

Advantage Over Parity: Assessing China's Expanding Nuclear Arsenal

Robert Peters and Andrew J. Harding

KEY TAKEAWAYS

China is the fastest expanding nuclear power on the planet, having built over 100 new nuclear weapons every year for the past three years.

The Department of Defense expects China will not reach nuclear parity with the United States for another 10 years.

There is little reason, to believe, however, that China will be satisfied with nuclear parity—or that it will not seek nuclear advantage over the United States.

The People's Republic of China is rapidly expanding its nuclear arsenal. As of May 2023, China is estimated to possess more than 500 operational nuclear warheads.¹ The Pentagon assesses that China will “likely field a stockpile of about 1,500 warheads” by 2035,² with more than 1,000 operational nuclear warheads by 2030.³ Supported by these numerical assessments, the Office of the Director of National Intelligence assessed China to be reorienting its nuclear posture for “strategic rivalry”⁴ and “strategic stability” with the United States.⁵

This analysis, however, does not go far enough. Beijing does not simply seek “strategic rivalry” or “stability.” Rather, with ambitions that have a global reach and directly target the United States, policy-makers should operate under the belief that China seeks nuclear *advantage*—not parity—over the United

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States. Adopting this strategic framework offers the Pentagon and policymakers their best chance to protect the U.S. homeland and prevent China from leveraging its expansive, modernizing, and diversified nuclear arsenal against the American people.

China's Nuclear Expansion

In 2021, the world learned that China was building over 300 new missile silos in its western desert.⁶ These silos are meant to house intercontinental ballistic missiles capable of carrying nuclear warheads to almost any target on the planet.

Since 1964, when China detonated its first nuclear weapon, China has been satisfied with fielding a minimal deterrent of only approximately 200 nuclear weapons.⁷ It maintained a “no first use” principle, stating that it would never be the first state to introduce nuclear weapons to a battlefield and would only use nuclear weapons if it was first attacked with nuclear weapons.⁸

Since General Secretary Xi Jinping's tenure, China has slowly but nevertheless effectively walked back its “no first use” policy to say that it would only use nuclear weapons if China was the victim of a “strategic attack”—without defining what constitutes a strategic attack.⁹ Such a change in nuclear declaratory policy is of course China's right. Until a few years ago, the United States did not see any change to Chinese fielded nuclear forces—until a 2021 report that made it clear that China was fielding theater-range ballistic and cruise missiles that could carry nuclear or conventional explosives.¹⁰

These theater missiles, it turns out, are optimized to strike large capital ships—such as American aircraft carriers—and large fixed land targets, such as American bases on Guam or Japan.¹¹ Couple the sensor packages that can target ships steaming at 30 knots over the horizon with a theater-range missile carrying a nuclear weapon, and it became clear that China was building and fielding nuclear theater warfighting weapons—not the type of weapons that are part of a minimal deterrence posture meant to prevent nuclear attack in the first place.

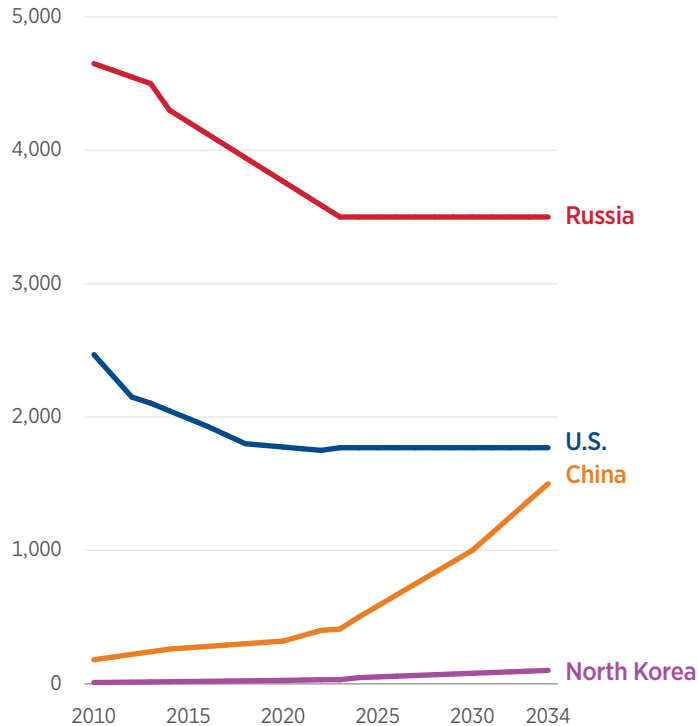
All of this was concerning, but in 2021 when the world learned that China was building hundreds of missile silos, the U.S. defense community began to wonder: Is China really abandoning its minimal deterrence posture and seeking a robust theater and strategic nuclear warfighting capability?¹²

