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Rebirth of US Nuclear Deterrence

Fifteen years ago, a revolution in United States national security policy began very quietly. It occurred within a subject we have recently addressed in this forum and that is re-emerging as a hot topic of discussion in national security circles after a long hiatus: deterrence, and specifically the unique role of nuclear weaponry as the preeminent deterrent force. This report uses the timeline and key events of the last 15 years to illustrate the current modernization program for the US military's nuclear enterprise and to examine how it relates to today's global geopolitical landscape. The report concludes with a discussion of the program's implications for investors.

A Quiet Beginning

Today's US nuclear deterrence revolution began with an unlikely voice, in an unlikely place, and at the least likely moment in time. On April 5, 2009, in the Czech Republic, while the US and Russia were finalizing negotiations on a new nuclear-arms reduction treaty, [President Obama delivered his first foreign policy speech](#). In this speech, he shared his vision for the complete elimination of nuclear weapons. Rather deftly, however, he also said that, while this should be our goal, he did not expect us to reach it in his own lifetime.

Indeed, while President Obama was sharing this vision, he was also supporting a congressionally commissioned study that would become known as the 2010 Nuclear Posture Review (NPR), an exhaustive

analysis of the then-current national security landscape as it related to nuclear deterrence. The resulting report acknowledged the continuing threat posed by Russia and other aspiring nuclear powers, so much so that it recommended a thorough refurbishment of the entire nuclear enterprise, which had received considerably reduced attention and funding since the end of the Cold War 20 years earlier.

President Obama supported these conclusions, setting in motion a series of policy actions culminating in the 2014 National Defense Authorization Act. This law included the first steps of a long-term program to [thoroughly modernize the US nuclear enterprise](#) – not just the weapons and delivery vehicles, but also the command-and-control systems and the research-and-development facilities that support them. Fast-forward 10 years to today, and we find that this modernization program has enjoyed continuous bipartisan funding support, across presidential administrations and shifting congressional majorities. It is now simply called the “Program of Record,” or POR. Indeed, by taking the necessary actions to refurbish his country's deterrent capability, President Obama virtually assured that the goal of a non-nuclear world would not be reached in his lifetime.

The Nuclear Enterprise: A Review

In our recent *Bi-Weekly Geopolitical Report*, “[Thinking About Deterrence](#),” we provided a brief overview of the structure of the US nuclear enterprise, which we will more fully describe here. The enterprise retains the structure that was developed and employed

during the Cold War, possessing foundational and operational elements.

Foundations. Foundationally, the US nuclear enterprise includes the research and development facilities that advance the technology of the physical components (uranium, plutonium, bombs, fuses, assemblies, etc.), production and storage facilities, and administrative headquarters.

Operations. Operationally, the nuclear enterprise takes the form of the “triad,” consisting of land-based intercontinental ballistic missiles (ICBMs), sea-based submarine-launched ballistic missiles (SLBMs), and land-based bombers. The US has retained this structure, because its soundness is [supported by rigorous analysis and success throughout the Cold War](#). Each leg of the triad provides a distinctive capability. ICBMs are immediately launchable and convey the most destructive power. SLBMs, borne by ultra-quiet submarines with unknown locations and movements throughout the vastness of the oceans, can survive an initial enemy nuclear strike. Bombers can be moved from place to place to send a political message, and they can be recalled from strike missions almost up to the last minute.

Highlights of the POR

From its start, the POR, or modernization program, was expected to constitute a [30-year, \\$1-trillion effort](#) addressing every component of the enterprise. Most prominently, it includes new weapon systems for each leg of the triad. The planned successors in the triad include a new ICBM, the Sentinel, to replace the current Minuteman III (first commissioned in 1970); a new ballistic missile submarine, the Columbia class, to replace the current Ohio class (first commissioned in 1986); and a new stealth bomber, the B-21 Raider, to

replace the B-2 Spirit (first commissioned in 1992). Each of these new weapon systems represents a major advance in technology and capability.

