

The Escalatory Attraction of Limited Nuclear Employment

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Abstract

The United States has entered a dangerous new era in which, for the first time in history, the nation is soon to face two nuclear-peer adversaries: Russia and China. In the three decades after the Soviet Union's collapse, the United States focused on a variety of national security challenges that did not include emphases on Russia and China, who, over that period, observed the American way of war and developed capabilities to counter US strengths. While achieving some success in closing the gap across a wide spectrum of military capabilities and operational realities, Russia and China determined that limited nuclear employment might be required in any conflict with the United States. They also determined that escalation to limited nuclear conflict affords a unique advantage for both states since it is an area in which the United States has neither the perceived will nor the apparent capabilities to compete. This article discusses the *escalatory attraction* of limited nuclear employment for Russia and China.

After the fall of the Warsaw Pact in 1989 and the Soviet Union in 1991, Russia emerged in a world clearly dominated by the United States. Not only did US dominance in the Gulf War demonstrate the effectiveness of the “Second Offset,” but it also confirmed Russia’s perception of an abiding antagonism through several rounds of NATO expansion and especially the bombing of Serbia—a longtime Russian client state.¹ Thus, despite the early optimism of the post–Cold War years, with a welcome focus on cooperative diplomacy and historic reductions of nuclear weapons, by 2000 Russia began to increasingly rely on nuclear weapons for security and turned to inveterate opposition to the world order directed by the United States.²

The People’s Republic of China (PRC) also faced a dominant United States through at least two defining crises: the Tiananmen Square massacre (1989) and the Taiwan Strait Crisis (1996). Having observed the conventional military overmatch of the United States, the PRC embarked on a multipronged military response, which included the development of a variety of nonnuclear upgrades to its defense posture and two specific nuclear upgrade programs, thus increasing the survivability of its strategic nuclear forces. This was an effort to deter the United States until the

PRC could achieve strategic nuclear parity. Developing robust theater nuclear forces, enabling theater nuclear strikes, was also a developmental goal.³

Strategically, Moscow and Beijing made it their goal to resist the status quo for a “lightly multipolar” world order, in an effort to replace the United States with a more “heavily multipolar” world order favorable to Russia’s and China’s own interests.⁴ To achieve this overarching goal, as separate poles in this multipolar geopolitical environment, both require a “sphere of interest” in which they hold sway over allies and neutrals, together with some degree of worldwide reach through allies and basing. And, while there may exist slight divergences in their respective economic interests, for the past two decades it was in their separate but congruent interests to align their efforts, including in the military domain.⁵ Operationally, Russia and China need to construct near-abroad spheres of influence that are militarily uncontested. This requirement is still only aspirational, especially in light of Russia’s arduous invasion of Ukraine, and remains so until they can demonstrate the overall military capability to “seal off” these respective spheres of influence from the dominant form of warfare that the United States and its allies perfected. This includes the overwhelming aerospace blitzkrieg resulting in the rapid destruction of enemy defenses, situational awareness, and ability to command and control forces. Russia and China embarked upon strategies to cope with and even gain ascendancy over the US aerospace blitzkrieg, but both concluded that such success is far from a foregone conclusion—requiring contingency capabilities and planning.⁶

Necessary but Insufficient Symmetric Responses

Nevertheless, due to the deep and abiding reluctance of nations to opt for nuclear employment, military symmetry is preferred and employed.⁷ In space, the domain that ensures situational awareness and command and control of forces, Russia has regenerated much of its once comparatively strong infrastructure and capacity. During the 1990s, for example, Russia lost much of its space-based capacity—including early warning of ballistic missile attack. However, Moscow has reestablished and modernized Russia’s space-based intelligence, surveillance, and reconnaissance (ISR) and early warning capabilities.⁸ China went from operating a handful of satellites in the early 1990s to almost 500 in just less than 30 years’ time, most of which support the military. Space is an increasingly contested domain with urgent needs, but the United States remains ahead and will remain so for years to come with the proper investment.⁹

In the areas of air and counterair, while Russia remains ahead of China in integrated air and missile defenses, China is ahead of Russia in fielding fifth-generation aircraft. While there is no commonly agreed upon definition of *fifth-generation* for

fighters, consensus elements include stealth, enhanced situational awareness, electronic warfare, advanced engine performance, and networking.¹⁰ The Russian aerospace industry is struggling to produce the Su-57 fifth-generation fighter.¹¹ Meanwhile, China produced 150 J-20s and will soon produce the H-20—its new bomber.¹² Against large numbers of truly fifth-generation F-22s, F-35s, and fourth-plus-generation F-15EXs and Block III F-18E/Fs, Russian and Chinese air defenders will likely experience high early attrition rates in any conflict.¹³ The United States will keep this advantage well into the future as it is already flight testing a sixth-generation fighter aircraft.

