



The Future of NATO's Nuclear Posture and Arms Control in Today's More Dangerous World

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Miles Pomper, David Santoro, and Nikolai Sokov



Middlebury Institute of
International Studies at Monterey

James Martin Center for Nonproliferation Studies

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**Miles Pomper
David Santoro
Nikolai Sokov**

James Martin Center of Nonproliferation Studies Middlebury Institute of International Studies at Monterey

460 Pierce Street, Monterey, CA 93940, USA

Phone: +1 (831) 647-4154

Fax: +1 (831) 647-3519

www.nonproliferation.org

www.middlebury.edu/institute

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Introduction



Signing of NATO-Russia founding Act 1997 with President Bill Clinton and Russian President Boris Yeltsin. Source: Wikimedia Commons

Since the late 1960s, NATO has sought to balance two objectives—maintaining a strong nuclear deterrent while supporting efforts to buttress strategic stability through arms control and advance nonproliferation and disarmament through the nuclear Nonproliferation Treaty process.

The success of this strategy was most evident in the dual-track strategy of deployments and negotiations that led to the signing and implementation of the Intermediate-Range Nuclear Forces (INF) Treaty in 1987. The end of the Cold War also led to substantial cuts in U.S. and Russian strategic systems.

Since then, NATO Allies have regularly voiced their support for continuing to pursue these two objectives, including supporting the goal enunciated by U.S. President Barack Obama in 2009 “to seek the peace and security of a world without nuclear weapons.”¹

¹ “Remarks By President Barack Obama In Prague As Delivered,” The Obama White House, April 5, 2009, <https://obamawhitehouse.archives.gov/the-press-office/remarks-president-barack-obama-prague-delivered>. The 2010 NATO Strategic Concept for example, stated that “We are resolved to seek a safer world for all and to create the conditions for a world without nuclear weapons in accordance with the goals of the Nuclear Non-Proliferation Treaty, in a way that promotes international stability, and is based on the principle of undiminished security for all.” Similar statements have been included in NATO summit communiqués ever since. “Strategic Concept for the Defence and Security of the Members of the North Atlantic Treaty Organization,” NATO, November 2010, https://www.nato.int/cps/en/natohq/topics_82705.htm.

In the last decade, however, Russia’s malign behavior has undermined NATO arms control efforts to the point that it appears traditional arms control will be effectively dead when the New START agreement—already suspended by Russia—expires in 2026. Russian’s invasion of Ukraine, its repeated nuclear saber-rattling in that conflict, and the deployment of non-strategic nuclear weapons to Belarus has also forced the alliance to look to ways to enhance its deterrence, including its nuclear deterrence.

Meanwhile, the massive increase in China’s nuclear arsenal and its growing partnership with Russia, is generating additional pressure to increase U.S. nuclear forces as well as questions about the ability of the U.S. to provide extended deterrence simultaneously to Allies in Europe and Asia. Those doubts have been reinforced by political developments in the United States—and in the war in Ukraine—that have raised anxieties about a decoupling of European and U.S. deterrence and defense and led to fresh discussion of a potential “Eurodeterrent.” Meanwhile, developments in North Korea and Iran—and their increasingly close ties with Moscow—further threaten the viability of the already shaky nuclear and missile nonproliferation regimes and have eroded longstanding cooperation between Washington and Moscow to manage nuclear nonproliferation risks in third countries.

In response to these developments, Allies and experts, such as the Congressional Strategic Posture Commission, have proposed various adaptations to the alliance’s nuclear posture, including to its nuclear sharing arrangements. This report examines these deterrence proposals, particularly considering how they support the alliance’s other longstanding objectives of arms control, disarmament, and nonproliferation.

The paper begins with some background on US/NATO nuclear policy from the end of the Cold War to the further invasion of Ukraine in February 2022. It then delves into changes in Russian nuclear doctrine, Moscow’s nuclear behavior during the Ukraine War, and the Kremlin’s views on future arms control. The report next discusses China’s nuclear modernization and views on arms control and the reaction among NATO and Asian Allies and the international community to these changes. It then discusses potential future U.S. and NATO posture options, including those already being undertaken by NATO or proposed by the US. Congressional Strategic Posture Commission and the State Department’s International Security Advisory Board. It concludes with an analysis of the potential impact of various options on arms control, disarmament, and nonproliferation and offers some policy recommendations.

Background: U.S. Policy from the end of the Cold War to the further invasion of Ukraine

Since the end of the Cold War, NATO's nuclear deterrent has largely rested on two pillars—the strategic weapons of the United States (and to a lesser extent those of the United Kingdom and France)—as well as U.S. non-strategic nuclear warheads deployed in Europe for potential wartime use by European allies under nuclear-sharing arrangements. NATO communiqués and policies regularly describe the strategic forces, particularly those of the United States, as the “supreme guarantee” of the Alliance’s security while U.S. non-strategic warheads serve a largely political function of reassuring allies that their security will not be decoupled from that of the United States and involving allies in the mechanics of nuclear exercises and in some cases operational planning.

Indeed, after security tensions eased with the end of the Cold War, and NATO expanded to include former Warsaw Pact members, the number and location of U.S. non-strategic weapons in Europe declined significantly and nuclear warheads were no longer based near the Alliance’s front lines. As a result, for many years the weapons appeared to be increasingly irrelevant in both military and political terms with political pressures to withdraw such weapons coming to a head after President Obama’s 2009 Prague speech.

Moreover, NATO provided nuclear reassurances to Russia—“the Three Nos” of the 1997 NATO-Russia Founding Act²—to placate Russian concerns that NATO’s nuclear infrastructure would expand to the territories of Moscow’s former Warsaw Pact allies. The Founding Act contained a politically binding unilateral assurance that NATO had “no intention, no plan and no reason to deploy nuclear weapons on the territory of new members, nor any need to change any aspect of NATO’s nuclear posture or nuclear policy - and do not foresee any future need to do so.”³ These assurances also said that NATO would not “establish nuclear weapon storage sites on the territory of those members, whether through the construction of new nuclear storage facilities or the adaptation of old nuclear storage facilities.”⁴

² “Founding Act on Mutual Relations, Cooperation and Security between NATO and the Russian Federation Signed in Paris, France,” NATO, October 12, 2009, https://www.nato.int/cps/en/natohq/official_texts_25468.htm.

³ Ibid.

⁴ Ibid.

The 2011 New START agreement cemented U.S. and Russian cuts in the number of deployed offensive strategic weapons, while the U.S. Senate resolution of ratification for the pact demanded that the next arms control treaty between the countries tackle the vast disparity in their number of non-strategic nuclear warheads, (Russia is believed to have thousands of such weapons, while U.S non-strategic stockpiles are said to number in the hundreds).

European pressures to consider withdrawing such weapons diminished after Russia's 2014 seizure of Crimea and occupation of parts of Eastern Ukraine, Russia's violation of the Intermediate Nuclear Forces treaty, and the U.S decision—supported by Allies—to withdraw from the treaty. Still, nongovernmental experts estimate that today there are only about 100 nonstrategic warheads deployed in five NATO countries (Belgium, Germany, Italy, the Netherlands, and Turkey) with dual-capable aircraft (DCA) capable of carrying either nuclear or conventional weapons. In addition, a base in Lakenheath, England has recently been modernized to be capable of storing warheads and Greece possesses DCA but does not store warheads. That is down from thousands of weapons scattered across dozens of bases during the Cold War. Russia, meanwhile, has an estimated 1,000-2,000 such weapons according to the U.S. intelligence community and nongovernmental experts. This represents a significant reduction from the Cold War high of almost 22,000 weapons, but the Russian military appears determined to preserve significant superiority over NATO in that category and has steadfastly refused to engage on transparency or negotiated reductions of these weapons.⁵

Meanwhile, the Trump administration's 2019 withdrawal from the INF treaty removed legal barriers to the deployment of U.S. land-based intermediate-range missiles but did not lead to immediately deployments of U.S. conventional systems, nor plans for nuclear ones. Such weapons have been brought twice to Europe for exercises, demonstrating they could be used to reinforce NATO deterrence in a time of crisis. At the 2024 NATO summit in July, Germany and the United States announced that the United States would begin "episodic deployments" of "long-range fires" in 2026, which would eventually include SM-6, Tomahawk, and hypersonic missiles. These weapons, however, would be conventionally, not nuclear-armed given the political obstacles to deploying U.S. nuclear-armed systems in Europe as well as the fact that the United States has not developed nuclear variants of such systems.⁶

⁵ The best publicly available source on U.S. nuclear sharing arrangements in Europe is the "Nuclear Notebook" in the *Bulletin of the Atomic Scientists*: Hans M. Kristensen, Matt Korda, Eliana Johns and Mackenzie Knight, "Nuclear weapons sharing, 2023" *Nuclear Notebook*, *Bulletin of the Atomic Scientists* 79, no. 6, 2023, 393–406, <https://doi.org/10.1080/00963402.2023.2266944s>

⁶ "Joint Statement from United States and Germany on Long-Range Fires Deployment in Germany," The White House, July 10, 2024, <https://www.whitehouse.gov/briefing-room/statements-releases/2024/07/10/joint-statement-from-united-states-and-germany-on-long-range-fires-deployment-in-germany/#:~:text=The%20United%20States%20will%20begin,these%20capabilities%20in%20the%20future.>

Trump did, however, advance two sea-based programs that sought to provide a counter to what was seen as a greater Russian willingness to use theater-range nuclear weapons to blunt U.S. conventional advantages. The Trump Defense Department supported development of a low-yield warhead (the W76-2) for sea-launched ballistic missiles. It also initiated research and development of a sea-launched nuclear cruise missile only a few years after the Obama administration had withdrawn a previous such missile from service.

The Biden administration entered office in 2021 committed to reinvigorating arms control with Russia. One of its first actions was to join Russia in extending the new START agreement for five years. The two countries soon thereafter launched a strategic stability dialogue with the goal of agreeing on a new treaty before New START's expiration in 2026. However, these talks ended with Russia's further invasion of Ukraine (details below).

The administration's Nuclear Posture Review in 2022 continued previous plans for strategic nuclear modernization but did not support funding for the SLCM-N. The Biden administration did, however, move forward with production of the new B61-12 gravity bomb for deployment in Europe, while European host Allies (amid some debate in countries such as Germany) moved forward with purchasing nuclear-capable planes that could carry them.

Developments in Russia

Russian Nuclear Doctrine and Arms Control Prior to the War

With the end of the Cold War, nuclear weapons lost their earlier role and rationale and, in a way, remained without a clear place in national security policy. The period of uncertainty ended in 2000, with a new Military Doctrine which defined new parameters, which have remained almost unchanged since then. The Military Doctrine of 2000 introduced the view that nuclear weapons should support not only the traditional mission of strategic deterrence, but also the mission of deterring the superior conventional forces of the United States and NATO.

The specific contingency, which was on the minds of policymakers in 2000, was the war in Kosovo and the perceived risk of that scenario repeating in Chechnya. Russian policymakers and military were concerned that any military operation against Chechens could trigger military interference by the United States and NATO with Russia helpless against even a limited US-led force. Zapad-99 exercises in the late spring of 1999, which simulated an attack on Kaliningrad Oblast by a NATO force identical to the one used against Serbia, showed that Russian armed forces could only resist for a few days, after that the choice was between surrender and nuclear use. The perceived need to rely on nuclear weapons in less-than-global conflict became the heart of new nuclear strategy embodied in the new Military Doctrine adopted in the spring of 2000 and commonly known as “de-escalation.”

Nuclear weapons were assigned, in addition to global war, to “regional conflicts,” i.e., wars more limited than global, in which Russia faced several adversaries, including at least one nuclear weapon state. Originally, the escalation path considered most likely was involvement of the United States and NATO in the war in Chechnya (“armed conflict,” according to the Doctrine classification); the other possible escalation path was outside involvement in “local conflict” (i.e., if the West had intervened in the war with Georgia in 2008). It was expected that Russia’s stake in such conflicts (“armed” or “local”) would be higher than the stakes of outside parties (the United States and its allies), hence the prospect of nuclear use would either prevent their involvement or force them to step back.

To be sure, Russia was not content with reliance on nuclear weapons—the tool of last resort with low credibility. In 2003 it was announced that this reliance was a temporary fix until conventional weapons were modernized. The 2014 version of the Military Doctrine introduced a new notion, that of conventional

deterrence, and in 2015 launches of sea-launched cruise missiles from the Caspian Sea against targets in Syria demonstrated that capability. Contrary to the 2003 promise, however, nuclear weapons were not discarded: they remained part of a toolkit, but decision on nuclear use no longer had to be made only a few days into fighting, as in 1999.

The effectiveness of scenarios involving nuclear weapons is limited by the “nuclear taboo,” the informal, but nonetheless very strong de facto ban on the use of nuclear weapons. Accordingly, the threshold was set high – situation “critical for national security” in the 2000 Military Doctrine – and even higher – “when the very existence of Russia is under threat” – in the 2010 and 2014 versions. Nuclear use was allowed only against other nuclear states, their allies, or states that “attacked Russia together with a nuclear weapon state (a transparent hint at ad-hoc “coalitions of the willing”). All this effectively limited Moscow’s ability to leverage nuclear weapons in a conflict: at least, the proposal, made in 2009, to extend the “nuclear option” to “local conflicts” without outside intervention (such as the 2008 war with Georgia) was rejected.

The Russian nuclear arsenal has undergone serious evolution during the three decades since the end of the Cold War: numerically, the strategic arsenal has declined to the level established by the 2010 New START Treaty (1,550 deployed warheads) and has since remained unchanged, but it has undergone significant qualitative improvements. During the 1990s, attention primarily concentrated on creating a new production complex based solely in Russia (during the Soviet years, it involved multiple republics, which in 1991 became independent states), but starting in early 2000s replacement of legacy Soviet systems began in earnest.

In part, this activity involved replacement of older systems with new comparable types of missiles and delivery vehicles, such as arming the new “Borey”-class SSBNs with “Bulava” SLBMs (the SS-N-20 SLBMs on Soviet-era submarines was replaced with “Sineva” missiles). Russia also began increasing the number of warheads on delivery vehicles – a more cost-effective option which allowed Moscow to limit the number of missiles it needed.

