by the Office of Management and Budget (OMB) and comprised of CFO Council agencies, directed members to begin annual tracking and reporting of repair needs (i.e., correcting deficiencies to return an asset to its original condition), which is distinct from deferred maintenance (i.e., correcting deficiencies that need to be performed to keep "fixed assets in an acceptable condition"). The tracking and reporting of repair needs allow Federal agencies to better quantify real property deficiencies. Deficiencies are still captured by each agency and the FRPC as part of the calculation of the FRPP Condition Index data element. During 2015, NNSA worked with representatives from NNSA sites to document a standard method for determining deferred maintenance and repair needs to ensure standardized reporting across all NNSA sites. In 2016, NNSA is using this standardized approach to revalidate information on the condition of infrastructure and the assessment of deferred maintenance and repair needs to ensure accuracy and consistency across NNSA's enterprise. The results will not be available until after the fiscal year ends, but NNSA expects that this will result in some amount of deferred maintenance being reclassified as repair needs, so there will be a one-time administrative reduction to the current deferred maintenance total.

Improved Project Management

The NNSA Office of Acquisition and Project Management (APM) is driving continued improvement in contract and project management practices. This includes policies and procedures to institute rigorous analyses of alternatives; provide clear lines of authority and accountability for Federal and contractor program and project management; improve cost and schedule performance; and ensure that Federal Project Directors and Contracting Officers with the appropriate skill mix and professional certifications are managing NNSA's work. NNSA also established the Office of Project Assessments, reporting directly to the Principal Deputy Administrator, to ensure senior leadership visibility and accountability throughout the enterprise for project performance. This office generated significant savings in cost avoidances as a result of its independent project peer reviews.

Since 2011, NNSA has completed approximately $1.4 billion in projects, a portion of NNSA's total project portfolio, 5 percent under original budget. Significant examples in the last year include the UPF Site Readiness Subproject, which was delivered $20 million under budget, and Y-12's Nuclear Facility Risk Reduction Project, which was delivered $6 million under budget and 11 months ahead of schedule. Using the Department's best practices, the UPF and Chemistry and Metallurgy Research Replacement Facility projects were restructured into smaller, more manageable subprojects, significantly reducing project delivery risk.

Capital Acquisition

NNSA will continue to focus on delivering timely, best-value acquisition solutions for all of our programs and projects, including non-traditional acquisition practices where appropriate and consistent with statutory authorities and consistent with the CBO, OMB and Budget Committee guidance as outlined in A-11 and A-94.

To this end, NNSA recently achieved a major success with the construction of a brand new facility for the production of non-nuclear components for nuclear weapons in Kansas City, Missouri. The facility was built by a private developer and then leased to NNSA through the General Services Administration (GSA). The modern Kansas City campus opened for business in August 2014, replacing an antiquated, World War II-era factory. The net result is a 50 percent reduction in our footprint in Kansas City, a $100 million a year savings to the U.S. Government in operating and maintenance costs, and significantly improved operational efficiency and workforce morale.

Just last month, NNSA broke ground on the Administrative Support Complex at the Pantex nuclear weapons assembly and dismantlement facility in Amarillo, Texas. There, our M&O partner entered into a lease agreement for a new office building that a private developer will build using third-party financing. This project will allow roughly 1,000 employees to move out of dilapidated, 1950s-era buildings into a modern, energy efficient workspace. It will also eliminate approximately $20 million in deferred maintenance at the Pantex site and enhance recruitment and retention by improving the quality of the work environment.

Where it provides best value for the government, NNSA is pursuing line-item capital construction projects such as the Albuquerque Complex. NNSA's Federal staff in Albuquerque needs a modern, efficient, suitable work space. The current Albuquerque Complex, constructed in 1951, is well beyond its designed life and does not meet NNSA's needs. Just last week, 12 roof tiles fell down at the complex, and while there were no injuries, this is just one of many examples of the need to replace facilities that can no longer be adequately maintained due to their advanced age. With the continued support of Congress, we will deliver modern office facilities for the Albuquerque workforce while also disposing of the current complex. Further, to maximize the efficiency and effectiveness of this project, NNSA is leveraging the U.S. Army Corps of Engineers' broad experience in traditional line item construction projects to act as both our design agent and construction agent. This cooperation builds on our previous experience using the Corps of Engineers as the construction agent for the High Explosives Pressing Facility at Pantex.

Finally, NNSA's national security missions cannot be performed effectively without the oversight from our Federal workforce. In particular, its modernization programs require adequate Federal staff to perform program management of these multibillion dollar efforts. As one measure of NNSA's staffing-to-workload imbalance, each acquisition professional manages an average of $116 million of program dollars versus a government average of $10.7 million. Furthermore, relative to FY 2011, NNSA's workforce is 17 percent smaller despite an 18 percent increase in funding. NNSA needs, and has budgeted for in its FY 2017 budget request, additional staff to successfully execute the next phase of warhead LEPs and infrastructure

modernization programs. Moreover, continued reductions in our Federal workforce numbers threaten to compromise our ability to execute these vital missions.

Conclusion

In closing, NNSA is committed to arresting the growth of deferred maintenance, disposing of unneeded facilities, and continuing to improve the management of its infrastructure. Our strategy for reducing deferred maintenance is innovative and aggressive, and it will lead DOE and NNSA toward a new era in which infrastructure management receives high-level attention that is commensurate with its importance to the nuclear security mission. We look forward to continuing to work with Congress on these and other important national security issues.