In the area of air defenses, Russia and China certainly take these capabilities very seriously and rely on them in blunting US airpower. While the integrated air defense systems (IADS) of the western Russian and Chinese coast are formidable, the operational radars that are tasked with detecting, identifying, tracking, and targeting US fifth-generation aircraft simply are not up to the task. They are subject to suppression and/or destruction at ranges well beyond their ability to detect. The numbers of fifth-generation allied aircraft and their concomitant long-range ordnance preclude any reversal of this situation for at least a decade. While it was initially expected in analysis for this article that nuclear-tipped S-300/400/500 interceptors might change this equation, research suggests that this remains remote for the foreseeable future.¹⁴

In fact, across the entire range of nonnuclear military capabilities, the United States has repeatedly and enduringly demonstrated the will and ability to establish and maintain superiority through congressional commitment (adequate funding), innovation (unparalleled research and development), and operational dominance (tactics, techniques, and procedures). Despite the “peace dividend” of the 1990s and the necessary counterterrorism focus of the past two decades, the United States manages to stay competitive across the entire range of nonnuclear conflict. Moreover, in both materiel and nonmateriel components of conventional military competition (including space and cyberspace), the United States maintains a relatively durable military advantage, even in the case of an “away game” within the aspirational spheres of influence of Russia and China. More importantly, it seems clear that US adversaries reached the same conclusion, even while attempting to rectify the situation.

The Competitive Attraction of Limited Nuclear Employment

Over the past three decades, the United States has resolutely refused to compete in the area of nonstrategic nuclear weapons. This refusal is evidenced by the rapid and near complete divestment of nonstrategic nuclear weapons in the 1990s and failure to reconstitute any countervailing capabilities, even after it was clear

that Russia reversed course.¹⁵ The failure of presidential administrations to advocate for recapitalization of nonstrategic nuclear weapons and congressional resistance to authorizing or funding even minimal recapitalization activities over the past two decades only underscores the desire to avoid fielding a sufficient force of credible, theater nuclear weapons—even in the face of Russian nuclear threats.¹⁶ It is worth noting that it was only in light of clear Russian cheating on the Intermediate Nuclear Forces Treaty (INF) that the United States, wisely, highlighted the extent of Russian reliance on nonstrategic nuclear weapons.¹⁷

While the United States rapidly and irreversibly dismantled its nonstrategic nuclear weapons arsenal via thorough implementation of the Presidential Nuclear Initiatives of 1991 and 1992, Russia, after a promising start, abandoned the effort by the end of the 1990s.¹⁸ Moscow's unilateral abandonment, indeed reversal, of this informal arms control process was not unknown by the United States. Nor was it unknown that China was focusing on nonstrategic nuclear weapons development and deployment for the past decade-and-a-half by that time, culminating with design of both low-yield tactical and enhanced radiation warheads, deployment of a large variety of dual-capable theater missile systems, and the development of a doctrine of “dual deterrence/dual operations.”¹⁹

Additionally, while the United States has strictly observed a “zero-yield” interpretation of the Comprehensive Nuclear Test Ban Treaty (CTBT) since 1992, Russia and China appear to test at extremely low yields.²⁰ While it is unknown what benefits are gained through this activity, not only are there specific areas in which the United States could benefit from similar testing, but more importantly the US relinquishment of this field of military scientific inquiry dangerously underscores Washington's aversion to competition within the general area of nuclear weapons development. Indeed, at the time of the CTBT ratification hearings, Ambassador C. Paul Robinson, then-director of Sandia National Laboratories, stated bluntly, “If the United States scrupulously restricts itself to zero-yield while other nations may conduct experiments up to the threshold of international detectability, we will be at an intolerable disadvantage.”²¹

These competitive developments accelerated after the invasions of Georgia and Ukraine in 2008 and 2014, respectively. The clear outlines of a coercive new “theory of victory,” which locates limited theater nuclear employment at its core, are now in full view.²² Rather than respond competitively, the United States responded repeatedly with unambiguous messages refusing to compete. Asymmetric Presidential Nuclear Initiative compliance, congressional prohibition on low-yield weapons development, cancellation of Robust Nuclear Earth Penetrator (RNEP), prohibition on even conceptual design efforts, retirement and disassembly of the W84 cruise missile warhead, the planned retirement of the B83 gravity bomb,

asymmetric adherence to a zero-yield testing policy, and myriad correlating political statements emphasized the US desire to “reduce the role of nuclear weapons” even as Russia and China did the opposite.

