Cutting Too Deep: The Obama Administration's Proposals for Nuclear Security Spending Reductions

PROJECT ON MANAGING THE ATOM

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THE OBAMA ADMINISTRATION'S PROPOSALS FOR NUCLEAR SECURITY SPENDING REDUCTIONS

BY MATTHEW BUNN, NICKOLAS ROTH, AND WILLIAM H. TOBEY

HARVARD Kennedy School
BELFER CENTER for Science and International Affairs

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Cover Photo: A worker prepares a special container carrying highly enriched uranium before loading onto a cargo plane for repatriation to Russia. Credit: U.S. National Nuclear Security Administration.

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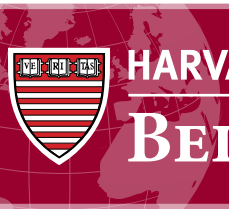

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I. Executive Summary

The substantial nuclear security budget cuts proposed by the Obama administration for fiscal year (FY) 2015, if approved, would slow progress toward preventing the essential ingredients of nuclear bombs from falling into terrorist hands. Many of the proposed cutbacks are not the result of completing projects under the four-year effort to secure vulnerable nuclear materials or putting the mixed oxide (MOX) fuel program for plutonium in cold standby. The drop in funding would result in real and significant cuts to important ongoing nuclear security programs. Congress should act to reduce the scale of the proposed cut for nuclear security programs by at least $100 million, and should consider other substantial increases in funding for nonproliferation programs.

The FY 2015 Nuclear Security Budget: Slowing Progress

Under the proposed budget, security efforts ranging from increasing protections against insider threats at a major nuclear material bulk processing facility to strengthening security culture programs around the world would be postponed.

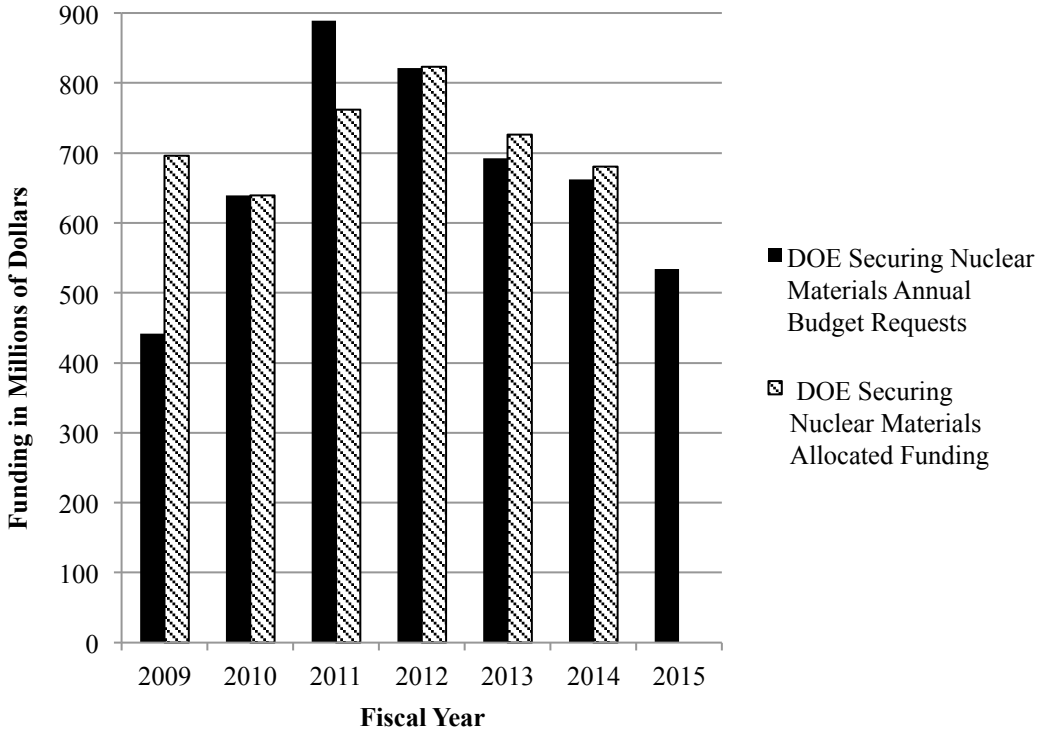
- Funding for nuclear material removals would be cut in half, with a plan to remove less material than in any other year in the Global Threat Reduction Initiative's (GTRI) history. (How much of the reduction in the planned amount of material to be removed is driven by budget cuts is not clear, however.)
- The schedule for converting reactors fueled with highly enriched uranium (HEU) would be postponed another five years. (Here, too, it is not clear how much of the delay results from budget reductions.)
- International radiological material removals would be delayed.
- Radiological material security upgrades would be so slow that if that rate continued it would take until after 2074 to meet GTRI's goal of upgrading security for 8,500 buildings with dangerous radiological sources; the entire approach is now being reviewed.
- Deployments of radiation detectors to detect nuclear smuggling would be slowed.

Overall, under the budget request, nuclear security programs would receive hundreds of millions of dollars less than they projected would be needed only a few years ago—and nearly $100 million less than the Obama administration projected they would need just last year. Nothing has gotten any cheaper since then, and the job of achieving effective and sustainable security for "all vulnerable nuclear materials" is not done.

The FY 2015 Request: Continuing a Trend of Nuclear Security Cuts

The proposed nuclear security budget cuts for FY 2015 are the continuation of a years-long trend of ongoing reductions. See Figure ES-1.

ES-1: Requested and Allocated Funding for U.S. Department of Energy International Nuclear Security Programs



Reflects actual spending through FY 2013 and enacted spending in FY 2014. The figure refers to the funding allocated to these programs, not to the appropriated amounts. Allocated funding differs from the amount of money appropriated by Congress because the executive branch shifts money among programs after appropriations bills are approved. Data are drawn from NNSA budget justifications, FY 2009–FY 2015.

Recommendations

Nuclear security is both affordable and a smart investment, even in a time of stringent budgets. Throughout the four-year effort, the budgets for nuclear security averaged less than two parts in a thousand of U.S. defense spending, for an effort to address what President Obama and President Bush before him identified as the single greatest threat to U.S. national security. This is an enormous return on a low-cost investment. Hence, we offer the following recommendations.

1. The U.S. government should not allow nuclear security progress to be slowed by lack of funds. Given the immense consequences of a nuclear terrorist attack and the modest costs of nuclear security, the basic U.S. policy should be that no effort that shows promise of being able to make a significant and lasting reduction in the risk of nuclear terrorism should be delayed for lack of money.

2. As a first step, Congress should restore at least $100 million of the cuts to nuclear security programs proposed in the FY 2015 budget request. Avoiding deferrals and delays in nuclear security programs would require reducing the scope of the proposed cut by at least $100 million, roughly evenly distributed between International Material Protection and Cooperation and the Global Threat Reduction Initiative.

3. Congress should also approve targeted increases in other nonproliferation programs. Even a cursory examination of the Department of Energy's (DOE) nonproliferation budget suggests that larger budgets would offer opportunities for faster progress toward key objectives, such as strengthening efforts to control dangerous technology exports and interdict illicit technology transfers around the world or developing enhanced technologies for nuclear verification.

4. Nuclear security cooperation with Russia should be sustained. This cooperation remains an important investment in U.S. security, despite Russia's unacceptable actions in Ukraine; it is not a favor to Russia or to the other countries where nuclear security cooperation is underway. Continued cooperation advances U.S. national security by protecting the substantial investment the United States has already made in Russian nuclear security.

5. Congress should require the President to submit a strategic, prioritized plan for achieving effective and sustainable security for all nuclear weapons and weapons-usable material worldwide as rapidly as practicable–and to submit budget requests sufficient to implement the plan. A strategic plan, prioritized on the basis of the risks to U.S. security and the opportunities for reducing them, is needed to provide a structure, metrics, and organizing deadlines for this new phase of the nuclear security effort. Providing the full funding needed to implement the plan will help fulfill the first recommendation–that nuclear security efforts not be slowed by lack of funds. The administration and Congress should also work together to create a small nuclear security contingency fund at DOE to respond quickly when opportunities present themselves.

6. The Obama administration should increase funding for nuclear security programs in its FY 2016 budget request. As it prepares its FY 2016 budget request, the Obama administration should provide sufficient funding to ensure that no important nuclear security efforts will be slowed by lack of funds, consistent with our first recommendation. That would require a substantially larger request than the one the Obama administration made for FY 2015. The Obama administration should move with all deliberate speed to put together the prioritized strategic plan for nuclear security as described above, and should request sufficient funding to implement it as rapidly as practicable.

II. Introduction

Though the world has made important progress in reducing the risk of nuclear and radiological terrorism, the threat has not disappeared. Terrorist groups continue to seek nuclear weapons and the materials and expertise needed to make them.[1] The best way to reduce these risks is to ensure that the security measures that protect stocks of nuclear weapons or materials are sufficient to protect against the full range of plausible outsider and insider threats they may face.

Unfortunately, the Obama administration has proposed substantial budget cuts for nonproliferation programs overall and nuclear security programs in particular in its fiscal year (FY) 2015 budget request. These reductions, if approved, would slow progress in ensuring that the essential ingredients of nuclear bombs do not fall into terrorist hands.

The four-year effort to secure all vulnerable nuclear material worldwide that President Obama launched in 2009 came to an end in 2013. That effort resulted in substantial progress in improving nuclear security around the world, but a great deal remains to be done.[2] President Obama acknowledged as much in his closing remarks at the 2014 Nuclear Security Summit, urging the assembled leaders "not to relax, but rather accelerate our efforts over the next two years, sustain momentum so that we finish strong in 2016."[3] The administration's budget proposal would not meet this stated objective.

These cutbacks are not just the result of the major projects of the four-year effort coming to completion or of the decision to place the plutonium mixed oxide (MOX) fuel project in cold standby, as Obama administration officials have claimed. Indeed, the administration rejected an ambitious, albeit more expensive, plan intended to secure twice as much weapons-usable nuclear material in 2014−2016 as the administration now proposes. As discussed below, in testimony to Congress, Secretary of Energy Ernest Moniz acknowledged that the cutbacks to nuclear security resulted from putting a higher priority on nuclear weapons programs. A safe, secure, reliable nuclear deterrent is a high national security priority—but in an age of terrorists with global reach, so too is preventing weapons-usable nuclear material from falling into the hands of terrorists.

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[1] For an up-to-date assessment, see William H. Tobey and Pavel S. Zolotarev, "The Nuclear Terrorism Threat" (Pattaya, Thailand: presentation, meeting of the 2014 nuclear security summit Sherpas, hosted by the Thai Ministry of Foreign Affairs, January 2014), http://belfercenter.ksg.harvard.edu/files/nuclearterrorismthreatthailand2014.pdf (accessed June 3, 2014). For an earlier joint US-Russian account, see Matthew Bunn, Yuri Morozov, Rolf Mowatt-Larssen, Simon Saradzhyan, William Tobey, Viktor I. Yesin, and Pavel S. Zolotarev, *The U.S.-Russia Joint Threat Assessment of Nuclear Terrorism* (Cambridge, Mass.: Belfer Center for Science and International Affairs, Harvard Kennedy School, and Institute for US and Canadian Studies, June, 2011), http://belfercenter.ksg.harvard.edu/publication/21087/ (accessed March 11, 2014).

