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# Energy and Water Development Appropriations for Defense Nuclear Nonproliferation: In Brief

Updated April 18, 2024

**Congressional Research Service**

<https://crsreports.congress.gov>

R44413



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April 18, 2024

**Mary Beth D. Nikitin**  
Specialist in  
Nonproliferation

## **Energy and Water Development Appropriations for Defense Nuclear Nonproliferation: In Brief**

The Department of Energy's (DOE's) nonproliferation and national security programs provide technical capabilities to support U.S. efforts to reduce the threat of nuclear weapons proliferation and nuclear terrorism. These programs are administered by the National Nuclear Security Administration (NNSA), a semi-autonomous agency established within DOE in 2000. NNSA is responsible for maintaining the U.S. nuclear weapons stockpile, providing nuclear fuel to the Navy, nuclear and radiological emergency response, and nuclear nonproliferation activities.

This report gives an overview of annual appropriations for the DOE NNSA Defense Nuclear Nonproliferation (DNN) account. The National Defense Authorization Act authorizes these programs, for which funds are appropriated in the annual Energy and Water Appropriations bill. The FY2025 DOE request for DNN appropriations was \$2.47 billion, a decrease of 4.5% from the FY2024-enacted level, which was \$2.58 billion. Energy and Water Development FY2024 appropriations for these programs were enacted as part of the Consolidated Appropriations Act, 2024 (P.L. 118-42).

## **Contents**

Introduction .....	1
Budget Structure.....	1
FY2025 Request.....	2
FY2024 Appropriations.....	3
Supplemental Requests.....	3
Surplus Plutonium Disposition Program .....	4

## **Tables**

Table 1. DOE Defense Nuclear Nonproliferation Appropriation, FY2023-FY2025.....	2
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## **Contacts**

Author Information.....	5
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## Introduction

The Department of Energy's (DOE's) nonproliferation and national security programs provide technical capabilities to support U.S. efforts to reduce the threat of nuclear weapons proliferation and nuclear terrorism. These programs are administered by the National Nuclear Security Administration (NNSA), a semi-autonomous agency established within DOE in 2000. NNSA is responsible for maintaining the U.S. nuclear weapons stockpile, providing nuclear reactors and fuel to the Navy, nuclear and radiological emergency response, and nuclear nonproliferation activities.

In Secretary Granholm's 2024 testimony to Congress, she says the NNSA's DNN budget proposal would

enhance the Nation's ability to prevent adversaries from acquiring nuclear weapons or weapons-usable materials, technology, and expertise; counter efforts to acquire such weapons or materials; and respond to nuclear or radiological incidents and accidents domestically and abroad. By limiting the number of nuclear-capable states and preventing terrorist access to materials and technology that can threaten the U.S. and allies, NNSA plays a critical role in enhancing global stability and constrains the range of potential threats facing the nation, our allies, and partners.<sup>1</sup>

This report gives an overview of annual appropriations for the DOE NNSA Defense Nuclear Nonproliferation (DNN) account. The National Defense Authorization Act<sup>2</sup> authorizes these programs, for which funds are appropriated in the annual Energy and Water Appropriations bill.

## Budget Structure

There are two main mission areas under the DNN appropriation: the Defense Nuclear Nonproliferation Program and the Nuclear Counterterrorism and Incident Response Program (NCTIR).<sup>3</sup> The FY2025 DNN request is divided into the following functional areas:

- **Material Management and Minimization (M3)** conducts activities to reduce and, where possible, eliminate stockpiles of weapons-useable material around the world. Major activities include conversion of reactors that use highly enriched uranium (useable for weapons) to low enriched uranium, removal and consolidation of nuclear material stockpiles, and disposition of excess nuclear materials such as excess U.S. weapons plutonium.
- **Global Material Security (GMS)** has three major program elements: international nuclear security, radiological security, and nuclear smuggling detection and deterrence. Activities toward achieving those goals include the provision of equipment and training, workshops and exercises, and collaboration with international organizations.
- **Nonproliferation and Arms Control (NPAC)** implements programs that aim to strengthen international nuclear safeguards, control the spread of dual-use

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<sup>1</sup> United States Secretary of Energy Jennifer Granholm, Testimony before the Senate Committee on Energy and Natural Resources, April 16, 2024.

<sup>2</sup> P.L. 118-31.