The Pursuit of Competitive Limited Nuclear Employment Capabilities

Moscow continues to expand Russia’s reliance on nuclear weapons and will soon have a fully modernized operational force of some 8,000 nuclear warheads by the end of this decade, roughly half strategic and half nonstrategic.²³ Currently, Russia is more than 90-percent complete with its strategic force modernization and it is almost 80-percent complete with the modernization of its nonstrategic nuclear forces.²⁴ In its strategic modernization, Russia displays a distinct preference for building significant upload capacity into its force structure. The United States, on the contrary, eliminated multiple independent reentry vehicles (MIRV) from Minuteman IIIs, taking the entire fleet to single-reentry vehicles (RV). Russia’s newest strategic intercontinental ballistic missile (ICBM) systems, the Yars and the Sarmat, have reported maximum RV capacities of 6 and 20 RVs, respectively.²⁵ Fielded Yars are declared as single RV weapons under the New START Treaty but offer an opportunity for significant upload. In light of the fact that the two Russian nuclear production plants have a combined capacity of at least 10 times the capacity that the two US pit production plants will have by some indeterminate date in the 2030s, Russia can rapidly expand its strategic nuclear arsenal where the United States cannot.²⁶ At the expiration of New START in 2026, or anytime sooner in the event of a breakout, Russia could rapidly triple the number of operational strategic nuclear warheads. Because of much less reversible logistics constraints and the lack of warhead-production capability, it would take the United States years to even double the number of operational strategic nuclear warheads.²⁷

Though the net balance in strategic nuclear forces significantly favors Russia, the true focus for Russian nuclear modernization is what was known during the Cold War as *long-range theater nuclear forces*. The bottom line for these systems is simple: Russia requires recourse to theater-range, ultra-low yield, nuclear systems to blunt an American-led NATO air war. Russia views such a campaign as the inevitable opening gambit of any conflict with the West.²⁸ Russia may find a way to blunt that formidable capability through the use of electronic warfare, an advanced long-range radar architecture, and highly integrated nuclear-armed IADS.²⁹ Nevertheless, purely defensive operations, even nuclear-armed operations, against a NATO aerospace blitzkrieg will rapidly be demonstrated as cata-

clysmically insufficient, and almost immediate recourse will be to deep interdiction against allied air bases across the NATO landscape to dramatically reduce the sortie rate of fifth-generation aircraft.³⁰ Russia realized this as early as 1999 and began focusing a large fraction of its defense spending on theater nuclear forces, successfully developing and fielding a variety of such platforms, including the SSC-8 ground-launched cruise missile (GLCM), the Kh-47M2 Kinzhal air-launched hypersonic missile (ALHM), the 3M-14 Kalibr land-attack cruise missile (LACM), and the P-800 Oniks antiship cruise missile (ASCM).³¹ These systems are fielded, and Russia has built the operational plans, formulated the doctrine, and conducted the exercises to successfully execute strikes with these systems in actual combat.³²

China has followed a similar path. The advent of the DF-41 heavy mobile ICBM, the JL-3 intercontinental-range submarine-launched ballistic missile (SLBM), and the H-20 heavy stealth bomber has ensured the survivability of China's strategic nuclear forces and positioned China to "sprint" to rough strategic nuclear parity with the United States over the course of the coming decade. However, what is perhaps more disconcerting is that China achieved theater nuclear superiority centered on a paced build-up of advanced theater missiles of various ranges, most of which began developmental life with an explicit nuclear mission—i.e., DF-21 and DF-26. The extent of dual-allocated theater systems is unknown. Where there is opacity in the nuclear posture of China, Western analysts are quick to downplay the threat. For example, even though every previous "stealthy" bomber in P-5 nations was accompanied by suitable air-delivered, direct-attack gravity bombs, Western analysts remain surprisingly unconvinced that China possesses a modernized nuclear gravity bomb.³³

This lack of transparency into China's theater nuclear forces largely meets with Western skepticism. Such forces likely include a cruise and ballistic missile delivered by the H-6K and H-6N theater bombers, augmented by in-flight refueling, and medium-to-intermediate range ballistic missiles like the DF-15, DF-16, DF-17, DF-21, and DF-26.³⁴ Chinese theater nuclear forces may also include a dual role for the J-20 (analogous to the F-35), a dual capability for imported S-400s, a submarine-launched cruise missile, and even a nuclear role for its newest 155mm artillery. The variety of Chinese dual-capable theater systems begs the question, is China racing to achieve theater nuclear parity with Russia—not the United States?

