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China 2035: Three Scenarios for China's Nuclear Program

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KEY TAKEAWAYS

China is the fastest-growing nuclear power on the planet.

The United States can maintain a safe nuclear environment by rebuilding American nuclear forces to a level capable of deterring China.

If the United States does not build the deterrent it needs, it risks falling behind Russia and China as nuclear powers.

China is in the midst of a "breathtaking" nuclear breakout and has rapidly become the fastest-growing nuclear power on the planet, currently producing 100 new nuclear weapons per year.[1] This nuclear breakout is a departure from China's half-century-long policy of "minimal deterrence," posture, wherein it maintained approximately 200 nuclear weapons and a firm "no first use" declaratory policy.[2] As the United States struggles to replace its aging nuclear arsenal,[3] the Chinese Communist Party (CCP) is increasing production, modernization, and expansion of expanding its nuclear arsenal as part of its goal to achieve a "world-class" military by 2049.[4]

If China achieves nuclear parity with the United States, what could China's ultimate nuclear ambitions be? Building off a June 2024 *Backgrounder* that argued that China likely seeks nuclear *advantage*, rather than nuclear *parity*,[5] this report examines three possible

futures for China's nuclear program post-2035.[6] The authors refer to 2035 because it is when the U.S. Department of Defense (DOD) roughly estimates that China's operationally deployed nuclear arsenal will reach numeric parity with that of the United States.[7]

The three scenarios are ones in which China (1) achieves and accepts nuclear parity with the United States, (2) achieves and accepts nuclear advantage over the United States, (3) achieves nuclear primacy over both the United States and Russia. This report analyzes the potential rationales and force structures of each scenario before proposing policy recommendations to safeguard the American homeland.

The Action-Reaction Theory

There are a wide variety of theories among academics and political theorists that paint nuclear weapons in either a very positive or negative light. One of the most common theories discussed and argued is the action-reaction theory, which deals with strategic arms races and stockpiling.

The action-reaction theory posits that actions from one state initiate reciprocal actions from those of their rivals. This theory suggests that a tit-for-tat process leads to a rapid buildup of armaments, weapons, and geopolitical tensions. Although the theory has been historically disproven,[8] some in the nuclear disarmament and arms control communities use it to illustrate the dangers of stockpiling nuclear weapons and blame "arms races" on great powers.[9] For example, in the 1970s, the United States slowed its nuclear expansion and shrank its strategic nuclear arsenal in favor of more advanced and long-range precision weapons.[10] Nonetheless, the Soviet Union continued to stockpile nuclear weapons. If the action-reaction theory were plausible, one would have expected that the Soviet Union would not expand its nuclear arsenal.

Another example involves the great powers and China during the Cold War. When the United States and Russia built up their nuclear arsenals to staggering heights, China refrained from building past a state of minimal deterrence. For the purposes of this *Backgrounder*, minimal deterrence is a strategy of a state that maintains a nuclear arsenal size that is limited to the fewest number of survivable nuclear weapons sufficient to inflict unacceptable damage to a potential adversary such that said adversary would be deterred from carrying out strategic attacks on the state in question. Such a posture generally requires 100–200 operationally deployed nuclear warheads.[11] Until 2020, this was the posture maintained by China, which for decades fielded about 200 warheads despite Russia's thousands of strategic nuclear warheads—and the nuclear and conventional superiority of the United States.

Nonetheless, persistent belief in action-reaction has led to an overall misunderstanding of arms buildups and the relationship between military procurement and strategic rivalry.[12] Indeed, if the action-reaction theory held, one would assume that the current Chinese nuclear breakout would be in response to an American or Russian nuclear breakout—and that it would not start when the United States is seeking further reductions in nuclear arsenals or when nuclear arsenals are at their lowest levels in half a century.[13]

A Tale of Two Arsenals

In 1964, after nearly 10 years of development, China produced its first atomic bomb and completed a successful nuclear test. The Chinese nuclear stockpile remained low until the early 2020s, when production began to dramatically rise.[14] The past decade has seen a dramatic rise in China's nuclear arsenal and plans for modernization.[15]

In 2016, General Secretary Xi Jinping introduced the CCP's plan for "achieving the goal of a strong army, building a world-class military."[16] This goal aims for the complete multifaceted modernization of CCP's military force through advanced military thinking, real-time intelligence surveillance capability, seamless command-and-control systems, advanced and integrated firepower strike capacity, and updated weapons platforms.[17] This plan is intended to be realized by 2049—the 100th anniversary of the People's Republic of China. Successful execution of Xi's vision would support regional hegemony by 2049.[18]

