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America's Current Nuclear Arsenal Was Built for a More Benign World

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KEY TAKEAWAYS

The United States' nuclear modernization program, begun in 2010, assumed a peaceful security environment by the 2020s.

Today's security environment is unstable, and deep cuts in Russian and Chinese nuclear forces never materialized.

This suggests the nuclear modernization program begun in 2010 should be the baseline, not the ceiling, for America's nuclear deterrent in the 21st century.

America's nuclear arsenal is undergoing a modernization program, with its ballistic missile submarines, intercontinental ballistic missiles (ICBMs), and strategic bombers being replaced with modern platforms and delivery systems.[1] However, the modernization program, which began in 2010, was designed for a world far less threatening—and with far fewer nuclear weapons—than exists today.

The United States is struggling to achieve the modest nuclear modernization goals set out almost a decade and a half ago, but once it is complete, it will be insufficient to the threats manifesting around the world. Indeed, China is on a path to have as many strategic nuclear weapons as the United States has by 2035—and shows no signs of stopping once it reaches parity.[2]

As such, the current nuclear modernization program—to include fully funding the bombers,

submarines, ICBMs, and nuclear warheads—should be the baseline of America's 21st-century arsenal, not the ceiling.

Background: Arms Control Treaties and Nuclear Modernization for a World at Peace

In April 2010, President Barack Obama and Russian President Dmitri Medvedev signed the New Strategic Arms Reduction Treaty (New START), which ostensibly cut strategic offensive nuclear weapons in the United States and Russia.[3] Under New START, Russia and the United States agreed to cut strategic nuclear weapons by roughly 30 percent, from 2,200 deployed strategic warheads to 1,550. The mood was reported as "celebratory" and even "majestic" as both leaders promised to begin work on a follow-on treaty that would cut the arsenals of each country even deeper.[4]

Indeed, New START was seen in many quarters as the beginning of a new era of arms control.[5] At the New START signing, President Obama remarked, "Going forward, we hope to pursue discussions with Russia on reducing both our strategic and tactical weapons, including nondeployed weapons."[6] In addition to deeper cuts into the Russian and American nuclear strategic and non-strategic arsenals (also known as tactical nuclear weapons), national security professionals anticipated future multilateral arms control treaties that might include China and other nuclear powers.[7]

In exchange for the Senate ratifying the treaty, President Obama struck a deal with then-Senator Jon Kyl (R–AZ) to modernize the nuclear arsenal, including delivery systems, platforms, warheads, and the infrastructure needed to produce the fissile material that creates a nuclear yield.[8] In short, not only would new, modernized warheads be produced, but new bombers would be built, the Minuteman III ICBM (first built in 1970) would be replaced, and the venerable *Ohio*-class ballistic missile submarines would be succeeded by a new generation of submarines.

The assumption, at that time, was that the modernization program would ensure that the strategic arsenal would remain adequate to deal with a relatively benign security environment. This point was made explicitly by the U.S. Strategic Command commander, General Kevin Chilton, who, when asked by the Senate Foreign Relations Committee if the smaller but modernized arsenal provided for in New START was more than what was needed for the 2010 threat environment, said, "I think the arsenal that we have is exactly what is needed today to provide the deterrent."[9]

Following New START, many hoped that additional nuclear arms control treaties would reduce total arsenals sizes across the planet, eventually

culminating in a world without nuclear weapons. Indeed, in awarding him the Nobel Peace Prize, the Nobel Committee cited President Obama's efforts toward global "nuclear disarmament" as the primary reason for his selection.[10]

The 2010 *Nuclear Posture Review*, the document that outlines an Administration's nuclear policy and posture, called out "nuclear terrorism" as the largest threat to American security and noted that the United States and China "are increasingly interdependent and their shared responsibilities for addressing global security threats, such as [weapons of mass destruction] proliferation and terrorism, are growing."[11] In one of the few passages that dealt with both China and Russia, the review noted that "by promoting strategic stability with Russia and China and promoting transparency and mutual confidence, we can help create the conditions for a world without nuclear weapons."[12]

Upon these assumptions, now revealed to be seriously flawed no matter how well-intentioned they were at the time, the current American nuclear modernization program was built.

The 2010s and 2020s Did Not Turn Out as Hoped

The world, however, turned out very differently than was expected in 2010.

Almost immediately after ratifying New START, the Russians refused to negotiate a follow-on treaty. Consequently, the strategic arsenals' sizes remained at New START levels, with both parties free to expand their non-strategic arsenals.