It is argued that China is postured to defeat the United States in a conflict close to the former's own shores, but this is far from a foregone conclusion.³⁵ It is at least probable, for example, that the so-called fifth-generation J-20 will suffer defeat at the hands of US F-22s, enabling fifth-generation strike aircraft to sys-

tematically suppress or destroy Chinese IADS and blind or confuse the People's Liberation Army's (PLA) command, control, communications, and intelligence (C3I) complex. While it is debatable whether US forces can generate the required sortie rates over the much longer "Pacific-relevant" distances, it is at least a very real possibility that PLA planners must consider. The situation, then, for China is likely similar to Russia's dilemma, placing China in a position to escalate across the nuclear threshold or face defeat. This is existentially untenable for the Chinese Communist Party. Given the geography of the theater of operations, though, China would likely resort to discriminate low-yield (it remains to be seen just how low) nuclear strikes on important theater targets to forestall defeat.

The combined outcome of these great-power dynamics is that Washington finds itself in a strategic environment in which the United States will soon face two nuclear-peer adversaries positioned favorably in the net nuclear balance. Russia retains its parity in strategic nuclear weapons, with a larger and more rapid upload capacity. Russia is also near complete in its nonstrategic nuclear weapons modernization program. China's own "breathtaking nuclear breakout" came to light as previously unknown missile fields were identified, indicative of near-term strategic parity, and a surge in theater nuclear weapon development, production, and deployment.³⁶ One other indicator of this theater nuclear expansion is the massive expansion at Pingtong, China's nuclear weapons production site (roughly analogous to pit production plus Pantex in the United States), which cannot be entirely attributable to the expansion of the number of strategically deliverable warheads, notwithstanding the rapid expansion in that latter category.

Strategic and Operational Consequences

In the event that Russia or China crosses the nuclear threshold into discriminate, very low-yield theater nuclear strikes, the consequences for the United States and its allies are grim. Such "light" employment would be designed to encourage US capitulation and avoid galvanizing Americans, almost assuredly striking purely military targets with extremely low collateral damage and essentially zero fallout. Such theater targets are numerous for Moscow and Beijing to choose from since US forces enjoy extensive overseas basing options and allies are likely fighting alongside the United States. Especially attractive targets are airstrips supporting fifth-generation aircraft, air and missile defense radars, logistics hubs, and command-and-control nodes. These types of targets would seriously degrade operations if struck, particularly the immediate effort to establish air dominance in a region.

The rail and road links into Ukraine that are needed for allied reinforcement of Ukrainian armor and mechanized brigades might also be immediately destroyed

by a relatively small number of ultra- and very-low yield nuclear strikes while avoiding significant civilian casualties. And as an example of the avoidance of collateral damage, the Aegis Ashore installation in Romania is separated from civilian populations sufficiently for Russia to strike it with an ultra-low or very-low-yield Kinzhal and kill essentially zero civilians. Strikes like these are designed to pressure the United States and its allies by messaging to democratic populations and their leadership that the stakes of this conflict are high enough for the rival to go nuclear, without substantial likelihood of strengthening resolve, due to the purely military nature of the casualties. The implied (or explicit) message is simple—there are hundreds more strikes like these coming. Looming over all such operations is the real threat of escalation to strategic nuclear strikes if the stakes are high enough.

If these light theater strikes fail to collapse the will to fight in the United States and its allied nations, graduated escalatory responses are possible. For example, one of Russia's known operational concepts is strategic operations for the destruction of critically important targets (SODCIT), which incorporates a mix of conventional and nuclear strikes, combined with cyber and space operations, to deliver significant damage to US infrastructure.³⁷ In this context, a useful example is a very-low-yield nuclear cruise missile strike on the weapons storage area at Whiteman AFB, Missouri, the B-2 bomber base, which would destroy the target without killing many airmen less than a mile away. Alternatively, heavier theater strikes might be executed with higher yield (single-digit kilotons), against more valuable targets (early warning radars, for example), or more widely distributed. This could be coincident with ultra- and very-low-yield nuclear strikes across many in-theater air bases.

In all these cases, about which Moscow and Beijing contemplate, the intention is to undermine the will to fight. In this phase, as in every phase of a conflict, the adversary vigorously conducts information operations against the United States, supporting all voices that call for an immediate cessation of hostilities, advocating strenuously against nuclear escalation, and questioning the value of the political objective. The pressure to seek accommodation would prove very high, particularly since the United States and its allies have very limited proportional response capability. Proportional responses that do exist almost invariably demand strikes into the homeland of the enemy, giving a “shadow of legitimacy” to potential limited nuclear strikes on the United States.

