NOVEMBER 2025

Strategic Trends 2025

An Assessment by the Project on Nuclear Issues

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About the Project on Nuclear Issues

The Project on Nuclear Issues (PONI) launched in 2003 to develop the next generation of policy, technical, and operational nuclear professionals by fostering, sustaining, and convening a networked community of experts. PONI identifies and cultivates emerging thought leaders by building relationships, deepening understanding, and sharing perspectives across the full range of nuclear issues and communities. PONI's programs provide creative opportunities for rising experts to learn about policy, technical, and operational aspects of the nuclear community, develop and present new concepts and ideas, engage in thoughtful and informed debates, and tour and visit sites across the nuclear enterprise.

PONI strives to expand its outreach to address all career and academic levels, connect young professionals in collaborative research projects, broaden the topics it covers across the full spectrum of nuclear issues, and ensure robust inclusion of expertise from all critical domains—academic, military, scientific, and technical.

Acknowledgements

The leadership of PONI is deeply grateful to the team for their commitment to the project and the thought and care that they dedicated to their analyses. The team is also grateful to Rebecca Davis Gibbons, Tina Dolbaia, Vipin Narang, and Gregory Weaver for their work as reviewers. Their feedback greatly strengthened this report. PONI would also like to thank the CSIS publications team, including Phillip Meylan, Hunter Macdonald, and Leena Marte for their help in the editing and publication of the report.

Research and analysis for this report was primarily conducted prior to October 2025.

This report is made possible by general support to PONI. No direct sponsorship contributed to this report. The views contained within this report are solely those of the individual authors and do not represent the position of any institution or other contributor to this publication.

Contents

Foreword

By Pranay Vaddi

Nuclear policy is not immune from an ever-changing global security environment. Policymakers, researchers, and political leaders must now pay more attention to nuclear strategy, nonproliferation, arms control, and military affairs than at any point since the end of the Cold War. A new era of nuclear thinking, born of a competitive strategic environment, is necessary in Washington and allied capitals to preserve long-held tenets of nuclear policy: preventing the spread of nuclear weapons to additional states, strengthening the norm against the use of nuclear weapons, and avoiding dangerous, destabilizing nuclear arms competition.

Several concerning nuclear trend lines exist today that create tension in upholding each of these key tenets. Each deserves attention by experts across the national security landscape.

First, all nuclear-armed states are increasing their capabilities. In decades past, the United States and Russia embarked upon a sincere effort to reduce and eliminate nuclear weapons through arms control cooperation, and many observers saw the potential to achieve global nuclear disarmament on a realistic timeline as part of the peace dividend following the Cold War. Today, China's nuclear transformation, steady advancements in the size and diversity of North Korea's nuclear arsenal, and Russia's introduction of exotic nuclear delivery systems and expansion of potential use cases for

nuclear weapons demonstrate that the elimination of nuclear weapons is much farther away than many had hoped.

Next, rapidly advancing technology creates incredible opportunities for the incorporation of artificial intelligence and automation into military systems, creating much more capable conventional deterrence capabilities. However, automation may pose unpredictable risks in conflicts involving nuclear-armed states, especially if human beings are removed from the decision loop while strategic assets are at risk. Strategic effects from automated drones, cyber weapons, and ubiquitous long-range strike capabilities may become commonplace in conflict and threaten nuclear deterrence in a way that create pressure to use nuclear weapons before they are disabled. The increasing lethality of nonnuclear capabilities, colocation of critical military conventional and nuclear infrastructure, and burgeoning competition in space among major powers risk creating an unstable environment where the chance of miscalculation is high, yielding unpredictable effects on crisis stability.

Perhaps most worrying is the emergence of these dynamics as global order turns to disorder. The current security environment is typified by major power politics and multipolarity in a way not seen since the first half of the last century. Distrust is high, and cooperation among rivalrous nuclear-weapons states is missing.

Today, nuclear-armed states place greater importance on nuclear weapons in their national security strategies and seem less likely to cooperate through arms control to advance shared interests and reduce risks. These countries seem more likely to leverage cooperation on nuclear issues to secure other political objectives, such as China's desire to halt U.S. aid to Taiwan and similar Russian demands regarding Ukraine, as a precondition for arms control cooperation with the United States.

Washington's close allies and partners increasingly question its ability and willingness to retain and execute credible extended nuclear deterrence, making it harder to deter large nuclear-armed states from coercing and encroaching on their neighbors.

All the while, the risk of nuclear proliferation in the Middle East and nuclear conflict in South Asia is growing. While major powers attempt to manipulate nuclear tensions among one another, legacy nuclear competition in South Asia and the risk of proliferation in Iran and elsewhere in the Middle East continue. The simmering state of relations between India and Pakistan after the May 2025 conflict, Iran's possible nuclear future after Operation Midnight Hammer, and the reimposition of UN sanctions on Tehran deserve close attention in the capitals of the P5 countries—China, France, Russia, the United Kingdom, and the United States—which may be distracted by other nuclear crises in Asia and Europe.

The nuclear dynamics of today's security environment are unprecedented in combination, though the tough lessons of the Cold War provide good data from which to prepare policy responses. Time is of the essence. Strategic Trends 2025 starts the process of reminding policymakers and experts of those tough lessons, applies them to today's environment, and offers a guide for thinking through possible solutions to nuclear problems in a rapidly changing twenty-first century.

Introduction

Strategic Trends in 2025

By Nicholas Adamopoulos, Doreen Horschig, and Reja Younis

The end of the Cold War, the unipolar moment, and the global war on terror fundamentally reset U.S. national security priorities. Strategic competition was no longer a driving force at the start of the twenty-first century. The pivot toward conventional warfighting and counterterrorism created trade-offs that resulted in the de-prioritization of the U.S. nuclear mission, a deceleration of the nuclear modernization program of record, and a reexamination of the enduring relevance of nuclear weapons.

The United States and its allies have experienced a swift, and at times difficult, return to strategic competition. After nearly three decades of declining relevance, the United States has made strategic competition with peer adversaries the central theme of its national security strategy and nuclear posture. This focus has remained consistent across both Democratic and Republican administrations.

However, while the salience of nuclear weapons may be at its highest point since the end of the Cold War, the threat environment is profoundly different and more complex. Russia's invasion of Ukraine, China's nuclear expansion, and the threat of nuclear proliferation highlight an increasingly interconnected, multidomain, and multi-actor nuclear landscape. The complexity now also extends to the capabilities and systems required for nuclear deterrence obligations. A growing number of

nonnuclear weapons platforms such as drones, missile defenses, and long-range precision fires are now capable of producing strategic effects.

At the same time, several pillars of the global nuclear order are at risk. The bilateral U.S.-Russia arms control regime, a cornerstone for managing Cold War competition, is on the verge of vanishing. The looming expiration of the New Strategic Arms Reduction Treaty (New START) in February 2026 threatens to leave no remaining nuclear arms reduction treaty between the world's two largest nuclear powers. The unwinding of nuclear arms control has, in turn, led to concerns about the future of the Nuclear Non-Proliferation Treaty (NPT), the landmark international agreement designed to prevent the spread of nuclear weapons.

The current security environment is fundamentally changing in nearly every facet of strategic competition, introducing new players, rules, and tools.

The current security environment is fundamentally changing in nearly every facet of strategic competition, introducing new players, rules, and tools. Therefore, it is more important than ever for policymakers and analysts to understand the complexity, scope, and scale of this rapidly changing strategic and technological environment.

Amid all this change, the CSIS Project on Nuclear Issues (PONI) wanted to take a step back, put these developments in context, and identify broader trends in strategic threats. This work is separated into two main sections: The first provides regional analysis, while the second focuses on issues that have defined the contours of the strategic landscape over the past year. Each regional chapter offers a primer on a specific country or region's nuclear issues over the past several years, covering the three great powers (the United States, China, and Russia), European nuclear-armed states (France and the United Kingdom), and regional actors in the Middle East and Indo-Pacific as well as North Korea. They give readers a brief overview of the key actors, their strategic postures, and recent nuclear-related events.

The second section covers five issues that PONI has identified as significantly shaping the global nuclear threat environment over the past year. In Chapter 8, Diya Ashtakala and Doreen Horschig analyze the state of U.S. nuclear assurances, examining how U.S. allies in both Europe and the Indo-Pacific are recalibrating their views and responses to extended nuclear deterrence. In Chapter 9, Bailey Schiff assesses the deep crisis facing the nuclear order, highlighting the simultaneous erosion of nonproliferation and arms control that have underpinned stability since the Cold War. In Chapter 10, Reja Younis explores how novel conventional weapons with potential strategic effect are reshaping preconceived notions about nuclear escalation, deterrence, and crisis management. Finally, in Chapter 11, Joseph Rodgers addresses the erosion of the firebreak between nuclear and conventional conflict, demonstrating how the integration of nuclear and conventional systems may lead to new, erratic escalation pathways.

This volume is intended to serve first and foremost as a reference document; chapters are standalone and can be read in any order. Collectively, however, the papers offer a comprehensive overview of the key actors, capabilities, and political and security dynamics that are shaping the rapidly changing strategic environment in the twenty-first century.

1

The United States

By Joseph Rodgers

The United States faces a daunting and complex array of broad nuclear challenges. Foremost among these is the emergence of a new era of trilateral strategic competition, with China and Russia simultaneously advancing their nuclear arsenals and fielding advanced capabilities, including hypersonic weapons and underwater drones. Compounding these threats are persistent proliferation concerns surrounding Iran, in particular its potential to resume covert nuclear activities. North Korean provocations, characterized by steady advancements in nuclear weapons, missile technologies, and aggressive rhetoric, pose an ongoing and unpredictable regional threat. Navigating this multifaceted environment requires a delicate balance of allied reassurance and extended deterrence commitments, both of which are crucial for preventing partners from feeling compelled to develop their nuclear arsenals.

U.S. nuclear modernization, which was largely designed in 2010, will need to adjust to the geopolitical landscape of 2025. The Trump administration will be compelled to make several critical decisions regarding whether and how to expand U.S. nuclear force modernization. These choices, which will most likely appear in a new Nuclear Posture Review, will shape not only U.S. strategic forces but the contours of the global security landscape for decades to come.

Background: U.S. Nuclear Policy

According to the Federation of American Scientists, the U.S. nuclear stockpile holds an estimated 3,700 nuclear warheads.[1] The United States deploys approximately 1,770 of the warheads at any given time.[2] The country also has an estimated 1,477 warheads that are in storage and waiting to be dismantled, providing a total stockpile of 5,177 nuclear weapons. These weapons are spread across the nuclear triad: on Minuteman III intercontinental ballistic missiles (ICBMs), Ohio-class ballistic missile submarines, and a variety of dual-capable aircraft, including F-35 fighters, B-52 bombers, and B-2 bombers. This combination of platforms assures the survivability and responsiveness of the U.S. deterrent.

The United States is engaged in a monumental effort to modernize its aging nuclear capabilities. The nation will spend $1.7 trillion over the next decade on this comprehensive modernization program for all three legs of the nuclear triad: air, land, and sea.

The foundation of U.S. nuclear policy has remained largely unchanged since the Kennedy era's flexible response policy. Flexible response was an evolutionary development from President Eisenhower's massive retaliation policy.[3] Eisenhower's policy, which aimed to counter any major strategic attack with an overwhelming nuclear response, was viewed as lacking credibility.[4] The scale of devastation inherent in massive retaliation rendered it an unthinkable response to minor provocations, thereby diminishing its deterrent effect. Flexible response aimed to present the president with a wider range of proportionate options, enabling a graduated response to aggression at any level, which would make deterrence more believable.

Given the extensive implications of nuclear weapons for national security, U.S. nuclear posture in recent decades has been widely discussed and regularly reevaluated by every new president under the Nuclear Posture Review process. This inherent doctrinal flexibility enables successive administrations to shape the nuclear enterprise in response to evolving geopolitical realities and technological advancements. Within the Democratic Party, there have been consistent calls to consider significant changes to U.S. nuclear posture, such as adopting a policy of no first use, under which the United States would never use nuclear weapons first in a conflict.[5] Another proposed shift involves pivoting toward a "sole authority" doctrine, under which the primary, if not exclusive, purpose of nuclear weapons would be to deter others from using nuclear weapons. Yet, particularly during the Biden and Obama administrations, these potential changes were met with strong resistance from key U.S. allies concerned that such changes would undermine extended deterrence commitments and perhaps embolden challengers.

Concurrent with these policy debates, the United States is engaged in a monumental effort to modernize its aging nuclear capabilities. The nation will spend $1.7 trillion over the next decade on

this comprehensive modernization program for all three legs of the nuclear triad: air, land, and sea.[6] This highly ambitious program entails the replacement of bombers, submarines, and ICBMs, as well as the refurbishment of warheads and their associated command, control, and communications systems. The sheer scale of this investment attests to the perceived long-term importance of nuclear deterrence in U.S. national security strategy.

Key Issues: New Strategic Competition

The United States now faces a fundamentally new type of strategic competition, shifting from the bilateral relationship of the Cold War to a multilateral environment of concurrent challenges from China and Russia. Each of these near-peer competitors is upgrading its nuclear forces and introducing new and exotic capabilities that could alter the strategic balance. These involve the creation and deployment of hypersonic weapons, which possess such speed and maneuverability as to challenge existing missile defenses. Russia is also developing sophisticated underwater drones, such as Poseidon, that could be nuclear-armed and threaten coastal targets or naval forces.[7] China, for its part, has experimented with a fractional orbital bombardment system, a novel warhead delivery method on an orbital trajectory that makes traditional early warning and response processes more difficult.[8] These technologies, together with the potential for nuclear weapons in space, have implications for arms control and deterrence that are not yet fully known.

This altered threat landscape demands a reassessment of U.S. nuclear modernization plans. The existing program of record was formulated in large part around 2010, when China's nuclear buildup was not anticipated, and prior to the full extent of Russia's modernization. Strategic planners were not considering the deployment of these new technologies. The world has undergone significant changes since that time. Reflecting this concern, the 2023 bipartisan Congressional Nuclear Posture Commission, tasked with examining U.S. nuclear strategy, concluded that while the existing program of record is undoubtedly needed, it is insufficient to meet the demands of simultaneous peer competition.[9] This finding represents a firm recommendation to consider further adjustments to the present modernization trajectory.

The Way Ahead

To address the conclusions of the Congressional Nuclear Posture Commission and adapt to evolving trilateral competition, U.S. leadership will need to figure out how and whether to expand the program of record.

Future changes to the U.S. program of record will likely require a particular focus on theater systems—the nuclear forces planned for use in regional conflicts—rather than on intercontinental strategic deterrence alone. The threat that theater nuclear forces pose is intensifying, as both China and Russia are actively developing and fielding their own advanced capabilities. These developments suggest an increasing emphasis by adversaries on "usable" nuclear weapons at the regional level, designed to achieve battlefield objectives or compel escalation control. Consequently, the United States may need to consider developing and fielding theater nuclear systems to credibly

deter adversary nuclear use at the regional level, ensuring that it possesses a full spectrum of credible deterrent options calibrated to modern threats.

The coming year will be critical in shaping the future of U.S. nuclear posture. Key actors, including the executive branch, Congress, military commands such as U.S. Strategic Command, and the intelligence community, will engage in intense discussions and analysis. Many aspects remain unknown, including the precise tempo and scale of nuclear expansion by Beijing and Moscow, the progress (or lack thereof) in exotic weapon technologies, and the political will in Washington to allocate potentially enormous amounts of new funding to nuclear modernization amid a period of competing budgetary demands.

This challenging setting, characterized by mounting nuclear rivalry and persistent regional tensions, will demand a responsive and flexible U.S. nuclear strategy. The decisions the United States takes in the coming year will largely determine how the country aligns its nuclear forces to deter aggression and promote stability in an increasingly complex and multipolar world.

2

China

By Nicholas Adamopoulos

China is currently the only party to the Nuclear Non-Proliferation Treaty (NPT) that is rapidly expanding the size of its nuclear arsenal, with significant annual growth in both quantity and diversity. External observers estimate that as of 2025, China fields a force of approximately 600 nuclear warheads—up from 500 in 2024—and possesses the necessary plutonium reserves to field a force of 1,000 warheads by 2030.[1] The U.S. Department of Defense expects that number to climb through 2035, with China potentially reaching numerical parity with the United States and Russia, should they adhere to the limits established by the soon-to-expire New START Treaty.[2] However, some analysts posit that going beyond 1,000 warheads would require China to produce additional fissile material.[3] While China's strategic nuclear buildup is rightly the current center of attention, the United States and China are presently engaged in far-reaching geopolitical competition, and escalatory pressures could come from a wide variety of potential flashpoints, some of which will be examined here.

Key Issues

Several key developments are driving Washington's concern with Beijing's military expansion. Most prominent among these is the increase in the quality, quantity, and variety of the weapons systems—both nuclear and conventional with strategic effects—that are currently under development by the

People's Liberation Army (PLA). There are also two policy trends that magnify the consequences of China's rapid military expansion: China's strategic opacity and its repeated rejection of U.S. attempts to engage in arms control.

MODERNIZATION

The rapid numerical expansion of China's warhead stockpile has been accompanied by the development of a diverse range of nuclear delivery systems, giving China the ability to deliver nuclear weapons from land-, air-, and sea-based platforms and from theater to intercontinental ranges.

The extent of this buildup first garnered major public attention in 2021, when two teams of U.S.-based researchers discovered large new missile silo fields under development in China's deep interior.[4] China spent much of the last five years attempting to convince external observers that the silos were not military installations, with significant bot activity attempting to portray the missile field as an extension of a nearby wind farm.[5] In early September 2025, China changed tack, for the first time publicly showing off the new weapons that would likely fill those silos. It displayed a range of new air-, sea-, and ground-launched missile systems, as well as novel systems like directed energy weapons and unmanned aerial and undersea vehicles. While several systems with potential strategic effects were not shown at the September victory parade, the event served as a useful snapshot of the status of Chinese nuclear modernization.

Intercontinental-range systems were the stars of the 2025 parade, which was held to celebrate the 80th anniversary of China's victory over Japan in World War II. Three major land-based ICBM capabilities were shown: the Dongfeng (DF)-61, the DF-31BJ, and the DF-5C. The DF-61 appears to be a heavy, road-mobile ICBM, though only its transport erector launcher (TEL) and missile canister have been displayed thus far. China's ground-launched leg has always relied heavily on road-mobile missiles; however, this balance appears likely to shift in the coming years if China decides to fill some or all its newly constructed silos with missiles. The other two ICBM-class missiles shown at the parade, the DF-31BJ and DF-5C, are both candidates to fill the silos. The DF-31BJ solid-fuel ICBM is derived from the standard DF-31 road-mobile version and is expected to fill most of the recently developed silo fields.[6] The DF-5C is liquid fueled, expected to carry heavier, multiple-megaton warheads and will likely be fielded in significantly smaller numbers than the DF-31BJ.[7]

Analysts have offered several potential rationales for China's decision to rely more heavily on silos for its ground-launched ICBMs. China could be seeking a more responsive nuclear force that could be launched quickly, an explanation supported by both the decision to base in silos and to rely primarily on solid-fuel missiles that could be launched immediately.[8] Even if all of China's roughly 300 new silos are not ultimately filled, the United States would have to target each silo to confidently limit the damage from a Chinese ICBM attack on the United States, as it will have little ability to tell which silos are loaded and which are empty. Indeed, there is evidence that at least some of the motivation behind China's rapid modernization program stems from concern that its assured retaliation capabilities have been eroding.[9] China could see value in silo-based ICBMs as "sponges" that will be able to absorb large portions of a U.S. attack. While silo-basing ICBMs may provide China with a more secure retaliatory capability, some U.S. analysts are concerned that an

assured retaliation capability can also be used as a backstop for regional aggression, with silo-based forces serving as a deterrent against U.S. intervention in a conflict over Taiwan.[10]

While China's new silos and ICBMs have rightfully garnered the most analyst attention, China also displayed its full nuclear triad for the first time in 2025. The JingLei (JL)-1 air-launched ballistic missile (ALBM) was shown, confirming that China has a nuclear-capable system that can be delivered from a strategic bomber, the H-6N.[11] China also paraded the JuLang (JL)-3 submarine-launched ballistic missile (SLBM), a range upgrade over the existing JL-2 (5,400 nautical miles compared to 3,900, respectively).[12] China has further deployed incremental upgrades to its current fleet of Type 094 ballistic missile submarines (SSBNs), with the more recently commissioned boats receiving the designation of 094A, capable of carrying 12 SLBMs. According to the U.S. Department of Defense, China's next-generation SSBN, the Type 096, will also feature a new SLBM with an even longer range than the JL-3.[13]

China is pursuing a range of delivery systems beyond the typical air-, sea-, and ground-launched nuclear ballistic missiles, likely as a hedge against the perceived strength of U.S. theater and homeland missile defense. The most prominent of these systems is the 2021 test of a fractional orbital bombardment system (FOBS). A FOBS can insert a glide vehicle into low Earth orbit rather than following a typical ballistic trajectory, giving the system nearly unlimited range and allowing the glide vehicle to reenter Earth's atmosphere from trajectories currently unguarded by U.S. missile defense.[14] The 2021 test reportedly deorbited a maneuverable glide vehicle, meaning that the system would be difficult to detect and defeat at all stages of flight, including the terminal phase.[15] China has already deployed an HGV, the DF-ZF, on its DF-17 medium-range ballistic missile, though it is likely that the DF-17/ZF has a purely conventional mission set. However, the Department of Defense assesses that China is developing a long-range HGV-armed missile, the DF-27, which could potentially carry a nuclear payload.[16]

China is also developing several theater-range nuclear-capable systems that fly traditional ballistic trajectories. Recent developments in this system category include the DF-26 IRBM, which has been speculated to feature "hot swappable" warheads that allow units to rapidly change from conventional to nuclear missions while in the field and can range targets in Guam from mainland China.[17]

STRATEGY MISMATCH

Unlike the United States and Russia, which have spent the past half-century learning about each other's nuclear postures, doctrines, and strategies through persistent engagement on arms control measures, China's nuclear doctrine and strategy remains comparatively opaque. For this reason, it is difficult to concretely match Chinese doctrine, strategy, and force design, leading external observers to infer Chinese intent based on the limited data points on strategic thought and force design in the open source. China's 2019 defense white paper, its most recent official statement of nuclear strategy, posits that "China pursues a nuclear strategy of self-defense, the goal of which is to maintain national strategic security by deterring other countries from using or threatening to use nuclear weapons against China."[18] China has a declaratory policy of no first use (NFU, reiterated in

the 2019 white paper), sizes its force at "the minimum level required for national security," and has historically kept its warheads de-mated from their delivery systems in peacetime.[19]

The fact that the dominant characteristics of China's nuclear buildup are speed, volume, and ambiguity—rather than a doubling down on survivability—has driven many U.S. analysts to seriously doubt China's claim of a purely defensive posture.

