Statement of Admiral James F. Caldwell
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on the
Fiscal Year 2023 President's Budget Request
Before the
Senate Armed Services Committee
Subcommittee on Strategic Forces

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Chairman King, Ranking Member Fischer, and distinguished members of the subcommittee, thank you for the opportunity to appear before you today and present the President's Fiscal Year (FY) 2023 budget for Naval Reactors. Your strong support for the work we do ensures our nuclear Navy can carry out vital missions around the world with agility, endurance, and firepower. As underscored by the unprecedented events currently playing out on the world stage, great power competition is here to stay, therefore it is vital for the United States that we maintain a robust naval advantage over our adversaries. Congress' support of our past efforts has allowed the Navy to maintain these advantages, and your partnership with the Navy is needed now, more than ever, as we work on the current and future endeavors in naval nuclear propulsion that are needed to protect the national security of the United States.

I have had the pleasure of serving as the Director of Naval Reactors for almost seven years out of an eight-year tenure. Before that, I had the privilege of serving in many operational and staff roles throughout the course of my Navy career. As I reflect on these decades of service and our Navy's global standing, I am increasingly concerned that our competitive advantages over our near-peer rivals are diminishing. It is vitally important for us to focus on technology investment now; failure to do so could have catastrophic implications for our future Navy in a future fight. Rivals are pursuing military modernization programs aimed at achieving regional hegemony in the near-term and eroding United States preeminence in the long-term. All domains of the maritime environment are becoming increasingly contested, and to preserve freedom of the seas, deter conflict, defend allies, and protect our national interests, we must sustain and grow our naval warfighting capabilities at an accelerated pace.

As amplified in our latest National Defense Strategy, we cannot simply do more of what we've done in the past. New advancements and refinements in nuclear propulsion are needed as the Navy innovates to increase and expand our competitive advantage. Naval Reactors' historical investment in advanced technologies has given the nation an enviable position in the maritime environment; further investments, however, are necessary to maintain our technological edge well into the future. Our ships need to retain their advantage against future threats across multiple domains and must be affordable. We also need to be able to design and build our propulsion plants faster to ensure the Navy stays ahead of increasing demands, and we must do this more cost effectively. As the CNO has conveyed in his Navigation Plan, "there is no time to waste – our actions in this decade will set the maritime balance of power for the rest of the century." Our nation took a new step this past year when the President announced the AUKUS

enhanced tri-lateral security partnership, directing a period of consultation with the objective of identifying the optimal pathway for delivering a conventionally-armed, nuclear-powered submarine capability to Australia by the earliest achievable date. This partnership creates an opportunity to amplify our naval power, strengthen a key ally and our own shipbuilding capability, and build the additional industrial and vendor base capacity our Nation needs. Through the consultation period, Naval Reactors is also focused on strengthening our partnership with the United Kingdom, and ensuring Australia understands and establishes the strong foundation of capabilities necessary to properly steward nuclear submarine technology. Given the global threats we face, it is imperative that we ensure our closest allies remain relevant in the undersea domain.

Our success in the future will rest on the foundation of what we build today. Therefore, I want to highlight some of the many contributions of our nuclear fleet. Our ballistic missile submarines provide the most survivable leg of our nuclear triad and are essential to our ability to deter major warfare, and provide assurance to our allies. Our fast attack submarines operate with confidence, undetected, safeguarding vital commercial sea-lanes, and stand ready to protect American interests where needed. Our aircraft carriers provide our nation a credible, sustained ability to project combat power, deter conflict, and protect our interests around the world.

Lead ship construction for COLUMBIA Class is underway, which will allow the Navy to continue the seamless execution of the sea-based strategic deterrent mission that began over six decades ago. The USS OHIO (SSBN 726), lead ship of today's ballistic missile submarine fleet was commissioned over 40 years ago. This class will start to be replaced by the COLUMBIA Class in 2031 with lead boat delivery in FY 2028. I remain focused on ensuring the transition between these two classes is uninterrupted – the sea based strategic deterrence mission is too important to fail. The COLUMBIA Class will be a bedrock of our national security posture for decades to come and will be the first submarine to operate for over 40 years on a single reactor core, an incredible testimonial to the technology investment that has occurred over the past decades.

