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Planning for the Unthinkable

The targeting strategies of nuclear-armed states

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Planning for the Unthinkable

The targeting strategies of nuclear-armed states

The quantitative and qualitative enhancements to global nuclear arsenals in the past decade—particularly China's nuclear buildup, Russia's nuclear saber-rattling, and NATO's response—have recently reinvigorated debates about how nuclear-armed states intend to use their nuclear weapons, and against which targets, in what some describe as a new Cold War.

Details about who, what, where, when, why, and how countries target with their nuclear weapons are some of states' most closely held secrets. Targeting information rarely reaches the public, and discussions almost exclusively take place behind closed doors—either in the depths of military headquarters and command posts, or in the halls of defense contractors and think tanks. The general public is, to a significant extent, excluded from those discussions. This is largely because nuclear weapons create unique expectations and requirements about secrecy and privileged access that, at times, can seem borderline undemocratic. Revealing targeting information could open up a country's nuclear policies and intentions to intense scrutiny by its adversaries, its allies, and—crucially—its citizens.

This presents a significant democratic challenge for nuclear-armed countries and the international community. Despite the profound implications for national and international security, the intense secrecy means that most individuals—not only including the citizens of nuclear-armed countries and others that would bear the consequences of nuclear use, but also lawmakers in nuclear-armed and nuclear umbrella states that vote on nuclear weapons programs and policies—do not have much understanding of how countries make fateful decisions about what to target during wartime, and how. When lawmakers in nuclear-armed countries approve military spending bills that enhance or increase nuclear and conventional forces, they often do so with little knowledge of how those bills could have implications for nuclear targeting plans. And individuals across the globe do not know whether they live in places that are likely to be nuclear targets, or what the consequences of a nuclear war would be.

While it is reasonable for governments to keep the most sensitive aspects of nuclear policies secret, the rights of their citizens to have access to general knowledge about these issues is equally valid so they may know about the consequences to themselves and their country, and so that they can make informed assessments and decisions about their respective government's nuclear policies. Under ideal conditions, individuals should reasonably be able to know whether their cities or nearby military bases are nuclear targets and whether their government's policies make it more or less likely that nuclear weapons will be used.

As an organization that seeks to empower individuals, lawmakers, and journalists with factual information about critical topics that most affect them, the Federation of American Scientists—through this report—aims to help fill some of these significant knowledge gaps. This report illuminates what we know and do not know about each country's nuclear targeting policies and practices, and considers how they are formulated, how they have changed in recent decades, whether allies play a role in influencing them, and why some countries are more open about their policies than others. The report does not claim to be comprehensive or complete, but rather should be considered as a primer to help inform the public, policymakers, and other stakeholders. This report may be updated as more information becomes available.

Given the secrecy associated with nuclear targeting information, it is important at the outset to acknowledge the limitations of using exclusively open sources to conduct analysis on this topic. Information in and about different nuclear-armed states varies significantly. For countries like the United States—where nuclear targeting policies have been publicly described and are regularly debated inside and outside of government among subject matter experts—official sources can be used to obtain a basic understanding of how nuclear targets are nominated, vetted,

and ultimately selected, as well as how targeting fits into the military strategy. However, there is very little publicly available information about the nuclear strike plans themselves or the specific methodology and assumptions that underpin them. For less transparent countries like Russia and China—where targeting strategy and plans are rarely discussed in public—media sources, third-country intelligence estimates, and nuclear force structure analysis can be used, in conjunction with official statements or statements from retired officials, to make educated assumptions about targeting policies and strategies.

It is important to note that a country's relative level of transparency regarding its nuclear targeting policies does not necessarily echo its level of transparency regarding other aspects of its governance structure. Ironically, some of the most secretive and authoritarian nuclear-armed states are remarkably vocal about what they would target in a nuclear war. This is typically because those same countries use nuclear rhetoric as a means to communicate deterrence signals to their respective adversaries and to demonstrate to their own population that they are standing up to foreign threats. For example, while North Korea keeps many aspects of its nuclear program secret, it has occasionally stated precisely which high-profile targets in South Korea and across the Indo-Pacific region it would strike with nuclear weapons. In contrast, some other countries might consider that frequently issuing nuclear threats or openly discussing targeting policies could potentially undermine their strategic deterrent and even lower the threshold for nuclear use.

The Fundamentals of Nuclear Targeting

Although each nuclear-armed state likely uses different processes and methodologies to select and validate its nuclear targets, the broad principles of target selection are likely relatively similar between countries. These depend upon several factors and assumptions, including:

- whether the target accords with national employment guidance and military objectives;
- the military capability of the adversary;
- the strategic importance of the target;
- the physical nature of the target;
- the environmental conditions that could influence targeting;
- the accuracy of delivery vehicles;
- the readiness and reliability of nuclear forces;
- whether weapons would overfly other countries enroute to their targets; and
- for some countries, the laws of war and a desire to reduce the amount of collateral damage to civilians and non-military-related infrastructure.

This final point is not necessarily a factor for all nuclear-armed states and varies widely depending upon each state's nuclear doctrine. Some countries, like the United States, claim to avoid targeting civilians per se, while others seem to have no constraints. States differ in this regard due to their targeting capabilities, histories, and respective understandings of what kind of damage is needed to best deter or defeat the adversary. In this way, how a state practices nuclear targeting is often a direct function of how it practices nuclear deterrence; the two are intimately linked. Typically, states will seek to deter other states either by threatening "punishment" for conducting a specific action, or by "denial" of the adversary's ability to conduct the action—or sometimes by a mixture of the two.

In their most basic function, nuclear weapons are used to deter an adversary from undertaking specific actions by threatening consequences that the adversary would conclude outweigh the gains of undertaking the aggression. As such, deterrence is itself not a capability per se, but a reaction in the mind of the adversary. Determining what form of deterrence is required to deter a particular adversary from undertaking a specific action is not obvious and is fraught with considerable uncertainty. Moreover, the adversary is not the only factor; the defender's own assumptions and preferences can strongly influence both strategy and capabilities. Some strategists and planners may prefer an overwhelmingly offensive nuclear posture while others may conclude that a more moderate

capability is sufficient. As a result, debates about nuclear targeting requirements often fall into two boxes: "counterforce" versus "countervalue."

Counterforce prioritizes destroying an adversary's nuclear forces and associated military capabilities in order to achieve specific strategic effects and limit the amount of damage that an adversary can return through retaliatory strikes. An element of counterforce is "deterrence by denial," that seeks to deny an adversary the ability to achieve its war objectives. This can take numerous forms, from defeating a limited regional attack to depleting or even decapitating the adversary's forces (and thus their ability to inflict damage at all). Counterforce targets typically include air bases, submarine bases, ICBM silos, air-defense installations, missile and warhead storage facilities, war-supporting industry, command and control infrastructure, and leadership. These kinds of targets can take numerous forms: soft, hard, buried, mobile, masked, or defended, thus requiring—from the perspective of military planners—different capabilities and strike options to effectively hold them at risk. At the outset, counterforce strategy seeks to deter adversarial aggression from happening in the first place, but nuclear force structure is primarily shaped by targeting requirements after deterrence has failed. To that end, countries that adopt counterforce targeting postures typically field larger and more capable nuclear arsenals.

Countervalue is a term for a targeting strategy that is generally understood to be less focused on destroying an adversary's military forces in lieu of destroying or neutralizing selected military or military-related targets. Unfortunately, in the public debate countervalue is often mischaracterized as simply "city-busting"—destroying an adversary's cities in order to inflict a level of damage deemed to be unacceptable by the adversary. But the term "city-busting" is too simplistic for countervalue targeting, which would likely be broader than exclusively—or even predominantly—targeting cities. Although smaller nuclear-armed states might prioritize cities given their relatively limited arsenals, countries with larger arsenals may also target other types of critical economic and political infrastructure. Some U.S. military publications describe countervalue targeting as "the destruction or neutralization of selected enemy military and military-related targets, such as industries, resources, and/or institutions contributing to the enemy's war effort."[1] While countervalue targeting appears to accept greater civilian casualties, it simultaneously allows a country to field a smaller and less capable nuclear force; this is because its adversaries could theoretically be deterred by the "punishment" of the destruction of fewer and simpler targets.

In reality, debating "counterforce" or "countervalue" is probably too simplistic because nuclear targeting policy and planning is more nuanced, with some overlap of these broad categories as well as a wide range of other options and objectives.[2] While large and advanced nuclear-armed states have the capabilities to adopt counterforce-type strategies, smaller and younger nuclear-armed states generally do not.

Both targeting strategies come with significant challenges: on the one hand, because counterforce is focused on destroying military forces, including destroying nuclear weapons before they can be used, a counterforce posture often includes first-strike-capable weapons that could be seen as destabilizing by other nuclear-armed states if they can seriously degrade a state's ability to retaliate; on the other hand, a countervalue posture (at least in the simple "city-busting" format) might be perceived as not credible by other nuclear-armed states, especially since targeting civilians would be considered a clear violation of international humanitarian law.

One often hears claims in the public debate that counterforce targeting is more humane or ethical because it does not explicitly target cities like countervalue targeting does. A counterforce doctrine, for example, might

1 Office of the Deputy Assistant Secretary of Defense for Nuclear Matters, Nuclear Matters Handbook 2020 [Revised], p. 14, https://www.acq.osd.mil/ncbdp/nm/NMHB2020rev/docs/NMHB2020rev.pdf.

2 For descriptions of different nuclear deterrence and targeting strategies, see: Alex Wilner and Andreas Wenger, Deterrence by Denial: Theory and Practice (Amherst, NY: Cambria Press, 2021), https://www.amazon.com/Deterrence-Denial-Practice-Andreas-Wegner/dp/1621965511; Lawrence Freedman and Jeffrey Michaels, The Evolution of Nuclear Strategy: New Updated and Completely Revised (London: Palgrave Macmillan, 2019), https://www.amazon.com/Evolution-Nuclear-Strategy-Updated-Completely/dp/113757349X/; Michael Mazarr, "Understanding Deterrence," RAND, 2018, https://www.rand.org/content/dam/rand/pubs/perspectives/PE200/PE295/RAND_PE295.pdf; Harold Feiveson, "Nuclear Strategy and Targeting Doctrine," in Harold Feiveson, ed., The Nuclear Turning Point (Washington, D.C.: The Brookings Institution, 1999), pp. 47-62, https://www.brookings.edu/books/the-nuclear-turning-point/.

appear to suggest that a state will unambiguously avoid targeting an adversary's cities with nuclear weapons. This assumption, however, would be incorrect, given that many traditional counterforce targets (including political and military leadership targets) are often located in or near cities.[3] While strikes on these targets might not be conducted with the explicit aim of killing civilians, civilians living nearby or downwind and subject to radioactive fallout would nonetheless be affected. Both targeting strategies would kill millions of civilians.[4] From a humanitarian perspective, therefore, the distinction between these two targeting strategies seems largely academic.

To mitigate some of these challenges, some analysts have proposed a third alternative: targeting exclusively conventional military forces and war-supporting industry.[5] While this strategy could still include targets near population centers, its abstention from targeting an adversary's nuclear forces and leadership would reduce the associated dynamic of keeping nuclear forces on high alert to avoid destruction, as well as pressures to engage in arms racing. To that end, the weapons required to execute such a strategy would therefore not necessarily need to be as numerous or as capable as those required for a counterforce strategy.

While each nuclear-armed state utilizes different assumptions for its nuclear targeting policies, the basic goal is similar: to deter a nuclear attack by threatening nuclear retaliation in response. Nuclear employment guidance is typically set at the highest levels of power and is subsequently translated into an actionable set of strike plans by each country's respective military authorities and combatant commands.[6] And the practice of selecting and validating targets likely has strong similarities between states.

In the United States, the process of nominating, validating, and selecting targets, and then assigning nuclear weapons to each one through a process called "weaponeering," is a function of several key criteria, including the target's physical characteristics, the required damage criteria, the capability of the weapon needed to destroy the target, the ability of the adversary to reconstitute or regenerate the target in question, the environmental conditions in the target's vicinity, the presence of civilians nearby, and other factors.[7] Vulnerability assessments for all potential targets in adversarial territory are kept in a database maintained by the Defense Intelligence Agency that can be accessed by the DOD intelligence community.[8] Identified targets are kept in the National Target Base (NTB), a database maintained by U.S. Strategic Command, and used to select and cluster targets for creation of the individual nuclear strike plans.[9]

The determination of what type of nuclear weapon is needed to destroy a target is based on calculations and assumptions about both the weapon itself and the characteristics of the intended target. In the United States, known variables for calculating these probabilities include the "Radius of Damage" (the distance at which the target has a 50 percent chance of receiving a specific level of damage), "Circular Error Probable" (the radius of a circle within which at least 50 percent of the weapons are expected to fall), "Probability of Damage" (the likelihood that

3 James Acton, "Two Myths About Counterforce," War On The Rocks, 6 November 2023, https://warontherocks.com/2023/11/two-myths-about-counterforce/

4 For descriptions of collateral damage from counterforce targeting, see: Sébastien Philippe and Ivan Stepanov, "Radioactive Fallout and Potential Fatalities from Nuclear Attacks on China's New Missile Silo Fields," Journal of Science & Global Security Vol 31, No. 1-2 (2023), pp. 3-15, https://scienceandglobalsecurity.org/archive/sgs31philippe.pdf; Matthew G. McKinzie, et al., The U.S. Nuclear War Plan: A Time For Change, Natural Resources Defense Council, 2001, https://www.nrdc.org/sites/default/files/us-nuclear-war-plan-report.pdf.