Newer developments, such as China's pursuit of a "launch on warning" (often referred to in Chinese writings as "early warning counterstrike") posture and evidence that China now keeps some of its nuclear forces at a higher level of alert (with warheads mated to delivery systems) have raised questions as to whether China's stated strategy and doctrine are still congruent with its force design and operational activities.[20] There are competing interpretations as to whether China's stated doctrine is still guiding Beijing's buildup; some scholars justify the buildup as consistent with a modern interpretation of the systems needed to execute such a strategy, while others hold that China's stated strategy and doctrine are largely divorced from the true intentions that guide the recent buildup.

One interpretation is that the major contours of Chinese strategic thought have remained constant, but that the country's buildup stems from a pessimistic assessment of its ability to execute assured retaliation in the face of expected U.S. modernization. This interpretation is demonstrated by the fact that some Chinese scholars and strategists perceive Golden Dome, the Pentagon's plan for the next generation of U.S. missile defense, as emblematic of the United States undermining—if not abandoning entirely—strategic stability as a foundational concept in the U.S.-China military balance.[21] To these scholars, China is simply developing the forces it considers necessary to deter an adversary that has signaled, both politically and militarily, that it does not acknowledge mutual nuclear vulnerability with China. Similarly, improvements to the readiness of the Chinese force and the pursuit of a launch-on-warning posture are consistent with a broader nuclear strategy that is primarily defensive, as such a posture does not necessitate nuclear first use. Nevertheless, China has long called on other states to abandon launch-on-warning postures, obfuscating the true or dominant thinking on China's nuclear strategy and doctrine.[22]

More pessimistic interpretations of China's strategy and posture find its current buildup fundamentally at odds with a defensive posture, instead holding that China could be pursuing a nuclear force to enable regional coercion and backstop conventional adventurism in the Indo-Pacific. The U.S. Department of Defense believes that China would likely consider nuclear first use in response to a conventional attack that produced strategic effect, such as a conventional attack on Chinese command and control systems, its nuclear facilities, or any other attack that threatened regime survival. Critically, this analysis also holds that China might consider using nuclear weapons first to reverse a perceived inevitable defeat in a Taiwan contingency.[23]

Other aspects of Chinese nuclear posture further this assertion. In some instances, Chinese officials have privately caveated that a conventional attack on Beijing's nuclear forces could result in Chinese first nuclear use.[24] China has also pursued several theater-range systems that could deter or defeat adversary forces mid-conflict without having to resort to a strategic attack on the adversary's homeland. Additionally, China has frequently comingled nuclear and conventional brigades of these theater forces, potentially to confuse U.S. and allied targeting during a regional crisis. The fact that the dominant characteristics of China's nuclear buildup are speed, volume, and ambiguity—rather than a doubling down on survivability—has driven many U.S. analysts to seriously doubt China's claim of a purely defensive posture.[25]

Concerningly, the growing mismatch between China's stated goals of pure retaliation at the minimum force level necessary and its larger, more responsive force capable of effectively fighting a theater nuclear war have seemingly caught even some Chinese observers off guard.[26] Prior to the revelation regarding the scale of China's nuclear buildup, some Chinese scholars argued that only modest modernization efforts were needed and that China did not need a vast force expansion. The inability of Chinese experts to discern the true military rationale behind this expansion, combined with its speed and scale in the current geopolitical context, is of grave concern to Western decisionmakers.[27]

AVERSION TO ARMS CONTROL

China does not provide any official data on its nuclear capabilities, nor is it party to arms control or risk reduction regimes that would force it to share aspects of its nuclear arsenal. Successive U.S. administrations have expressed interest in nuclear arms control with China, but these offers have been frequently rebuked. In the off instances where dialogues have taken place, they have been swiftly cut off due to U.S. support for Taiwan.[28] Similarly, China has long held that discussing risk reduction measures with adversaries is tantamount to conceding that its competitors have the right to conduct operations in its near abroad. Instead, China has held that its competitors should practice risk avoidance by removing themselves wholesale from situations in which conflict between the two countries could arise.

Despite evidence that China is considering instances in which it could use nuclear weapons first in a conflict, it has repeatedly pushed the other members of the P5—the United States, the United Kingdom, France, Russia, and China—to adopt similar NFU pledges.[29] However, this call has yet to elicit any serious response from other members of the P5, and China continues to block any progress on arms control in bilateral channels with the United States. China's stated reason for its aversion to arms control dialogue is that it will not participate so long as its arsenal is noticeably smaller than the United States and Russia.[30] Brief interactions between Western and Chinese diplomats on arms control issues reveal a further hurdle: Chinese interlocutors see insufficient trust between the United States and China to hold a serious dialogue, whereas their U.S. counterparts see arms control negotiations as trust-building exercises in and of themselves.

While China has largely blocked any progress on arms control, Beijing does apparently see some value in certain risk reduction tools. Despite the lack of a formal notification mechanism, China

notified the United States in advance of its ICBM test in 2024.[31] While it remains to be seen if such a notification regime could be formalized, there is apparent interest from both sides.

The Way Ahead

There are three major trends to watch in 2025–26, all with far-reaching implications for China's nuclear arsenal and its broader ambitions as a nuclear world power.

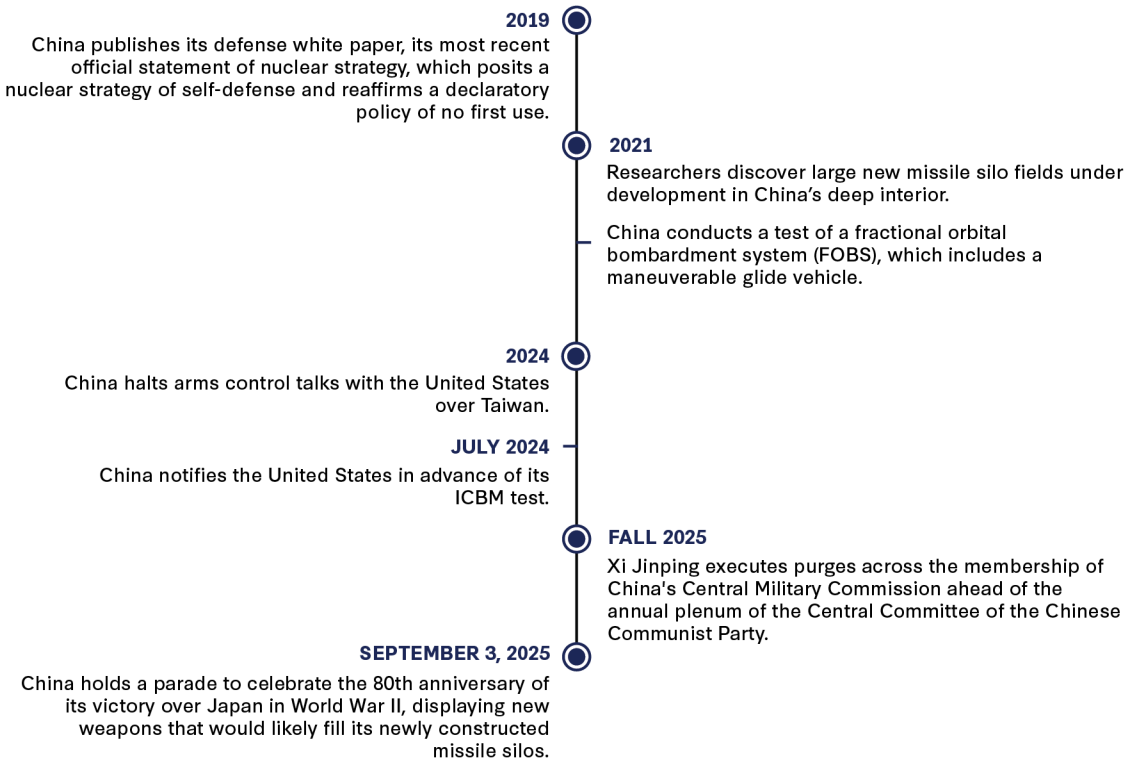
First, Xi Jinping has executed sweeping leadership purges across all four major branches of the PLA. Purges in August 2025 cut the membership of the Central Military Commission (CMC), China's supreme military decisionmaking body, to just four members aside from Xi himself.[32] Many victims of Xi's latest round of purges are officers that he had personally appointed, which increases questions about Chinese military readiness across the board in anticipation of its upcoming modernization milestones.[33] At the very least, these purges will have implications for China's ability to conduct joint operations, and complex military planning may suffer as a result. Beyond that, the purges could have trickle-down effects that could force lower-ranking officers to balance military planning with political pageantry.[34] These purges have happened at a steady tempo, with senior officials in the PLA Rocket Force purged in 2023 and 2024 due to allegations of wide-scale corruption that may have compromised the readiness of China's nuclear deterrent.[35] In 2026, analysts should remain alert for any signs of leadership struggle or continued purging of PLA officers, as such incidents will have serious implications for Chinese readiness, planning, and procurement.

Second, while China did not actively participate in a conflict in 2025, two of its closest allies did. Russia and Iran both received significant support from China in 2025, with Beijing serving as a critical partner for both countries in sanctions evasion, technology and intelligence sharing, and security cooperation.[36] Chinese support for Russia, Iran, and North Korea—commonly called the "axis of upheaval"—will be something to watch in 2025, especially as China will likely ask for the other three countries to return the favor should it decide to conduct a military invasion of Taiwan. Furthermore, a number of world leaders attended China's early September victory parade, including every leader from the axis: Russian President Vladimir Putin, North Korean Supreme Leader Kim Jong-un, and Iranian President Masoud Pezeshkian. In addition, leaders from India, Indonesia, Malaysia, Azerbaijan, Armenia, Serbia, and Slovakia attended, among others.[37] Chinese diplomacy will continue to evolve over the next 12 months, and observers should watch carefully to see how China conducts itself as it seeks to balance its image as both a responsible world power and a challenger to the U.S.-led world order.

Finally, the U.S.-China relationship will continue to take center stage, and political, economic, and military competition is likely to create a snowball effect as each track intensifies. It will be increasingly difficult to distinguish between these forms of competition—especially if arms control or risk reduction dialogues continue to be nonstarters—and this difficulty could further fuel misperceptions. Advancements in U.S. military competitiveness also communicate political messages to China; Golden Dome is seen in Beijing as a tool for reassuring and managing U.S. allies, which communicates that the whole of the U.S. alliance network is preparing to confront

and contain an aspirant China. If Beijing continues to perceive hostile intent in all three channels of competition, there will be a growing risk of rapid and uncontrollable escalation. These pressures can be alleviated by dialogue and risk reduction measures; however, both sides will need to demonstrate interest in pursuing them before it is too late.

Recent Regional Developments



Source: Author analysis of various news outlets.

3

Russia

By Lachlan MacKenzie

Russia poses arguably the most severe nuclear threat to the United States. No other country possesses as large a nuclear force, and few U.S. adversaries have so clearly demonstrated their aggressive intentions toward U.S. partners and allies. Russia's invasion of Ukraine has increased the risk of nuclear confrontation, which the 2025 U.S. intelligence community's Annual Threat Assessment notes "could inflict catastrophic damage to the Homeland."[1]

Nuclear threats have been a defining feature of Russia's war against Ukraine. In the past year, Russian threats have included the launch of a new nuclear-capable intermediate-range ballistic missile (IRBM) and the release of a revised nuclear doctrine, in addition to continued rhetoric from senior officials. Past Russian behavior, however, suggests that the Kremlin's threshold for nuclear use is higher than its signaling indicates. For now, the risk of nuclear use appears low and will likely remain so in the near term, although the Kremlin's threats could intensify in response to additional Western military aid or painful Ukrainian attacks.

Background

As of May 2025, Russia had an estimated 4,309 active nuclear warheads for use on strategic and theater-range delivery systems–1,254 on intercontinental ballistic missiles (ICBMs), 992 on submarine-launched ballistic missiles, 586 on bombers, and 1,477 on a wide range of nonstrategic

systems.[2] The latter group includes ground- and air-launched ballistic missiles; ground-, air-, and sea-launched cruise missiles; gravity bombs; anti-ship missiles; torpedoes; and missile defense interceptors. The composition of Russia's strategic force is the result of an ongoing, decades-long modernization program that has replaced Russia's Soviet-era arsenal with newer weapons. As a result of this process, a large portion of Russia's strategic delivery systems are relatively modern. The Kremlin currently fields 12 ballistic missile submarines (7 of which entered service after 2013), 330 ICBMs (218 of which entered service after 2010), and approximately 60 nuclear-capable bombers, which Russia is gradually refurbishing.

The Kremlin is additionally developing novel nuclear capabilities, including a stealth bomber, a nuclear-powered cruise missile, and an intercontinental torpedo. The latter two capabilities may be intended to circumvent U.S. homeland missile defenses and thereby bolster Russia's second-strike survivability: When announcing the systems in 2018, Putin framed them as a "response to the unilateral withdrawal of the United States of America from the Anti-Ballistic Missile Treaty and the practical deployment of their missile defence systems."[3] Further, Russia is reportedly developing a space-based nuclear weapon for use against satellites.[4] Such a weapon could cripple the U.S. military's space architecture and may be intended to counteract U.S. conventional military superiority.[5] If launched, the weapon would constitute a flagrant violation of the 1967 Outer Space Treaty, which prohibits placing weapons into orbit.

The last remaining arms control treaty between Russia and the United States—the New Strategic Arms Reduction Treaty (New START)—will likely expire in February 2026. Neither Russia nor the United States appear intent on reaching a new agreement. The Kremlin maintains that it is unwilling to negotiate while the United States supports Ukraine: Foreign Minister Sergei Lavrov declared in January 2024 that "Amid a 'hybrid war' waged by Washington against Russia, we aren't seeing any basis . . . for any discussion of strategic stability issues with the U.S."[6] While Putin proposed that Russia and the United States could continue to observe New START limits until 2027, he made clear that resumed dialogue would be dependent on "broader steps" to "normalise bilateral relations and remove core security contradictions."[7] The United States, for its part, is reluctant to engage in bilateral negotiations given the rapid expansion of China's arsenal. As a result, Russia and the United States will likely enter a period of unconstrained competition. If the United States chooses to expand the size of its force (as many experts recommend), Russia may decide to follow suit.[8] Given the wartime footing of Russia's economy, the Kremlin may enjoy an initial production advantage in any subsequent arms.[9]

Key Issues

Russia's diverse and modern nuclear force lends credibility to the Kremlin's saber rattling. Nuclear threats have been a central feature of Russian nuclear policy since its 2022 invasion of Ukraine.[10] From the outset, Putin and other senior Russian officials have signaled that Russia could use nuclear weapons and have since made countless broad warnings about the risks of nuclear escalation.[11] The Kremlin has intended these threats to deter undesirable Western and Ukrainian behavior, likely including Western military support for Ukraine, strikes on targets in Russia, and direct NATO

intervention in the war. The Kremlin's threats were most intense during the fall of 2022, when Russian suffered significant battlefield setbacks and its forces faced collapse along sections of the front line.[12]

Although Russian signaling has been comparatively restrained since 2022, Kremlin officials have continued to make nuclear threats into 2025. The Kremlin's most vocal threats have focused on Ukraine's use of Western missiles against targets in Russia. Despite Russian warnings, the Biden administration supplied long-range Army Tactical Missile System (ATACMS) to Ukraine in the spring of 2024 and granted Ukraine permission to use the missiles against targets along the border.[13] When the administration began to consider allowing Ukraine to use U.S. missiles against targets deeper within Russia, Putin warned repeatedly in June 2024 that such strikes would constitute "direct involvement" in the conflict and suggested that Russia could provide weapons to enemies of the West in response.[14] Putin warned again in September 2024 that strikes into Russia with Western missiles would "mean that NATO countries, the United States, and European countries are fighting Russia."[15] Other Russian officials implied that Russia could respond to such strikes with nuclear weapons, which could trigger another "world war."[16] When the Biden administration ultimately granted Ukraine permission to strike deeper into Russia on November 17, 2024, Russia responded by launching a new, nuclear-capable IRBM into Ukraine four days later.[17]

The Kremlin also promptly released a revised nuclear doctrine that broadened the conditions for nuclear use. Putin first mentioned planned revisions to Russian doctrine at a state security council meeting on September 25, 2024, when, amid warnings about strikes with Western missiles, he revealed that the new document would treat "aggression against Russia by any nonnuclear state, but with the participation or support of a nuclear state" as a "joint attack."[18] This clause suggests that the Kremlin could treat Ukrainian attacks on Russia using U.S. weapons as a direct attack by the United States. The revised doctrine additionally replaced language from Russia's 2020 doctrine about the possibility of using nuclear weapons in response to aggression with conventional weapons; whereas the 2020 doctrine states that Russia can only do so when "the very existence of the state is in jeopardy," the new doctrine asserts that Russia can do so when aggression "creates a critical threat to [Russia's] sovereignty and (or) territorial integrity."[19] It is unclear what might constitute a "critical threat" to Russian sovereignty, but the new formulation sets a lower bar for nuclear escalation than the previous language did.

The Kremlin's threats notwithstanding, past events suggest that Russia's threshold for escalation is higher than its signaling indicates. The ATACMS episode is illustrative. The Kremlin limited its retaliation to a conventional missile strike against a military target, suggesting it did not view Ukrainian attacks as grounds for significant escalation despite repeated statements to the contrary. When Ukraine struck Russia with Western missiles again on November 23 and 25, 2024, Russia responded only with warnings of escalation and routine drone and missile strikes on Ukrainian energy infrastructure, further demonstrating the Kremlin's reluctance to escalate.[20] Russia has had similarly restrained reactions to other violations of its red lines. When Ukraine launched coordinated drone attacks against Russia's nuclear-capable bombers in June 2025, for example,

the Kremlin's response consisted only of expanded strikes against civilian infrastructure, despite Ukraine's attack meeting the doctrinal threshold for a nuclear response.[21]

The Way Ahead

The risks of escalation appear low, but Russia's nuclear threats could intensify depending on the course of the war in Ukraine. Two contingencies may be particularly likely to elicit Russian saber-rattling.

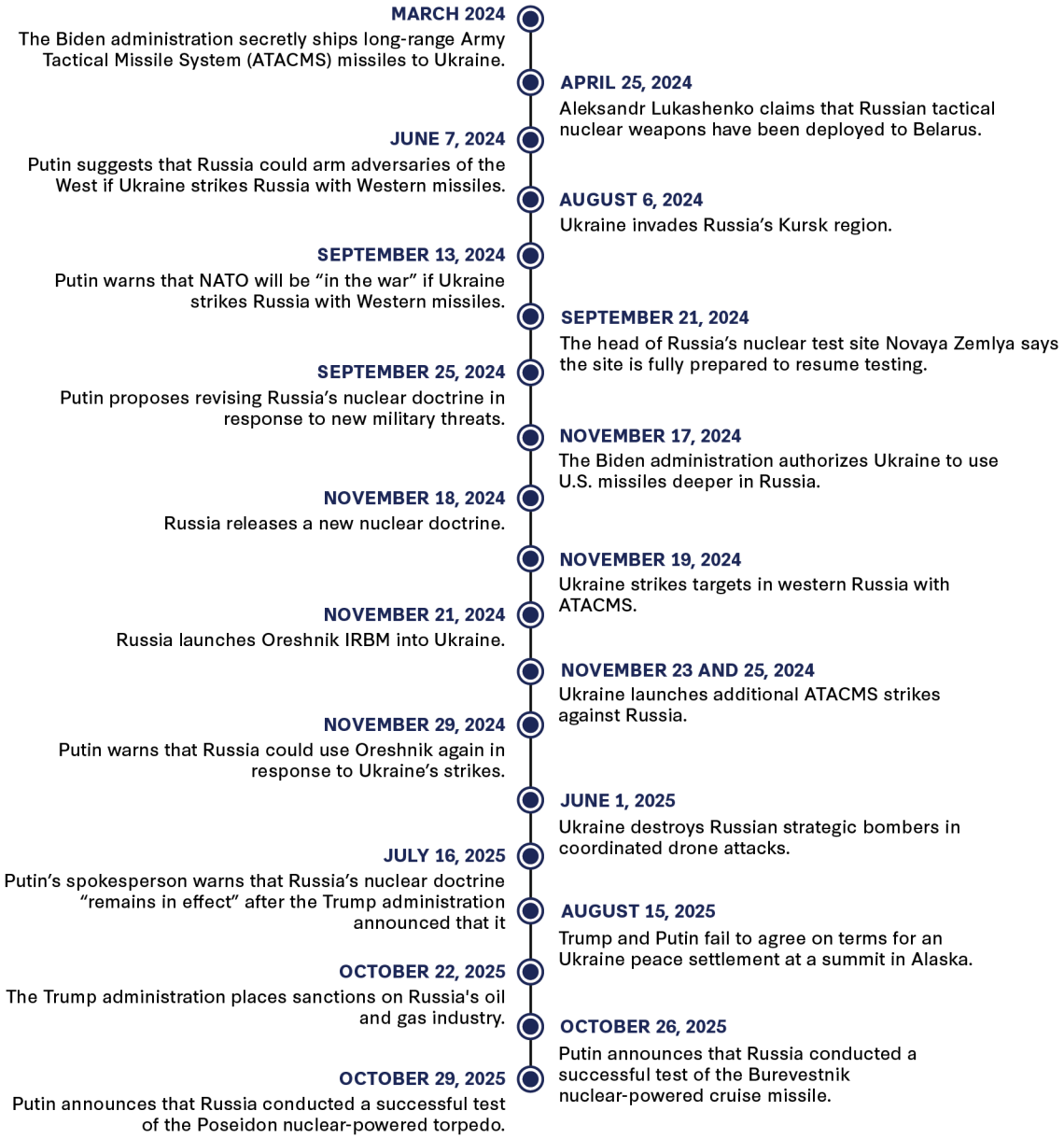
First, a surge in the delivery of Western weapons to Ukraine could prompt a resurgence of Russian nuclear threats. Russian officials began to warn about the risks of nuclear escalation stemming from Western aid during the summer of 2022, although these warnings subsided during the first months of the second Trump administration. In July 2025, however, when President Trump committed to allowing European states to buy U.S. military equipment for Ukraine, Russia's presidential spokesperson commented that their nuclear doctrine "remains in effect."[22] This suggests that further pledges of aid to Ukraine are likely to trigger renewed Russian nuclear threats.