The main thrust of modernization programs, however, was aimed at enhancing the ability to penetrate missile defenses –the main concern of the Soviet and Russian military since the 1980s. Central among them was the “Avangard” maneuvering reentry vehicle initially deployed on the old Soviet-era SS-19 ICBM and intended eventually for the new “Sarmat” heavy ICBM. In addition, the “Yars” dual-basing (silo and ground-mobile modes) ICBM is being replaced with the “Yars-S” modification, which features a third stage consisting of four parallel units quadrupling the number of potential targets for missile defense when the missile reaches the upper atmosphere.

Moscow significantly reduced its non-strategic nuclear forces in the 1990s-early 2000 and then continued to reduce them at a very slow pace. Russia has never disclosed data about its non-strategic nuclear weapons, but according to a credible unofficial source,⁷ in 1991 these numbered 21,700. In 2005, Moscow announced it had reduced the stockpile by 75 percent,⁸ which would make it about 5,000 (probably more than that waiting for dismantlement). In 2007, former Chief of the 12th GUMO, General Vladimir Verkhovtsev disclosed⁹ that the reduction had been deeper than what Russia promised under PNIs: the 1991 plans foresaw a 64-percent reduction. The current stockpile is assessed at about 1,600 warheads (not counting missile defense warheads) or to be more precise, this is the capacity of Russian dual-capable non-strategic delivery vehicles.¹⁰

Among such systems, emphasis was placed on retaining longer-range assets that bumped up against the INF treaty's lower limits (500-km Iskander and theater-range Kalibr and Kh-101) missiles; meanwhile all short- and theater-range strike assets were designed to be capable of carrying either nuclear or conventional warheads, in a departure from the Soviet pattern. While most Russian R&D programs resembled the old U.S. ones (reflecting the attempt to acquire long-range conventional strike capability), Russia has also pioneered development of hypersonic missiles, which are portrayed as an effective means of penetrating missile defense.

Russia's arms control policy reasonably fit its new strategy and modernization programs. Throughout the 1990s and even later, Moscow sought reduction of strategic weapons (its original proposal for START II in 1992 was 2,500 accountable warheads in contrast to the 3,500 level in the agreed version), it supported the 2,200-warhead level agreed for the 2002 SORT, and the 1,550 limit for New START. There was a limit to how low it would agree to go: reliable strategic deterrence remained at the heart of Russian strategy and, broader Russian image of the foundations of the international system.

⁷ Alexei Arbatov, "Deep Cuts and de-Alerting: A Russian Perspective," in: *The Nuclear Turning Point*, Brookings Institution Press: Washington, DC, 1999), p. 320.

⁸ "Практические шаги Российской Федерации в области ядерного разоружения" [Practical Actions of the Russian Federation in the Area of Nuclear Disarmament], Report presented at the 7th NPT Review Conference (2005), slide 13, [http://www.mid.ru/ns-dvbr.nsf/10aa6ac6e80702fc432569ea003612f0/526da088ef7526e3c325700d002f81c7/\\$FILE/Presentation-Russian.pdf](http://www.mid.ru/ns-dvbr.nsf/10aa6ac6e80702fc432569ea003612f0/526da088ef7526e3c325700d002f81c7/$FILE/Presentation-Russian.pdf).

⁹ Nikolai Poroskov, "Тактический ядерный козырь" [A Tactical Nuclear Ace], *Vremya Novostei*, September 7, 2007.

¹⁰ Hans M. Kristensen, Matt Korda, Eliana Johns, *Nuclear Notebook: Russian Nuclear Weapons*, 2023, May 9, 2023, <https://thebulletin.org/premium/2023-05/nuclear-notebook-russian-nuclear-weapons-2023/>.

Russia has also consistently resisted any dialogue on non-strategic nuclear weapons. Although it has reduced its stockpile to a level significantly below what was promised in the 1991 Presidential Nuclear Initiatives (PNI) – an estimated less than 2,000 warheads vs. the original plan for 7-8,000, – it declared the PNIs invalid in 2004 apparently fearing greater transparency and further reductions: a strong non-strategic capability was regarded as a vital element for a “de-escalation” scenario under the “regional war” contingency.

Russia has retained its longstanding concern about missile defense (first and foremost, its theoretical impact on strategic stability) and, accordingly, attempted to establish legally binding limits; after the end of the Cold War, the US and NATO’s long-range precision-guided strike capability also resulted in a major reformulation of Moscow’s approach to arms control. Its current form was formulated by Foreign Minister Sergey Lavrov during the State Duma’s ratification of New START: he insisted arms control should be built around an “integrative approach” which includes, alongside with nuclear weapons, at least missile defense, long-range conventional weapons, and “space weapons” (this broad term remained poorly defined). Later the “integrative approach” was renamed “security equation.”

The 2010 New START Treaty, within that framework, was considered by Moscow as a one-time concession to the United States – an urgent arrangement driven by the expiration of START I in 2009 and the loss of a transparency, predictability, and verification framework (at that time, Russia was still interested in those). During the subsequent Strategic Stability Dialogue (SSD) it refused to discuss further reduction of nuclear weapons without addressing other issues. Nonetheless, Moscow has displayed a degree of interest in arms control and during short and inconclusive in-depth consultations on New START extension and framework of the next treaty in the late summer-early fall of 2020, agreed for the first time to freeze its nuclear stockpile and provide relevant data (that proposal was withdrawn in 2021, however).

Immediately after President Biden’s inauguration the two parties agreed to extend New START for another five years and then agreed, at a summit in June 2021, to resume SSD. Moreover, by the end of 2021 they created working groups to begin in-depth continuous discussions of the possible framework for a new treaty to replace New START.

Nuclear Weapons in the War Against Ukraine

Having started the war against Ukraine, Russia sought to leverage nuclear weapons to prevent the United States, its allies, and partners from assisting the victim. During the war, the role of nuclear weapons has evolved, but

aside from the early period has generally remained within the framework defined by the Military Doctrine. In parallel, Russia has completely withdrawn from any arms control, strategic stability, and risk reduction dialogue with the United States and continued to dismantle the arms control architecture created in the waning days of the Cold War and subsequent two decades.

For the first time nuclear weapons were invoked by President Putin in the declaration of the “special military operation.” The reference was vague and did not contain an explicit threat: instead it was along the lines many leaders have used that —“all options are on the table.”¹¹ At that point, Russian leadership expected a fast campaign and its message to the West amounted to “do not try to interfere.”

Effectively, at the start of the war Russia demonstrated the desire to replace a “defensive deterrence” mode (nuclear weapons as a tool of deterring attack by others) with “offensive deterrence” (threat of nuclear use as a cover for expansion and aggression). This attempt failed very quickly: the United States and its allied and partners, including NATO, the European Union, Japan, South Korea, and many other states quickly mobilized to provide political, material, and financial support for Ukraine helping it deflect the initial Russian assault. When it became clear that the war was becoming protracted, nuclear weapons abruptly disappeared from official public discourse; instead, Russian officials consistently referenced the 2020 Decree on Deterrence insisting nuclear weapons were not part of the war and their only purpose was deterrence of attack by others. In other words, only a few months into the war, Russia returned to “defensive deterrence.”

The next high-visibility reference by Vladimir Putin to nuclear weapons came in September 2022 against the background of a successful Ukrainian counteroffensive in Kharkiv region and Kherson,¹² which caught Russia by surprise. Putin’s reference to nuclear weapons sounded like an impromptu remark made under stress rather than a carefully worded statement.

It was during that time that US Intelligence Community concluded that some among the Russian military contemplated use of tactical nuclear weapons to

¹¹ “Iraq Statements by US President George W. Bush,” ProCon.org, last modified March 16, 2009, <https://usiraq.procon.org/view.additional-resource.php?resourceID=000684>.

¹² “Address by the President of the Russian Federation,” Information Office of the President of Russia, September 21, 2022, <http://en.kremlin.ru/events/president/transcripts/69390>.

stop the Ukrainian offensive.¹³ Strong signals were sent directly to Moscow to dissuade this as well as to countries such as China and India believed to carry weight with Putin and Moscow.¹⁴

Nuclear weapons were not employed and there was no tangible indication of any preparations or discussion at the political level for such employment. Instead, Russia conducted a partial mobilization and succeeded in stabilizing the frontline. The United States also rebuffed Ukrainian requests for deliveries of certain weapon systems for fear of nuclear escalation. While US reaction to intelligence findings were appropriate given the severity of the issue at stake (even remote risk of nuclear use should be treated seriously), in hindsight the likelihood of Russian nuclear use on the battlefield appears negligible.

Besides the fact that the Military Doctrine does not foresee nuclear use in a “local war” against a non-nuclear state, such employment could have disastrous consequences for Russia, in fact: it is bound to be taken very negatively by China and India as well as players in the Global South whose support and/or neutrality are key to the continuation of the war by mitigating the effect of economic sanctions. Hence, nuclear use against Ukraine would be self-defeating and appears highly unlikely.

Using nuclear weapons against other nuclear states and NATO, a nuclear alliance, is a different matter: under some contingencies it could be more palatable even for the Chinese. It is hardly surprising that all Russian nuclear signals, whether by officials or non-governmental commentators, have been directed at the West: the war against Ukraine has been conceptualized—officially and by the majority of nongovernmental commentators—as a proxy war with the United States and NATO and it is only logical that nuclear signals are intended for the source of the perceived threat.¹⁵ Direct involvement of outside states, including nuclear powers, would have upgraded the war to “regional conflict,” which allows for nuclear use.

¹³ Jim Sciutto, “Exclusive: US Prepared ‘Rigorously’ for Potential Russian Nuclear Strike in Ukraine in Late 2022, Officials Say,” CNN, March 9, 2024, <https://edition.cnn.com/2024/03/09/politics/us-prepared-rigorously-potential-russian-nuclear-strike-ukraine/index.html>; Helene Cooper, Julian E. Barnes, and Eric Schmitt, “Russian Military Leaders Discussed Use of Nuclear Weapons, U.S. Officials Say,” The New York Times, November 2, 2022, <https://www.nytimes.com/2022/11/02/us/politics/russia-ukraine-nuclear-weapons.html>.

¹⁴ Paul Sonne and John Hudson, “U.S. Has Sent Backchannel Warnings to Russia against Using Nuclear Weapon,” The Washington Post, September 22, 2022, <https://www.washingtonpost.com/national-security/2022/09/22/russia-nuclear-threat-us-options/>.

¹⁵ “Statement of the Russian Federation on Preventing Nuclear War,” The Ministry of Foreign Affairs of the Russian Federation, November 2, 2022, https://mid.ru/ru/press_service/spokesman/official_statement/1836575/?lang=en.

In this context, the US policy of gradual increase of assistance to Ukraine, both in volume and in quality, proved the optimal choice in the sense that it skirted the red line and did not give Russia a pretext to escalate and leverage nuclear weapons in a more open manner. Early into the war, President Biden took a firm position that the United States would not fight Russia in Ukraine: “Direct confrontation between NATO and Russia is World War Three, something we must strive to prevent,” he said.¹⁶

It would be a mistake to feel complacent, however. *Almost everything we thought we knew about Russian red lines from the Cold War no longer appears relevant.* Each new stage in Western assistance to Ukraine is evaluated for its impact on the situation on the battlefield, and so far, Russia has apparently been satisfied that it can continue the war – even with some limited success as of mid-2024 – and degrade Ukraine’s capability to fight by missile and air strikes across the entire depth of the country’s territory. Consequently, Russian warnings – usually coming from low credibility sources – about each new stage representing a red line can be safely discarded: *only after the evaluation of the impact of new stage of Western assistance is completed (it may take as long as two-three months), Moscow will know whether it represented a red line. Accordingly, reaction, if and when it comes, may come unexpectedly and appear unprovoked.*

Not all Russian signals have taken the form of statements. Traditionally, changes in nuclear posture are considered stronger than words, and the institution of nuclear sharing arrangements with Belarus represented one such signal.¹⁷ That decision reversed two major policies of post-Soviet Russia: insistence that nuclear weapons should be kept only in the national territories of NWS and that NATO nuclear sharing violates the Nuclear Nonproliferation Treaty (NPT). Nuclear sharing with Belarus was initiated in the summer of 2022, soon after it became clear that quick victory over Ukraine was unachievable (notably, when Lukashenko proposed deployment of Russian nuclear weapons in Belarus in 2021, Putin refused), and apparently had two missions: one was deterrence of NATO in the context of the war in Ukraine (same as public statements referred to above) and the other was security of the political regime in Belarus. The choice of delivery vehicles associated with that mission (Iskander ground-launched missiles and Su-35 aircraft) indicated the focus on Poland first and foremost. This step did not affect the policy of the West, however.

¹⁶ “Remarks by President Biden Announcing Actions to Continue to Hold Russia Accountable,” The White House, March 11, 2022, <https://www.whitehouse.gov/briefing-room/speeches-remarks/2022/03/11/remarks-by-president-biden-announcing-actions-to-continue-to-hold-russia-accountable/>

¹⁷ Nikolai Sokov, “Russia Is Deploying Nuclear Weapons in Belarus. NATO Shouldn’t Take the Bait,” *Bulletin of the Atomic Scientists*, April 24, 2023, <https://thebulletin.org/2023/04/russia-is-deploying-nuclear-weapons-in-belarus-nato-shouldnt-take-the-bait/>.

The intensity and directness of Russian nuclear saber-rattling reached a new high point in February 2024, when French President Emmanuel Macron raised the possibility of sending French and other European troops to Ukraine as well as the decision, first by the United Kingdom and then by several other states, to allow Ukraine to use their weapons against targets in Russia's pre-2014 territory. To Moscow, this represented the prospect of proxy war with NATO evolving into direct open conflict. Speaking to the Federal Assembly on February 29, 2024, Putin proclaimed that countries which "select targets in Russia" or discuss sending troops to Ukraine "must, in the end, realize that we also have weapons ... which can take out targets in their territories."¹⁸ Putin's spokesman, Peskov, declared that that foreign servicemen in Ukraine were not immune to a Russian strike; this statement was met in Paris with consternation.¹⁹ Peskov also said that "the special military operation" had "evolved into a war against collective West."