In attack submarine shipbuilding, the Navy continues to work toward a steady cadence of VIRGINIA Class submarine delivery. I recently took part in sea trials on Pre-Commissioning Units (PCU) MONTANA and OREGON. This submarine class now makes up over one third of our operational attack submarines. The Navy is also assessing improvements to capability and lethality for future VIRGINIA Class submarines; these improvements will not only add capability to today's fleet but allow the Navy to prove candidate technologies that will influence our next-generation attack submarine. Naval Reactors is closely aligned with the Navy on all of these efforts. Along with the technologies being inserted for VIRGINIA Class submarines, Naval Reactors has renewed our focus and investment in advanced technologies which will pave the way for improvements in speed, energy density, and stealth for the follow on SSN(X) program. We are also focused on refueling up to seven LOS ANGELES Class submarines, helping to maintain our submarine force structure with boats that have the warfighting capability to contribute effectively to undersea missions.

In aircraft carrier shipbuilding, USS GERALD R. FORD (CVN 78) continues to make great progress and will soon be employed and operating alongside U.S. and allied forces. This

phenomenal ship is ready to provide over a half century of naval presence around the globe. This past year marked a significant event in the employment of the FORD Class - Full Ship Shock Trials. The positive result of this testing is a tribute to the precision, rigor, and execution that go into the design, production, and delivery of the world's most capable aircraft carrier. The second ship of the FORD Class, the JOHN F. KENNEDY (CVN 79) continues propulsion plant testing and is on track for delivery to the Navy in 2024. Progress also continues on construction of ENTERPRISE (CVN 80) and DORIS MILLER (CVN 81), carriers in a two-ship buy that allows the Navy to realize important cost savings, while maintaining a steady, predictable workload within our vital industrial base.

Naval Reactors Overview

This committee's support has enabled the safe operation of the nuclear fleet, substantial progress on our key projects, and our continued oversight and regulation of all areas across the Naval Nuclear Propulsion Program. Naval Reactors' budget request for FY 2023 is $2.1 billion. Your past support has allowed significant progress on our three major Department of Energy funded projects – COLUMBIA Class propulsion plant development and production, the refueling overhaul of our research and training reactor in New York, and the construction of the Naval Spent Fuel Handling Facility in Idaho. When I first arrived at Naval Reactors in 2015, these three projects had not yet hit their peak funding. Over the course of the past several years, these projects have been a major focus for the Naval Nuclear Propulsion Program. We have managed and lead the way through many challenges, and today, I can confidently say that the development and production of the first COLUMBIA Class propulsion plant is proceeding in support of lead boat construction; and the refueling of our research and training reactor will complete within FY 2023. With your support, the Program also continues to make significant progress on construction of an incredibly important Naval Spent Fuel Handling Facility. While we are staying focused on completing these efforts, we are also preparing for the future with renewed emphasis on advanced and innovative technologies.

Major Projects

COLUMBIA Class Propulsion Plant

The COLUMBIA Class ballistic missile submarine remains the Navy's number one acquisition priority. Naval Reactors is supporting lead ship construction and is delivering the life-of-ship reactor core and the electric drive propulsion system for the COLUMBIA Class program. The FY 2023 budget includes $53.9 million that will allow continued support for lead ship propulsion plant design and safety analysis work required for lead ship reactor testing and delivery.

S8G Prototype Refueling Overhaul

The FY 2023 budget request includes $20 million toward final execution of the refueling and overhaul of the New York land-based prototype, which will enable an additional 20 years of Naval Reactors' commitment to research, development, and initial operator training. Over the course of the past three years, the project has worked through performance and testing equipment challenges, and in April of last year met a key milestone - installation of the new reactor core.

This reactor core, called the Technology Demonstration Core, includes COLUMBIA Class type fuel modules as part of testing and demonstrating the manufacturability necessary for production and delivery of the COLUMBIA Class reactor core. We continue to provide strong oversight to improve cost and schedule performance, and the project will complete in FY 2023. I look forward to providing the final update on this multi-year project in next year's appearance before the Committee.

Spent Fuel Handling Recapitalization Project

Naval Reactors is constructing the Naval Spent Fuel Handling Facility (SFHP), located at the Naval Reactors Facility in Idaho. The facility is critical to our mission to manage naval spent nuclear fuel and support aircraft carrier and submarine fleet requirements. The FY 2023 budget request includes $398 million for continuation of this project through several key milestones. Economic conditions influenced by the COVID-19 pandemic and the discovery of unexpected bedrock conditions beneath the facility's foundations have presented significant challenges for us. To address these challenges, we evaluated actions necessary to ensure the overall Project milestones remain achievable, including additional resources (e.g., extended/added shifts, parallel and fast-tracking of work efforts) and additional funding to mitigate impacts to current and future construction subcontracts. Consistent with these actions, I approved a revision to the SFHP Performance Baseline in FY 2021. Funding in FY 2023 will be critical to implementing our construction sequence. I remain committed to keeping the committee informed of our progress, and actions to mitigate construction challenges, as we aggressively manage and oversee this complex and large-scale infrastructure project.