Figure 1



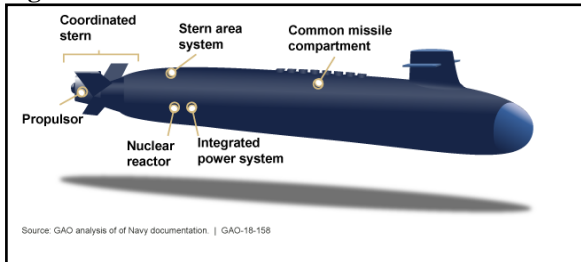
In addition, the POR includes the development of new and improved nuclear warheads, an expanded range of warhead sizes, and improvements to the current components of the triad so they can continue to perform their deterrent roles until the new breed arrives. Of less prominence but of no less importance, the [single greatest funding allocation goes to the “National Nuclear Security Administration.”](#) This is the family of facilities located across the US, such as the Los Alamos National Laboratory in New Mexico, that form the foundation described in the previous section.

Rebirth of the Threat

The 2010 NPR recommended the nuclear modernization that became the POR despite a benign assessment of the threat environment at the time. For instance, it stated that, [“Russia and the United States are no longer adversaries, and prospects for military confrontation have declined dramatically.”](#) Additionally, it characterized

China’s nuclear force as a “lesser included case,” one that lacked the ability to challenge the existing US deterrent capability and merely required monitoring. The 2010 NPR further asserted that, “unrivaled U.S. conventional military capabilities...and the easing of Cold War rivalries,” enabled a significantly reduced reliance on the nuclear force to assure national security, and further enabled the US to prioritize a) nuclear non-proliferation efforts, and b) efforts to minimize the chance of nuclear terrorism.

Figure 2



The Columbia Class Nuclear Ballistic Missile Submarine (Source: GAO)

Nevertheless, the commission recommended full-scope modernization for two reasons. First, even in this relatively benign environment, the continued need for a credible, capable nuclear deterrent was considered essential. Second, in the 20 years since the end of the Cold War, the nuclear force had been heavily neglected, to the point of serious questions emerging about its condition.

When Congress directed a follow-up NPR in 2022, the threat assessment had dramatically changed for the worse, and the new NPR’s recommendations changed accordingly. In sharp contrast to 2010, the 2022 NPR begins by saying, “[The new global environment is fundamentally different than anything experienced in the past, even in the darkest days of the Cold War. Today, the United States is on the cusp of having not one, but two nuclear peer adversaries, each with](#)

[ambitions to change the international status quo, by force, if necessary: a situation which the United States did not anticipate and for which it is not prepared.”](#)

Figure 3



The Sentinel ICBM (Source: US Air Force)

Over the course of nearly 150 pages, the 2022 NPR articulates in detail the gravity of the new situation. China has replaced Russia as the US’s main overall security threat, partly because it is building its nuclear force on a scale and pace by which it is projected to surpass that of the US by the mid-2030s. This includes numbers of weapons and delivery systems as well as their level of technological advancement. Meanwhile, in the opinion of the NPR, Russia’s nuclear enterprise has probably already surpassed that of the US as a result of constant investments since the end of the Cold War in new technologies and broadened capabilities. This includes new and advanced components of its own triad that are already deployed. Beyond China and Russia, nonproliferation efforts are considered to have failed, as exemplified by the progress both North Korea and Iran have made in their nuclear programs since 2010.

Figure 4



*The B-21 Raider Stealth Bomber
(Source: Airdatanews.com)*

Response to the “Reborn” Threat

The 2022 NPR conveys a strong, unmistakable sense of urgency entirely absent in its 2010 predecessor. For instance, it states, “The vision of a world without nuclear weapons, aspirational even in 2009, is more improbable now than ever.” The NPR provides 81 recommendations touching the entire enterprise, but it focuses on three essential priorities:

- Full execution of the POR;
- Expansion beyond the POR;
- Nuclear infrastructure renewal.