In 2023, DOD estimated that by 2030, China will likely have over 1,000 operational nuclear weapons.[19] Additionally, in 2022, three new solid-propellant silo fields were completed with an estimated 300 new intercontinental ballistic missile (ICBM) silos. DOD also reported that "this project and the expansion of China's liquid-propellant silo force is meant to increase the peacetime readiness of its nuclear force by moving to a launch-on-warning (LOW) posture."[20] Some of these silos may house nuclear weapons, while others may be left strategically empty to disguise the true ICBM silos.

In harsh contrast, the United States is still struggling to renovate and replace its own aging arsenal. The Minuteman missile projects of the 1960s thrived off ICBMs designed with relatively short lives, allowing for continual technological advancement and training of new nuclear engineers, all while keeping production active. The U.S. Air Force, which was supposed to retire the Minuteman III in the 1980s, has instead conducted missile "life extensions" for decades.[21] The Sentinel missile, meant to replace the Minuteman III, is so far over budget and behind schedule that it triggered DOD

to certify that it is a critical defense program that must be maintained—due in large part to the fact that the Minuteman III can no longer be life-extended.[22] Similarly, the United States is struggling to build the first new nuclear warheads since the end of the Cold War.[23]

The United States intends to invest up to $1.5 trillion to modernize the nuclear triad over the next 30 years.[24] This program accounts for "a new class of ballistic missile submarines, a new set of silo-based [ICBMs], a new nuclear cruise missile, a modified gravity bomb, a new stealthy long-range strike bomber, and accompanying warheads (with modified or new warhead pits) for each delivery system."[25] However, DOD is struggling with cost and schedule overruns in all aspects of its nuclear modernization program, including the Sentinel program,[26] production delays in the *Columbia*-class ballistic missile submarine program,[27] and a lack of infrastructure to produce essential elements of a nuclear program, such as plutonium pits.[28]

China 2035: Three Possible Paths

As previously noted, the year 2035 represents when China will likely reach parity with the United States in operationally deployed nuclear weapons. The first scenario hypothesizes a world in which China achieves and accepts nuclear parity with the United States. The second scenario examines a world in which China achieves and accepts nuclear advantage over the United States. The third scenario is one in which China achieves nuclear primacy over both the United States and Russia. For the purposes of this exercise, this *Backgrounder* fiats China achieving each of these scenarios, though it does consider the plausibility of each scenario.

Scenario 1: China Achieves and Accepts Nuclear Parity with the United States

In the first scenario, China has updated and grown its nuclear arsenal to include roughly 1,500 strategic nuclear weapons, including 200 non-strategic nuclear weapons (NSNW)—comparable to the United States.[29] China's primary motivators to seek and accept nuclear parity is to dominate the East Asia to reassert their historic role as a regional hegemon and deny the United States from exerting force into the region.

Arsenal and Forces. In this scenario, China would field an operationally deployed nuclear arsenal that is arrayed on a variety of missiles, bombers, and submarines. While the exact force mix would be unknown, China would likely expand its arsenal in a way that resembles its existing posture

and force mix, but likely with a heavier emphasis on a credible sea-based deterrent—ICBMs on ballistic missile submarines and a small but capable force of strategic, nuclear-capable bombers.

The 2021 discovery of hundreds of new ICBM silos in China's western desert indicated that China intends to maintain a robust silo-based ICBM capability.[30] At the same time, its investment in modernized road-mobile DF-41 ICBMs indicates that it seeks some diversity within its land-based leg of the triad.[31] The Department of Defense estimates that China will expand its reliance on ballistic missile submarines, with an estimated six to eight ballistic missile submarine capable of carrying up to 12 missiles with multiple independent reentry vehicles.[32] Meanwhile, China will augment its nuclear-capable bomber force with the H-20 "stealth" bomber, a sub-sonic stealth bomber capable of carrying nuclear missiles or gravity bombs.[33] At the same time, China will field a modest but highly capable number of theater-range, low yield land-attack and anti-ship missiles.[34] In this scenario, China would field roughly 400 warheads on silo-based ICBMs, 200 warheads on road-mobile ICBMs, 600 warheads on ballistic missile submarines, and 300 warheads deliverable from strategic bombers, with another 200 warheads on theater-range land-attack and anti-ship missiles.

