

Statement of Admiral James F. Caldwell
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U.S. Department of Energy
on the
Fiscal Year 2024 President's Budget Request
Before the
Senate Committee on Armed Services
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 2024 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 and endurance.

This year marks the 75th anniversary of the Naval Nuclear Propulsion Program and is the final year of my eight-year tenure as Director of Naval Reactors. As I reflect upon the decades of our Program's history, one of our core principles that has enabled our Program's success is "challenge what's possible."

In 1948 despite having no nuclear-trained submariners, no nuclear industrial base, and no nuclear shipyards, the Navy promulgated the formal requirement for a nuclear-powered submarine. Just seven years after the creation of the Naval Nuclear Propulsion Program, under the leadership of Admiral Hyman Rickover, and with tremendous Congressional support, Naval Reactors developed an industrial base in a new technology, pioneered new materials, designed, built, and operated a prototype reactor, established a training program, and took a nuclear-powered submarine to sea. And, in less than 7 more years, Naval Reactors designed and built the world's first nuclear-powered aircraft carrier, USS ENTERPRISE, forever changing our nation's power projection.

Since then, follow-on classes of more capable U.S. nuclear-powered submarines and aircraft carriers have ensured our warfighting edge over potential adversaries. Congress' strong and enduring support of our past efforts has allowed the Navy to maintain our advantages. Your partnership with the Navy is needed now, more than ever, as we work on current and future endeavors in naval nuclear propulsion that are required to improve the capability of our nuclear fleet and protect the national security of the United States.

Today's strategic environment is dynamic and complex, characterized by a rapidly changing global balance of military capabilities, requiring us to once again challenge what is possible. As stated in the National Security Strategy, the world is at an inflection point, and how we respond today will impact the security and prosperity of our nation for generations. As I serve in my final year at Naval Reactors, I want to ensure that we sustain and build an enduring naval warfighting advantage to maintain our dominance of the maritime battlespace. Furthermore, we

have the opportunity to reinforce our strength by building the strongest possible coalition of allies to shape the global strategic environment.

Our nation took a new step when the President announced the AUKUS enhanced tri-lateral security partnership. This historic agreement demonstrates U.S. commitment to revitalizing our alliances and strengthening them to take on the challenges of the 21st century. Furthermore, the AUKUS partnership bolsters existing Navy initiatives to strengthen our own shipbuilding capability and build the additional industrial and vendor base capacity our Nation and our allies need. Given the global threats we face, it is imperative that we ensure our closest allies remain highly capable in the undersea domain.

As stated in the National Security Strategy and the National Defense Strategy, it is vital for the Navy to maintain and expand our competitive advantage by aggressively investing in emerging technologies. The principal strategic issues driving the need for technological advancement are the growing threats from China and Russia. China is rapidly advancing and establishing a global naval presence with the purpose of projecting power and challenging U.S. maritime superiority. Meanwhile, Russia poses an immediate threat to the free and open international systems, relying on coercive or unfair practices to gain an edge over the United States and our allies. To properly defend against these threats, increased numbers of nuclear-powered submarines and improved capabilities for our submarines and aircraft carriers will be required. To enable Navy efforts targeted to combat these threats, Naval Reactors needs to develop and insert technologies that will provide increased power and energy to support increased speed, reduced noise signatures, and enhanced warfighting capabilities. Additionally, our efforts are focused on identifying technologies and processes that can substantially reduce the build-span times and costs of these platforms to meet Navy needs.

Naval Reactors' historical investment in advanced technologies has given the nation an enviable position in the maritime environment; however, further investments today are necessary. Our ships need to retain their advantage against future threats across multiple domains, but must also be affordable. Designing and building our propulsion plants for improved operational capability and availability through lifecycle maintenance enhancements and improved performance will ensure the Navy stays ahead of increasing demands while continuing to deliver the most capable, cost effective future force. Our success in the future will rest on the foundation of what we build today while we continue to challenge what's possible.

Naval Reactors Overview

Naval Reactors' budget request for FY 2024 is \$1.96 billion. 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. 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 we have reached a point where I can highlight substantial progress of the first COLUMBIA Class

propulsion plant in support of lead ship construction. In addition, the refueling overhaul of our research and training reactor will complete later this year. The Program also continues to make significant progress amid numerous challenges during construction of the incredibly important Naval Spent Fuel Handling Facility. While we are staying focused on completing these efforts, we cannot simply rest on prior success as we continue to develop and pursue 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 delivering the life-of-ship reactor core and the electric drive propulsion system for the COLUMBIA Class. To date, multiple lead ship reactor plant components have been delivered, and the reactor core is on track to support lead ship delivery in 2027. The FY 2024 budget includes \$52.9 million to continue reactor plant design, fabrication, and safety analysis work required for lead ship reactor testing. Additionally, Naval Reactors will start the lead ship motor module testing of the electric drive propulsion system at the compatibility test facility in Philadelphia, PA.

