# Nuclear Capabilities

#### Nuclear capabilities are deployed assets

NTI Fact Sheet 2017 – Nuclear Threat Initiative “United States Nuclear Overview” https://www.nti.org/analysis/articles/united-states-nuclear/

Nuclear Capabilities

Strategic Nuclear Weapons

According to the most recent New START data exchange (1 March 2017), the United States deploys 1,411 strategic warheads on 673 Minuteman ICBMs, Trident II D-5 SLBMs, and B-52H and B-2A bombers. 7 The actual number of deployed U.S. warheads is likely higher since the treaty counts one strategic bomber as one operationally deployed warhead even though, for example, the B-2 bomber can carry up to 16 warheads. 8 A December 2016 estimate by Hans Kristensen and Robert Norris put the actual number of operational U.S. strategic warheads at roughly 1,590. 9

Land-based

400 ICBMs are deployed at three different Air Force bases, each with three squadrons that control 50 missile silos apiece—50 silos, scattered throughout the bases, are empty but ready to load stored missiles if necessary. The three bases operate the ICBMs from five launch control centers located in Colorado, Nebraska, Wyoming, North Dakota, and Montana. 10 There are an additional 270 non-deployed Minuteman ICBMs in storage. 11 Under normal circumstances, deployed missiles carry a single 300-335 kiloton warhead (W78 or W87), though about half are capable of being MIRVed—that is, they can carry multiple independently targetable re-entry vehicles. 12

To meet New START levels, the Air Force reduced the ICBM force to from 450 to 400 deployed missiles. The last of the 50 Minuteman III ICBMs slated for removal was taken out of its silo at F.E. Warren AFB on 2 June 2017. 13 The 50 excess silos will be kept “warm” if it becomes necessary to reload the missiles. 14 Under New START, the Air Force must destroy all previously deactivated ICBM silos. By August 2014, the Air Force had destroyed 103 deactivated silos. 15 50 silos at F.E. Warren Air Force Base in Wyoming and four silos at Vandenberg Air Force Base in California are awaiting dismantlement. 16

Air-based

The Air Force currently operates 18 B-2s and 70 B-52Hs that are nuclear capable. To comply with New START requirements limiting the United States to 60 nuclear-assigned bombers, only 16 B-2A and 44 B-52H strategic bombers have a nuclear mission on any given day. 17 The Air Force has extended the operational lifetime of its B-52s to 2040 and its B-2A’s to 2058, though the actual number of years they remain in service will depend on future congressional appropriations. 18 B-52s carry air-launched cruise missiles (ALCMs), while the B-2s carry B61 and B83 gravity bombs (with a yield of 1.2 megatons, the B83 is the largest nuclear weapon remaining in the U.S. arsenal). It is estimated that about 1,000 nuclear weapons are assigned to the U.S. bomber force, but only 300 are typically deployed. 19

Sea-based

The Navy’s 14 Ohio-class nuclear-powered ballistic missile submarines (SSBNs) carry Trident II D5 SLBMs. The D5 SLBM will be replaced in 2017 by “D5LE” missiles with greater longevity, accuracy, and flexibility. The D5LE will arm the Ohio-class submarines until the end of their service life in 2042. 20 Of the 14 submarines, 12 are considered operational; however minor repairs and an overhaul rotation mean that only 8-10 are at sea at any given time. 21 In keeping with New START obligations, by 2018 the Navy will reduce the number of deployed SLBMs to 240 by deactivating 4 of the 24 missiles tubes on each SSBN. 22 Ten submarines have been converted so far, and the remaining 4 will be converted in 2017. 23 The Trident II D5 SLBMs can carry up to 8 warheads each, but are thought on average to carry 4-5 warheads consisting of two basic types – the 100kt W76-0 and the 455kt W88. 24

Currently, each SSBN conducts, on average, two to three patrols a year (down from three to four patrols a decade ago), with an average patrol lasting 77 days. Most patrols now occur in the Pacific Ocean, possibly reflecting U.S. nuclear war planning vis-a-vis China, North Korea, and Russia. 25