Second, and relatedly, Ukrainian strikes on strategic political or military targets in Russia could provoke an escalatory response. Ukraine has demonstrated its willingness to attack a wide range of Russian assets, including military infrastructure, oil and gas infrastructure, equipment related to Russia's nuclear forces, and sites of symbolic value.[23] Although Ukrainian strikes in the fall of 2024 and summer of 2025 suggest that Russia's threshold for nuclear escalation is higher than a strict interpretation of its doctrine and rhetoric would suggest, the Kremlin may feel compelled to send a nuclear signal in response to future Ukrainian strikes. Attacks against politically significant targets—such as senior military leadership or symbols of Russian power—or against Russian nuclear forces and infrastructure may elicit particularly forceful reactions given the Kremlin's past signaling about attacks on these targets.[24] Perceived Western involvement in these attacks through intelligence support or the use of Western-supplied weaponry would likely raise the risks of a forceful Russian response.

In the near term, the risks of Russian nuclear escalation are largely dependent on the course of the war in Ukraine. So long as the Kremlin is winning on the battlefield, nuclear escalation is unlikely.

In the near term, the risks of Russian nuclear escalation are largely dependent on the course of the war in Ukraine. So long as the Kremlin is winning on the battlefield, nuclear escalation is unlikely. Nonetheless, barring a peace settlement or a decision in the West to abandon Ukraine, Russia's threats will likely continue. In the longer run, Europe's ability to deter further Russian aggression will be the principal factor shaping nuclear risks. The United States' commitment to European security; the pace, scale, and coordination of Europe's rearmament effort; and the speed with which Russia rebuilds its military will be key variables to watch in this dimension.

Recent Regional Developments



Source: Author analysis of various news outlets.

4

North Korea

By Catherine Murphy and Bailey Schiff

The nuclear program of the Democratic People's Republic of Korea (DPRK) entered a new phase in 2025, marked by new missile developments, the expansion of fissile material production, and increased testing activity. North Korea is pursuing a calculated strategy to bolster its nuclear deterrent and disrupt U.S. strategic calculus by developing tactical nuclear capabilities, increasing arsenal survivability, and signaling readiness for nuclear use. Over 2025, nuclear issues on the Korean Peninsula have centered around missile development and testing, fissile material production, and adversarial cooperation. The year 2026 will be pivotal for North Korea's nuclear program because of expected advances in delivery systems that threaten U.S. allies in the Indo-Pacific region, the Trump administration's prioritization of regional arms control, and potential improvements to command and control infrastructure.

Background

North Korea withdrew from the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) in 2003 and has been a de facto nuclear power since its first successful test in 2006.[1] Despite a decades-long global sanctions regime and international condemnation of its nuclear program, Pyongyang has steadily increased its nuclear stockpile and improved its delivery systems. North Korea, as of 2024, possesses 50 nuclear warheads (both uranium and plutonium) that are deliverable on land-based

short, medium, intermediate, and intercontinental ballistic missiles, including the KN-02, Hwasong 5-7, and No-Dong-1.[2] While the DPRK has invested in its air- and sea-based legs, it has yet to test submarine-launched ballistic or nuclear-capable bombers.[3] Open-source estimates assess that North Korea possesses enough fissile material to build up to 90 warheads with highly enriched uranium and plutonium production rates, suggesting it could produce an additional six warheads per year, potentially increasing its stockpile to 130 by 2030.[4]

Since 2013, Pyongyang has operated under a "no first use" policy, which states that it would only use nuclear weapons against a nuclear power if attacked first with conventional or nuclear weapons.[5] However, in September 2022, North Korea's Supreme People's Assembly adopted a new law that rejected the no-first-use doctrine, instead stipulating that the DPRK could use nuclear weapons to "prevent the expansion and protraction of a war."[6] This doctrinal change reflects Pyongyang's willingness to use nuclear weapons to prevent escalation or a protracted conflict. Today, Pyongyang's nuclear doctrine centers on deterring through the threat of massive retaliation and nuclear preemption—the idea that it reserves the right to strike first but seeks to destroy enemy threats before they materialize through counterforce strikes.[7]

North Korea has also been modernizing its nuclear deterrent. In 2021, North Korean leader Kim Jong-un laid out the country's five-year plan to modernize the DPRK's nuclear and conventional forces.[8] A key component of this objective is expanding the development of North Korea's tactical nuclear weapons, submarine-launched missiles, and multiple independently targetable reentry vehicles (MIRVs), as well as improving the accuracy of its intercontinental ballistic missile (ICBM) force.[9] These developments aim to strengthen regional deterrence and provide flexible, sub-strategic options in a conflict. To fund its nuclear program and this modernization effort, North Korea has attempted to evade UN Security Council sanctions through an increasing reliance on cyber operations, including cryptocurrency hacking and illicit financing through overseas IT workers.[10]

In 2025, there have been three key nuclear issues in the Korean Peninsula: (1) missile development and testing advancement, (2) fissile material production, and (3) adversarial collusion.

Missile Development and Testing

North Korea has rapidly advanced its nuclear weapon capabilities in line with Kim's objectives, outlined in the country's 2021 five-year defense plan, to improve the reliability, maneuverability, precision, and survivability of its ballistic missiles.[11] The DPRK has demonstrated these advances through a series of tests over the past year, including the October 2024 launch of the Hwasong-19 solid-fueled ICBM, which flew longer and higher than any previous North Korean missile.[12] In addition, the Hwasong-19 is reportedly designed to carry a heavier payload than its predecessors—potentially even bearing MIRVs—while its solid-fuel capability enhances survivability, operational readiness, and concealment.[13] MIRVs allow a single missile to deliver multiple warheads to separate targets, complicating missile-defense responses and enhancing first-strike potential. In addition, over the past year, Pyongyang has tested several Hwasong-11 short-range ballistic missiles, along with KN-25 multiple rocket launchers and a salvo of short-range ballistic missiles of unknown

models.[14] Collectively, these advancements underscore Pyongyang's increasing ability to deliver nuclear strikes with greater precision and survivability, exacerbating challenges for U.S. extended deterrence and heightening concern among U.S. allies in the Indo-Pacific.[15]

Fissile Material Production

In parallel with these delivery system advancements, North Korea appears to have continued acceleration of its fissile material production on both the plutonium and uranium pathways. Regarding plutonium production, International Atomic Energy Agency (IAEA) Director General Rafael Grossi stated in October 2024 that North Korea resumed activity at the 5-megawatt reactor at Yongbyon.[16] Grossi then suggested that in late January 2025, North Korean engineers began reprocessing the spent nuclear fuel in a radiochemical laboratory in Yongbyon, which continued until at least June 2025.[17] In terms of uranium enrichment, North Korea released two sets of photographs of its gas centrifuge enrichment plants in September 2024 and January 2025, showing Kim Jong-un's visit to Yongbyon and the Kangson enrichment site.[18] Open source analysts have assessed that satellite images reveal previously unseen portions of both enrichment plants, suggesting that North Korea is expanding its enrichment capabilities, with construction at Yongbyon having begun in mid-February 2025.[19] Director General Grossi later reaffirmed this assessment, adding that the new building "has dimensions and features similar to the Kangson enrichment plant."[20] While the IAEA cannot confirm exact production quantities without on-site access, the scope of this activity across both fissile material routes suggests that the DPRK may be able to expand its stockpile at a faster pace than previously projected by the international community.

Adversarial Cooperation

Over the past year, North Korea has also increased nuclear and conventional cooperation with Russia, China, and Iran, often referred to as the "axis of upheaval." In particular, as Moscow's war against Kyiv grinds on, the relationship between Russia and North Korea has grown closer. INDOPACOM Commander Admiral Samuel Paparo testified that North Korea is seeking Russian assistance in missile and submarine technology in exchange for its support in Ukraine.[21] On June 20, 2024, Kim Jong-un and Russian President Vladimir Putin signed the Treaty on Comprehensive Strategic Partnership, which formalized a mutual defense agreement and reaffirmed ongoing military assistance between the two countries.[22] During the war in Ukraine, Moscow has helped Pyongyang improve the accuracy of its Hwasong-11 short-range ballistic missiles through technical cooperation and battlefield use.[23] This collaboration on the Hwasong-11 may have implications for the DPRK's nuclear program, as mastering technologies including warhead reliability, accuracy, and miniaturization remains critical to advancing nuclear delivery systems.[24] Similarly, in March 2025, Korean state media reported that Kim unveiled a new nuclear-capable and nuclear-powered submarine.[25] Given the breadth of sanctions against the regime, analysts believe Russia assisted in the submarine's development in exchange for conventional support in Ukraine.[26] This is significant given that experts estimate only a portion of North Korea's large submarine fleet to be operational, due to the age of the vessels.[27]

The Way Ahead

Over the next year, North Korean nuclear policy will rely on three key trends: (1) continued advancements in missile testing, (2) U.S.-Korean Peninsula arms control efforts, and (3) the evolution of the DPRK's command and control systems.

First, with the 2026 deadline for North Korea's five-year defense plan looming and the DPRK's ruling party set to hold congress in early 2026, Pyongyang could increase nuclear-capable missile tests to meet its five-year targets. In particular, analysts believe that submarine-launched and multiple-warhead ICBMs, along with "super-large" warheads, are the most pressing projects.[28] The Hwasong-16B, an intermediate-range ballistic missile that can carry hypersonic glide vehicle payloads and pair with MIRVs, is of particular concern to the United States, Japan, and South Korea, as its speed and unpredictable maneuvering provide it the potential to evade missile defense systems in Alaska and Guam.[29] Furthermore, while there have been no DPRK nuclear tests since 2017, the Department of Defense assesses that North Korea's Nuclear Test Site at Punggye-ri remains prepared to conduct the country's seventh nuclear test at the time of its choosing.[30]

One noticeable shift is the White House's stated goal of multilateral arms control, not only with Russia and China but also including second-tier nuclear powers such as North Korea, Pakistan, and India.

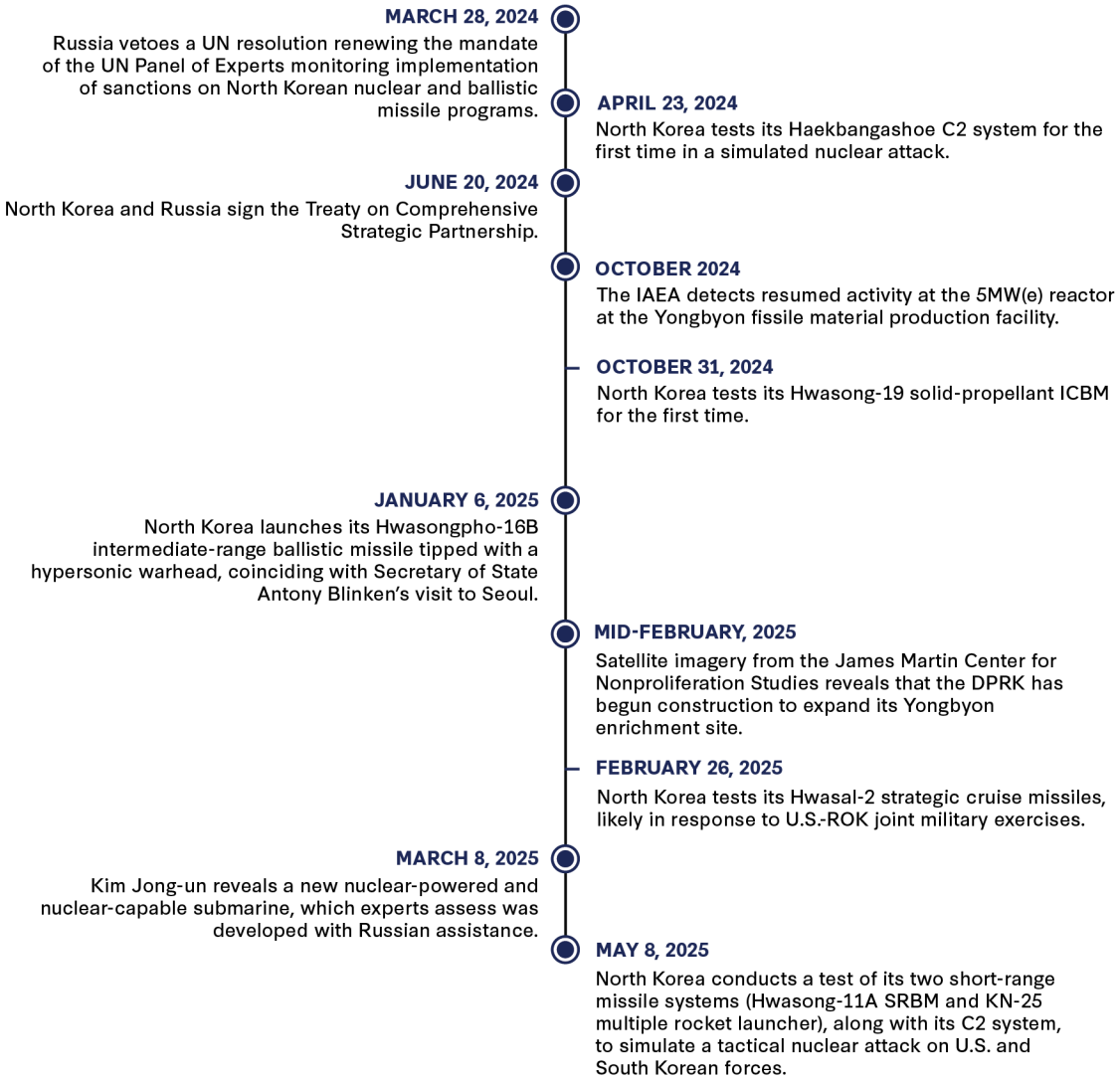
Second, it is unknown whether President Trump's strategy to reduce risk on the Korean Peninsula will change over the course of his second term. One noticeable shift is the White House's stated goal of multilateral arms control, not only with Russia and China but also including second-tier nuclear powers such as North Korea, Pakistan, and India.[31] Thus far, there has been a notable shift in the framing of U.S. goals related to North Korea in the second Trump administration. For example, President Trump and Secretary of Defense Pete Hegseth have referred to the DPRK as a "nuclear power" on multiple occasions, prompting backlash from South Korea and Japan for disregarding the NPT definition.[32] In addition, both Seoul and Tokyo worry that President Trump may diplomatically recognize the DPRK as a de facto nuclear weapons state to bring Kim Jong-un to the table for arms control negotiations.[33]

The third area to watch is the evolution of North Korea's nuclear command and control (C2) systems, particularly as the country expands its tactical capabilities, emphasizes preemptive use, and prioritizes survivability. While Kim's 2021 plan does not explicitly reference changes to C2 systems, its goal of "improved reconnaissance and command/surveillance" likely signals intent to modernize C2 infrastructure. Over the past year, Pyongyang took initial steps to increase automation by testing key components of its C2 system, including a nuclear trigger command system enabling conventional launchers to switch to nuclear-armed payloads and the Haekbangashoe system linking launch orders to execution.[34] As the country enters the end

of its five-year plan, further modernization will be necessary for a credible warfighting strategy, potentially requiring doctrinal shifts, new C2 infrastructure, and drills involving automated launch protocols.

Advances in missile testing, shifting prospects for arms control, and Pyongyang's evolving C2 systems present overlapping but distinct challenges for U.S. and allied strategy in the Korean Peninsula. Together, these issues raise questions about whether U.S. regional policies should adapt to acknowledge Pyongyang's de facto nuclear status to pursue risk-reduction and arms control or prepare for future escalation. Whatever path Washington takes will undoubtedly influence regional stability, allied confidence in extended deterrence, and the broader trajectory of the nonproliferation regime.

Recent Regional Developments



Source: Author analysis of various news outlets.

5

South Asia

By Diya Ashtakala

In May 2025, India and Pakistan stood on the brink of war. A terrorist attack that killed 25 Indian civilians in India-administered Kashmir triggered a diplomatic fallout and a four-day conventional crisis. Both countries used drones and missiles to strike each other's mainland for the first time. The tensions likewise reflected the great power competition of the era, with Western and Chinese capabilities directly confronting one another.

The May crisis revealed three shifts in India-Pakistan relations. First, both countries are acquiring technologies that compress decisionmaking time, increasing the risk of miscalculation. Second, counterterrorism strategies now prioritize military retaliation over diplomatic restraint. Third, misinformation is complicating crisis management and escalation dynamics.

These shifts have occurred as both countries continue to expand their nuclear arsenals while key bilateral agreements remain suspended. External powers are becoming more directly involved as both arms suppliers and crisis mediators. The May crisis previews the future of conflicts in the region—they will be harder to manage, more technologically advanced, and increasingly driven by great power competition.

South Asia's Strategic Landscape

India and Pakistan have fought several wars and border conflicts since their 1947 partition. The Jammu and Kashmir region remains the major flashpoint. Both countries claim it as their territory. The Line of Control, a de facto military border, divides the region between India and Pakistan. Terrorism remains a historical point of contention. Both countries have frozen diplomatic engagements since their last crisis in 2019. They have suspended formal talks, and high-level channels remain dormant.

Against this backdrop, tensions erupted in May 2025. India launched Operation Sindoor in response to the terrorist attack in Pahalgam. The operation included missile strikes and drone attacks, targeting what it called "terrorist infrastructure" in Pakistan and Pakistan-administered Kashmir.[1] Pakistan retaliated by launching Operation Bunyan-al-Marsoos. It conducted missile strikes and drone attacks in India and India-administered Kashmir. The conventional crisis lasted four days, from May 7 to 10, culminating in a ceasefire agreement.

Nuclear weapons programs complicate this rivalry further. Both countries developed distinct nuclear doctrines that shape their strategic calculations and crisis behavior. India follows a no-first-use policy and pursues credible minimum deterrence. It maintains a nuclear force to protect itself from nuclear blackmail and coercion.[2] India's posture responds to nuclear threats from both China and Pakistan. The close defense partnership between Beijing and Islamabad intensifies these security challenges. In 2020, the former Indian chief of defense staff stated that China and Pakistan's cooperation mandated "higher levels of preparation" by India.[3] These threat perceptions shaped India's broader military doctrine. New Delhi adopted the Cold Start doctrine, which calls for launching retaliatory strikes against the Pakistani military before Islamabad can escalate. This prevents Pakistan from crossing the nuclear threshold. Cold Start emphasizes preemption and the speed of New Delhi's response. Experts believe India may pursue preemptive counterforce options, though it has never acknowledged such a strategy.[4] India reportedly possesses 180 nuclear warheads, and maintains a triad with air-, land-, and sea-based components.

Pakistan retains the option of using nuclear weapons first and pursues full-spectrum deterrence. Shortly after its nuclear test in 1998, then-Prime Minister Nawaz Sharif stated that Pakistan's tests were "in response to India."[5] Four conditions determine the circumstances under which Pakistan would use its nuclear weapons: (1) India attacks Pakistan and conquers a large part of its territory; (2) India destroys Pakistan's land and air forces; (3) India strangles Pakistan's economy; or (4) New Delhi significantly subverts Islamabad's power.[6] Pakistan pursues full-spectrum deterrence to address this wide range of threats, including conventional and nuclear options.[7] Islamabad reportedly has 170 nuclear warheads.[8]

Two bilateral mechanisms aim to provide crisis stability: the Non-Attack Agreement and military hotlines. The Non-Attack Agreement prohibits both countries from attacking each other's nuclear installations or facilities. They exchange lists of the locations of these installations every year.[9] This agreement aims to reaffirm a commitment to peace, strengthen bilateral relations, and improve confidence-building measures. India and Pakistan also maintain military hotlines between their directors general of military operations.[10] The May crisis revealed these measures as insufficient for managing rapid, technology-driven escalation.

Three Defining Trends

Three developments—technological competition, counterterrorism shifts, and misinformation—now define India-Pakistan tensions and are fundamentally changing the two countries' strategic relationship.

Both countries now invest in hypersonic missiles, multiple independently targetable reentry vehicles (MIRVs), long-range missiles, and drone warfare. Hypersonic missiles can deliver strikes with minimal warning due to their speed and maneuverability. MIRV systems can deliver multiple nuclear warheads to different targets simultaneously. New Delhi is also reportedly developing a bunker-buster capability with its long-range missiles. Pakistan's reported developments to the Shaheen series suggest efforts to extend their strategic reach beyond the immediate region. The May 2025 crisis showed that both countries now use drones for precision strikes. These technologies can create multiple escalation routes, heightening the risk of miscalculation between India and Pakistan. Table 1 details recent developments.

Table 1: Recent Technological Developments by India and Pakistan

Capability	India	Pakistan
Hypersonic missiles	Tests the first long-range hypersonic missile in November 2024; designed to carry various payloads for ranges exceeding 1,500 km; specifications unclear[11]	Claims hypersonic capability in January 2024; potentially linked to the Chinese-made CM-400 AKG; specifications unclear[12]
MIRVs	Tests Agni-5 intercontinental ballistic missile (ICBM) with MIRV capability in March 2024[13]	Tests Ababeel medium-range ballistic missile (MRBM) with MIRV capability in October 2023[14]
Long-range missiles	Upgrades Agni-5 with bunker buster capability (reported)[15]	Developing ICBM (as per U.S. intelligence, which Pakistan denies); acquires large-diameter rocket motors for Shaheen ballistic missiles[16]
Drones	Invests in drone acquisition and development; reportedly deploys drones such as the Nagastra 1, Israeli Harop drones, Heron MK IIs, and TAPAS-BH-201 in May[17]	Invests in acquisition and development; reportedly deploys drones such as the Shahpar-II armed Burraq drones, Turkish Bayraktar TB2s, and Chinese CH-4 and Wing Loong II platforms in May[18]

Source: Author analysis of various news outlets.