[2] Matthew Bunn, Martin B. Malin, Nickolas Roth, and William H. Tobey, *Advancing Nuclear Security: Evaluating Progress and Setting New Goals* (Cambridge, Mass.: Project on Managing the Atom, Belfer Center for Science and International Affairs, Harvard Kennedy School, March, 2014), http://belfercenter.hks.harvard.edu/files/advancing-nuclearsecurity.pdf (accessed May 11, 2014).

[3] The White House, Office of the Press Secretary, "Remarks by President Obama at Closing Session of the Nuclear Security Summit" (Washington, D.C.: The White House, March 25, 2014), http://www.whitehouse.gov/the-press-office/2014/03/25/remarks-president-obama-closing-session-nuclear-security-summit (accessed May 2, 2014).

As former Senator Sam Nunn recently wrote, "We must view our nuclear and radiological threat reduction efforts as a core component of our national security strategy and not as a contingency fund for financing other security programs."[4]

Budgets are policy. They reveal a government's priorities. Assessing them is complex, however. Public debate often focuses on the easiest point to measure—whether the budget is going up or down compared to the previous year.[5] But the more important—and more difficult to answer—questions are whether a program's budget is enough to accomplish its goals and whether those goals are appropriate. The answer we offer in this report is "no"—the Obama administration's FY 2015 budget request for nuclear security does not match the scale of the risks to U.S. national security or the opportunities to reduce them.

In nuclear security, there are at least three major factors that complicate the connection between budgets and policy. First, in many cases the U.S. government hopes to convince other countries to upgrade nuclear security or consolidate nuclear stockpiles on their own, without Washington paying for it. Such efforts would not appear in U.S. budget requests. A good example of this is Japan's recent pledge to remove hundreds of kilograms of nuclear material to the United States for secure storage and disposition.[6] This effort is not fully reflected in U.S. budget plans, because Japan will pay for this material's management (though if past experience is any guide, the cost of managing these materials in the United States may turn out to be higher than the fee Japan will pay). Indeed, nuclear security efforts are shifting toward a new phase, in which the emphasis will be less on installing equipment around the world and more on convincing countries to take action themselves to strengthen their nuclear security arrangements. The cost of that effort will not be zero, but it will be smaller than nuclear security spending has been in the past.

Second, even in cases where the United States is financing security work, in many instances the main constraint on progress is what recipients will agree to do, not how much money is available. It is illusory to think that the nuclear security problem can be solved simply by writing a sufficiently large check.

Third, in some cases spending declines because projects are completed, not because the issue is no longer a priority. A comparison of Department of Defense spending on nuclear security in Russia 15 years ago to spending just before the termination of the Nunn-Lugar umbrella agreement, for example, would document a sharp decline—because both the Fissile Material Storage Facility at Mayak and the security upgrades installed at nuclear weapon sites had been completed. As discussed below, administration officials have argued that the budget cuts they propose for nuclear security programs in FY 2015 are simply the result of major nuclear security projects undertaken as part of the four-year effort being completed.

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[4] Sam Nunn, "Ten years of reducing global nuclear dangers," *The Hill*, June 3, 2014, http://thehill.com/opinion/op-ed/207915-ten-years-of-reducing-global-nuclear-dangers#ixzz35fp6UwdX (accessed June 26, 2014).

[5] The Nuclear Threat Initiative has an interactive database that allows users to view the entire nuclear security budget from 1992 to the present; the Managing the Atom Project developed an earlier version of this database in collaboration with NTI. See "Securing the Bomb: Tracking U.S. Threat Reduction," *Nuclear Threat Initiative*, July 2013, http://nukesecuritybudgets.nti.org/ (accessed July 3, 2014).

[6] For a discussion, see Matthew Bunn, "Eliminating Potential Bomb Material From Japan's Fast-Critical Assembly," *Nuclear Security Matters*, March 24, 2014, http://nuclearsecuritymatters.belfercenter.org/blog/eliminating-potential-bomb-material-japan%E2%80%99s-fast-critical-assembly (accessed June 1, 2014).

There is still, however, weapons-usable nuclear material in hundreds of buildings and bunkers located in some 30 countries.[7] There is still much to be done to ensure that these materials are effectively and sustainably secured and accounted for. Despite the shift in emphasis toward convincing countries to take nuclear security actions themselves, U.S. investments are still necessary. The United States cannot work with these countries unless funding is available when needed. Negotiating agreements with foreign countries to remove nuclear material requires a flexible schedule. When diplomatic breakthroughs occur, the money needs to be in place to carry out the plan.

This report proceeds as follows. First, we describe the Obama administration's FY 2015 budget request for nuclear security programs and how it compares to FY 2014 appropriations, with brief discussions of broader U.S. nonproliferation and threat reduction programs. Second, we assess the adequacy of these budgets, attempting to explore what efforts would be slowed by lack of funds and how this budget request compares to the funding levels these programs previously projected would be needed to accomplish their missions. In particular, we describe the administration's rejection of the alternative, more far-reaching nuclear security plan that its experts proposed. Third, we outline the history of nuclear security funding during the Obama administration, showing that after a substantial initial increase in FY 2011, these programs have suffered budget cutbacks ever since, and are now being forced to make do with far less than they projected they would need only a few years ago. Because spending on nuclear security cooperation with Russia has become a particular focus of Congressional debate as a result of the crisis in Ukraine, we devote a special section to that topic. Fourth, we briefly describe Congressional action on the FY 2015 nuclear security budgets so far. Finally, we offer recommendations for action, both by the administration and the Congress. For FY 2015, it will be up to the Congress to provide the funding needed to avoid slowing key nuclear security efforts, while for FY 2016 the administration needs to take the first step.

[7] This includes the 25 countries the Nuclear Threat Initiative lists as having more than a kilogram of HEU or separated plutonium, along with Jamaica, Nigeria, Ghana, and Syria, each of which have just under a kilogram of HEU in very small research reactors, and Indonesia, which has just over a kilogram of HEU in waste. See Nuclear Threat Initiative and Economist Intelligence Unit, *NTI Nuclear Materials Security Index: Building a Framework for Assurance, Accountability, and Action, 2nd Edition* (Washington, D.C.: NTI, January, 2014), http:// www.ntiindex. org/ (accessed June 6, 2014).

III. The FY 2015 Budget Request for Nuclear Security, Threat Reduction, and Nonproliferation Programs: Major Cuts

The United States has several programs focused on helping other countries improve security for stocks of nuclear weapons or weapons-usable nuclear material, or on helping to remove such materials entirely from sites around the world. These nuclear security programs are one part of a broader "threat reduction" effort, focused on working cooperatively with other countries to dismantle or improve controls on nuclear, chemical, biological, and radiological weapons, materials, and delivery systems. Threat reduction programs range from dismantling missiles to helping states beef up their controls on exports of potentially dangerous technologies. The entire set of threat reduction efforts is but one part of the broader effort to prevent and respond to nuclear, chemical, biological, radiological, and missile proliferation. In this section, we describe the FY 2015 budgets for nuclear security programs specifically; for threat reduction programs more broadly; and for that portion of the broader nonproliferation effort that is located at the National Nuclear Security Administration (NNSA).

Nuclear Security

The principal U.S. programs intended to improve nuclear security in foreign countries are funded by NNSA with a more modest increment from the Cooperative Threat Reduction (CTR) program at the Department of Defense (DOD).[8]

Within NNSA there are three programs primarily responsible for helping other countries improve security for their nuclear material. (As discussed below, these are only one part of broader nonproliferation funding at NNSA and elsewhere in the government.) The Global Threat Reduction Initiative (GTRI) assists with the removal or disposal of civilian weapons-usable nuclear material, conversion of research and isotope production reactors fueled by HEU to low enriched uranium (LEU), beefing up security for such reactors in the United States and developing countries, and protection and removal of radiological sources, both domestically and abroad. NNSA's International Materials Protection and Cooperation (IMPC) program helps to upgrade security

[8] Note that both DOE and DOD spend substantial sums every year to protect their own nuclear and radiological stockpiles, as do private licensees of the Nuclear Regulatory Commission (NRC). DOE spends over $1.8 billion a year on domestic security, most of which is focused on protecting the nuclear weapons and materials in the DOE complex. See U.S. Department of Energy, *FY 2015 Congressional Budget Request: Other Defense Activities, Departmental Administration, Inspector General, Working Capital Fund, Crosscutting Activities, Pensions, Vol. 2*, DOE/CF-0097 (Washington, D.C.: DOE, March, 2014), http://energy.gov/sites/prod/files/2014/04/f14/Volume%202.pdf (accessed May 25, 2014). For official descriptions of the FY 2015 budget requests discussed in this section, see U.S. Department of Energy, *FY 2015 Congressional Budget Request: National Nuclear Security Administration, Vol. 1*, DOE/CF-0096 (Washington, D.C.: DOE, March, 2014), http://energy.gov/sites/prod/files/2014/04/f14/Volume%201%20NNSA.pdf (accessed May 25, 2014); U.S. Department of State, *FY 2015 Congressional Budget Justification: Department of State, Foreign Operations, and Related Programs* (Washington, D.C.: DOS, March 2014), http://www.state.gov/documents/organization/222898.pdf (accessed June 5, 2014); *U.S. Defense Threat Reduction Agency, Fiscal Year 2015 Budget Estimates Cooperative Threat Reduction Program* (Washington, D.C.: DOD, March, 2014), http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2015/budget_justification/pdfs/01_Operation_and_Maintenance/O_M_VOL_1_PART_2/CTR_PB15.pdf (accessed June 5, 2014).

and accounting for nuclear weapons and weapons-usable nuclear materials in Russia, China, South Asia, and states of the former Soviet Union (an effort often known as materials protection, control, and accounting, or MPC&A), and also manages the Second Line of Defense (SLD) program, which is aimed at building partner countries' capacity and commitment to detect, deter, and interdict nuclear and radioactive smuggling by providing radiation detectors and relevant training to monitor key ports and border crossings.

NNSA's International Nuclear Security Program works with the International Atomic Energy Agency (IAEA) on developing nuclear security recommendations and is also responsible for reviewing security for U.S.-obligated nuclear material in foreign countries to confirm that adequate physical protection is in place. For the purposes of this section, these three programs will be referred to as "DOE programs to secure nuclear materials."[9] The International Nuclear Security Program is generally stable at a few million dollars a year—far less than the other two—so the discussion below will focus primarily on GTRI and IMPC. Since our focus is primarily on preventing nuclear weapons or the materials needed to make them from being stolen in the first place, rather than the far more problematic task of detecting and recovering them after they have been stolen, we will discuss SLD separately from the rest of IMPC.

Table 1 outlines the Obama administration's FY 2015 budget request for these core nuclear security programs, compared to the FY 2014 appropriation. Overall, the administration proposes to cut spending for nuclear security programs from $700 million in FY 2014 to $555 million in FY 2015, a cut of 21 percent. The biggest reductions would come in GTRI, which would be cut by almost 25 percent. The nuclear security portion of IMPC would be cut by 18 percent. DOD's small Global Nuclear Security effort and NNSA's even smaller International Nuclear Security program would both see modest increases. Overall, the request for nuclear security work carried out by these core programs in FY 2015 is $145 million less than the FY 2014 appropriation and about $210 million less than the FY 2013 funding level.