Speaking at the St. Petersburg International Economic Forum in June 2024, Putin tried to sound reasonable, rejecting the notion that Russia had ever talked about nuclear escalation: "We only reminded that everyone should treat them seriously."²⁰ The statement was carefully orchestrated – the moderator at the session, Sergey Karaganov, is known as a vocal proponent of a preemptive nuclear strike at NATO "to restore fear of nuclear weapons"²¹ and quickly end the conflict with the West; Putin's words were clearly intended to contrast with Karaganov's usual diatribe about an early nuclear strike.

Putin's reassuring tack, however, was balanced by an announcement, in the same statement, that Russian military doctrine could change (obviously, "in response" to increased threat from NATO). Putin did not indicate, however, how exactly the doctrine could be changed.

The Forum took place between two stages of an exercise with non-strategic nuclear weapons. The first stage took place in the Southern Military District in the end of May and featured loading of simulated nuclear weapons on

¹⁸ "Послание Президента Федеральному Собранию" [Address of the President to the Federal Assembly], Information Office of the President of Russia, February 29, 2024, <http://kremlin.ru/events/president/news/73585>

¹⁹ "В Кремле Заявили, Что СВО Приобрела Форму Войны Против Коллективного Запада" [The Kremlin stated that the SVO has taken the form of a War Against the Collective West], *RIA Novosti*, February 14, 2024, <https://ria.ru/20240214/svo-1927431134.html>.

²⁰ "Пленарное Заседание Петербургского Международного Экономического Форума" [Plenary Session of the St. Petersburg International Economic Forum], Information Office of the President of Russia, June 7, 2024, <http://kremlin.ru/events/president/news/74234>.

²¹ Sergey Karaganov, "Век войн? Статья вторая. Что делать?" [The Age of Wars. Article 2: What to Do?], *Rossiia v Globalnoi Politike*, March-April, 2024, <https://globalaffairs.ru/articles/vek-vojn-chto-delat/>.

Iskander tactical missiles and medium bombers Tu-22M3.²² The second stage was conducted in mid-June and featured both nuclear-capable delivery vehicles belonging to Belarus and, significantly, exercises for loading nuclear weapons on naval vessels.²³ The third stage, in August, largely repeated the first stage. Such exercises had been conducted before, but this was the first time they were publicly reported, shown on TV, and enjoyed other forms of publicity. Clearly, this was intended as a signal to NATO that Russia was ready to use non-strategic nuclear weapons: the assets demonstrated to the world have the capacity to strike targets in almost all of Europe.

Complementing these exercises was the announcement that Russia was resuming production of intermediate (theater)-range missiles.²⁴ Production is not the same as deployment, obviously, but the first step in that direction has been made.

In the middle of June, in a speech to the high-level officials of the Foreign Ministry, Putin declared that “those in the West who call for ‘strategic defeat’ of Russia display unlimited adventurism” because they “do not understand the scale of threat they trigger.” Talking to journalists a few days later he stated that Russia did not need a preventive nuclear strike “at this time.”²⁵ “Elimination of the adversary is guaranteed by strike on warning.”

Escalating nuclear rhetoric notwithstanding, it would be a mistake to assume that Russia puts nuclear employment at the forefront of its plans. Preferable for Moscow would be a conventional escalation that brings conflict close to the nuclear threshold without crossing it in an expectation that NATO would prefer to step back rather than risk even a very limited nuclear strike.

Success of that strategy depends on several conditions:

- Given the high risk of any escalation directly vis-à-vis NATO, it will likely be used only under conditions considered extreme, such as the prospect of defeat in Ukraine, which, Moscow firmly believes,

²² “В России Начали Первый Этап Учений По Применению Ядерного Оружия” [The First Stage of Exercises on the Use of Nuclear Weapons has Begun in Russia], *RBC*, May 21, 2024, <https://www.rbc.ru/politics/21/05/2024/664cb1849a79473b4598689c>.

²³ “В России Начался Второй Этап Учения Ядерных Сил” [The Second Stage of the Nuclear Forces Exercise has Begun in Russia], *RIA Novosti*, June 11, 2024, <https://ria.ru/20240611/ucheniya-1952103101.html>.

²⁴ “Россия Начинает Производство Ракетных Систем Средней и Меньшей Дальности” [Russia Begins Production of Intermediate and Shorter-Range Missile Systems], *RIA Novosti*, May 6, 2024, <https://ria.ru/20240506/rakety-1944225749.html>.

²⁵ “Ответы На Вопросы Российских Журналистов” [Answers to Questions from Russian Journalists], Information Office of the President of Russia, June 20, 2024, <http://kremlin.ru/events/president/news/74357>.

will eventually lead to the loss of sovereignty and possibly territorial integrity (keeping in mind also that for Putin political regime and sovereignty are the same). Conflict with the West is perceived as much harsher than during the Cold War and according to prevalent views in Russia the old option of “peaceful coexistence” is rejected by the West. In the multitude of views in the West with respect to the definition of “strategic defeat,” Moscow predictably chooses the most radical ones.

- The threat of escalation to the nuclear threshold and possibly crossing it can only work when stakes in the conflict are asymmetric. This has been the underlying logic of de-escalation since the 2000 Military Doctrine, and there is no reason to believe it has changed. For Moscow, conventional war with NATO is tantamount to a strategic defeat. While the stakes for the West are very high, they hardly reach the level of survival, and Moscow may hope that in that situation NATO would choose to retreat rather than risk nuclear war.
- Finally, the threat should be credible, and steps such as the nuclear sharing with Belarus, widely publicized non-strategic nuclear exercises, and others are intended to further enhance credibility to demonstrating that Russia has assured capacity to use nuclear weapons.

Escalation may be triggered by a variety of scenarios. Obviously, Russia can engineer a pretext – a provocation NATO will be unable to ignore – but more likely it will seize on some initiative by one or several NATO countries). One possible scenario is intentional strikes at foreign servicemen in Ukraine, whether regular troops or trainers. Or a strike at a legitimate (i.e., directly related to the conduct of war) target in the territory of a NATO country, such as a repair facility for Ukrainian equipment in a NATO country (such a facility was opened in Poland)²⁶ or, at F-16 bases hosting the fighters Ukraine is set to receive soon, if these planes are deployed outside Ukraine. Another possibility might be if Estonia acts on its threat to expand its maritime control zone,²⁷ in which case Russia could send naval ships to accompany civilian vessels and shoot at Estonian patrol boats; recent discussion in Denmark about stopping oil tankers with Russian oil passing through its straits could lead to the same action if such plans are implemented. The recent Ukrainian strike at the early warning radar near Armavir led to calls in Russia to shoot down an American MQ-9 Reaper UAV, which, Russians claim, assisted in

²⁶ “Poland Says Hub to Fix Tanks Damaged in Ukraine Opens,” *Reuters*, July 23, 2023, <https://www.reuters.com/world/europe/poland-says-hub-fix-tanks-damaged-ukraine-opens-2023-07-22/>.

²⁷ “Defense Ministry Looking at Extending Estonia’s Maritime Control Zone,” *ERR*, December 6, 2023, <https://news.err.ee/1609186360/defense-ministry-looking-at-extending-estonia-s-maritime-control-zone>.

targeting that installation. Kaliningrad is a major vulnerability for Russia—West Berlin reversed. The list of plausible scenarios is almost infinite; the same development may be disregarded or acted upon depending on how the Kremlin assesses the prospects of its conflict with NATO.

One can only guess how things may develop, but there is little doubt that Russia will use conventional weapons to launch the action-reaction escalation ladder at an increasingly faster pace and with increasingly short decision times, elevating psychological pressure on governments and the public, and other elements intended to create an atmosphere of panic and doom. It seems likely that during the initial phase it will refuse to pick up the phone of either the hotline between political leaders or the military-to-military link.

Obviously, escalation is difficult to control and may not be reliably stopped just before crossing the nuclear threshold. Judging by relative caution, Moscow understands this and has so far refrained from launching the escalation spiral. On the other hand, it is difficult to predict with any certainty which development on the ground might be seen as potentially threatening enough to affect the calculus.

Given the high costs of any nuclear use, Moscow will likely seek to make additional signals to the West prior to reaching the nuclear threshold. One possible option is a nuclear test. In the spring of 2024, Putin order enhanced readiness at the Novaya Zemlya test site. Given this site was reopened in 1999 and has been in active use since then, this instruction can only be understood as a signal to the West of the possible test. In 2023, Russia recalled its ratification of the Comprehensive Test Ban Treaty (CTBT): although this step should be more properly seen in the political context, its implication for possible test should not be overlooked either. In May-June 2024, amid increasingly frequent statements about the threat of nuclear war, references to nuclear tests have been made with increasing frequency.

Almost two and a half years of war against Ukraine have demonstrated that the utility of nuclear weapons is limited. Although some – first and foremost in Russia – may have been tempted to actively leverage them, such views have remained outside the government.²⁸ In hindsight, Russian leadership has adopted a relatively cautious line. Although over time it has done much to raise the specter of nuclear use, the role of nuclear weapons in its policy has eventually gravitated toward prevention of strategic defeat because of direct Western interference in the war, and the presumed associated collapse of the political regime and challenge to the sovereignty and territorial integrity

²⁸ Sergey Karaganov, “Наступает век войн - Россия может его предотвратить” [The age of wars is coming - Russia can prevent it], *RIA Novosti*, March 8, 2024, <https://ria.ru/20240308/rossiya-1931822749.html>.

of the country. In other, less dire scenarios While Russia's nuclear threats have deterred NATO "boots on the ground" Moscow's possession of nuclear weapons has not proven useful in achieving more limited, but nonetheless tangible goals – it has failed to prevent large-scale assistance to Ukraine, large-scale economic sanctions, (partial) political isolation, etc.

In this sense, the threat of nuclear use cannot help Russia "win" the war and the broader conflict with the West. It can prolong the war itself (in a hope that Ukraine and its partners will be exhausted economically and politically), but even under the best of circumstances the conflict with the West will continue and perhaps deepen. The superior economic and political power of the North-Atlantic community together with allies and partners of the United States in other parts of the world cannot be defeated with the threat of nuclear weapons use. Worse for Russia, the closer it comes to the nuclear threshold (perhaps especially in the case it conducts a nuclear test), the greater the negative impact on its relations with the global South making it increasingly vulnerable to both military and non-military pressures from the West. Even if NATO's stakes and tolerance of damage may be lower than those of Russia (making it steer away from the threat of nuclear use), this does not mean that the West can be defeated.

Arms Control During the War Against Ukraine

Just prior to the war, in December 2021, Russia sent proposals to the United States and NATO, separately, which should be more properly classified as ultimatums. They demanded an end to NATO enlargement, a change in NATO military posture, and other major concessions, which could not be implemented. At the same time, they contained some practical proposals, such as an "INF-2.0" treaty, new confidence-building measures in Europe, risk reduction measures, and other elements, which the United States agreed to discuss despite Moscow's highly offensive and provocative language. One might have expected some positive agenda emerging from this exchange given that the idea of replacement for the INF Treaty had been informally discussed for several months and followed Putin's announcement about the freeze on any deployment of ground-based INF missiles; other elements were receiving close attention from at least non-governmental circles. The Russian invasion in February ended this opportunity.

Only a few days after Russia attacked Ukraine, the United States announced the suspension of the strategic stability dialogue: serious political engagement

with Russia was deemed unacceptable under the circumstances.²⁹ Russia, for its part, declared that it was not interested in continuing the dialogue anyway, referencing Western rejection of its demands. Deputy Foreign Minister Sergey Ryabkov declared that Russia would not make any “unilateral concessions” on security issues and that the United States was making a mistake thinking that Moscow needed arms control more than Washington.^{30,31}

At first, the picture was not completely grim: both sides reaffirmed their commitment to eventual resumption of the dialogue. Yet these reaffirmations hardly reflected a desire for serious negotiations. Rather, they demonstrated that both sides were sensitive to the pressures of non-nuclear states with respect to their obligations under Article VI of the NPT.

In November 2022, Russia suddenly canceled a meeting of the Bilateral Consultative Commission (BCC) created to facilitate the implementation of New START, despite months of preparation giving only three days before it was supposed to begin. The BCC was expected to resume on-site inspections under New START, which had been paused since 2020 because of the COVID pandemic. The reasons for cancellation remained unclear. Officially, the decision was linked to continued US support for Ukraine and to Ukrainian strikes at a Russian base of strategic bombers, which had been used to launch missiles against Ukraine.^{32,33}

Unconfirmed rumors originating in Moscow suggested the issue was more serious: the decision was made at a high-level meeting in the Kremlin chaired by Putin to discuss the tough message from Washington about suspected use of nuclear weapons in Ukraine conveyed at a Burns-Naryshkin meeting in Istanbul. The discussion reportedly concluded with a decision that positive interaction with the United States on any issue

²⁹ Michael R. Gordon and Vivian Salama, “U.S. Halts Arms-Controls Talks With Russia,” *The Wall Street Journal*, February 26, 2022, <https://www.wsj.com/livecoverage/russia-ukraine-latest-news-2022-02-26/card/u-s-halts-arms-controls-talks-with-russia-1Kn6qixaBjKwHOFoavcV>.

³⁰ “Односторонних уступок США по теме стабильности не будет, заявил Рябков” [There will be no unilateral concessions to the US on the issue of stability, Ryabkov says], *RIA Novosti*, March 12, 2022, <https://ria.ru/20220312/diplomatiya-1777818412.html>.

³¹ “В США думают, что диалог по стабильности больше нужен Москве, заявил Рябков” [The US thinks that Moscow needs a dialogue on stability more, Ryabkov said], *RIA Novosti*, March 12, 2022, <https://ria.ru/20220312/diplomatiya-1777818029.html>.

³² Olesya Pavlenko, “Замглавы МИДа Рябков объяснил, почему было решено отказаться от встречи по ДСНВ с США” [Deputy Foreign Minister Ryabkov explained why it was decided to cancel the meeting on the New START Treaty with the US], *Kommersant*, November 29, 2022, https://www.kommersant.ru/doc/5694095?from=top_main_1.

