

Statement of Admiral James F. Caldwell
Deputy Administrator for Naval Reactors
National Nuclear Security Administration
U.S. Department of Energy
on the
Fiscal Year 2021 President's Budget Request
Before the
House Appropriations Committee
Subcommittee on Energy and Water Development

March 4, 2020

Chairwoman Kaptur, Ranking Member Simpson, and distinguished members of the subcommittee, thank you for the opportunity to appear before you today and present the President's Fiscal Year (FY) 2021 budget request for Naval Reactors. Your strong support for the work we do ensures our nuclear Navy has the ability to carry out vital missions around the world.

Today's strategic environment is dynamic and increasingly complex, characterized by a return to great power competition. The National Security Strategy and the National Defense Strategy highlight the security challenges related to the reemergence of long-term, strategic competition by revisionist powers. Nuclear propulsion remains critical to our national security posture. It enables unmatched mobility, flexibility, responsiveness, and endurance. These key attributes ensure our nuclear fleet can meet the demands of forward presence and crisis response worldwide. Today over 40 percent of the Navy's major combatants are nuclear-powered (68 submarines and 11 aircraft carriers).¹ Our competitors are seeking opportunities to challenge us in every operating domain, making it imperative that we sustain today's fleet and grow our future capabilities. Naval Reactors' current investments in advanced technologies are key to maintaining our technological edge well into the future.

January 17th, marked the 65th year since the first nuclear-powered warship, the USS NAUTILIS (SSN 571), reported "underway on nuclear power." This was truly a remarkable achievement. 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.

Since the NAUTILUS, follow-on classes of ever more capable nuclear-powered submarines and aircraft carriers have ensured our warfighting edge over potential adversaries. Reactor core lives have increased from under two years to a planned lifetime of over 40 years for the COLUMBIA-Class SSBN. Our ballistic missile submarines having provided the most survivable leg of our nuclear triad for nearly six decades, are essential to our ability to deter major warfare and

¹ Major combatants, in this instance, include aircraft carriers, submarines, and surface combatants based on the "Active in Commission" column from the Naval Vessel Register.

provide assurance to our allies. Our fast attack submarines operate virtually undetected, safeguard vital commercial sea-lanes, and stand ready to protect American interests. Our aircraft carriers provide our nation the sustained ability to project combat power, deter conflict, and protect our interests.

Last year, with Naval Reactors support, the Navy continued to meet its strategic deterrent mission and executed numerous missions in the undersea domain that directly impacted the national security of the United States. USS ABRAHAM LINCOLN (CVN 72), USS JOHN C. STENNIS (CVN 74), USS HARRY S. TRUMAN (CVN 75), and the forward deployed USS RONALD REAGAN (CVN 76) all completed successful deployments during 2019.

In aircraft carrier shipbuilding, USS GERALD R. FORD (CVN 78) successfully completed her Post-Shakedown Availability in October and aircraft compatibility testing earlier this year. The second carrier in the class, the JOHN F. KENNEDY (CVN 79), was christened in December. Construction continues on the third carrier of the FORD Class, ENTERPRISE (CVN 80). As these aircraft carriers join the fleet, they will bring unmatched capabilities to our Navy. The propulsion plant for the FORD Class represents the first newly designed aircraft carrier propulsion plant in 40 years. These ships not only match the high speed of our NIMITZ-Class aircraft carriers but provide 25 percent more energy and three times the electrical generating capacity. Additionally, the propulsion plant design reduces maintenance by 30 percent and manpower by 50 percent. These advances in propulsion plant design are a direct result of the dedicated and sustained effort by Naval Reactors and its field activities, our Department of Energy (DOE) laboratories, nuclear industrial base suppliers, the Navy design team, and the nuclear shipbuilders.

In submarine shipbuilding, we are approaching an important milestone. Lead ship construction for the COLUMBIA Class will begin in FY 2021 as we continue to build VIRGINIA-Class submarines. The Navy saw the keel laid for the attack submarines Pre-Commissioning Units (PCU) NEW JERSEY and PCU IOWA and the commissioning of the USS SOUTH DAKOTA. This brings a total of 17 VIRGINIA-Class submarines to the nuclear submarine fleet.

With increased shipbuilding comes challenges. We are putting significant demand on our shipbuilders and a fragile industrial base. The Navy and industry will need to be laser focused on our shipbuilding efforts to ensure that these submarines and aircraft carriers are delivered safely, on time, and at the best value to the taxpayer.

Naval Reactors' FY 2021 Budget Request

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 2021 is \$1.68 billion, an increase of \$35.6 million, or 2.2%, from our FY 2020 enacted level.² The budget request supports the requirements for our three major projects – COLUMBIA-Class propulsion plant development, the refueling overhaul of a research and training reactor in New York, and the

² The FY 2020 enacted level does not reflect the mandated transfer of \$88.5 million to Nuclear Energy for operation of the Advanced Test Reactor.

construction of the Naval Spent Fuel Handling Facility in Idaho. The budget request also ensures Naval Reactors can support the operational nuclear fleet, continue research and development efforts for future generations of nuclear powered warships, and make progress on both the recapitalization of our laboratory facilities and the environmental remediation of our legacy responsibilities.