Table 1: FY 2015 Request for Securing Nuclear and Radiological Materials Abroad

Program	FY 2013 Current	FY 2014 Enacted	FY 2015 Request	% Change FY15/FY14
Global Nuclear Security (DOD)	39	19	21	**7**
Global Threat Reduction Initiative (DOE)[a]	463	442	333	**-25**
Int'l Materials Protection and Cooperation (DOE)[b]	256	230	188	**-18**
International Nuclear Security (DOE)	8	9	13	**48**
Total - Securing Nuclear Warheads and Materials	**766**	**700**	**555**	**-21**

All figures in millions of dollars. Totals may not add due to rounding. Unlike the figure in the Executive Summary and Figure 3 which focus only on DOE spending, this chart reflects both DOD and DOE nuclear security spending abroad. Hence, the totals are not the same.

[a] GTRI funding also includes funds for domestic security upgrades.

[b] Excludes Second Line of Defense funding.

[9] In Table 1 and in the graphs of nuclear security spending that appear later in this report, the IMPC program budget numbers exclude the Second Line of Defense program because it is intended to detect nuclear smuggling, not to secure vulnerable nuclear material. For official discussions of the budgets for DOE nuclear security efforts, see U.S. Department of Energy, *FY 2015 NNSA Budget Request*, pp. 503−504.

Threat Reduction

Nuclear security programs are one element of the broader threat reduction effort. All threat reduction programs are intended as investments in U.S. national security—helping countries address issues that would otherwise pose risks to the United States.

Threat reduction programs are funded primarily by NNSA, DOD, and the Department of State (DOS). While the program officially known as "Cooperative Threat Reduction" (CTR) is a DOD effort, for some years the programs at DOE that have similar purposes have been substantially larger. Overall, more than $1.5 billion was appropriated for threat reduction programs in FY 2014; for FY 2015, the Obama administration proposes to cut these efforts, on average, by 24 percent. See Table 2.

Table 2: FY 2015 Request for U.S. Threat Reduction Programs

Program	FY 2013 Current	FY 2014 Enacted	FY 2015 Request	% Change FY15/FY14
Department of Defense	**446**	**500**	**365**	**-27**
Strategic Offensive Arms Elimination	15	6	1	-82
Chemical Weapons Elimination	69	83	16	-81
Global Nuclear Security	39	19	21	7
Cooperative Biological Engagement	211	260	257	-1
Proliferation Prevention	87	110	41	-63
Threat Reduction Engagement	3	2	2	58
Other Assessments/Admin. Costs	22	20	28	36
Department of Energy	**1,047**	**908**	**685**	**-24**
Global Threat Reduction Initiative	463	442	333	-25
Int'l Material Protection & Coop.	528	420	305	-27
International Nuclear Security	8	9	13	48
Int'l Nonprol. Export Controls	12	12	13	12
Global Init. for Prolif. Prevention	8	4	0	-100
HEU Transparency Implementation	13	6	2	-65
Warhead & Fissile Materials Transp.	16	15	18	21
Department of State	**153**	**176**	**152**	**-14**
Global Threat Reduction Program	64	77	65	-16
Export Control and Border Security	56	64	57	-11
Nonprol. & Disarmament Fund	27	30	25	-17
WMD Terrorism	5	5	5	-5
Total: Threat Reduction	**1,646**	**1,584**	**1,202**	**-24**

All figures in millions of dollars. Totals may not add due to rounding. Here, the total for IMPC includes second line of defense, whcih is also a threat reduction effort. Source: DOD, DOE, and State Department budget justifications for FY 2015.

Originally, threat reduction programs focused heavily on dismantling missiles, bombers, and submarines; destroying chemical weapons; and nuclear security improvements in the former Soviet Union, particularly in Russia. Much of that work has now come to an end, and in recent years these programs have shifted toward a global approach that has included projects ranging from improving security for stocks of dangerous biological agents to strengthening export control enforcement in countries around the world. As Table 2 shows, two-thirds of the DOD CTR effort is now focused on biological weapons, which is a heavy focus of the State Department's Global Threat Reduction program as well.

In mid-2013, the CTR "umbrella agreement" that provided the legal framework for threat reduction work in Russia expired, and was replaced with a protocol to the Multilateral Nuclear Environmental Program in the Russian Federation (MNEPR) agreement. The new agreement focused more narrowly on nuclear security and did not provide legal coverage for the wide range of other activities previously funded by CTR. Moreover, the MNEPR protocol does not include the Russian Ministry of Defense (MOD) among its parties, so there is no longer a legal framework for threat reduction cooperation with the MOD. The overall effect was to sharply curtail nonproliferation cooperation with Russia, though the new accord does provide legal coverage for some nuclear security projects not previously covered, such as converting research reactors and consolidating nuclear material.

National Nuclear Security Administration Nonproliferation

While threat reduction programs are broader than nuclear security, the full set of efforts to help keep nuclear, chemical, and biological weapons, materials, and delivery systems from spreading to terrorists or additional states is broader still. These programs range from intelligence and law enforcement to support for international organizations such as the IAEA; they are so numerous and varied that it would be difficult to make a complete list or assess the total budget of the effort, though it certainly amounts to billions of dollars a year.[10]

NNSA has larger budgets specifically targeted to nonproliferation than any other part of the U.S. government. NNSA's nonproliferation effort amounted to over $2 billion a year before budget cuts in FY 2014.[11]

Table 3 outlines the FY 2015 request for all the programs in NNSA's "Defense Nuclear Nonproliferation" budget account. The Obama administration proposes to cut this broader set of efforts

[10] In the 1990s, Congress directed the Clinton administration to prepare such a comprehensive assessment. Questions such as what portions of the intelligence budget or what military assets should be considered to have a nonproliferation purpose proved quite difficult to address. For the resulting report, sometimes known as the "Deutch Commission" report after John Deutch, who chaired the interagency team that prepared it, see U.S. DOD, *Report on Nonproliferation and Counterproliferation Activities and Programs* (Washington, D.C.: U.S. Department of Defense, May 1994), http://www.dod.mil/pubs/foi/International_security_affairs/other/843.pdf (accessed May 13, 2014).

[11] Even at DOE, a precise accounting of efforts that have an effect on nonproliferation is difficult, as programs such as the nuclear weapons program, the nuclear energy effort, the naval reactors program (which uses large quantities of HEU), DOE's intelligence organization, DOE's arrangements for security for its own nuclear stockpiles, and programs to clean up and manage wastes that contain tons of weapons-usable material all have their own effects on nonproliferation (whether positive or negative), though they are not counted as part of the nonproliferation budget.

Table 3: FY 2015 Request for National Nuclear Security Administration Nonproliferation Programs

Program	FY 2013 Current	FY 2014 Enacted	FY 2015 Request	% Change FY15/FY14
Global Threat Reduction Initiative	463	442	333	**-25**
Nonproliferation R&D	421	399	361	**-10**
Nonproliferation & Int'l Security	143	129	141	**10**
Int'l Material Protection & Cooperation	528	420	305	**-27**
Fissile Materials Disposition	664	526	311	**-41**
Legacy Contractor Pensions	51	94	103	**10**
Use of Prior Year Balances	-32	-55	0	**-100**
Total: Defense Nuclear Nonproliferation	**2,237**	**1,954**	**1,555**	**-20**

All figures in millions of dollars. Totals may not add due to rounding. Source: DOE budget justification for FY 2015.

by 20 percent, to just over $1.5 billion. The FY 2015 request is almost $400 million less than last year's funding, and over $680 million less than the funding level only two years ago, in FY 2013. The Obama administration proposes to cut nuclear security programs somewhat more than the average for NNSA's nonproliferation work overall.

The only NNSA nonproliferation program hit harder than nuclear security was the program for disposition of excess U.S. plutonium. The estimated total cost of turning U.S. excess weapons plutonium into MOX fuel for nuclear reactors has risen dramatically, and is now in the range of $30 billion.[12] As a result, the Obama administration proposes to cut the effort by more than $200 million, or about 41 percent, and place construction of the MOX facility in "cold standby." Whether the leading proposed alternative—disposing of the plutonium, mixed with other materials, in drums to be emplaced in the Waste Isolation Pilot Plant (WIPP) in New Mexico—will prove feasible remains to be seen.[13] Overall, the reduction in plutonium disposition accounted for $215 million of the almost $400 million in reductions in the nonproliferation request.

In short, whether one focuses only on funding for nuclear security, on funding for NNSA's nonproliferation programs, or on all threat reduction programs, the picture is one of reduction and retreat—not the sustained and accelerated effort President Obama called for.

[12] U.S. Department of Energy, *Report of the Plutonium Disposition Working Group: Analysis of Surplus Weapon-Grade Plutonium Disposition Options* (Washington, D.C.: DOE April 2014), http://nnsa.energy.gov/sites/default/files/nnsa/04-14-inlinefiles/SurplusPuDispositionOptions.pdf (accessed June 5, 2014).

[13] The existing plan for WIPP—and the legislation that constrains the volume of wastes that can be emplaced there, the Land Withdrawal Act—were the results of hard-fought political compromises between the federal government, New Mexico, and the local community. Putting 34 tons of additional plutonium into WIPP – even if it could be done without modifying the Land Withdrawal Act, which is not yet certain – would mean a major rewriting of past commitments. DOE has also has several other new types of waste it is considering for disposal in WIPP. See Don Hancock, "WIPP for Surplus Plutonium?" presentation to Union of Concerned Scientists Plutonium Disposition Alternatives Workshop, Washington, D.C., January 30, 2014.

Prioritizing Nuclear Weapons Over Nuclear Security

The FY 2015 budget request proposes to increase NNSA's weapons activities by $534 million, while cutting its nonproliferation programs by $399 million. In Congressional testimony, when asked about the nonproliferation reductions, Secretary of Energy Ernest Moniz repeatedly referred to the need for funding the weapons stockpile, and said that as a result, the administration had to make "tough choices."[14] Specifically referring to the cuts in funding for "nuclear security," he said "we must meet our commitments to the Department of Defense."[15] (In 2010, DOD agreed to provide over $5 billion over five years to help fund DOE's nuclear weapons programs, and DOE made a number of commitments to DOD in return.[16])

The 2013 Bipartisan Budget Act placed strict limits on DOE spending, and on the combination of DOD and NNSA spending. If the NNSA weapons program needed more, the only place DOE could realistically take it from was NNSA's nonproliferation account. Indeed, briefing materials for Congress on the FY 2015 nonproliferation budget request explain that the entire nonproliferation program had to be cut "due to the need to fund higher NNSA priorities."[17] The three major programs in NNSA's budget are nonproliferation, nuclear weapons, and naval reactors (which also saw a budget increase in its FY 2015 request); what this briefing says, in effect, is that the weapons program and naval rectors are higher priorities for the administration than DOE's nonproliferation programs. Senator Dianne Feinstein (D-CA), chairman of the Senate Energy and Water Appropriations Subcommittee, summed up the situation while questioning Secretary Moniz: "What I see are additional cuts to well-managed programs that have made this country safer from nuclear terrorism at the expense of increased funding for poorly-managed nuclear weapons programs."[18]

Even in the administration's dream budget request for funding above Congressional budget caps —dubbed the "Opportunity, Growth, and Security Initiative"—the administration

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[14] Testimony to the U.S. Senate, Subcommittee on Energy and Water Appropriations, April 9, 2014, quoted in Kenneth Fletcher, "Sen. Feinstein Opposing Weapons Budget Boost, Cuts to Nonprolif. and Cleanup," *Nuclear Security & Deterrence Monitor,* Vol. 18, No. 15, April 11, 2014, http://hovist.com/PDFs/Nuclear-vol-18-no-15.pdf (accessed May 31, 2014).