Nonstrategic Nuclear Weapons

The U.S. inventory of nonstrategic (or tactical) nuclear weapons consists of approximately 500 B61 gravity bombs, 150 of which are deployed in Europe at six bases in the remaining North Atlantic Treaty Organization (NATO) states that host them: Belgium, Germany, Italy, the Netherlands, and Turkey. 26

Nuclear Force Modernization

The United States is currently modernizing its entire nuclear arsenal. In 2015, the United States completed a program to upgrade and extend the lifetime of its Minuteman III ICBMs through 2030. 27 In addition, the Air Force requested $9.4 billion to study a replacement for these missiles in 2013 and a $7 billion program was approved, including options to “increase survivability and reduce the requirement to keep missiles on high alert.” 28 In 2016, a program was approved to move development of this new ground-based strategic deterrent into the “Technology Maturation and Risk Reduction” phase. 29 The Air Force also aims to replace the current strategic bomber fleet with a new Long-Range Strike Bomber (LRS-B). The LRS-B is scheduled to begin flight testing in the mid-2020s with an anticipated operational capability toward the end of the decade. 30 The United States also plans to “upgrade nuclear command and control capabilities on existing bombers; develop improved nuclear weapons (B61-12s and long-range standoff missiles, or LRSOs); and design a new heavy bomber.” 31

With respect to the sea-based leg of the Nuclear Triad, the United States intends to replace its Ohio-class SSBNs with the next-generation Columbia-class in the 2020s. The Columbia-class will be 2,000 tons heavier and equipped with only 16 missile tubes. Procurement of the first submarine is slated for 2021 and its deployment is slated for 2031. 32 Each new SSBN is currently estimated to cost up to $8.6 billion, a price tag that many fear will consume the Navy’s entire shipbuilding budget and consequently reduce the U.S. global presence. 33

The National Nuclear Security Administration (NNSA) has also outlined a “3+2 Plan” to modernize the U.S. stockpile of nuclear warheads. 34 Under the plan, sea- and land-based ballistic missiles would use any of three “inter-operable warheads,” and air-delivered weapons would use one of two warheads. In addition, the family of B61 bombs currently assigned to strategic bombers as well as dual-capable aircraft in Europe will be consolidated into one upgraded version known as the B61-12. 35

An official estimate by the Congressional Budget Office (CBO) puts the cost of the DoD’s and DoE’s modernization plans at $400 billion over the next ten years. 36 The CBO breaks this estimate down as follows: $189 billion for strategic nuclear delivery systems, $9 billion for tactical nuclear delivery systems and weapons, $87 billion for DoE’s nuclear weapons labs, $58 billion for DoD’s command and control, and $56 billion to account for unanticipated cost increases. 37 The Arms Control Association estimated total modernization costs by type, projecting the costs of modernizing the SLBM fleet at $130 billion, the new bomber fleet around $100 billion, the new ICBMs around $90-140, and the new ALCMs about $11 billion. 38 The DoD and NNSA’s internal estimates are significantly lower, projecting $230-290 billion and $300 billion, respectively, spread over the next 25 years. 39 However, one group of experts extrapolates the thirty-year cost of maintaining and upgrading existing nuclear bombs and warheads at over $1 trillion. 40

The Obama administration pushed back against critics of nuclear modernization, emphasizing that there is no contradiction between nuclear force modernization and the vision of a world free of nuclear weapons. It maintained that modernization is important to increasing the safety, security, and reliability of nuclear weapons, as well as ensuring the credibility of extended deterrence. 41 The Trump administration’s 2018 budget proposal allocates an extra $589 million dollars for nuclear force modernization. The additional funding reflects the increasing costs of the existing modernization plan set out by the Obama administration, rather than an expansion of that plan. 42

#### Nuclear capabilities = nuclear weapons capabilities

IAEA 1991 – International Atomic Energy Agency, “THIRTY-FOURTH (1990) REGULAR SESSION RECORD OF THE THREE HUNDRED AND TWENTY-SEVENTH PLENARY MEETI” pp 37-38 https://www.iaea.org/sites/default/files/gc/gc34or-327\_en.pdf)

In his report on the issue to the previous session of the General Conference (document GC(XXXlII)/886), the Director General had said that he had nothing to add to his previous report of 19 September 1988 (GC(XXXIl)/849), in which he had stated that:

