

Public Testimony for the Record FY 2021

House Committee on Appropriations Subcommittee on Energy and Water Development and Related Agencies FY 2021 Public Witness Hearing

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Testimony:¹

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A nuclear explosion detonated anywhere by a terrorist group would be a global humanitarian, economic, and political catastrophe. The current COVID-19 pandemic reminds us not to ignore prevention of and preparation for low-probability, high-consequence disasters. For nuclear terrorism, while preparation is important, prevention must be the top priority. The most effective strategy for keeping nuclear weapons out of the hands of terrorists is to ensure that nuclear materials and facilities around the world have strong and sustainable security. Every president for more than two decades has made strengthening nuclear security around the globe a priority. This includes the Trump administration, whose 2018 Nuclear Posture Review states: “[n]uclear terrorism remains among the most significant threats to the security of the United States, allies, and partners.”²

Despite these efforts, some nuclear facilities and materials around the world remain dangerously vulnerable. The Department of Energy’s National Nuclear Security Administration (NNSA) nuclear security programs require sustained funding increases to ensure that security at nuclear facilities keeps pace with ever-evolving threats.

Trump administration funding for nuclear theft preventing programs

Most U.S. international nuclear security work is conducted through the Department of Energy’s NNSA’s Global Materials Security (GMS) and Material Management and Minimization (M3) programs.³ GMS works with foreign countries to help improve security for nuclear weapons, weapons-usable nuclear materials, and radiological materials. M3 is responsible for removing highly-enriched uranium (HEU) and separated plutonium from vulnerable sites; converting research reactors and medical isotope production facilities so they no longer use HEU; and disposition of HEU and plutonium. Unfortunately, for years, the budgets for these programs have been declining.

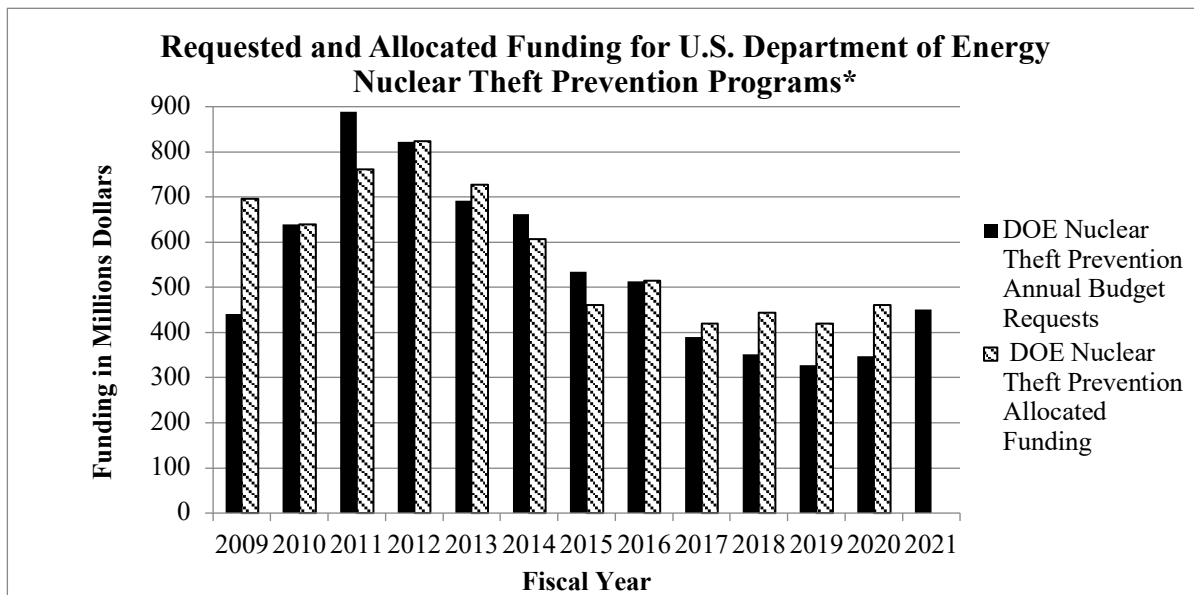
¹ The authors of this testimony are offering their personal views, and not those of their institutions.

² Nuclear Posture Review (Washington, D.C.: Department of Defense, 2018), <https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF>, p. 66.

³ The Department of Defense’s Cooperative Threat Reduction program and the State Department’s Bureau of International Security and Nonproliferation also support initiatives to strengthen global nuclear security, but these programs represent a small fraction of U.S. nuclear security work.

For fiscal years (FY) 2018 through FY 2021, the Trump administration proposed \$1.48 billion dollars for NNSA nuclear security programs (a subset of the broader NNSA nonproliferation effort).⁴ By contrast, the Obama administration’s total requested for these programs during its last term—FY14-FY17 was \$2.01 billion—more than 25% higher. In FY18, the Trump administration proposed \$351 million for nuclear security programs, compared to the FY17 appropriation of \$389. The Trump administration’s request decreased even further in FY19, to \$328 million. The request was modestly higher, \$347 million in FY20, though still well below what Congress had appropriated the year before. The new request, for FY21, is significantly better, at \$451 million, though it remains a modest proposed cut from last year’s appropriation.