<sup>3</sup> The DNN programs were reorganized starting with the FY2016 request. NCTIR was previously funded under Weapons Activities. There are three offices under the DNN appropriations: Office of DNN, Office of Counterterrorism and Counterproliferation (CTCP), and Office of Emergency Operations (EO).

(weapons or peaceful applications) technologies and expertise, and verify nuclear reductions and compliance with treaties and agreements. This program conducts reviews of nuclear export applications and technology transfer authorizations.

- **Defense Nuclear Nonproliferation Research and Development (DNN R&D)** advances U.S. capabilities to detect and characterize global nuclear security threats such as foreign nuclear material and weapons production, diversion of special nuclear material, and nuclear detonations.
- The **Nonproliferation Construction** program disposes of excess U.S. weapons plutonium through a “dilute and dispose” strategy (see “Surplus Plutonium Disposition Program” below).
- The **Nuclear Counterterrorism and Incident Response Program (NCTIR)** evaluates nuclear and radiological threats and develops emergency preparedness plans, including organizing scientific teams to provide rapid response to nuclear or radiological incidents or accidents worldwide.

**Table I. DOE Defense Nuclear Nonproliferation Appropriation, FY2023-FY2025**

(\$ thousands)

	<b>FY2023 Enacted</b>	<b>FY2024 Enacted</b>	<b>FY2025 Request</b>
Material Management and Minimization	464,285	496,025	377,097
Global Material Security	532,763	524,048	543,864
Nonproliferation and Arms Control	230,656	212,358	224,980
Defense Nuclear Nonproliferation R&D	767,902	765,750	802,850
NNSA Bioassurance Program	20,000	0	0
Nonproliferation Construction	71,764	77,211	40,000
Nuclear Counterterrorism & Incident Response	469,970	503,021	536,189
Legacy Contractor Pensions	55,708	22,587	7,128
Use of Prior Year Balances	-123,048	-20,000	-67,000
<b>Total</b>	<b>2,490,000</b>	<b>2,581,000</b>	<b>2,465,108</b>

**Source:** Department of Energy Congressional Budget Requests, Volume I.

## FY2025 Request

The FY2025 DOE request for DNN appropriations was \$2.47 billion, a decrease of 4.5% from the FY2024-enacted level. The DOE congressional budget request attributes this change mainly to “reduced programmatic requirements in Material Management and Minimization, as well as the use of carryover for FY 2025 scope in the Surplus Plutonium Disposition project and Legacy Contractor Pensions and Settlement Payments.”

The budget justification document also says increases are requested for “Red Teaming capabilities for a wide range of open-source and industry Artificial Intelligence (AI) systems, for the establishment of the Space Monitoring and Verification Program (Space MVP) to support the Outer Space Treaty, and to increase outreach to high-priority partners in Southeast Asia to address smuggling vulnerabilities and counter Chinese influence.”

DOE did not request funding for the NNSA Bioassurance program in the FY2025 request. The Bioassurance Program was funded at \$20 million in FY2023, and \$25 million was requested for FY2024. Program goals were to expand DOE’s role in biodefense and develop national laboratory capabilities “to anticipate, detect, assess, and mitigate emerging biothreats.” Section 3122 of the FY2024 National Defense Authorization Act (P.L. 118-31) placed prohibitions on establishing this program within NNSA.<sup>4</sup>

## **FY2024 Appropriations**

FY2024 Energy and Water Development appropriations provided \$2.58 billion for these programs, enacted as part of the Consolidated Appropriations Act, 2024 (P.L. 118-42). The FY2024 request for DNN appropriations was \$2.51 billion, an increase of 0.8% over the FY2023-enacted level. The DOE congressional budget justification attributes this change mainly to increases for the Nuclear Counterterrorism program, to improve the Nuclear Incident Response (NIR)/Nuclear Emergency Support Team’s (NEST’s) “capacity for emergency response and interagency partner technical training” and for National Technical Nuclear Forensics (NTNF), to “bridge a long-standing gap between research and development activities geared toward technology transition and operational capabilities.”