"Statements in the General Conference last year made it clear that the term nuclear capabilities as used in resolution GC(XXXI)/RES/470 was intended to mean nuclear weapon capabilities. The Secretariat of the IAEA has not concerned itself with studies of nuclear weapon capabilities in any Member State;"

Indeed, the Agency had never debated the question of any State's nuclear capability. His country considered that the issue of full-scope safeguards could be settled satisfactorily only within the framework of a nuclear-weapon-free zone. An appeal to his country alone to accept full-scope safeguards would be singling it out. Several of the many States which were not Parties to the NPT and were not subject to full-scope safeguards had proven scientific and technical capabilities. They were somehow immune to such appeals and at the same time they presumed to sit in judgement on Israel. However, Article 111.A.5 of the Statute stipulated that safeguards would be applied at the request of the State concerned. The voluntary nature of the acceptance of safeguards was also recognized in the technical study contained in document GC(XXXIIl)/887 and entitled "Modalities of Application of Agency Safeguards in the Middle East".

#### Delivery vehicles aren’t T – must include the nuclear device

Jackson 2017 – Van Jackson is a senior lecturer in international relations at Victoria University of Wellington ("Does Nuclearization impact Threat Credibility? Insights from the Korean Peninsula" in *North Korea and Nuclear Weapons: Entering the New Era of Deterrence* p 106)

2. I use the term "nuclear capability," "nuclear weapons," and "nuclear weapon capability" interchangeably to refer to the ability to detonate a nuclear device. Defense analysts sometimes imply that a nuclear capability is only weaponized when it can be mated to a delivery vehicle such as an intercontinental ballistic missile, but this definition overlooks the potential of a nuclear capability to affect the calculations of an adversary even without operational delivery systems, as well as the destructive potential of nuclear explosions irrespective of delivery vehicle.

#### Nuclear capabilities = weapons and delivery systems, nuclear strategy = use

Cordesman 2023 – Anthony H. Cordesman, CSIS Emeritus Chair in Strategy (“The Global Nuclear Balance: Nuclear Forces and Key Trends in Nuclear Modernization,” https://www.csis.org/analysis/global-nuclear-balance-nuclear-forces-and-key-trends-nuclear-modernization)

Failing to Examine Changes in Warfighting Capability

More broadly, the unclassified data now available on nuclear capabilities focus almost exclusively on nuclear delivery systems and nuclear weapons, rather than analyzing actual warfighting capabilities, and the results of a possible nuclear conflict. The unclassified data on nuclear strategy often consists of little more than national political statements about no first use, a desire for arms control, and a focus on deterrence rather than warfighting—none of which may apply in a crisis and at a time when most of the U.S. and Russia nuclear arms control efforts have been canceled or have an uncertain future, China does not participate in meaning arms control negotiation, and smaller nuclear power make statements that are ambiguous and given no clear picture of what might happen in a crisis.

#### Nuclear capabilities is broad – size, delivery systems, differentiation, interceptibiility

Thomas Preston 09. Professor of international relations in the Department of Political Science at Washington State University. 2009. *From Lambs to Lions: Future Security Relationships in a World of Biological and Nuclear Weapons*. Rowman & Littlefield Publishers.

The first dimension of interstate security relationships — the nuclear capabilities of the state — provides the analyst with both a characterization of the objective nuclear capabilities possessed by the state and the potential scope of its nuclear targeting strategies. Important elements comprising a nation's nuclear capabilities include: the size of its nuclear force structure, the range of its delivery systems, the degree of differentiation within that force structure, and the interceptibility by opponents of its delivery systems (see Table 1). By delineating the nuclear capabilities of states by this basic set of indicators affecting potential usage/employment only, one avoids the common trap of Cold War security studies of engaging in irrelevant 'bean-counting' of mis-sile numbers to define the power or likely strategies of nations. Further, one avoids using only the numerical size of forces to define terms such as 'Great Power' or 'Small Power', when the more useful concept involves a more complex mixture of capabilities which comprise a nation's nuclear force structure.

