

Opportunities for President Obama to Reduce the U.S. Nuclear Arsenal and Stocks of Weapon-Usable Materials

The White House is considering further steps President Obama can take before he leaves office to reduce the dangers posed by nuclear weapons. Options reportedly still on the table include: (1) reducing deployed nuclear weapons; (2) reducing the so-called “hedge” of stored weapons; and (3) declaring additional stocks of weapon-usable materials—highly enriched uranium (HEU) and plutonium—excess to US military needs and planning for their disposal or civil use.

Below, we take a closer look at the current status and potential for reductions in each category. In short, we conclude that President Obama should:

- Reduce the number of deployed strategic US nuclear weapons by roughly 550, leaving 1,200 (or roughly 1,000 under New START counting rules)—a level that the administration has already determined is sufficient to maintain US deterrence.
- Reduce the number of strategic weapons in the hedge to 1,250 and move the remaining 1,000 to the dismantlement queue.
- Eliminate the hedge of 320 tactical weapons, and move them to the dismantlement queue.
- Declare an additional 15 to 22 metric tons of plutonium and 140 to 185 metric tons of HEU to be excess to military needs.

Cuts to Deployed Strategic Weapons

The United States currently deploys roughly 1,750 strategic nuclear weapons (Kristensen and Norris 2016). Under the New START treaty with Russia, both countries committed to reduce deployed strategic weapons to 1,550 accountable weapons by February 2018. Under New START counting rules, bombs and air-launched cruise missiles are not included. Instead, each plane counts as one weapon. As a result, the actual number of deployed strategic weapons can be larger than 1,550.

In particular, the United States has announced that it will deploy 60 bombers under New START. Because each will count only as one weapon, the overall limit of 1,550 will allow 1,490 warheads based on ICBMs and SLBMs. The United States currently deploys 300 bombs and air-launched cruise

missiles at its bomber bases.¹ If this remains the case, the actual number of US deployed strategic warheads under New START could be as high as 1,800. In other words, the deployed arsenal may not drop below its current level.

In 2013, following a comprehensive review, the administration concluded that the United States could safely reduce by an additional third from New START levels—even if Russia did not make similar reductions (Obama 2013). Thus, the United States could reduce its current arsenal by some 550 to 600 deployed strategic weapons, leaving roughly 1,200. (By the counting rules under New Start, the United States would then have approximately 1,000 deployed strategic weapons.) However, President Obama has yet to take this step.

Past presidents made similar cuts without involving Congress and without guarantees from Russia; President Obama should do the same.

Such a cut makes sense, regardless of whether Russia reciprocates by making its own reductions. The United States plans to rebuild the entire nuclear triad over the next 30 years, and a smaller nuclear force would reduce the cost of doing so. As former Defense Secretary William Perry argues, US “nuclear forces should be determined by what we actually need, not by a misguided desire to match Moscow missile for missile” (Perry 2016).

Moreover, despite its recent aggressive stance, Russia’s economic difficulties give it good reason to reciprocate.

Past presidents—including George H.W. Bush and George W. Bush—made similar cuts without involving Congress and without guarantees from Russia; President Obama should do the same.

Cuts to the Hedge

In addition to deployed weapons, the United States maintains a hedge force of about 2,250 strategic weapons and 320

tactical weapons (Kristensen and Norris 2016). These weapons are kept in reserve for two reasons: (1) if an entire class of deployed weapons experiences a technical problem, weapons of a different type could be deployed from the hedge in lieu of the faulty ones; and (2) if political leaders want to rapidly increase the number of deployed weapons for geopolitical reasons, weapons from the hedge could be added to existing delivery systems.

Cutting the hedge would reduce costs for maintaining and storing these weapons.

In 2013 the Department of Defense and Department of Energy reported that a new, more efficient hedging strategy would allow the United States to “maintain a robust hedge against technical or geopolitical risk with fewer nuclear weapons” (DOD 2013). They concluded that a hedge sufficient to address technical risks would also be sufficient in case US leaders wanted to increase the deployed arsenal for geopolitical reasons.

The United States should decrease its strategic hedge by 1,000 weapons, and eliminate its tactical hedge of 300 weapons.

A UCS study found that, for a New START-sized arsenal with existing warhead types, the hedge only needs to include 1,250 strategic weapons to provide replacements in case of the technical failure of an entire class of weapon (Gronlund 2015). Thus, the United States could immediately reduce the strategic hedge by 1,000 warheads—from 2,250 to 1,250 weapons. If it also makes cuts to its deployed forces, as discussed above, it could reduce the hedge even further.

The 320 tactical weapons in the hedge—all of which are B61 bombs—could be entirely eliminated. The United States deploys 180 of these weapons in five European countries. However, these weapons will be replaced with a new variant of the B61—the B61-12—that will also serve as the US strategic bomb. Since there will no longer be a difference between tactical and strategic bombs, it is unnecessary to have a separate tactical hedge. (There are reasons to eliminate the deployed weapons as well, but doing so would be controversial and require consultations with NATO.)

More fundamentally, the United States should reconsider the need to retain a technical hedge at all because the failure of an entire class of weapons is highly unlikely, at least for

existing weapon types that have undergone nuclear explosive testing. Neither Britain nor France, which have significantly smaller and less diversified arsenals than the United States, maintains a hedge.