Major Projects

COLUMBIA-Class Propulsion Plant

The COLUMBIA-Class ballistic missile submarine is the Navy's number one acquisition priority. Naval Reactors is on track to support the start of ship construction in FY 2021 and is committed to delivering the life-of-ship reactor core and the electric drive propulsion system necessary for the COLUMBIA-Class program. After extensive efforts, Naval Reactors witnessed completion of the prototype motor manufacturing and integration of its electric drive system. The FY 2021 budget request of \$64.7 million will continue supporting oversight of the lead ship propulsion plant design and safety analysis work required to support lead ship reactor testing. The Navy began procuring long-lead material for the propulsion plant and manufacturing the life-of-ship reactor core last year.

S8G Prototype Refueling Overhaul

The FY 2021 budget request includes \$135.0 million to support the refueling overhaul of one of the New York land-based prototypes, which will enable an additional 20 years of Naval Reactors' commitment to research, development, and training. The project has been steadily working through performance challenges associated with integration of workforces from multiple shipyards; recent performance has shown improvement. We continue to provide strong oversight to improve cost and schedule performance. During this refueling project, we will insert recently manufactured COLUMBIA-Class type fuel modules in the prototype reactor as part of testing and demonstrating the manufacturability necessary for production and delivery of the COLUMBIA-Class reactor core.

Spent Fuel Handling Recapitalization Project

The FY 2021 budget request includes \$330.0 million to continue construction of the Naval Spent Fuel Handling Facility, located on the Naval Reactors Facility in Idaho. Market conditions such as a shortage of skilled labor, high construction demand, and a remote location, coupled with price volatility for domestic construction materials such as structural steel resulted in higher than anticipated costs. Naval Reactors is taking a number of immediate actions to minimize impacts to cost and schedule such as deliverable reductions and phase-funding subcontracts when possible. The Program, in coordination with our Naval Nuclear Laboratory, is providing strong oversight and management of this complex and large-scale infrastructure project. Full support from Congress has enabled the project to make significant progress. Last year, we excavated the site, began permanent construction, and awarded the first concrete placement subcontract. In FY 2020, we will begin to pour the concrete backfill and foundations. The facility is critical to our

mission to manage Navy spent nuclear fuel and support aircraft carrier and submarine fleet requirements.

Technical Base Funding

In addition to our three priority projects, Naval Reactors maintains a high-performing technical base to: 1) address emergent needs and challenges of our nuclear fleet, 2) execute nuclear reactor technology research and development that supports today's fleet and ensures our Navy maintains its technological advantage over adversaries and, 3) modernize critical infrastructure and reduce the Program's legacy environmental liabilities. The funding required for 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 are vital to our ability to provide 24-7 support to the nuclear-powered Navy.

Research and Development

By employing an effective technical base, the teams of talented and dedicated people at Program sites – the Bettis Atomic Power Laboratory in Pittsburgh, the Knolls Atomic Power Laboratory and Kesselring Site in greater Albany, the Naval Reactors Facility in Idaho, and our Washington, DC headquarters – can perform the research and development, analysis, engineering, and testing needed to support today's fleet at sea and develop more capable nuclear-powered warships for tomorrow's fleet.

Our first priority is always support of today's fleet. Our labs perform the technical evaluations that enable Naval Reactors to thoroughly assess approximately 4,000 emergent issues annually and deliver timely responses that ensure nuclear safety and maximize operational flexibility.

We are also increasing our emphasis on technology development to support tomorrow's fleet. The performance of our reactors is key to maintaining advantages over our potential adversaries. Advanced nuclear technologies such as those employed in the COLUMBIA reactor require extensive development and prototyping, spanning decades to mature. Our research and development efforts will allow us to provide the Navy more capable propulsion plants in the future. Continued investment today is vital to the generations of scientists and engineers who will design the propulsion plants of the future.

Facilities and Infrastructure

Our laboratory facilities and infrastructure are critical in carrying out Naval Reactors' mission. The budget request supports recapitalizing our Naval Nuclear Laboratory facilities and infrastructure systems, many of which have supported the Program since its inception over 70 years ago. Without this recapitalization we will be unable to effectively support nuclear fleet operations and advanced research and development efforts at the level required by this complex technology. Our budget request this year also reflects a continuation of 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 - about one-third of these facilities are no longer in use. We are

increasing our emphasis on retirement of these liabilities in an environmentally responsible and cost-effective manner to support best use of our funding.

Conclusion

Naval Reactors' mission is critical to our national security. The Chief of Naval Operations recently released his initial guidance to the fleet. One of the top priorities is the future Navy – one that is prepared to fight and win and equipped with the right capabilities and numbers to meet the challenges of the geopolitical environment. Key to achieving this objective remains our nuclear Navy. The CNO makes clear that maintaining our mastery of the undersea domain and sustaining a formidable forward presence through our aircraft carrier fleet will remain critical elements of our future Navy. The Department appreciates the strong support this program receives from Congress to provide effective nuclear power and propulsion to today's fleet as well as the future fleet.

The Department wants to assure the committee that the planning efforts Naval Reactors execute in budgeting for current and future projects are done with extreme rigor. Although two of our major projects are facing schedule and performance challenges, Naval Reactors continues to pursue efficiencies to help offset the cost increases we have experienced this fiscal year. This puts pressure on other parts of the Program, specifically in the areas of research and development as well as facility recapitalization. Naval Reactors will continue to effectively manage the resources it is allotted. The Department respectfully urges your support for our FY 2021 request.