³³ “Рябков прокомментировал попытки Киева атаковать авиабазы России” [Ryabkov comments on Kyiv’s attempts to attack Russian air bases], *RIA Novosti*, March 2, 2023, <https://ria.ru/20230302/ataka-1855396534.html>.

was impossible, and the BCC meeting became the first, almost accidental victim. More important was another decision – to review all of Russia’s arms control obligations.

Whether these rumors were accurate or not, subsequent months, indeed, displayed Russia’s slow, but consistent withdrawal from various treaties. The first victim was New START: in March 2023 Russia informed the United States that it was suspending implementation of the treaty.³⁴ Suspension was enacted under Article 72 of the Vienna Convention on the Law of the Treaties, which effectively says that a party will not take actions in implementation of the treaty (in this case, sending notifications and providing data or conducting/ hosting on-site inspections as well as other activities required by New START), but is barred from violating other provisions so that full implementation could be resumed any moment.³⁵ Moscow conditioned return to full implementation of New START by “rejection by the United States of fundamentally hostile policy toward Russia.”³⁶

The United States declared suspension of New START illegal since this option was not contained in the text of New START (Russia claimed the Vienna Convention applied to any treaty) and introduced reciprocal measures in response.³⁷

In May 2023 Russia withdrew from the Conventional Forces in Europe (CFE) treaty. The move was obviously symbolic because it had suspended that treaty in 2007, but nonetheless demonstrated a trend toward withdrawing from the arms control framework created at the end of the Cold War and its immediate aftermath.

In November 2023 Russia “de-ratified” the Comprehensive Test Ban Treaty (CTBT) citing the failure of the United States to ratify it. The official statement emphasized that this move did not affect Russian participation in

³⁴ “Россия передала США ноту о приостановке участия в ДСНВ” [Russia has handed over a note to the US on suspending its participation in the New START Treaty], *Izvestia*, March 1, 2023, <https://iz.ru/1473560/2023-02-21/rossiia-priostanavlivaet-uchastie-v-dsnv>.

³⁵ “Vienna Convention on the Law of Treaties (1969),” United Nations, 2005, https://legal.un.org/ilc/texts/instruments/english/conventions/1_1_1969.pdf.

³⁶ “Рябков назвал условие возвращения к полноформатному функционированию ДСНВ” [Ryabkov named the condition for returning to full-scale functioning of the START Treaty], *RIA Novosti*, June 3, 2023, <https://ria.ru/20230603/dsnv-1875931781.html>.

³⁷ Bureau of Arms Control, Deterrence, and Stability, “U.S. Countermeasures in Response to Russia’s Violations of the New START Treaty,” U.S. Department of State, June 1, 2023, <https://www.state.gov/u-s-countermeasures-in-response-to-russias-violations-of-the-new-start-treaty/>.

the implementation of the document and represented a symbolic political step.³⁸ The unusual “de-ratification” reaffirmed the slow, but steady process of reviewing existing arms control treaties and gradual withdrawal from them – potentially, all such treaties.

In June 2023 the United States, in a reversal of the early 2022 decision, proposed to return to the Cold War practice of compartmentalizing the strategic stability and arms control dialogue from other issues and declared readiness to engage Russia “to manage nuclear risks and develop a post-2026 arms control framework.”³⁹ That offer was flatly and firmly rejected.

Similarly, Russia refused to engage in the development of risk reduction measures in the P-5 context during the time of US chairmanship in 2022-23. This refusal can also be explained by practical considerations: risk reduction measures contradict continuing Russian attempts to leverage nuclear weapons in the context of its war against Ukraine because such measures could radically reduce the credibility of nuclear threats. During its chairmanship of the P-5 in 2003-24, Moscow sought to reformulate the notion of risk reduction effectively shifting to the Chinese position to emphasize that the best way to reduce risk of war was to remove the causes for conflict, which assumed the United States making major concessions to both Chinese and Russian claims (for Russia, this meant in particular abandonment of support for Ukraine).

The near-term prospects for Russia’s return to arms control do not look good. More likely it will continue to gradually dismantle the existing arms control framework and refuse to engage. In an interview in June 2024, deputy minister of foreign affairs Sergey Ryabkov openly said Moscow did not see any reasons to expect a return to US-Russian strategic arms control.⁴⁰

Yet, given the many decades of its sustained commitment to arms control, one can anticipate that the process may eventually resume – perhaps some time after

³⁸ “Заявление МИД России в связи с отзывом Российской Федерацией ратификации Договора о всеобъемлющем запрещении ядерных испытаний” [Statement by the Russian Foreign Ministry in connection with the Russian Federation’s withdrawal of ratification of the Comprehensive Nuclear-Test-Ban Treaty], The Ministry of Foreign Affairs of the Russian Federation, November 3, 2023, https://www.mid.ru/ru/foreign_policy/news/1913392/.

³⁹ “Remarks by National Security Advisor Jake Sullivan for the Arms Control Association (ACA) Annual Forum,” The White House, June 2, 2023, <https://www.whitehouse.gov/briefing-room/speeches-remarks/2023/06/02/remarks-by-national-security-advisor-jake-sullivan-for-the-arms-control-association-aca-annual-forum/>.

⁴⁰ Semyon Boikov, “Замминистра иностранных дел РФ Сергей Рябков — о понижении дипломатических отношений с США, участии стран ОДКБ в спецоперации и расширении БРИКС” [Russian Deputy Foreign Minister Sergei Ryabkov on the downgrading of diplomatic relations with the United States, the participation of CSTO countries in a special operation and the expansion of BRICS], *Izvestia*, June 27, 2024, <https://iz.ru/1718588/sem-boikov/protivniki-dolzhen-znat-chto-oni-shag-za-shagom-priblizhaiut-sebia-k-tochke-nevozvrata>.

the end or at least a freeze of the ongoing war; in practical terms, which may mean at least several years. Even partial stabilization, however, may increase its interest in risk reduction and make it return to discussion of practical, technical measures like previous products of US-Soviet/Russian risk reduction engagement, such as notifications about launches of ballistic missiles (Russia kept the relevant 1987 agreement in force) or enhancement of existing hotlines. One may expect two areas, in which Russia could seek expansion of these measures:

- Within the P-5 format, it has revived the old Soviet tendency to emphasize broad political agreements on principles of relations effectively insisting that risk of war can be reduced through changes in behavior of the other side (a principle, which, in current circumstances may imply broad political concessions from the United States and its allies); in this, the Russian position has become closer to that of China. The way out found in the early 1970s was to combine agreements on principles with practical measures, such as notifications about potentially dangerous activities or hotlines. The same approach could be repeated in the future.
- The Cold War risk reduction measures focused primarily on strategic ballistic missiles as well as, in Europe, large-scale concentration of forces. Potential scenarios of conflicts have multiplied, however, and the range of measures may need to be expanded, for example, to extending a notification regime to long-range cruise missiles, and other new areas.

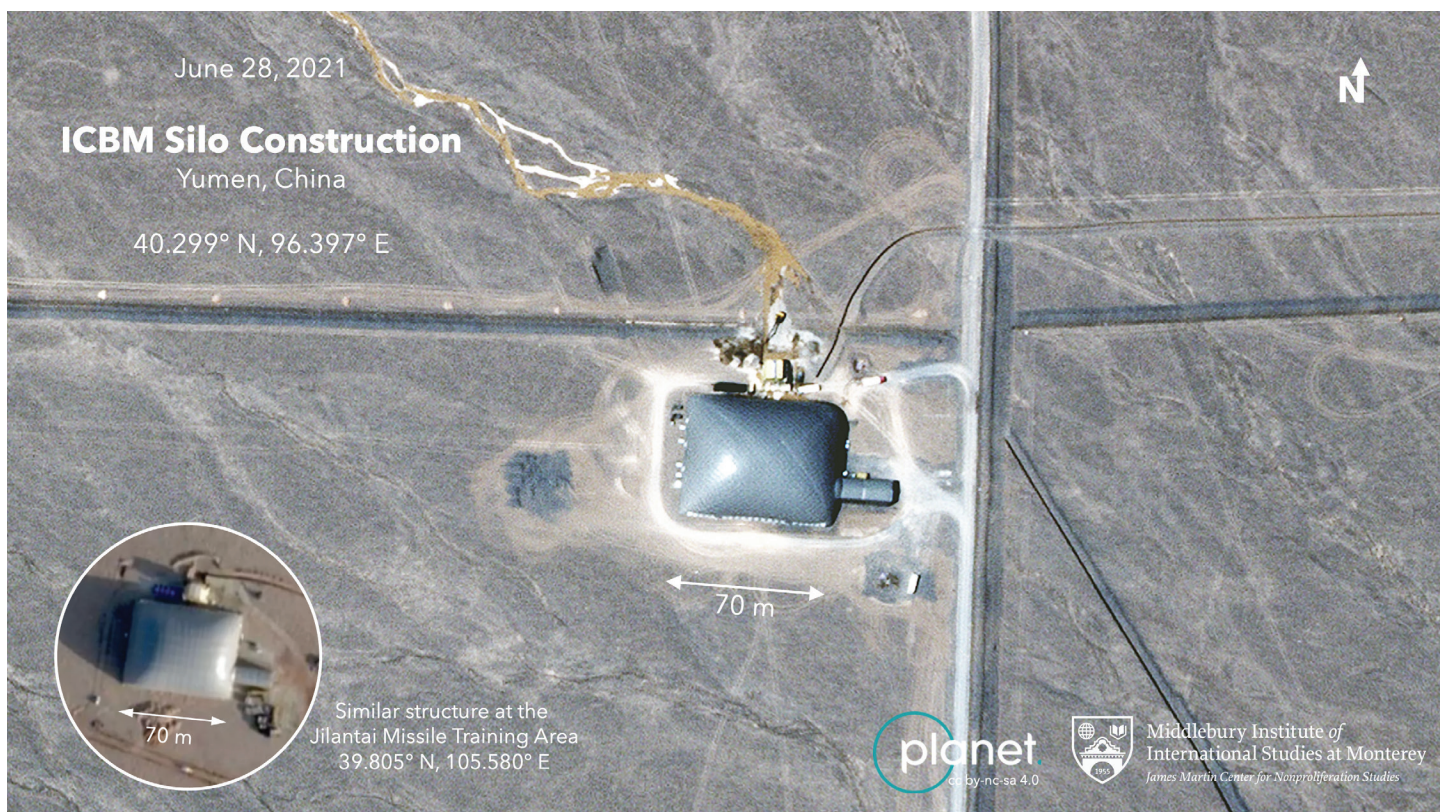
Without doubt, dialogue on new risk reduction regimes will be difficult, but by no means impossible. Potentially, Russia, with many decades of practical experience in risk reduction from 1960s to about ten years ago, could also help bring China on board. A bigger risk is perhaps less obvious: over time, generational change depletes the cadre of diplomats with hands-on experience on these matters, just as a similar transition has already removed most officials with similar experience from the military.

More serious arms control negotiations, including follow-on to New START or non-strategic nuclear weapons, might have to wait longer. After all, arms control began when the United States and the Soviet Union sought to stabilize and strengthen status quo, at least in the security domain. It is difficult to expect return to that policy while the world remains in a transition phase and the existing international system is challenged – not only by Russia, but also by China and a number of other actors. Thus, it may be the case that starting in February 2026 – the expiration of New START – the world will for the first time in many years live without arms control agreements or at least negotiations about new ones.

Developments in China⁴¹

Until earlier this decade, the U.S. intelligence community had predicted that China's nuclear weapons arsenal would remain far smaller than that of the United States or Russia; China's nuclear doctrine had pledged limited nuclear intentions, including a pledge not to be the first to launch a nuclear attack. However, in 2021, satellite images obtained by CNS experts showed work underway on well over 100 new missile silos near Yumen, an unprecedented expansion of China's nuclear forces. That expansion far exceeded U.S. projections, and projections have had to be revised upward since. The final report of the bipartisan Congressional Commission on the Strategic Posture of the United States published in October 2023 concluded that at its current pace, China "will reach rough quantitative parity with the United States in deployed nuclear warheads by the mid-2030s."

⁴¹ This section is drawn from David Santoro, *Nuclear China in the Twenty-First Century: Status and Implications for the World and Europe*, Occasional Paper 60, James Martin Center for Nonproliferation Studies, July 2024 <https://nonproliferation.org/nuclear-china-in-the-twenty-first-century-status-and-implications-for-the-world-and-europe/>.



In 2021, satellite images obtained by experts from the James Martin Center for Nonproliferation Studies (CNS) showed work underway on well over 100 new missile silos near Yumen, an unprecedented expansion of China's nuclear forces.
Source: Planet, James Martin Center for Nonproliferation Studies at MIIS

The commission noted that the increasing number of Chinese warheads meant that U.S. strategic systems had to be capable of reaching more targets and U.S. forces were at greater risk of counterforce attacks from Chinese missiles. Moreover, China's advances in integrated air and missile defense could threaten the effectiveness of both U.S. strategic and theater nuclear forces.

China will also for the first time have survivable (mobile) theater nuclear forces capable of conducting low-yield precision strikes on U.S. and allied forces and infrastructure across East Asia, in contrast to its historic practice of fielding only larger yield weapons. Theater range low-yield weapons may reduce China's threshold for using nuclear weapons.

To be sure, China's nuclear arsenal had begun growing at the turn of the millennium. At that time observers first noted that China was ramping up the modernization of its strategic force, the diversification of its delivery systems, and the number of nuclear weapons. They also explained that China was developing an arsenal capable of striking the U.S. homeland beyond its decades-old policy of minimal deterrence, in addition to improving its ability to project power into neighboring waters and in the space and cyber domains, posing a threat to the U.S. forward presence in the Indo-Pacific and putting U.S. allies at risk.

A major problem was – and still is – China's silence about the size of its growing nuclear arsenal. Today, experts estimate that the Chinese arsenal consists of “roughly 500 warheads.”⁴² While it is much smaller than the U.S. and Russian arsenals (estimated to sit at 5,244 and 5,889 warheads, respectively), it is bigger than the United Kingdom's (estimated to consist of 225 warheads) and France's (estimated to include 290 warheads).⁴³ Another problem was – and remains – China's refusal to articulate a level at which it would have “enough” weapons. Relatedly, in the 1990s China became the only country of the permanent five (P5) members of the United Nations Security Council that left open the possibility of producing more fissile material for explosive purposes, and it opted against transparency about its capabilities of the kind adopted by the other P5 members.