Cuts to the Fissile Materials Stockpile

The US military stockpiles of weapon-usable fissile materials—plutonium and highly enriched uranium (HEU)—are much larger than necessary. This material is a security risk and expensive to store safely. Some has been declared “excess to military needs,” but even if all excess material were disposed of tomorrow, the United States would still have far more than needed for its current or future arsenal.

PLUTONIUM

The United States currently has a little more than 95 metric tons of plutonium. It has declared 61.5 metric tons of this plutonium as excess to military needs and is examining methods for disposing of it. The remaining 33.5 metric tons is reserved for weapons purposes. Some of this plutonium is in deployed and reserve weapons. Some is in plutonium pits from dismantled warheads.

The current US nuclear arsenal consists of about 4,500 weapons, including deployed and hedge weapons (Kristensen and Norris 2016). US nuclear weapons contain less than 4 kilograms of plutonium in their primaries, which means that this arsenal contains no more than 18 metric tons of plutonium. Thus, the United States could retain an arsenal of the current size and declare as much as an additional 15 metric tons of plutonium excess to military needs.

If, as discussed above, the United States reduces its deployed forces by 550 and reserve weapons by 1,300, the total arsenal would be 2,650 weapons and contain less than 11 metric tons of plutonium. In this case, the United States could declare as much as an additional 22 metric tons of plutonium excess to military needs.

HIGHLY ENRICHED URANIUM

HEU presents a greater security risk than plutonium because it can be used to make a nuclear weapon that uses a technically simple design—a gun-type weapon—whereas plutonium-based weapons require a more complex implosion design. In addition to its use in nuclear weapons, HEU is used as a fuel for the nuclear reactors that power all US submarines and aircraft carriers.

The International Panel on Fissile Materials (IPFM) estimates that the US stockpile of HEU is currently about 600 metric tons, with 253 tons of this in weapons or available for use in weapons (IPFM 2016).

US nuclear weapons contain about 15 kilograms of HEU in their secondaries, and some also contain another 10 kilograms of HEU in their primaries. If each weapon in the arsenal contains 15 to 25 kilograms of HEU, the total arsenal of 4,500 weapons contains 68 to 113 metric tons of HEU.

Thus, the United States could retain an arsenal of the current size and declare another 140 metric tons of HEU to be excess.

If, as discussed above, the United States reduces its deployed forces by 550 and reserve weapons by 1,300, the total arsenal would be 2,650 weapons and would contain 40 to 66 metric tons of HEU. In this case, the United States could declare an additional 185 metric tons of HEU excess to military needs.

¹ Each bomber can carry either 16 bombs or 20 air-launched cruise missiles, so the United States could deploy more than 300 such weapons on its 60 bombers by using weapons from its hedge stockpile.

References

Department of Defense (DOD). 2013. **Report on nuclear employment strategy of the United States specified in section 491 of 10 U.S.C** June 12. Online at http://www.defense.gov/Portals/1/Documents/pubs/ReporttoCongressonUSNuclearEmploymentStrategy_Section491.pdf

Gronlund, L. 2015. **Bad math on new nuclear weapons: The costs of the 3+2 plan outweigh its benefits.** October. Union of Concerned Scientists. Online at <http://www.ucsusa.org/sites/default/files/attach/2015/11/Bad-Math-Nuclear-Weapons-3-Plus-2.pdf>

International Panel on Fissile Materials (IPFM). 2016. Countries: United States. Online at http://fissilematerials.org/countries/united_states.html

Kristensen, H. and R.S. Norris. 2016. Status of World Nuclear Forces. Online at <http://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/>

Obama, B. 2013. Remarks by President Obama at the Brandenburg Gate—Berlin, Germany. The White House, Office of the Press Secretary. June 19. Online at www.whitehouse.gov/the-press-office/2013/06/19/remarks-president-obama-brandenburg-gate-berlin-germany

Perry, W. 2016. Why it's safe to scrap America's ICBMs. **New York Times**. September 30. Online at <http://www.nytimes.com/2016/09/30/opinion/why-its-safe-to-scrap-americas-icbms.html?smprod=nytcore-iphone&smid=nytcore-iphone-share>

Union of Concerned Scientists

For more information contact Dr. Lisbeth Gronlund, lgronlund@ucsusa.org.

FIND THIS DOCUMENT ONLINE: www.ucsusa.org/armsreductions

The Union of Concerned Scientists puts rigorous, independent science to work to solve our planet's most pressing problems. Joining with citizens across the country, we combine technical analysis and effective advocacy to create innovative, practical solutions for a healthy, safe, and sustainable future.

NATIONAL HEADQUARTERS
Two Brattle Square
Cambridge, MA 02138-3780
Phone: (617) 547-5552
Fax: (617) 864-9405

WASHINGTON, DC, OFFICE
1825 K St. NW, Suite 800
Washington, DC 20006-1232
Phone: (202) 223-6133
Fax: (202) 223-6162

WEST COAST OFFICE
500 12th St., Suite 340
Oakland, CA 94607-4087
Phone: (510) 843-1872
Fax: (510) 843-3785

MIDWEST OFFICE
One N. LaSalle St., Suite 1904
Chicago, IL 60602-4064
Phone: (312) 578-1750
Fax: (312) 578-1751