5 Charles L. Glaser, James Acton, and Steve Fetter, "The U.S. Nuclear Arsenal Can Deter Both China and Russia," Foreign Affairs, 5 October 2023, https://www.foreignaffairs.com/united-states/us-nuclear-arsenal-can-deter-both-china-and-russia; Hans M. Kristensen, Robert S. Norris, and Ivan Oelrich, From Counterforce to Minimal Deterrence: A New Nuclear Policy on the Path Toward Eliminating Nuclear Weapons, Federation of American Scientists and Natural Resources Defense Council, 2009, https://pubs.fas.org/_docs/occasionalpaper7.pdf.

6 Office of the Deputy Assistant Secretary of Defense for Nuclear Matters, Nuclear Matters Handbook 2020 [Revised], p. 9, https://www.acq.osd.mil/ncbdp/nm/NMHB2020rev/docs/NMHB2020rev.pdf.

7 Ibid, p. 10.

8 Ibid, p. 11.

9 For a glossary of systems and terms used in U.S. nuclear war-planning, see: William M. Arkin and Hans M. Kristensen, The Post Cold War SIOP and Nuclear Warfare Planning: A Glossary, Abbreviations, and Acronyms, NRDC Nuclear Program, January 1999, p. 51, https://www.nukestrat.com/pubs/SIOP%20Glossary%201999.pdf

the weapon will inflict a given level of damage), and several other factors.[10] The values for each of these variables are calculated by either USSTRATCOM or the Department of Energy, depending on whether they relate to the delivery system or the warhead itself. Other nuclear-armed states likely utilize similar calculations and variables to influence their targeting criteria. These calculations and the associated vulnerability assessments are highly classified, although some details have been disclosed.[11]

From these types of calculations, the categories of targets and the variety and number of nuclear weapons required to accomplish strategic objectives are derived. To hedge against the risk of failure, countries might "layer" or "cross-target" using more than one weapon or using multiple delivery systems in order to increase the chances of achieving the required damage goals; when using more than one weapon, countries will also carefully account for "fratricide"—the possibility that a nuclear detonation could disable or prevent a subsequent nuclear detonation on the same or a nearby target.[12] Moreover, some countries might choose to use conventional weapons to target another countries' nuclear forces in order to reduce collateral damage or risk of escalation. Some countries have also chosen to replace actual target coordinates in their missile guidance systems with coordinates over open water during peacetime, such that if a missile launches unintentionally, it will detonate in the ocean rather than on an adversary's territory.

Quantity and diversity of nuclear-capable systems became less important after the end of the Cold War, but some officials and nuclear advocates have recently begun to argue that more diverse, lower yield, and even larger forces are necessary for deterrence. There is little public evidence that larger and more diverse nuclear forces deter more effectively or that countries' nuclear use decisions are dependent upon the yield of the adversary's weapons. Arguments for new weapons tend to follow the same pattern as during the Cold War, with claims that existing weapons are insufficient and that strategies need to be modified with more flexible options and low-yield capabilities to better deter or respond to an adversary. During the Cold War, this thinking resulted in the accumulation of vast nuclear arsenals, complex war plans, and offensive operations.

In the following, we describe nuclear targeting policies and practices of the nuclear-armed states. Given the levels of secrecy, these descriptions are incomplete and not intended to be comprehensive, but rather to provide contextual illustrations as to how different states formulate their targeting policies.

United States

The most recent nuclear employment strategy issued by the Biden administration in 2024 strongly committed the United States to an offensive nuclear counterforce targeting strategy that "emphasize[s] the need to, first and foremost, hold at risk what adversaries value most" and "maintain counterforce capabilities to reduce potential

10 U.S. nuclear targeting policy accounts for the "damage expectancy" (DE) of particular strike options: the likelihood that the weapon will detonate in the target area and achieve the specified level of damage. Damage expectancy is the calculated product of four variables: the probability of launch survival, the probability of arrival, the weapon system reliability, and the probability of damage. The probability of damage is a function of warhead and delivery system data including the warhead's yield, its radius of damage, its circular error probable, and its assigned height of burst. These calculations are made using a computer code called the Probability of Damage Calculator (PDCALC) that is sponsored by USSTRATCOM and maintained by The Defense Threat Reduction Agency. (John W. St Ledger, "Nuclear Targeting Terms for Engineers and Scientists," Los Alamos National Laboratory, 1 February 2017, pp. 13-20, https://permalink.lanl.gov/object/tr?what=info:lanl-repo/lareport/LA-UR-17-20752)

11 See for example: Matthew G. McKinzie, et al., The U.S. Nuclear War Plan: A Time For Change, Natural Resources Defense Council, 2001, https://www.nrdc.org/sites/default/files/us-nuclear-war-plan-report.pdf.

12 Ashton B. Carter, John D. Steinbruner, and Charles A. Zraket, Managing Nuclear Operations, Washington, D.C.: Brookings Institution Press (1987), p. 380.

adversaries' ability to employ nuclear weapons against the United States and its allies and partners…" The guidance explicitly states that the United States "does not rely on a counter-value or minimum-deterrence approach."[13]

That suggests a strategy that uses nuclear forces (backed up by non-nuclear capabilities) to hunt down and destroy an adversary's nuclear weapons and its ability to employ them. The details of the targeting plans designed to meet that objective are shrouded in secrecy, but the public has nonetheless gained some access to some information over the years via unclassified Cold War-era documents requested through the Freedom of Information Act (FOIA) or released by the U.S. government throughout the years, as well as from official policy guidance documents, statements, and studies.[14]

One example where public documentation has listed the broad categories of U.S. nuclear targets is in a Government Accountability Office (GAO) report from 1991 that the Department of Defense deemed at the time to be "factually accurate."[15] The four broad categories of nuclear targets included 1) nuclear forces (including nuclear weapons storage sites and bases hosting intercontinental ballistic missiles, heavy bombers, and ballistic missile submarines); 2) leadership (including command posts and key communications facilities); 3) other military forces (including conventional munitions storage, staging areas, airfields, and other non-nuclear military facilities); and 4) war-supporting industry (including munitions and missile factories, petroleum refineries, and basic economic and power production facilities). Although nuclear arsenals and strike plans have been modified considerably since then, these broad targeting categories are thought to still be largely accurate today.

Notably, solely civilian targets are not included in this list, as the United States maintains a longstanding policy to "not purposely threaten civilian populations or objects" and "not intentionally target civilian populations or targets in violation of [the Law of Armed Conflict]."[16] However, the legality of targeting a facility is dependent on whether it is a military facility, whether the attack is a military necessity, and whether the degree of civilian harm is proportionate to military objectives. It is clear that civilian populations and structures would nonetheless be harmed by targeting the above categories—a fact that has even been acknowledged by previous iterations of U.S. nuclear employment guidance. For example, NUWEP-74—published by the Nixon administration—included an illuminating acknowledgement that "substantial damage to residential structures and populations may nevertheless result from targeting that meets the above [nuclear targeting] objectives."[17]

The U.S. nuclear targeting process

The United States' nuclear targeting process is derived from the strategic priorities of successive presidential administrations and consists of four primary steps.[18]

First, the President provides policy guidance outlining general targeting objectives against specific adversaries, force structure and planning, categories of targets, and related deterrence requirements.[19] Presidential guidance is

13 U.S. Department of Defense, Report on the Nuclear Employment Strategy of the United States, November 7, 2024, p. 3, https://media.defense.gov/2024/Nov/15/2003584623/-1/-1/1/REPORT-ON-THE-NUCLEAR-EMPLOYMENT-STRATEGY-OF-THE-UNITED-STATES.PDF. Emphasis added.

14 For an overview of the U.S. nuclear posture, see: Hans Kristensen, et al., FAS Nuclear Notebook: United States nuclear weapons 2025, Bulletin of the Atomic Scientists, January 2025, https://www.tandfonline.com/doi/epdf/10.1080/00963402.2024.2441624?needAccess=true

15 "Strategic Weapons: Nuclear Weapons Targeting Process," Government Accountability Office, GAO/NSAID-91-319FS (September 1991), https://www.gao.gov/assets/nsiad-91-319fs.pdf.

16 This longstanding policy was most recently reaffirmed in the 2022 Nuclear Posture Review. U.S. Department of Defense, 2022 National Defense Strategy, p. 8.

17 Office of Secretary of Defense, "Policy Guidance for the Employment of Nuclear Weapons," The National Security Archive, 3 April 1974, p. 8, https://nsarchive.gwu.edu/document/20307-national-security-archive-doc-22-office.

18 "Strategic Weapons: Nuclear Weapons Targeting Process," Government Accountability Office, GAO/NSAID-91-319FS (September 1991), https://www.gao.gov/assets/nsiad-91-319fs.pdf.

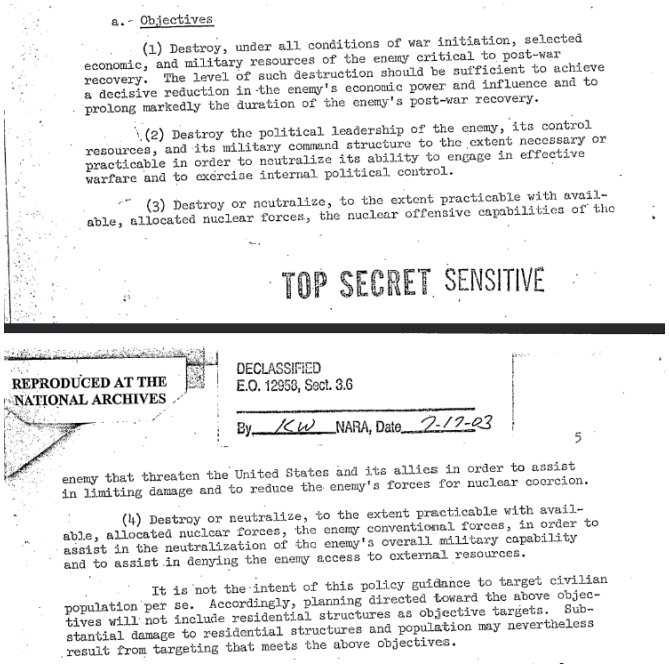
19 For an overview of the U.S. nuclear planning process and how warfare planning has changed since the Cold War, see: Hans M. Kristensen, Obama and the Nuclear War Plan, Federation of American Scientists Issue Brief, February 2010, https://fas.org/publication/warplan/

typically quite broad but can direct the military to develop certain plans or capabilities. The Biden administration's nuclear employment strategy from 2024, for example, required the military to integrate non-nuclear capabilities into nuclear planning to support the nuclear mission.[20] Some administrations have offered specific guidance encouraging or discouraging the development of individual weapon systems. The Obama administration's nuclear guidance, for example, directed the Department of Defense "to strengthen non-nuclear capabilities and reduce the role of nuclear weapons in deterring non-nuclear attacks," and to "pursu[e] up to a one-third reduction in deployed strategic nuclear weapons from the level established in the New START Treaty."[21]

Second, based on the presidential guidance, the Secretary of Defense issues the Pentagon's nuclear guidance. This document was previously known as the Policy Guidance for the Employment of Nuclear Weapons (NUWEP) but is now known as the Guidance for the Employment of the Force (GEF). The GEF translates the President's broad guidance into specific military objectives directed against individual adversaries (for example, the general relationships between certain classes of weapon and their intended targets), targeting objectives (the Government Accountability Office refers to this as "the 'why' for a particular type of attack"), and targeting constraints (including the requirements to limit collateral damage or to not strike particular types of facilities).

Although the details of the new GEF are unknown, one of its predecessors—the NUWEP-74—outlined facilities against which attacks should be directed but also where attacks should be withheld, such as against "the enemy's highest command structure" and "sensors and communication systems needed by the enemy leaders to discern the nature of U.S. attacks."[22] Withholding (in some cases) strikes against an enemy's command and control structure may seem counterintuitive, but was intended to allow the adversarial leadership to understand the objective of the U.S. attack and enable them to deescalate and order the termination of hostilities on terms acceptable to the United States. NUWEP-74 also called for the need to inflict "moderate damage on facilities comprising approximately 70% of each nation's war-supporting economic base."[23]

Third, the Joint Staff's Strategy, Plans and Policy Directorate uses the GEF to prepare the nuclear annex of the Joint Strategic Capabilities Plan (JSCP-N or Chairman Joint Chiefs of Staff Instruction CJCSI 3110.04B), which provides overall military guidance from the Chairman of the Joint Chiefs of Staff to their combatant commands. This annex (previously known as Annex C) assigns the required military forces to the combatant commands to implement the GEF, provides additional detail on major and small attack options, and directs when and why each attack option should be



a.- Objectives

(1) Destroy, under all conditions of war initiation, selected economic, and military resources of the enemy critical to post-war recovery. The level of such destruction should be sufficient to achieve a decisive reduction in the enemy's economic power and influence and to prolong markedly the duration of the enemy's post-war recovery.

(2) Destroy the political leadership of the enemy, its control resources, and its military command structure to the extent necessary or practicable in order to neutralize its ability to engage in effective warfare and to exercise internal political control.

(3) Destroy or neutralize, to the extent practicable with available, allocated nuclear forces, the nuclear offensive capabilities of the

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enemy that threaten the United States and its allies in order to assist in limiting damage and to reduce the enemy's forces for nuclear coercion.

(4) Destroy or neutralize, to the extent practicable with available, allocated nuclear forces, the enemy conventional forces, in order to assist in the neutralization of the enemy's overall military capability and to assist in denying the enemy access to external resources.

It is not the intent of this policy guidance to target civilian population per se. Accordingly, planning directed toward the above objectives will not include residential structures as objective targets. Substantial damage to residential structures and population may nevertheless result from targeting that meets the above objectives.

FIGURE 1. EXCERPT FROM THE NUWEP-74 LAYING OUT MAJOR AND SELECTED ATTACK OPTIONS, 10 APRIL 1974 (SOURCE: THE NATIONAL SECURITY ARCHIVE).