[15] Testimony to the U.S. House of Representatives, Subcommittee on Energy and Water Appropriations, April 2, 2014, quoted in Nickolas Roth, "Select Quotes on Nuclear Security Funding from Congressional Hearings," *Nuclear Security Matters*, May 12, 2014, http://nuclearsecuritymatters.belfercenter.org/blog/select-quotes-nuclear-security-funding-congressional-hearings (accessed June 1, 2014). Reportedly, as the budget was being prepared, DOD complained that DOE was not adequately funding weapons programs. By one account, Secretary Moniz attempted to protect the nonproliferation programs but was overruled by Sylvia Mathews Burwell, then-Director of the White House Office of Management and Budget, and Elizabeth Sherwood-Randall, President Obama's coordinator for Defense Policy, Countering Weapons of Mass Destruction, and Arms Control. See David Culp, "Republicans Budget More for Nonproliferation than Obama," *Bulletin of the Atomic Scientists,* May 22, 2014, http://thebulletin.org/republicans-budget-more-nonproliferation-obama7179 (accessed June 1, 2014).

[16] For an analysis of the DOD-DOE agreement and a link to the original document, see Stephen Young, "DOD Agreement Sheds Light on NNSA Problems," *All Things Nuclear,* August 20, 2012, http://allthingsnuclear.org/dod-doe-agreement/ (accessed May 26, 2014).

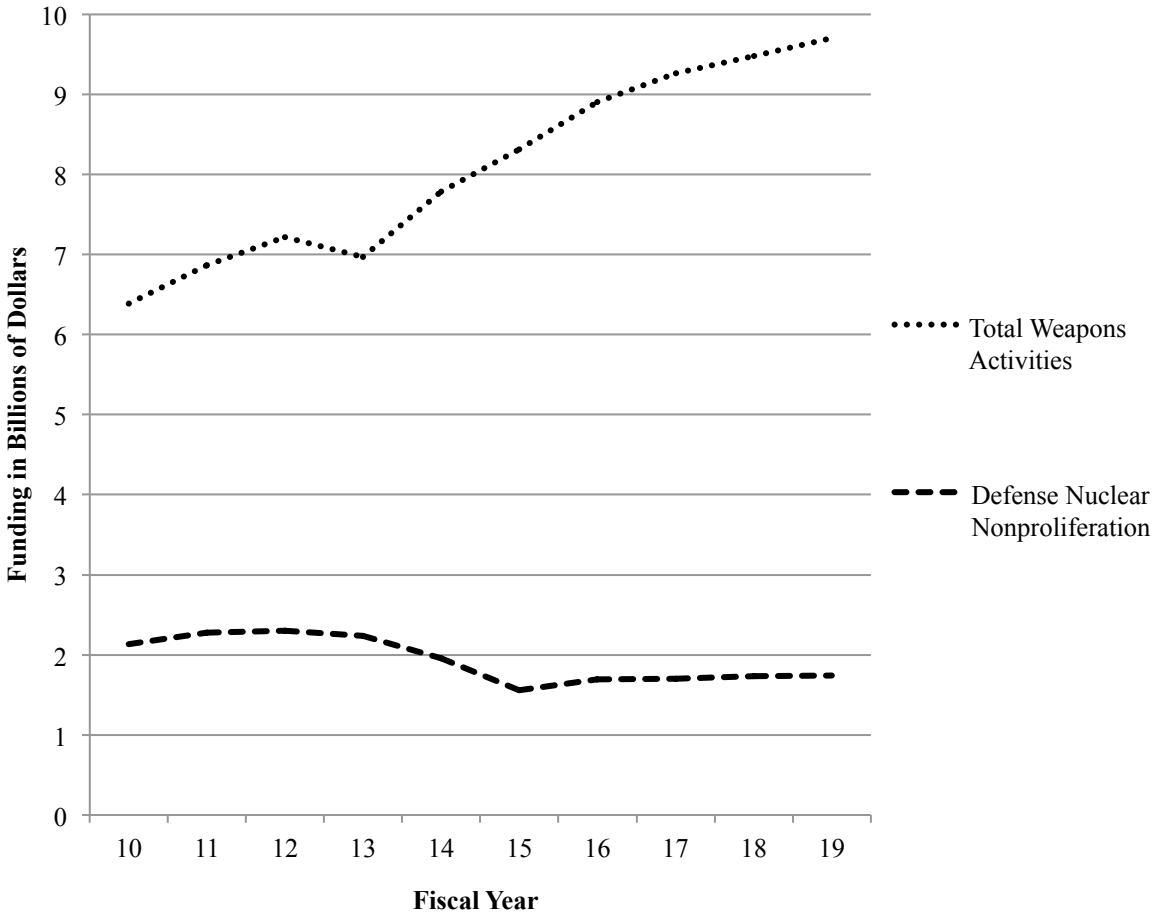
[17] Briefing material provided by NNSA to the Congress, received by the authors April 2014.

[18] Remarks at hearing of the U.S. Senate, *Subcommittee on Energy and Water Appropriations*, April 9, 2014, quoted in Roth, "Select Quotes."

envisioned another $500 million for nuclear weapons programs and only $96 million more for nonproliferation.[19]

In future years, there will likely be increased pressure to prioritize nuclear weapons programs, especially if budget caps remain in place. As Figure 1 illustrates, NNSA's budget for weapons activities has gone up and up in recent years while nonproliferation was declining, and is slated to continue to rise, while nonproliferation is expected to remain roughly flat. All told, DOE plans to spend more than $45 billion on weapons activities over the next five years.[20]

Figure 1: Department of Energy Weapons & Nonproliferation Appropriations FY 2010–FY 2014 and FY 2015 Projections



All lines are the sum of the budgets for GTRI, IMPC, and the International Nuclear Security-program. Data are drawn from NNSA budget justifications, FY 2011−FY 2015.

[19] See Secretary of Energy Ernest Moniz, "Department of Energy FY 2015 Budget Request Overview," March 4, 2014, http://www.slideshare.net/energy/fy-2015-budget-rollout-secretary-moniz-presentation-to-press-and-stakeholders (accessed June 2, 2014).

[20] U.S. Department of Energy, *FY 2015 NNSA Budget Request*, p. 3.

IV. The FY 2015 Nuclear Security Budget: Slowing Progress

Clearly, the FY 2015 nuclear security budget requests represent substantial reductions from previous years. Some administration officials have argued that these reductions merely reflect the fact that the major nuclear security projects of the four-year effort are done, and less funding is therefore needed. As the DOE budget justifications put it, in describing the reasons for some of the reductions, "the Four Year Initiative to lead an effort to secure the most vulnerable nuclear material by the end of 2013 was successfully completed."[21]

But are the reductions simply a matter of major projects being completed? Are the FY 2015 requested budgets, though reduced, still enough to do the nuclear security work that it is desirable and possible to do? We believe the answer is no. Several lines of evidence suggest that the administration's budget proposal, if accepted, would slow progress in protecting weapons-usable nuclear and radiological materials around the world—an unwise choice, given the continuing nuclear terrorism threat.[22]

Administration Statements Acknowledging Delays and Increased Risk

First, administration officials themselves acknowledge that the budget cuts are constraining what these programs can do. Secretary Moniz lamented the cuts to nonproliferation programs and said "we hope that the resources…will in the future allow us to accelerate [nuclear security programs]."[23] In other words, more resources would allow an acceleration. Similarly, Andrew Weber, Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs, when asked if there were "priorities or goals that are being deferred or scrapped because of the budget cuts," replied: "We are accepting some risk."[24] Anne Harrington, NNSA Deputy Administrator for Defense Nuclear Nonproliferation, when faced with a similar question, argued that the amount of needed nonproliferation work worldwide was "almost infinite," and acknowledged that "of course, there is" work that is being halted or delayed by budget cuts, though she argued that the highest priorities were funded.[25]

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[21] U.S. Department of Energy, *FY 2015 NNSA Budget Request*, p. 452.

[22] Tobey and Zolotarev, *The Nuclear Terrorism Threat.*

[23] Testimony to the U.S. Senate, Subcommittee on Energy and Water Appropriations, April 9, 2014, quoted in Fletcher, "Sen. Feinstein Opposing Weapons Budget Boost, Cuts to Nonprolif. and Cleanup."

[24] Testimony to the U.S. House, House Armed Services Subcommittee on Intelligence, April 8, 2014, quoted in Nickolas Roth, "Select Quotes on Nuclear Security Funding from Congressional Hearings," *Nuclear Security Matters*, May 12, 2014, http://nuclearsecuritymatters.belfercenter.org/blog/select-quotes-nuclear-security-funding-congressional-hearings (accessed May 26, 2014).

[25] Testimony to the U.S. House of Representatives, Subcommittee on Energy and Water Appropriations, April 3, 2014, quoted in Roth, "Select Quotes."

Specific Nuclear Security Work to be Postponed

Second, the administration's own description of the FY 2015 budget—in the budget justifications and in material provided to Congress—identifies multiple areas where important nuclear security projects would be delayed if the budget cuts are approved.[26]

- **Delayed security upgrades for weapons-usable nuclear material.** The administration's budget proposal would mean that projects to upgrade the entry controls at one major bulk processing area and strengthen the perimeter fence and intrusion detection at another major nuclear weapons complex site in Russia would be delayed until FY 2016 or later.[27] Support for improving material control and accounting at Russian bulk processing facilities would be reduced "to fund higher NNSA priorities"—a remarkable statement, given that high-quality material control and accounting at bulk processing facilities is one of the most important protections against insider theft, and nearly all of the known thefts of HEU and plutonium to date appear likely to have been insider thefts from bulk processing facilities.[28] Projects to modernize the nuclear security systems at four major Russian civilian facilities with weapons-usable material would also be put off, as would: initiatives to characterize and dispose of old nuclear material at two other sites; secure communications for guard forces at two sites; a nuclear security training center of excellence for Rosatom; training for guard forces; and a broader nuclear security education effort. Undertaking these efforts in FY 2015 would require almost $20 million beyond the administration's budget request.[29] Remarkably, under the proposed budget, efforts to strengthen security culture around the world would also be reduced—even though, as Gen. Eugene Habiger, U.S. Air Force (ret.), former "security czar" at DOE, once put it, "good security is 20 percent equipment and 80 percent culture."[30]

- **Scaled-back cooperation with China and India.** Under the proposed budget, the planned U.S. contribution to the nuclear security training center being established in China—the key focus for cooperation that gives the United States insight into and influence over nuclear security in the world's fastest-growing nuclear energy program—would be cut by 80 percent.[31] Cooperation with India on its center of excellence—the first substantial steps in nuclear security cooperation after more than a decade of effort to talk India into working together—would be reduced.[32] Restoring the cutback in the Chinese effort alone would require $4 million in additional funding.

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[26] For a useful simple table of the proposed budget cuts and their impacts, see Kingston Reif, "FY 2015 Budget Request for Nuclear and Radiological Material Security and Nonproliferation Programs" (Washington, D.C.: Center for Arms Control and Non-Proliferation, April 2014), http://armscontrolcenter.org/assets/pdfs/FY15NonproPrograms.pdf (accessed May 31, 2014).

[27] Material provided by NNSA to Congress on the FY 2015 budget request, received by the authors May 2014.

[28] U.S. Department of Energy, *FY 2015 NNSA Budget Request,* p. 513.

[29] Material provided by NNSA to Congress on the FY 2015 budget request, received by the authors May 2014.

[30] For the culture reduction, see U.S. Department of Energy, *FY 2015 NNSA Budget Request,* p. 513. Habiger statement is from interview with Bunn, April 2003.