The Chinese nuclear breakout comes at a time when the United States is doing its own nuclear reinvestment, by replacing its legacy Cold War

CHART 1

U.S. Nuclear Arsenal in Need of Revitalization

NUMBER OF OPERATIONALLY DEPLOYED NUCLEAR WEAPONS: CURRENT AND PROJECTED



NOTES: North Korea's nuclear arsenal in 2010 was estimated to consist of fewer than 10 operationally deployed nuclear weapons, and its 2022 nuclear arsenal was estimated to consist of between 20 and 30.

SOURCES: Hans M. Kristensen et al., "Chinese Nuclear Weapons, 2024," *Bulletin of the Atomic Scientists*, January 15, 2024, <https://thebulletin.org/premium/2024-01/chinese-nuclear-weapons-2024/> (accessed February 26, 2024); U.S. Department of Defense, "Military and Security Developments Involving the People's Republic of China, 2023," <https://media.defense.gov/2023/Oct/19/2003323409/-1/-1/2023-MILITARY-AND-SECURITY-DEVELOPMENTS-INVOLVING-THE-PEOPLES-REPUBLIC-OF-CHINA.PDF> (accessed February 26, 2024); Hans M. Kristensen, Matt Korda, and Eliana Reynolds, "Russian Nuclear Weapons, 2023," *Bulletin of the Atomic Scientists*, Vol. 79, No. 3 (May 2023), <https://www.tandfonline.com/doi/full/10.1080/00963402.2023.2202542> (accessed February 26, 2024); Asan Institute for Policy Studies, "Countering the Risks of North Korean Nuclear Weapons," <https://en.asaninst.org/contents/countering-the-risks-of-north-korean-nuclear-weapons/> (accessed February 26, 2024); and Hans M. Kristensen and Matt Korda, "Nuclear Notebook: United States Nuclear Weapons, 2023," *Bulletin of the Atomic Scientists*, January 16, 2023, <https://thebulletin.org/premium/2023-01/nuclear-notebook-united-states-nuclear-weapons-2023/> (accessed February 26, 2024).

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nuclear delivery systems and warheads with an architecture that would take it through most of the 21st century.¹³

In October 2023, the Defense Department's China Military Power Report, an unclassified document, revealed that China had built 100 nuclear weapons in the past 12 months, would reach strategic parity with the United

States sometime in the early to mid-2030s—and potentially was examining putting nuclear weapons on space orbital bombardment systems.¹⁴ Over the same period of time, the United States has failed to produce a single new nuclear weapon as part of its own nuclear modernization program.¹⁵

Advantage Over Parity

Much of the dialogue when discussing the Chinese nuclear growth focuses on the mid-2030s, when it is expected to reach parity. But what if China is not satisfied with nuclear parity and instead seeks nuclear advantage?

Parity, for the purposes of this *Backgrounders*, refers to a rough qualitative and quantitative equality in capability between two nuclear powers. In this sense, Sino–American nuclear *parity* would not necessarily require a one-for-one parallel, with the Chinese arsenal replicating the exact numbers of warheads deployed on a near-identical system of delivery platforms. Instead, a similarity in numbers of nuclear warheads that could achieve similar effects across a variety of target sets delivered by some mix of land-based missiles, sea-launched missiles, and bombers is a sufficient, albeit notional, description of rough parity between the American and Chinese nuclear arsenals.