Significant shifts in counterterrorism approaches have coincided with these technological changes. India is now responding to terrorism with strikes on terrorist camps and high-intensity military responses. Prime Minister Narendra Modi announced India's new benchmarks for addressing future attacks after the May 2025 crisis. These include a stronger rejection of nuclear coercion and striking terrorist hideouts that operate "under the cover of nuclear blackmail." India has stated that it will not differentiate between state-sponsored terrorism and individual masterminds.[19] Pakistan has likewise made its own counterterrorism adjustments. Islamabad launched Operation Azm-e-Istehkam in June 2024 to combat terrorism and extremism within its borders. The operation coordinates efforts across multiple fronts to address these threats and bolster the armed forces.[20] A stronger willingness on both sides to strike perpetrators of terrorism will shape any future crisis.

Social media amplified false reports during the May crisis. These reports threatened to transform conventional conflict into nuclear miscalculation. This included a story about an alleged attack by India on Kirana Hills, a suspected Pakistani nuclear storage facility. The story claimed radiological leaks in the region.[21] The narrative also included fabricated memos falsely claiming to come from a Pakistani government agency, though experts cannot attribute the memos to government entities or independent actors. Social media can inject more complexity into a crisis, causing adversaries to misinterpret each other's maneuvers and drive further escalation.[22]

The Way Ahead

India-Pakistan relations face three vital challenges: treaty suspensions, competing nuclear buildups, and navigating third-party involvement in crises.

Treaty suspensions threaten the diplomatic foundation that prevented past crises from escalating. India suspended the Indus Water Treaty (IWT), a water-sharing agreement between India and Pakistan regarding the Indus River, which is an essential source of water for both countries. India's home minister has suggested that the country will never restore the IWT, which indicates that the suspension may be permanent.[23] This move sparked nuclear rhetoric, with Pakistan's ambassador to Russia stating that Islamabad would use "conventional and nuclear weapons" if New Delhi escalated or cut off its water supply.[24] Pakistan warned India to either honor the IWT or lose control of the rivers covered by the treaty.[25] Pakistan's National Security Council threatened to suspend the Shimla Agreement in April after India suspended the IWT.[26] The Shimla Agreement requires both countries to resolve disputes bilaterally through peaceful means. The status of the agreement is unclear, and its future remains uncertain. If disputes remain unresolved, tensions could re-escalate with nuclear rhetoric.

Both countries continue to modernize their nuclear arsenals, fueling the arms race. India increased its nuclear warhead count from 170 to 180 as of January 2025 and is developing a long-range missile capable of targeting China. This is in response to China's nuclear buildup, projected to reach 1,500 warheads by 2035.[27] Experts believe this goal drives India's new MIRV-capable ICBM, the Agni-6.[28] Meanwhile, Pakistan's warhead count remains at 170, though the country continues to modernize its nuclear arsenal. This includes developing the Babur-3 submarine-launched cruise missile to bolster its triad.[29] A recent U.S. intelligence assessment indicates that Pakistan's nuclear

modernization includes developing battlefield nuclear weapons to counter India's conventional forces.[30] Though uncertainty remains about the timelines for India's deployment of the Agni-6 and Pakistan's operationalization of the Babur 3, both countries are anticipated to advance their missile programs over the coming year.

Third-party actors complicate bilateral dynamics by playing dual roles as arms suppliers and crisis mediators. Regarding the former, the recent crisis tested Western-produced defense systems against Chinese-made capabilities. Reports emerged of Pakistan shooting down India's Rafale jets using the Chinese-made J-10C jets and PL-15 missiles. India, Pakistan, the United States, and China have assessed Rafale losses differently, preventing a complete evaluation of Beijing's capabilities.[31] In the role of mediation, the United States has historically taken the lead to arbitrate between India and Pakistan during crises. President Trump stated that the ceasefire agreement after the May 2025 crisis "solved a big problem, a nuclear problem potentially with India and with Pakistan."[32] More recently, Gulf States like Saudi Arabia and the United Arab Emirates sent diplomats to both countries to help de-escalate tensions.[33] India and Pakistan have differing views on dispute resolution. New Delhi did not publicly mention Washington's role in the ceasefire agreement, and Prime Minister Modi refused to accept third-party mediation in subsequent ceasefire talks. By contrast, Islamabad has welcomed Washington's mediation efforts.[34]

Maintaining bilateral relations remains India's and Pakistan's most formidable challenge. Diplomatic channels have been dormant, cross-border terrorism remains unresolved, and both countries threaten to abandon key treaties.

Maintaining bilateral relations remains India's and Pakistan's most formidable challenge. Diplomatic channels have been dormant, cross-border terrorism remains unresolved, and both countries threaten to abandon key treaties. The May 2025 crisis revealed how these trends—technological competition, counterterrorism strategies, and misinformation—can rapidly transform a terrorist attack into an escalated conflict.

This trajectory threatens regional and global stability. India and Pakistan continue to expand their nuclear arsenals and refuse to engage in dialogue. Advanced weapons compress decisionmaking windows, while misinformation campaigns grow more sophisticated. The United States must maintain sustained attention on India-Pakistan tensions rather than just engaging in episodic crisis response. Washington's partnerships with both countries create complications, yet engagement remains essential. With confidence-building measures proving inadequate, the next crisis may prove far more challenging to contain—a reality with implications far beyond South Asia.

6

Europe

By Doreen Horschig

Russia's actions and threats in its war with Ukraine have reshaped the strategic posture of France and the United Kingdom. In its June 2025 National Security Strategy, London expressed concerns over Moscow's sub-threshold activity and increased nuclear rhetoric against the United Kingdom and other NATO allies.[1] Paris likewise has stated that this strategic environment requires France to "adapt to the immediate emergency by accelerating its overall rearmament."[2] Russia's actions have fostered a profound sense of urgency among the two European nuclear powers, driving both to demonstrate continuity while also reevaluating and adapting their defense capabilities and nuclear weapons policies. While London and Paris are not altering their nuclear doctrines directly, China's growing military capabilities reinforce their need for robust and independent deterrents in a more multipolar world.

There are four areas of nuclear policy in which France and the United Kingdom face major choices. First, both must decide whether their minimalist postures are enough to address the current security environment. Second, London and Paris will need to determine how to balance modernization with nonproliferation commitments. Third, the United Kingdom must choose how to manage reliance on the United States. Lastly, France must decide whether its "European dimension" will become reality. These choices will shape Europe's nuclear future and NATO's credibility for decades.

Europe's Nuclear Powers: Forces, Doctrine, and Modernization

As the two nuclear weapons states in Europe, the United Kingdom and France possess about 4 percent of the global stockpile. The United Kingdom has around 225 nuclear warheads, 120 of which are available for deployment on four Vanguard-class submarines armed with Trident II ballistic missiles.[3] France maintains a two-leg nuclear force with Triomphant-class submarine-launched ballistic missiles and Rafale fighter jets that carry air-launched cruise missiles, totaling about 290 nuclear warheads—either deployed or able to do so on short notice.[4] Given the geopolitical tensions, both countries are modernizing their stockpiles. For example, the United Kingdom announced a substantial investment of more than $20 billion in its nuclear forces, which includes a new class of submarines and the development of a new nuclear warhead, as well as the purchase of F-35A jets to deliver U.S. nuclear warheads.[5] France is establishing a fourth nuclear-capable air base at Luxeuil-les-Bains to receive 40 new Rafales and new hypersonic missiles by 2035 and is constructing a third-generation submarine class, the SNLE-3G. Two very distinct national doctrines shape these modernization efforts.

The United Kingdom's nuclear doctrine centers on maintaining a minimum credible deterrent designed to protect against the most "extreme threats" to its "national security and way of life."[6] It deliberately maintains ambiguity regarding the precise circumstances of nuclear use, preventing adversaries from calculating acceptable risks and enhancing the deterrent's overall effect. This doctrine relies solely on its submarines and anchors itself in a continuous at-sea deterrence (CASD) posture. The prime minister exercises ultimate and sole authority over the decision to employ nuclear weapons. While the United Kingdom's deterrent remains independent, it is also fundamentally committed to NATO's collective security framework. This dual commitment reflects a belief that London's independent capability strengthens alliance-wide deterrence.

The French doctrine maintains its historical emphasis on deterrence by punishment, designed to inflict "unacceptable damage" on an adversary threatening its vital interests.[7] This rests on two fundamental tenets. First, independence ensures France's complete sovereign control over its nuclear forces, encompassing all stages from development to final decisionmaking. The French president alone defines "vital interests" and authorizes nuclear use. President Emmanuel Macron reiterated this in a March 2025 address, emphasizing, "Our nuclear deterrent protects us; it is complete, sovereign and French through and through."[8] This commitment to autonomy explains France's long-standing decision not to join NATO's Nuclear Planning Group (NPG). Second, strict sufficiency governs the size of France's arsenal. This minimalist force aims for credible deterrence through assured destruction rather than numerical parity. Nevertheless, France's new strategic review hints at possible adaptations in force structure and an expansion could be possible.[9]

United Kingdom: Expanding Deterrence Beyond Trident

The United Kingdom's strategic doctrine and nuclear weapons policy have undergone adjustments in the past two years, shaped by a volatile geopolitical landscape marked by Russia's aggressive actions and China's nuclear modernization. This "era of radical uncertainty," as articulated in the 2025 Strategic Defence Review (SDR), has compelled London to prioritize a robust and adaptable

defense posture centered on deterrence and a staunch commitment to its "NATO First" policy.[10] The shift signifies a strategic reevaluation, moving beyond post–Cold War assumptions to confront a world in which conventional and nuclear threats are increasingly intertwined.

For the United Kingdom, this translates to a renewed focus on broadening its deterrence tool kit beyond its long-standing reliance solely on the Trident submarine fleet. The decision to explore the reintroduction of an air-launched nuclear capability through the acquisition of F-35A fighter jets capable of carrying U.S. B61-12 tactical nuclear gravity bombs represents the most significant change in the United Kingdom's nuclear posture since 1998, when it ceased its air-launched nuclear weapons program that had existed since 1956. This move, discussed at the 2025 NATO summit, is not merely about acquiring new hardware; it signifies a strategic embrace of a "substrategic" capability and provides additional flexible response options. This limited nuclear strike option can prevent a conventional conflict from escalating uncontrollably or signal resolve below the threshold of strategic nuclear exchange. Integrating these F-35As into NATO's Dual Capable Aircraft (DCA) program underscores a deeper commitment to collective security, aligning the United Kingdom's operational nuclear role more closely with those of its continental European allies.

The practicalities of implementation may present some dilemmas. While the F-35A option offers a comparatively quicker path to an air-launched capability through the leveraging of existing U.S. technology, it does not alleviate the fundamental reliance on U.S. weapons systems. Much of London's defense investments so far have been to reduce its reliance on Washington, in light of increased concerns about U.S. defense commitment to Europe.[11] A more independent path, involving the development of a new, UK-designed tactical nuclear warhead and an air-launched cruise missile, would demand a significant financial outlay and a lengthy timeline. This extended timeframe arises from the concurrent focus on modernizing the Trident warhead. Some argue for exploring lower-yield, tactical nuclear options.[12] The United Kingdom faces a critical choice between a more immediate but less independent solution and a long-term, high-cost path to a fully sovereign tactical nuclear capability.

Overall, the United Kingdom aims to solidify its position as a leading security actor within NATO by strengthening its deterrence posture through renewed investment in its nuclear enterprise and reintroduction of air-launched capabilities. This approach reflects a sober assessment of contemporary threats, particularly from Russia and China, and underscores the United Kingdom's commitment to maintaining a robust, credible nuclear deterrent as the ultimate guarantor of its security and a vital component of collective European defense. The country's next steps involve navigating significant financial, political, and diplomatic challenges, but the strategic imperative for these shifts appears firmly established in London.

France: Managing Ambiguity and Expectations

Russia's full-scale invasion, coupled with its explicit nuclear threats, has significantly shaped France's recent nuclear behavior. In light of Russia's aggression, France has highlighted that deterrence works best when nuclear use policies stay deliberately vague, preventing adversaries from gauging the risks of an attack.[13] This environment has provided the impetus for greater

European strategic autonomy, with France seeking to lead in this domain. President Macron has consistently advocated for a "strategic dialogue" with European partners on the role of French nuclear deterrence in collective security.[14]

France has actively translated its evolving strategic thinking into concrete actions and behaviors. First, President Macron has consistently used public platforms to reiterate that France's vital interests possess a "European dimension," indicating that the security of its European partners is inextricably linked to its own.[15] Macron actively promoted this European dimension to France's nuclear arsenal in 2020 and 2024.[16] He also stated that he was ready to "open the discussion" on European deterrence, leaving questions unanswered as to whether this would include a nuclear umbrella or nuclear sharing.[17] Macron's posture is not merely rhetorical; France has lately pursued tangible steps to foster a deeper strategic dialogue among European allies. For example, Paris and Berlin agreed to create the Franco-German Defence and Security Council in May 2025 to coordinate defense, strategic planning, and support for Ukraine—moving beyond existing channels.[18] Both Macron and German Chancellor Friedrich Merz have made it clear that any discussion of an expanded French nuclear umbrella would complement existing security guarantees from the United States.

Second, while France maintains its independent stance outside NATO's Nuclear Planning Group (NPG), the country has demonstrably increased its engagement in alliance-wide policy discussions concerning nuclear matters. Beyond formal diplomatic channels, France has quietly involved European partners in its annual nuclear exercise, Operation Poker.[19] These drills test the readiness of France's air-based strategic forces and simulate nuclear strike missions and have recently included participation from European militaries through activities like "red-teaming."[20] This strategy aims to enhance interoperability and provide European allies with a greater understanding of France's nuclear capabilities and operational procedures.

Furthermore, France has strengthened bilateral security ties with key European nations. A significant development in May 2025 was the signing of a security treaty between France and Poland.[21] Polish Prime Minister Donald Tusk described this agreement as a step toward a potential French nuclear umbrella for Poland, underscoring a growing interest among Eastern European states in France's deterrent in the face of Russian aggression.[22] While the treaty itself does not explicitly detail nuclear sharing, it signifies a deepening commitment to mutual security and provides a framework for intensified military and technological cooperation, including in nuclear energy. These actions collectively illustrate France's proactive approach to bolstering European security through its unique nuclear posture.

Despite France's proactive stance, challenges persist. The inherent strategic ambiguity of its doctrine, while serving deterrence, can create uncertainty for allies desiring explicit security guarantees. The Strategic Review published in 2025 largely reiterated ambiguity about the European dimension of its deterrent.[23] Furthermore, France's commitment to strict sufficiency and unilateral control suggests it has no intention of replicating U.S.-style nuclear sharing arrangements. This presents a political hurdle for some European partners seeking greater

collective decisionmaking on nuclear matters. Nonetheless, France actively promotes dialogue and cooperation to clarify its role and strengthen European security.

The Way Ahead: Key Questions for Europe's Nuclear Future

Amid growing security threats, France and the United Kingdom face choices in four key areas that will shape their nuclear posture and NATO's future deterrence. First, as the two countries recalibrate their nuclear postures in response to a more volatile global environment, questions remain about whether their current trajectories are sufficient to meet the challenge. France relies on strict sufficiency, and the United Kingdom relies on minimum credible deterrence. Are these strategies enough to deter an increasingly aggressive Russia and reassure NATO's eastern flank? As conventional and nuclear threats blur, pressure may grow for both countries to further expand or diversify their nuclear options, testing long-held doctrinal limits.

In an era of growing doubts about Washington's reliability, London faces uncomfortable choices: partner with Paris despite technical and political hurdles or explore some form of European nuclear sharing.

A second issue is the United Kingdom's enduring dependence on the United States for key elements of its Trident system. In an era of growing doubts about Washington's reliability, London faces uncomfortable choices: partner with Paris despite technical and political hurdles or explore some form of European nuclear sharing.[24] Neither of these paths is easy but avoiding the question risks increasing vulnerability or diminishing credibility in both national and NATO deterrence.

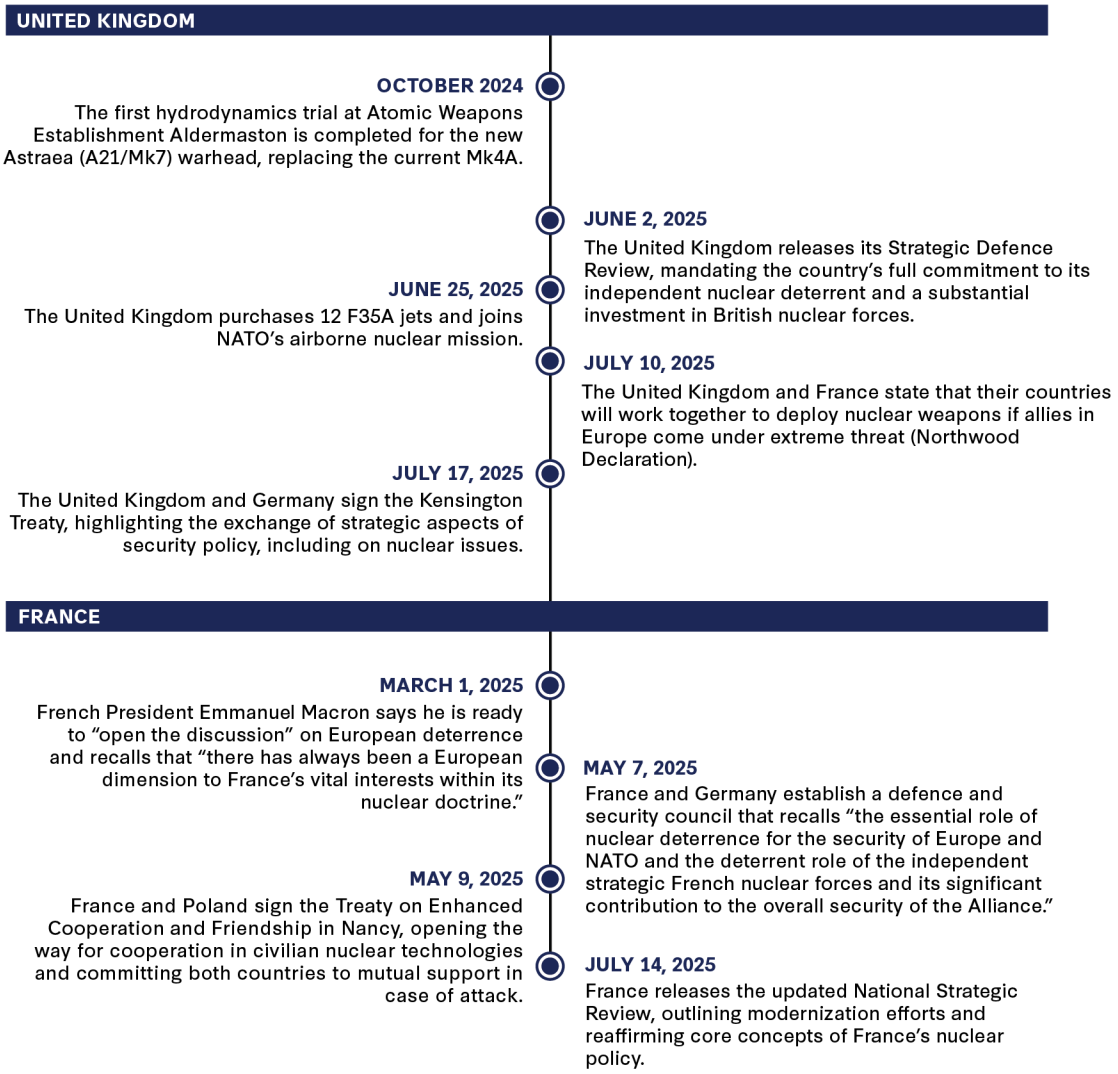
Third, for France, the way ahead hinges on whether President Macron's push to give France's deterrent a clearer European dimension can move beyond rhetoric to lasting structures. Recent steps, including the bilateral treaties with Poland and Germany, suggest movement toward a de facto French nuclear umbrella for Europe. But France faces a choice: How far is it willing to extend its nuclear assurances without compromising its cherished autonomy? Much depends on whether future French leaders sustain Macron's openness or revert to more traditional, strictly national approaches.

Going forward, Europe's nuclear powers must navigate a fraught landscape, balancing sovereignty, alliance politics, credible deterrence, and nonproliferation in a world where nuclear risks are rising, not fading.

Finally, modernization efforts raise tensions between security imperatives and global nonproliferation commitments. Both London and Paris are vocal supporters of the Nuclear Non-Proliferation Treaty (NPT) and norms against nuclear use, proliferation, and testing.[25] Yet both are expanding their nuclear capabilities. The United Kingdom, for example, is moving

toward reintroducing air-launched nuclear weapons, which could raise questions about disarmament credibility. These European developments, however, occur against the backdrop of far larger nuclear expansions by Russia and China, which pose the most significant strain on the nonproliferation regime and risk encouraging other states to follow suit. Balancing deterrence needs with sustaining the integrity of the nonproliferation regime will be an ongoing challenge, especially under scrutiny from nonnuclear states.

Recent Regional Developments



Source: Aurelien Breeden, "France Open to Discussing Extension of Nuclear Deterrence, Macron Says," New York Times, March 6, 2025, https://www.nytimes.com/2025/03/05/world/europe/france-nuclear-europe.html; and Leila Abboud, Adrienne Klasa, and Anne-Sylvaine Chassany. "France and Germany to Set Up Joint Security Council," Financial Times, May 7, 2025, https://www.ft.com/content/ff041474-2dd7-4556-ac2e-d01136fee8c2.

7

Middle East

By Bailey Schiff

Tensions between Israel and Iran have escalated from shadow and proxy warfare to open confrontations, a shift driven primarily by Iran's accelerating nuclear program. Operations Rising Lion and Midnight Hammer, the June 2025 Israeli and U.S. strikes on Iran's nuclear sites, reflect both a recognition that Iran cannot cross the nuclear threshold and an international embrace of counterproliferation strikes amid skepticism about the effectiveness of the Nuclear Non-Proliferation Treaty (NPT). Over the course of 2024–25, for Iran and Israel, nuclear issues have coalesced around three challenges: Iran being on the brink of a nuclear breakout, the October expiration of snapback sanctions, and renewed hedging behavior by Gulf states. Looking ahead, the trajectory of nuclear issues in the Middle East will largely depend on the fallout of U.S.-Israeli strikes on Iran's nuclear program, rising pressure over Israel's nuclear ambiguity ahead of the NPT Review Conference, and the evolving support that Tehran receives from its allies.