[31] Material provided by NNSA to Congress. A U.S. contribution previously planned for $5 million would be reduced to $1 million.

[32] U.S. Department of Energy, *FY 2015 NNSA Budget Request,* p. 509.

- **Postponed removals of potentially vulnerable nuclear material.** As discussed in detail below, the Obama administration decided to reject a plan that called for removing much more nuclear material in 2014−2016 than it now proposes to do. Publicly available information does not provide specifics on how much of the reduction in ambition was driven by budget cuts; much of the shift appears to have resulted from reduced expectations of which stocks other countries would agree to eliminate. DOE's budget justifications indicate that some nuclear material removal work "is deferred to future years." GTRI only plans to address 125 kilograms of nuclear material in FY 2015, the smallest quantity in GTRI's history (roughly a quarter of the average rate over GTRI's first decade). Overall, funding for nuclear material removal would be slashed almost in half in the FY 2015 request.[33]

- **Slowed HEU reactor conversions.** GTRI's goal of helping to convert or shut down 200 research reactors fueled with HEU, now nearly fifty percent complete, would slip five years—from 2030 to 2035—having already slipped ten years, from 2020 to 2030.[34] That is 15 more years that weapons-usable nuclear material will continue to be used—often in inadequately protected facilities. Much of this delay is the result of delays in developing high-density fuels and predicted difficulties in getting full cooperation from Russia, where many of the most dangerous research reactors are located. But some is from budget cuts as well. The budget justifications note specifically that some of the previously planned work on HEU reactor conversions will be "deferred to future years."[35]

- **Delayed radiological material removals.** Under the proposed budget, both domestic and international recoveries of dangerous unwanted radiological sources would continue, but on the international side, as a result of budget cuts, "some removals have been deferred to future years."[36]

- **Slowed pace for radiological material security implementation.** Budget cuts last year delayed NNSA's target for finishing security upgrades at 8,500 facilities around the world with dangerous radiological sources by 20 years, to 2044.[37] Because of budget constraints and concerns over issues such as whether U.S. taxpayers should be paying for security upgrades to such a large number of buildings with radiological material all over the world, NNSA is undertaking a review of this whole effort, "examining current inventory, scoping,

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[33] U.S. Department of Energy, *FY 2015 NNSA Budget Request,* pp. 456, 449. Funding for the combination of U.S.-origin nuclear material removal, Russian-origin nuclear material removal, and removal of nuclear material not covered by other threat reduction programs (also called "gap material") was $115 million in FY 2014; the request for FY 2015 is $58 million.

[34] U.S. Department of Energy, *FY 2015 NNSA Budget Request,* p. 462. The previous 2030 figure can be found in U.S. Department of Energy, *FY 2014 Congressional Budget Request: National Nuclear Security Administration*, Vol. 1, DOE/CF-0084 (Washington, D.C.: DOE, April, 2013), http://energy.gov/sites/prod/files/2013/04/f0/Volume1.pdf (accessed May 4, 2013), p. DN−22. The earlier 2020 figure is in U.S. Department of Energy, *FY 2011 Congressional Budget Request: National Nuclear Security Administration*, Vol. 1, DOE/CF-0047 (Washington, D.C.: DOE, February, 2010), http://energywww.mbe.doe.gov/sites/prod/files/FY11Volume1budget/11budget/Content/Volume%201.pdf (accessed June 28, 2012), p. 439.

[35] U.S. Department of Energy, *FY 2015 NNSA Budget Request,* p. 452.

[36] U.S. Department of Energy, *FY 2015 NNSA Budget Request,* p. 457.

[37] U.S. Department of Energy, *FY 2015 NNSA Budget Request,* pp. DN−22.

budgeting and project planning processes." One of the issues being debated is the substantial gap between the security measures Nuclear Regulatory Commission (NRC) rules require and those NNSA experts believe are needed. In essence, in the program so far, NNSA has been using taxpayer funds to help licensees implement security measures well beyond what the NRC requires. Some are skeptical that this makes sense at a scale of thousands of buildings. DOE reports this year that the "previous end date of 2044 is now TBD," but the budget justifications assert that the resulting new approach will "decrease the program's completion timeline," and that use of prior-year balances will "prevent any negative schedule impact" of current budget reductions. There is reason to doubt the assertion that there will be no further delays resulting from the budget proposal. NNSA plans to upgrade security for only 105 buildings with radiological material in FY 2015, bringing the cumulative total to 1,890 buildings.[38] *At that rate, it would take until after 2074 to reach the 8,500-building goal.* There certainly appears to be good reason for a review—but there also appears to be good reason for increasing the budget for this effort.

- **Deferred radiation detector installations.** The proposed budget cuts, if approved, would mean postponing installation of radiation detection systems to catch nuclear smuggling at 10 sites in Belarus, Kazakhstan, and Ukraine.[39] These installations help protect a large existing U.S. taxpayer investment. Russia and the United States cooperated to install radiation detectors at all of Russia's official border crossings, but Russia then entered into a customs union with Belarus and Kazakhstan, eliminating checks at Russia's borders with those countries. Installations in Belarus and Kazakhstan are, in effect, plugging the hole in the ring created by the customs union.

In short, a wide range of projects to improve nuclear security and counter nuclear smuggling are being slowed by budget reductions. Many of the proposed cutbacks are not the result of projects under the four-year effort being completed, but instead result in real and significant cuts to important ongoing nuclear security programs.

Reductions From What Nuclear Security Programs Projected They Would Need

It is difficult for independent analysts outside the government, with little internal government information, to assess how much these programs really need to accomplish their missions. One source of evidence can be found in programs' previous estimates of what they would need in FY 2015.

Budgets for NNSA's nuclear security programs are now far below what the Obama administration projected they would be a few years ago. In FY 2011, the United States planned to spend more than $1.1 billion dollars on nuclear security cooperation in FY 2015;[40] in FY 2012 the amount the U.S. planned to spend in FY 2015 had been reduced by 22 percent, to $871 million;

[38] U.S. Department of Energy, *FY 2015 NNSA Budget Request,* p. 460.

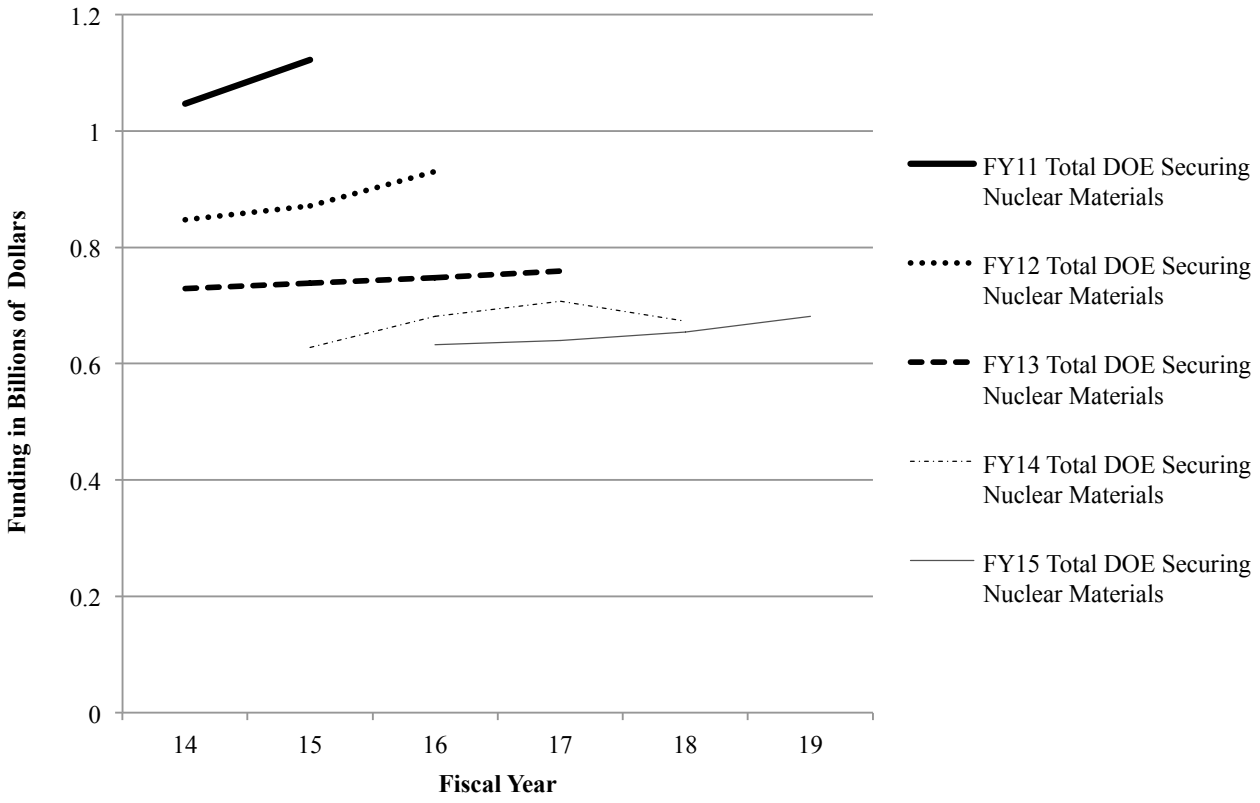
[39] Material provided by NNSA to the Congress.

[40] Based on outyear projections and independent estimates for DOE programs to secure nuclear materials that appear in U.S. Department of Energy, *FY 2011 NNSA Budget.*

in FY 2013, that number declined by another 15 percent, to $738 million;[41] in FY 2014, the projected NNSA nuclear security budgets went down by another 15 percent, to $628 million;[42] and the actual request for FY 2015 is 15 percent lower still, at $534 million—less than half what was projected in FY 2011. Rather than over a billion dollars a year and rising, NNSA nuclear security spending is now projected to remain largely flat between $600 million and $700 million annually. Figure 2 summarizes this ongoing decline in expectations for nuclear security funding.

Nothing has gotten any cheaper since these earlier projections were made. Indeed, since these programs have had less money available each year than previously projected, if anything the

Figure 2: FY 2011–FY 2015 Outyear Funding Projections for Department of Energy International Security Programs



All lines are the sum of the budgets for GTRI, IMPC, and the International Nuclear Security program. Data are drawn from NNSA budget justifications, FY 2011−FY 2015.

[41] Based on outyear projections and independent estimates for DOE programs for DOE programs to secure nuclear materials that appear in U.S. Department of Energy, *FY 2012 Congressional Budget Request: National Nuclear Security Administration,* Vol. 1, DOE/CF-0057 (Washington, D.C.: DOE, February, 2011), http://www.mbe.doe.gov/budget/12budget/Content/Volume1.pdf (accessed May, 4 2012).

[42] Based on independent estimates and outyear projections for DOE programs to secure nuclear materials that appear in U.S. Department of Energy, *FY 2013 Congressional Budget Request: National Nuclear Security Administration*, Vol. 1, DOE/CF-0071 (Washington, D.C.: DOE, February, 2012), http://energy.gov/sites/prod/files/FY13Volume1.pdf (accessed May 4, 2013).

A Faster Nuclear Security Plan Rejected

In May 2013, as the four-year effort to secure nuclear materials around the world was coming to an end, the GTRI team proposed a plan that would have helped to sustain momentum on nuclear security through 2016, when another nuclear security summit is scheduled.[1] The Obama administration instead rejected GTRI's proposed plan in favor of the less ambitious nuclear security agenda described in the FY 2015 budget.