S8G Prototype Refueling Overhaul

The FY 2024 budget request does not include additional funding for the refueling overhaul of the New York land-based prototype, as previously provided funding will be sufficient to complete the project. With strong oversight from Naval Reactors, the overhaul is on track to complete in late 2023. Consistent support from the committee has enabled the project to work through upgrades, maintenance and performance testing challenges, and meet key milestones. As an example of the impact of Naval Reactors efforts, this reactor core, called the Technology Demonstration Core, will not only train future operators for twenty years but also includes COLUMBIA Class type fuel modules. This has helped to prove out production scale manufacturing for COLUMBIA. I look forward to ensuring my relief is able to deliver the final update on this multi-year project in next year's appearance before the Committee as we resume training on this site.

Spent Fuel Handling Recapitalization Project

Naval Reactors is continuing construction of the Naval Spent Fuel Handling Facility at the Naval Reactors Facility in Idaho. The Naval Spent Fuel Handling Facility is essential to our mission to manage naval spent nuclear fuel and support aircraft carrier and submarine fleet requirements. The FY 2024 budget request includes \$199.3 million for continuation of this project through near-term key milestones. During the last several years, the project has encountered several challenges. Specifically, the COVID-19 pandemic introduced work delays and additional costs for final design activities and active construction subcontracts. The discovery of unexpected bedrock conditions upon completion of site excavation work resulted in additional effort to remediate the bedrock and begin construction of the massive concrete foundations for the facility. More recently, we worked through subcontractor performance issues and continuing

significant volatility with economic conditions resulting in a revised acquisition plan for the Project and additional funding requirements. Consistent with the revised acquisition plan and funding need, I approved a revision to the Project's Performance Baseline in October of 2022. Funding in FY 2024 will be vital to implementing our revised construction sequence and achieving the project milestones in the Performance Baseline revision. Naval Reactors remains committed to keeping the committee informed of progress on this complex and large-scale infrastructure project.

Technical Base Funding

In addition to our three priority projects, Naval Reactors maintains a high-performing workforce across the technical base and supporting functions. 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-hydraulics testing, acoustics, electronics, software development, systems integration, and other specialized skills, along with the associated facilities and laboratories to conduct our work. Specifically, the technical base: 1) addresses emergent, daily needs and challenges of our globally deployed nuclear fleet, 2) executes cutting edge nuclear reactor technology research and development that supports improving today's reactor fleet and assessing future reactor capabilities, and 3) modernizes critical infrastructure and equipment while reducing the Program's legacy environmental liabilities.

Attracting and retaining top talent in our government civilian and contract workforce is critical to our ability to fulfill and mature our mission amidst a wide array of challenges and new demands. The broad range of talent in our organization is in high demand from all areas of our economy. We remain focused on recruiting and retaining a well-trained, highly qualified workforce and continue to work with the leadership of our labs, private shipyards, Navy, and DOE to stay competitive in this aggressive talent market.

Program Direction

Our lean and highly skilled federal workforce is critical to the execution of our responsibilities. With the FY 2024 Program Direction request, we 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 enable mission success. The talented and dedicated people at our Washington, DC headquarters and field offices around the world report directly to me and are absolutely essential to our strong centralized management and oversight of the important work we perform every single day for our Nation.

Building, maintaining, and deconstructing ships with over forty years of expected life requires staffing continuity and longevity to ensure the Nation has a workforce with the deep technical knowledge to execute Naval Reactors' cradle-to-grave responsibilities. I must have sufficient Federal staffing to meet the demands of sustaining and improving today's fleet while simultaneously growing our future capabilities. Diverse, complex systems, new and innovative research efforts, and growing cyber and other vulnerabilities will require additional expertise and new perspectives that can only be gained through reaching our full personnel requirements.

The market demand for our highly skilled and experienced workforce introduces challenges to recruit and retain a top-tier workforce. In concert with our ongoing focus on research and development that I have highlighted over the last several years, we need to find new ways to bring in and retain the nation's top talent into Naval Reactors and give them resources to introduce technical innovations into our submarines and aircraft carriers. I respectfully request Congress' support of the FY 2024 Program Direction budget request, which will allow me to recruit, select, develop, and retain a highly skilled workforce to support mission requirements.