Kurosawa 2019 – KUROSAWA Mitsuru is Professor of International Law and International Relations at Osaka School of International Public Policy and Faculty of Law, Osaka University, Japan “Nuclear Posture Review : Trump and Three Previous Administrations,” Osaka University Law Review. 66 p.33-p.50 https://ir.library.osaka-u.ac.jp/repo/ouka/all/71161/oulr066-033.pdf)

The summary of nuclear weapons capabilities under the Obama NPR was as follows:

(1) Stable deterrence could be maintained while reducing the accountable U.S. strategic delivery vehicles by approximately 50 percent from the START level and reducing accountable strategic warheads by approximately 30 percent from the 2002 Moscow Treaty level.

(2) During the ten-year duration of New START, the nuclear Triad of ICBMs, SLBMs, and heavy bombers would be maintained.

(3) All U.S. ICBMs would be “de-MIRVed” to a single warhead each to increase stability.

(4) Some ability to “upload” non-deployed nuclear weapons on existing delivery vehicles should be retained.

(5) Contributions by non-nuclear systems to U.S. regional deterrence and reassurance goals will be preserved30)

New capabilities under the Bush NPR included defeating hard and deeply buried targets, defeating mobile and relocatable targets, defeating chemical and biological agents, and improved accuracy for effectiveness and reduced collateral damage 31)

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## It's in the 2022 NPR

The 2022 NPR section on “U.S. Nuclear Capabilities” aligns with what we want affirmatives to accomplish.

“The United States will field and maintain strategic nuclear delivery systems and deployed weapons in compliance with New START Treaty central limits as long as the Treaty remains in force. We will continue to deploy a nuclear triad and are fully committed to the programs that will begin to field modernized systems later this decade.”

This section also describes cuts to specific weapons.

A NPR fact sheet outlines the US Nuclear Capabilities

2022 National Defense Strategy <https://media.defense.gov/2022/Oct/27/2003103940/-1/-1/1/NUCLEAR-CAPABILITIES-NPR-FACTSHEET.PDF>

Importance of U.S. Nuclear Capabilities

The three legs of the U.S. Nuclear Triad are complementary, offering unique attributes that are mutually supporting. Given the uncertain and increasingly volatile security environment, the Nuclear Posture Review (NPR) concluded that a modern Triad possessing attributes of effectiveness, responsiveness, survivability, flexibility, and visibility remains necessary to deter strategic attack, assure allies and partners, and respond in the event of adversary attack.

To deter large-scale attacks, the United States will maintain a modern, resilient nuclear Triad and supporting warning and nuclear command, control, and communication (NC3) capabilities. To deter theater attacks and resist nuclear coercion, the United States will continue to field capabilities to support regional security, such as dual-capable aircraft (DCA) and low-yield nuclear systems.

Need for Nuclear Modernization

-Sentinel replaces Minuteman

-COLUMBIA SSBN replaces OHIO, Trident II life extension

-B-21 Raider replace B-2A Spirit, Long-Range Standoff Weapon replaces AGM-86

-DCA B61-12 replaces B61, F-35DCA replaces 4th gen NATO aircraft

Hans Kristensen 2017 “The Flawed Push For New Nuclear Weapons Capabilities” https://fas.org/publication/new-nukes/

Advocates of additional nuclear capabilities seem too fixated on weapon types and don’t seem to understand or appreciate the flexibility of the current capabilities.

US nuclear planning long ago departed from the mindset that US nuclear capabilities necessarily have to match that of the adversaries. Even before the Cold War ended, the US navy began to unilaterally retire all its short-range nuclear weapons. After the Cold War ended the Army was completely denuclearized. Today the United States only retains about 300 non-strategic nuclear bombs, mainly for symbolic reasons to reassure its allies.

This near-elimination of non-strategic nuclear weapons was done despite US knowledge that Russia retained a large inventory of non-strategic nuclear weapons and despite growing concerns about regional nuclear adversaries. Those arsenals have continued to evolve without it leading to military requirements to bring back the ASROC, SUBROC, Lance, TLAM-N, or ground-launched cruise missiles.

Yes there are serious challenges in Russia and North Korea, but those challenges can be address with the considerable capabilities in the current nuclear arsenal.