Despite repeated overtures from Washington to Beijing during this period, China remained uninterested in nuclear arms control talks with the United States or Russia and rebuffed all attempts to hold even preliminary discussions on the topic.[13]

The security environment deteriorated further post–New START. Russia's invasions of Ukraine in 2014 and again in 2022 presented new security challenges—particularly as it moved nuclear weapons into Belarus and threatened NATO allies with nuclear strikes.[14] Further, China's threats to neighboring states across the western Pacific destabilize the region and raise concerns about a broader Pacific war that could hold key American interests at risk.[15]

Of more immediate concern to the American strategic arsenal is the expansion of the Russian and Chinese nuclear stockpiles. While China's nuclear breakout has already been noted, Russia has expanded its arsenal of upwards of 2,000 non-strategic nuclear weapons—an expansion that

is totally unconstrained by any treaty or agreement.[16] Russia's fielding of nuclear-capable theater-range cruise missiles in the 2010s resulted in the United States withdrawing from the Intermediate-Range Nuclear Forces treaty, which had for decades prohibited the United States and Russia from fielding those same non-strategic nuclear-capable systems.[17]

The U.S. Modernization Effort Is Struggling

So, how are things going for the U.S. nuclear modernization effort? In short, not well.

According to an August 2023 Government Accountability Office (GAO) report, Los Alamos National Lab's ability to produce plutonium pits (the explosive material needed to create nuclear detonations) is four years behind schedule—and may cost three times the top end of the approved cost range.[18] The Savannah River Site's ability to produce plutonium pits is nearly as bad.[19] Consequently, the Department of Energy is estimating that it will now be 2030 (as opposed to 2026) before it can produce the plutonium pits necessary to maintain the current warheads.

The Sentinel missile, which is to replace the Minuteman III nuclear ICBM by the end of the 2020s, is also struggling. According to the GAO, "Sentinel is behind schedule due to staffing shortfalls, delays with clearance processing, and classified information technology infrastructure challenges. Additionally, the program is experiencing supply chain disruptions, leading to further schedule delays."[20] It is unclear at this point if Sentinel will be able to replace Minuteman III, which was initially supposed to be replaced by 2030.[21]

The *Columbia*-class ballistic missile submarine is supposed to replace the *Ohio*-class submarine. Again, according to the GAO, the *Columbia* program "also remains behind on producing design products—in particular, work instructions that detail how to build the submarine."[22] And with the *Ohio*-class submarines retiring within the next decade, and a two-year slippage in when the *Columbias* were meant to be operational, there is little wiggle room to get the *Columbias* built before there are dangerous gaps in the Navy's ability to have ballistic missile submarines on patrol.[23]

Not all is doom and gloom, however. The B-21 Raider bomber, planned to replace the B-2 bomber, is on track to be fielded later this decade. And despite its omission from the Biden Administration's initial defense budget request, Congress wisely chose to insert funding for the nuclear-capable sea-launched cruise missile into the defense budget.

Recommendations

To deter increasingly aggressive and nuclear-armed China and Russia and to hedge against an uncertain future, the United States should explore building a nuclear arsenal that is larger and more diverse than what it has now—and what was projected to be needed in 2010. Specifically, the Department of Defense and Congress should:

- **Prepare to place more than one warhead on delivery vehicles of the ballistic missile force.** The Defense Department should lay the programmatic groundwork to upload additional nuclear weapons onto the ICBM force and bombers to pre–New START levels. America should be prepared to add the warheads immediately should the security situation rapidly deteriorate. Indeed, an ability to increase the number of warheads on missiles quickly may deter U.S. adversaries from taking provocative nuclear actions.

- **Examine the utility of a nuclear anti-ship missile.** The Department of Defense should examine the feasibility and utility of an integrated sensor and targeting package that would enable a long-range anti-ship missile to find, fix, and finish moving adversary naval assets with a nuclear warhead. An anti-ship nuclear capability would give the President more graduated nuclear response options in the face of an adversary using nuclear weapons, thereby better deterring adversary limited nuclear strikes.

- **Examine the feasibility of making the Sentinel ICBM road-mobile.** A road-mobile ICBM would create significant targeting challenges for U.S. adversaries. Given the expansion of adversary intercontinental nuclear capabilities and the fact that U.S. ballistic missile submarines may no longer be undetectable, an additional second-strike capability would go far to reduce risk.

- **Consider fielding road-mobile, theater-range land-attack nuclear missiles.** The ability to strike adversary targets with road-mobile theater-range weapons would go far to hold adversary targets at risk, thereby complicating adversary targeting calculus. Such a deployment would deter conventional and nuclear aggression against allies. Such a step would also assure U.S. allies of the credibility of the American security commitment.

Conclusion

The current U.S. nuclear arsenal was designed for a world in which Russia did not have 2,000 non-strategic nuclear weapons and did not invade its neighbors or threaten NATO states with nuclear strikes. It was a world in which China would follow American leadership toward nuclear disarmament—not build nuclear weapons to reach parity.

The current U.S. arsenal is simply insufficient to deter a China and a Russia that are on the march. If America does not build the arsenal needed to ensure peace, it will suffer the consequences.

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