China's modernization of its nuclear delivery systems also became problematic. In the 2000s, China's land-based nuclear missile force began to grow fast, and today includes mobile, solid-fueled systems. Because unlike the United States and Russia it was not bound by the Intermediate-Range Nuclear

⁴² Hans M. Kristensen, Matt Korda, Eliana Johns, and Mackenzie Knight, “Chinese nuclear weapons, 2024,” *Bulletin of the Atomic Scientists*, vol. 80, no. 1, Jan. 2024, 49-72.

⁴³ “World nuclear forces,” *SIPRI Yearbook 2023*, accessible on the SIPRI website at <https://www.sipri.org/yearbook/2023>.

Forces (INF) Treaty, China was able to build a force of that range.⁴⁴ China also began to develop penetrative aids and MIRV missiles, while pursuing hypersonic glide vehicles, which make systems more maneuverable, faster, and more capable of penetrating existing missile defense systems. Finally, China began to bring online sea and air nuclear platforms. The explosive qualitative upgrades of China's strategic and theater-range missiles may hint at the possible role of Russian and Ukrainian missile industries, which shared legacy work on advanced missiles with China in the early Cold War years.⁴⁵ In Russia's case, while it had previously sought to limit Chinese access to technologies and know-how, these restrictions significantly weakened after 2014 and were lifted after February 2022.⁴⁶

Yet in addition to doubting the strength and veracity of China's NFU policy, the United States and others became worried that China might abandon minimum deterrence and "sprint to nuclear parity" with the U.S. (and Russian) arsenals, especially because, unlike China, the United States and Russia were reducing their arsenals.⁴⁷ Even without parity, many feared that China might exploit its growing nuclear strength with provocative actions at the conventional level.

Many also became concerned that China's evolving nuclear capabilities would soon present Beijing with new strategic options, including a launch-on-warning posture or limited nuclear warfighting.⁴⁸ The potential for inadvertent escalation became a topic of interest, too, given the diversification of the Chinese arsenal, Beijing's decision to use dual-capable, "hot-swappable" systems (i.e., systems that can carry either a conventional or a nuclear warhead, with warheads that can be swapped onto launch-ready missiles quickly), and the strains imposed on command-and-control systems.

⁴⁴ Of note, the United States withdrew from the INF treaty in August 2019 and Russia subsequently announced that it considered the treaty to be dead. Since then, the United States and Russia are no longer bound by the treaty.

⁴⁵ Avery Goldstein, *Deterrence and Security in the 21st Century – China, Britain, France, and the Enduring Legacy of the Nuclear Revolution* (Stanford, CA: Stanford University Press, 2007), notably pp. 62-138.

⁴⁶ See, for instance, Vasily Kashin, "Chinese-Russian ballistic missile cooperation signals deepening trust," *East Asia Forum*, February 20, 2021, <https://eastasiaforum.org/2021/02/20/chinese-russian-ballistic-missile-cooperation-signals-deepening-trust/> or Dmitry Gorenburg, Elizabeth Wishnick, Paul Schwartz, and Brian Waidelich, "How advanced is Russian-Chinese military cooperation?" *War on the Rocks*, June 26, 2023, <https://warontherocks.com/2023/06/29000/>

⁴⁷ See Michael O. Wheeler, *Nuclear Parity with China?* (Washington, DC: IDA, 2012), 23.

⁴⁸ See Brad Roberts, *The Case for U.S. Nuclear Weapons in the 21st Century* (Stanford: Stanford University Press, 2016), 164-170 and, from the same author, *On Theories of Victory, Red and Blue* (Livermore, CA: CGSR, 2020).

These worries were magnified by China's refusal to join the process of nuclear arms control. While endorsing much of the multilateral arms control and nonproliferation regimes, China conditioned its willingness to reduce its forces on deep cuts in the U.S. and Russian arsenals. The United Kingdom and France (the two of P5 members) did not do so, and each conducted nuclear reductions of their own. Plainly, the interim progress made by the United States and Russia in reducing their nuclear arsenals did not lead to a Chinese decision to join the process and, during that time, China pressed on with building an increasingly sophisticated arsenal.

While they date back to the late 1990s, U.S concerns about China had grown considerably by the mid-2010s because Washington felt that Beijing might be on the verge of changing its nuclear strategy and expanding its weapon program in a way that would tip the overall strategic balance of power in its favor. Caitlin Talmadge put it best, stressing that the United States became "concerned about the erosion of what it sees as a longstanding position of nuclear advantage relative to China."⁴⁹

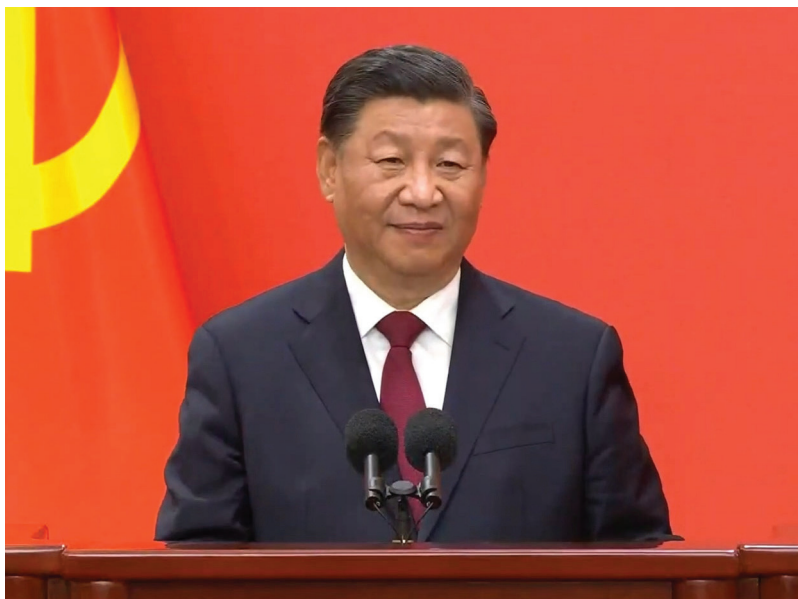
These concerns became more visible when the United States began reassessing its entire policy toward China, letting go of its longstanding "engage-but-hedge" approach in favor of strategic competition.⁵⁰ Until the mid-2010s, and since the early 1970s, the United States and many in the Western world had sought to engage, while also hedging against, China to integrate it into the international system, and wait until it changed economically, politically, and geopolitically. Yet by the mid-2010s the United States had assessed that China would not change, especially under Xi Jinping, who has ruled China with an iron fist, stopped and even backtracked on economic reforms, and begun to contest the international order. The United States thus changed its approach and opted to compete against, and outrightly counter, China.⁵¹ Others in the West and beyond also began asking themselves questions about China, but they took little, if any, action.

Still, in the mid-to-late 2010s, it was unclear what nuclear future China was pursuing with a debate between those who saw China essentially continuing its past approach and those who saw a substantial break with its past capabilities and posture.

⁴⁹ Caitlin Talmadge, *The U.S.-China Nuclear Relationship: Why Competition Is Likely to Intensify* (Washington, DC: Brookings Institution, 2019), 5.

⁵⁰ The "engage-but-hedge" approach is best described by Aaron L. Friedberg in "Competing with China," *Survival* 60, no. 3, June-July 2018, 7-64.

⁵¹ It was first described in The National Security Strategy of the United States of 2017 at <https://trumpwhitehouse.archives.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>.



Chinese Communist Party (CCP) general secretary Xi Jinping
Source: *WikiMedia Commons*

Even then, there was broad consensus among most U.S./Western national security experts that even if the balance tipped in favor of the “continuity scenario,” some degree of change would take place, at least for three reasons. First, because the Chinese nuclear arsenal was set to increase, not decrease. Second, because the rapid and impressive modernization, diversification, and expansion of Chinese nuclear and dual-capable systems, especially the emergence of a nuclear triad, would make it increasingly difficult for China to maintain its longstanding nuclear policy and strategy. Third, and finally, because these changes would, de facto, create complications for command-and-control systems, even if the Central Military Commission maintains control.

China on the Road to Major-Nuclear-Power Status

When evidence surfaced in 2021 about the bigger-than-expected size and scale of China’s nuclear ambitions, it became clear that change, even probably major change, was on the way.

The satellite images obtained by CNS showed work underway on well over 100 new missile silos near Yumen, an unprecedented expansion of China’s nuclear forces.⁵² That expansion far exceeded U.S. projections, and projections have

⁵² The first batch of evidence was reported by Joby Warrick in “China is building more than 100 new missile silos in its western desert, analysts say,” *Washington Post*, June 30, 2021, https://www.washingtonpost.com/national-security/china-nuclear-missile-silos/2021/06/30/0fa8debc-d9c2-11eb-bb9e-70fda8c37057_story.html.

had to be revised upward since. In 2020, the U.S. Department of Defense (DOD) assessed that China would double the size of its nuclear stockpile.

Reflecting on this, a landmark report by the Center for Global Security Research (CGSR) at Lawrence Livermore National Laboratory concluded that “The ongoing rapid expansion of China’s nuclear forces indicates that Beijing has made one of two decisions. Either it has decided that the current role of nuclear weapons in its strategy requires a far larger and more diverse force, or it has decided that the role of nuclear weapons in its strategy needs to change in ways that require a force that is far larger and more diverse.”⁵³ The CGSR report goes on to stress that neither decision is good news, adding that there are key features of Chinese nuclear modernization indicating “the likelihood of significant change.”⁵⁴ These include the development of a capability that will give it the ability to launch missiles under attack, the fielding of a large theatre force of dual-capable missiles with precision guidance capabilities enabling the effective use of low-yield weapons, and the apparent pursuit of a fractional orbital bombardment capability, despite its destabilizing potential.

The suggestion, plainly, is that China is moving away from its longstanding tradition of nuclear restraint characterized by minimum deterrence and NFU, and toward something much more ambitious. If there is lack of clarity, for now, about what that something is or will be, it is nonetheless abundantly clear that nuclear China today is – and tomorrow, will be even more – vastly different from nuclear China ten, twenty, or thirty-plus years ago. China today is emerging as a major nuclear-armed power, and it will not be long before it has emerged fully as such, a development that has far-reaching implications for many, certainly for the United States, but also for Europe.

The U.S.-China Nuclear Balance

No one contests that the United States is the primary driver of China’s nuclear modernization program. Beijing is concerned by Washington’s nuclear superiority and its improved ability to find and destroy Chinese forces, or to intercept them with missile defenses. China, in other words, fears that the United States might be, or might become, capable of putting it in checkmate, achieving what Chinese diplomats and scholars often call “absolute security.”⁵⁵

⁵³ China’s Emergence as a Second Nuclear Peer, 13.

⁵⁴ Ibid.

⁵⁵ David Santoro and Robert Gromoll, “On the Value of Nuclear Dialogue with China,” *Issues & Insights*, vol. 20, no. 1, November 2020, 11, https://pacforum.org/wp-content/uploads/2020/11/issuesinsights_Vol20No1.pdf.

To address that problem, China has been expanding and perfecting its arsenal. In addition to building more nuclear weapons at great speed, it has been investing in road-mobile missiles and sea-based platforms to make it more difficult for the United States to target its forces, and it is adding multiple re-entry vehicles to its missiles to penetrate U.S. missile defenses. As mentioned earlier, China also seems to have embraced tactical nuclear use and nuclear warfighting options.

Reflecting on the implications of China's nuclear build-up thus means reflecting first and foremost on the implications for the U.S.-China nuclear balance.

Irrespective of the scale and scope of China's build-up (and to some extent, how it is implemented), the outcome for the U.S.-China nuclear balance could be positive. Chinese nuclear forces could become more reliable and more survivable, which, according to deterrence theory, would help strengthen strategic stability and reduce the risks of conflict due to the fear of escalation.⁵⁶ China has also pursued a defensive military strategy, one which Beijing characterizes as "active defense" of Chinese national sovereignty and territorial integrity, and which promises only a counterattack (i.e., a response to aggression).⁵⁷ The U.S.-China nuclear balance could thus become less, not more, competitive as a result of Beijing's nuclear build-up.

A negative outcome is also possible, however. The Chinese build-up could trigger arms races, crises, and damage U.S.-China strategic stability. The United States might fear that China is sprinting to nuclear parity or nuclear superiority, and that in the interim Beijing might feel emboldened with a bigger and more sophisticated arsenal and, as a result, become aggressive at the conventional level, notably over Taiwan, which Beijing has always vowed to reunite with the mainland, including through the use of force if necessary; this is a situation known as a "stability-instability paradox."⁵⁸ This is a legitimate concern because China's active defense strategy is defensive but seeks to protect Chinese sovereignty in a system Beijing deems unfair because it reflects the legacy of the "century of humiliation" (when China was subjugated by the West and Japan in the nineteenth and early twentieth centuries). Besides, PLA documents include references to a statement attributed to Deng Xiaoping that "active defense is not simply only defense,

⁵⁶ Robert Jervis, *The Meaning of the Nuclear Revolution: Statecraft and the Prospect of Armageddon* (Ithaca: Cornell University Press, 1989).

⁵⁷ "The Diversified Employment of China's Armed Forces," Information Office of the State Council of the People's Republic of China, 2013, http://english.www.gov.cn/archive/white_paper/2014/08/23/content_281474982986506.htm.

⁵⁸ Glenn Snyder, "The Balance of Power and the Balance of Terror" in Paul Seabury (ed.), *The Balance of Power* (San Francisco: Chandler, 1965), 184-201.

there is offense within defense.”⁵⁹ The United States could thus conclude that it should trump the Chinese build-up and compete to maintain or expand its nuclear advantage.