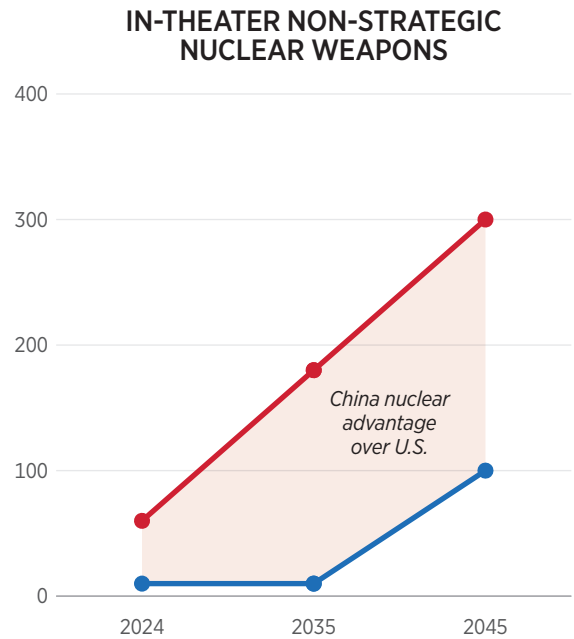
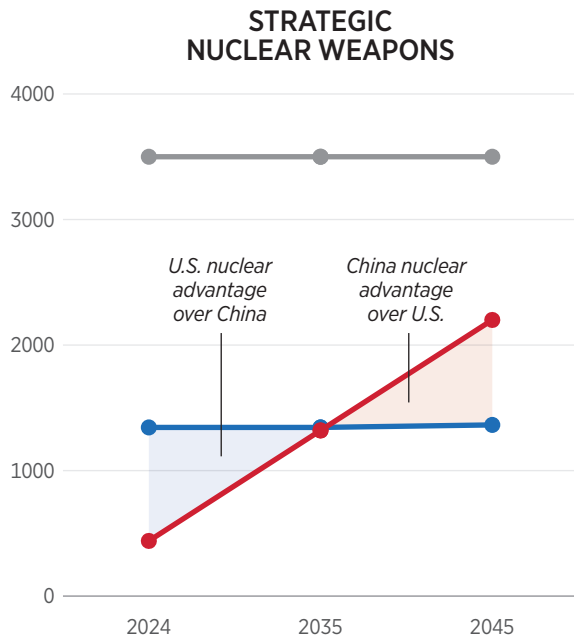
Advantage, however, conveys something quite different. Nuclear advantage is a condition in which a state seeks to deter and intimidate another nuclear power by having more and/or more capable nuclear weapons within a single theater or multiple theaters of operation. With such advantage, it can, in times of acute crisis or conflict, influence the other actor’s decision calculus, knowing that that actor has the option to escalate the level of violence to a point at which the actor who is at nuclear disadvantage cannot match and therefore must either fight at a coercive or operational disadvantage or escalate to higher levels still, at which point risk of further—and potentially uncontrolled—nuclear escalation will only increase.¹⁶

China’s rapid nuclear expansion indicates that it is not satisfied with American nuclear advantage. In “Discerning the Drivers of China’s Nuclear Force Development,” David C. Logan and Phillip C. Saunders consider six competing models to explain China’s recent nuclear developments: secure second strike, nuclear shield, great power status, theater deterrence, bureaucratic politics, and nuclear superiority.¹⁷ They assess that China’s expansion most likely focuses on maintaining a second-strike option and building a nuclear shield, though “considerations of status and prestige are also increasingly prominent.”¹⁸ Notably, they conclude that “in the long run,

CHART 2

China Will Soon Have Nuclear Weapons Advantage Over the U.S.

NUMBER OF WEAPONS — U.S. — China — Russia



SOURCES: U.S. Department of Defense, *Military and Security Developments Involving the People's Republic of China 2023: Annual Report to Congress*, <https://media.defense.gov/2023/Oct/19/2003323409/-1/-1/1/2023-MILITARY-AND-SECURITY-DEVELOPMENTS-INVOLVING-THE-PEOPLES-REPUBLIC-OF-CHINA.PDF> (accessed May 24, 2024); Hans M. Kristensen, Matt Korda, Eliana Johns, and Mackenzie Knight, "Chinese Nuclear Weapons, 2024," *Bulletin of the Atomic Scientists*, 2024, Vol. 80, No. 1 (2024), pp. 51–52, <https://www.tandfonline.com/doi/full/10.1080/00963402.2023.2295206> (accessed May 24, 2024); and Center for Strategic and International Studies, "The Use of Nuclear Weapons in a Taiwan Invasion: Military Incentives and Operational Effects," PowerPoint presentation.