Background

Middle Eastern nuclear dynamics revolve around Israel, a state widely known to possess nuclear weapons despite not officially acknowledging them, and Iran, a threshold nuclear power that is continuously advancing its capabilities. Analysts estimate Israel possesses around 90 nuclear warheads deliverable by aircraft (F-15I and F-16I), land-based ballistic missiles (Jericho II and

III), and likely sea-based cruise missiles (Popeye cruise missile variant) launched from Dolphin submarines.[1] Israel also retains fissile material for roughly 200 additional weapons.[2] The country has continued to modernize its arsenal: In June 2024, it tested a missile propulsion system allegedly related to its Jericho nuclear-capable ballistic missile program.[3] In addition, since 2011, Jerusalem has been transitioning from solid-fuel medium-range Jericho II ballistic missiles to Jericho III longer-range missiles, and may have already done so.[4] Similarly, since 2021, satellite imagery showing construction at the aging Shimon Peres Negev Nuclear Research Center in Dimona, which houses an underground weapons-grade plutonium laboratory, indicates that Israel is upgrading its production facilities.[5]

Israel has maintained a policy of deliberate nuclear ambiguity—known in Hebrew as "amimut"—since the 1960s, deterring existential threats by concealing both the scale of its arsenal and its willingness to use it. This policy avoids formal declarations or treaty obligations, reinforced by Israel's refusal to sign the NPT and its moratorium on nuclear testing. The Prime Minister's Office has complete control over the arsenal, which is code-named the "Samson Option."[6] While Israel has no official nuclear doctrine, experts believe it seeks to maintain overwhelming conventional superiority to preemptively eliminate threats, thereby preventing the need for nuclear escalation.[7]

While Iran lacks a nuclear deterrent, it operates within a triangular deterrence strategy comprised of missile and drone technology, its proxy network, and threats to weaponize its nuclear program.

Iran's nuclear program remains a central point of tension between Israel and the Gulf states. Since Washington's 2018 withdrawal from the Joint Comprehensive Plan of Action (JCPOA), Tehran has steadily escalated its nuclear activities, enriching uranium to 60 percent (only one step away from weapons-grade enrichment), disabling International Atomic Energy Agency (IAEA) surveillance, and expanding enrichment sites. This strategy, often described as "hedging" or "surge capacity," provides Iran the ability to develop a weapon within months without crossing the nuclear threshold, using its latency as both a bargaining chip and a limited deterrent against conventional attacks.[8] While Iran lacks a nuclear deterrent, it operates within a triangular deterrence strategy comprised of missile and drone technology, its proxy network, and threats to weaponize its nuclear program. Experts believe Tehran resorts to strengthening one leg of its structure to compensate for weakness in the other two. For example, during the early JCPOA years, Iran rebuilt Hamas's tunnel networks, backed new proxy groups like al-Sabirin in Gaza, and created Hezbollah-affiliated cells in Kuwait and Bahrain.[9] Likewise, after Israel's 2024 dismantlement of Hezbollah and weakening of Hamas, Iran has escalated its threats to weaponize and has signaled a potential NPT withdrawal.

Taken together, Israel's ambiguous nuclear posture and Iran's hedging strategy have intensified the political salience of nuclear issues in the Middle East and international concerns over proliferation

in the region. For Iran and Israel in 2024–25, there have been three key regional issues: Iran's nuclear advancements, the expiration of snapback sanctions, and Gulf state hedging.

ALLEGED IRANIAN SHIFT TO WEAPONIZATION

Iran has taken technical and bureaucratic steps that might suggest a shift from nuclear hedging to weaponization. Following the weakening of proxies, including Hamas after October 7 and Hezbollah in September 2024, Tehran has strengthened its latent capabilities, such as by stockpiling enough 60 percent enriched uranium for nine nuclear weapons and rapidly expanding production of advanced centrifuges.[10] In 2024 and 2025, U.S. and Israeli intelligence allegedly detected signs of potential weaponization, including new computer modeling, multipoint detonation tests, plastic explosives production, and neutron radiation trials, all of which suggest a team of Iranian scientists could be exploring a crude weaponization path.[11] On June 12, 2025, the IAEA board of governors declared Iran in breach of its nonproliferation obligations after a U.S., UK, French, and German censure resolution.[12] In response, Iran announced that it had built and would activate a third enrichment site, which IAEA Director General Rafael Grossi identified as located in an underground area of Isfahan. [13] Over the next two weeks, Israel—and, eventually, the United States—targeted Iran's nuclear sites, including Natanz, Fordow, and Isfahan, significantly setting back Tehran's pathway to a nuclear weapon. Regardless of the extent of damage to Iran's nuclear program, the strikes are likely to shape Tehran's strategic calculus, potentially by reinforcing the perceived need for a nuclear weapon.

SNAPBACK SANCTIONS EXPIRATION

In tandem with Iran's nuclear advancements, diplomatic pressure steadily mounted in 2025 ahead of the looming expiration of UN snapback sanctions on October 18. The JCPOA lifted these sanctions in exchange for Iranian nuclear concessions, but it also developed a mechanism for any signatory (the United States, the United Kingdom, France, Russia, Germany, or China) to unilaterally restore them if Iran is in "significant non-performance." Ahead of the deadline, the United Kingdom, France, and Germany (the E3) engaged in discussions with Iran, proposing a six-month extension of the deadline if Tehran (1) resumed direct, unconditional negotiations with the United States, (2) reinstated full access for IAEA inspectors at key sites, and (3) accounted for its stockpile of highly enriched uranium.[14] Throughout this process, the E3 coordinated with Secretary of State Marco Rubio and President Donald Trump, but since the United States withdrew from the JCPOA, it remained legally contested whether Washington could unilaterally initiate the snapback process, a limitation the White House has acknowledged.[15] However, when Iran failed to deliver concrete progress by the end of August, the E3 formally triggered the snapback mechanism, starting a 30-day process after which all UN sanctions lifted under the JCPOA would automatically be restored. On September 28, the UN Security Council voted to reinstate the sanctions, reimposing prohibitions on uranium enrichment and reprocessing, bans on ballistic missile activity and arms imports, asset freezes, travel bans, and other restrictions on Iran's nuclear and dual-use trade. Russia and China rejected the move's legitimacy, and in retaliation, Iran announced it would suspend a potential cooperation deal with the IAEA and challenge the reimposed measures.

GULF STATE HEDGING

A third regional issue involves Gulf states' growing concerns over Tehran's nuclear program. Saudi Arabia has long rejected Iran's claim of a purely civilian nuclear program, warning that it would pursue its own nuclear weapon if Iran acquires one.[16] As early as 2011, Riyadh even floated the idea of the Gulf states creating a nuclear counterweight to Tehran.[17] Since 2020, Saudi Arabia has developed uranium enrichment programs under its national energy initiative, reportedly constructing conversion facilities with Chinese assistance, raising concerns about a potential hedging strategy.[18] On September 18, this insecurity culminated in Saudi Arabia and Pakistan reaching a formal mutual defense pact, which could potentially undercut its path to nuclear protection.[19] Similarly, the United Arab Emirates, while forswearing enrichment under a U.S. agreement, operates the region's only active nuclear power plants at Barakah and continues expanding nuclear and water reactors in partnership with South Korea.[20] To address regional proliferation risks, one proposal during U.S.-Iran negotiations was a regional uranium enrichment consortium to allow multilateral control and access to nuclear research.[21]

These overlapping trends point to a more unstable regional balance, setting the context for the key factors that will shape the Middle East's nuclear trajectory in 2026.

THE WAY AHEAD

Nuclear issues in the Middle East will largely hinge on three factors in 2026: U.S.-Israeli alignment in the aftermath of the June 2025 strikes on Iran's nuclear program, rising pressure over Israel's nuclear ambiguity ahead of the NPT Review Conference, and the evolving support Tehran receives from its allies.

First, in the aftermath of the June strikes, strategic differences between Washington and Jerusalem over how to prevent Iran from crossing the nuclear threshold have widened, despite shared intelligence.[22] Israel opposes any nuclear deal excluding Iran's missile program and proxy network, with Prime Minister Benjamin Netanyahu insisting on a "Libya-style" approach in which "[the United States] go[es] in, blow[s] up the installations, [and] dismantle[s] all of the equipment."[23] In contrast, the United States, under President Trump, favors diplomacy backed by military pressure. Early in his second term, President Trump gave Iran a 60-day window to reach an agreement, but six rounds of negotiations failed to produce a deal. Since the joint strikes, this divergence has only deepened. President Trump's recent statements suggest Washington views the June strikes as a limited measure to revive diplomacy, which it still sees as the best path to contain Iran's nuclear program and stabilize the region.[24] Israel, however, prefers repeated strikes every few years to contain any resurgence of Tehran's nuclear program, with Netanyahu comparing the program to a "cancer" requiring constant monitoring.[25]

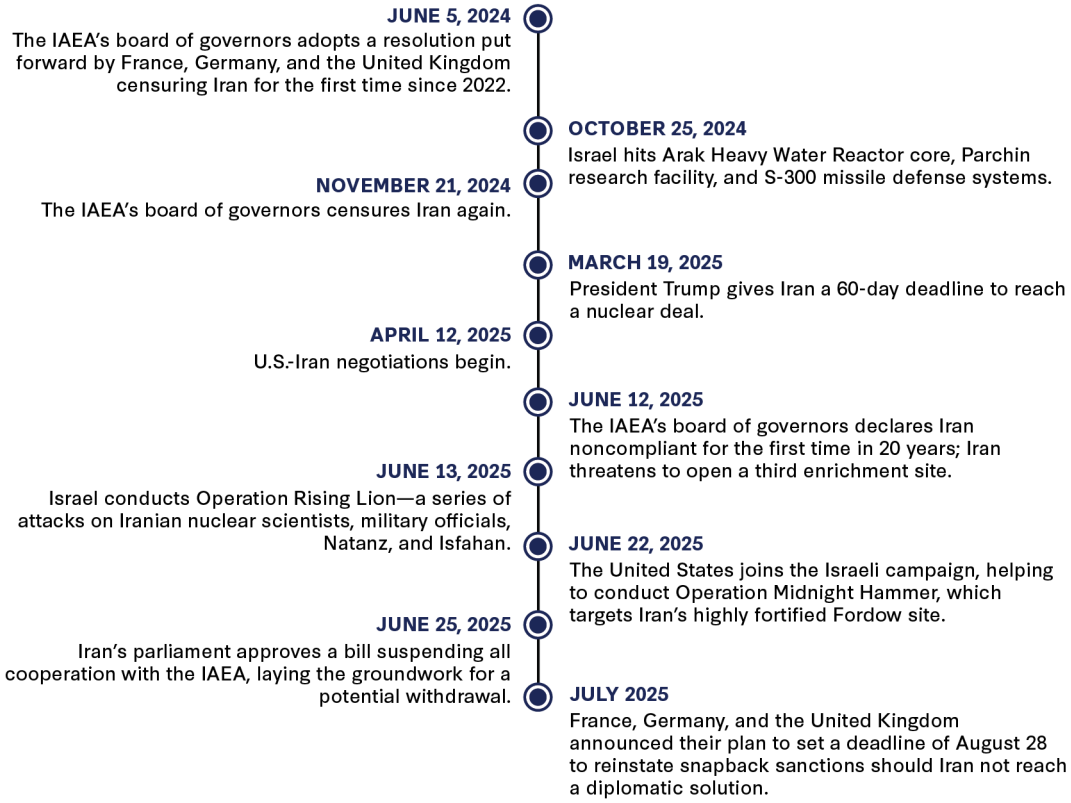
Second, the Middle East Nuclear Weapons-Free Zone (NWFZ) is reemerging as a political challenge for Israel's nuclear program ahead of the 2025 NPT Review Conference. Proposed by Iran and Egypt in 1974, the initiative gained traction in 1995 when NPT members tied the treaty's indefinite extension to the eventual creation of "an effectively verifiable Middle East zone free of weapons of mass destruction."[26] Arab states and the Non-Aligned Movement have long promoted the initiative, but frustration over Israel's counterproliferation attempts on Iran, its continued campaign against

Hamas, and stalled disarmament progress have heightened the zone's appeal. The June 2025 strikes on Iran have only intensified international scrutiny of Israel's nuclear ambiguity and non-signatory status, with some non-aligned states seeing progress toward the establishment of the NWFZ as a litmus test for the future of the NPT. The focus on this will only increase at the 2026 RevCon, with China and Russia continuously reaffirming their support for a viable WMD-free Middle East zone, explicitly tying it to their NPT goals and framing it as essential to restoring peace to the region.[27]

The final factor shaping the road ahead is the role of Iran's allies, whose expanding cooperation may influence Tehran's path to a nuclear weapon. Since the early 1990s, Iran has partnered with Russia, China, and North Korea—often called the "axis of aggressors"—to gain scientific expertise and access to nuclear-related materials.[28] In recent years, Russia signed a 20-year strategic cooperation agreement with Iran that includes ballistic missile and air defense cooperation; North Korea, for its part, reportedly resumed missile technology transfer to Iran, potentially assisting with the sourcing of nuclear components; and China continues supplying Iran with key materials related to solid-fuel missiles.[29] However, this alliance has been tested in the wake of the June U.S.-Israeli strikes. While all three states have supported Iran rhetorically, Russia has downplayed the pact as a non-military alliance, China has withheld any material support to Iran, and North Korea has remained diplomatically reserved beyond initial condemning the strikes.[30] The extent to which Moscow, Beijing, or Pyongyang might deepen or further reduce their support—nuclear, military, or diplomatic—will certainly shape Tehran's calculus on whether to remain at a threshold status, cooperate, or even weaponize.

What happens next will depend on the convergence of unprecedented pressures: Iran on the verge of a breakout, mounting scrutiny of Israel's nuclear ambiguity before RevCon, and deepening adversarial cooperation. The trajectory of nuclear issues in the region will rely on several unknowns that may influence Iran's perceived need for a nuclear weapon, U.S. and Iranian negotiation strategies, and the likelihood of further Israeli or U.S. strikes. These include the state of Iran's uranium stockpiles and underground facilities, a potential Iranian withdrawal from the NPT, and the willingness of Russia and China to offer legal or financial support to Iran to mitigate the impact of snapback sanctions.

Recent Regional Developments



Source: Author analysis of various news outlets.

8

The State of U.S. Nuclear Assurances

Adaptation Without Abandonment

By Diya Ashtakala and Doreen Horschig

U.S. allies in both Europe and the Indo-Pacific are rethinking their approach to extended nuclear deterrence. As geopolitical risks grow and questions about the long-term reliability of U.S. commitments persist, allies are taking strategic actions of their own, including deeper intra-alliance coordination and increased investments in conventional defense.

Signals from the United States have caused significant anxiety among allies, but they have also motivated European and Indo-Pacific capitals to take more responsibility for their own defense. The U.S. nuclear umbrella has shown remarkable resilience and allied strategic adaptations reflect a shared desire to complement U.S. extended deterrence rather than replace it.

The trajectory over the next year will depend on how the United States signals its commitment to extended nuclear deterrence, how adversaries such as Russia and China act, and how domestic politics evolve in key allied states.

The trajectory over the next year will depend on how the United States signals its commitment to extended nuclear deterrence, how adversaries such as Russia and China act, and how domestic politics evolve in key allied states. The decisions Washington and its partners make now will either entrench a more resilient deterrence architecture or open the door to fragmentation and new forms of strategic hedging.

The Evolving Role of Allies and Extended Nuclear Deterrence

Extended nuclear deterrence remains a cornerstone of U.S. grand strategy, linking strategic stability, alliance assurance, and nonproliferation efforts. Through extended deterrence and nuclear sharing arrangements, the United States discourages allies from pursuing their own nuclear arsenals while strengthening its position to deter nuclear-armed adversaries.[1]

The United States established these arrangements during the Cold War, when it created nuclear sharing with NATO to respond to Soviet aggression. Washington continues to provide extended deterrence in Europe in the context of Russia's growing nuclear capabilities and signaling during the Ukraine war. The United States also provides the security guarantees to allies in the Indo-Pacific; it has deepened existing defense partnerships with South Korea, Japan, and Australia. These partnerships are in response to rising nuclear and conventional threats from China and North Korea.

Strategic stability—the condition in which nuclear-armed states lack incentives to use nuclear weapons first—remains a key driver of these extended security efforts.[2] The 2023 Strategic Posture Commission, which assessed long-term U.S. nuclear strategy, emphasized that extended deterrence enables allies to stand with the United States in opposing threats "to mutual vital interests posed by nuclear-armed adversaries."[3] This assurance serves nonproliferation goals by preventing allies from seeking nuclear weapons and supporting the objectives of the Non-Proliferation Treaty (NPT), the cornerstone agreement limiting the spread of nuclear weapons.

U.S. officials today reinforce the importance of alliances in achieving strategic objectives. Secretary of Defense Pete Hegseth stated at the most recent Shangri-La dialogue that the United States' key strategic advantage is "a strong, resolute, and capable network of allies and partners."[4] The administration seeks to increase focus on the Indo-Pacific, which Secretary Hegseth termed the "priority theater."[5]

But the United States also increasingly demands allies to contribute more to their own defense. The current administration has pushed NATO countries to increase their defense spending to 5 percent of their GDP to take on a greater share of the alliance's defense burden.[6] Vice President JD Vance has reiterated that European allies must step up on burden-sharing while the United States focuses on other global threats.[7] This call to increase defense spending extends to the Indo-Pacific, with the administration stating that if NATO allies can increase their spending, "allies and our friends in the Asia-Pacific region can do it as well."[8]

Europe: Balancing Reassurance, Modernization, and Burden-Sharing

Allies and partners in Europe watched closely as dynamics of U.S. extended nuclear deterrence evolved between 2024 and 2025. What began as a moment of transatlantic uncertainty and strategic shock in response to perceived U.S. unpredictability has settled into a persistent—though somewhat managed—anxiety. Despite the fluctuating political rhetoric, a critical consensus among NATO members remains: They overwhelmingly prefer to maintain the U.S. nuclear umbrella, aiming for their own defense investments to complement, rather than replace, U.S. commitments.[9]

In February 2025, Vice President Vance's speech at the Munich Security Conference triggered immediate alarm among NATO allies, specifically questioning Washington's commitment to collective defense.[10] Vance urged the "Europeans to step up while America focuses on areas of the world that are in great danger" followed by President Trump reiterating that "if they don't pay, I'm not going to defend them."[11] The Trump administration's transactional approach to foreign policy, coupled with officials commenting on Europe's unequal burden-sharing on defense, generated substantial unease.[12] Poland's Prime Minister Donald Tusk, for instance, described this period as "a profound change of American geopolitics.[13] In March 2025, public trust in U.S. collective defense commitments declined in Germany, the United Kingdom, Poland, and Canada.[14] These initial concerns have since settled into a lasting sense of uncertainty regarding the long-term viability of U.S. security guarantees.

Despite U.S. rhetoric that has unnerved allies, the operational forces and U.S. policies that underpin extended nuclear deterrence remain firmly in place in Europe. President Trump reaffirmed the U.S. commitment to Europe's defense, stating that the United States is "here to help [Europeans] protect their country."[15] Likewise, Secretary Hegseth stated that the U.S. commitment to NATO's Article 5 remains central.[16] NATO's director of nuclear policy, Jim Stokes, continued to affirm at the 2025 NATO summit that the "United States has been extremely clear that there is nothing changing with regard to its nuclear deterrence and its commitment" to allies and its posture within Europe.[17] These strong public reaffirmations have offered some reassurance, contributing to the perception that abandoning extended nuclear deterrence would counter the core interests of the United States, especially given its increased focus on countering China's rise.

European allies are increasing their defense investments and strategic adaptations with the aim to complement U.S. extended nuclear deterrence.[18] German Chancellor Friedrich Merz said after a meeting about European defense boosting that Europeans "should talk with [France and the United Kingdom] from the perspective of supplementing the American nuclear shield, which we of course want to see maintained."[19] Robust European conventional capabilities can alleviate pressure on the United States, particularly in multi-theater contingencies; for example, if the United States must deter Russian aggression linked to Ukraine while also boosting its presence in the Indo-Pacific in the event of rising tensions with China over Taiwan.[20] The cooperative approach seeks to balance the risk of U.S. disengagement with the need to enhance Europe's defense capabilities efficiently.

But there have also been debates across Europe about whether the United Kingdom or France, Europe's two nuclear powers, could realistically fill a potential nuclear deterrence gap.[21] In March 2025, Chancellor Merz notably declared, "We need to have discussions with both the British and the French . . . about whether nuclear sharing, or at least nuclear security from the UK and France, could also apply to us."[22] While his remarks were a spontaneous response rather than a formal policy shift, they reflected a preliminary consideration of alternatives should the United States disengage in the future.

French President Emmanuel Macron has consistently advocated for a "strategic dialogue" with European partners on the role of French nuclear deterrence in collective security; he reiterated this offer in March 2025 by emphasizing the "European dimension" of France's vital interests.[23] He stated a readiness to "open the discussion" on European deterrence, though he left questions unanswered about if this would entail a nuclear umbrella or nuclear sharing.[24] This lack of clarity reflects a long-standing aspect of France's nuclear strategy.[25]

Poland, particularly concerned by Russian aggression, has expressed growing interest in France's deterrent, with Tusk describing a security treaty signed with France in May 2025 as a step toward a potential French nuclear umbrella for Poland.[26] High-level Polish officials have also openly called for Poland's inclusion in NATO nuclear sharing, even proposing to host U.S. nuclear weapons on Polish soil or to certify Polish F-35 fighters as nuclear-capable.[27] These positions have notably been espoused by President Duda and then–Prime Minister Morawiecki between 2022 and 2024.[28]

The debate over a fully independent European nuclear deterrent is ongoing but marginal. While some interest in proliferation exists, there are significant technical, legal, and political challenges to such options. Germany, for instance, largely dismisses the prospect of developing an indigenous nuclear program, given prevailing antinuclear sentiment.[29] Crucially, experts also widely agree that French and British nuclear forces cannot replace U.S. extended deterrence.[30] Their arsenals are significantly smaller and less diversified than the U.S. stockpile, tailored to deter threats to their own vital national interests rather than providing a broad nuclear umbrella for all NATO members. French doctrine emphasizes "strict sufficiency" and sovereign control, while the United Kingdom maintains a "minimum credible deterrent" committed to NATO.[31] Neither country's doctrine is currently compatible with U.S.-style nuclear sharing arrangements or extensive forward deployment of their weapons in other countries. The costs and risks of attempting to replicate the U.S. model are prohibitively high, making such a shift highly unlikely. Instead, France and the United Kingdom aim to strengthen their deterrents to reinforce European security within, or as a complement to, the existing NATO framework.

