

2020 National Defense Authorization Act and Energy and Water Appropriations Analysis

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This week the United States Congress passed the Fiscal year 2020 National Defense Authorization Act (NDAA). This act sets policy for \$738 billion in defense spending, a \$22 billion increase from the 2019 NDAA. Additionally, the Senate and the House both authorized the Fiscal Year 2020 Energy and Water Appropriations Agreement, which funds nuclear weapons development.

These two pieces of legislation contain destabilizing nuclear weapons policies, including the deployment of a new low-yield submarine launched ballistic missile, the development of an entirely new warhead for a new intercontinental ballistic missile, and greatly expanded plutonium pit production. These pieces of legislation fully fund every single nuclear weapons priority of the National Nuclear Security Administration.

This outcome was far from inevitable. The House and the Senate had originally introduced very different versions of the NDAA. The House's proposal would have significantly limited the most dangerous nuclear weapons policies (for more information, [click here](#)). Ultimately, the house agreed to the Senate's version of nuclear weapons policy provisions in the NDAA.

The U.S. Nuclear Weapons Arsenal

The current scope of the US nuclear weapons modernization is immense. Every nuclear weapon in the U.S. arsenal is undergoing modifications, lifetime extensions, or alterations. The NDAA and the Energy and Water Appropriations bills have authorized funding for five ongoing nuclear warhead modernization projects, costing U.S. taxpayers over \$2.2 billion in 2020. A sixth modernization project, the lifetime extension program (LEP) of the W76, was completed in 2019.

FY 2020 Energy and Water Appropriations
(In Thousands of Dollars)

Warhead	B61-12 LEP	W76 LEP	W76-2 Mod	W88 Alt	W80-4 LEP	W87-1 Mod
Approved in 2020	\$792,611	0	\$65,000	\$304,186	\$898,511	\$112,011
Requested in 2020	\$792,611	0	\$10,000	\$304,186	\$898,511	\$112,011

Approved in 2019	\$794,049	\$48,888	\$10,000	\$304,285	\$645,766	\$53,000
Corresponding Weapon	B61-12 Gravity bomb	D5 Trident Sea launched ballistic missile	Low-Yield D5 Trident Sea launched ballistic missile	LGM-30 Minuteman Intercontinental ballistic missile	Long Range Standoff Weapon Air launched cruise missile	New warhead for the Ground Based Strategic Deterrent

The NDAA and Energy and Water Appropriations bills notably fund two significant nuclear weapons priorities: the deployment of the low-yield D5 Trident and the creation of the W87-1 warhead for a new intercontinental ballistic missile. The low-yield D5 Trident, a weapon first called for in the Trump Administration’s Nuclear Posture Review, will be deployed next year. Former Secretary of Defense William Perry has [called](#) this weapon uniquely destabilizing because it is viewed by some to be a “more usable” nuclear weapon.

The W87-1 will be an entirely new warhead - something that the United States has not made for decades. Rather than modifying and extending the lifetime of existing designs, the NNSA has decided to make a novel warhead, including new plutonium pits. Plutonium pit production alone will cost over [\\$9 billion](#) over the next 10 years. Beyond its budgetary costs, building a new and untested nuclear weapon introduces scientific uncertainty in the U.S. nuclear weapons arsenal and stokes the flames of an ongoing nuclear arms race.

The National Nuclear Security Administration has not been this busy since the Cold War. Signs of institutional strain are already showing. In 2019, [news broke](#) that the B61-12 and the W88 would be \$850 million over budget due to a supply chain issue, a faulty \$5 capacitor. These modernization projects, which will continue for over a decade, will almost inevitably run into more cost overruns.

U.S. Nuclear Weapons Infrastructure

FY 2020 Energy and Water Appropriations
(In Thousands of Dollars)

Infrastructure Programs	Plutonium Sustainment	Uranium Sustainment	Extended capabilities for Subcritical Experiments
Approved in 2020	\$712,440	\$94,146	\$145,160
Requested in 2020	\$712,440	\$94,146	\$145,160
Approved in 2019	\$361,282	\$87,182	\$50,000

In addition to expanding work on nuclear warheads, the NDAA and the Energy and Water Appropriations bills also greatly increase investment in nuclear weapons infrastructure. The increases to infrastructure development are startling. Plutonium sustainment, which is essentially plutonium pit production, received almost double the amount of funding from 2019, a \$351 million increase. Uranium sustainment has also increased by \$7 million. Much of this money will go to the Uranium Processing Facility at Y12 to build a core component of U.S. nuclear weapons.

The reason for the drastic increase to plutonium sustainment is that the NDAA authorized the National Nuclear Security Administration to expand plutonium pit production from its current state of 10 plutonium pits per year at Los Alamos to a staggering 80 plutonium pits per year by 2030 at Los Alamos and Savannah River. Los Alamos is slated to produce 30 plutonium pits at its PF4 facility, while Savannah River, which has never made plutonium pits, is supposed to make 50 plutonium pits per year by renovating the Mixed Oxide Fuel Fabrication Facility. These programs are bound to fail because these goals are too ambitious. A Department of Defense funded study by the Institute for Defense Analysis on the National Nuclear Security Administration's plutonium pit production plans [concluded](#) that "no available option can be expected to provide 80 [plutonium pits per year] by 2030."

Another alarming addition in the 2020 budget is an increase of \$95 million towards subcritical experiments. These tests simulate aspects of nuclear explosions using chemical compounds. They involve nuclear material, but they do not produce a nuclear yield. These tests have resulted in radioactive contamination. Just this year, a subcritical test in Nevada [cracked](#) a fastener in a containment vessel and blew out plutonium.

Conclusions

The NDAA does contain a few positive developments on the nuclear front. The NDAA conference report requires an independent study on the policy of no-first-use of nuclear weapons, bans the procurement and deployment of new ground launched INF-range missiles, and requires congressional notification and a 120 waiting period before the provision of a notice of intent to withdraw from the New START and Open Skies Treaties. These victories are important, as they seek to maintain and improve rule of law and international arms control.

Overall, the NDAA and the Energy and Water Appropriations bills contain significant losses for arms control advocates. These bills fully fund and authorize every policy priority of the National Nuclear Security Administration. Over the next few years, the nuclear weapons enterprise will be incredibly busy. Signs of institutional strain are already showing. Delays, cost overruns, and poor planning will only increase as more money is allocated to the already overburdened National Nuclear Security Administration.