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Great Power status drivers might encourage China to continue its nuclear buildup to seek quantitative and qualitative *parity* with U.S. and Russian nuclear capabilities.”¹⁹

The Historical Background for States Seeking Advantage

Historically, rising powers have often pursued advantage, rather than parity, and only accept parity when advantage is not feasible. If China does in fact seek advantage, particularly as a rising power that is challenging the existing status quo power of the United States, then it would simply follow a long-standing tradition of rising powers.

If one were to use Harvard professor Graham Allison's 16 case studies in his book, *Destined for War: Can America and China Escape Thucydides's Trap?*, purely as an attempt to broadly quantify cases of great power competition,²⁰ war resulted in 12 of the 16 presented cases, commonly due to real or perceived threats between great powers. A common theme through all 16 cases, however, is that, regardless of whether war did or did not occur, *none of the powers surveyed were satisfied with parity*. For example, in Allison's perspective, when the U.S. overtook the United Kingdom as the dominant power in the Western Hemisphere, the British accommodated U.S. gains due to "more ominous and proximate threats elsewhere," despite Prime Minister Lord Salisbury assessing that "a war with America" was "more than a possibility" in "the not distant future."²¹ In other words, Britain did not want parity in the Western hemisphere, but it had to accept parity because its imperial frontier in Eurasia drew resources away.

Imperial Japan desired to become the pre-eminent naval power in the Pacific—thus triggering its massive shipbuilding program of the 1870s.²² In the years prior to the First World War, the German Empire sought to challenge British dominance in world affairs. As part of its efforts, it sought to outbuild the British Navy—thus triggering the Dreadnought naval race between Berlin and London.²³

Early Cold War. The first part of the Cold War was defined in some ways by both the United States and the Soviet Union seeking nuclear advantage.²⁴ The United States enjoyed nuclear advantage during the period of 1945 to roughly the early 1960s, due to its superiority over the Soviet Union first in numbers of nuclear weapons and later due to its missile and bomber advantage.²⁵ Although the United States did not directly exploit that advantage, it is very possible that the United States did gain certain tactical military and diplomatic advantages that had strategic effects due to its nuclear arsenal.

As an example, the American nuclear monopoly during the Berlin Airlift of 1948 almost assuredly influenced the Soviet decision not to interdict the airlift itself, despite having conventional military superiority in Europe at that time.²⁶ In addition, there is some evidence that President John F. Kennedy was successful in getting the Soviets to remove nuclear weapons from Cuba in 1962 due to American advantage in long-range nuclear strike options.²⁷ In fact, the Soviet experience in the Cuban missile crisis resolved the debate within the Soviet defense establishment over the acceptability of American advantage in strategic nuclear weapons and spurred the Soviets to seek nuclear advantage over the United States.²⁸

Late Cold War. From 1965 until the end of the Cold War, the Soviet Union and the United States enjoyed rough nuclear parity.²⁹ Both sides fielded comparable numbers of theater and strategic nuclear weapons capable of striking the others' homelands as well as forward-deployed military forces across Europe and the Pacific. Both sides fielded thousands of warheads on silo-based missiles, bombers, mobile missile launchers, artillery, submarines, and surface ships. Arms control acted as a restraining function on both sides, limiting and then reducing Soviet (and then Russian) and U.S. nuclear arsenals in similar (although far from perfect) rates, until the 2010 New START nuclear arms control treaty.³⁰

Indeed, the Nixon Administration pursued the Strategic Arms Limitation Treaty (SALT) with the Soviets. This treaty capped total strategic warheads for both sides. The United States welcomed SALT as it enabled the military to shift resources from the nuclear arms buildup to conventional capabilities needed to fight in Vietnam. The Soviets agreed to SALT as the nuclear and larger military build-up was an increasing strain on their economy. In this way, both sides saw opportunity costs for an expanded nuclear arsenal—and on the Soviet side, in particular, their economy could not handle sustained nuclear expansion. Put another way, both sides accepted capped arsenal sizes, not because they did not seek advantage, but because, at that time, it was not feasible to achieve advantage.³¹