20 U.S. Department of Defense, Report on the Nuclear Employment Strategy of the United States, November 7, 2024, p. 2, https://media.defense.gov/2024/Nov/15/2003584623/-1/-1/1/REPORT-ON-THE-NUCLEAR-EMPLOYMENT-STRATEGY-OF-THE-UNITED-STATES.PDF

21 The White House, "FACT SHEET: Nuclear Weapons Employment Strategy of the United States," Office of the Press Secretary (19 June 2013), https://obamawhitehouse.archives.gov/the-press-office/2013/06/19/fact-sheet-nuclear-weapons-employment-strategy-united-states; Hans M. Kristensen, "New Nuclear Weapons Employment Guidance Puts Obama's Fingerprint on Nuclear Weapons Policy and Strategy," FAS Strategic Security Blog, 20 June 2013, https://fas.org/publication/nukeguidance/

22 Office of Secretary of Defense, "Policy Guidance for the Employment of Nuclear Weapons," p. 5.

23 Ibid, p. 18.

selected. JSCP-N was previously releasable in a redacted format and obtained under the Freedom of Information Act.[24] The document is no longer releasable.

Fourth, the JSCP-N and the other guidance documents are used by U.S. Strategic Command to develop the strategic nuclear war plan, currently known as Operations Plan (OPLAN) 8010-12 Strategic Deterrence and Force Employment. Unlike the Cold War strategic nuclear war plan—known as the Single Integrated Operational Plan (SIOP)—that was focused on the Soviet Union (with China as a side-chapter), OPLAN 8010-12 includes a "family" of strike plans with more flexible strike options directed against a wider range of adversaries: Russia, China, North Korea, and Iran.

Changes in Cold War and post-Cold War U.S. nuclear targeting

Throughout the early years of the Cold War, U.S. targeting strategy changed substantially as new technologies became available and as different military services vied for budgetary priority. In particular, rather than being driven strictly by deterrence requirements, the competing doctrines of "counterforce" and "countervalue" were largely shaped by the U.S. Air Force and Navy attempting to incorporate nascent ballistic missile systems into their emerging nuclear targeting doctrines. The Air Force's early missiles, for example, were explicitly intended for destroying cities, and were intended to be used in conjunction with heavy bombers to deliver a "Sunday Punch" to the Soviet Union.[25] In contrast, having previously characterized the Air Force's targeting of urban-industrial centers as "immoral" and "unmilitary," the Navy's ballistic missile proponents initially conceived of its Fleet Ballistic Missile as a means of solely destroying "targets of naval opportunity" like ports and submarine pens.[26]

Ultimately, the Navy's more limited "finite deterrence" targeting strategy was explicitly rejected by Secretary of Defense McNamara in 1961 in favor of the Air Force's counterforce doctrine, which significantly expanded the United States' target list and enabled the establishment of "overkill" levels of U.S. nuclear forces throughout the 1960s.[27] The first SIOP (Single Integrated Operations Plan) from 1962, which was an attempt to coordinate and streamline competing Air Force and Navy targeting strategies into one plan, included retaliatory and preemptive strike options against the Soviet Union, China, and their allies in Eastern Europe and Asia. Declassified documents subsequently revealed that targets would have included nuclear forces, missile storage, airfields, government and military control centers, and at least 130 cities in these states.[28] A 1961 Joint Chiefs of Staff report on "Berlin Contingency Planning"—declassified in 2011—revealed estimated casualties to be in the hundreds of millions in the Soviet Union and China if the first SIOP were to be executed.[29] Poland was also expected to endure mass casualties since it hosted Soviet air defense installations.

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24 For an overview of the FY1996 JSCP-N, see: Hans M. Kristensen, "The Joint Strategic Capabilities Plan (JSCP) Nuclear Supplement," nukestrat.com, June 16, 2005, http://www.nukestrat.com/us/jcs/jscp.htm. The redacted version released under FOIA is available at http://www.nukestrat.com/us/jcs/98-53h_AnnexC96.pdf

25 B.W. Augenstein, A Revised Development Program for Ballistic Missiles of Intercontinental Range: Special Memorandum No. 21 (Santa Monica, California: U.S. Air Force Project RAND, 8 February 1954), p. 11.

26 Donald MacKenzie and Graham Spinardi, "The Shaping of Nuclear Weapon System Technology: U.S. Fleet Ballistic Missile Guidance and Navigation, Part I: From Polaris to Poseidon," Social Studies of Science 18 (1988), DOI: 10.1177/030631288018003002, p. 437.

27 "War and Peace in the Nuclear Age; The Education of Robert McNamara; Interview with William Kaufmann, 28 1986," GBH Archives (5 March 1986), https://openvault.wgbh.org/catalog/V_D1FA1FDE1AF4474A8C40165A496EEAEB; Memorandum to President Kennedy from Secretary of Defense Robert S. McNamara, "Recommended Long Range Nuclear Delivery Forces, 1963-67," Top Secret, excised copy, accessed via William Burr, ed. (23 September 1961) ; William Burr, ed., "How Much is Enough?": The U.S. Navy and "Finite Deterrence," Electronic Briefing Book No. 275, The National Security Archive (1 May 2009), https://nsarchive2.gwu.edu/nukevault/ebb275/.

28 William Burr, ed., "U.S. Nuclear War Plans A 'Hazard to Ourselves as Well as Our Enemy,'" Electronic Briefing Book No. 130, The National Security Archive, (13 July 2004), https://nsarchive2.gwu.edu/NSAEBB/NSAEBB130/press.htm.

29 William Burr, "U.S. War Plans Would Kill an Estimated 108 Million Soviets, 104 Million Chinese, and 2.6 Million Poles: More Evidence on SIOP-62 and the Origins of Overkill," Unredacted: The National Security Archive Blog, 8 November 2011, https://unredacted.com/2011/11/08/u-s-war-plans-would-kill-an-estimated-108-million-soviets-104-million-chinese-and-2-3-million-poles-more-evidence-on-siop-62-and-the-origins-of-overkill/.

Between 1962 and 2003, the SIOP was updated on numerous occasions to account for changes in adversarial developments and technological advances, but the overall plan remained largely the same with regards to both objectives and categories of military targets.[30] The strategic war plan was accompanied by a range of regional plans maintained by the regional military commands.

In addition to deterring and defeating adversaries, targeting strategy has also been used to incentivize countries to not develop nuclear weapons. In 1978, for example, Secretary of State Cyrus Vance said to the UN Special Session on Disarmament that "The United States will not use nuclear weapons against any non-nuclear weapons state party to the NPT [...] except in the case of an attack on the U.S., its territories or armed forces, or its allies, by such a state allied to a nuclear weapons state, or associated with a nuclear weapons state in carrying out or sustaining the attack."[31] The fine print of this "negative security assurance" was that Warsaw Pact members and North Korea would not be exempt from nuclear attack if they were allied with the Soviet Union or China. In 1995, the United States slightly modified this policy, which made an exception only for an attack "carried out or sustained by such a non-nuclear weapon state in association or alliance with a nuclear-weapon state."[32] Finally, in 2010, the Obama administration removed the alliance exemption in an attempt to strengthen the negative security assurance and increase the incentive for non-nuclear countries to join the NPT, by declaring "that the United States will not use or threaten to use nuclear weapons against non-nuclear weapons states that are party to the NPT and in compliance with their nuclear non-proliferation obligations."[33]

The Nuclear Posture Reviews that have been published by each administration since 1994 do not direct specific nuclear targeting guidelines; instead, they describe overall nuclear policy and force structure planning. They do describe general conditions in which a nuclear weapon might be used—including only "in extreme circumstances"—and note that the strategy and declaratory policy must "maintain a very high bar for nuclear employment" and that the "fundamental role" is to deter nuclear attack, although "there remains a narrow range of contingencies" where nuclear weapons could also be used in response to non-nuclear attacks.[34]

The end of the Cold War had an immense impact on U.S. nuclear target planning. Thousands of targets fell away when the Warsaw Pact dissolved in 1989, the Soviet Union collapsed in 1991 and its military crumbled, and arms control agreements and unilateral decisions slashed nuclear programs and retired nuclear weapons by the thousands. The SIOP was not designed to absorb such significant and frequent changes so quickly, so USSTRATCOM had to change the nuclear planning system and transformed the SIOP into a "living SIOP" that could be updated faster.[35]

With the urgent Soviet threat fading, the proliferation of weapons of mass destruction (WMD) and the attacks on the Pentagon and World Trade Center on September 11, 2001, sparked strategic shifts within U.S. nuclear planning. Language in the nuclear planning documents during this time period broadened from deterring "nuclear" adversaries to deterring "regional states" armed with all types of WMD. Regional adversaries had been treated as

30 For an overview of SIOP plan updates between 1992 and 2009, see: Hans Kristensen, "Obama and the Nuclear War Plan," Federation of American Scientists, February 2010, Figure 4, https://programs.fas.org/ssp/nukes/publications1/WarPlanIssueBrief2010.pdf

31 Leon V. Sigal, Disarming Strangers: Nuclear Diplomacy with North Korea, Princeton University Press: Chichester, West Sussex (1998), p. 36.

32 Sigal, Disarming Strangers, p. 36.

33 U.S. Department of Defense, Nuclear Posture Review Report, April 2010, p. viii, https://dod.defense.gov/Portals/1/features/defenseReviews/NPR/2010_Nuclear_Posture_Review_Report.pdf

34 U.S. Department of Defense, "2022 Nuclear Posture Review" (in the 2022 National Defense Strategy of the United States), pp. 3, 9, https://apps.dtic.mil/sti/trecms/pdf/AD1183514.pdf

35 Hans Kristensen, The Matrix of Deterrence: U.S. Strategic Command Force Structure Studies, The Nautilus Institute, May 2001, https://www.nukestrat.com/pubs/matrix.pdf; George Lee Butler, General (Retired), U.S. Air Force, Uncommon Cause Volume II: A Live At Odds With Conventional – The Formative Years (Parker, Colorado: Outskirts Press, 2016), https://outskirtspress.com/webPage/isbn/9781478751731

targets before, but largely due to their role as allies of the Soviet Union; now they became strategic targets in their own right.[36]

Even the "living SIOP" proved too inflexible for what was needed, so in 2003 the last SIOP (called SIOP-03 Change 3) was officially replaced by Operations Plan (OPLAN) 8044 to facilitate a shift from a single, large, integrated nuclear plan to a family of plans applicable in a wider range of scenarios against a broader range of adversaries. In addition to strike plans against Russia and China, the new plan included a series of executable scenario-based strike options against regional WMD states, including North Korea, Libya, Iran and Syria.[37] The George W. Bush administration even put into effect a separate nuclear preemption strike plan known as Contingency Plan 8022 (CONPLAN 8022) that was briefly made fully operational in 2004, until it was canceled and the options absorbed into the new broader plan known as OPLAN 8010.[38]

OPLAN 8044 was a transition plan from the SIOP into a truly integrated operations plan known as OPLAN 8010, which first entered into effect in February 2008. OPLAN 8010 was a broad plan intended to use all elements of national power to influence adversaries. The nuclear weapons employment portion of the plan was called OPLAN 8010-08 Global Deterrence and Strike. Cold War-type "Major Attack Options" seem to have been removed from this iteration of the strategic nuclear war plan, although it still includes large nuclear strike options.

The current plan, known as OPLAN 8010-12 Strategic Deterrence and Force Employment, is thought to be directed against four potential adversaries: Russia, China, North Korea, and Iran.[39] The plan entered into effect during the Obama administration in July 2012 and has been revised several times since.[40]

The preamble to OPLAN 8010-12 says that the "goal of the application of force is to attack the appropriate enemy 'system' to eliminate the enemy's capability to continue to fight and influence key decision makers to cease hostilities. As a result, some adversary components may remain untouched but, because of the resulting attack, cannot function as part of a cohesive whole. This approach to strategy requires a thorough understanding of specific characteristics of the enemy system; in turn, this understanding generates a series of executable actions intended to produce specific and discrete effects on key components of the adversary's vital systems."[41] This targeting approach, which is sometimes called "nodal targeting" because it is focused on inflicting effects on the important nodes of the target set rather than necessarily destroying every target, is an important reason for why it has been possible for the United States to significantly reduce its number of deployed warheads.

The Trump administration's 2018 Nuclear Posture Review refocused on "great power competition" with Russia and China and recommended adding two nuclear "supplements" to "expand the range of credible U.S. options for responding to nuclear or non-nuclear strategic attack:" A low-yield warhead for the Trident ballistic missile

36 Hans Kristensen, "Targets of Opportunity: How Nuclear Planners Found New Targets For Old Weapons," Bulletin of the Atomic Scientists, September 1997, pp. 22-28, https://programs.fas.org/ssp/nukes/publications1/ChangingTargets1.pdf; Hans Kristensen, "Counter-Proliferation and US Nuclear Strategy," in David S. McDonough, ed., US Nuclear Strategy and the Implications for Global Security (Halifax, Nova Scotia: Dalhouse University, 2009), pp. 13-34, https://programs.fas.org/ssp/nukes/publications1/nucstrat09.pdf

37 Hans Kristensen, "World Nuclear Arsenals, Modernization Programs, and Employment Doctrines and Policies," Federation of American Scientists, 12 November 2020, https://gsinstitute.org/wp-content/uploads/2020/12/PPT-World-Nukes-Hans-Kristensen.pdf; Hans Kristensen, "U.S. Changes Name of Nuclear War Plan," Nuclear Information Project, 21 December 2004, https://www.nukestrat.com/us/stratcom/siopname.htm.