Recent years’ appropriations prohibit funds in the Defense Nuclear Nonproliferation account from being used for certain activities and assistance in the Russian Federation. Appropriations bills have prohibited this since FY2015, although a waiver is allowed.<sup>5</sup>

## **Supplemental Requests**

Senate-passed (H.R. 815) and House (H.R. 8035) versions of FY2024 supplemental appropriations would provide NNSA with \$149 million to “respond to the security situation in Ukraine.” The FY2023 Ukraine Supplemental Appropriations Act provided \$35 million for NNSA support for Ukraine, and the Additional Ukraine Supplemental Appropriations Act provided \$126.3, totaling \$161.3. The FY2025 congressional budget justification says DNN subprograms’ FY2023 accomplishments in Ukraine included the following:

- “Bolstered the resilience of nuclear power plants in Ukraine by providing physical protection and cyber security upgrades and provided equipment to the National Guard of Ukraine to strengthen their capability to protect nuclear power plants.”
- “Provided equipment, training, and technical assistance to partners in Ukraine to secure and monitor 36 facilities housing high-activity radioactive sources.

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<sup>4</sup> “The Administrator may not establish, administer, manage, or facilitate a program within the Administration for the purposes of executing an enduring national security research and development effort to broaden the role of the Department of Energy in national biodefense.” See Section 3122, FY2024 NDAA and related report language.

<sup>5</sup> See the 2017 version of this report for more detailed background information.

Removed five disused sources from medical facilities to secure storage facilities in Ukraine.”

- “Deployed additional equipment and associated training to border security, law enforcement, and emergency agencies across Ukraine to detect and deter illicit movement of materials and ... monitor for radiation release within Ukraine.”<sup>6</sup>

## Surplus Plutonium Disposition Program

The United States pledged to dispose of 34 metric tons of U.S. surplus weapons plutonium, which was originally to be converted into fuel for commercial power reactors.<sup>7</sup> The U.S. facility for this purpose was to be the Mixed Oxide Fuel Fabrication Facility (MFFF), which had been under construction at the DOE Savannah River site in South Carolina. The MFFF faced sharply escalating construction and operation cost estimates, and the Obama Administration proposed to terminate it in FY2017. After congressional approval, in 2018 DOE ended MFFF construction and began pursuing a replacement disposal method, Dilute and Dispose (D&D), for this material. This effort is called the Surplus Plutonium Disposition (SPD) Program.

The D&D method consists of “blending plutonium with an inert mixture, packaging it for safe storage and transport, and disposing of it in a geologic repository,” according to the FY2024 request. Under the D&D method, plutonium is down-blended at Savannah River then shipped as transuranic waste to the Waste Isolation Pilot Plant (WIPP) in New Mexico.

The FY2025 budget request provides for plutonium disposition related activities in the Material Management and Minimization (Material Disposition subprogram) and the Nonproliferation Construction accounts. The FY2025 budget request said the SPD project “will add glovebox capacity at the Savannah River Site to accelerate plutonium dilution and aid in the removal of plutonium from the state of South Carolina.” In the coming years, NNSA plans to expand capability to disassemble and convert plutonium cores or “pits” for disposal. The FY2025 request says NNSA is completing the final design review to request approval and start full construction on the SPD project, which represents a delay and cost increase. The FY2024 request said the NNSA is “increasing the total project cost by \$155 million resulting in a corresponding increase to the high-end of the cost range which is \$775 million” and extending the completion date to the fourth quarter of FY2030. The budget request says that these changes are necessary due to design, safety, and construction challenges “of integrating the new mission into the existing facility and operations.” It also cited a lack of skilled professional and craft labor, which is also an issue for other NNSA construction projects.

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<sup>6</sup> FY 2025 Department of Energy National Nuclear Security Administration Congressional Budget Justification, Volume 1.

<sup>7</sup> Disposition of surplus plutonium is required by a 1998 agreement, amended in 2010, between the United States and the Russian Federation. Each country agreed to convert 34 metric tons of surplus weapons-grade plutonium to a form that could not be returned to nuclear weapons, to begin in 2018. Russia suspended its participation in the agreement in October 2016 due to what it called “hostile actions” by the United States. Both countries appear to be continuing their plans for surplus plutonium disposition. See CRS Report R43125, *Mixed-Oxide Fuel Fabrication Plant and Plutonium Disposition: Management and Policy Issues*, by Mark Holt and Mary Beth D. Nikitin.

## **Author Information**

Mary Beth D. Nikitin  
Specialist in Nonproliferation

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