To illustrate this point of neither wanting to accept parity, the 1980s witnessed a military build-up in conventional military power by the United States. This was a conscious plan to force the Soviet Union to either accept military disadvantage or spend its way to bankruptcy. Ultimately, the Soviet system collapsed, in part due to the Soviet inability to accept military disadvantage vis-à-vis the United States.³²

In this way, by the late Cold War, the United States and the Soviet Union had no choice but to accept a nuclear parity because neither side could gain advantage. As a result, parity existed between the Soviets and the Americans for a limited period of time, although neither side desired a relationship of nuclear parity with the other.

The New Cold War

China. It should not be overly controversial to point out that the United States and China are currently in a New Cold War, with General Secretary Xi Jinping's ambitions set on global primacy.³³ During the 19th National Party Congress, Xi emphasized China's rise as a "global leader in terms of composite national strength and international influence,"³⁴ which will lead

to “an era that sees China moving closer to center stage and making greater contributions to mankind.”³⁵ Boldly, Xi proclaimed that “Chinese socialism’s entrance into a new era is, in the history of the development of the People’s Republic of China and the history of the development of the Chinese nation, of tremendous importance. In the history of the development of international socialism and the history of the development of human society, it is of tremendous importance.”³⁶

Both the United States and China consider the other to be threats across a variety of frameworks, including military, ideological, informational, diplomatic, and economic. Despite various statements that encourage managed competition, the actions of both the U.S. and China indicate that they both aim to achieve advantage.

China is also a signatory to multiple arms control and nonproliferation treaties, though it has violated various obligations.³⁷ While not explicitly mentioning the United States during his address to the 20th National Congress of the Communist Party of China, General Secretary Xi Jinping called on China to “be more mindful of potential dangers, be prepared to deal with worst-case scenarios, and be ready to withstand high winds, choppy waters, and even dangerous storms.”³⁸ It is likely that competition—and the pursuit for advantage—with the U.S. is implicitly included within Xi’s statement.

Russia. While it is easy to fixate on the United States and China, Russia also has a significant nuclear arsenal—in fact, the largest on the planet—which necessarily impacts decision-making in Beijing and Washington. Throughout and following the Cold War, the United States was postured to deter a single nuclear adversary that fielded peer capabilities. Both sides placed strong emphasis on the quantity of nuclear weapons—even after both sides fielded many thousands of warheads which could inflict catastrophic damage on the other. In 2023, Russia’s nuclear inventory included 1,550 operationally deployed strategic weapons and roughly 2,000 operationally deployed non-strategic weapons, which is 1,800 more deployed nuclear weapons than that which the United States fields.³⁹ Russia is no longer in any nuclear arms control pact with the United States, having suspended participation in the New START nuclear arms reduction treaty in 2023.⁴⁰

Most recently, intelligence reports revealed that Russia is developing a space-based nuclear weapon that could threaten thousands of low-orbit satellites—itsself a violation of the 1967 Outer Space Treaty which prohibits putting nuclear weapons in space.⁴¹ It is unclear why the Russians took this action, but it may be a decision made by a great power seeking nuclear advantage rather than parity—particularly given Russia’s current unwillingness to engage in strategic stability or arms control discussions with

the United States.⁴² Suspending treaty participation and developing new capabilities allows Russia greater flexibility in advancing national security goals and, if needed, achieving advantage against the United States where possible.

Sino–Russian Competition. Given the Cold War lessons of great powers being unwilling to accept parity if they do not have to, it is possible—however unlikely—that China will pursue nuclear parity with the United States while accepting Russian nuclear advantage. Yet, despite the strong ties between China and Russia following Russia’s invasion of Ukraine, there is also a strong historical precedent of mistrust between China and Russia, as well as a lack of formal defense relations.