Adding to these concerns is the increasingly closer partnership between China and Russia, which, given the Russian dependence on China for continuation of its war against Ukraine, has become asymmetric in favor of China. Chinese-Russian military cooperation began in the mid-1990s: at first slowly, but at an increasingly acceleration pace, although not without its ups and downs. It entered a qualitatively new phase after 2014 and under Xi, who has apparently developed strong political and personal rapprochement with Putin based on shared understanding of the desired shape of the international system. In the second half of 2010s and early 2020s, China and Russia were conducting numerous joint exercises in the Far East, one in the Baltic Sea, and one (together with Iran) in the Persian Gulf; these exercises increasingly emphasized communication and interoperability. China and Russia are also regularly conducting joint patrols of strategic bombers in the vicinity of Japan. They have developed the concept of a “common airspace” with attendant cooperation (although not yet merger) of air and missile defense systems and even of early warnings systems, which is likely to include in the foreseeable future Russian early warning radars feeding data directly to Chinese strategic forces. All this in addition to broad Chinese access to both legacy and ongoing Russian R&D programs.

The extent of closeness between China and Russia may mean that the United States may have to contend (and some non-governmental experts already do) with the prospect of needing to balance two major nuclear powers at the same time – China and Russia. This would sharply increase the requirements for the US nuclear posture and may devalue existing and possible US-Russian arms control treaties.

On balance, a negative outcome (destabilization of the US-China balance) is more likely. In the past, the fear of an emerging stability-instability paradox led the United States to intensify its competition against the Soviet Union during the early Cold War, even as Washington and Moscow found themselves increasingly entrenched in a situation of mutual assured destruction. Similar developments are especially likely in the U.S.-China context because the United States is well ahead of China in the nuclear domain and, as a result, Washington will probably find it appealing to increase and cement its superiority over Beijing and account for the emerging triangular nuclear balance. Washington will also likely conclude that doing so is necessary given that the regional conventional balance of power is shifting fast in Beijing’s favor even as China and Russia are

⁵⁹ Yu Jixun (ed.), *The Science of Second Artillery Campaigns* (Beijing: Press of the People’s Liberation Army, 2004), 259.



Vipin Narang, Source: www.defense.gov

building up their theater-range dual-capable forces; even if these two do not coordinate their policies in the theater, requirements for the US capability in East and North-East Asia are bound to grow.

There are already signs that the United States is heading in that direction. Consider the U.S. decision in 2018 to pursue a modern nuclear-armed, sea-launched cruise missile (SLCM-N), a decision that the Biden administration sought to reverse in 2022 but that has continued receive support on Capitol Hill, leading to grudging acceptance by the Biden administration.⁶⁰ The debate about whether to develop SLCM-N and its associated warhead stems primarily from concerns about Russia, but China is also an important

⁶⁰ See recent remarks by Acting Assistant Secretary of Defense Vipin Narang at the Center for Strategic and International Studies: “The 2022 NPR canceled the program because at the time the administration assessed it was unnecessary and could distract from other priorities. Today the world is different. Put clearly, the department is proceeding with a SLCM-N and we’re working closely with Congress to ensure we are meeting our shared goals of getting the most deterrence value for the least risk to the modernization program, the nuclear-weapons complex, and the joint force.” From Center for Strategic and International Studies, “*Nuclear Threats and the Role of Allies: A Conversation with Acting Assistant Secretary of Defense Vipin Narang*,” August 1, 2024, <https://www.csis.org/events/nuclear-threats-and-role-allies-conversation-acting-assistant-secretary-vipin-narang>.

consideration.⁶¹ Similarly, the U.S. decision in 2019 to withdraw from the INF Treaty was made in response to Russia's violation of the treaty, yet also with China in mind. Following its first flight test of an INF-range (conventional) missile after the demise of the treaty, then U.S. Secretary of Defense Mark Esper said: "we want to make sure that we, as we need to have the capability to deter Chinese bad behavior by having our own capability to strike at intermediate ranges"⁶² suggesting that China, rather than Russia, was the main driver.

The US and NATO Response

Beginning with the 2018 Nuclear Posture Review (NPR), U.S. nuclear planners made clear that U.S. Nuclear Forces would have to be retooled to deal with the twin nuclear modernizations of Russia and China and their desire to upend the global order as part of the "return of great power competition". However, specific proposed changes were somewhat marginal given that the broad contours of the U.S. nuclear force posture continued to be governed by the arms control architecture—especially New START—still in place and the ongoing strategic weapons modernization that had been essential in winning the Senate's advice and consent for NEW START. The 2018 NPR called for development of the low-yield SLBM warhead and the new SLCM-N.⁶³ The 2022 NPR, first named China as a peer competitor and projected it would have an arsenal of 1000 warheads by 2030. It did not, however, call for fundamental adjustments in nuclear posture to combat this—in addition to calling for the termination of the SLCM-N it sought to place a renewed emphasis on arms control, risk reduction, and alliance management.⁶⁴

⁶¹ "Nuclear-Armed Sea-Launched Cruise Missile (SLCM-N)," Congressional Research Service, updated December 16, 2022, <https://crsreports.congress.gov/product/pdf/IF/IF12084/3>. See also, Matthew R. Costlow and Keith B. Payne, "TLAM-N and SLCM-N: Lessons for Extended Deterrence and Assuring Allies," National Institute for Public Policy, no. 567, November 15, 2023, https://nipp.org/information_series/matthew-r-costlow-and-keith-b-payne-tlam-n-and-slcm-n-lessons-for-extended-deterrence-and-assuring-allies-no-567-november-15-2023/.

⁶² Quoted by Michelle Nichols in "Russia, China Seek UN Security Council Meeting on U.S. Missile Developments," *Reuters*, Aug. 21, 2019, <https://www.reuters.com/article/world/russia-china-seek-u-n-security-council-meeting-on-u-s-missile-developments-idUSL2N25H1SV/>.

⁶³ Office of the Secretary of Defense, "Nuclear Posture Review," U.S. Department of Defense, 2018, <https://dod.defense.gov/News/SpecialReports/2018NuclearPostureReview.aspx>.

⁶⁴ "Department of Defense Releases Its 2022 Strategic Reviews – National Defense Strategy, Nuclear Posture Review, and Missile Defense Review," U.S. Department of Defense, October 27, 2022, <https://www.defense.gov/News/Releases/Release/Article/3201683/department-of-defense-releases-its-2022-strategic-reviews-national-defense-stra/>.

The Renewed Russian Invasion of Ukraine and Shift in the US and NATO Nuclear Debate

Russia's further invasion of Ukraine that began in February 2022 was a watershed for U.S. and NATO nuclear policy, forcing Allies to consider adjustments to NATO's nuclear deterrent. Russia has regularly threatened nuclear attacks to limit Allies involvement in the conflict and more recently conducted drills for the use of non-strategic nuclear weapons, its most explicit use of nuclear signaling in the conflict. It has also used arms control instruments to reinforce its message—suspending New START implementation, rescinding its ratification of the Comprehensive Test Ban Treaty, and refusing U.S efforts to discuss risk reduction measures. And it has deployed tactical nuclear weapons to Belarus. Russia's nuclear messaging has succeeded in preventing NATO forces from being directly involved in the conflict and limiting some of the assistance provided to Ukraine. On the other hand, NATO's nuclear deterrent has meant that Russia has not targeted the supply depots in Allied countries used to supply Ukraine with weapons.

As a result, an active debate is underway in the United States and among Allies on how best to adjust US and NATO nuclear posture to deter these threats.

As Vipin Narang recently said:

While the administration has long sought to strike a balance between deterrence and arms control, we now find ourselves in nothing short of a new nuclear age, an unprecedented mix of multiple revisionist nuclear challengers who are uninterested in arms control or risk reduction efforts, each rapidly modernizing and expanding their nuclear arsenals and openly threatening to employ nuclear weapons to achieve their aims. These challengers' actions have forced us to shift to a more competitive approach.⁶⁵

⁶⁵ "Nuclear Threats and the Role of Allies': Remarks by Acting Assistant Secretary of Defense for Space Policy Dr. Vipin Narang at CSIS," U.S. Department of Defense, August 1, 2024, <https://www.defense.gov/News/Speeches/Speech/Article/3858311/nuclear-threats-and-the-role-of-allies-remarks-by-acting-assistant-secretary-of/>.

The congressional Strategic Posture Commission reflected the emergence of a significant bipartisan consensus on this competitive approach. The commission said that addressing the two-nuclear-peer threat will require a U.S. nuclear force that is “larger in size, different in composition, postured differently, or all three” to deter and, if necessary, triumph in such a conflict. Such increases could be particularly important, the commission said, if Allies do not field sufficient effective conventional forces to deter and defeat simultaneous Chinese and Russian conventional aggression in Europe and Asia.

Unfortunately, “The Commission concludes the U.S. and allied conventional military advantages in Asia are decreasing at the same time the potential for two simultaneous theater conflicts is increasing.”

Moreover, the commission added that “U.S. conventional forces needed to fight a theater conflict in Europe differ from those required for Asia. The currently planned force is not structured to be able to fully reinforce both theaters simultaneously – especially given the growing adversary non-nuclear capability to hinder U.S. ability to flow additional forces to Asia or Europe. This shortfall, combined with increases in China’s nuclear capabilities, has the potential to undermine deterrence, especially deterrence of opportunistic aggression.”

In particular, the Commission recommended that: “the U.S. strategic nuclear force posture should be modified to:

- *Address the larger number of targets due to the growing Chinese nuclear threat.*
- *Address the possibility that China will field large-scale, counterforce-capable missile forces that pose a threat to U.S. strategic nuclear forces on par with the threat Russia poses to those forces today.*
- *Assure the United States continues to avoid reliance on executing Intercontinental Ballistic Missile (ICBM) launch under attack to retain an effective deterrent.*
- *Account for advances in Russian and Chinese integrated air and missile defenses (IAMD).*

It also recommended that “the U.S. theater nuclear force posture should be *urgently* modified to:

- *Provide the President a range of militarily effective nuclear response options to deter or counter Russian or Chinese limited nuclear use in theater.*
- *Address the need for U.S. theater nuclear forces deployed or based in the Asia-Pacific theater.*
- *Compensate for any shortfall in U.S. and allied non-nuclear capabilities in a sequential or simultaneous two-theater conflict against Russia and China.*
- *Address advances in Russian and Chinese IAMD.*

While the Commission’s recommendations are not binding on policymakers, the bipartisan nature of the recommendations and the deep experience of the commission makers is likely to influence U.S. policymakers, particularly as New START expires in 2026 and as a new administration conducts a Nuclear Posture Review. Indeed, recent remarks by Assistant Secretary of Defense Narang indicate that the Biden Administration has already adopted newly highly classified on nuclear targeting and related plans and policies in this vein:

The President recently issued updated nuclear weapons employment guidance to account for multiple nuclear-armed adversaries, and, in particular, the significant increase in the size and diversity of the PRC’s nuclear arsenal. My office has begun to provide the Department and the Joint Force updated implementation guidance on how to plan and posture our forces in this new environment.⁶⁶

It is not clear exactly what additional changes a new administration might undertake, although the end of New START treaty would free the United States from its limits on the number of deployed strategic offensive weapons.

For strategic weapons, increasing the size and scope of U.S modernization would be one option. At a minimum, as the State Department International Security Advisory Board noted, “Uncertainty about the future direction of PRC forces makes it more difficult for the United States to adopt binding restrictions on nuclear forces with Russia. Without knowing how large the PRC’s forces might grow, and on what timeline – and to what end – there will be significant pressure inside the United States to maintain much greater flexibility to adapt its deterrence forces.”

⁶⁶ Ibid.

Still, the United States is already facing budgetary and infrastructure difficulties in undertaking an ambitious nuclear modernization of its strategic forces, so it is not clear if could field many more delivery systems even it chose to do so.⁶⁷ Similar economic and budgetary pressures, or other military priorities are also likely to place limits on the growth of Russian or Chinese strategic arsenals. Indeed, the difficulties with China's modernization, in some ways the least encumbered by other limitations, have been illustrated by U.S. intelligence reports that because of corruption and haste to meet Xi's ambitious targets for the growth of the arsenal, Chinese officials cut corners with such tactics as fueling missiles with water instead of fuel or fitting silos with lids that wouldn't allow them to launch missiles effectively, resulting in a purge of its military leadership, particularly in the Rocket Forces.⁶⁸

As Colin Gray noted, "The reality of the practical control of arms is demonstrated all the time by the politics of the defense budgetary process. Arms control can help shape a military posture, but its influence relative to such factors as the general political judgement of foreign threat, public mood, economic climate and policy, bureaucratic politics, and doctrinal and strategy preferences tends to be very modest."⁶⁹

For the United States, a relatively easy and fast course to maintain flexibility and step up its strategically deployed forces would be to place a greater number of warheads on deployed strategic systems (ICBMs and SLBMs), so-called "uploading." Of course, Russia could be expected to match such increases.

The commission's urgent recommendations on theater-level systems have been reflected on Capitol Hill which has pressured the Biden administration to continue development of the new nuclear sea-launched cruise missile, although the Administration's 2022 Nuclear Posture Review, called for

⁶⁷ See, for example Doug Cameron, "U.S. Nuclear Missile Silos Need Modernizing, but Fixes Aren't Coming Soon", *Wall Street Journal*, August 26, 2024, <https://www.wsj.com/politics/national-security/u-s-nuclear-missile-silos-need-modernizing-but-fixes-arent-coming-soon-7985e1ba>, which describes the infrastructure reasons behind delays and rising expenses in the Pentagon's new Sentinel ICBM program. Similar problems bedevil efforts to make more plutonium pits and other nuclear weapon components using the aging US nuclear weapons infrastructure.

⁶⁸ Peter Martin and Jennifer Jacobs, "US Intelligence Shows Flawed China Missiles Led Xi to Purge Army," *Bloomberg*, January 6, 2024, <https://www.bloomberg.com/news/articles/2024-01-06/us-intelligence-shows-flawed-china-missiles-led-xi-jinping-to-purge-military?sref=Do0M8pHw>; Elliot Ji, "Rocket-Powered Corruption: Why the Missile Industry Became the Target of Xi's Purge," *War on the Rocks*, January 23, 2024, <https://warontherocks.com/2024/01/rocket-powered-corruption-why-the-missile-industry-became-the-target-of-xis-purge/>.

⁶⁹ Colin S. Gray, *House of Cards: Why Arms Control Must Fail* (Ithaca: Cornell University Press, 1992), 10.

terminating the program, and actual deployments would not take place until well into the next decade.