The GTRI proposal called for removing 1,500 kilograms of additional HEU and plutonium from vulnerable sites around the world by 2016, cleaning out all the weapons-usable material from eight more countries in the process. (Thirteen countries eliminated all their HEU or plutonium during between 2009 and 2013.[2]) By contrast, the plan ultimately included in the administration's FY 2015 budget proposal would address less than 700 kilograms of additional material by 2016, cutting GTRI's proposal by half, and does not specify any particular countries that would be cleaned out entirely.[3] This scaled-back proposal would still be over 250 kilograms short of the previous plan by 2019;[4] it would, in short, do substantially less over a period more than twice as long.

Nor are the HEU and plutonium removals the only goals the Obama administration scaled back. GTRI's plan called, by 2016, for accounting for all the civilian plutonium stocks around the world, ending the relentless growth in the stocks of this dangerous material—which has now reached the point that the civilian stockpiles of this potential bomb material are now bigger than the stocks in all the world's weapons arsenals combined—and finding acceptable pathways for using or disposing of the existing stocks.

[1] Internal DOE document, May 2013, provided to the authors by multiple sources.

[2] GTRI often notes that it helped 12 countries eliminate all of their HEU. In addition, Sweden, which had eliminated all of its HEU previously, eliminated a small stock of plutonium. See discussion in Bunn et al., *Advancing Nuclear Security,* p. 31, footnote 90.

[3] NNSA currently envisions removing 5,593 kilograms of HEU and plutonium by 2016; see U.S. Department of Energy, *FY 2015 NNSA Budget Request*, p. 462. When the May 2013 plan was prepared, 4,900 kilograms of material had already been removed; hence, the current target would increase that figure by almost 700 kilograms by 2016. By contrast, the May 2013 plan envisioned removing 1,500 kilograms by 2016 (1,100 kilograms of HEU and 400 kilograms of plutonium).

[4] The goal for 2019 is 6,142 kilograms U.S. Department of Energy, *FY 2015 NNSA Budget Request,* p. 462. This compares to 6,400 kilograms by 2016 in the May 2013 plan.

amount of remaining work today is presumably *higher* than was expected when those projections were made in FY 2011−FY 2014. Nuclear security programs are making do with hundreds of millions of dollars a year less than what they planned to have only a few years ago.

It is difficult to see how repeated and large-scale reductions from the funding these programs had previously expected could have been accommodated without slowing and shrinking nuclear security efforts. At a minimum, it seems very likely that a more appropriate nuclear security budget would be in the range of $100 million higher than the Obama administration's FY 2015 budget request, as the Obama administration projected nuclear security funding would be only one year ago.

A Faster Nuclear Security Plan Rejected (Cont.)

No such goals are mentioned in the administration's budget proposal. GTRI hoped to finish security upgrades for 450 more buildings with dangerous radiological sources by 2016; the administration's budget proposal would scale that back by about 10 percent, and as noted above, it effectively abandons past efforts to set a target for when this work would be completed, saying a new review is needed.[5] Table 4 summarizes the differences in the goals proposed in the rejected plan and the goals the administration currently proposes.

The GTRI plan may not have been rejected to save money – others in the administration may have doubted that other countries would agree to the initiatives GTRI envisioned. For example, it appears that most of the reduction in planned material removals comes from assuming that South Africa and Belarus will not ship out their stockpiles of HEU in the near term—something the United States has been attempting to negotiate with those countries for years, so far without success. But administration officials confirm that if agreements with these countries could be reached, there would not be enough money in the requested budget to carry out those removals—or, more broadly, to implement the accelerated effort GTRI proposed.[6] Should one of these countries agree to U.S. removal proposals, the administration would have to scramble to pull money from other accounts.

Table 4: Goals in the Rejected Plan and the Current Plan

Category of Work	Rejected Plan	Current Plan
Removing HEU and Plutonium	1,500 kg by 2016	<700 kg by 2016 <1,250 kg by 2019
Countries Cleaned Out	8 by 2016	None specified
Accounting for Civilian Plutonium	By 2016	Not included
Ending Increase in Civilian Plutonium	By 2016	Not included
Upgrading Sec. for Bldgs. w/ Rad. Sources	450 by 2016	~410 by 2016

[5] U.S. Department of Energy, FY *2015 NNSA Budget Request,* p. 462.

[6] Interviews with NNSA officials, May 2014.

V. The FY 2015 Request: Continuing a Trend of Nuclear Security Budget Reductions

The proposed nuclear security budget cuts for FY 2015 are the continuation of a years-long trend of ongoing reductions. The Obama administration boosted nuclear security spending in FY 2011, but has been cutting these budgets ever since. These reductions have taken place in the midst of fierce budget battles that have forced the administration to look throughout the federal budget for places to cut, delayed budget legislation, and forced program managers to plan month-to-month under repeated continuing resolutions and threats of government shutdowns. This situation has undermined the effectiveness of programs like GTRI which require careful, long lead-time planning for nuclear materials shipments and international cooperation.

Figure 3 shows the history of requests and resulting allocations for nuclear security programs in the Obama administration. In FY 2009, after having doubled funding in the period since the 9/11 attacks, the George W. Bush administration proposed a very modest nuclear security request,

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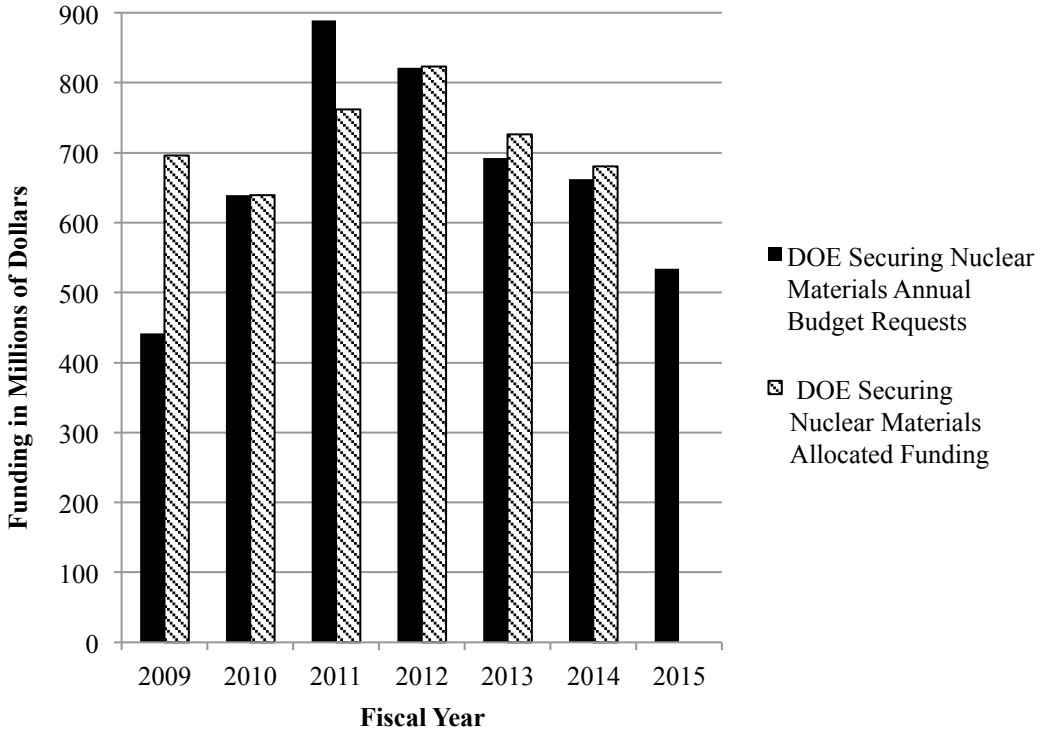
Figure 3: Requested and Allocated Funding for U.S. Department of Energy International Nuclear Security Programs



Reflects actual spending through FY 2013 and enacted spending in FY 2014. The figure refers to the funding allocated to these programs, not to the appropriated amounts. Allocated funding differs from the amount of money appropriated by Congress because the executive branch shifts money among programs after appropriations bills are approved. Data are drawn from NNSA budget justifications, FY 2009–FY 2015.

which Congress increased dramatically. The first Obama administration budget (largely prepared by the Bush administration), for FY 2010, went along with most but not all of this Congressional increase, proposing a modest cut compared to the previous year's funding, and Congress approved the full request. In its FY 2011 budget request, the Obama administration proposed a substantial increase to fund the four-year effort, and Congress approved most but not all of that increase. In its FY 2012 budget request, the Obama administration asked for less money than it had the previous year, but moderately more than what was appropriated, and Congress approved essentially the full FY 2012 request. For FY 2013, the Obama administration proposed a substantial cutback in nuclear security programs. As a result of political gridlock, Congress passed a Continuing Resolution for FY 2013. In the end, funding was set for FY 2013 at a marginally higher level than originally requested. In FY 2014, the Obama administration again proposed a substantial cut from the previous year's appropriation, and this time Congress largely went along. In FY 2015, the Obama administration is proposing a still deeper cut in nuclear security programs. The rest of this section describes this history in somewhat more detail.

The Obama Administration's Nuclear Security Budgets

First Year: Inaction. When President Obama took office in January 2009, the Bush administration had already drafted tentative budget proposals for FY 2010, and, in the case of nuclear security programs, it appears the Obama administration made few changes to those proposals. Faced with a severe economic crisis, President Obama focused on a domestic stimulus package amounting to hundreds of billions of dollars—which did not include a penny for NNSA.[43] President Obama's Prague speech did not come until well after the FY 2010 budget proposal was released, and little new funding for nuclear security was included in the FY 2010 budget.[44] The administration actually proposed cutting funding for GTRI from the high figure Congress had granted in FY 2009, while also modestly reducing IMPC. After the Prague speech established the goal of securing all vulnerable nuclear material worldwide within four years, the administration could have put forward a supplemental request to fund an accelerated nuclear security effort, but chose not to. The House Armed Services Committee (HASC), noting that an accelerated nuclear security effort would require more money, voted to add $403 million for nuclear security programs—but the administration did nothing to support the HASC initiative, no other committees went the same direction, and virtually none of the money the HASC proposed made it into the final appropriation.[45] Ironically, with a Democratic President committed to an expanded nuclear

[43] The Obama administration proposed adding nearly $1 billion for NNSA weapons activities – though nothing for nonproliferation—but Congress ultimately removed the weapons money in the final version of the stimulus bill. See Frank Munger, "Stimulus: Good news for DOE EM, bad news for NNSA," *Atomic City Underground*, February 11, 2009, http://blogs.knoxnews.com/munger/2009/02/stimulus_good_news_for_doe_em.html (accessed June 6, 2014).

[44] This funding approach was sharply criticized at the time. See Partnership for Global Security, "Obama Budget Undercuts US Leadership to Prevent Nuclear Terrorism: FY14 Budget Request Cuts Key Nuclear Security Programs" (Washington, D.C.: Partnership for Global Security, April 11, 2013), http://pgstest.files.wordpress.com/2013/04/pgsfy14budgetanalysis_april112013.pdf (accessed June 6, 2014). For a detailed description of the Partnership's recommendations from that period, see Kenneth N. Luongo, "Loose Nukes in New Neighborhoods: The Next Generation of Proliferation Prevention," *Arms Control Today*, May 2009, http://www.armscontrol.org/act/2009_5/Luongo (accessed June 6, 2014).