Technical Base Funding

In addition to our three priority projects, Naval Reactors maintains a high-performing technical base. The technical base is the set of fundamental skills and capabilities necessary to safely and effectively support the nuclear Navy. It includes a foundation of specialists in nuclear materials, nuclear physics, thermal-hydraulic testing, acoustics, electrical design, software development, system development, refueling, and other specialized skills, along with the associated facilities and laboratories to conduct our work. The people and activities that make up our technical base are leveraged for our priority projects but also perform essential work to support the operating fleet and ensure our day-to-day technological advantage over our competitors. Specifically, the technical base: 1) addresses emergent needs and challenges of our nuclear fleet, 2) executes nuclear reactor technology research and development that supports improving today's fleet and future capabilities, and 3) modernizes critical infrastructure and reduces the Program's legacy environmental liabilities. This base also supports the lean yet highly effective federal workforce that provides the oversight necessary to carry out this important technical work safely and efficiently. These activities provide 24-7 support to the globally deployed nuclear-powered Navy. Attracting and retaining top talent is critical to our technical base's ability to fulfill and mature our mission amidst a wide array of challenges and new demands in this era of strategic competition. The engineers and scientists at our Naval Nuclear Laboratory and nuclear capable shipyards are national treasures, who are in high demand from other areas of our economy. We continue to work with the leadership of our labs and private shipyards to identify innovative means to stay competitive in this aggressive talent market.

Program Direction

Our small but highly skilled federal workforce is critical to execution of our responsibilities. With the FY 2023 Program Direction request, I remain highly focused on attracting, developing, and retaining a talented and diverse workforce to oversee and manage a wide array of work across the Naval Nuclear Propulsion Program to ensure mission success. The talented and dedicated people at our Washington, DC headquarters and field offices are absolutely essential to our strong centralized management and oversight of the important work we perform for our Nation.

Building ships that have over forty years of expected life requires staffing continuity to ensure the Nation has a workforce with the deep technical knowledge needed to execute Naval Reactors' cradle-to-grave responsibilities of these robust systems. I must have sufficient Federal staffing to meet the demands of sustaining and improving today's fleet while simultaneously growing our future capabilities. The cumulative effect of personnel costs growing above inflationary rates and an increase in recent senior level retirements has impeded our ability to reach this goal and challenged our ability to maintain our staffing levels. The market for this talent is exceptionally competitive. Increasingly complex systems, new and innovative research efforts, and growing cyber and other vulnerabilities require additional expertise and new perspectives that can only be gained through reaching our full personnel requirements. I will continue to communicate with the committee on our requirements and progress in reaching our related staffing goals. In concert with our renewed focus on research and development that I have highlighted over the last several years, we need to find new ways to bring the nation's top talent into Naval Reactors and retain this talent to transition technical innovations into our submarines and aircraft carriers. I respectfully request Congress' support, which will allow me to recruit, select, develop, and retain the talented workforce that was started by Admiral Hyman Rickover many decades ago and that has proved to be crucial to the success of the Program.

Research and Development

Our research and development strategy represents a renewed investment in cutting-edge technologies aimed at reversing an eroding capability gap with strategic adversaries like China and Russia. Technology investment must be reinvigorated today to have new technologies ready for future classes of ships and to lower costs and reduce construction timelines. It should be noted that these investments also enhance and improve the performance of today's fleet; this is especially important given the increasing competition in the global maritime environment. Our critical research and development is conducted by the dedicated and talented teams of people at our Naval Nuclear Laboratory sites – the Bettis Atomic Power Laboratory in Pittsburgh, the Knolls Atomic Power Laboratory and Kesselring Site in greater Albany, and the Naval Reactors Facility in Idaho.

Our first priority is always support of today's fleet. Our labs perform approximately 4,000 technical evaluations annually that enable Naval Reactors to thoroughly assess and respond to emergent issues, thereby keeping our ships mission-ready while ensuring nuclear safety. These

efforts are essential to keep our ships at-sea operating abroad for longer periods of time, our carrier strike groups globally engaged, and ballistic missile and attack submarines ready to respond at any time.