Consequently, whether for strategic interests or ideological considerations, it is reasonable—and, indeed, more likely—for China to pursue global advantage, as it possesses the industrial capabilities to rapidly develop a modern nuclear arsenal and ideological desire to be the world’s strongest, most respected power. As Russia modernizes its nuclear arsenal and, presumably, deploys new anti-satellite nuclear capabilities, Chinese satellites are, from a capability perspective, also at risk—even if Russia may not currently intend to launch an attack on Chinese assets or territory.⁴³

As a result, if China aspires to be a global hegemon or the pre-eminent global power, then history suggests it is unlikely to be satisfied with anything less than nuclear advantage, unless it is forced to do so. As shown earlier, during the Cold War, neither the United States nor the Soviet Union abandoned its desire for advantage. The United States achieved said advantage through increased military spending, which was enabled by the world’s largest economy. The Soviet Union collapsed in part due to its economy’s inability to support or even achieve military advantage over the United States.

Economic Resources. The dynamic between the United States and China is fundamentally different than that of the United States and the Soviet Union. While statistics vary based on source and metrics used, at its height around 1975, the Soviet Union’s economy, per gross national product, peaked relative to the U.S. economy between 45 percent to 58 percent.⁴⁴ In contrast, per gross domestic product, the Chinese economy is roughly 70 percent in relative terms to the United States.⁴⁵ This much larger economic base and industrial infrastructure allows China to compete with the United States as a peer, while acknowledging that the Chinese economy is finite and, at a certain point, Beijing will be forced to confront trade-offs and prioritize areas for investment.

The United States should not assume that Chinese military build-ups will be constrained to the degree that the Soviets were at the height of the

Cold War. Therefore, China has the economic foundations to pursue and even achieve nuclear advantage over the United States—and certainly over Russia—if it chooses to do so.

Despite the ever-evolving advancements of technology and weaponry, nuclear weapons continue to be relevant in strategic thinking and planning. For China to claim a “world-class” military over the United States,⁴⁶ it needs to expand its nuclear arsenal and capabilities, which explains, in part, China’s rapid nuclear expansion, despite having notable cyber and electromagnetic capabilities. Therefore, viewing China’s ambitions to achieve nuclear parity, rather than advantage, do not fully convene Chinese intentions and threats posed to the United States.

Chinese Nuclear Advantage

China may well *achieve* nuclear parity with the United States by the mid-2030s, but as the authors have indicated, there is just as much reason, very possibly more reason, to assume they will seek nuclear advantage.

What might such advantage look like? To begin, China may seek continued theater nuclear advantage in the Western Pacific, which it enjoys today over the United States.⁴⁷ Indeed, by the mid-2030s, China may seek to expand its existing advantage over the United States in anti-ship and variable-yield theater-range nuclear weapons in the Western Pacific. China may also seek to have a larger number of land-based or road-mobile intercontinental ballistic missiles capable of striking targets in North America.

It may also deploy a greater number of ballistic missile submarines into the Pacific Ocean—thereby giving it an assured, survivable second-strike capability. More worryingly, China could seek other types of nuclear capabilities to include nuclear weapons on orbital space platforms that could drop nuclear warheads on any location on earth with little to no strategic warning or nuclear warheads on hypersonic glide vehicles that are exceedingly difficult to intercept. Nuclear advantage could also include a significant expansion in medium-range land-attack capabilities to obviate or overcome existing Russian theater nuclear advantage.

Given the fact that China is building and fielding 100 new nuclear weapons a year, it is clear that Beijing has made significant investments in its nuclear infrastructure and can produce new nuclear weapons at scale. It would be borderline naïve to believe that China would “turn off” such an investment once they have fielded a nuclear force that is comparable with that of the United States, given its stated desires to supplant the United States as the world’s dominant power.

In short, a strategy and corresponding force development and deployment of nuclear advantage by China would share some characteristics with that of the existing U.S. nuclear arsenal, but would be certainly larger in scale and significantly more diverse in capability and composition.