Recommendations

While it may be distasteful to Americans to compete with Russia and China in nonstrategic nuclear weapons, the alternative is no longer an option if the United States intends to maintain its position in the world. Counter to the fears of many

in the disarmament community, building a capability to credibly respond to the threatened use of nonstrategic nuclear weapons will deter the very action that is feared. The ever-present concern that Moscow or Beijing might opportunistically take advantage of a limited nuclear conflict between the United States and the other state—attempting a *fait accompli* of their own—is also worth considering as the nation thinks its way through how to lead the free world in a tripolar era.

It should be clear from the analysis provided here that the US strategic nuclear modernization program must be executed without further delay. Repeated Russian threats to use nuclear weapons against NATO and Ukraine only underscore the erosion of a nuclear taboo that saw few nuclear threats over the past five decades. President Vladimir Putin is certainly leaving many Americans to wonder whether the “apocalypse insurance” afforded by the nation’s strategic forces is now expired. Modernization of the nuclear triad is the floor of nuclear posture adjustment, not the ceiling.

The 2018 *Nuclear Posture Review* rightly concluded that not only would the W76-2 low-yield SLBM warhead be required as a force posture adjustment but also that the nation should pursue a sea-launched cruise missile with a nuclear warhead (SLCM-N). The W76-2 provides a survivable, penetrable, and prompt response option, but it suffers from two limitations. First, it was fielded in very small numbers. Second, the single low-yield option may not be sufficiently low for some cases where a very- or ultra-low-yield option is required. The SLCM-N alleviates the constraints imposed by these limitations, by allowing for adaptability and scalability in numbers and yield options. Unfortunately, the Biden administration cancelled the SLCM-N in May 2022. Putin’s repeated nuclear threats are certainly reason to reconsider this decision, and it is heartening to see funding restored by Congress in a rare bipartisan consensus.

Additional capabilities and nonmateriel solutions are also required. These include developing new strategic approaches to adversary nuclear doctrine.³⁸ The Biden administration is developing *integrated deterrence* for this purpose. Although highly improbable, successful arms control efforts with Moscow and Beijing that include nonstrategic nuclear weapons would be one approach to limiting the threat.³⁹ Given the criticality of the perceived value of nonstrategic nuclear weapons, Russia and China are unlikely to divest themselves of these capabilities, which would require the United States to field its own arsenal as a way to drive its adversaries to the negotiating table—similar to President Ronald Reagan’s effort that led to the INF Treaty.

Additional US countervailing capabilities might include symmetric and asymmetric options. An example of a symmetric countervailing capability is nuclear-armed, mobile, ground-launched, continental-range hypersonic missiles. The nu-

clear warhead might even be of the variable-yield, “clip-in” type that were briefly pursued by the United States in the 1980s.⁴⁰ Asymmetric countervailing capabilities almost certainly are kinetic, since nonkinetically induced effects, while operationally significant, generally do not carry the same psychologically escalatory effects. Several options exist, including some that are space-based, but they all face significant political hurdles and possibly even greater technological ones.

In either countervailing case, symmetric or asymmetric (but kinetic), the primary goal is to bolster deterrence. Moscow and Beijing must be convinced that there is no advantage to escalating across the nuclear threshold. Such a shift in perspective could diminish the attraction of limited nuclear employment. Without recourse to some means of escalating past the United States, Russia and China would then also be deterred from even beginning down the path to conflict. Of course, should deterrence fail, the United States would be well positioned to contain the conflict to nonnuclear modes and levels of escalation, since there would be no strategic or operational advantages for adversaries to gain using nonstrategic nuclear weapons. Moreover, by gaining countervailing capabilities the United States also gains arms control leverage. Fielding such capabilities, as done in the 1980s with the Pershing II and the GLCM, would potentially open the door to a multilateral arms control treaty that captures all nuclear warheads.

Finally, research and development of US warhead technologies require an accelerated modernization of the National Nuclear Security Administration lab infrastructure. Considering China’s massive expansion of its nuclear forces and Russian and Chinese limited nuclear employment plans, US inferiority in nonstrategic nuclear weapons will only become more pronounced in the decade ahead, if left unchecked. In the end, the United States needs to demonstrate its commitment to eliminating the advantages that a nuclear-armed peer might gain in employing nonstrategic nuclear weapons in a very limited and selective manner. Until that day, an attraction toward limited nuclear employment persists that Americans can expect Russia and China to assiduously attempt to exploit. ♣

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