Research and Development

Our research and development strategy remains focused on reversing an eroding capability advantage over strategic adversaries like China and Russia. Technology investment must be prioritized today to have new technologies ready for future classes of ships and to reduce costs, long lead times, and construction timelines. These investments have the added benefit of enhancing and improving the performance of today's fleet. Throughout the United States, important 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 to support today's fleet of nuclear powered forces. Our labs perform an extensive amount of technical evaluations annually that enable Naval Reactors to thoroughly assess and respond to emergent issues, keeping our ships mission-ready, safely operating and available for response to any global crises. These efforts are essential to realizing the key advantages of nuclear propulsion that allow our ships at-sea to operate abroad for longer periods of time, our carrier strike groups to engage in any region, and ballistic missile and attack submarines to respond at any time and place.

Two years ago, in the FY 2022 budget, at my direction, Naval Reactors embarked on a concentrated path to identify and develop new technologies for inclusion in the next generation of nuclear powered ships and submarines, including the Navy's next generation attack submarine, SSN(X). 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. These advancements have traditionally taken time to materialize but we are focused on delivering greater capability in shorter order at lower acquisition and lifecycle costs to improve and expand our advantage. I invite you to visit our facilities with your staffs, talk with our experts onsite, and enhance your understanding of where naval nuclear propulsion is headed with respect to our technological advancements. I take great pride in highlighting our innovative and new technologies and how we can responsibly 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. While we continue to develop and execute our research and development strategy, we are confronting a

range of challenging economic conditions that demand additional resources to counteract price inflation, a tight labor market, and other factors. This year's budget request will help us get closer to our required investment needs to stay ahead of our adversaries.

Facilities and Infrastructure

Our Naval Nuclear Laboratory facilities and infrastructure are essential in carrying out Naval Reactors' mission. This year's budget request supports recapitalization of Naval Nuclear Laboratory facilities and infrastructure systems, many of which have supported the Program since its inception. Specifically, this budget supports construction of a new Medical Science Complex at Naval Reactors Facility located in Idaho to create professional space and efficient integration of radiological, medical, and quality assurance capabilities. Additionally, this year's budget supports recapitalizing the Knolls Laboratory site steam and condensate system that has exceeded its useful service life. Without these and similar recapitalization efforts, we will be unable to effectively meet mission requirements at the level required to support the next 75 years of naval nuclear propulsion.

Decontaminating and decommissioning (D&D) older facilities that have been in existence since the early 1950s is also part of our facilities and infrastructure request. 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 each of the Naval Nuclear Laboratory sites. We continue to retire these liabilities in an environmentally responsible and cost-effective manner to support the best use of our funding. This is an exciting opportunity for us, and I look forward to future engagements 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 enterprise. Within only three years under the new partnership, we have identified ways to shorten the schedule to eliminate all of the legacy liabilities and identified opportunities for cost avoidance.

AUKUS

In September of 2021, President Biden announced an enhanced trilateral security partnership between Australia, the United Kingdom, and the United States (AUKUS). The three governments have recently completed 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 has been integral in informing discussions to ensure that our nation's preeminent expertise is applied to the nuclear-powered submarine initiative.

As announced by the trilateral leaders on March 13, we are now beyond the 18-month consultation period and are focused on ensuring Australia establishes the full scope of capabilities necessary to design, build, operate, and maintain a nuclear navy. Additionally, we are concurrently beginning the process to provide a proportional uplift in technology to the United Kingdom. We will increasingly utilize the trilateral partners' existing regulatory

frameworks; educational, industrial, and technical capabilities; and capacities to collectively strengthen each nation's defense. Along with a team of subject matter experts from Naval Reactors and the United Kingdom, I have traveled to Australia and the United Kingdom and routinely meet with senior government officials from each nation. The three nations fully understand that this is a generational commitment and will require Australia to develop the stewardship necessary for owning and operating nuclear powered submarines. Naval Reactors is strongly committed to supporting Australia in developing this stewardship and acquiring a nuclear powered submarine capability.

Let there be no doubt – AUKUS is a tremendous addition to my existing mission. The pace and urgency for action has had an undeniable impact on the Naval Reactors program over the past year and a half. My Program will be a key element of the success of AUKUS, and it will require a generational investment in people, nuclear propulsion technologies, and facilities to ensure the Naval Nuclear Propulsion Program is resilient and adaptive in order to meet its objectives.

Conclusion

The Navy's ability to maintain mastery of the undersea domain and sustain a formidable forward presence with its resultant value for national security and defense cannot be assumed; we are being actively challenged on a global scale. As I have said repeatedly, naval nuclear propulsion is an incredible but unforgiving technology, and must be treated with a constant focus on safe operation. Naval Reactors' cradle-to-grave responsibility to manage this technology is paramount. I assure this committee that I will balance investments in today's fleet with the requirements of the future fleet, steer future cooperation efforts, and preserve the focus on effective naval nuclear propulsion for the U. S. Navy. I appreciate the strong support of Congress for this program and respectfully urge your full support for our FY 2024 budget request.