In addition to multilateral efforts such as increasing defense spending, NATO allies have adopted unilateral and bilateral measures to bolster their deterrence posture in response to the uncertain strategic environment. For example, in its June 2025 Strategic Defence Review, London announced a substantial investment of over $20 billion in its nuclear forces, including a new class of submarines (Dreadnought) and the development of a new nuclear warhead.[32] The United Kingdom also decided to reintroduce an air-launched nuclear capability by purchasing F-35A jets capable of delivering U.S. B61-12 tactical nuclear gravity bombs, marking the most significant change in UK nuclear posture

since 1998. France is also modernizing its stockpile, establishing a fourth nuclear-capable air base at Luxeuil-les-Bains to receive 40 new Rafales and new hypersonic missiles by 2035, and constructing a third-generation submarine class, the SNLE-3G. Its updated National Strategic Review, released in July 2025, reaffirms core concepts of French nuclear policy and outlines modernization efforts.[33]

On the bilateral front, the United Kingdom and France jointly agreed that "there is no extreme threat to Europe that would not prompt a response by our two nations."[34] They formed a UK-France nuclear steering group to guide nuclear coordination as part of the new Northwood Declaration.[35] The United Kingdom and Germany also signed the Kensington treaty, highlighting exchanges on strategic aspects of security policy, including nuclear issues, while France and Germany established the Franco-German Defense and Security Council to coordinate on defense and strategic planning.[36] France and Poland signed the Treaty on Enhanced Cooperation and Friendship in Nancy in May 2025, opening the way for cooperation on civilian nuclear technologies and committing both countries to mutual support in case of an attack, signifying a deepening commitment to mutual security.[37]

Indo-Pacific: Reaffirming U.S. Guarantees amid Regional Uncertainty

The Trump administration's renewed commitments to Indo-Pacific allies come at a time of greater focus on China. Secretary Hegseth has emphasized that the priority theater for the United States is the Indo-Pacific.[38] The administration wants to shift focus to the region and strengthen allies and partners.[39] The United States, Japan, and South Korea conducted naval and air exercises in September 2025 in a joint drill meant to strengthen their countries' combined operational capability to deter against North Korean nuclear and missile threats.[40] In the most recent trilateral dialogue in February 2025, Washington reiterated its commitment to the defense of Japan and South Korea backed by military strength that includes "nuclear capabilities."[41] Japan and South Korea reaffirmed their commitment to support U.S. efforts to engage with China and Russia on nuclear risk reduction.

Under the Biden administration, the United States and South Korea formed the Nuclear Consultative Group (NCG), a bilateral body designed to strengthen extended deterrence and discuss nuclear and strategic planning.[42] The NCG still stands, and South Korean sources have indicated that it will continue to meet under the Trump administration, though meetings have yet to be formally announced.[43] South Korean Defense Minister Ahn Gyu and Secretary Hegseth agreed to strengthen cooperation on extended deterrence against North Korea, and the United States has reaffirmed its ironclad commitment to the partnership.[44] Even more recently, military sources revealed that the United States and South Korea would soon stage a tabletop military exercise, which would include integrating their conventional and nuclear capabilities to deter North Korean threats.[45] And in an extended deterrence dialogue with Japan, the United States reaffirmed its commitment to the country's defense using a full range of its capabilities, including nuclear capabilities.[46]

These commitments have come alongside the Trump administration's calls for Indo-Pacific allies to increase their own defense spending and to reexamine existing security agreements (similar to the administration's comments on NATO, though not as assertive). The White House has urged South Korea to pay more for its military protection and U.S. troop presence.[47] In addition, the Department of Defense announced that it was reviewing the AUKUS pact, a nuclear submarine project involving the United States, the United Kingdom, and Australia.[48]

The strategic environment in the Indo-Pacific has grown more uncertain, prompting South Korea, Japan, and Australia to seek confirmation of U.S. extended deterrence commitments while also being urged by Washington to take on greater defense responsibilities. Similar to Europe, allies in the Indo-Pacific are strengthening conventional forces and bilateral cooperation—not to replace U.S. deterrence, but to bolster it amid rising doubts about long-term U.S. reliability.

SOUTH KOREA

In South Korea, public opinion polling indicates concerns over the credibility of U.S. commitments and the rising threat of North Korea. In 2024, about 73 percent of respondents favored South Korea acquiring a nuclear arsenal, and about 61 percent of respondents did not believe that the United States would use its nuclear umbrella to protect South Korea from a North Korean nuclear attack.[49] The results indicate a growing concern about North Korea's military advances, consistent tests, and nuclear rhetoric. Another poll found that 95 percent of South Korea's strategic elites believed that acquiring nuclear weapons would best protect the country from external threats. Nuclear sharing with the United States and the redeployment of U.S. nuclear weapons to South Korea were seen as effective options as well.[50]

In contrast, Foreign Minister Cho Tae-Yul stated that South Korea had no doubts about the U.S. commitment towards the ironclad and robust alliance.[51] While questions have emerged about an independent nuclear capability for South Korea, Cho has stated that it was "premature to talk about the Plan B . . . but that does not mean it will be off the table."[52] In August, South Korean President Lee Jae Myung stated at a CSIS event that the United States and South Korea have agreed to "work closely together to establish peace and achieve denuclearization on the Korean Peninsula."[53] These statements show why it is critical to distinguish rhetoric from actual policy: U.S. policymakers should not take every statement at face value, but instead closely track South Korea's concrete actions on the nuclear front.

Another vital component to the debates in South Korea over nuclear capabilities is the sea-launched cruise missile (SLCM-N). The 2018 U.S. Nuclear Posture Review characterized the SLCM-N as one of the two systems that would "strengthen deterrence of regional adversaries."[54] While the Biden administration did not include the SLCM-N in its budget requests and instead proposed canceling the program, Congress has continued to fund the missile and associated warhead. During his confirmation hearing, Secretary Hegseth stated that he supported the SLCM-N but would like to understand it better vis-à-vis enemy capabilities.[55] he idea of South Korea developing an independent nuclear program or doubling down on U.S. redeployment of nonstrategic weapons indicates the importance of the SLCM-N in the region.[56]

JAPAN

While Japan has historically remained an advocate of nuclear disarmament, it continues to maintain a nuclear umbrella arrangement with the United States. Still, in view of China's rapid modernization, North Korea's accelerated nuclear development, and Russia's ongoing war in Ukraine, there are growing doubts about the credibility of U.S. commitments in the region. In a 2024 poll, only 38 percent of Japanese citizens considered the U.S. nuclear umbrella necessary for Japan.[57] Former Prime Minister Shigeru Ishiba called for the creation of an "Asian version of NATO" to deter China, and also urged Japan to consider sharing nuclear weapons with the United States or introducing such capabilities in the region.[58] Ishiba has since walked back these ideas, emphasizing that Japan will uphold the three principles of not possessing, producing, or permitting the introduction of nuclear weapons.[59] The U.S. nuclear deterrent therefore remains crucial to Japan's security, regardless of growing public doubts on the issue.

During a meeting with President Trump, then-Prime Minister Ishiba reiterated Japan's unwavering obligation to reinforce its defense commitment and work with the Trump administration to elevate the U.S.-Japan alliance. Japan did not send a delegation to the Meeting of State Parties of the Treaty on the Prohibition of Nuclear Weapons (TPNW) in March 2025. Officials noted that further participation would send the "wrong message," as U.S. nuclear deterrence is vital to protecting Japanese citizens and the independence and peace of Japan, making the TPNW "incompatible with nuclear deterrence."[60]

AUSTRALIA

The Trump administration has supported the AUKUS defense pact, with the United States moving quickly to provide capabilities to Australia.[61] AUKUS provides Australia with nuclear-powered attack submarines starting in the early 2030s to counter China in the Indo-Pacific. This reaffirmation came after the Department of Defense announced that it would do a complete review of the pact; the Australian ambassador to the United States stated that Australia would work with the Pentagon and was confident the countries would resolve all issues.[62] Despite the review, Australia has continued to pay the United States the second installment of funds agreed upon under the deal.[63] Since February 2025, Australia has provided $1 billion to the U.S. government to help expand and modernize the U.S. submarine industrial base, with an additional $1 billion expected by the end of the year.[64] The Trump administration is expected to provide specific recommendations to strengthen AUKUS and make it more sustainable as the defense pact moves forward.[65]

A recent 2025 public opinion poll by the Lowy Institute indicates that support for the AUKUS initiative remains firm, with 67 percent of Australians in favor.[66] Australia remains concerned about China's growing military power, with 60 percent of Australians supporting the country working with allies to deter China's use of military force.[67] The 2024 Australian National Defence Strategy stated that the strategic competition between the United States and China "will likely have the greatest impact on the regional strategic balance."[68]

Indo-Pacific allies are ramping up bilateral cooperation. South Korea and Japan's defense ministers agreed to meet for in-depth discussions on defense cooperation.[69] In August 2025, Australia and Japan agreed to a $6.5 billion warship deal to counter China.[70] Australia and South Korea have also

increased their defense cooperation over the past year, with South Korea participating in bilateral maritime exercises with Australia, and the two countries launched a bilateral infantry exercise in 2024.[71] U.S allies from the Indo-Pacific and Europe are also strengthening their cooperation. One recent example is the Geelong Treaty between Australia and the United Kingdom: Signed in July 2025, the treaty enables comprehensive cooperation on the design, building, operation, sustainment, and disposal of SSN-AUKUS submarines.[72]

Evolving Dynamics, Enduring Commitments

Over the past year, three clear trends have emerged in how U.S. allies are responding to uncertainties around extended nuclear deterrence. First, a growing pattern of strategic coordination within Europe and the Indo-Pacific suggests a turn toward bilateral and trilateral agreements to boost deterrence that do not directly involve the United States. These developments are not efforts to replace U.S. nuclear commitments. Rather, they reflect a shared goal: to preserve and complement the U.S. nuclear umbrella with stronger, more capable regional defense postures.

Second, allies are investing heavily in conventional defense. Increased defense spending, modernization programs, and expanded defense industrial cooperation—such as NATO's new 5 percent target or Japan's pursuit of counterstrike capabilities—signal that U.S. allies are taking on greater responsibility for regional security. These investments enable closer integration with U.S. nuclear planning and posture, ensuring that allies remain credible partners in both conventional and nuclear deterrence architectures, but ultimately give the United States the ability to focus on the provision of extended nuclear deterrence capabilities.

Third, a persistent but managed anxiety about U.S. commitments continues to shape allied behavior. In Europe, this anxiety appears to be more acute, increased by transactional U.S. rhetoric and historical fluctuations in transatlantic priorities. Yet even in the Indo-Pacific, doubts over long-term U.S. reliability—particularly surrounding AUKUS—have prompted allies to hedge by deepening intra-regional cooperation and initiating domestic debates about alternative deterrence options.

The Way Ahead

Looking ahead, several developments could shift these trends. Most critically, changes in U.S. signaling could amplify allied insecurity and accelerate moves toward self-reliant defense strategies. This signaling could include a visible retreat from nuclear commitments in Europe or a weakening of bilateral defense cooperation, such as a reorientation of the AUKUS pact. Conversely, stronger reaffirmations of U.S. commitment, coupled with active engagement in allied defense modernization efforts, could reinforce current trajectories of burden-sharing and alliance cohesion.

Great power behavior will also be a defining variable. Escalation by China over Taiwan, continued Russian aggression against Ukraine or NATO, or shifts toward diplomatic engagement and arms control could each reshape the strategic environment in ways that either intensify or alleviate allied concerns. Notably, a revived interest by the Trump administration in nuclear reductions or détente

might paradoxically reduce pressure on allies while simultaneously revitalizing debates over extended deterrence credibility.

Lastly, domestic political shifts within allied countries as a result of elections or other events could lead to changes in strategic posture or defense spending priorities. While most current governments favor close alliance ties and continued reliance on U.S. deterrence, leadership turnover or rising nationalist or antinuclear sentiments could inject new uncertainties into alliance dynamics. For example, Bulgaria and Portugal have presidential, Sweden general, Hungary parliamentary, and Latvia legislative elections in 2026. Japan just elected a new prime minister, possibly bringing changes there.[73]

In sum, U.S. leaders have made it clear that extended nuclear deterrence remains vital to U.S. global strategy and allied security. Yet as the international landscape evolves, so too must the mechanisms that sustain trust, assurance, and strategic coordination in U.S. extended nuclear deterrence. These provide the Trump administration an opportunity to reassure allies while pursuing its "America First" agenda and preventing proliferation. The coming year will test whether managed anxiety remains stable or begins to unravel under pressure.

9

The Brittle Nuclear Order

By Bailey Schiff

The nuclear order is facing its deepest crisis in decades as long-standing frameworks that balanced deterrence with nuclear restraint are unraveling. The Nuclear Non-Proliferation Treaty (NPT) is gridlocked and facing both defiance from Iran and deepening frustration from nonnuclear states. Norms against nuclear testing and use are wearing thin under renewed talk of testing, nuclear space weaponization, and explicit Russian nuclear threats. Arms control is collapsing, with risk reduction talks among P5 countries—China, France, Russia, the United Kingdom, and the United States—stalled, U.S.-Russia frameworks eroding, and China avoiding formal limits. Together, these trends indicate a more unstable and unpredictable nuclear landscape.

This chapter asks how the United States can shore up each fraying strand—nonproliferation, norm-building, and arms control—in a tenuous security environment. It argues that near-term stability will come from a multifaceted strategy where the United States revitalizes dialogues with nonnuclear allies on future disarmament, continues to push for new norms surrounding emerging technologies, and aims for politically binding risk reduction agreements with China and Russia. The next two years will provide decisive tests with the 2026 NPT Review Conference (RevCon), the expiration of the New Strategic Arms Reduction Treaty (New START) in February 2026, and the widening normative vacuum around military applications of emerging technologies.

The Post–Cold War Nuclear Order

Since the end of the Cold War, nuclear stability has rested on three interrelated strands: (1) a strong nonproliferation regime centered on the NPT, (2) widely observed nuclear norms, and (3) bilateral and multilateral arms control frameworks.[1] During the period of détente and through to the fall of the Berlin Wall, nuclear powers made sustained efforts to "cap the volcano" of nuclear risk, as noted by McGeorge Bundy, a former National Security Council adviser.[2] These efforts matured in the post–Cold War period into a more formalized system that sought not only to manage deterrence but also to channel it into restraint and strategic stability. Within this order, the NPT served as the legal backbone, codifying the distinction between nuclear-weapon states and nonnuclear states while committing all parties to a "grand bargain": pledging nonnuclear states to renounce nuclear arms while obligating nuclear-weapon states to "pursue negotiations in good faith" toward disarmament.[3] Norms of restraint against nuclear testing and use have shaped state behavior ever since, even when legal obligations (e.g., the 1996 Comprehensive Nuclear Test Ban Treaty) were absent or incomplete. Arms control agreements provided practical mechanisms to limit arsenals, verify compliance, and reduce the risk of escalation. This framework was reinforced by international safeguard mechanisms and extended deterrence guarantees. Together, these strands helped contain the dangers of nuclear weapons, even as the geopolitical context evolved.

Although all three strands operated around and preserved nuclear deterrence between the United States and Russia, they did so within a shared understanding of mutual restraint, eventual disarmament, and efforts to reduce the spread of nuclear weapons. In recent decades, however, deteriorating great power relations have eroded the resilience of the nuclear order. The collapse of the Intermediate-Range Nuclear Forces (INF) Treaty in 2019, the near expiration of New START, and the failure of the 2022 NPT RevCon to adopt a consensus document underscore this fragility. At the same time, nuclear-armed states have fueled instability through arsenal modernization and coercive nuclear signaling. Russia has paired new delivery systems with explicit threats over Ukraine, China is expanding its arsenal without formal limits, North Korea has highlighted preemptive use, and Iran has escalated its enrichment program. These dynamics, explored in greater detail in other chapters, deepen concerns about the durability of the current order.

One response to this decay is the rise in antinuclear civil society initiatives, including the International Campaign to Abolish Nuclear Weapons (ICAN), a global coalition of nongovernmental organizations aiming to mobilize public pressure and diplomatic momentum for a future nuclear weapons ban treaty. These efforts culminated in the Treaty on the Prohibition of Nuclear Weapons (TPNW), adopted by the United Nations in 2017 and entering into force in 2021, which attempts to render nuclear weapons illegal and forbids development, possession, use, threat of use, and assistance or encouragement in their deployment. For many nonnuclear states frustrated with the slow pace of disarmament, arsenal modernization, and increased salience of nuclear weapons, the treaty provides a normative challenge to nuclear possession. However, critics argue that the movement widens the divide between nuclear and nonnuclear states, undermines the NPT's consensus-based approach, and fails to evenly apply pressure to disarm.[4] Nonetheless,

its emergence as an alternative legal mechanism reflects growing discontent with the status quo of the NPT.

Nonproliferation

The NPT is under a multidirectional attack. Despite rising nuclear risks, the treaty remains weakened and paralyzed amid allied skepticism of U.S. extended deterrence, Russia's war in Ukraine, Iran's defiant expansion of its nuclear program, frustration among nonnuclear states over stalled disarmament progress, and deepening discord among nuclear-weapon states. The May 2025 Preparatory Committee (PrepCom) conference, like the two preceding it, concluded without concrete recommendations or a clear path forward for the upcoming 2026 RevCon. State parties allegedly came close to consensus on a draft proposal, but the effort broke down over language around strengthening the NPT review process.[5] In particular, states were divided over interactive "peer-review" reporting, whether to reference the TPNW in recommendations, language related to the war in Ukraine, and how far to push safeguards expectations, such as universalizing the Additional Protocol. These disputes resulted in rejection of the PrepCom conference chair's draft recommendation for the conference, which included binding transparency standards for nuclear-weapon states and recognition that the TPNW "contributes towards a world free of nuclear weapons."[6]

In parallel, waning allied confidence in one nonproliferation tool, U.S. extended nuclear deterrence, is emerging as a serious challenge to the treaty. As perceptions of U.S. reliability erode, there has been a rise in renewed debates about independent or alternative multilateral nuclear arrangements in both Asia and Europe. In South Korea, elite skepticism about U.S. commitments has grown over the past few years, with leaders openly discussing an indigenous nuclear option, and public opinion showing that over 70 percent of South Korean citizens support such a move.[7] In Europe, doubts about the U.S. commitment to NATO have revived interest in a "Eurodeterrent." Recent polls have found that two-thirds of Germans favor a European nuclear shield independent of the United States, alongside 49 percent of Poles preferring to develop an independent arsenal.[8] Any new nuclear sharing arrangements or proliferation, in either Asia or Europe, would further undermine the treaty further in its already weakened state.

Further compounding these tensions is Iran's continued nuclear progress. In early June, the International Atomic Energy Agency (IAEA) board of governors declared Iran to be in breach of its nonproliferation obligations following a U.S., UK, French, and German censure resolution, with specific concern directed to Iran's repeated failure to account for undeclared nuclear material and activities at multiple sites.[9] Tehran responded by announcing that it built and planned to activate a third enrichment site. Tensions further escalated after U.S. and Israeli strikes on nuclear sites, to which Iran responded by expelling IAEA inspectors and passing a parliamentary bill suspending all cooperation with the IAEA, laying the groundwork for a potential NPT withdrawal. Iran's nuclear progress demonstrates how states can approach the threshold while maintaining treaty membership, its threats to withdraw from the treaty show how latency can be weaponized, and U.S. and Israeli strikes highlight a waning confidence in the NPT's ability to constrain proliferation.

Although the NPT remains central to promoting peaceful uses and limiting the spread of fissile material, it now faces a crisis of legitimacy in both constraining proliferation and advancing disarmament.

Although the NPT remains central to promoting peaceful uses and limiting the spread of fissile material, it now faces a crisis of legitimacy in both constraining proliferation and advancing disarmament. Ahead of the 2026 RevCon, Washington's task will be to sustain the treaty's relevance through transparency initiatives and renewed engagement with nonnuclear states while exploring how it can continue to bolster the civilian uses pillar.

Nuclear Norms

Norms surrounding responsible nuclear behavior—practices meant to limit risk and preserve stability—have come under renewed pressure in recent years from threats to resume testing, interest in nuclear antisatellite (ASAT) weaponry, and Moscow's continued saber-rattling.

The norm against nuclear testing gradually emerged from the 1963 Partial Test Ban Treaty, which restricted tests to underground, and was later reinforced by the 1996 Comprehensive Nuclear Test Ban Treaty (CTBT). Although the latter treaty has not yet entered into force, states have followed its norm on nuclear testing, aside from North Korea. In late 2023, however, Russia withdrew its ratification of the CTBT, saying it was on par with the United States—which has signed but not ratified the treaty.[10] Since then, both Russian and U.S. officials—including former U.S. National Security Advisor Robert O'Brien and Russia's Deputy Foreign Minister Sergei Ryabkov—have publicly signaled an interest in returning to nuclear testing, suggesting that the taboo is under rhetorical strain.[11] In addition, the United States has accused Russia and China of conducting subcritical nuclear tests in steel containment vessels underground, meaning that covert activity is also chipping away the credibility of this norm.[12]

Even more alarmingly, Russian development of a nuclear ASAT weapon and nuclear threats in Ukraine have challenged the norm on nonuse. Last summer, U.S. Representative Mike Turner (R-OH) released a statement hinting at Russian development of a space-based nuclear weapon following a House Intel Committee briefing.[13] Experts believe the weapon might be a single warhead attached to Russia's COSMOS-2553 satellite launched in February 2022, which could detonate in low Earth orbit, disabling and destroying satellite systems.[14] The system would undoubtedly violate the 1967 Outer Space Treaty, as Article IV explicitly prohibits placing in orbit around Earth "any objects carrying nuclear weapons or any other kinds of weapons of mass destruction."[15] While Russia has denied the development of this weapon, the White House confirmed the intelligence, and Moscow vetoed a UN Security Council resolution led by the United States and Japan reaffirming the ban on nuclear weapons in space.[16]

Similarly, Russia's persistent nuclear signaling throughout the war in Ukraine has placed extraordinary strain on the norm of nonuse. Since the 2022 invasion, Russian officials have repeatedly invoked nuclear threats to deter NATO intervention and pressure the West over military aid.[17] In November 2024, Russia formally revised its nuclear doctrine to allow nuclear retaliation even in response to conventional attacks supported by nuclear-armed states, thereby lowering the threshold for nuclear use.[18] In addition, senior officials, including Dmitry Medvedev, have used aggressive rhetoric to stoke fear, speaking openly about the possibility of employing nuclear weapons if the war in Ukraine turns unfavorably.[19] Although experts disagree on whether signaling without material gestures constitutes a nuclear threat, analysis of elite rhetoric suggests oligarchs want to restore Russia's coercive power but do not seek greater reliance on nonstrategic nuclear weapons in a conflict.[20] Regardless, these repeated invocations and threats of nuclear use in Russian political discourse, particularly to nonnuclear states, normalize coercive behaviors and further weaken the broader norm of responsible nuclear stewardship.