#### “Nuclear capabilities” is used in NPR to compare shifts between administrations

Rodgers et al 2020 – Joseph Rodgers, CSIS, Associate Director and Associate Fellow, Project on Nuclear Issues “U.S. Nuclear Warhead Modernization and “New” Nuclear Weapons” https://www.csis.org/analysis/us-nuclear-warhead-modernization-and-new-nuclear-weapons

The Trump administration’s Nuclear Posture Review directly challenged the notion of “no new capabilities,” stating that the “need for flexibility to tailor U.S. capabilities and strategies to meet future requirements and unanticipated developments runs contrary to a rigid, continuing policy of ‘no new nuclear capabilities.’” The 2018 Nuclear Posture Review additionally called for the creation of two capabilities that the United States did not then have, a low-yield variant of the Trident D5 SLBM and a sea-launched cruise missile (SLCM.)5 The low-yield Trident II D5 was first deployed in 2020, and the sea-launched cruise missile has not yet received NNSA R&D funding. The Trump administration also did not choose to endorse the Obama administration’s policy of not designing new nuclear warheads.

#### Roles is slippery

Kristensen and Korda 2022 – “The 2022 Nuclear Posture Review: Arms Control Subdued By Military Rivalry,” https://fas.org/publication/2022-nuclear-posture-review/)

Interestingly, the NPR states that “hedging against an uncertain future” is no longer a stated (formal) role of nuclear weapons. Hedging has been part of a strategy to be able to react to changes in the threat environment, for example by deploying more weapons or modifying capabilities. The change does not mean that the United States is no longer hedging, but that hedging is part of managing the arsenal, rather than acting as a role for nuclear weapons within US military strategy writ large.

#### Posture = intentions, Capabilities = assets

Perkovich and Vaddi 2021 – GEORGE PERKOVICH is the Ken Olivier and Angela Nomellini Chair and vice president for studies at the Carnegie Endowment for International Peace. Perkovich works primarily on nuclear strategy and nonproliferation issues; cyberconflict; and new approaches to international public-private management of strategic technologies. PRANAY VADDI is a fellow in the Nuclear Policy Program at the Carnegie Endowment for International Peace. (“Proportionate Deterrence: A Model Nuclear Posture Review,” https://carnegieendowment.org/files/Perkovich\_Vaddi\_NPR\_full2.pdf)

Ever since the election of Bill Clinton in 1992, every U.S. presidential administration has published a Nuclear Posture Review (NPR) that explains the rationales behind its nuclear strategy, doctrine, and requested forces. These reviews have helped inform U.S. government personnel, citizens, allies, and adversaries of the country’s intentions and planned capabilities for conducting nuclear deterrence and, if necessary, war. The administration that takes office in January 2021 may or may not conduct a new NPR, but it will assess and update nuclear policies as part of its overall recalibration of national security strategy and policies.

“Use Conditions” ~ “conditions of nuclear retaliation”

Haynes 2020 – Susan Turner Haynes, Dragon in the Room: Nuclear Disarmament’s Missing Player” Strategic Studies Quarterly , Vol. 12, No. 1 (SPRING 2018), pp. 25-47)

Another option, likely to be even more agreeable to the United States, would be to alter the statement so as to widen further the scope of states at risk. The United States could thus include wording to the effect that any nonconventional attack or large-scale conventional attack waged by a nuclear or nonnuclear actor risks US nuclear retaliation. This statement would not mitigate the concerns of other states vis-à-vis conflict escalation, but it might send a favorable signal to China, because it seemingly provides less room for preemptive nuclear action. Such language, for instance, would foreclose the option of the US launching a preemptive nuclear attack on China to stymie the aggrandizement of Chinese nuclear and/or conventional forces.28 It instead would outline a specific condition for US nuclear retaliation, and China would know not to cross this line. To be clear, it is nowhere near an NFS statement, yet the omission of such an option in an explicit list of use conditions could be perceived as an implicit acknowledgement that a first strike is not intended or anticipated. It is also possible that China will sympathize with the US position in this regard, since many Chinese actors who advocate for the abrogation of China’s NFU policy do so on the grounds that China must consider using its nuclear weapons to deter large-scale conventional attacks.