The Trump administration’s decision not to again propose drastic cuts in these programs is a modest positive step, after nearly a decade of cuts to nuclear security programs. NNSA has been working hard to develop new strategies and approaches for its nuclear security efforts. The proposed GMS program includes supporting a new initiative to help other countries counter unmanned aerial systems, continuing efforts to improve cyber security and mitigate insider threats, and pursuing new approaches to help other countries address emerging issues and technologies that could raise concerns or benefits for nuclear security in the future. The M3 program requested a significant increase for its research reactor conversion program for the production of less dangerous low-enriched uranium (LEU) nuclear reactor fuel. The M3 program also requested a small increase for its nuclear material removal program—though this increase did not result in a significant increase in the amount of material planned to be removed.



Unfortunately, the Trump administration no longer publicly publishes the metrics it once used to track the progress of its nuclear security efforts. This includes the number of HEU reactors converted or shut down, the amount of nuclear material removed, the quantity of HEU down-

⁴ For recommendations on NNSA’s broader efforts, see *Report of the Task Force on Nuclear Nonproliferation* (Washington, D.C.: Secretary of Energy Advisory Board, March 31, 2015), <https://www.energy.gov/seab/downloads/report-task-force-nuclear-nonproliferation-0>.

blended to LEU, and the number of sites that received security upgrades. This diminishes the ability of Congress to conduct meaningful oversight, and the ability of the public to assess the impact of these programs.

Most concerning, however, the United States' nuclear security cooperation with the countries with the most nuclear materials that face the greatest risks is extremely limited. After Russia's invasion of Crimea, the United States and Russia—the two countries with some 80 percent of the world's weapons-usable nuclear materials—largely ended their nuclear security cooperation in 2014. As a result of ongoing political differences between the two countries, as well as legislative restrictions, that cooperation has not resumed. Nuclear security cooperation with India and Pakistan, which both face significant terrorist threats, remains limited. China and the United States have cooperated in building and making use of China's nuclear security Center of Excellence.

Recommendations

A more ambitious effort is needed to keep up with evolving threats. The United States needs a comprehensive plan to strengthen global nuclear security. The plan should focus on working with as many countries as possible with dangerous nuclear stocks or facilities to ensure that they have effective and sustainable nuclear security or to develop steps to mitigate risks when cooperation is not feasible. The plan should focus, in particular, on strategies for working with countries that face the biggest risks, even if there are political barriers to that cooperation. Congress needs to devote sustained attention and allocate resources to reducing the nuclear terrorism threat.⁵

Recommendation 1: Direct the Trump Administration to develop and deliver to Congress a comprehensive U.S. government plan for achieving effective and sustainable security for nuclear stocks worldwide. Building on existing efforts, the U.S. government should prepare a comprehensive plan focused on the ultimate goal of effective and sustainable security for all of the world's stocks of nuclear weapons, HEU, and separated plutonium and all of the nuclear facilities whose sabotage could cause a major catastrophe, whether military or civilian. Where there seems little chance of cooperating to improve security of a particular stock—such as in North Korea—the plan should include alternative steps to mitigate the security risks. This plan should be developed and implemented as a whole-of-government effort, led from the White House, as success will require efforts by technical experts, intelligence agencies, diplomats, program managers, and more.

Recommendation 2: Increase funding for U.S. international nuclear security programs, seeking to work with all countries with nuclear weapons, highly-enriched uranium, separated plutonium, or major nuclear facilities that might be sabotaged to convince them to put effective and sustainable nuclear security measures in place. As an investment in U.S. national security against the threats of nuclear and radiological terrorism, the U.S. government should expand and revitalize its international nuclear security programs, with broader objectives and more money

⁵ For more detailed recommendations, see Matthew Bunn, Nickolas Roth, and William H. Tobey, *Revitalizing Nuclear Security in an Era of Uncertainty* (Cambridge, Mass.: Project on Managing the Atom, Belfer Center for Science and International Affairs, Harvard Kennedy School, January 2019).

and personnel to accomplish them. An expanded nuclear security effort should seek to be comprehensive, closing, to the extent possible, key gaps that now exist in U.S. nuclear security programs.⁶ In particular, while past nuclear security programs have focused primarily on developing or former communist countries, much of the work that remains involves convincing countries to act and advising them on how best to do so, an effort that is equally applicable to rich countries. The United States should be seeking to cooperate with as many of the countries with nuclear weapons, weapons-usable nuclear materials, or nuclear facilities whose sabotage could cause a major catastrophe as possible, in as many of the key areas of nuclear security as possible.

