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

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Budget Structure

The Defense Nuclear Nonproliferation (DNN) programs were reorganized for the FY2016 request. There are now two main mission areas under the DNN appropriation: the Defense Nuclear Nonproliferation Program and the Nuclear Counterterrorism and Incident Response Program (NCTIR). NCTIR was previously funded under Weapons Activities. According to the FY2016 budget justification, "These transfers align all NNSA funding to prevent, counter, and respond to nuclear proliferation and terrorism in one appropriation."

The DNN Program is divided into four functional areas, plus a funding line for Nonproliferation Construction:

- **Materials 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.
- **Global Material Security** has two major program elements: the "First Line of Defense" focuses on increasing the security of vulnerable stockpiles of nuclear material in other countries; the "Second Line of Defense" is intended to "improve partner countries' abilities to deter, detect, and interdict illicit trafficking," according to the Department of Energy's (DOE's) FY2016 budget justification. Activities toward achieving those goals include the provision of equipment and training, workshops and exercises, and collaboration with international organizations.
- **Nonproliferation and Arms Control** implements programs that aim to strengthen international nuclear safeguards, control the spread of dual-use technologies, and verify nuclear reductions and compliance with treaties and agreements, according to the FY2017 justification. This program conducts reviews of nuclear export applications and technology transfer authorizations.
- **DNN R&D** advances nuclear detection and nuclear forensics technologies. This includes both proliferation detection and nuclear detonation detection.
- The **Nonproliferation Construction** program consists of the Mixed-Oxide (MOX) Fuel Fabrication Facility (MFFF), which is being built in South Carolina to convert surplus weapons plutonium into nuclear reactor fuel. The FY2017 budget proposes that this construction project be terminated.

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 1. DOE Defense Nuclear Nonproliferation Appropriation, FY2016-FY2017

($ thousands)

	FY2016 Request	FY2016 Appropriations	FY2017 Request
Material Management and Minimization	311,584	311,584	341,094
Global Material Security	426,751	426,751	337,108
Nonproliferation and Arms Control	126,703	126,703	124,703
Defense Nuclear Nonproliferation R&D	419,333	419,333	393,922
Nonproliferation Construction	345,000	345,000	270,000
Legacy Contractor Pensions	94,617	94,617	83,208
Nuclear Counterterrorism	234,390	234,390	271,881
Subtotal	1,958,378	1,958,378	1,821,916
Use of Prior Year Balances	18,076	-21,576	0
Rescission of Prior Year Balances	-26,121	0	-14,000
Total	1,940,302	1,940,302	1,807,916

Source: Department of Energy Fiscal Year 2016 and 2017 Congressional Budget Requests, Volume 1; P.L. 114-100.

FY2017 Request

The FY2017 request for DNN appropriations totals $1.8 billion, approximately $132 million less than the enacted FY2016 level. The budget justification says that this decrease is due to the use of prior year balances, including "$21,576,000 in prior year funding from Russia-related nonproliferation activities and $576,000 from funds set aside to meet the apportionment restriction related to NNSA pension funding." The biggest proposed decreases are in the Global Material Security (-$89.6 million) and the Nonproliferation Construction (-$70 million) accounts.

The FY2017 request for R&D is the same as the request for FY2015, but is a decrease from FY2016. The request for the Global Material Security account proposes a decrease in International Nuclear Material activities in order to "reduce prior year carryover balances, permitting a lower FY 2017 Budget Request." Nonproliferation Construction was decreased to $270 million due to the termination of MFFF construction.

An increase of $30 million was requested for the M3 account, using prior-year uncosted balances primarily from the U.S. plutonium disposition program. The budget justification explains that this is to support highly enriched uranium (HEU) research reactor conversions in Kazakhstan and the United States; to establish a reliable, domestic non-HEU-based production capability for medical isotope production; and to accelerate disposal of HEU at the Y-12 complex in Oak Ridge, TN.

An increase was proposed for all subprograms under the Nuclear Counterterrorism account, with the largest for the Emergency Response subprogram.

Issues for Congress

U.S. Plutonium Disposition

The FY2017 budget justification requests funds related to the U.S. plutonium disposition program in the M3 Material Disposition subprogram and the Nonproliferation Construction accounts. The goal of this program is disposal of 34 metric tons of U.S. surplus weapons plutonium by converting it into fuel for commercial power reactors, and a similar program in Russia.[1] The U.S. facility for this purpose was to be MFFF, under construction at the DOE Savannah River site in South Carolina. The MFFF, which would make fuel for nuclear reactors out of surplus weapons plutonium, has faced sharply escalating construction and operation cost estimates, and the Obama Administration proposes to terminate it in FY2017. Instead, a Dilute and Dispose (D&D) program for this material is now in a preconceptual design phase. In late FY2017, the conceptual design phase will begin, and is expected to cost "between $3 and $5 million," according to the FY2017 congressional budget justification. The costs of the FY2017 request for this subprogram (M3 Material Disposition) reflect the use of prior year uncosted balances and the start of the D&D design activities. The request for the Nonproliferation Construction program is $270 million.