The 2022 NPR considers the original POR to be well-conceived and worthy of complete fulfillment; however, it emphasizes that the original POR was designed to be sufficient only to counter Russia — and Russia as it was in 2010, when it was still abiding by arms-limitation treaties in force at the time. Not only has China emerged as an aspiring nuclear peer, but [Russia has abrogated those treaties](#) and embarked on a program of nuclear expansion. The POR is only a starting point if the US is going to adequately prepare itself for the combined threat it now faces.

Finally, the 2022 NPR explains that, even if an adequate modernization and expansion of

the nuclear enterprise were fully funded, the US currently lacks the technological and manufacturing infrastructure needed to make it happen. For too long the US has turned away from nuclear force development, and much of the capacity to generate such a force needs to be redeveloped. Ultimately, and in sharp contrast to the list of priorities from 2010, the 2022 NPR squarely focuses the priority on developing the unquestioned capability to deter and defeat two nuclear peer-adversaries simultaneously.

Why do we call the POR and the nuclear modernization program a “revolution?” A revolution is defined as a dramatic and wide-reaching change in conditions, attitudes, or operation, potentially involving a return (or “rollback”) to an original state of being. Regarding the role of nuclear forces in US national security policy, the conditions (i.e., the threat environment) certainly seem to have dramatically changed, returning to something at least resembling the Cold War. Attitudes are also changing as more influential voices recognize this change and state their support for restoration of the nuclear deterrent. [President Biden, in a reversal of a campaign pledge, has reaffirmed the longstanding US approach](#) of using the threat of a nuclear response to deter both conventional and non-conventional threats to national security. Much remains to be seen concerning operations and whether the US will fully complete its nuclear modernization effort. However, in terms of conditions and attitudes, the revolution in US national security policy that quietly began 15 years ago in Prague is well on its way to completion.

Investment Implications

Our recent reports have emphasized a connection between today’s geopolitical trends and the growing investment

opportunities in the *defense and aerospace* industry and the *broader industrial* sector. These expected investment opportunities stem from the need for not just the hardware and equipment involved in national defense, but also the supporting infrastructure (such as factories and shipyards). The sense of urgency and growing consensus supporting nuclear modernization reinforce our view on this theme, but they also give it an added dimension.

The US nuclear enterprise involves some of the highest, most cutting-edge technology in the defense space. Taken together with the broader theme of emerging technologies across the investment landscape, we expect the nuclear modernization effort to accelerate the convergence of defense and technology. With this in mind, we have been closely tracking the emergence of *defense-focused technology* companies. Although most of these remain private today, we are actively searching for investable opportunities at this growing point of convergence.

Finally, the nuclear modernization program buttresses our expectation of good returns from *uranium and uranium miners*. Last October, the Confluence Asset Allocation Committee introduced an exchange-traded fund focused on uranium producers in the majority of our Asset Allocation strategies, mostly to take advantage of government policies around the world that are encouraging greater use of nuclear energy to produce electricity, even as uranium supplies are crimped. This new uranium exposure has already produced attractive returns for Confluence's Asset Allocation portfolios because global investors are increasingly recognizing how the "green energy" transition will produce stronger

fundamentals for uranium and uranium miners. Global investors have been piling into the industry, driving prices higher. The analysis in this report is a reminder that global geopolitical tensions will probably also prompt current nuclear states to modernize and expand their arsenals and prompt new states to develop their own nuclear arsenals for the first time in a potential new global nuclear arms race.

We have recently begun to scope out the incremental global uranium demand that could arise in the coming years as nuclear arsenals are modernized, expanded, and developed. While today's nine recognized nuclear states have more than 12,000 deployed and nondeployed nuclear warheads, our preliminary estimates are that a global nuclear arms race could more than double the number of nuclear states and the total count of nuclear warheads between now and 2040. Our preliminary estimates, which are still subject to refinement, show that such a nuclear build-out could boost the world's annual uranium demand by 10% or more beyond the growing needs for electricity generation. With projected global supplies constrained, the modernization and expansion of global nuclear arsenals will likely build an even stronger case for investing in uranium and uranium producers into the future.

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