To support this expanded effort, the National Nuclear Security Administration's International Nuclear Security program budget should be increased by an amount in the range of \$50 million and its Nuclear Material Removal Program should also be increased by roughly \$50 million, to support six key areas of nuclear security:⁷

- *Ensuring protection against the full spectrum of plausible threats.* This could include discussing countries' approaches to evaluating threats, working with countries that have not established such a design basis threat to help them do so, exchanging unclassified threat information, holding workshops with experts from each country, and having teams review the adequacy of security against a range of threats. +\$10 million.
- *Putting in place comprehensive, multilayered protections against insider threats.* This could include in-depth exchanges on good practices in insider threat protection, workshops, help with appropriate vulnerability assessments, and peer review by expert teams. +\$10 million.
- *Establishing targeted programs to strengthen nuclear security culture.* This could include working with both regulators and operators to ensure that each operating organization has an effective program in place to strengthen its security culture, including regular security culture assessments to identify strengths and areas that still need improvement. +\$10 million.
- *Instituting effective, regular vulnerability assessments and performance testing.* Through workshops, peer observation of such activities in the United States, training, and description of approaches that have been effective, the United States can work with regulators and operators around the world to make these practices much more widespread. +\$10 million.
- *Consolidating weapons-usable nuclear material.* A larger expansion of funding could be devoted to expanding efforts in the fifth key area of nuclear security, consolidating nuclear weapons and materials to the minimum practical number of locations. This could address additional stocks of material not yet covered by these programs, offering broader incentives for countries to convert research reactors or eliminate weapons-usable nuclear material, and ensuring that funding is available if opportunities arise to remove key stocks (such as the stocks of HEU in South Africa and Belarus, the only remaining locations in non-nuclear-weapon states where there is enough high-quality HEU at a single site for a simple "gun-type" nuclear bomb). +\$50 million.

⁶ Bunn, Roth, and Tobey, "Revitalizing Nuclear Security in an Era of Uncertainty," pp. 197-198.

⁷ Matthew Bunn, Nickolas Roth, and William H. Tobey, "Revitalizing Nuclear Security in an Era of Uncertainty," pp.199-201.

- *Ensuring the demonstrable competence of those responsible for the security of nuclear material and facilities.* Management and personnel with accountability for nuclear security should be demonstrably competent. That is, they should undergo professional training with measured results, on a regular basis on subject matter relevant to their particular duties. +10 million.

Recommendation 3: Work to launch a reformed approach to nuclear security cooperation with Russia. Past approaches to nuclear security cooperation, in which the United States provided substantial funding for installing major equipment, are no longer needed or appropriate. But there is still an urgent need for U.S. and Russian experts, as custodians of the world's largest nuclear stockpiles, to exchange best practices, discuss common challenges, and work together to develop new technologies and approaches to cope with new threats, including drones, cyber attacks, and more. This would involve funding U.S. experts to participate, not providing assistance to Russia. Finding a path to a reformed approach to U.S.-Russian nuclear security cooperation would be important for U.S. security, Russian security, and world security. As former Los Alamos Lab Director, Siegfried Hecker, put it simply: "Isolation increases the risks of catastrophe."^[1] The United States and Russia should resume nuclear security cooperation, as part of a broader package of nuclear cooperation, and with a focus on an equal exchange of ideas and best practices, and even joint R&D on new nuclear security and accounting technologies.

While there is no need for funding substantial assistance to Russia, existing restrictive language tends to discourage the cooperation that is needed. We recommend that the subcommittee not include in the FY21 bill the language contained in section 305 of the FY20 House Energy and Water appropriations bill, which stated "None of the funds made available in this or any prior Act under the heading "Defense Nuclear Nonproliferation" may be made available to enter into new contracts with, or new agreements for Federal assistance to, the Russian Federation."

Recommendation 4: Congress should provide in-depth oversight of programs to strengthen nuclear security and reduce the risk of nuclear terrorism. Though each successive administration has identified nuclear terrorism as one of the top threats to U.S. national security, it has been years since Congress has held a hearing on the subject. Committees with relevant jurisdiction should exert in-depth oversight over the steps the U.S. government is taking to reduce the danger, from improving nuclear security to intelligence efforts to proactively collect information on relevant terrorist plots and nuclear smuggling networks. If Congress directs the administration to develop an effective and comprehensive plan for improving nuclear security, and the result leaves out major portions of what needs to be done, Congress should push back. Congress should work to understand the obstacles to nuclear security progress and whether there are further actions it could take to address them.

In short, the U.S. government needs a plan for nuclear security, the funding and people needed to implement the plan, and regular oversight to ensure that opportunities are seized and obstacles addressed. The funding proposals in this brief are not radical. In total, they would not even return NNSA's nuclear security programs to the fiscal year 2014 (FY14) level of \$606 million. They are a small price to pay to reduce the danger of nuclear weapons or their essential ingredients falling into terrorist hands.