38 Hans Kristensen, "STRATCOM Cancels Controversial Preemption Strike Plan," FAS Strategic Security Blog, 25 July 2008, https://fas.org/publication/globalstrike/; Hans Kristensen, Global Strike: A Chronology of the Pentagon's New Offensive Strike Plan, Federation of American Scientists, 15 March 2006, https://www.nukestrat.com/pubs/GlobalStrikeReport.pdf

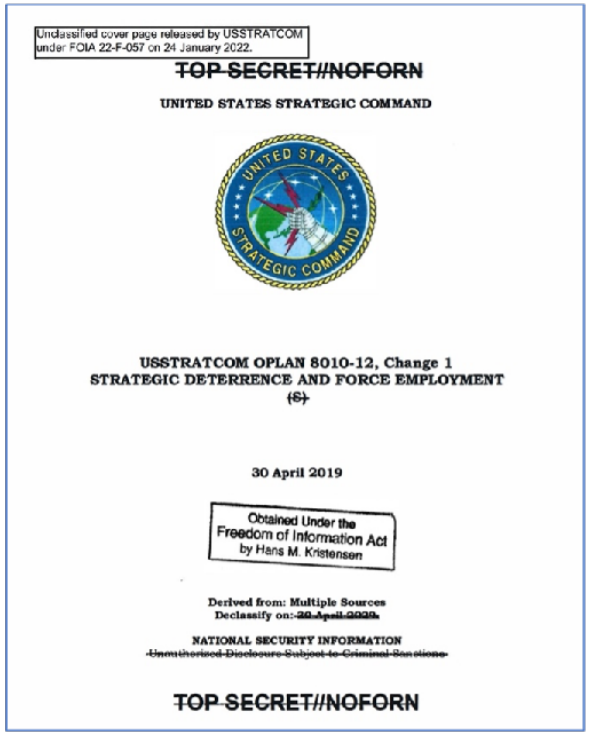
39 Hans Kristensen, "Obama and the Nuclear War Plan," Federation of American Scientists, February 2010, https://programs.fas.org/ssp/nukes/publications1/WarPlanIssueBrief2010.pdf; Hans Kristensen and Matt Korda, United States Nuclear Weapons, 2023, Bulletin of the Atomic Scientists 79: 1 (15 January 2023), p. 35. DOI: 10.1080/00963402.2022.2156686

40 Hans Kristensen, "U.S. Nuclear War Plan Updated Amidst Nuclear Policy Review," Strategic Security Blog, 4 April 2013, https://fas.org/publication/oplan8010-12/.

41 United States Strategic Command, USSTRATCOM OPLAN 8010-12 Strategic Deterrence and Force Employment, 30 July 2012, p. xix. Partially declassified and released under the Freedom of Information Act.

submarines to "ensure a prompt response option that is able to penetrate adversary defenses" and a nuclear sea-launched cruise missile (SLCM-N) to "provide a needed non-strategic regional presence, an assured response apability."[42] The Trident warhead (W76-2) was first deployed in late-2019.[43]

The 2018 NPR and planning preceding it triggered an update to OPLAN 8010-12 in April 2019.[44] The updated plan reportedly refocuses emphasis on "great power competition" with Russia and China and fully incorporates non-nuclear weapons as an equal player alongside nuclear weapons. The non-nuclear options include things like cyber warfare, including cyberattacks on the basic workings of society like electrical power or communications.[45] The update to the plan coincided with updated presidential nuclear weapons employment guidance, which was also issued in April and was later summarized by the unclassified Report on the Nuclear Weapons Employment Strategy of the United States, submitted by Secretary of Defense to Congress in 2020. The report reiterated the requirement to maintain flexible strike options, deploy new nuclear weapons for limited scenarios, but without "purposely threatening civilian populations" or "intentionally target[ing] civilian populations." It rejected both no-first-use and sole-purpose policies.[46]


Unclassified cover page released by USSTRATCOM under FOIA 22-F-057 on 24 January 2022.

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UNITED STATES STRATEGIC COMMAND

USSTRATCOM OPLAN 8010-12, Change 1
STRATEGIC DETERRENCE AND FORCE EMPLOYMENT
~~(S)~~

30 April 2019

Obtained Under the Freedom of Information Act by Hans M. Kristensen

Derived from: Multiple Sources
Declassify on: ~~30 April 2039~~

NATIONAL SECURITY INFORMATION
~~Unauthorized Disclosure Subject to Criminal Sanctions~~

~~TOP SECRET//NOFORN~~

The Biden administration's 2022 National Defense Strategy and Nuclear Posture Review reaffirmed the importance of flexibility, integration, and tailored plans that were prioritized in prior reviews. The NPR also rejected no-first-use and sole-purpose policies for now, but "retain[ed] the goal of moving toward a sole purpose declaration" in the future in consultation with Allies. It concluded that there may be some opportunity to reduce the role of nuclear weapons against China and Russia "in circumstances where the threat of a nuclear response may not be credible and where suitable non-nuclear options may exist or may be developed." The review did not explicitly recommend new nuclear weapons and canceled the SLCM-N,[47] but it likely endorsed the new B61-13 that the administration announced one year later in October 2023 to provide "additional options against certain harder and large-area military targets."[48]

The updated nuclear weapons employment strategy guidance that flowed from these changes was published by the Biden

42 U.S. Department of Defense, Nuclear Posture Review, 2018, pp. xi-xiii, https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF

43 Hans M. Kristensen and William M. Arkin, "US Deploys New Low-Yield Nuclear Submarine Warhead," FAS Strategic Security Blog, January 29, 2020, https://fas.org/publication/w76-2deployed/

44 U.S. Strategic Command, USSTRATCOM OPLAN 8010-12, Change 1: Strategic Deterrence and Force Employment, 30 April 2019 (front page). Declassified and obtained under the Freedom of Information Act by Hans M. Kristensen.

45 William M. Arkin and Marc Ambinder, "Exclusive: Ukraine Crisis Could Lead to Nuclear War under New Strategy," Newsweek, 4 February 2022, https://www.newsweek.com/exclusive-ukraine-crisis-could-lead-nuclear-war-under-new-strategy-1676022; William M. Arkin and Marc Ambinder. "Nuclear Weapons and the Ukraine Crisis," Secrets Machine, 28 January 2022, https://www.secretsmachine.com/p/stratcoms-global-lightning-nuclear.

46 U.S. Department of Defense, "Report on the Nuclear Employment Strategy of the United States – 2020,"Executive Services Directorate, pp. 1, 6, 8, https://www.esd.whs.mil/Portals/54/Documents/FOID/Reading%20Room/NCB/21-F-0591_2020_Report_of_the_Nuclear_Employement_Strategy_of_the_United_States.pdf.

47 U.S. Department of Defense, "2022 National Defense Strategy of the United States of America," 27 October 2022, pp. 3, 9, 11, 20, https://media.defense.gov/2022/Oct/27/2003103845/-1/-1/1/2022-NATIONAL-DEFENSE-STRATEGY-NPR-MDR.PDF.

48 Hans Kristensen and Matt Korda, Biden Administration Decides Build A New Nuclear Bomb To Get Rid Of An Old Bomb," FAS Strategic Security Blog, 27 October 2023, https://fas.org/publication/biden-administration-to-build-a-new-nuclear-bomb/

administration in 2024. The new guidance directed the military to integrate non-nuclear forces into nuclear plans, and also to update existing plans because of "the growth, modernization, and increasing diversity of potential adversaries' nuclear arsenals," stressing the importance of "managing escalation" in regional attacks.[49] Contrary to news reports, the guidance did not shift nuclear planning focus to China despite its nuclear buildup, a decision it appears to leave to the Trump administration's anticipated guidance.[50]

Russia

Details about Russia's nuclear targeting strategy is more limited. What exists in the public domain comes from disclosed or declassified Cold War-era documents from the intelligence communities of the United States and its allies, updates to public doctrine documents, statements by Russian officials, and expert analysis. They indicate that Russian nuclear strategy includes a wide range of strike options against military targets and likely also cities ranging from limited options with tactical nuclear weapons up to large-scale strategic attacks. Although Russian nuclear forces have been modernized over the past three decades and several new systems have been added, basic Russian nuclear targeting has probably not changed substantially.[51] Public debate and perceptions about Russia's strategy, however, have certainly changed.[52]

During the Cold War, the Soviet Union developed a massive nuclear arsenal and pursued a nuclear arms race with the United States and NATO. This included strategic strike plans against the United States, France, and Britain, as well as regional plans to support military attacks against Western Europe. The strategy focused primarily on counterforce targets, including missile launch sites, nuclear weapons production and storage facilities, systems for control and support of strategic forces, as well as military-industrial facilities and political/administrative centers.[53] While such targets fall under the counterforce category, some would require the targeting of major cities, as much of the United States' critical military and national infrastructure lies near large civilian populations. The U.S. intelligence community, therefore, assessed the Soviet nuclear targeting strategy to contain both counterforce and countervalue targets.[54]

According to a 1979 report for the Defense Nuclear Agency on "Soviet Strategic Nuclear Targeting," Soviet sources indicated that the preceding target categories would be attacked simultaneously.[55] Soviet nuclear targeting strategy included five to six theaters of operations—three across NATO countries, one or two in Central Asia and

49 U.S. Department of Defense, Report on the Nuclear Employment Strategy of the United States, November 7, 2024, p. 2, https://media.defense.gov/2024/Nov/15/2003584623/-1/-1/1/REPORT-ON-THE-NUCLEAR-EMPLOYMENT-STRATEGY-OF-THE-UNITED-STATES.PDF

50 Adam Mount and Hans Kristensen, "Biden Nuclear Weapons Employment Guidance Leaves Nuclear Decisions to Trump," FAS Strategic Security Blog, December 5, 2024, https://fas.org/publication/biden-nuclear-weapons-employment-guidance-leaves-nuclear-decisions-to-trump/

51 For analysis of Russian nuclear strategy, see: Kristin Ven Bruusgaard, "Russian nuclear strategy and conventional inferiority," Journal of Strategic Studies, Vol. 44, No. 1, pp. 3-35, October 2021, https://www.tandfonline.com/doi/epdf/10.1080/01402390.2020.1818070?needAccess=true

Michael Kofman and Anya L. Fink, "Escalation Management and Nuclear Employment in Russian Military Strategy," War on the Rocks, June 23, 2020, https://warontherocks.com/2020/06/escalation-management-and-nuclear-employment-in-russian-military-strategy/; Michael Kofman, Anya Fink, and Jeffrey Edmonds, Russian Strategy for Escalation Management: Evolution of Key Concepts, Center for Naval Analysis, April 2020, https://www.cna.org/reports/2020/04/DRM-2019-U-022455-1Rev.pdf

52 For an overview of the Russian nuclear posture, see: Hans Kristensen, et al., "FAS Nuclear Notebook: Russian nuclear weapons 2025," Bulletin of the Atomic Scientists, March 2025, https://www.tandfonline.com/doi/epdf/10.1080/00963402.2025.2494386?needAccess=true

53 Directorate of Intelligence, "Soviet Nuclear Doctrine: Concepts of Intercontinental and Theater War," Central Intelligence Agency, June 1973, pp. 7-8, https://www.cia.gov/readingroom/docs/DOC_0000268107.pdf.

54 Ibid, p. 18.

55 William T. Lee, "Soviet Strategic Nuclear Targeting," Center for Planning and Research, January 31, 1979, p. 14, https://apps.dtic.mil/sti/pdfs/ADA189122.pdf.

the Far East, and the "transoceanic" theater including the continental United States and U.S. bases in the Pacific—in which Soviet strategic nuclear weapons would attack fixed targets.[56]

For theaters such as Central Europe, targets for Soviet nuclear weapons remained largely the same, with the addition of tactical targets like troop units and forward military targets.[57] Soviet nuclear planners carefully considered targeting strategies for NATO and other European targets to ensure the USSR's ability to invade and establish a new politico-economic order following nuclear strikes and to minimize fallout in Eastern Europe and the USSR. Soviet targeting, therefore, was planned to lay down the minimal megatonnage necessary to achieve optimal damage and avoid overkill.[58]

The Soviet Union's priority objective for theater nuclear targeting was to destroy NATO's land-based nuclear delivery capabilities, as well as NATO command, control, and communications and air defense systems.[59] Soviet targeting strategy for Central Europe relied on coordinated strategic and theater strikes, with forward targets assigned to theater nuclear forces and the remainder of Central Europe assigned to strategic nuclear forces. Tactical targets included surface-to-surface missile (SSM) units, nuclear storage sites, airfields, command and control centers, surface-to-air missile (SAM) units, and ground combat forces. Soviet sources also included mention of targeting bridges, dams, and other terrain features to restrict enemy movement.[60] U.S. intelligence also assessed that the Soviet Union planned to use air burst nuclear strikes—as opposed to ground burst strikes—in a likely attempt to limit radioactive contamination so that Soviet troops could advance through the targeted area shortly after a strike.[61]

The plans were intended to deter the West or destroy its military and threaten leadership. Soviet military leaders, however, were skeptical that nuclear use could be limited and that escalation to the strategic level could be prevented, despite an emphasis on developing theater nuclear strike plans and limited strike options.[62] The Soviet Union preferred conventional war plans for the European theater, and U.S. experts correspondingly assessed that Soviet first use of nuclear weapons in Europe was unlikely.[63]

The overall objective of Russian nuclear targeting strategy today probably follows the same broad outline as during the Cold War, albeit with significant changes in numerical and geographic factors. It is unclear whether or to what extent the concern about the ability to control escalation persists in Russian leadership today. Frequent warnings and threats made by Russian officials—including President Vladimir Putin—before and during Russia's ongoing war in Ukraine (and discussions by high-level advisors of potentially using tactical nuclear weapons[64]) have created an impression that Russian leaders may be less constrained about early use of nuclear weapons. For much of the previous decade, influential analysts responsible for formulating U.S. policy warned that Russia might use nuclear

56 Ibid, p. 47.
57 Ibid, p. 14.
58 Ibid, p. 49.
59 Directorate of Intelligence, "Soviet Planning for Front Nuclear Operations in Central Europe," Central Intelligence Agency, June 1983, p. iii, https://www.archives.gov/files/declassification/iscap/pdf/2012-090-doc1.pdf.
60 Ibid, p. 9.
61 Ibid, p. 17.
62 John G. Hines, Ellis M. Mishulovich, John F. Shull, "Soviet Intentions 1965-1985: Evolution of Soviet Strategy," BDM Federal, Inc., September 22, 1995, p. 39, https://russianforces.org/files/Soviet%20Intentions%201965-1985%20Vol.%201.pdf.
63 Ibid, p. 40.
64 Karaganov, S. "A Difficult But Necessary Decision," Russia In Global Affairs, 13 June 2023, https://eng.globalaffairs.ru/articles/a-difficult-but-necessary-decision/; Reuters, "Kadyrov called for the use of tactical nuclear weapons in Ukraine," Voice of America, October 1, 2022. https://www.golosameriki.com/a/chechen-leader-kadyrov-russia-should-use-low-yield-nuclear-weapon-after-new-defeat-in-ukraine/6771652.html.

weapons early in a conflict in order to preserve a Russian *fait accompli* and de-escalate the conflict on favorable terms.[65]

There is little public evidence that Russia has become more willing to use nuclear weapons. Despite warnings of this possibility, nuclear escalation has not happened in Ukraine even though Russia has been stuck in the war for three and a half years and at one point seemed to be losing. It is difficult to see what Russia would gain from using nuclear weapons in Ukraine or in any failed conventional aggression where the survival of the Russian state is not at risk. Moreover, Russian officials issued regular nuclear threats against NATO countries even before the war in Ukraine. Still, a lack of Russian nuclear escalation to-date should not be taken as evidence that Putin will not choose to use nuclear weapons in Ukraine—particularly if Russia was losing the war and pushed out of the eastern regions that the Kremlin has annexed and declared to be Russian territory.