[45] See the account of this episode in Matthew Bunn, *Securing the Bomb 2010: Securing all Nuclear Materials in Four Years* (Cambridge, Mass.: Project on Managing the Atom, Harvard University, and Nuclear Threat Initiative 2010), http://www.nti.org/securingthebomb (accessed May 31, 2012), pp. 82−83.

security effort backed by a Democratic Congress, GTRI found itself suffering its first-ever budget cut, a reduction of over $71 million from spending in FY 2009.[46] Since the 2011 fiscal year was not slated to begin until October of 2010, this meant nuclear security would have no new funding for the first year and a half of the four-year effort.

Second Year: Funding Boost. The next year, in its FY 2011 request, the Obama administration asked for a substantial increase in funding for GTRI and a modest increase for IMPC.[47] But in a bitterly contested mid-term election year, Congress was unable to pass a budget until April of 2011, leaving the nuclear security programs with no increase in funding—and enormous management difficulties stemming from working under the uncertainty of repeated continuing resolutions—until two years into the four-year effort. In the end, GTRI received roughly half the spending increase the Obama administration had sought, and IMPC also received only a portion of the requested increase.

Third Year: Slashing Radiological Removals, Modest Changes Elsewhere. In FY 2012, the Obama administration proposed cutting efforts to remove dangerous radiological sources from vulnerable sites abroad by more than half, and proposed modest decreases in both GTRI and IMPC budgets (compared to what it anticipated FY 2011 funding would end up being), consistent with completion of some key projects.[48] The FY 2012 budget was prepared in the midst of a sharp debate during 2010 over whether the budgets for NNSA's nuclear weapons complex were adequate. In the course of ratification of the New START treaty in late 2010, the Obama administration pledged to commit more than $80 billion over ten years to the nuclear weapons complex—and also in that year, as noted earlier, DOD agreed to transfer over $5 billion from its budget to DOE to support the weapons program and naval reactors. These events created intense pressure on DOE to provide robust funding for the weapons program. In an environment of constrained overall budgets, this inevitably put the nonproliferation programs under pressure. In the end, the FY 2011 nuclear security budgets Congress approved were smaller than the Obama administration had envisioned, so the FY 2012 nuclear security appropriation ended up being a modest increase over FY 2011.[49]

Fourth Year: Slashing Second Line of Defense, Cutting Other Programs. The Obama administration prepared its budget proposal for FY 2013 in the midst of an intense clash with Congress over the federal budget. Despite the looming specter of across-the-board budget cuts—known as sequestration—the Obama administration's budget proposal for FY 2015 proposed increasing DOE's nuclear weapons budget by 5 percent from FY 2012, while cutting nuclear security programs by nearly 16 percent. In particular, the Obama administration proposed

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[46] Congress appropriated $333.5 million for GTRI in FY 2010, compared to FY 2009 spending of $404.6 million, a cut of over $71 million. U.S. Department of Energy, *FY 2011 NNSA Budget,* p. 435. While a significant part of the reduction in the request arose from the fact that GTRI's efforts to move the BN-350 fuel in Kazakhstan were coming to an end and no longer required funding, the request also reduced funding for HEU reactor conversions, for Russian research reactor fuel return, and for U.S. research reactor fuel return, all of which would have needed additional funds to meet an accelerated schedule.

[47] U.S. Department of Energy, *FY 2011 NNSA Budget Request,* p. 14.

[48] U.S. Department of Energy, *FY 2012 NNSA Budget Request*, pp. 357, 421.

[49] U.S. Department of Energy, *FY 2012 NNSA Budget Request*, pp. 405, 463.

The Need for Continuing Nuclear Security Cooperation with Russia

The crisis in Ukraine has provoked new tensions between the United States and Russia. Russia's annexation of Crimea and its actions to destabilize Eastern Ukraine are unacceptable and require a firm U.S. and international response. But cutting off cooperation on nuclear security, as some have proposed in the FY 2015 budget debate, would only undermine U.S. security interests.

U.S. cooperation with Russia to improve nuclear security has always been an investment in U.S. security, not a favor to Russia. It is an investment in ensuring that nuclear weapons and their essential ingredients do not fall into the hands of terrorists. And there is still work to be done—to correct remaining weaknesses in nuclear security systems in Russia and to protect the U.S. taxpayer investment already made, by ensuring that the improved nuclear security systems that have been put in place are operated effectively and sustained for the long haul.

Over the past two decades, U.S.-Russian nuclear security cooperation has been remarkably effective, transforming the nuclear security picture in Russia. The most egregious weaknesses of the 1990s – gaping holes in fences, poorly paid guards leaving their posts to forage in the forest for food, lack of any detector to set off an alarm if someone carried bomb material out the door – have been fixed. The risks these stockpiles posed to U.S., Russian, and world security have been greatly reduced. But important vulnerabilities remain that a more sophisticated conspiracy might be able to exploit to steal nuclear material. Protections against insider theft still need improvement; accounting for nuclear material is still not up to the job of detecting repeated small thefts of nuclear material over time; nuclear security and accounting regulations are still not as strong as they should be; many sites still rely primarily on protection by poorly paid and trained conscripts; security culture is still weak at some sites; and some sites do not have the resources to sustain their nuclear security systems. And serious threats remain in Russia, particularly from insider theft and corruption. In 2012, for example, the director and two of the deputy directors of one of Russia's largest plutonium and HEU processing facilities were arrested for corruption on a scale of millions of dollars (not involving nuclear material, thankfully).[1] To address these and other issues, as of the summer of 2014 cooperation was still underway, despite criticisms in both Washington and Moscow; for FY 2015, NNSA requested just over $100 million for nonproliferation programs in Russia, primarily targeted on improving nuclear security.[2] Work with Russia is now a smaller part of the overall nuclear security budget than ever before.

Ultimately, Russia should take full responsibility for paying the costs of providing and sustaining effective nuclear security for all of its stocks of nuclear weapons and materials. Today, however, the Russian government is not yet making some investments the U.S. government believes are crucial to ensuring that nuclear materials are fully protected. For now, if these investments are going to get made, the United States is going to have to make them—while working to convince Russia to expand its own funding. Continued cooperation—including visits to Russian nuclear sites—gives the United States crucial insights into how the large U.S. taxpayer investment in Russian nuclear security is being sustained, and a crucial ability to influence that outcome.

[1] Bunn et al., *Advancing Nuclear Security*, pp. 24−28.

[2] Testimony to the U.S. House of Representatives, Subcommittee on Energy and Water Appropriations, April 3, 2014, quoted in Nickolas Roth, "Select Quotes on Nuclear Security Funding from Congressional Hearings," *Nuclear Security Matters,* May 12, 2014, http://nuclearsecuritymatters.belfercenter.org/blog/select-quotes-nuclear-security-funding-congressional-hearings (accessed June 26, 2014).

The Need for Continuing Nuclear Security Cooperation with Russia (cont.)

Even in the absence of the Ukraine crisis, however, U.S.-Russian nuclear security cooperation would be in a period of change. The phase of work focused on major installations of equipment is almost complete. Moreover, the Russian government has shown a desire to cut back on the scope and depth of cooperation with the United States. Future cooperation should focus on further improvements where those are still necessary; ensuring sustainability; consolidating nuclear weapons and materials to fewer locations; exchanges of best practices in nuclear security; strengthening nuclear security culture; and working together to help improve nuclear security in other countries.

The United States and Russia have the world's largest stockpiles of nuclear weapons and weapons-usable nuclear materials, and more experience in coping with the challenges of securing and accounting for these stocks than any other countries in the world. They bear a special responsibility for nuclear security, as the presidents of both countries have repeatedly recognized.

Achieving and sustaining effective nuclear security in both countries and around the world is not a job that can be done by a particular deadline and then ignored; it is a job that requires constant vigilance for as long as these stockpiles continue to exist. Both Russia and the United States have a vital interest in making sure that the other country does this job well – and both can learn from the other's experience. To the extent political relations permit, a wide range of nuclear security cooperation should continue into the indefinite future, ranging from workshops to discuss how to address particular nuclear security issues to peer reviews of each other's nuclear security arrangements to joint R&D to develop cheaper and more effective approaches to securing nuclear stockpiles.

During the Cold War, the United States and the Soviet Union worked together to build the global nuclear nonproliferation regime—seeing their common security interests even when they were locked in a global struggle against each other. Surely the United States and Russia in the 21st century should also be able to work together where their interests coincide, while engaging in competition where their interests conflict. An appropriate response to Russia's aggression in Ukraine should not include cutting off nuclear security cooperation.

slashing spending for NNSA's SLD program by two-thirds.[50] The SLD program was not directly part of the four-year effort, and a strategic review of the program's direction was justified given concerns in a number of quarters about scope, cost, and effectiveness of the effort, but such a drastic cut in a program operating in many countries when the United States was in the midst of a major effort to convince those same countries to take nuclear security seriously certainly sent conflicting signals.[51] (A strategic interagency-approved review of the SLD program scaled back its ambitions for installing fixed detectors around the world, shifting the focus to more emphasis on mobile detectors and a modest number of fixed installations in particular high-priority locations.)

[50] U.S. Department of Energy, *FY 2013 NNSA Budget Request,* p. 405.

[51] "Obama Administration Slashes Nuclear Security Funding: FY13 Budget Request for U.S. International WMD Security Programs" (Washington, D.C.: Partnership for Global Security, February 14, 2012), http://pgstest.files.wordpress.com/2013/05/budgets_obama-administration-slashes-nuclear-security-funding_2-14-2012_cann-and-della-ratta.pdf (accessed June 6, 2014).

The administration also proposed a further 60 percent cut in funding for removing radiological sources around the world, bringing it to just $8 million, compared to $20 million the year before, and slashing the number of dangerous radio-thermoelectric generators (RTGs) that would be removed from 34 the previous year to eight.[52] The administration argued for more modest cuts in IMPC and GTRI. While the administration justified these cuts based on projects being completed, both budget requests were significantly below what had been projected the previous year, and there is no reason to believe major cost savings had occurred from one year to the next.

In January 2013, several months into the 2013 fiscal year, with Congress not having passed budgets meeting the targets specified in the 2011 Budget Control Act, sequestration took effect, resulting in $85 billion in spending cuts throughout the federal government—which, coming well into the fiscal year, required even sharper cutbacks in the rate of spending for the rest of the year than would otherwise have been needed. The White House Office of Management and Budget calculated that defense programs throughout the government would be cut by 7.8 percent.[53] The final allocations for FY 2013 reflected two short term Continuing Resolutions passed by Congress plus the reductions caused by the sequester. In the end, the nuclear weapons program was reduced by three percent from its FY 2012 budget; by contrast, the final funding the administration allocated for NNSA's nonproliferation program was twelve percent less than in FY 2012.[54]

Fifth Year: Major Reductions. In its FY 2014 request, the administration proposed significant reductions in funding for both GTRI and IMPC, with an overall proposed cut in NNSA nuclear security spending of 9 percent.[55] The Obama administration argued that these reductions were justified because various activities related to the four-year effort had been completed—but these budgets were again significantly lower than what had been projected the previous year. At the same time, outyear funding projections for improving security for radiological sources were slashed so much that the program postponed the date at which it expected to finish security upgrades for the highest-priority sources by almost 20 years—to 2044.[56] With the costs of disposition of excess U.S. plutonium skyrocketing, the administration also cut funding for construction of a MOX fuel facility for that purpose and announced a review of alternatives.[57] All in all, the FY2014 budget request for GTRI was down $79 million from the program's peak in FY 2012, and the request for the IMPC nuclear security program was down $84 million from the program's peak in FY 2012.