As normative guardrails weaken, nuclear risk, arms racing, and instability will only intensify. As discussed in the next section, norm-building through unilateral restraint and political commitments will be crucial to upholding nuclear norms where legal mechanisms have waned.

Arms Control

Efforts to revive U.S.-Russia arms control efforts stalled again this year, marking a near-total collapse of post–Cold War agreements. Since Moscow's suspension of its participation in New START in 2023, the United States has made unsuccessful attempts to restore an agreement. For example, in January and March of 2024, Washington proposed to resume arms control talks "without preconditions," which Russia rejected, tying any dialogue to the United States halting its support of Ukraine.[21] Throughout the Biden administration, Russia maintained that it would not participate in New START arms control talks with the United States until it dropped support for Ukraine.[22]

This unraveling continued in 2025 with Russia announcing in August that it "no longer considers itself bound" by INF Treaty limits.[23] This is a significant escalation from its 2019 decision to suspend participation in the treaty while maintaining a unilateral moratorium on land-based missiles. The Russian Ministry of Foreign Affairs tied its decision to the U.S. deployment of Typhon launchers, stating Washington openly declared plans to deploy U.S. ground-launched INF-range missiles in various regions."[24] For the United States, which was no longer bound by the treaty after its 2019 withdrawal, the launchers filled a gap in intermediate missiles on NATO's eastern flank and could enable potential forward posturing in the Indo-Pacific.[25]

Amid this unraveling of arms control frameworks, August saw an unexpected interest in arms control from both Putin and Trump during a summit in Alaska.[26] In September 2025, Moscow offered a concession: Russia would voluntarily observe the treaty's limits for one year after February 5, 2026, but still refuse any inspections or data exchanges.[27] Analysts disagree on Moscow's motives, with some arguing that having nearly completed its modernization, Russia sees an advantage vis-à-vis the United States, while others interpret it as a response to material constraints related to Moscow's strategic delivery systems.[28]

Together, these trends underscore the declining feasibility of traditional bilateral arms control frameworks given the increasingly complex strategic environment. In response, experts increasingly advocate for more limited confidence-building measures, politically binding guardrails, numerical limits and ceilings, and transparency and risk reduction initiatives.[29]

The Way Ahead

Looking ahead, three developments will be pivotal in shaping the trajectory of the nuclear order over the next two years. First is the upcoming NPT RevCon, scheduled for July 2026. As stated earlier, there is pressure on the 2026 RevCon due to the crisis of legitimacy facing the NPT; whether the conference chair's agreement can reach consensus will have significant impacts on how states view the treaty's relevance. Should the status quo of no consensus reemerge next year—which has been the case since 2015—it would undoubtedly deepen frustration among nonnuclear states and fuel momentum for an alternative framework. Another possibility is that states accept a weaker document just to keep the process alive, reaffirming existing commitments from 1995, 2000, and 2010.[30] In this sense, it will be critical to redefine what success looks like in 2026. One pathway is P5 collaboration ahead of the 2026 RevCon to tease out what a low-risk commitment might entail. From 2010 until the start of Russia's war in Ukraine, senior officials sought to reassure the world that Article VI on disarmament was being taken seriously and that the NPT was still vital, but those consultations have halted since 2022.[31] Another approach could be the United States renewing the Creating an Environment for Nuclear Disarmament (CEND) process to maintain engagement with nonnuclear allies.

The second pressing issue is the development of a norm of human control over nuclear command, control, and communications (NC3) systems. This issue is gaining urgency as all nuclear powers modernize their infrastructure, raising concerns that automation could further compress decisionmaking or increase the risk of miscalculation in crises. During the Biden administration, there was a concentrated effort to establish this norm, with the United States, the United Kingdom, and France declaring that only humans, not artificial intelligence, should decide on nuclear employment; however, efforts to turn that into a joint P5 position stalled. China echoed this sentiment in its own 2024 working paper, but notably limited the application to conventional operations, while Russia declined to join such commitments. Though these efforts marked an early push to establish a new norm, attempts to formalize them through the P5 process stalled amid deepening geopolitical tensions. Since the 2022 P5 statement on Preventing Nuclear War, the P5 has yet to translate this sentiment into concrete risk reduction measures. Looking ahead, there is a risk that this emerging norm withers without sustained attention; this will depend on whether the Trump administration sees value in elevating the issue. Other key questions include whether Russia solidifies its public stance on automation, either in its P5 chairmanship or at the NPT RevCon, and whether China extends its principle of keeping humans in the loop in NC3 systems. One option for the United States to keep this norm alive is to engage the support of nonnuclear states in the lead-up to RevCon, reaching out with informal consultations in coordination with the United Kingdom and France in order to gauge what level of commitment the P5 might deem acceptable.

Finally, the expiration of New START—the last bilateral arms control treaty between the United States and Russia—is set for February 5, 2026. New START limits deployed and nondeployed intercontinental ballistic missile launchers, submarine-launched ballistic missile launchers, and bombers; without it, both countries can deploy warheads on existing land-based and submarine-based missiles rapidly. It entered into force in 2011, and in February 2021, Presidents Biden and Putin agreed to extend the treaty for an additional five years. Despite Moscow and Washington's expressed interest in arms control initiatives in Alaska, the path forward is uncertain and renews a continued debate within the United States about whether deterrence and arms control can occur in tandem with adversarial build-ups. Some analysts, such as Bob Peters, argue that the United States should prioritize arsenal expansion in a two near-peer environment, while others, like Rose Gottemoeller, contend that a new framework "wholly owned" by President Trump will be essential to sustaining limits.[32] The outcome will hinge on whether Washington and Moscow can separate arms control from regional conflicts and accept a narrow follow-on agreement that preserves limits even if it falls short of New START.

Although the post–Cold War nuclear order is unlikely to collapse overnight, its erosion is accelerating in ways that will make it harder to repair once the security environment stabilizes. The next few years will test not just whether the world can maintain its status quo, but whether the NPT can retain legitimacy, new norms can take root for responsible nuclear behavior amid rapid technological change, and arms control can evolve beyond bilateral arrangements. Regardless, sustaining the institutions, norms, and guardrails already in place will require creative diplomacy, willingness to engage with emerging technologies, and the initiative to break out of entrenched and repetitive discourse.

10

Unmanned Volatility

Rethinking Deterrence and Escalation Management in the Drone Age

By Reja Younis

The nuclear policy community has long explored how "emerging technologies" such as artificial intelligence and autonomous systems would erode nuclear deterrence.[1] This year, that discussion has moved decisively from the hypothetical to the consequential. Drones and other unmanned systems are no longer "emerging"—they are here, operational, and destabilizing the delicate balance of terror between nuclear-armed states. This shift forces a reevaluation of nuclear policy through two central questions: What theoretical challenges do drones pose to decades-old deterrence and escalation models? And what practical measures are needed to secure the U.S. nuclear deterrent from cheap drone attacks?

Using the Russia-Ukraine war and the India-Pakistan May 2025 crisis as case studies, this chapter argues that drones may create strategic effects through two pathways: a direct physical threat to strategic assets, which creates a new kind of escalation pressure, and psychological and informational effects that thicken the "fog of war."[2] These pathways elevate the salience of conventional deterrence and defense, while also making a modern, survivable nuclear deterrent more important than ever. Essentially, drones have amplified the "two-level game" of deterrence, where nuclear-armed states must bolster deterrence by denial to manage conventional escalation, all while ensuring the survivability of their strategic nuclear forces to preserve the ultimate backstop

of deterrence by punishment.[3] The United States must lead the international effort to establish new norms and create the diplomatic guardrails necessary to govern this new era of conflict.

Background

DRONES AND DETERRENCE

The Cold War deterrence paradigm rested on a core premise: Convince an adversary that the costs of aggression would always outweigh the gains. This was primarily achieved through mutual assured destruction, where the threat of catastrophic nuclear retaliation for any attack—conventional or nuclear—provided a powerful incentive for both the United States and the Soviet Union to avoid all-out war.[4] This paradigm was based on two concepts: deterrence by punishment, which relied on the threat of inflicting "unacceptable damages," and deterrence by denial, which focused on making it physically difficult for an aggressor to achieve its objectives.[5] A successful strategy required a clear understanding of the adversary's intentions, a credible and survivable second-strike capability, and robust command and control (C2).

The success of this paradigm was predicated on a stable environment where costly signals were considered highly credible. States signaled their commitment to deterrence through massive investments in nuclear arsenals and troop deployments. However, the advent of expendable drones fundamentally undermines this logic.[6] Unlike a nuclear warhead or an F-35 fighter jet, a drone is a low-cost signal that can be sent "all day long, with no risk" to the aggressor.[7] This also creates a new cost-exchange ratio where a cheap drone can damage a multimillion dollar asset or force the use of an expensive interceptor.[8]

While an adversary's response is certainly proportional to the damage caused—a traditional military principle—the core strategic problem is that cost asymmetry makes a proportional defense economically unsustainable. If inexpensive drones, costing only a few hundred dollars, force the defender to expend million-dollar missiles or an expensive fighter sortie to prevent even minor damage, it showcases a strategic vulnerability where a defender can be financially bled dry over time. This new reality may shift the burden of deterrence from the traditional threat of punishment—which may be seen as less credible for a low-cost attack—to a renewed focus on deterrence by denial, where a state must physically defend against an unending stream of cheap, yet potentially strategic, attacks. As Michael C. Horowitz and his coauthors recently argued, this new environment demands a strategic "high-low mix" of forces—a "precise mass" of inexpensive drones to counter attacks, and a small number of expensive, "exquisite" legacy systems to retain indispensable strategic capabilities.[9]

EROSION OF THE NUCLEAR "FIREBREAK"

In his 1965 book, Herman Kahn provided a framework for understanding how nuclear deterrence works and, more importantly, how it might fail.[10] Kahn's escalation ladder, with its 44 "rungs," illustrated the progression of a conflict from low-level political tensions to a full-scale nuclear war. Basically, the escalation ladder visualizes the very risks that nuclear deterrence is designed to prevent.

While Kahn's work laid down a foundational understanding of nuclear crises, its linear, step-by-step progression increasingly appears inadequate for today's strategic environment. Contemporary scholars have updated and critiqued this model, introducing concepts like "multi-domain escalation" to acknowledge that conflicts no longer progress on a single predictable path. Instead, they unfold simultaneously across multiple domains—land, sea, air, space, and cyberspace—and cultural, technological, and psychological factors shape them. In this context, Rebecca Hersman introduced the concept of "wormhole escalation," a more apt metaphor for an environment where competing states can inadvertently enter and suddenly traverse between sub-conventional and strategic levels of conflict in accelerated—and decidedly nonlinear—ways.[11]

Multidomain and nonlinear approaches profoundly affect the long-standing stability-instability paradox by eroding its core assumption: that a predictable and stable "firebreak" exists between conventional and nuclear conflict. The stability-instability paradox suggested that while the ultimate threat of nuclear weapons prevented large-scale, existential conflicts, it simultaneously made lower-level, conventional conflicts more likely.[12] The nuclear "ceiling" of an all-out war provided rivals a secure space to engage in limited military actions, knowing that a full-scale war was reliably being deterred.

Drones add a perilous dimension to this dynamic. Some scholars, such as Erik Lin-Greenberg, argue that drones make conflict less escalatory by improving intelligence and reducing the perceived offense when compared to attacks on crewed assets.[13] However, this perspective overlooks the risk introduced by the very attributes of drone warfare: unpredictability and ambiguity. Drones' capacity to target strategic assets, such as nuclear infrastructure or C2 nodes, threatens to push a conflict out of the "stable" low-level realm and directly toward the nuclear threshold.[14] In some ways, the logic of Posen's inadvertent escalation applies here, where the targeting of nuclear forces with conventional weapons creates dangerous escalation pressures.[15] Further, a dangerous illusion of manageability has emerged from recent drone-enabled conflicts—a perception that may itself pose the greatest risk in future crises. The case studies later in this chapter highlight this risk. In these instances, the deployment of drones appears to have been a risk worth taking, but manageability does not guarantee controllability in future crises.

THE PROLIFERATION AND STRATEGIC EVOLUTION OF UNMANNED SYSTEMS

The modern age of drones began in the 1990s with the Predator, which transformed unmanned aircraft systems (UASs) from pure surveillance platforms into armed "hunter-killer" systems.[16] This shift, accelerated by counterterrorism operations after 9/11 and the success of the first Persian Gulf War, led global militaries to invest heavily in drone technology, marking a significant change in military strategy.[17]

As drones proliferate, the absence of a clear international framework creates a normative void, leaving critical rules of engagement and target legitimacy dangerously undefined.

The technology has spread rapidly: Over 30 nations now develop or possess armed drones, and at least 90 nations and nonstate actors have acquired unarmed systems.[18] While the United States has historically restricted its exports, countries including China and Israel have filled the global market, leading to the diffusion of both military-grade drones and low-cost, commercially available counterparts which can be easily modified for combat.[19] Their sales have armed a wide array of nations, with both Pakistan and India using drones sourced from China and Israel in the recent crisis.[20] As drones proliferate, the absence of a clear international framework creates a normative void, leaving critical rules of engagement and target legitimacy dangerously undefined. U.S. past practices—such as drone use in countries without a declared war and a lack of transparency—have set precedents that others may follow.[21] A failure to lead on establishing international norms risks others defining the rules in a manner that destabilizes the international system and runs contrary to U.S. interests, potentially jeopardizing the nuclear firebreak itself. [22]

The challenges of the drone age are best understood by examining how they have played out in recent crises, analyzed in the following section.

Key Issues

THE COMPRESSED ESCALATION LADDER: THE GROWING THREAT TO STRATEGIC ASSETS AND THE RISK OF PREEMPTION

The asymmetric Russia-Ukraine war has proven that even a nonnuclear state can use widely available drone technology to strike at the strategic capabilities of a nuclear-armed state. Ukraine's Operation Spider's Web in June 2025 demonstrated the profound vulnerability of legacy strategic platforms to low-cost, mass-produced drones. Ukrainian forces reportedly used inexpensive drones (117 first-person-view drones—typically associated with short-range tactical engagements) to strike Russian air bases, damaging or destroying a significant number of strategic aircraft, a key leg of Russia's nuclear triad.[23] Total damages reached $7 billion.[24] This attack exposes a rather straightforward risk; all strategic assets are vulnerable in the drone age, not just Russia's. The big takeaway is that these assets are particularly susceptible when stationed on air base tarmacs, a challenge that applies equally to the U.S. bomber fleet.[25] The operation is a wake-up call for nuclear states, revealing the limitations of traditional air defense systems, which are not designed to withstand small drones at close range flying at a very low altitude.[26]

Yet while Operation Spider's Web revealed the technical vulnerability of strategic assets to low-cost drone swarms, what is less straightforward is the profound level of risk India and Pakistan accepted during the May 2025 crisis. The conflict marked the first time the two nuclear states engaged in drone warfare, using unmanned systems for strikes deep inside each other's territory, threatening to escalate into a full-fledged war.[27] This dangerous new dynamic was enabled by the dual-use nature of the drones employed. Both sides used a mix of UASs for both surveillance and attack, blurring the critical line between intelligence gathering and a kinetic strike.[28] India reportedly deployed loitering munitions including the Indo-Israeli SkyStriker and Israeli Harop for both kamikaze-style attacks and suppression of enemy air defenses missions to neutralize Pakistan's radar systems.[29] In kind, Pakistan reportedly used Chinese Wing Loong and Turkish Songar drones

for reconnaissance to monitor Indian troop movements, as well as for precision strikes on military installations.[30] These dual-use capabilities created a perilous escalation pathway: The presence of a drone, even on a reconnaissance mission, could be misinterpreted as a precursor to a preemptive attack on a strategic asset like a C2 facility or missile silo. In a time-compressed environment with little room for error, such a misperception could have created a "use-it-or-lose-it" pressure on military leaders, potentially pushing the crisis toward unintended nuclear escalation.[31]

Ultimately, the strategic lessons of the two crises converge on a single destabilizing point: the perceived success of de-escalation to date. The Russia-Ukraine war has shown that the nuclear ceiling holds, but only because the aggressor accepted conventional damage to a strategic asset. Conversely, the India-Pakistan crisis demonstrated that drones are becoming a more acceptable tool for high-stakes, cross-border military action due to their ambiguity and low cost. In both instances, successful management creates a dangerous illusion of manageability. States may grow overconfident in their ability to prevent a crisis from traversing the now-compressed rungs of the escalation ladder, leading them to mistake luck or restraint for a new, stable strategic framework. This underscores the urgent need for new international norms to manage the use of drones in crises before an accidental crossing of the nuclear threshold occurs.

THE PSYCHOLOGICAL DIMENSION: DRONES AND THE "FOG OF WAR"

Beyond the physical threat, drones have created a new kind of battlefield that is as much informational and psychological as it is physical, posing a direct challenge to the core assumptions of nuclear deterrence theory. Deterrence largely rests on the concept of a rational actor making a calculated decision based on a clear-eyed assessment of costs and benefits. The case studies from 2025 demonstrate that drones can be a potent tool for psychological coercion, beyond their strategic, conventional, and intelligence-collection uses.[32] While many countries are rapidly acquiring these platforms for their diverse military utility, their operational opacity can actively destabilize a crisis by thickening the fog of war.

Drones can exacerbate the fog of war by becoming tools for misinformation and disinformation, which directly drives escalation. The ambiguity surrounding drone operations—whether they are real, fabricated, or deliberately misattributed—creates a dangerous environment. This is particularly true in high-stakes crises whereby unverified information spreads rapidly via social media. This digital chaos introduces a new dimension to escalation, where the perceived threat from a drone can be as potent as a physical one. States are forced to react to what they believe is happening rather than what they can confirm. The speed of information spread and the difficulty of verifying information about drone activities make them prime targets for the weaponization of misinformation, especially in regions like South Asia, where recent crises have seen rampant disinformation.[33] In this new escalation calculus, the ability to control or manipulate the narrative about drone events becomes a critical factor.

In addition, the psychological dimension of drone warfare actively tests the rational actor model. Ukraine's drone strikes on Russian territory serve as a powerful form of psychological coercion, challenging the Kremlin's image of invincibility and projecting a narrative of Russian military weakness after penetrating what was once a secure sanctuary. This erosion of prestige

by a nonnuclear state can provoke a desperate and unpredictable escalatory response from a nuclear-armed leader trying to restore credibility. Russia's subsequent response to Operation Spider's Web with large-scale drone strikes on Ukrainian cities and infrastructure can be seen as an attempt to regain psychological momentum by inflicting mental attrition on the Ukrainian population and weakening their will to fight.[34]

This is further complicated by the domestic audience, which can become a direct driver of escalation—especially when it comes to drones that are often visible and intrusive. This dynamic was evident during the May 2025 crisis between India and Pakistan. On the night of May 7, both nations claimed to have shot down a large number of drones and missiles over populated areas. India's Ministry of Defense stated that Pakistan had used "drones and missiles" to target military sites, while Pakistan's army spokesman, Lieutenant General Ahmad Sharif Chaudhry, claimed a similar massive drone attack by India on its major cities, including Karachi and Lahore.[35]

When drones are neutralized in a way that is loud and public, such as being shot down by air defense systems, it can significantly amplify domestic pressure. Drones loitering over cities, the sound of explosions, and the visible spectacle of a downed drone can be unsettling to civilians, creating a state of widespread fear and anxiety—a form of psychological terror.[36] This can put immense pressure on political leaders to act decisively to restore a sense of security and project strength. This highly visible public involvement shrinks the options for de-escalation, making it much harder for leaders to take measured, non-escalatory steps.

THE PARADOX OF THE DRONE AGE: INCREASED VOLATILITY, HEIGHTENED NUCLEAR NECESSITY

The paradox of the drone age is that as these unmanned systems make conventional conflict more chaotic, but they also make the nuclear deterrent more essential. Recent crises in Ukraine and between India and Pakistan highlight how the nuclear firebreak remains the ultimate guarantor of stability, even when new technologies challenge old rules. Despite a volatile conventional conflict involving drones, a full-scale India-Pakistan war was averted because both sides understood that such a conflict could escalate to a nuclear exchange. While drone attacks may have lowered the threshold for conventional military action, the strategic nuclear deterrent held firm as the red line, proving its enduring role as the ultimate brake on catastrophic escalation. Similarly, Ukraine's Operation Spider's Web illustrates how this firebreak functions even when a strategic asset is directly challenged. By striking Russia's bombers—a key leg of its nuclear triad—Ukraine dealt a significant blow to a strategic capability. Yet, this provocative attack did not trigger a nuclear response, not even a major conventional response. The existence of Russia's second-strike capability, primarily its submarine and land-based missile forces, meant the attack on its bomber fleet did not create a use-it-or-lose-it situation. This reinforces the core logic of deterrence: The security of the overall triad, not just one leg, is what prevents escalation. In this new, unpredictable environment, the nuclear firebreak is not a relic of the past but a more critical—and strained—barrier.

Recommendations

Three recommendations emerge from this analysis:

- **Establish new international norms for risk reduction.** The drone age necessitates that nuclear-armed states establish new channels for crisis management as an essential measure for strategic stability. The effort must start with the five recognized nuclear powers (P5)—China, France, Russia, the United Kingdom, and the United States—and be expanded to include other nuclear-armed states such as India and Pakistan, whose recent crisis demonstrated the acute risks of drone-enabled conflict. The United States should lead by pursuing norms focused on denial and transparency: establishing dedicated "drone hotlines" between military commands for rapid verification, creating drone exclusion zones around strategic infrastructure (such as nuclear weapon sites and C2 nodes), and agreeing on protocols to limit the weaponization of misinformation regarding drone incidents.