Any Russian decision to use nuclear weapons would have to take into consideration the response from the West, particularly whether this could escalate into a wider conflict between Russia and NATO. In such a scenario, the role of nuclear signaling would likely increase, but so would the risks to Russia. Russia has maintained a policy since 1993 that all U.S. allies are legitimate targets for Russian nuclear weapons, including all NATO countries. Naturally, those that possess their own nuclear weapons and/or host U.S. nuclear weapons are more likely targets for Russian nuclear weapons.[66]

Formal updates to Russia's military doctrine and the role that nuclear weapons play in it have been issued several times since the 1990s. These updates, which naturally generate a lot of interest and debate in the West, often appear to react to—or even echo—debates about updates to U.S. nuclear policy. This includes Western debates over possible preemption after 2001, the role of advanced conventional weapons, and the effect of missile defenses. The deterioration of relations after Russia's invasion and annexation of Crimea in 2014 triggered updates to military doctrine in 2015 that were partly viewed as a nuclear signal, but the changes were minor. Putin stated in 2018 that Russia's nuclear doctrine "does not provide for a preemptive strike… [it] is based on a reciprocal counter strike."[67]

A 2020 nuclear deterrence decree signed by Russian President Vladimir Putin defined Russia's nuclear deterrence strategy as defensive and reserves nuclear use for situations when Russia is attacked—including with conventional weapons. The document said that Russia would consider nuclear use "when the existence of the state is under threat" by detection of incoming attack, WMD attacks, and large-scale conventional strikes. Use could happen in the course of an ongoing military conflict and would be expected as Russia runs out of conventional military options. A briefing by Russian military strategy expert Kristin Ven Bruusgaard listed potential nuclear military and civilian targets as follows:[68]

- Sea-based threats to Russian retaliatory capability (i.e. carrier groups , main battle ships);
- Land-based nodes in adversary operations (i.e. communication, early warning, command and control, defensive systems, offensive capabilities);
- Critically important targets to sustain state functions (infrastructure, economic, political targets);
- Counter-value targets (cities)

65 For examples of these claims, see: Frank Miller, Keynote Speech at 2015 USSTRATCOM Deterrence Symposium, July 29, 2015, https://www.stratcom.mil/speeches/2015/137/Keynote_2015_USSTRATCOM_Deterrence_Symposium/; U.S. Department of Defense, "Nuclear Posture Review," 2 February 2018, https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF.

66 Nikolai Sokov, "Russia Clarifies Its Nuclear Deterrence Policy," Vienna Center for Disarmament and Nonproliferation, June 3, 2020, https://vcdnp.org/russia-clarifies-its-nuclear-deterrence-policy/.

67 Russian Federation, "Meeting of the Valdai International Discussion Club," Transcript, October 18, 2018, http://en.kremlin.ru/events/president/news/58848.

68 Kristin Ven Bruusgaard, University of Oslo, Russian Nuclear Doctrine and Nuclear Use, briefing to Oslo Nuclear Project, 2021, https://www.nks.org/download/NUCSEM_presentation_files/07_-_bruusgaard_-_nucsem_-_russian_nuclear_doctrine_and_use.pdf

The briefing concluded that Russian nuclear operations are intended to eliminate threats, not to destroy societies. If other tools fail, Russia could consider use nuclear use to defend the continuity of the state for escalation management, warfighting, and strategic retaliation.

The many updates to Russian public nuclear documents give the impression that they have been, at least in part, intended to influence the public debate more than necessarily reflect actual changes to Russian nuclear targeting plans. The 2024 update seemed intended to communicate opposition to increased Western support of Ukraine with weapons that could hit targets deep inside Russia. The document included several changes that in the public debate have been interpreted as expanding the role of Russian nuclear weapons and lowering the threshold for potential use.[69] The extent to which the document resulted in changes to Russia nuclear war plans is unknown.

China

China is the fastest-growing and among the least transparent of the nuclear-armed states.[70] Despite its growing nuclear arsenal, the Chinese government has provided almost no explanation about the purpose and strategic implications of its much larger force, and so China's thinking about nuclear targeting is difficult to interpret.

Throughout the Cold War and in the decades immediately after, China's nuclear force was relatively small compared to other nuclear-armed states, its missiles were relatively inaccurate, and it relied on a nuclear strategy of "self-defense."[71] This doctrine flowed from longstanding Chinese strategic thinking that nuclear use was both unethical and unproductive in the context of military conflict.[72] Rather, China's reasoning for developing nuclear weapons was primarily to prevent military blackmail or coercion, and thus China's small arsenal would be limited to solely targeting adversaries' cities in retaliation for nuclear first use.

Over the past decade, however, China's nuclear arsenal has undergone dramatic changes. Both the quantity and quality of China's weapons have increased significantly and now include an ICBM force that that has grown by more than an order of magnitude, an enhanced regional nuclear force, and an emerging nuclear bomber force. The U.S. Department of Defense anticipates China will "probably" to equip some of its regional ballistic missiles with "lower-yield" warheads to reduce collateral damage from an attack, "although they have not defined specific nuclear yield values."[73] This line of thinking very much follows the debate in the United States about the need for more regional low-yield weapons.

Despite the significant changes to China's arsenal, the Chinese government insists that its nuclear doctrine remains consistent with its longstanding policies of no-first-use, self-defense, and keeping its nuclear forces "at the minimum level required for national security."[74] The disconnect between the significant increase of the nuclear

69 Foreign Ministry of the Russian Federation, Fundamentals of State Policy of the Russian Federation on Nuclear Deterrence, December 19, 2024, https://www.mid.ru/en/foreign_policy/international_safety/1434131/

70 For an overview of the Chinese nuclear posture, see: Hans Kristensen, et al., "FAS Nuclear Notebook: Chinese nuclear weapons 2025," Bulletin of the Atomic Scientists, May 2025, https://www.tandfonline.com/doi/epdf/10.1080/00963402.2025.2467011?needAccess=true

71 People's Republic of China, "China's National Defense in 2006," Information Office of the State Council, December 2006, p. 10, https://www.andrewerickson.com/wp-content/uploads/2019/07/China-Defense-White-Paper_2006_English-Chinese_Annotated.pdf.

72 Liu Chong, "The Relationship Between Nuclear Weapons and Conventional Military Conflicts," in Understanding Chinese Nuclear Thinking, ed. Li Bin and Tong Zhao (Carnegie Endowment for International Peace: 2016), p. 153, https://carnegieendowment.org/files/ChineseNuclearThinking_Final.pdf.

73 U.S. Department of Defense, "Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2024," Office of the Secretary of Defense, December 18, 2024, p. 110, https://media.defense.gov/2024/Dec/18/2003615520/-1/-1/0/MILITARY-AND-SECURITY-DEVELOPMENTS-INVOLVING-THE-PEOPLES-REPUBLIC-OF-CHINA-2024.PDF.

74 People's Republic of China, "China's Defensive National Defense Policy in the New Era," Ministry of National Defense, no date but probably February 2023, http://eng.mod.gov.cn/xb/DefensePolicy/index.html.

arsenal and the unchanged public nuclear doctrine presents a challenge for both the Chinese government's assurances and for other countries trying to understand the reasons for the buildup and China's intentions.

For example, how can an ICBM force of 350 launchers constitute the minimum level now when 18 silos constituted a minimum level just a decade ago? Likewise, how can a nuclear warhead stockpile of more than 600 warheads now and perhaps 1,000 warheads five years from now constitute the minimum level when just over 200 warheads constituted the minimum level just a decade ago? Clearly something has changed.

When other countries significantly increase their nuclear arsenals, it normally happens because they are changing targeting plans. An increase of the Chinese ICBM force from 100 to 300 launchers in five years means China can potentially destroy three times as many targets, and potentially even more if some of China's ICBMs are armed with multiple warheads. Likewise, since China is adding bombers to its nuclear arsenal, what are the additional targets those bombers are intended to target? The U.S. military is already interpreting the buildup as an increase in targeting to inflict more damage:

> *"The PLA's expanding nuclear force will enable it to target more U.S. cities, military facilities, and leadership sites than ever before in a potential a nuclear conflict. While PRC leaders have historically judged that being able to inflict even limited damage during a nuclear counterstrike was sufficient for deterrence—an "assured retaliation" capability—the PRC's force modernization suggests that it seeks to have the ability to inflict far greater levels of overwhelming damage to an adversary in a nuclear exchange as well as engage in multiple rounds of counterstrike, including through more discriminate forms of nuclear employment, such as with lower-yield weapons."*[75]

Whatever the targeting intentions are behind China's nuclear buildup, it is increasingly challenging to reconcile its traditional focus on limited countervalue strikes with its fielding of greater numbers of missiles with capabilities that seem suited for counterforce targeting. It is, of course, possible that China's leadership simply sees these enhancements as necessary to safeguard the continued survivability and credibility of its (still) smaller arsenal in the face of U.S. improvements to conventional counterforce, missile defenses, and intelligence, surveillance, and reconnaissance capabilities. In the long-term, Chinese planners obviously also have to consider the continued growth and development of Russia's and India's nuclear forces. On the other hand, it is possible that China's force expansion could be driven by new targeting requirements that include counterforce or counter-military targeting, particularly in the context of a U.S.-China conflict over Taiwan. There may be room in China's doctrine for both possibilities to exist simultaneously; however, this remains one of many challenges to understanding China's nuclear intentions.

United Kingdom

The United Kingdom has historically been—and continues to be—relatively opaque about its nuclear targeting policies.[76] Its latest policy documents largely echo the country's Cold War-era line that "We are deliberately ambiguous about precisely when, how, and at what scale we would use our weapons."[77] Despite its stated preference for ambiguity, which has increased in recent years, historians and analysts have been able to draw

75 U.S. Department of Defense, "Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2024," Office of the Secretary of Defense, December 18, 2024, p. 102, https://media.defense.gov/2024/Dec/18/2003615520/-1/-1/0/MILITARY-AND-SECURITY-DEVELOPMENTS-INVOLVING-THE-PEOPLES-REPUBLIC-OF-CHINA-2024.PDF.

76 For an overview of the United Kingdom nuclear posture, see: Hans Kristensen, et al., FAS Nuclear Notebook: United Kingdom nuclear weapons 2024, Bulletin of the Atomic Scientists, November 2024, https://www.tandfonline.com/doi/epdf/10.1080/00963402.2024.2420550?needAccess=true

77 United Kingdom, "The UK's nuclear deterrent: what you need to know," Ministry of Defence, March 16, 2023, https://www.gov.uk/government/publications/uk-nuclear-deterrence-factsheet/uk-nuclear-deterrence-what-you-need-to-know.

conclusions about the United Kingdom's nuclear targeting policy during the Cold War, which offers potential insight into its current policies.[78]

British policymakers initially prioritized the importance of damage equivalence in nuclear targeting against cities. As Prime Minister Clement Attlee stated in 1945, "The answer to an atomic bomb on London is an atomic bomb on another great city."[79] Despite these initial views, however, the significantly larger Soviet arsenal and the United Kingdom's vulnerability to nuclear strikes—coupled with its occasionally tenuous relationship with the United States—changed the calculus towards an emphasis on counterforce targeting. The push to focus targeting on adversarial military forces deepened in the late-1950s, when the United Kingdom and the United States agreed to coordinate their nuclear targeting strategies, which included a mixture of military and civilian targets.[80]

In the initial Cold War years, Britain's nuclear deterrent was focused on long-range bombers. But in the late-1960s, it started fielding a small fleet of ballistic missile submarines that significantly increased its nuclear strike capability. In what is known as the CASD ("continuous at-sea deterrent"), at least one of the submarines is at sea at any time, ready to fire its missiles if ordered to do so. In addition, gravity bombs and depth charges added a non-strategic capability that was intended for use against Soviet land and naval forces.