Sixth Year: Further Major Reductions. As already discussed, for FY 2015, the Obama administration is again proposing major reductions in nuclear security programs and other DOE nonproliferation efforts. Despite President Obama's well-deserved reputation as an advocate for

[52] U.S. Department of Energy, *FY 2013 NNSA Budget Request,* pp. 472−473.

[53] *Office of Management and Budget Report to the Congress on the Joint Committee Sequestration for Fiscal Year 2013* (Washington, D.C., March 1, 2013), http://www.whitehouse.gov/sites/default/files/omb/assets/legislative_reports/fy13ombjcsequestrationreport.pdf (accessed June 5, 2014), p. 1.

[54] U.S. Department of Energy, *FY 2015 NNSA Budget Request*, p. 1.

[55] U.S. Department of Energy, *FY 2014 NNSA Budget Request,* pp. DN−19, DN−77. The nine percent figure is from the amounts ultimately allocated to these programs in FY 2013, which were not yet clear when the administration made its FY 2014 request.

[56] U.S. Department of Energy, *FY 2014 NNSA Budget Request,* p. DN−22.

[57] U.S. Department of Energy, *FY 2014 NNSA Budget Request,* pp.112−113.

nuclear security, the Obama administration has been cutting nuclear security programs year after year for most of its term in office.

An Unpredictable Budget Environment

The impact of these budget cuts was exacerbated by profound budget uncertainty that made it extraordinarily difficult for program managers to allocate resources effectively. In essence, for much of the Obama administration the Congress has failed to get its basic job of approving budgets for the federal government done in a timely and orderly way.

With the sequester in 2011 and the government shutdown in 2013, the past four years have been particularly turbulent for federal spending—though Congress had developed a habit of months-long "continuing resolutions" at the beginning of many fiscal years long before then.[58] For much of the four-year effort, the federal government was running on months-long or year-long continuing resolutions, creating major uncertainties and management headaches for those trying to manage large programs with little or no ability to make long-term commitments to contracts. These budget uncertainties have been particularly problematic for programs that work with international partners in securing nuclear material. Programs to convert reactors or remove HEU can take years to negotiate and coordinate; they involve engagement with foreign governments, regulators, the IAEA, and with U.S. governmental and non-governmental agencies. If the United States suddenly cannot fulfill its commitments because budgets for the year are not yet decided, this can have a serious and detrimental impact on cooperation. As just two examples, HEU removals in Vietnam and Hungary were each delayed by a year because of inadequate funding.[59] Overall, however, despite budget stringency, in most years Congress has provided nearly full funding of the administration's request for nuclear security and nonproliferation programs, demonstrating that these efforts have strong bipartisan support.

[58] A continuing resolution simply continues, for a set period of time, funding for most federal programs at the previous year's level, though often some particular programs are increased or decreased.

[59] Task Force on a Unified Security Budget, *Rebalancing Our National Security: The Benefits of Implementing a Unified Security Budget* (Washington, D.C.: Center for American Progress and Institute for Policy Studies, October 2012), http://www.americanprogress.org/wp-content/uploads/2012/10/UnifiedSecurityBudget.pdf (accessed June 3, 2014), p. 60.

VI. FY 2015 Action in Congress to Date

As of mid-July 2014, the relevant Congressional committees had largely completed their versions of the FY 2015 authorization and appropriations bills, but the House and Senate versions had not yet been reconciled in final legislation. Since the bipartisan budget deal of 2013 already determines overall spending levels for FY 2015, the probability of Congress reaching agreement on appropriations bills is higher than it has been in some recent years. But as 2014 is a mid-term election year, it remains possible that a continuing resolution or omnibus bill will be needed to fund some or all federal agencies.

Congressional action so far poses a mixed picture. Both houses of Congress, in the defense authorization bills, have voted to prohibit continued funding for nuclear security cooperation with Russia, though both would allow the administration to continue these efforts if it certified certain conditions were met. The House Armed Services Committee, in its defense authorization bill, proposed to cut all funding for nuclear security in Russia and for further installations of fixed radiation detectors in SLD, while increasing funding for other DOE nonproliferation programs (including an $80 million increase over the request for GTRI). In the net, DOE nonproliferation programs would receive $10 million more than the request under the House bill.

The Senate Armed Services Committee, by contrast, would add $285 million to the administration's DOE nonproliferation request, including a $40 million boost for GTRI and a $70 million increase for IMPC, targeted in part to increase installation of radiation detectors. The Senate authorization bill would also greatly increase funding for plutonium disposition, while the House bill would not.

Table 5: Congressional Budget Action on Department of Energy Nonproliferation Programs for FY 2015

Program	Request	Senate Armed Services	Housed Armed Services	House Energy and Water	Senate Energy and Water
GTRI	333	373	413	343	469
IMPC	305	375	129	233	356
Fissile Material Disposition	311	456	311	430	515
Nonproliferation and International Security	141	141	178	144	141
R and D	361	391	431	453	393
Total Defense Nuclear Nonproliferation	1,555	1,840	1,565	1,555	1,978

All figures in millions of dollars. Totals may not add due to rounding. Data are drawn from FY 2015 House and Senate authorization and appropriations bills.

The House Energy and Water Appropriations subcommittee proposed giving the administration exactly its total for nonproliferation, while cutting funds from IMPC work (including cuts in Russia work and Second Line of Defense, with those amounts distributed to other programs). See Table 5.

The Senate Energy and Water Appropriations subcommittee, in its draft bill, proposed a 27 percent increase for NNSA nonproliferation programs overall, with increases of over $130 million for GTRI and over $50 million for IMPC. Most of IMPC's proposed increase would go to the Second Line of Defense program, which would receive $32 million more than the administration's request. A dispute over EPA's carbon limits has so far prevented full committee action on the Senate energy and water appropriations bill, but the House and Senate should nonetheless be able to begin negotiating differences between their bills.

VII. Recommendations

Nuclear security is affordable, even in a time of budget stringency. Throughout the four-year effort, the budgets for nuclear security averaged less than two parts in a thousand of U.S. defense spending, for an effort to address what President Obama and President Bush before him identified as perhaps the single most critical threat to U.S. national security.[60] The issues laid out in this report lead us to a number of recommendations.

1. The U.S. government should not allow nuclear security progress to be slowed by lack of funds.

Given the immense consequences of a nuclear terrorist attack and the modest costs of nuclear security, the basic U.S. policy should be that no effort that shows promise of being able to make a significant and lasting reduction in the risk of nuclear terrorism will be delayed because money is not available to implement it. The Obama administration's FY 2015 budget request does not meet this standard—it would delay important initiatives to reduce the danger of nuclear terrorism. The ongoing shift toward less emphasis on installing equipment and more emphasis on convincing countries to take action themselves will mean lower spending levels in the future—but the reduction should not come at the pace and scale the Obama administration is currently proposing.

2. As a first step, Congress should restore at least $100 million of the cuts to nuclear security programs proposed in the FY 2015 budget request.

As noted above, in FY 2014, the administration projected that they would need almost $100 million more in FY 2015 than they have actually requested. As this report has described, approving the request would mean delaying a broad range of important nuclear security, radiological security, and counter-nuclear smuggling programs. We believe that avoiding those deferrals and delays would require reducing the scope of the proposed cut by at least $100 million, roughly evenly distributed between IMPC and GTRI. Within a $27.9 billion DOE budget, it should be possible to find $100 million in other savings to fund this increase while remaining within the budget caps.

3. Congress should also approve targeted increases in other nonproliferation programs.

We have not performed a detailed analysis of DOE's entire nonproliferation budget; still less have we examined all nonproliferation programs throughout the federal government. But even a cursory examination suggests that larger budgets would offer opportunities for faster progress toward key objectives such as strengthening to control dangerous technology exports and interdict illicit technology transfers around the world, or developing enhanced technologies for nuclear verification.[61]

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[60] For a graphical representation of how tiny these funds are, and a discussion of the modest likely costs of providing effective security for all nuclear weapons and materials worldwide, see Bunn, *Securing the Bomb 2010,* pp. 68−69.

[61] For a useful overview of needs in nuclear verification R&D area, see Defense Science Board, *Task Force Report: Assessment of Nuclear Monitoring and Verification Technologies* (Washington, D.C.: DOD, January 2014), http://www.fas.org/irp/agency/dod/dsb/monitoring.pdf (accessed June 5, 2014). For an account of the ongoing problem of illicit nuclear technology transfers, see David Albright et al., *Future World of Illicit Nuclear Trade* (Washington, D.C., Institute for Science and International Security, July 29, 2013), http://isis-online.org/uploads/isis-reports/documents/Full_Report_DTRA-PASCC_29July2013-FINAL.pdf (accessed June 5, 2014).

4. Nuclear security cooperation with Russia should be sustained.

As noted above, this cooperation remains an important investment in U.S. security, despite Russia's unacceptable actions in Ukraine.

5. Congress should require the President to submit a strategic, prioritized plan for achieving effective and sustainable security for all nuclear weapons and weapons-usable material worldwide as rapidly as practicable—and to submit budget requests sufficient to implement the plan.

Despite the many successes of the four-year nuclear security effort that ended in 2013, there is much still to do to ensure that nuclear weapons and the materials needed to make them are protected against the full range of plausible insider and outsider threats. Much of this work will focus on efforts to convince countries to take action themselves, strengthening their nuclear security requirements, putting more effective guard forces in place, beefing up their protections against insider theft, and the like. But supporting these efforts will also require continued U.S. investments—in part to ensure continued U.S. insight into and influence over nuclear security developments in other countries. A strategic plan, prioritized on the basis of the combination of scale or risk and opportunity for reducing it, is needed to provide a structure, metrics, and organizing deadlines for this new phase of the nuclear security effort. Providing the full funding needed to implement the plan will help fulfill the first recommendation—that nuclear security efforts not be slowed by lack of funds.

As part of that effort, the administration and Congress should work together to create a modest nuclear security contingency fund at DOE. While DOE already has substantial flexibility to reprogram funds when its programs have been unable to spend them, if all programs were making progress there would be few funds available to fund a sudden opportunity or respond to a sudden crisis. The State Department has a Nonproliferation and Disarmament Fund which allows it to address contingencies as they arise. An NNSA program similar to this fund would allow programs like GTRI and IMPC to respond quickly when opportunities presented themselves.

In short, while much has been accomplished to improve nuclear security, much remains to be done. A sustained government-wide focus lasting for many years to come will be needed to ensure that nuclear weapons and their essential ingredients never fall into terrorist hands.

6. The Obama administration should increase funding for nuclear security programs in its FY 2016 budget request.

As it prepares its FY 2016 budget request, the Obama administration should provide sufficient funding to ensure that no important nuclear security efforts will be slowed by lack of funds, consistent with our first recommendation. That would require a substantially larger request than the one the Obama administration made for FY 2015. The Obama administration should move with all deliberate speed to put together the prioritized strategic plan for nuclear security as described above, and should request sufficient funding to implement it as rapidly as practicable.

About the Project on Managing the Atom

The Project on Managing the Atom (MTA) is the Harvard Kennedy School's principal research group on nuclear policy issues. Established in 1996, the purpose of the MTA project is to provide leadership in advancing policy-relevant ideas and analysis for reducing the risks from nuclear and radiological terrorism; stopping nuclear proliferation and reducing nuclear arsenals; lowering the barriers to safe, secure, and peaceful nuclear-energy use; and addressing the connections among these problems. Through its fellows program, the MTA project also helps to prepare the next generation of leaders for work on nuclear policy problems. The MTA project provides its research, analysis, and commentary to policy makers, scholars, journalists, and the public.

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