Rationale. There is a broad consensus within the United States that China seeks to establish regional—and global—hegemony.[35] Asia is broadly considered to be a bipolar order, with the United States and China competing for influence. States such as Japan and South Korea do not single-handedly challenge Chinese hegemony. India's rise and interest in multipolarity offers an interesting injection to Asian hegemony, but at this time, China possesses comparatively stronger influence to achieve its national interests in Asia.

The ultimate guarantee the United States provides to Asian treaty allies[36] is its nuclear deterrent—meaning that, should any U.S. treaty ally in Asia comes under strategic attack by, say, China or North Korea, the United States is prepared and willing to defend its allies with its nuclear arsenal. Should China achieve nuclear parity with the United States, then it can successfully match—and challenge—U.S. nuclear responses in Asia, thereby either decreasing the overall deterrence value of America's nuclear arsenal or increasing the overall cost that the United States could incur in the event of a nuclear response. Therefore, Asian states may be pushed into a stronger, more influential Chinese sphere of influence out of fear and tolerate additional Chinese military incursions.

Additionally, achieving nuclear parity could complicate U.S. efforts for exercising force in the region. Beginning in the 2020s, China's nuclear doctrine of *minimum deterrence* has shifted to *limited deterrence*. For the

purposes of this backgrounder, limited deterrence refers to a capability to deter adversary theater nuclear employment in addition to a strategic attack on one's homeland. That is, if a minimal deterrent focuses on fielding capabilities designed to deter an adversary from conducting a strategic attack on one's homeland, a limited deterrence posture includes theater nuclear forces that are optimized to deter a strategic attack on an ally.[37] This shift allows China to continue nuclear weapon production or easily move its force posture to a place of more active deterrence.[38] It grants China more flexible options in how it could respond to an Indo-Pacific contingency and allows China to feel more confident escalating during a conflict (or crisis) because it may believe that its own nuclear deterrent against the United States is more credible. Such confidence would translate into China becoming more aggressive in its actions against the Philippines, Japan, South Korea, and, ultimately, the United States.

Scenario 2: China Achieves Nuclear Advantage over the United States

Under this scenario, China has produced 1,550 strategic weapons and 2,000 NSNW—a rough numeric parity with Russia. China's primary motivators for achieving nuclear advantage are to match the United States as a global nuclear power and better project power in an even greater global and decisive manner.

Arsenal and Forces. In this scenario, China would field roughly 400 warheads on silo-based ICBMs, 200 warheads on road-mobile ICBMs, 600 warheads on ballistic missile submarines, and 300 warheads deliverable from strategic bombers, with another 2,000 NSNW on theater-range land-attack and anti-ship missiles, as well as on hypersonic cruise missiles and gravity bombs. In this scenario, China may also have NSNW on fractional orbital bombardment systems—space-based platforms that can drop weapons from orbit to terrestrial targets. DOD noted that China may be pursuing just such a space-based capability.[39]

Rationale. In contemporary times, China's ambitions of exerting dominance and influence extend beyond Asia.[40] As the authors have previously noted, "During the 19th National Party Congress, Xi emphasized China's rise as a 'global leader in terms of composite national strength and international influence,' which will lead to "an era that sees China moving closer to center stage and making greater contributions to mankind."[41]

Importantly, nuclear advantage is distinct from nuclear parity. Nuclear parity refers to "a rough qualitative and quantitative equality in capability between two nuclear powers."[42] Comparatively, nuclear advantage "is a

condition in which a state seeks to deter and intimidate another nuclear power by having more and/or more capable nuclear weapons within a single theater or multiple theaters of operation."[43] In practice, nuclear advantage allows China to escalate more quickly with a reduced fear of equivalent U.S. retaliation because, in this scenario, the United States would lack the quantitative and qualitative nuclear strength to deter Chinese aggression.

For example, during a military contingency in the Indo-Pacific, China could decide to launch a nuclear-tipped DF-26 missile at an American or Japanese vessel. In this scenario, the United States lacks a proportional response, as it is unlikely to possess in-theater tactical nuclear weapons. As a result, for a nuclear response, the United States would need to consider using a strategic nuclear weapon on a non-strategic target, which can be interpreted as an escalatory action.

While deterrence and denial exist without China achieving nuclear advantage—or even parity—its achievement would enhance Chinese abilities to both deter and deny U.S. forces or, if necessary, decisively strike U.S. forces in an overwhelming manner.