In FY2015 and FY2016, Congress appropriated $345 million for the Mixed Oxide Fuel Fabrication Facility project (the same as the FY2016 request, but higher than the FY2015 request). The recommendation provided funding to sustain the current pace of construction on the MOX facility in FY2016 and included a provision that prohibits the use of MOX funding to place the project in cold standby.

Cooperation with the Russian Federation[2]

In December 2014, the Russian Federation informed the United States that no new cooperative nonproliferation projects would be approved, but existing projects could continue until their expiration. Russia will continue to fund and carry out the removal and repatriation to Russia of highly enriched uranium fuel from Russian-origin research reactors worldwide, a joint program with the United States. Verification of plutonium shut-down and HEU and plutonium disposition plans would also continue. However, cooperation was to end on other cooperative projects such as fissile material security sustainability programs that ensure continued use and upgrades to physical security and border control systems. Then, following the Russian takeover of Crimea in April 2014, the Department of Energy further restricted cooperation with the Russian Federation, and Congress specifically prohibited new projects.

The FY2015 House Appropriations Committee report said that no new cooperative nonproliferation programs with the Russian Federation could be funded, and directed DOE to report to Congress on whether ongoing and new nuclear security programs with Russia are addressing U.S. national security goals. The FY2015 Consolidated Appropriations Act did not include requested funding for NNSA Global Material Security programs in Russia.

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[1] For more details, see CRS Report R43125, *Mixed-Oxide Fuel Fabrication Plant and Plutonium Disposition: Management and Policy Issues*, by (name redacted) and (name redacted) .

[2] See also, "The Future of Cooperation with Russia" in CRS Report R43143, *The Evolution of Cooperative Threat Reduction: Issues for Congress*, by (name redacted) and (name redacted) .

The FY2016 DNN budget request did not request any funds for specific projects in the Russian Federation but says, "Given the size of Russia's material stockpiles, GMS will continue to look for partnership opportunities with Russia, on the general assumption that each side shall independently bear its costs related to cooperative activities."

The FY2016 appropriations provided "no new funds to enter into contracts and agreements with Russia in fiscal year 2016," but did provide a waiver. H.Rept. 114-91 said that:

> The recommendation provides no new funds for projects in Russia and the Committee awaits submission of a Secretarial waiver for nonproliferation work with the Russian Federation should such activities be determined to be in the national security interest by the Secretary of Energy. The Committee continues to view the NNSA's programs as important for reducing international dangers to U.S. national security posed by the proliferation of nuclear technologies to other nation states and the threat of nuclear terrorism, rather than focused on domestic security activities that are the responsibility of other agencies.

In the FY2017 request, no new funds for projects with Russia were proposed; $21.5 million of the prior-year funding from FY2016 Russia-related nonproliferation activities will be used in FY2017 for other DNN activities, according to the budget request.

Continuing activities with Russia (that do not require payments to Russia) include monitoring visits in Russia under the U.S.-Russia Plutonium Production Reactor Agreement, funding for U.S. laboratory participation in technical exchanges on conversion of Russian reactors from HEU to low-enriched uranium, removal of Russian-origin material from third countries, and hosting Russian monitoring visits to U.S. nuclear fuel fabrication facilities under the 1993 HEU Purchase Agreement.

Prior Years

For FY2015, the Administration requested $1,555.2 million for Defense Nuclear Nonproliferation programs and Congress appropriated $1,641.4 million. After rescissions and use of prior-year funds, the total appropriated was $1,616.4 million. The bill directed the use of prior-year balances from the Russian Fissile Material Disposition subaccount and did not fund the request for international material protection work in Russia. Overall, the FY2015 request included reductions in virtually all nonproliferation programs, in particular the U.S. plutonium disposition program (see below). Both the House bill and the Senate Appropriations Subcommittee increased funding for these programs.

Prior to the FY2016 reorganization, the DNN programs included five subprograms. Appropriations from FY2013 to FY2015 can be viewed in **Table 2**.

Table 2. DOE Defense Nuclear Nonproliferation Programs FY2013-2015

($ millions)

Program	FY2013 Approp.	FY2014 Approp.	FY2015 Approp.
Defense Nuclear Nonproliferation Research and Development (formerly Nonproliferation and Verification R&D)	420.5	398.8	393.4
Nonproliferation and International Security	143.1	128.7	141.4
International Materials Protection and Control (IMPC)	527.9	419.6	270.9

Program	FY2013 Approp.	FY2014 Approp.	FY2015 Approp.
Fissile Materials Disposition	663.8	526.1	430.0
Global Threat Reduction Initiative	$462.9	$442.1	$325.8
Legacy Contractor Pensions	51.4	93.7	102.9
Rescissions and Use of Prior Year Funds	-32.2	-55.0	-47.7
Total	**2,237.4**	**1,954.0**	**1,616.4**

Source: FY2015 budget request; H.Rept. 113-486; Senate Appropriations Committee; P.L. 113-235; Explanatory Statement; Congressional Record Vol. 160, No.151, December 11, 2014.

Notes: Numbers may not add due to rounding. Negative numbers denote appropriations offsets.

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