Implications for the United States

Even if China is satisfied with nuclear parity or a nuclear breakout that ends at a few hundred weapons less than the current U.S. nuclear stockpile, the United States needs to reevaluate its nuclear strategy and its corresponding nuclear force size and composition if it hopes to successfully deter a China with a far more capable nuclear arsenal.⁴⁸ The U.S. will need a nuclear enterprise infrastructure that is responsive to such new challenges—which means the United States must move quickly to address growing timeline and cost overruns within the nuclear enterprise.⁴⁹

The United States may well need a larger nuclear arsenal to deter Russia and China. Such an arsenal need not be larger than the combined size of the Chinese and Russian arsenals—but it should be large enough to hold at risk a sufficient amount of Chinese and Russian strategic weapons and command-and-control targets to give Beijing and Moscow pause before they contemplate a strategic attack against the United States or its allies.⁵⁰ Such an arsenal will need a mix of strategic nuclear weapons garrisoned in the United States coupled with a robust theater nuclear capability forward deployed to the Pacific and European theaters, thus deterring attacks against the American homeland and against key allies.⁵¹

While the authors of this *Backgrounders* do not identify a specific arsenal size—that detailed level of analysis must be done by the Pentagon depending upon the number of targets the Defense Department must hold at risk in order to operationalize a new nuclear strategy that must be developed by the United States government—it is clear that the United States must ascertain the implications of a China that may well be seeking nuclear advantage over the United States. The U.S. must then take the appropriate actions to ensure that China will not be able to leverage any advantage it may gain over the United States to enforce its will upon Washington or force Washington to accept outcomes that run contrary to its national interest.

Part of this effort should include an analysis about whether a new nuclear targeting or employment strategy is necessary to deter two nuclear peers or even two nuclear actors who enjoy nuclear advantage over the United States; an analysis of the right force mix, design, posture, and disposition of the U.S. arsenal globally; and an understanding of the required size, diversity,

and composition of the arsenal capable of deterring both China and Russia—as well as smaller but still capable nuclear powers like North Korea—for the next several decades to come. While the output of such an analysis is uncertain, it is possible that the U.S. arsenal will look vastly different from the one the United States fields today.⁵²

Such a nuclear strategy—optimized to safeguard the citizenry, homeland, freedom, and prosperity of the United States and its allies against emerging nuclear threats posed by growing Chinese and Russian arsenals—must be developed, and fast. Given that the timelines for developing, building, and fielding a strategic deterrent takes years, the strategy work must begin now—and quickly.

Recommendations

The United States must prepare for a world in which China seeks nuclear advantage. Given China's unwillingness to engage in arms control discussions or any kind of meaningful strategic stability talks, the United States cannot count on diplomacy or "strategic dialogue" to change China's current trajectory.⁵³ This is not to say the U.S. should give up on those efforts, but it is uncertain they will be successful.

Consequently, the United States needs to take steps to ensure its security, to include preparing for a world in which China seeks nuclear advantage. Specifically, the Department of Defense should:

- **Understand the strategy and force implications of a world with not only two nuclear peers, but a world in which the U.S. is at nuclear disadvantage to both Russia and China.**
- **Explore how the U.S. can compete with a rapidly expanding Chinese nuclear arsenal.** This should include increasing the number of operationally deployed strategic and non-strategic warheads in the short to long term; developing an integrated, multi-layered missile defense architecture; and re-examining the large-scale forward deployment of theater nuclear capabilities in Europe and the Western Pacific.
- **Examine U.S. strategic asymmetric strategies.** This should include a robust anti-satellite capability, long-range nuclear-capable hypersonic glide capabilities, and, potentially, strategic, space-based platforms.

Conclusion

The United States finds itself in a new era of nuclear threats. Most of the current debate on the future of the Chinese nuclear breakout focuses on if and when China will achieve nuclear parity with the United States—as though parity is the endpoint of China’s current nuclear breakout. While it is possible that China will be satisfied with nuclear parity with the United States, it is very possible—perhaps even probable—that it will seek nuclear advantage. The United States must begin preparing for such a potentiality now.

With China’s nuclear capabilities, threats, and intentions, a new U.S. approach must be developed quickly. By operating under the framework that China is seeking nuclear advantage over the United States, the U.S. would be best positioned to develop and field the necessary strategic deterrents that would protect the American homeland. This will take time—given the state of the United States’ challenges to produce nuclear weapons, it will take 10 years or more to be able to produce nuclear weapons at scale.⁵⁴ But the nation must start moving now. The time for U.S. nuclear stagnation and complacency is over. The stakes are too high to fail.

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Endnotes

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