While the United Kingdom praised its "independent deterrent" and nuclear collaboration and coordination with the United States throughout the Cold War, British defense planners also understood the limitations of Britain's much smaller nuclear arsenal that, together with insufficient intelligence and missile accuracy, would not allow for a true counterforce strategy. Building up a true counterforce posture would be exceedingly expensive. As a result, the United Kingdom's targeting doctrine centered around the so-called "Moscow criterion," which called for a deterrent necessarily capable of destroying the Soviet capital, among other important cities. In order to meet both targeting doctrines, UK submarines carried multiple sets of target tapes, which would be fed into the onboard computers to direct the submarines' missiles to the appropriate targets. The target tapes for the defense of NATO were developed by the U.S. Joint Strategic Target Planning Staff and fed into the larger European Nuclear Operations Plan, while the target tapes for the United Kingdom's independent deterrent were produced by the Navy and eventually by the Nuclear Policy Directorate within the Ministry of Defense.[81]

Following the end of the Cold War, the United Kingdom's nuclear forces were significantly reduced both in numbers and types. Moreover, as a sign of goodwill and practical precaution, the United Kingdom in 1994 agreed with Russia to "de-target" its nuclear weapons so that missiles launched in error would land in the oceans instead than on land. The actual coordinates could quickly be loaded into the missiles' computers, but the United Kingdom also announced that its submarines on patrol would now operate "at several days' notice to fire."[82] Although the United Kingdom claims that "we do not target our missiles at any state," it is likely that the "Moscow criterion" remains the dominant principle of British nuclear targeting policy.[83]

After its last non-strategic nuclear weapons were retired in the late-1990s, the United Kingdom for years described its strategic missile submarines as also serving a sub-strategic role in support of NATO. The sub-strategic SSBN mission became operational in 1995 and required reducing the number and yield of warheads loaded on some missiles on each submarine to enable it to carry out much more limited attacks. The sub-strategic mission provoked considerable debate and the government eventually decided no longer to use the term, and the low-yield warhead option was removed from operational status.

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78 John Baylis, "British Nuclear Doctrine: The 'Moscow Criterion' and the Polaris Improvement Programme," Contemporary British History 19, no. 1 (2005): 53-65, DOI: 10.1080/1361946042000303855; Kristan Stoddart, "Maintaining the 'Moscow Criterion': British Strategic Nuclear Targeting 1974–1979," Journal of Strategic Studies 31: 6 (2008), p. 897-924, DOI: 10.1080/01402390802373198.

79 Ibid, p. 54.

80 Ibid, p. 55.

81 Shaun R. Gregory, Nuclear Command and Control in NATO, London: MacMillan Press Ltd, 1996, p. 117.

82 United Kingdom, "The UK's nuclear deterrent."

83 Ibid; Ian Davis, "The British Bomb and NATO: Six decades of contributing to NATO's strategic nuclear deterrent," Stockholm International Peace Research Institute, November 2015, https://www.sipri.org/sites/default/files/files/misc/NATO-Trident-Report-15_11.pdf.

British nuclear planning appears to be changing in response to the Russian annexation of Crimea in 2014 and its full-scale invasion of Ukraine in 2022. The first example of this was the announcement in 2021 to increase the cap on its nuclear stockpile to 260 warheads; in an interview following the announcement, Defence Secretary Ben Wallace explained that the decision was related to concerns that the United Kingdom's deterrent would no longer be credible in the face of Russia's strong investment in ballistic missile defenses.[84] That implies a decision to be able to increase the warhead loading on the submarine force to overwhelm Russian missile defenses.

The second example is the recent announcement by the U.K. government to join NATO's nuclear sharing arrangements alongside Belgium, Germany, Greece, Italy, the Netherlands, and Turkey. According to recent reporting, the Royal Air Force will base 12 nuclear-capable F-35As at RAF Marham air base and store U.S. supplied B61-12 gravity bombs in reactivated underground nuclear vaults at the base.[85]

France

France's nuclear weapons are not—and historically have not been—officially postured against any particular country, but rather are intended to be used against "any State" in support of a "tous azimuts" ("all-azimuths") concept of nuclear deterrence.[86] As Charles de Gaulle, under whose government France developed nuclear weapons, stated in 1959, "since one can potentially destroy France from anywhere on Earth, our own force must be capable of acting anywhere on Earth."[87] Interestingly, de Gaulle noted at the time that France's nuclear weapons were not only be aimed at adversaries, but also at "abusive protectors," implying that they also served a purpose in deterring French fears of U.S. neocolonialism in Europe.[88]

Despite its "tous azimuts" doctrine, the reality is that French nuclear planning probably is overwhelmingly directed against Russia. France's recent iterations of its strategic doctrine note that its nuclear weapons are designed only to be used "in extreme circumstances of legitimate self-defense" of France's "vital interests."[89] Precisely which elements constitute these "vital interests" remain somewhat unclear. President François Hollande noted in 2015 that the interests included "the integrity of our territory," "the safeguarding of our population," and "preserv[ing] the capacity of our nation to live."[90]

Within its declaratory policy, France reserves the right to issue "a unique and one-time-only nuclear warning" against a potential aggressor, in order "to clearly demonstrate that the nature of the conflict has changed and to

84 BBC News (@BBCPolitics), "#Marr: Do we need 80 new nuclear weapons? Defence Secretary Ben Wallace: 'We need a credible nuclear deterrent,'" X, March 21, 2021, https://twitter.com/BBCPolitics/status/1373578535944740869.
85 United Kingdom Prime Minister's Office, "UK to purchase F-35As and join NATO nuclear mission as Government steps up national security and delivers defence dividend," June 24, 2025, https://www.gov.uk/government/news/uk-to-purchase-f-35as-and-join-nato-nuclear-mission-as-government-steps-up-national-security-and-delivers-defence-dividend
86 Emmanuel Macron, "Speech of the President of the Republic on the Defense and Deterrence Strategy," Élysée, February 7, 2020, https://www.elysee.fr/en/emmanuel-macron/2020/02/07/speech-of-the-president-of-the-republic-on-the-defense-and-deterrence-strategy; French Republic, "Defense and National Security Strategic Review," 2017, https://franceintheus.org/IMG/pdf/defense_and_national_security_strategic_review_2017.pdf.
87 Charles de Gaulle, "Address given by Charles de Gaulle to the Saint-Cyr Military Academy [Authors' translation]," University of Luxembourg, November 3, 1959, https://www.cvce.eu/en/obj/address_given_by_charles_de_gaulle_to_the_saint_cyr_military_academy_3_november_1959-en-c45374f7-6791-41cb-866f-1e1523201df9.html.
88 Alain Peyrefitte, C'était de Gaulle (Paris: Gallimard, 2002, p. 299); Bruno Tertrais, "French Nuclear Deterrence Policy, Forces, And Future: A Handbook," Fondation pour la Recherche Statégique, No. 4, 2020, https://www.frstrategie.org/sites/default/files/documents/publications/recherches-et-documents/2020/202004.pdf.
89 Macron, "Speech of the President."
90 Élysée, "Discours sur la dissuasion nucléaire - Déplacement auprès des forces aériennes stratégiques. Istres (13) [Authors' translation]," February 19, 2015, https://www.francetnp.gouv.fr/IMG/pdf/discours-sur-la-dissuasion-nucleaire-deplacement-aupres-des-forces-aeriennes-strategiques-istres-3.pdf.

re-establish deterrence."[91] Although France's doctrine includes this "nuclear warning" as a potential precursor to the general use of nuclear weapons, French policy has continuously stated that France "will never engage into a nuclear battle or any forms of graduated response."[92] Rather, French doctrine appears to have emphasized the deterrent value of delivering massive retaliation in the form of a single strike.[93]

If an aggressor is not deterred, as President Macron explained in 2020, France's "nuclear forces are capable of inflicting absolutely unacceptable damage upon that State's centers of power: its political, economic and military nerve centers."[94] It is unclear what is specifically meant by "unacceptable damage;" however, an analysis of France's Cold War targeting doctrine offers some clues for how to interpret this phrase. French doctrine has traditionally emphasized that France's nuclear targeting should be "proportionate to the stake of the conflict," and in a general nuclear war, the stake would amount to the potential destruction of France itself.[95] Thus, the degree of damage required to satisfy French targeting requirements would need to be at least equivalent—and perhaps vastly superior—to the destruction of France. Under various administrations, these targets appeared to shift between prioritizing targeting civilians and economic infrastructure;[96] however, it is clear that exclusively military or counterforce targets were not generally prioritized under French doctrine during the Cold War.[97]

After Russia's full-scale invasion of Ukraine and growing nervousness within NATO about the future of the U.S. security guarantee, the debate about France's "vital interests" has intensified. Some commentators have suggested that France should integrate its nuclear forces formally into NATO's command structure or more visibly support NATO missions with its nuclear-capable aircraft. The French government has signaled that it is prepared to discuss the role of nuclear forces in Europe, potentially including the option of stationing nuclear weapons in other countries.[98]

In March 2025, Macron announced plans to add a nuclear fighter squadron to another base in addition to the one it currently operates. The second squadron will become operational in 2035 at the Luxeuil Air Base near the German border.[99]

When the French Air Force in 2025 sent dual-capable Rafale jets on a long-range exercise to northern Sweden, the newly appointed French Ambassador (previously one of France's highest-ranking military officers) to Sweden bluntly declared: "Our French vital interests also include the interests of our allies. In that perspective, the nuclear umbrella also applies to our allies and of course Sweden is among them."[100]

Potential targets for France's fighter-bombers cannot be as deep inside Russia as targets covered by the strategic missile submarine force. The current cruise missile (ASMPA) is capable of reaching targets up to 500 kilometers away; The next generation of cruise missiles will have a range of about 600 kilometers. While not capable of reaching Russia from French territory, the bombers could—when deployed to forward located bases—reach several

91 Macron, "Speech of the President."
92 Ibid.
93 Bruno Tertrais, "'DESTRUCTION ASSURÉE': THE ORIGINS AND DEVELOPMENT OF FRENCH NUCLEAR STRATEGY, 1945-1981," in Getting Mad: Nuclear Mutual Assured Destruction, Its Origins and Practice (U.S. Army War College Strategic Studies Institute: 2004), p. 66, https://www.jstor.org/stable/pdf/resrep12035.6.pdf.
94 Macron, "Speech of the President."
95 Tertrais, "'Destruction,'" p. 82.
96 Ibid, p. 83.
97 For an overview of the French nuclear posture, see: Hans Kristensen, et al., "FAS Nuclear Notebook: French nuclear weapons 2024," Bulletin of the Atomic Scientists, July 2023, https://www.tandfonline.com/doi/epdf/10.1080/00963402.2023.2223088?needAccess=true
98 JF, "Nuclear deterrence: on TF1, Macron says he is "ready to open a discussion" with other EU countries," TF1, May 13, 2025, https://www.tf1info.fr/politique/emmanuel-macron-sur-tf1-nous-sommes-prets-a-ouvrir-une-discussion-autour-d-avions-armes-de-bombes-nucleaires-francaises-dans%E2%80%A6/
99 Emmanuel Macron, "Speech by the President of the Republic from Air Base 116 Luxeuil-Saint-Sauveur," l'Élysée, March 18, 2025, https://www.elysee.fr/emmanuel-macron/2025/03/18/deplacement-sur-la-base-aerienne-116-de-luxeuil-saint-sauveur
100 John Granlund, "French military increases presence: Nuclear weapons also protect Sweden," SVT Nyheter, April 24, 2025, https://www.svt.se/nyheter/lokalt/norrbotten/fransk-militar-okar-narvaron-karnvapnen-skyddar-aven-sverige

important targets sets. If deployed to norther Sweden—as they were in 2025—bombers would potentially be able to target all of Russia's Northern Fleet on the Kola Peninsula. If operating over the Baltic states, bombers could potentially reach Saint Petersburg and the outskirts of Moscow, plus any high-value military targets in-between.

India

India's nuclear arsenal and doctrine have historically been focused on deterring Pakistan. Although that still appears to be the focus, India's nuclear modernization indicates that it is putting increased emphasis on its future deterrence relationship with China by developing longer-range nuclear missiles that appear intended to hold targets at risk throughout China. This two-adversary dynamic adds a new dimension to India's strategic thinking and could ultimately affect India's assessment of the role of its nuclear weapons, as well as its targeting strategy.[101]

Historically, India has prioritized the development of a credible minimum deterrent that relies upon the threat of "punitive retaliation with nuclear weapons to inflict damage unacceptable to the aggressor."[102] India's emphasis on deterrence by punishment—rather than deterrence by denial—is probably a consequence of the relatively small size of its arsenal that appears focused on its retaliatory strike capabilities against larger base areas and cities. For many years, fighter-bombers constituted the most operational and reliable element of the Indian posture. A dedicated counterforce posture would require significantly larger warhead numbers.

While India's emphasis on punitive retaliation has remained largely consistent since the dawn of its nuclear age, Indian policymakers have been less forthcoming in explaining precisely where nuclear retaliation would take place. While a punitive posture would suggest that cities remain the primary targets, Indian policymakers have previously suggested that India could also select military targets.[103] Today, it seems obvious that primary military bases are part of the Indian nuclear target set.

Some analysts have interpreted these policy statements from Indian officials as implying that India might consider "a full 'comprehensive counterforce strike' that attempts to completely disarm Pakistan of its nuclear weapons so that India does not have to engage in iterative tit-for-tat exchanges and expose its own cities to nuclear destruction."[104] This prospect is neither reflected in India's nuclear doctrine nor in its modernization program. Other analysts have suggested that India's nuclear developments are inching toward a counterforce posture, partly because of its development of "canisterized" launchers where solid-fuel missiles can be stored fully armed and ready for quick launch.[105] Since widespread deployment of the canisterized launchers is still several years away, it remains to be seen if—and to what extent—India allows this capability to influence its targeting doctrine.

Below the strategic level, Indian nuclear decision-makers could be faced with a decision about how to respond if Pakistan escalated to tactical nuclear weapons use in response to an Indian conventional invasion or significant deep incursion into Pakistan following a border clash. India already has several shorter-range nuclear weapons that could potentially serve this role, including the Prithvi-II and Agni-I missiles, as well as bombers.