Beginning with last year's FY 2022 budget, Naval Reactors has embarked on a path to identify and develop new technologies for inclusion in the next generation of nuclear powered ships while simultaneously delivering the enhanced capabilities to the existing fleet mentioned earlier. We are pursuing advanced reactor core and fuel systems, advanced manufacturing and inspection techniques, next-generation instrumentation and control architectures and sensors, and asymmetrical applications of emerging technologies (e.g., advanced power conversion, artificial intelligence, data analytics, additive manufacturing, and advanced robotics). These advancements have the potential to deliver both greater capability and lower acquisition and lifecycle costs, while ensuring the Navy is constantly improving our advantage and innovating. I commit to further engagement with the committee on these advanced technology maturation efforts to enhance understanding and support for the actions described above. I take great pride in highlighting our innovative and new technologies and how we can transition them into meeting requirements for the Fleet of tomorrow.

I want to assure the committee that our investments are supported by a comprehensive and rigorous planning effort we undertake with our partners at the Naval Nuclear Laboratory. Our annual work execution plans are derived from this comprehensive alignment, and I personally review and approve each plan to ensure we are making the right investments and tradeoffs in all areas of our business.

Facilities and Infrastructure

Our Naval Nuclear Laboratory facilities and infrastructure are essential in carrying out Naval Reactors' mission. This year's budget request supports continuing our recapitalization of Naval Nuclear Laboratory facilities and infrastructure systems, many of which have supported the Program since its inception over 70 years ago. Specifically, this budget includes a consolidation and recapitalization of our thermal hydraulic testing capabilities that will advance cutting-edge technologies and improve testing efficiency. Without these recapitalization efforts, we will be unable to effectively support nuclear fleet operations and advanced research and development efforts at the level required by this complex technology. We are ramping up our efforts in decontaminating and decommissioning (D&D) older facilities that have been in existence since the start of the Program in the early 1950s. We have approximately $8 billion in environmental liabilities requiring D&D efforts. Over one-third of this estimate is associated with the cost to remediate and demolish inactive facilities and infrastructure at the Naval Nuclear Laboratory sites. We continue to retire these liabilities in an environmentally responsible and cost-effective manner to support best use of our funding. I look forward to future engagement with the committee to discuss our specific actions and tangible examples of Naval Reactors' long-term plan to reach our goals. Through our established partnership with the Department of Energy Office of Environmental Management (DOE-EM), we are leveraging their experience in efficient, safe, and cost-effective remediation of environmental liabilities across the complex. I am pleased with the collaboration on this effort with my partners in DOE-EM.

AUKUS

In September of last year, President Biden announced an enhanced trilateral security partnership between Australia, the United Kingdom, and the United States (AUKUS). The three governments are engaging in an 18-month consultation period to seek an optimal pathway for delivering a conventionally-armed, nuclear-powered submarine capability to Australia at the earliest achievable date. Naval Reactors is playing a key leadership role in developing this plan to ensure that our nation's preeminent expertise is applied to the nuclear-powered submarine initiative. We are now more than six months into this consultation period and are focused on ensuring Australia understands the full scope of capabilities necessary to design, build, operate, and maintain a nuclear navy, as well as properly dispose a nuclear powered ship at the end of service. This includes an in-depth analysis of the trilateral partners' existing regulatory frameworks, as well as the existing educational, industrial, and technical capabilities, and capacities needed to identify the optimal path forward. This effort involves emphasizing to Australia the key leadership roles, labor talent, and infrastructure investments they will need to contribute to bring this to reality. In February, I along with a team of subject matter experts from Naval Reactors and the United Kingdom traveled to Australia to assess their current capability. During this trip, I met with senior Australian government officials. As part of our discussions, we emphasized that obtaining a nuclear powered submarine capability is a long road which requires steadfast commitment to the highest levels of stewardship. While my number one priority is supporting our current and future nuclear fleet, the AUKUS efforts are being supported by a small cadre of experts who are responsible for ensuring the critical facets of this consultation are completed effectively. The foundation on which this effort is built is made up of our people, our technology, and the facilities that support our own Naval Nuclear Propulsion Program. While Australia is funding this consultation period, Congress' support of Naval Reactors' FY 2023 budget request is vital to support our primary mission and allow the Naval Reactors leadership team the ability to support key activities during the consultation period.

Conclusion

The Navy's ability to maintain mastery of the undersea domain and sustain a formidable forward presence and its resultant value cannot be simply assumed. Naval nuclear propulsion is an incredible but unforgiving technology, and must be treated appropriately, with a constant focus on safe operation. Naval Reactor's cradle-to-grave responsibility to manage this technology is paramount, and I assure this committee that I will balance investments in today's fleet with the requirements of a future fleet, carefully steer future cooperation efforts, and preserve the focus on providing effective naval nuclear propulsion for the United States Navy. I appreciate the strong support this program receives from Congress and respectfully urge your support for our FY 2023 budget request.