NATO is already carrying out a generational change in its nuclear forces with stealthy F-35 fighters designed to be able to penetrate Russian nuclear air defenses and drop upgraded and more precise B-12 gravity bombs. The new bombs have already been deployed to NATO Allies, while the Netherlands became the first of the European allies to adjust to F-35s so they could be certified as capable of carrying nuclear weapons.

At the NATO summit, the United States and Germany announced that they would begin deploying new conventional long-range missiles in Europe beginning in 2026. Eventually, such “conventional long-range fires units will include SM-6, Tomahawk, and developmental hypersonic weapons, which have significantly longer range than current land-based fires in Europe,” according to the statement.⁷⁰

To further enhance theater deterrence, NATO Allies could make all F-35 in Allied countries capable of carrying nuclear warheads, complicating Russian targeting decisions. Allies could also consider supplementing the Alliance’s small stockpile of B61 gravity bombs with air-launched cruise missiles, even better able to penetrate Russian air defenses. Less likely options would include NATO-supported deployments to Europe of U.S. ground-launched ballistic missiles, conventional or nuclear, although bilateral agreements to base weapons in particular countries such as Poland would also be an option.⁷¹ While administration officials such as Narang have pointed out that any future such systems would not be deployed for decades, they have argued that Allies should be wrestling with questions of appropriate systems now.⁷²

Some allies in both Europe and Asia are also pushing the United States and other allies to support other changes in U.S. extended deterrence. Poland has formally requested that U.S. B-61 gravity bombs be deployed on its soil, bringing such weapons closer to Russia and no longer adhering to the “three Nos” formula under the NATO-Russian Founding Act. South Korea and the United States last year agreed on the Washington Declaration which is intended to give the ROK greater insight into and involvement in U.S. nuclear operations and planning, an effort to reassure Seoul and prevent

⁷⁰ *Joint Statement from United States and Germany on Long-Range Fires Deployment in Germany*, The White House.

⁷¹ William Alberque, Presentation at Defense24Days conference, May 7, 2024.

⁷² Vipin Narang, “Adapting NATO’s Nuclear Posture to Current Threats,” Center for a New American Security, July 19, 2024, <https://www.cnas.org/events/virtual-event-adapting-natos-nuclear-posture-to-current-threats>.

it from developing its own nuclear arsenal as North Korea and China race forward with massive increases in their nuclear forces. U.S. officials have also indicated that they plan to extend additional nuclear reassurance to Japan through expended deterrence discussions and perhaps trilateral mechanisms between Tokyo, Seoul, and Washington. And some influential voices in both countries are pushing for nuclear sharing arrangements akin to those of NATO.

Providing such reassurance is likely to prove highly challenging. Deterring adversaries while reassuring allies was difficult enough during the Cold War when the U.S. only faced one peer competitor. Doing so in a tripolar environment can be expected to be even more difficult as Linde Dismaele wrote recently in *Survival*:

*The United States must now synchronise its assurances to allies in both Europe and Asia. While the challenge of coping with the reverberations of US strategy in Asia for Europe and vice versa is nothing new, the shift away from a relatively Eurocentric extended-deterrence framework presents distinct challenges. Allies who tend to fear abandonment may fear it even more in the context of tripolarity. Allies recognise that US military resources and policymakers' attention are finite. During the Cold War, US nuclear strategy prioritised a single primary nuclear-armed competitor, the Soviet Union, in both Europe and East Asia...But with two nuclear major-power adversaries in separate regions, changes to the US commitment in one region will have a more immediate opportunity cost for its commitment to the other, since resources allocated in one area cannot be easily relocated to the other.*⁷³

Absent dramatic changes in the global security environment, U.S. alliance commitments, or unlikely arms control measures, therefore, the U.S. can be anticipated at a minimum to increase the number of U.S. strategic warheads as well as the deployment of more low-yield sea-launched missiles as well as likely to boost the new theater-range sea-launched nuclear cruise missile to both the European and Asian theaters.

The possibility that Donald Trump, a well-known skeptic of NATO, could return to office has exacerbated these pressures. Moreover, Washington's perceived unreliability in providing assistance during the Ukraine conflict and Russia's recent battlefield successes have also heightened fears that the U.S. Article V guarantee and the U.S. nuclear umbrella cannot be counted upon, and that Europe increasingly needs to look to its own defense. French President Emmanuel Macron has taken a leadership role in trying to fill this perceived

⁷³ Linde Desmaele, "US Security Assurances and Nuclear Tripolarity," *Survival* 66, no. 2 (March 3, 2024): 143–56, <https://doi.org/10.1080/00396338.2024.2332066>.

leadership gap, and revised discussions of some kind of “Eurodeterrent” under French and/or U.K. leadership. Some voices in Germany, has even overcome that country’s longstanding allergy to public discussions of nuclear deterrence to broach the possibility of a German nuclear weapon. While such discussions at this point have been little more than intellectual speculation and lack specifics, many of those by non-nuclear specialists have not even recognized how such a deterrent might conflict with Allies’ NPT commitments not to possess nuclear weapons or transfer nuclear weapons knowledge.

As the United States and its allies and partners contemplate changes in nuclear posture and especially the role of nuclear weapons theater-level deterrence, it will be necessary for them to keep in mind the increasingly close Russian-Chinese cooperation in the security domain, which has been developing since the mid-1990s and has significantly accelerated in the last decade. Particularly noteworthy are the emerging links between the Russian early warning system and China, and the concept of “common airspace,” which presumes that Russian air and missile defense assets will be used to protect China from possible US and allied strikes, as well as joint naval and strategic bomber exercises. This may mean that in any future confrontation strategic and theater-level forces of the two countries will interact and the United States and its allies in Indo-Pacific will need to contend with a more difficult strategic landscape than might be evident at first glance.

Another, less obvious trend is the possible impact of Russian-Chinese military-to-military exchanges with respect to military doctrine and strategy, which began in the 1990s. Its potential effects are not fully clear because China will not adopt any Russian views “as is” and will instead seek to adapt them to its own thinking and plans. Yet, the increasingly evident emphasis on theater-level capability bears certain similarities to the Russian policy as it has developed since the late 1990s (and at the more theoretical level, the “sixth generation warfare” theory, even earlier); likewise, the ongoing significant increase in China’s ICBM force may hint at changes in Beijing’s traditional views on the role of strategic weapons.

The planned new US deployments of conventional missiles and ongoing US efforts to enhance forward-deployed (including shared) nuclear capability in Europe and Asia-Pacific are viewed by Washington as a response to the deployment of dual-use systems by Russia and China as well as Russia’s deployments of the INF-violating 9M729. Nonetheless, they will, in turn, likely be countered with a symmetric Russian response and possibly also a Chinese response. Russia’s May 2024 announcement that it was lifting a ban on production of ground-launched theater-range missiles (but not the freeze

on their deployment),⁷⁴ justified this step as a response to the temporary deployment of U.S. MK-70 launchers, equipped with dummy practice missiles, to both Denmark and the Philippines during exercises. This may mean that when the United States initiates such deployments on a permanent basis, Russia will have produced a significant stockpile of such missiles that could be deployed in a limited time. Considering the Russian preference for capacity-building as

opposed to arms control, we will likely witness a new 1980s-style INF crisis, but this time on two opposite sides of Eurasia.

Such an arms race may be more symmetric than was the case in the 1980s, however. The Soviet Union emphasized ground-launched missiles, but Russia, in contrast, already has a large number of sea-launched theater-range missiles based both on surface ships and on submarines. The deployment pattern is also unusual compared to the United States: Russia uses a large number of both surface and underwater platforms specially designed for theater-range missiles making deployment of sea-launched strike assets both cheaper and more survivable (large number of small platforms is more difficult to track) as well as easier to expand. The implications of the differences between the US and the Russian concepts of sea platforms for theater-range missiles have not been sufficiently explored.⁷⁵

The air-launched component of the theater-range force will likely remain relatively small, certainly smaller than that of the United States and its allies. The main constraining factor will remain the limited ability of Russia to produce aircraft.

In the foreseeable future, Russia will likely continue emphasizing conventional theater capability. Yet, all its missiles in that category are dual-capable and if confrontation continues to develop in either or both theaters, Russia can be expected to equip a limited number of these assets with nuclear warheads.

⁷⁴ “Заявление МИД России в связи с проведением Вооружёнными Силами Российской Федерации учений по отработке навыков применения нестратегического ядерного оружия” [Statement by the Russian Foreign Ministry in connection with the Russian Armed Forces conducting exercises to practice the use of non-strategic nuclear weapons], The Ministry of Foreign Affairs of the Russian Federation, May 6, 2024, https://www.mid.ru/ru/foreign_policy/news/1948486/?TSPD_101_R0=08765fb817ab2000cd1c5f71eeba9c407f3aa1af7b5b71f2ecccc6cb04b02764d0cf4d2253005d6208c7c2567a14300053cc388ea31b7c644f71bd1c97d4284731b7c644f71bd1c97d428472678d40019bab5042d79a442f14719f2c4eba4fca14729c09046b61e76faceaf; “Совещание с постоянными членами Совета Безопасности” [Meeting with permanent members of the Security Council], Information Office of the President of Russia, June 28, 2024. <http://kremlin.ru/events/president/news/74437>.

⁷⁵ Max Seddon and Chris Cook, “Russian Navy Trained to Target Sites inside Europe with Nuclear-Capable Missiles,” *Financial Times*, August 13, 2024. <https://www.ft.com/content/237e1e55-401d-4eeb-875b-03fe68f81575>

It is difficult to predict now whether the likely stand-off in Europe and Asia-Pacific will follow the same pattern as the early 1980s Euromissile crisis, i.e., whether Russia (potentially also China) will seek escalation dominance at the theater level. Today, limits on the utility of nuclear weapons are much better understood, hence nuclear weapons will likely continue to be assigned the role of “last resort.” A more likely option is a “nuclear standoff” without a pronounced desire for decisive superiority. At the same time, standoff at the theater level requires a stable strategic balance and an assured ability to respond to a hypothetical attack. This makes strategic arms race more likely, especially in the light of the developing military cooperation between Russia and China referenced above.

An End to Traditional Arms Control?

Meanwhile, both Russia and China have rejected bilateral U.S. efforts to buttress strategic stability through arms control or risk reduction measures. For both countries, U.S. efforts to advance such technical measures miss the point that their nuclear modernization dynamics are part and parcel of a broader response to a U.S. global order that they believe is insufficiently accommodating to their interests.

While the US and Allies have sought to reduce the risk of inadvertent nuclear war, both countries seem to be willing to employ brinksmanship in the manipulation of risk and believe they can win the “competition in risk taking” given higher perceived political stakes in their region. Nuclear weapons in their view are a way for them to make Washington take their interests seriously at a time that the U.S. is frustrating Russian designs in Ukraine and limiting China’s access and markets for technology. As the State Department International Advisory Board noted last fall, “The competition with both states is not fundamentally a military armament or nuclear competition, and while it will not be decided solely on the basis of the nuclear balance, it will be shaped by nuclear weapons and military considerations broadly.”

For example, China expert Tong Zhao wrote recently in *Foreign Affairs*:

Xi’s commitment to nuclear weapons reflects a profound difference in how he perceives such arms as compared with his American counterparts. Rather than aiming to achieve clearly defined military objectives, such as deterring an enemy from undertaking specific military activities, Beijing sees nuclear weapons as symbols of military strength and believes that they wield a particular influence on an adversary’s perception of the power balance. This notion underpins what Chinese officials refer to as the “strategic counterbalance” mission of their nuclear forces—a bid to force the United States to take a more accommodating stance toward China.⁷⁶

In this kind of environment, most forms of traditional formal and quantitative nuclear arms control are unlikely to succeed in the near-term, no matter what force posture the US and NATO allies decide upon. Even in the longer

⁷⁶ Tong Zhao, “The Real Motives for China’s Nuclear Expansion Beijing Seeks Geopolitical Leverage More Than Military Advantage,” *Foreign Affairs*, May 3, 2024. <https://www.foreignaffairs.com/china/real-motives-chinas-nuclear-expansion>

term, bilateral symmetrical numerical limits on strategic capabilities may not be feasible given the U.S. need to deter both Russia and China. If political conditions permit it is not impossible that someday efforts at trilateral or more likely multilateral (P5) numerical arms control could be attempted. Still the challenges of such a negotiation—particularly in the context of today’s rapidly changing and multidimensional technical and strategic environment would be challenging to say the least.

While the public imagination has identified arms control with formal agreements limiting weapons such as New START or the INF Treaty, Thomas Schelling and Mort Halperin defined it more broadly in their seminal work *Strategy and Arms Control*, saying it could also involve more or less of certain types of weapons, unilateral initiatives, and tacit agreement. In the current environment, therefore, many experts have focused attention on prospects for risk reduction or broader notions of arms control. It should also be noted that even among final agreements, some of the earliest agreements such as SALT I did not aim to reduce weapons and were primarily aimed at greater transparency.

These include “behavioral arms control” efforts, aimed more at reducing the chances of nuclear use and escalation dynamics that could lead to it. Even these efforts are unlikely to make headway with Russia until there is some halt to hostilities in Ukraine as Moscow has indicated that it is not interested in advancing new measures while the conflict is ongoing.

Prospects with China appeared to have a somewhat greater chance of success after Chinese leader and President Biden met in San Francisco last fall. In particular, China has been more willing to hold discussions on the potential risks of emerging and disruptive technologies such as involving artificial intelligence in nuclear command and control. But China recently rejected a U.S. invitation to continue the talks.

More generally, efforts to broaden risk reduction and crisis communication channels beyond bilateral U.S. and Russian efforts such as the National Nuclear Risk Reduction Centers to encompass the other three NPT Nuclear-Weapon States (China, France, and the United Kingdom) have also been advanced.

Some efforts in this regard are likely to offer the best prospects for any kind of tangible achievements for the Nuclear-Weapon States in the run up to the next Nuclear Nonproliferation Treaty Review Conference in 2026. But given the ongoing modernization programs of the major nuclear powers, this is unlikely to dampen the concern of non-nuclear weapon states that the nuclear-weapon states are failing to meet their Article VI disarmament commitments under the NPT.

