

**Statement of Admiral James F. Caldwell
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National Nuclear Security Administration
U.S. Department of Energy
on the
Fiscal Year 2020 President's Budget Request
Before the
Senate Committee on Armed Services
Subcommittee on Strategic Forces**

May 8, 2019

Chairman Fischer, Ranking Member Heinrich, and distinguished members of the subcommittee, thank you for the opportunity to appear before you today and present the President's Fiscal Year (FY) 2020 budget request for Naval Reactors. Your strong support for the work we do ensures our nuclear Navy has the power and propulsion to carry out missions around the world.

This past year marks the 70th anniversary of the founding of the Naval Nuclear Propulsion Program under the leadership of Admiral Hyman Rickover. In 1955, just seven years after the creation of our program, the first nuclear-powered warship, USS NAUTILUS (SSN 571) reported "*Underway on nuclear power*". Since 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 just under two years to over 40 years. Our ballistic missile submarines have provided the most survivable leg of our nuclear triad for nearly six decades and are essential to our ability to deter major warfare and assure our allies. Our fast attack submarines operate virtually undetected, safeguard vital commercial searoutes, and stand ready to protect American interests. And, our aircraft carriers – 4.5 acres of sovereign territory – provide our nation unparalleled mobility and the sustained ability to project combat power, deter conflict, and protect our interests.

Today's security environment is dynamic and challenging, best characterized as a return to great power competition. In the maritime domain, nuclear propulsion enables the Navy to conduct missions vital to national security by providing unmatched mobility, flexibility, responsiveness, and endurance. These key attributes ensure our nuclear fleet can meet the demands of forward presence and crisis response world-wide. Today, nearly 45 percent of the Navy's major combatants are nuclear-powered (11 aircraft carriers, 14 ballistic missile submarines, 50 attack submarines, and four guided missile submarines).

Last year, with Naval Reactors support, the Navy deployed 22 submarines and conducted 36 strategic deterrent patrols. At any given time, there were at least 47 submarines deployed or ready to deploy within days. Our carriers, USS CARL VINSON (CVN 70), USS THEODORE ROOSEVELT (CVN 71), USS JOHN C STENNIS (CVN 74), USS HARRY S TRUMAN (CVN 75), and USS RONALD REAGAN (CVN 76) deployed during 2018. This past December, USS HARRY S TRUMAN (CVN 75) successfully concluded a historic, two-part deployment as part

of the implementation of the Dynamic Force Employment plan, demonstrating our Navy's ability to be more agile and operationally unpredictable to potential adversaries.

In submarine shipbuilding, the Navy recently saw the keel laid for the attack submarines Pre-Commissioning Units (PCU) MONTANA (SSN 794) and HYMAN G. RICKOVER (SSN 795), and the commissioning of USS COLORADO (SSN 788), USS INDIANA (SSN 789), and USS SOUTH DAKOTA (SSN 790). This totals 17 VIRGINIA-Class submarines.

In aircraft carrier shipbuilding, USS GERALD R FORD completed her initial at sea operations and began her Post-Shakedown Availability in July. Construction of the JOHN F. KENNEDY (CVN 79) is nearing completion, and she is scheduled to be christened later this year. The third carrier of the FORD-Class, ENTERPRISE (CVN 80), began construction activities this past year and will proceed as part of a two-carrier buy of CVN 80 and CVN 81, which is anticipated to generate substantial savings for the Navy. 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.

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 2020 is \$1.65 billion, a reduction of \$140.2 million, or 7.8%, from our FY 2019 request. The budget request fully 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 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 the next generation 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. FY 2020 funding of \$75.5 million will continue supporting procurement of the lead ship propulsion plant components. The Navy began procuring long-lead material for the propulsion plant this year, and also will begin manufacturing the life-of-ship reactor core.

S8G Prototype Refueling Overhaul

The FY 2020 budget request includes \$155 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. As part of 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. The prototype refueling overhaul is scheduled to complete in FY 2021, with a return to training operations shortly thereafter.

Spent Fuel Handling Recapitalization Project

The FY 2020 budget request includes \$238 million to continue construction of the Naval Spent Fuel Handling Facility, which broke ground in 2017. Full support from Congress has enabled us to keep this project on track. The cost and schedule baselines were approved in September of 2018. Design and site preparation for this facility continues, and it is on track to receive spent nuclear fuel from aircraft carriers in FY 2024 and be fully operational by FY 2025.

Technical Base Funding

In addition to our three priority projects, Naval Reactors maintains a high-performing technical base to: 1) execute nuclear reactor technology research and development that supports today's fleet and ensures our Navy maintains its technological advantage over adversaries and, 2) provide the necessary equipment, construction, maintenance, and modernization of critical infrastructure and facilities. The funding required for this base also supports the lean 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. Advanced nuclear technologies such as those employed in the COLUMBIA reactor require extensive development and prototyping, spanning a decade or more to mature the technology to a point where it is ready to incorporate in a ship design. Technology development will receive increased emphasis in the coming years as we complete our major projects and increase our focus on the development of tomorrow'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. Our research and development efforts must continue

so that we can provide the Navy more capable propulsion plants in the future. The performance of our reactors is key to maintaining advantages over our potential adversaries. The technological advances that go in our propulsion plants today are a direct result of research and development investments that began decades ago. Continued investment now 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 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 the increase in 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.

I want to assure the committee that the planning efforts we execute in budgeting for current and future projects are done with extreme rigor. We conduct comprehensive reviews of our budget to ensure we are making the right investments and tradeoffs. Our budget profile is consistent with projections in earlier Future Years Nuclear Security Plan submissions. Investments we make today in research and development efforts not only advance capabilities, but will also result in cost savings far into the future. We provide unmatched value to our Nation's defense and have a history of cost-effectively meeting our obligations. I understand the difficult budget environment in which Congress must craft legislation, and I respectfully urge your support for aligning allocations with the FY 2020 Budget Request.