101 For an overview of India's nuclear posture, see: Hans Kristensen, et al., "FAS Nuclear Notebook: Indian nuclear weapons 2024," Bulletin of the Atomic Scientists, September 2024, https://www.tandfonline.com/doi/epdf/10.1080/00963402.2024.2388470?needAccess=true

102 "Draft Report of National Security Advisory Board on Indian Nuclear Doctrine," 17 August 1999, https://www.atomicarchive.com/resources/documents/deterrence/india-doctrine.html.

103 Ashley J. Tellis, "Striking Asymmetries: Nuclear Transitions in South Asia," Carnegie Endowment for International Peace, 18 July 2022, https://carnegieendowment.org/2022/07/18/india-pub-87397; Shivshankar Menon, Choices: Inside the Making of India's Foreign Policy, Washington D.C.: Brookings Institution Press (18 October 2016), https://www.amazon.com/Choices-India%C2%92s-Foreign-Geopolitics-Century/dp/0815729103.

104 Muhammad Faisal, Tanvi Kulkarni, Ruhee Neog, and Saima Aman Sial. "#Nukefest2017 Hot Takes: Potential Indian Nuclear First Use?" South Asian Voices, 20 March 2017, https://southasianvoices.org/sav-dc-nukefest2017-potential-indian-nuclear-first-use/.

105 Christopher Clary and Vipin Narang, "India's Counterforce Temptations," International Security, Winter 2018/19, https://www.belfercenter.org/sites/default/files/files/publication/isec_a_00340.pdf

Pakistan

Pakistan's nuclear targeting strategy is relatively unique because, in contrast to the majority of nuclear-armed states, it appears to be aimed exclusively at one country: India. While other countries—including India—posture themselves to deter multiple adversaries simultaneously, Pakistan's doctrine is designed solely to deter an overwhelming conventional or nuclear attack from a single adversary.[106]

Pakistan's nuclear doctrine and posture, however, have changed quite substantially between its first nuclear test in 1998 and today. At the beginning of Pakistan's nuclear age, its doctrine largely focused on countervalue targeting, with the goal of inflicting "unacceptable damage" in the event that Pakistan's conventional forces were unable to hold off an Indian conventional incursion.[107] Even in response to an Indian first nuclear strike, as a prominent Pakistani military official and defense analyst noted at the time, "it would be very difficult for India to strike first if it recognizes that a massive retaliation on its cities would be the response from Pakistan."[108] Given its relatively small arsenal at the time, coupled with a reliance on less accurate and longer-range ballistic missiles, a focus on countervalue targeting was a natural fit for Pakistan during its early nuclear years.

In 2011, Pakistan's first test of its nuclear-capable Nasr short-range ballistic missile represented a shift in Pakistan's nuclear targeting strategy.[109] While Pakistan's doctrine initially relied on deep countervalue targeting in the late stages of a conflict, the introduction of the Nasr and other short-range systems implied an intent to potentially escalate to nuclear use earlier in a conflict. This doctrinal shift and associated embrace of tactical nuclear weapons were reportedly undertaken in response to India's alleged adoption of a "cold start" strategy, which would entail launching limited conventional strikes or incursions into Pakistani territory without triggering Pakistani nuclear retaliation.

Pakistan's new doctrine, known as "full spectrum deterrence," was clarified in May 2023 by an advisor to Pakistan's National Command Authority, which oversees nuclear weapons development, doctrine, and employment.[110] He noted that Pakistan "retains the liberty of choosing from a full spectrum of targets in a 'target-rich India' [...] to include countervalue, counterforce, and battlefield targets," and further stated that Pakistan's "three categories" of nuclear weapons—"strategic, operational, and tactical"—with a wide range of yields, could be used to cover the entirety of India's territory.

This doctrinal shift comes with significant implications. First, it suggests that Pakistan's nuclear arsenal might continue to grow. Pakistan's previous countervalue doctrine could have been supported by a smaller arsenal, but the adoption of "full spectrum deterrence" implies that Pakistan's arsenal will need to be sized and composed relative to the growing number of military and civilian targets that the country intends to hold at risk. Second, it

106 For an overview of Pakistan's nuclear posture, see: Hans Kristensen, et al., "FAS Nuclear Notebook: Pakistan nuclear weapons 2023," Bulletin of the Atomic Scientists, September 2023, https://www.tandfonline.com/doi/epdf/10.1080/00963402.2023.2245260?needAccess=true

Over the past decade, Pakistan has been developing longer-range ballistic missile—the Shaheen-III—with a range of approximately 2,750 kilometers. The missile's longer range has sparked concerns that Israel would be brought within the range of Pakistan's nuclear weapons; however, Pakistani officials have subsequently indicated that India would remain Pakistan's primary nuclear target. It is likely that the longer range is intended to allow Pakistan to reach targets in India's southern states, as well as its missile facilities on the Andaman and Nicobar Islands.

107 Mahmud Ali Durrani, Major General, Ret. "Pakistan's Strategic Thinking and the Role of Nuclear Weapons," Sandia National Labratories, July 2004, https://www.sandia.gov/app/uploads/sites/148/2021/07/sand2004-3375p-2.pdf.

108 Kamal Matinuddin, Nuclearization of South Asia, Karachi: Oxford University Press Pakistan (2002), p. 242; Tellis, "Striking Asymmetries."

109 ISPR, Press Release No PR-94/2011-ISPR, 19 April 2011, https://www.ispr.gov.pk/press-release-detail.php?id=1721.

110 Khalid Kidwai. "25 years of Yom Takbeer: Promoting Peace, Stability and Development." Speech by Lt. Gen. (Retd) Khalid Kidwai, Advisor, National Command Authority and former DG SPD, on 25th Youme-e-Takbeer, for a joint Arms Control and Disarmament Centre/Institute of Strategic Studies Islamabad meeting, 24 May 2023, https://issi.org.pk/speech-by-lt-gen-retd-khalid-kidwai-advisornational-command-authority-and-former-dg-spd-on-25th-youme-e-takbeer/.

suggests that Pakistan may be more likely to use nuclear weapons earlier in a conflict with India, in order to forestall an Indian conventional victory and prevent the conflict from escalating further.

Initially, Pakistani nuclear use would likely take the form of graduated escalation, in which a small number of lower-yield nuclear weapons would be used against Indian military formations in order to degrade India's conventional forces and signal a willingness to escalate further if India retaliates with nuclear weapons.[111] Failing a cessation of hostilities, Pakistan might decide to target more central Indian military facilities—including navy, army, and air force bases—before eventually targeting Indian cities directly. In this way, as Ashley Tellis describes,

> *"the nuclear weapons use predicated by Pakistan's full-spectrum deterrence doctrine—even if it produces steadily graduated nuclear employment—is oriented fundamentally not toward true escalation dominance but rather the manipulation of risk: holding out the threat that its initial nuclear responses could precipitate an escalatory sequence that really gets out of control fast and that Pakistan, despite its obvious weaknesses, could still inflict enough pain on India to make the continuation of its aggression not worth the cost."*[112]

Israel

Conducting research on Israel's nuclear arsenal and related policies is very challenging, not least because Israel purposely does not acknowledge its own possession of nuclear weapons. Moreover, Western governments normally do not include Israel in their descriptions of nuclear-armed states. As a result, the exact contours of Israel's nuclear targeting policies remain highly unclear.[113]

Despite these inherent uncertainties, it is possible to draw some conclusions about Israel's nuclear targeting policies by analyzing both Israel's force structure and the historical record of Israeli near use.

Somewhat uniquely among nuclear-armed states, Israel has no adversaries that also possess nuclear weapons.[114] In other words, Israel developed nuclear weapons in response to conventional threats, not nuclear threats. As a result, while many other nuclear-armed states offer negative security assurances against non-nuclear-armed countries, Israel is one of the few countries that would necessarily use its nuclear weapons against non-nuclear-armed countries.

Israel retains conventional military superiority over its non-nuclear neighbors, suggesting that it would be highly unlikely to resort to nuclear use at the outset of a conflict. Rather, Israel likely sees its nuclear weapons as an ultimate insurance policy in the event that one of its neighbors—such as Iran or Saudi Arabia—were to develop nuclear weapons, or if an overwhelming conventional invasion were to put the existence of the country in jeopardy.

The latter instance has reportedly nearly happened on two separate occasions. In the first instance, according to primary sources and testimonies from former Israeli officials, during the 1967 Six-Day War Israel assembled its first nuclear devices and considered conducting a nuclear detonation for demonstrative purposes, in order to change the Arab coalition's military calculus.[115] In the second instance, during the opening days of the 1973 Yom Kippur War,

111 Alan Robock, et al., How an India-Pakistan nuclear war could start—and have global consequences, Bulletin of the Atomic Scientists 75:6 (31 October 2019), pp. 273–279, https://climate.envsci.rutgers.edu/pdf/IndiaPakistanBullAtomSci.pdf.
112 Tellis, "Striking Asymmetries."
113 For a review of Israel's nuclear posture, see: Hans Kristensen, et al., "FAS Nuclear Notebook: Israeli nuclear weapons 2022," Bulletin of the Atomic Scientists, January 2022, https://www.tandfonline.com/doi/epdf/10.1080/00963402.2021.2014239?needAccess=true
114 Although Pakistan and Israel have historically had tense relations—particularly due to Pakistan's criticism of Israel's occupation of the Palestinian territories—the two countries are not considered to be true nuclear adversaries.
115 Avner Cohen, 'The 1967 Six-Day War," Wilson Center, 5 June 2017, https://www.wilsoncenter.org/publication/the-1967-six-day-war.

Israeli officials reportedly debated preparing another nuclear "demonstration option" to signal Israel's nuclear resolve to both the Arab coalition and to the United States.[116]

In both cases, Israel's eventual conventional military successes made such efforts unnecessary. These testimonies, however, suggest that a nuclear "demonstration" option—either on an uninhabited desert area or on a discrete military target—appears to be a potential rung on Israel's nuclear escalation ladder, and could precede nuclear strikes against a broader suite of targets.

North Korea

While North Korea remains relatively closed off from the world, it releases a substantial amount of information—usually intentionally and sometimes unintentionally—about its nuclear weapons program and doctrine. Analysts can use satellite imagery, official statements, and content from North Korean state media to learn about the status and strategies of North Korea's weapons programs, including its potential nuclear targeting strategy. North Korea publishes official statements about its military doctrine, as well as footage of military parades and missile tests, through state-run media outlets such as the Rodong Sinmun newspaper and Korean Central Television. Observation of satellite imagery has also proven to be a highly successful method for determining progress of North Korea's nuclear weapons program. Lastly, information gathered by experts during on-the-ground experiences from previous years has been invaluable for projecting North Korea's capabilities and methodologies.[117]

FIGURE 3. PROPAGANDA POSTER PORTRAYING "JOSEON'S ANSWER" FOR THE "WAR AND SANCTIONS" BROUGHT ON BY THE UNITED STATES, 17 AUGUST 2017 (SOURCE: KCNA).

Since its establishment in the 1970s, North Korea's nuclear and missile programs have gone through multiple stages that have correlated with distinct goals laid out in its nuclear doctrine. Throughout these stages, North Korea's primary objectives have remained relatively consistent: to deter a conventional invasion, to deter nuclear coercion or use against North Korea, and to deter regime change by the United States and South Korea. Some also believe that North Korea has used its weapons program as a negotiating tool to gain concessions during different periods of diplomacy with the United States and others. North Korea has also threatened to launch nuclear weapons in response to more minor provocations, such as joint U.S.-South Korean military exercises; however, this prospect is highly unlikely.[118]

Throughout the 2010s, one of North Korea's primary nuclear priorities was the sprint to a reliable long-range ICBM capability in order to hold the U.S. homeland at risk. Once this capability was credibly demonstrated

116 Avner Cohen, "When Israel Stepped Back from the Brink," The New York Times, 3 October 2013. https://www.nytimes.com/2013/10/04/opinion/when-israel-stepped-back-from-the-brink.html; Richard Sale, "Yom Kippur: Israel's 1973 nuclear alert," UPI.com, 16 September 2002, https://www.upi.com/Business_News/Security-Industry/2002/09/16/Yom-Kippur-Israels-1973-nuclear-alert/UPI-64941032228992/print.

117 For an overview of North Korea's nuclear posture, see: Hans Kristensen, et al., FAS Nuclear Notebook: North Korea nuclear weapons 2024, Bulletin of the Atomic Scientists, July 2024, https://www.tandfonline.com/doi/epdf/10.1080/00963402.2024.2365013

118 Holly Ellyatt, "North Korea threatens nuclear strike on U.S., SKorea," CNBC, 7 March 2016, https://www.cnbc.com/2016/03/07/north-korea-threatens-to-reduce-us-to-ashes.html; Ewan MacAskill, "U.S. warns North Korea of increased isolation if threats escalate further," The Guardian, 29 March 2013, https://www.theguardian.com/world/2013/mar/29/us-condemns-north-korea-threats.

in the late 2010s—accompanied by propaganda posters depicting the weapon being fired at the United States' Capitol Building[119]—Kim Jong Un vowed to build up the size of North Korea's arsenal, deploy non-strategic nuclear weapons, develop solid-fueled ICBMs, and develop hypersonic strike weapons.[120]

Depending on age, accuracy, payload, and other factors, different missiles in North Korea's arsenal will have varying strike roles against civilian targets, military targets, or political targets. Given the limited number of delivery systems and warheads in its arsenal, North Korea may decide to choose strike options with the intent to generate a military effect on the battlefield or to de-escalate a crisis.[121] While the DPRK has insisted that the first mission of its nuclear force is to "deter war and safeguard peace and stability," Kim Jong Un has also made clear that if deterrence fails, its nuclear forces will "carry out the second mission, which will not be for defense."[122]

North Korea is unique in that on several occasions it has explicitly signaled which targets it intends to hit in the event of a nuclear war or an imminent threat of invasion or regime change. For example, in 2013, North Korean state media released an image with a map in the background that indicated potential targets in the U.S. mainland, including San Diego (home port of the Pacific Fleet), Barksdale Air Force Base (location of Air Force Global Strike Command), and Washington, D.C.[123] At other times, North Korea has used or threatened to use missile launches to simulate attacks on specific facilities in South Korea and Guam.[124]

FIGURE 4. KIM JONG UN REVIEWS WAR PLAN DOCUMENTS WITH HIS GENERALS. THE MAP IN THE BACKGROUND READS "PLAN FOR STRATEGIC FORCES TO TARGET MAINLAND U.S." AND INDICATES MISSILE STRIKE TARGETS IN THE UNITED STATES, 29 MARCH 2013 (SOURCE: KCNA).