  To implement this, the U.S. executive branch must prioritize these discussions in all bilateral and multilateral strategic stability talks. In fact, the urgency of the expiring New Strategic Arms Reduction Treaty (New START) treaty provides a critical, near-term opportunity to insert drone risk reduction into the broader strategic stability dialogue. The United States should leverage its influence to build an international consensus by solidifying domestic policies on drone use near sensitive sites and by using targeted, conditional exports to ensure that close partners adhere to these norms. By framing the conversation with peers including China and Russia as one of strategic risk reduction—not merely comprehensive arms reduction—the United States can create the diplomatic guardrails necessary to deny adversaries the opportunity for miscalculation, thereby preventing a conventional drone incident from inadvertently triggering a catastrophic nuclear escalation.

- **Reevaluate conventional defense for a strategy of denial.** Deterrence by denial (vis-à-vis massing low-cost drones) is a military mechanism for managing the conventional level of escalation, preventing low-cost attacks from overwhelming conventional forces and creating pressure to use nuclear weapons. Therefore, the United States must prioritize the development and mass production of low-cost, attritable autonomous systems.[37] This involves fully resourcing and expanding initiatives like the Replicator initiative to build a massive inventory of inexpensive, expendable systems capable of overwhelming an adversary's defenses.[38]

  This shift directly addresses the strategic vulnerability and economic unsustainability of a force reliant on expensive legacy platforms. As demonstrated by the Russia-Ukraine war, a lopsided cost-exchange ratio makes defense against low-cost drone swarms prohibitively expensive. By building a mass of inexpensive drones, a military can rebalance this ratio, create a more economically sustainable conventional force, and provide a necessary defensive shield to deny an adversary its objectives.[39]

- **Renew commitment to a modern nuclear deterrent for a strategy of punishment.** Simultaneously, U.S. policymakers must also reaffirm and modernize the nuclear deterrent

with a specific focus on enhancing its survivability and resilience against new asymmetric threats. This requires a targeted, multilayered investment strategy that goes beyond simply maintaining legacy platforms; instead, the strategy should potentially envision building a defensive shield around the nuclear triad. Specifically, the United States should prioritize point defense for strategic assets or direct significant investment toward developing and deploying advanced, multilayered counter-UAS systems for the immediate defense of strategic air bases and fixed missile sites.[40] This includes a mix of (1) active defenses, such as directed energy weapons, to defeat drone swarms cost-effectively, and (2) passive defenses, including hardening, concealment, and dispersal of assets to make them more resilient. Further, the United States must ensure that the C2 infrastructure for nuclear forces is hardened against autonomous attacks if deterrence fails. This means investing in redundant, decentralized, and cyber-resilient C2 systems that can withstand a concerted drone attack and still guarantee that a retaliatory strike can be ordered.

The nuclear deterrent is the ultimate tool of deterrence by punishment. By investing in the survivability and resilience of the nuclear triad, this recommendation works to preserve first-strike stability and prevent inadvertent escalation. It reinforces the very nuclear "ceiling" that provides stability, ensuring that the essential purpose of nuclear weapons—to deter war—remains intact.

Resilience and Redefinition: The Path to Stability

The introduction of unmanned systems has fundamentally amplified the volatility inherent in nuclear-armed rivalry, demanding a reframing of how deterrence and escalation management is conceived. The challenge is no longer just about preventing an expensive, predictable attack, but also about securing against an unending stream of cheap, ambiguous, and dual-use capabilities that test both rational actors and public confidence. The path forward is therefore one of resilience and redefinition. Nuclear states must agree on new **international norms** to define acceptable drone usage and reduce the fog of war, and they must invest strategically in both **conventional denial** and **nuclear survivability**. Only through this integrated approach—where diplomacy restricts the risk and investment protects red lines—can the world adapt its decades-old framework to the nonlinear, unpredictable dynamics of the drone age.

11

Perceptions and Paths for Nuclear Use

By Joseph Rodgers

The way nuclear use is perceived plays a fundamental role in shaping the development of risk reduction efforts, arms control measures, and deterrence relationships between countries. Historically, policymakers have grappled with three major pathways to nuclear use: escalation of conventional conflict, surprise attack by an adversary, and unintentional or unauthorized use.

The leading narrative is built on the threat of a conventional conflict escalating to nuclear first use. This focus is likely to continue as the fear of direct military confrontation between powerful countries intensifies. To prevent nuclear use under this paradigm, U.S. decisionmakers must actively pursue a broad approach across diplomatic, political, and military levers of power to deter theater nuclear weapon use—a course of action already initiated by deploying the W76-2 submarine-launched ballistic missile (SLBM) warhead, developing the nuclear-armed sea-launched cruise missile (SLCM-N) program, bolstering plans for dual-capable aircraft (DCA), and strategically directing military assets to aid Ukraine in small quantities rather than providing the country with full military support immediately.

Today's environment also requires a refocus on diplomatic and political measures to prevent conventional conflicts from escalating. The ongoing nuclear buildup by Russia, combined with an explicit threat of potential nuclear escalation, is compounded further by a rising expectation

surrounding the Trump administration's new U.S. National Defense Strategy (NDS). There is a real fear across Europe that the NDS will either not sufficiently focus on extended deterrence or will not clearly categorize Russia as an adversary, which could jeopardize assurance and deterrence at a critical time. This environment should serve as a wake-up call to policymakers to rethink the essential prerequisites for successful deterrence, focusing not just on nuclear capabilities but also on the necessary conventional forces, mechanisms for coordination across alliances, and revitalized diplomatic efforts to prevent nuclear use.

The Evolution of Nuclear Use Pathways

EARLY COLD WAR THREAT PERCEPTIONS AND THE "BOLT FROM THE BLUE"

The overriding model for nuclear use in the early Cold War was fear of a "bolt from the blue" surprise attack. This hypothetical scenario assumed an unexpected and devastating nuclear first strike delivered by the Soviet Union without strategic warning and designed to disable the U.S. nuclear force before any retaliation. Belief in this threat was strongly influenced by the real-world event of Pearl Harbor and further amplified by political discourse surrounding the alleged "missile gap" between the United States and the Soviet Union during the late 1950s and early 1960s.[1] This rhetoric played a prominent role in President John F. Kennedy's presidential election. It also drove core deterrence requirements for the United States—specifically, the necessity of preventing a disarming first strike and ensuring the survivability of enough of the U.S. nuclear arsenal to deter with confidence.

U.S. responses to fears of a "bolt from the blue" were widespread. Policymakers facilitated the establishment of a nuclear triad consisting of intercontinental ballistic missiles (ICBMs), SLBMs, and strategic bombers. Hardened ICBM silos were built to survive a Soviet preemptive strike. In the 1970s, ICBM survivability was bolstered by the deployment of ballistic missile launch warning and tracking, which enabled launch on warning of an adversary nuclear attack. Additionally, the United States ensured the persistent patrolling of stealthy ballistic missile submarines (SSBNs) and a continuous airborne bomber alert program.[2] Continuous airborne alerts were eventually abandoned, replaced with strip alert and launch under attack, but the overriding goal of maintaining a survivable second strike remains a hallmark of U.S. deterrence posture. The overarching aim of this collection of capabilities is to survive a preemptive first strike and ensure that a large-scale nuclear attack on the United States results in unacceptable damage to the attacker. This foundation was thought to lay the essential groundwork for strategic stability by deterring nuclear first use.

AN ALTERNATIVE PATHWAY: UNINTENTIONAL OR ACCIDENTAL USE

Another long-standing risk of nuclear weaponry is accidental or unintended use. This is often perceived as resulting from a technical malfunction, human error, or the unauthorized actions of a crew member or terrorist. Accordingly, throughout the nuclear era, there has been a consistent focus on the creation of safeguards and rigid authorization procedures to confine the use of nuclear weapons to the domain of heads of state.

The fear of unauthorized or unintentional nuclear use has been shaped by a history of nuclear weapons mishaps: Since 1950, there have been at least 32 "broken arrows," or accidents involving U.S. nuclear weapons.[3] Perhaps the most famous was the Damascus accident, which involved the explosion of a Titan II ICBM in Arkansas after a repair worker dropped a wrench on the missile's fuel canister. Several technological safeguards have been developed to prevent disaster, including the creation of a "one-point safety standard" to ensure that if one of the conventional high explosives went off in a nuclear warhead, a chain reaction would not result in an unintentional nuclear yield.[4] Additionally, during the Cold War, the United States and the Soviet Union agreed to keep their ICBMs and SLBMs aimed at open ocean areas to prevent an unauthorized launch from resulting in an inadvertent nuclear war. Another key technical measure developed to prevent unauthorized use was the permissive action link (PAL).[5] PALs are electronically coded locks built into some nuclear weapon systems that do not allow a weapon to arm until a particular, discrete numerical code is entered. Invented in the 1960s, PALs directly addressed threats of both inadvertent use and unauthorized use, ensuring that a nuclear weapon could not be used without the approval of the president. The use of PALs allowed for an important "negative control," enabling the distribution of weapons for improved survivability while still ensuring that political leaders had ultimate decisionmaking authority over whether they would be used.

Beyond direct weapons control, institutional efforts have focused on preventing terrorists or nonstate actors from accessing nuclear materials. The Obama administration's Nuclear Security Summits (2010–2016) were a central component of this effort.[6] These meetings sought to ensure that participating countries enhanced the nuclear security of materials worldwide through voluntary national commitments and cooperation, so-called gift baskets. These technical and diplomatic safeguards are part of an ongoing effort to close the pathway of accidental or unauthorized nuclear use.

TRADITIONAL CONFLICTS LEADING TO NUCLEAR WAR

Today, the predominant narrative underlying nuclear fears is one where a conventional conflict escalates to nuclear use, reflecting the worry that a nuclear-armed state may deliberately escalate a conventional conflict to secure victory or avoid conventional defeat.

Perceptions of this path are dramatically shaped by Russia's war in Ukraine and the ongoing debate on Russia's "escalate to de-escalate" doctrine. Scholarly opinions on the exact threshold of this doctrine vary. Regardless, there is no denying that Russia has the means to use sub-strategic nuclear force to create shock in the adversary, seek to coerce an end to hostilities on beneficial terms, or defeat NATO conventional forces outright. President Putin and senior military officers in Russia have continuously threatened nuclear weapons use, openly gesturing to their nuclear forces as a tool of coercion to deter Western military intervention and constrain Western support for Ukraine.[7] China's nuclear expansion and its possible shift toward a launch on warning nuclear posture also create uncertainty about how China views nuclear weapons in conflicts.[8]

Policy Requirements of Conventional Escalation

Given that a conventional conflict escalating to nuclear use has become the driving paradigm for conceptualizing nuclear conflict, the deterrence model must shift from solely preventing absolute war or conventional conflicts to also addressing measured, in-theater escalation. The United States and NATO are making progress in developing the necessary capabilities to address this gap. However, a more comprehensive approach is needed. U.S. policymakers should respond by building capabilities, communicating resolve, and seeking diplomatic solutions.

CONSTRUCTING THEATER DETERRENCE CAPABILITIES

To ensure deterrence, there is a growing understanding that the United States needs to improve capabilities to counter the perceived nuclear asymmetry between NATO and Russia, as well as between itself and China. This understanding was reiterated by the bipartisan Congressional Strategic Posture Commission in 2023, which stated that "additional U.S. theater nuclear capabilities will be necessary in both Europe and the Indo-Pacific regions to deter adversary nuclear use and offset local conventional superiority."[9]

To ensure deterrence, there is a growing understanding that the United States needs to improve capabilities to counter the perceived nuclear asymmetry between NATO and Russia, as well as between itself and China.

The imbalance is particularly drastic in the European theater. Russia is thought to possess an estimated 1,477 nonstrategic nuclear forces, which represents a roughly tenfold advantage over U.S. nuclear forces in NATO.[10] This sharp numerical disparity enhances fears that the United States is poorly postured to credibly deter Russia from using such weapons in a high-intensity theater war in Europe.

To reduce this inequity, the United States has embarked on the development of SLCM-Ns, a nonstrategic, variable-yield weapon designed to provide a tailored option to deter or counter limited nuclear conflict. Furthermore, NATO and the United States are investing in expanding the role of DCA capabilities, upgrading the B61 gravity weapon, and speeding the B61's integration onto modern aircraft—including the F-35A fighter aircraft used by NATO allies within nuclear-sharing arrangements. The United Kingdom recently announced that it will buy NATO DCA aircraft and join the NATO DCA mission.[11] These efforts are designed to send a clear signal to Moscow that the alliance is prepared to counter any escalation, narrow the deterrence gap, and strengthen the credibility of the NATO retaliatory threat.

Communicating with Allies

A second and equally vital policy pillar involves communicating resolve to both adversaries and allies. U.S. credibility and assurance are under severe stress at a time when President Donald Trump has repeatedly challenged the fundamental principles of alliances and international cooperation. This is causing NATO allies to publicly doubt the U.S. commitment to collective defense enshrined in Article 5 of the NATO treaty.

This atmosphere of apprehension has motivated European partners to implement new measures aimed at reinforcing the security of their arena. For example, the Northwood Declaration, an agreement between the United Kingdom and France, was announced in July 2025.[12] It created a UK-France nuclear steering committee intended to synchronize nuclear strategies, capabilities, and operations, with the intent of reassuring other European allies—such as Poland—who harbor concerns regarding their security vulnerability following Russia's invasion of Ukraine. Significantly, the Northwood Declaration clarifies that UK and French nuclear stockpiles are "independent, but can be coordinated," which enables them to uphold national sovereignty while simultaneously taking a step toward defending the rest of Europe.[13]

Despite these efforts, many European diplomats still harbor doubts about the long-run political sustainability of such commitments and are concerned about whether the UK and French arsenals and strategies are actually well suited for deterring Russian nuclear escalation—and whether their commitments will be maintained if more nationalist governments are elected in either county.

CLOSING THE ESCALATION PATH AND DIPLOMACY

Diplomacy is vital for building off-ramps and easing tensions. While it is important to strengthen capabilities and express resolve—including through military alliances—these steps should be complemented with moves to confirm norms against nuclear use. The United States should continue to push the P5—China, France, Russia, the United Kingdom, and the United States—to jointly undertake a presidency-level statement to reiterate the Reagan-Gorbachev assertion that "nuclear war cannot be won and must never be fought."[14] While the P5 has made such statements at the working level, they are not of the same stature and authority as a presidential-level statement. A joint statement made by the leaders of all five nuclear-weapon nations would have the strongest impact and therefore reinforce the nuclear taboo at the highest echelon of political authority.

There should also be a greater emphasis by the international community on resolving international conflicts between large military powers. If the overriding policy fear of nuclear use is that conventional conflicts will enter a dangerous escalation spiral, preventing conflicts by seeking war termination agreements is the best way to ensure that this path is not taken. President Trump's unorthodox approach to war termination negotiations in the Israel-Gaza and Russia-Ukraine conflicts has sparked understandable international criticism, but it does remain the case that President Trump is trying to end these conflicts. Ultimately, seeking diplomatic efforts to terminate conflicts—and, ideally, preventing conflicts from happening in the first place through diplomatic or military means—is the only surefire way to prevent this pathway to nuclear use.

Conclusion: The Importance of Integration

The strategic environment of 2025 is defined by the specter of conventional war and nuclear escalation between great powers and requires a shift in U.S. strategy. The current debate, in which the United States and its allies are assumed to be confronted with a theater nuclear shortfall, requires a comprehensive response. The answer should emphasize the importance of closing the capability gap through modernization, enhancing alliance cohesion through political commitments, and skillfully utilizing diplomacy to reinforce the nuclear taboo at the highest level. This crossroads is not a question of choosing between arms control and risk reduction or modernization. Rather, it is necessary to combine these mechanisms to bolster deterrence and minimize risk.

Conclusion

What to Watch in 2026

By Heather Williams

The overarching strategic trend of 2025 has been disorder. Whereas historically the U.S. strategic posture was focused on deterring a single peer, it now must figure out how to deter multiple nuclear-armed adversaries simultaneously. Whereas in the past the United States could count on institutions, such as arms control, to provide some predictability for competition and proliferation, those restraints are falling away. Where once there was a stable nuclear order, the institutions, norms, and behaviors that sustained it are now under assault and lack the universal constraining power they once had.

Where once there was a stable nuclear order, the institutions, norms, and behaviors that sustained it are now under assault and lack the universal constraining power they once had.

The papers in this volume raise key questions for U.S. policymakers going into 2026: How can the United States assure allies of U.S. credibility in order to prevent proliferation? Drawing on the conflict in Ukraine, how might emerging technologies, including drones, affect the risks of nuclear

use in crises? And finally, how can the United States effectively compete in the rapidly shifting geopolitical and technological landscape when it has a strategic modernization plan from a very different, more orderly era? While the chapters capture numerous areas of concern, they highlight three main issues to watch in the coming year: cooperation among adversaries, the breakdown of institutions, and nuclear modernization.

First, U.S. policymakers will have to make certain assumptions about the breadth and depth of adversarial collusion. On the one hand, China and Russia continue to tout their "no limits" partnership, and China's September military parade showcased a growing entente of authoritarians with Chinese President Xi Jinping as the fulcrum. North Korea has continued to provide troops for Russia's war in Ukraine, and Russia is providing military technology and know-how across the entente. For example, a May 2025 report by the Multilateral Sanctions Monitoring Team stated, "Russia is believed to have provided North Korea with air defense equipment and anti-aircraft missiles, as well as advanced electronic warfare systems."[1]

On the other hand, China and Russia did little to come to Iran's aid during the 12-day war in June 2025. Though Moscow and Tehran signed a 20-year Treaty on Comprehensive Strategic Partnership earlier in the year that included security and defense cooperation, when Iranian Foreign Minister Abbas Aragchi traveled to Moscow on June 23, all Putin had to offer was condemnation and "efforts to assist the Iranian people."[2] Future crises may test the relationship web between Beijing, Moscow, Tehran, and Pyongyang, which is being further complicated by dynamics with New Delhi and Islamabad.

One thread to watch particularly closely is what lessons China and North Korea learn from Russia's war in Ukraine. As Lachlan Mackenzie's chapter highlights, "Past Russian behavior . . . suggests that the Kremlin's threshold for nuclear use is higher than its signaling indicates. The risk of nuclear use appears low and will likely remain so in the near term, although the Kremlin's threats could intensify in response to additional Western military aid or painful Ukrainian attacks." On the one hand, Russia's nuclear threats may have slowed and dampened Western aid in the early stages of the war, but the deterrent value of these threats have weakened over time. But even in a nonnuclear conflict, as Reja Younis describes, drone warfare makes conventional conflict "more chaotic." The chapter underscores that in this new environment, technological diffusion and misperception could shorten decision timelines and compress escalation ladders. All of these actors rely on opacity, particularly from China, which will further complicate escalation management in a crisis, as captured in Niko Adamopoulos's chapter. China's rapid and opaque nuclear expansion, widening gap between doctrine and capability, and unwillingness to engage in arms control create dangerous conditions for miscalculation amid intensifying U.S.-China rivalry.

A second milestone to watch is the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) Review Conference in the spring of 2026. The NPT, which has long been viewed as the cornerstone of the international nuclear order, has not been able to reach consensus since 2010. Topics such as a nuclear weapons–free zone in the Middle East and targeting of nuclear power plants remain contentious issues. But the showstopper next year is likely to be Iran's nuclear program. As Bailey Schiff's analysis demonstrates, both Iran's nuclear program and the Israeli and U.S. strikes are

testing the NPT. On the one hand, the strikes delivered significant damage to the nuclear program that could have an important counter-proliferation impact. On the other hand, the use of military strikes rather than the NPT or other diplomatic means to restrain Iran's nuclear ambitions is a damning assessment of the nuclear order. The outcome of the NPT Review Conference may ultimately depend on Tehran's decisions regarding whether or not to return to cooperation and inspections with the International Atomic Energy Agency, restart its nuclear program, or stay in the NPT at all.

The weakening of nuclear institutions and the credibility of U.S. extended deterrence guarantees could exacerbate proliferation pressures for many states. Diya Ashtakala's chapter on South Asian nuclear-armed states is particularly noteworthy for examining the expansion of nuclear capabilities in India and Pakistan, which could exacerbate long-standing tensions and increase risks during a crisis. The May 2025 crisis showcased how technological competition, counterterrorism shifts, and weaponized misinformation fundamentally changed the strategic relationship between New Delhi and Islamabad. Catherine Murphy and Bailey Schiff's analysis of the implications of North Korea's nuclear and missile advances shows how those advances complicate U.S. extended deterrence in the Indo-Pacific. Doreen Horschig's Europe chapter details how U.S. demands for increased defense burden-sharing created substantial anxiety among NATO allies concerning the reliability of U.S. extended nuclear deterrence guarantees. But European allies responded to this uncertainty by increasing investments in conventional defense and developing closer intra-alliance coordination to complement the U.S. nuclear umbrella, aiming to preserve it rather than replace it. Ashtakala and Horschig together argue that European and Indo-Pacific allies alike are bolstering their security by investing heavily in conventional defense and pursuing new bilateral and trilateral agreements.

The final development to watch is the U.S. nuclear modernization plan. As Joseph Rodgers concludes, "This altered threat landscape demands a reassessment of U.S. nuclear modernization plans." The current program dates back to 2010, a very different era. This was before Russia invaded Ukraine and China began to massively expand its nuclear arsenal. There was a spirit of optimism around nuclear arms control and disarmament.

The final chapter in this volume should be a wakeup call to all, particularly policymakers. Policymakers need to imagine pathways to nuclear use and map out the tools for avoiding these futures. Arms control and risk reduction measures are struggling to adapt to the new strategic landscape and may no longer be relevant. The era of cooperation has been replaced by one of competition. But the United States still has pillars of national security that it can rely on in this era of disorder: friends and allies, a committed and patriotic workforce, and world-leading technological innovation centers and intellectual entrepreneurs.

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Chapter 10: Unmanned Volatility

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Chapter 11: Perceptions and Paths for Nuclear Use

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Conclusion

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