What to Do

It is important to keep in mind that major progress cannot be made on arms control efforts until there is some broader agreement between NATO and its adversaries as to what a stable world order looks—and particularly how both sides envision a stable Euro-Atlantic and Indo-Pacific. US-Soviet and U.S.-Russian agreements sprang from both a shared sense of risk after the Cuban Missile Crisis and a belief on both sides that preserving the status quo balance of power (as set out in the Helsinki Final Act) was in the interest of both sides.

As Pavel Podvig wrote recently:

Arms control is often rationalized as a tool of managing confrontation by reducing risks, improving stability, and avoiding a costly and dangerous arms race. Indeed, it can contribute to these goals, as it has in the past, but its most significant role is in providing parties with the practical means of demonstrating that they share a common vision on certain issues and in acknowledging each other's concerns. This aspect of arms control has been particularly important to the Soviet Union and Russia, confirming its status as an equal partner with the United States and therefore helping legitimize its role in international affairs.

In this context, compartmentalizing arms control always has value because it encourages a focus on narrow technical issues, thereby signaling acceptance of the broader status quo without having to address all issues of disagreement. The technical nature of most arms control measures also has facilitated a demonstrated commitment to compliance and to the broader objectives of political normalization.⁷⁷

Today's China and Russia, on the other hand, are revisionist powers, discontent with the status quo, making the prospect of normalization exceedingly difficult.

Maintaining NATO's longstanding dual-track approach makes good sense in this environment. First, Allies need to enhance deterrence and defense to both preserve their security and to convince Russia and China that the balance of power is such that coming to the bargaining table is in their interest. Some changes in nuclear posture and deployments of particular weapons might facilitate this process (as in the INF experience) by creating greater trade space to bargain over similar weapon systems. For example, moving toward

⁷⁷ Pavel Podvig, "Restoring Russian-U.S. Arms Control," Arms Control Association, May 2024, <https://www.armscontrol.org/act/2024-05/features/restoring-russian-us-arms-control>.

basing nuclear air-launched cruise missiles in DCA host countries could set up a trade for Russia's systems. Ground-based deployments of conventional or nuclear ground-launch ballistic or cruise missiles could provide the opportunity to discuss agreements covering Russia's INF-violating 9M729 missile.

Secondly, as Allies contemplate such deployments, they need to keep open the possibility of arms control and risk reduction to prevent inadvertent escalation. As they consider efforts to enhance deterrence and defense, they should keep in mind how these enhancements might affect the prospects for future arms control; to the degree consistent with military needs they should structure any changes to retain future opportunities for risk reduction or arms control. For example, one could enhance or restructure NATO's nuclear sharing mission in several ways—to complicate Russian nuclear planning. Some changes—such as increasing the number of bases with nuclear warheads or the number of weapons could have arms control implications, while others such as making the Alliance's entire fleet of F-35s nuclear capable but not moving or increasing the number of non-strategic nuclear warheads (and certainly having all allies participate in nuclear support missions)—are not likely to. In any case, the US and Allies where appropriate should assess the arms control implications of any force posture changes, they consider. At a technical level, the US and Allies should look to implement the ISAB recommendation to “determine how facilities, weapons, and delivery systems can be engineered and developed from the start with an eye to facilitating future confidence building and arms reduction measures.”⁷⁸

Allies should also look for opportunities to make limited progress, achieve internal consensus on approaches particularly when it comes to new challenges such as emerging and disruptive technologies, and develop and maintain appropriate expertise necessary to advance both tracks.

Maintaining an appropriate balance between today's necessary deterrence and defense and some limited risk reduction today and more comprehensive arms control later will be challenging both in maintaining public support and maintaining technical and diplomatic opportunities for future engagement with adversaries.

Clear Alliance messaging on this point will be necessary to ensure that relevant stakeholders—both among domestic publics and foreign governments and publics (supportive, adversarial, or contested) see that Allies are equally committed to both tracks. Allies should repeatedly express their willingness to return to arms control, risk reduction, and strategic stability discussions whenever their adversaries are ready and make clear that a US/NATO buildup

⁷⁸ International Security Advisory Board, Report on Deterrence in a World of Nuclear Multipolarity, October 2023, 14, https://www.state.gov/wp-content/uploads/2023/11/ISAB-Report-on-Deterrence-in-a-World-of-Nuclear-Multipolarity_Final-Accessible.pdf.

will be only in response to Russian/Chinese buildup and that they are willing to negotiate limits if their counterparts are.

Opportunities for Limited Progress

Rather than focusing on trying to achieve numerical limits in the current environment, the alliance should play to its strength as an alliance of democratic nations and focus on transparency and predictability, the key goals of arms control to avoid military planning and arms races based on worst-case scenarios. This should include retaining to the degree possible the transparency provided by New START and other arms control agreements as to numbers of deployed weapons and relevant notifications and exchanges (including potentially seeking a political agreement to extend the current limitations under the new START agreement for several years), seeking open communication on military doctrines and adversaries, and discussing technological developments. The idea should be to both avoid strategic surprises and send a deterrent message. Such outreach is particularly important with China, given the much more limited knowledge the US and the alliance have regarding Beijing's intentions and capabilities.

The U.S. should be willing to have a broader strategic stability dialogue on issues like Chinese concerns about U.S conventional strike systems and missile defense. The goal should be to gain better understanding of Chinese views, including on issues of No First Use, as Mallory Stewart Assistant Secretary of State for Arms Control, Deterrence, and Stability recently told *Arms Control Today*.⁷⁹ In light of the Chinese buildup and the growing Russian-Chinese ties, any future quantitative nuclear arms control agreement may well need to include all of the NPT nuclear-weapon states. The alliance should undertake internal discussions on whether to revisit longstanding assumptions that French and British nuclear weapons should not be included in any arms control talks and, if so, how such talks should be approached in terms of scope and process. Such discussions would be particularly important if the alliance decides to deploy ALCMs (given French possession of such weapons as part of its strategic deterrent) or if the EU began to seriously consider efforts to create a Eurodeterrent.

As discussed above, Russia and the United States briefly discussed the possibility of a successor agreement to the INF treaty (INF 2.0) during the Strategic Stability talks shortly before Russia's further invasion of Ukraine. With Russia's planned production of such missiles, starting the countdown toward deployment, any

⁷⁹ "Engaging China and Russia on Arms Control: An Interview With U.S. Assistant Secretary of State Mallory Stewart," Arms Control Association, May 2024, <https://www.armscontrol.org/act/2024-05/interviews/engaging-china-and-russia-arms-control-interview-us-assistant-secretary>.

opportunities arise to discuss this idea again should be seized. Rose Gottemoeller has proposed a treaty that would seek to pick up on President Putin's pre-war call for a moratorium on INF-range deployments in Europe. For the United States, this would mean prohibiting the deployment of a new ground-based cruise missile and the Tomahawk SLCM in ground-based launchers, including not converting the MK-41 missile defense launchers for such purposes. Russia would agree not to deploy the 9M729 and Kalibr in ground-based mode.⁸⁰

In Asia, North Korea's headlong rush to boost its arsenal, including tactical nuclear weapons, and its recent defense pact with Moscow is increasing pressure on Seoul and Tokyo to develop counters which for the time being have been limited to greater long-range conventional capabilities and greater integration with U.S. nuclear forces. However, retaining these nonproliferation barriers face an additional challenge "combatting the growing belief among many that the decision by Ukraine not to retain nuclear weapons on its territory when it became independent made Russia's invasions in 2014 and 2022 possible." There is a need for a multilateral forum in Asia that might play the role in advancing arms control and risk reduction that the Helsinki process played in Cold War Europe, especially as U.S. allies such as South Korea and Japan look to have a greater say in the U.S. nuclear umbrella and regional security. European and NATO experience could be extremely valuable in this regard.

Efforts should be made to initiate informal discussions of other potential transparency measures, such as the verification protocol and Warhead Tracking System that CNS has developed⁸¹ or the establishment of National Nuclear Risk Reduction Centers in all P5 states. Similarly, U.S./NATO efforts to initiate behavioral arms control or risk reduction measures, should be continued, particularly when it comes to emerging and disruptive technologies. And just as importantly policy development on these issues within the alliance should be strengthened.

Some elements of behavioral arms control and risk reduction should still be possible, particularly with China once a new U.S administration takes office and could serve as "door openers--a way to get to the table and open the conversation on other issues."⁸²

⁸⁰ Unpublished briefing of Rose Gottemoeller to the Committee on International Security and Arms Control of the U.S. and Russian National Academies of Science, Spring 2024.

⁸¹ Miles A. Pomper et al., "OP55: Everything Counts: Building a Control Regime for Nonstrategic Nuclear Warheads in Europe," James Martin Center for Nonproliferation Studies, May 10, 2022, introduction by Rose Gottemoeller, <https://nonproliferation.org/op55-everything-counts-building-a-control-regime-for-nonstrategic-nuclear-warheads-in-europe/>; Marshall L. Brown Jr., "Demonstrating a Warhead Tracking System," James Martin Center for Nonproliferation Studies, March 26, 2023, <https://nonproliferation.org/demonstrating-a-warhead-tracking-system/>.

⁸² Amy Wolff, "Arms Control: Opportunities in the Emerging Two-Nuclear Peer Environment," SMA/SDF Speaker Series, May 14, 2024.

A retired Chinese military officer tied to one of China's leading academic institutions named cyberspace, space, and AI as potential areas for collaboration and joint global leadership. Zhou Bu wrote in *Foreign Affairs* that for cyberspace, "countries should refrain from striking critical information networks, such as military command-and-control systems. Beijing and Washington should exchange a list of sensitive targets that should be considered out of bounds and should not be attacked in any circumstance." He urged agreement on the longstanding Chinese effort for a treaty "on the prevention of an arms race in outer space" And he pointed to the discussions on AI initiated by Presidents Xi and Biden at their summit in San Francisco in November.⁸³ The two countries held their first high-level discussions on the subject in Geneva in May.

Some risk reduction and confidence-building measures may also be possible. These include enhanced military-to-military discussions, risk reduction measures aimed at preventing incidents at sea from occurring or escalating, and other crisis communications. Experts have noted, for example, that even on a technical level U.S.-Chinese crisis communications links do not operate well.⁸⁴ The promise of these should not be overstated, given that China has recognized U.S. interest in such measures and therefore views them as useful levers to signal displeasure when things go sour in the overall strategic relationship.

At the present moment, it is hard to see grounds for optimism when it comes to nuclear arms control or risk reduction. All signs seem to indicate that an increasingly grim security environment is likely to worsen amid Russian and Chinese revanchism and their growing ties with North Korea and Iran. Clearly, the primary response among NATO allies and Asian partners has to be to strengthen deterrence. Nonetheless, it is important not to abandon the alliance's longstanding dual-track of approach of seeking to pair deterrence and defense with other diplomatic measures aimed at enhancing strategic stability through transparency and predictability. Such measures are important in retaining public support both within the alliance and among third countries. But they are not merely window dressing. Some limited progress in risk reduction may be possible today. And at some point, there are likely to be opportunities to at least pause the current arms buildups and increase transparency and Allies must be prepared to seize them.

⁸³ Zhou Bo, "America, China, and the Trap of Fatalism How to Manage the World's Most Important Relationship," *Foreign Affairs*, May 13, 2024, <https://www.foreignaffairs.com/united-states/america-china-and-trap-fatalism>.

⁸⁴ Christian Ruhl, "Beijing Is Unavailable to Take Your Call: Why the US-China Crisis Hotline Doesn't Work," *Bulletin of the Atomic Scientists*, June 24, 2024, https://thebulletin.org/2024/06/beijing-is-unavailable-to-take-your-call-why-the-us-china-crisis-hotline-doesnt-work/?utm_source=Newsletter%2B&utm_medium=Email&utm_campaign=MondayNewsletter06242024&utm_content=NuclearRisk_USChinaHotline_06242024.

About the Authors

Miles Pomper is a Senior Fellow in CNS's Washington, D.C. office. He has deep experience in arms control and deterrence, having previously served as editor of *Arms Control Today*. More recently, he has led, or co-led, projects related to these issues with both Russia and China. For the past four years, he has led a project team including former NATO Deputy Secretary Rose Gottemoeller and Nikolai Sokov investigating the political, legal, and technical characteristics of potential U.S./NATO-Russia arms control agreements on nuclear warheads, particularly non-strategic nuclear warheads. The team's publications include *Everything Counts: Building a Control Regime for Nonstrategic Nuclear Warheads in Europe* (CNS, 2022). He co-led a report with David Santoro on risk reduction and confidence-building measures with China and regional states: *Charting a roadmap for multiparty confidence and security building measures, risk reduction, and arms control in the Indo-Pacific* (Pacific Forum, 2023).

David Santoro is President and CEO of the Honolulu-based Pacific Forum. He specializes in deterrence, arms control, and nonproliferation, as well as geostrategy in Asia and Europe. Santoro's current interests focus on great-power dynamics and US alliances, particularly the role of China in an era of nuclear multipolarity. In 2021, he published *U.S.-China Nuclear Relations – The Impact of Strategic Triangles* with Lynne Rienner. He also runs numerous track-2 and track-1.5 strategic dialogues, notably in the Indo-Pacific. Before joining the Pacific Forum, Santoro worked on strategic issues in France, Australia, Canada, and the United Kingdom. In 2010, he was also a Visiting Fellow at New York University's Center on International Cooperation and, in 2010-2011, he was a Stanton Nuclear Security Fellow at the International Institute for Strategic Studies in London.

Nikolai Sokov is senior fellow at the Vienna Center for Disarmament and Non-Proliferation. He is a former arms control negotiator for Soviet (later Russian) Foreign Ministry and has participated in negotiations on the INF Treaty, START I, and START II, as well as multiple ministerial and summit meetings. He holds a PhD from the University of Michigan and the Soviet equivalent of a PhD from the Institute of World Economy and International Relations, Russian Academy of Sciences. He has published two dozen books and monographs, as well as more than 200 articles. His areas of research interest include arms control, disarmament, and international security; nuclear nonproliferation, particularly the Treaty on the Non-Proliferation of Nuclear Weapons; safeguards; international cooperation on nonproliferation; great-power relations, with a focus on the United States, Russia, and China; alliance relations; and NATO.



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