In 2016, a statement by the Supreme Command of the Korean People's Army noted that North Korea's first targets in a conflict would be South Korea's Blue House, and then U.S. military bases in the Asia-Pacific region (including Guam and Hawaii) and the continental United States, in that order.[125] While it is possible that North Korea could use its substantial conventional artillery force to target the Blue House and other areas of Seoul, it is strongly believed that nuclear weapons could be used for the second wave of attacks against military targets supporting an invasion of North Korea. These could include targets in South Korea, including Seoul's surrounding U.S. military bases at Camp Humphreys and Osan Air Base, as well as longer-range targets at Kunsan Air Base and the strategic port at Busan; targets in Japan, including U.S. military bases surrounding Tokyo and U.S. air bases in Okinawa and the Japanese mainland; and regional

119 Sofia Lotto Persio, "North Korea Targets U.S. Capitol in Latest Propaganda Posters," Newsweek, 18 August 2017, https://www.newsweek.com/north-korea-targets-us-capitol-latest-propaganda-posters-652207; Yonhap News Agency, "(2nd LD) Kim calls U.S. 'biggest enemy,' vows to continue nuclear development," 9 January 2021. https://en.yna.co.kr/view/AEN20210109000453325?section=nk/nk.

120 Timothy Wright, "North Korea's missile and nuclear wish list," International Institute for Strategic Studies, 22 January 2021. https://www.iiss.org/en/online-analysis/online-analysis/2021/01/mdi-north-korea-missile-nuclear-wish-list/.

121 Stéphane Delory, Antoine Bondaz, and Christian Maire, "North Korean Short Range Systems Military consequences of the development of the KN-23, KN-24 and KN-25," The Hague Code of Conduct, 2022, p. 12, https://nonproliferation.eu/hcoc/wp-content/uploads/2023/01/NORTH-KOREAN-SHORT-RANGE-SYSTEMS.pdf.

122 Mitch Shin, "North Korea Vows to Increase Nuclear Arsenal," The Diplomat, 3 January 2023, https://thediplomat.com/2023/01/north-korea-vows-to-increase-nuclear-arsenal/.

123 Jeffrey Lewis, "The Map of Death: What North Korea's missiles are really aimed at," Foreign Policy, 3 April 2013, https://foreignpolicy.com/2013/04/03/the-map-of-death/.

124 "North Korean says missile test simulated strike on South," BBC, 20 July 2016, https://www.bbc.com/news/world-asia-36842560; Julian Borger, "North Korea details Guam strike plan and calls Trump 'bereft of reason'," The Guardian, 10 August 2017, https://www.theguardian.com/world/2017/aug/10/north-korea-details-guam-strike-trump-load-of-nonsense.

125 Korean Central News Agency, "Crucial Statement of KPA Supreme Command," Korea News Service, 23 February 2016, available via GlobalSecurity.org: https://www.globalsecurity.org/wmd/library/news/dprk/2016/dprk-160223-kcna01.htm.

military targets in Guam and Hawaii.[126] The DPRK could also hold some nuclear weapons in reserve to strike the continental United States with intercontinental ballistic missiles, with the goal of decoupling U.S. support from its Indo-Pacific allies in the context of a war on the Korean Peninsula.

Despite its frequent inflammatory statements and missile launches, North Korea's codified nuclear posture has consistently implied that it would only use its nuclear weapons in extreme circumstances if the continued existence of the North Korean state and its political leadership were in jeopardy.[127] In its most recent iterations of its nuclear doctrine, North Korea's negative security assurance has held that "the DPRK shall neither threaten non-nuclear weapons states with its nuclear weapons nor use nuclear weapons against them unless they join aggression or attack against the DPRK in collusion with other nuclear weapons states," with this caveat likely referring to South Korea and Japan. However, the 2022 Law on DPRK's Policy on Nuclear Forces augmented the conditions for using a nuclear weapon, adding contingencies in case there is a need to "prevent the expansion or protraction of war" or in case a nuclear or non-nuclear attack is launched or draws near.[128] This flexible posture enshrines the role of nuclear weapons in North Korea's national security and indicates both a desire to achieve a high level of readiness, as well as a willingness to take risks and use nuclear weapons to control escalation.

Allies and Umbrella States

Although nine states possess nuclear weapons, more than two dozen additional countries participate in nuclear mission-related arrangements in various forms.[129]

Both the United States and Russia deploy nuclear weapons outside of their respective national territories: the United States forward-deploys an estimated 100 B61 gravity bombs at six bases in five NATO countries (Belgium, Germany, Italy, the Netherlands, and Turkey), and, in 2023, Russia claimed to have completed the forward-deployment of nuclear weapons to Belarus.[130] The United States' "nuclear umbrella" also extends over its other NATO members and a select number of non-NATO allies—many of which also participate in nuclear sharing. Moreover, seven NATO member states—Belgium, Germany, Italy, the Netherlands, the United States, and Turkey, as well as Greece (in a reserve and contingency role)—contribute "Dual-Capable Aircraft" (DCA) to NATO's nuclear mission.[131] These aircraft could be used to deliver nuclear weapons in a conflict.

126 Léonie Allard, Mathieu Duchâtel, and François Godement, "Pre-empting defeat: In search of North Korea's nuclear doctrine," European Council on Foreign Relations, 22 November 2017, https://ecfr.eu/publication/pre_empting_defeat_in_search_of_north_koreas_nuclear_doctrine/; Matt Korda, "Nuclear Weapons and Delivery Systems that Might Be Implicated in Nuclear Use Involving the Korean Peninsula," Journal for Peace and Nuclear Disarmament 5: 1 (10 April 2022), p. 115, DOI: https://doi.org/10.1080/25751654.2022.2055911.

127 Korean Central News Agency, "Law on Consolidating Position of Nuclear Weapons State Adopted," 4 January 2013, https://kcnawatch.org/newstream/1451896124-739013370/law-on-consolidating-position-of-/; Korean Central News Agency, "Law on DPRK's Policy on Nuclear Forces Promulgated," 9 September 2022, https://kcnawatch.org/newstream/1662687258-950776986/law-on-dprks-policy-on-nuclear-forces-promulgated/.

128 Korean Central News Agency, "Law on DPRK's Policy on Nuclear Forces Promulgated," 2022.

129 For an overview of nuclear sharing arrangements with non-nuclear countries, see: Hans Kristensen, et al., "FAS Nuclear Notebook: Nuclear weapons sharing 2023," Bulletin of the Atomic Scientists, August 2023, https://www.tandfonline.com/doi/epdf/10.1080/00963402.2023.2266944?needAccess=true

130 Hans M. Kristensen and Matt Korda, "United States nuclear weapons, 2023," Bulletin of the Atomic Scientists 79:1 (2023), pp. 28-52, doi: 10.1080/00963402.2022.2156686; "Belarus leader says Russian nuclear weapons shipments are completed, raising concern in the region," AP News, 25 December 2023, https://apnews.com/article/russia-belarus-nuclear-weapons-shipments-lukashenko-poland-a035933e0c4baa0015e2ef2c1f5d9b1a.

131 Hans Kristensen, "NATO Steadfast Noon Exercise and Nuclear Modernization in Europe." FAS Strategic Security Blog, 17 October 2022, https://fas.org/publication/steadfast-noon-exercise-and-nuclear-modernization/.

Most recently, the United Kingdom announced its intention to join NATO's nuclear sharing arrangement.[132] This will be an unusual arrangement because the United Kingdom—unlike other NATO allies in the arrangement—is itself a nuclear weapons state. In support of this arrangement, the United Kingdom plans to acquire 12 dual-capable F-35A aircraft from the United States and equip them with U.S. produced B61-12 nuclear bombs. The aircraft and weapons would be deployed at RAF Marham air base.

It can be generally assumed that allies of nuclear-armed states contribute to nuclear targeting processes through the provision of intelligence on specific facilities and forces, although they may not necessarily be aware of precisely how this intelligence is fed into the nuclear targeting process. This intelligence would subsequently be incorporated into a nuclear-armed state's vulnerability assessments, which would in turn aid the weaponeering process.

The extent to which allies of nuclear-armed states participate in the actual target selection process, however, is unknown. Presumably, NATO allies that contribute DCA to NATO's nuclear mission would be aware of their primary nuclear targets, given that their pilots would be responsible for the actual employment of U.S. nuclear weapons—although it is possible that these allies and pilots would be kept in the dark with regards to their precise targets until a launch order is given. It is also unclear whether these targets would be known to the entirety of the Alliance, particularly given the unlikelihood of high-level alliance consultation during a nuclear crisis.

During the Cold War, NATO allies that were concerned over the use of nuclear weapons on their territory sought assurances from the United States that its nuclear weapons would not be used without prior consultation. For its part, the United States sought to preserve its own freedom of action, as well as its position that no other country could enact a veto over U.S. nuclear use. This push-and-pull dynamic eventually resulted in the 1962 Athens Guidelines, in which NATO allies acknowledged that possibilities for consultation would likely be "extremely limited" in the event of a nuclear crisis, but that the United States would work to consult with its NATO allies prior to nuclear release "if time permitted."[133] Given their unique delivery role, it is possible—albeit unlikely—that certain allies could require their pilots to be exempt from the nuclear delivery role in a conflict.[134] It is unknown whether umbrella states have the ability to influence the targeting process to ensure the appropriate application of international humanitarian law.

While the extent to which nuclear umbrella states participate in the targeting process remains unknown, it is clear that many of these states would likely be targets of adversarial nuclear strikes in their own right. This is largely due to the roles that many of these states play in the overall nuclear sharing mission, ranging from providing conventional air support for nuclear strike missions to hosting another country's nuclear weapons.

Conclusion

While some nuclear weapons states are more forthcoming about their nuclear policy and targeting strategies than others, factual official information of how countries would potentially use their nuclear weapons is limited and often misunderstood or misrepresented in the public debate. Citizens of nuclear-armed countries are largely uninformed about who and what their governments target with nuclear weapons; additionally, individuals in nuclear-armed states and other states that would be directly affected in a nuclear conflict are left without a comprehensive

132 United Kingdom Prime Minister's Office, "UK to purchase F-35As and join NATO nuclear mission as Government steps up national security and delivers defence dividend," June 24, 2025, https://www.gov.uk/government/news/uk-to-purchase-f-35as-and-join-nato-nuclear-mission-as-government-steps-up-national-security-and-delivers-defence-dividend

133 North Atlantic Council. "Summary Record of a Meeting of the Council Held in the Zappeion Building in Athens on Saturday 5th May 1962 at 5 P.M., COSMIC Top Secret." 21 May 1962, https://nsarchive2.gwu.edu/NSAEBB/NSAEBB159/usukconsult-16d.pdf.

134 Shaun R. Gregory, Nuclear Command and Control in NATO, London: MacMillan Press Ltd, 1996, p. 164.

understanding of how their government is planning for the potential use of nuclear weapons and how they individually might be affected by nuclear targeting plans.

In recent years, nascent polling efforts have attempted to interrogate the extent to which civilians living in regions that would be targeted with nuclear weapons are aware of this reality. Polling by the Federation of American Scientists and ReThink Media in 2020 revealed that 76 percent of respondents living in states hosting U.S. ICBMs were "concerned" when presented with a map illustrating a realistic fallout projection from a comprehensive counterforce attack on the United States. This percentage increased to 81 percent when the same question was asked to respondents across the country.[135] Polls commissioned in 2019 and 2021 by the International Campaign to Abolish Nuclear Weapons revealed that strong majorities in the four European host countries for U.S. nuclear weapons—Italy, Netherlands, Belgium, and Germany—want U.S. nuclear weapons removed from their soil; however, it is unclear whether these results can specifically be attributed to concerns about being nuclear targets.[136]

Secrecy and ambiguity about nuclear policy can lead to worst-case assumptions and miscalculations, resulting in dangerous nuclear dynamics and arms racing, increased investment in nuclear arsenals, and heightened risk of nuclear use. It is therefore important for the public—as a critical stakeholder in nuclear policy—to have access to knowledge about targeting strategies as discussed in this report, so that they can participate in an informed debate about the role of nuclear weapons and the consequences of their potential use.

135 Matt Korda, "Alternatives to the Ground Based Strategic Deterrent," Federation of American Scientists, February 2021, https://uploads.fas.org/2021/02/Alternatives-to-the-GBSD-Feb.-2021.pdf.

136 "Polls: Public opinion in EU host states firmly opposes nuclear weapons," International Campaign to Abolish Nuclear Weapons, 2019, https://www.icanw.org/polls_public_opinion_in_eu_host_states_firmly_opposes_nuclear_weapons; "NATO Public Opinion on Nuclear Weapons," International Campaign to Abolish Nuclear Weapons, January 2021, https://d3n8a8pro7vhmx.cloudfront.net/ican/pages/234/attachments/original/1611134933/ICAN_YouGov_Poll_2020.pdf.

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