Nuclear advantage also allows China to further project power across the globe and at nearly any target. With at least 500 operational nuclear warheads today, China is one of the globe's largest nuclear powers.[44] Compared to the United States (about 1,750) and Russia (about 3,500),[45] however, China's arsenal is merely a fraction of the world's primary nuclear powers. To have a modernized and "world-class" military by 2049, China will be—and is already—looking to expand its nuclear arsenal. As Xi articulated in 2017:

> [We] will upgrade our military capabilities, and see that, by the year 2020, mechanization is basically achieved, [information technology] application has come a long way, and strategic capabilities have seen a big improvement. In step with our country's modernization process, we will modernize our military across the board in terms of theory, organizational structure, service personnel, and weaponry. We will make it our mission to see that by 2035, the modernization of our national defense and our forces is basically completed; and that by the mid-21st century our people's armed forces have been fully transformed into world-class forces.[46]

Having a nuclear arsenal that is both quantitatively and qualitatively superior to the U.S. nuclear arsenal is the best metric to assess China's modernization efforts and world-class military status. Despite its numerous problems, the U.S. military remains the single-most capable fighting force in the world.[47] Using American military metrics and comparing them to

Chinese metrics, such as the size and strength of its nuclear arsenal, can allow China to claim global military superiority and claim itself as the world's best fighting force.

Scenario 3: China Achieves Nuclear Primacy over Both the United States and Russia

In this scenario, China has produced and obtained 2,000 strategic nuclear weapons and 2,500 NSNW by 2035. Its nuclear stockpile will have surpassed that of Russia. China's primary motivator for achieving nuclear primacy would be uncontested Chinese military dominance.

Arsenal and Forces. In scenario 3, China would field roughly 400 warheads on silo-based ICBMs, 400 warheads on road-mobile ICBMs, 900 warheads on ballistic missile submarines, and 300 warheads deliverable from strategic bombers, with another 2,500 non-strategic nuclear weapons on theater-range land-attack and anti-ship missiles as well as on hypersonic cruise missiles, gravity bombs, and fractional orbital bombardment systems.

Rationale. In 2023, Russia possessed roughly 1,500 operationally deployed strategic weapons and 2,000 operationally deployed non-strategic weapons.[48] An element of this scenario's rationale is China's potential desire to deter against two nuclear powers.

While Sino-Russian cooperation has significantly increased following Russia's illegal invasion of Ukraine, the cooperation is largely based on shared interests that have yet to stand the test of time. Russia and China have a longer history of mistrust and conflicting interests, with the Sino-Soviet split in the 1960s a well-known example. Even today there remain differences that can evolve into larger-scale disputes.

For example, Chinese state media outlet *Global Times* published the "2023 edition of China's standard map"[49] that claimed Russia's Bolshoi Ussuriysky Island as a part of China despite both states seemingly resolving their border disputes in the 2000s.[50] While it is unlikely to dramatically alter Sino-Russian relations in the short-term, China's claim on Russian territory signals that China is not completely satisfied with the status quo relationship.

More broadly, it is in China's security interests to be more militarily and economically powerful than Russia. Other than having direct borders with each other, Russia and China also share borders with Japan, North Korea, and Kazakhstan. Any geopolitical crisis in East or Central Asia will result in Russian and Chinese involvement. China also strives to be an Arctic

power—despite not having territories in the Arctic Circle. Combined, China may perceive Russia as a potential long-term threat to Chinese national interests, irrespective of their current rapprochement.

Threat perceptions can change if China achieves nuclear advantage over the United States. Russia, while likely remaining focused on countering NATO's nuclear posture, might grow concerned about having a near-peer nuclear-armed state on its borders. If one were to agree with Russian President Vladimir Putin's claims that NATO expansion and buildup gave Russia no choice but to attack Ukraine, one may wonder if his justification holds true for a near-peer nuclear China. As a result, China may feel inclined to pursue nuclear primacy over both the United States and Russia to protect itself against any potential Russian threats.

Achieving nuclear primacy also grants China stronger leverage in pursuing its national objectives. China may feel emboldened to use conventional forces during disputes backed by a nuclear deterrence against any escalatory actions by an opposition faction. Such aggression would most likely be leveraged against states that lack American or Russian defense commitments, as China could isolate those states, such as those in Southeast Asia, and effectively dissuade the United States or Russia from intervening.

Of course, many factors may ultimately determine what an American or Russian—or even global—response would be. It is also unclear under which scenarios China would be willing to employ nuclear weapons against non-nuclear states. But what cannot be denied is that by achieving nuclear primacy, China would have additional leverage over both nuclear and non-nuclear states that achieve its national objectives and, if it so chose, to decisively defeat opponents in times of conflict.

Recommendations

Regardless of the nuclear future that China ultimately pursues, U.S. inaction is unacceptable. To safeguard the U.S. homeland and deter Chinese aggression through its nuclear forces, the United States should:

- **Rebuild a sufficient nuclear force to deter Chinese aggression.** The United States needs to counter China with robust warfighting and nuclear capability. It must rebuild a sufficient nuclear force to counter China's rise while still being able to hold targets at risk in Russia, North Korea, and potentially elsewhere. That does not require the United States to field as many nuclear weapons as Russia, China, and North Korea combined—but it should be larger than what the

United States fields today. To that end, the United States should be prepared to field an operationally deployed strategic nuclear force that is upwards of 50 percent larger than the current U.S. nuclear arsenal of 1,550 warheads. Further, the United States should build a significantly larger and more diverse theater nuclear force that is upwards of 1,000–1,500 operationally deployed NSNW.[51] Actual numbers will be based in part upon the relative sizes of the Chinese, Russian, and North Korean nuclear arsenals at that time, as well as current employment strategy and U.S. nuclear doctrine.

The U.S. defense budget should accommodate a modernized U.S. arsenal and invest in technological advancements. If the United States continues to wait and nuclear modernization incurs further delays, it will not be prepared to defend against a fully nuclear-capable China.

- **Sustain the nuclear modernization program of record.** It is imperative that the current U.S. nuclear modernization program of record—from production of the fissile material contained in each warhead to the bombers, submarines, and missiles that carry the warheads—be sustained and supported despite the current cost and schedule overruns. Under no circumstances should the United States be relying on the Soviet-era Minuteman III, the *Ohio*-class submarine, or an aged B-2 bomber into the 2030s.

- **Develop and deploy intermediate-range nuclear capabilities to the Western Pacific.** By redeploying theater-range, low-yield non-strategic nuclear capabilities in the Western Pacific, the United States will be better prepared to deter—and, if necessary, defeat—Chinese aggression. Currently, the United States' only land-based nuclear capabilities are ICBMs located in the center of the American homeland. If China used a low-yield, theater-range nuclear weapon in the Pacific, the United States would be forced to respond with a conventional weapon or with a strategic, long-range, high-yield nuclear weapon generated out of the American homeland. American employment of a high-yield strategic nuclear weapon would put the American homeland at risk to strategic nuclear retaliation by China. The United States thus needs to field a low-yield nuclear capability that can be generated within the theater to deter Chinese introduction of nuclear weapons during a conflict.

- **Update and adapt its missile detection and defense posture to address Chinese theater and intercontinental missile threats.** The United States needs increased capability to intercept missiles in the Indo-Pacific. By forward stationing integrated air and missile defenses in the theater, the United States can mitigate the impact of Chinese missile salvos during conflict.

- **Build and field a credible conventional deterrent through increased deployment of key capabilities, to include ships, planes, and munitions, to deter Chinese aggression.** If the United States is unable to field a credible, theater nuclear deterrent in the Indo-Pacific, it should field a credible conventional warfighting capability to compensate. Conventional weapons should play a central role in deterring Chinese aggression and should be specifically tailored for an Indo-Pacific theater. These include integrated air and missile defense systems, fifth-generation fighters, long-range precision fires, intermediate-range conventional missiles, anti-ship capabilities, and sufficient naval forces to control key sea lanes.

Conclusion

As China strengthens each leg of its nuclear triad, it is striving for a security environment in which its world-class military is unrivaled and its nuclear arsenal is at a minimum on par with—and very possibly, superior to—that of the United States.

Indeed, the facts support the same conclusion: If the United States does not build the deterrent it needs, it risks becoming a second- or even third-tier nuclear power behind Russia and China.

As such, the only logical response is for the U.S. military to meet and defend against such a scenario. By rebuilding American nuclear forces to deter an even more powerful China, the United States can keep America and its allies safe—regardless of the future China seeks to pursue.

The United States doing nothing to prepare for such a scenario is simply unacceptable.

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