



National Security Update

The Trump 2018 Nuclear Posture Review

This *IFPA National Security Update* examines the Trump Administration's Nuclear Posture Review (NPR).ⁱ This NPR addresses requirements for a U.S nuclear-force structure more attuned to 21st-century requirements in a world of additional nuclear states as well as other actors in possession of such weapons. The NPR focuses on the crucially important nuclear component of U.S national security strategy and capabilities and should be read in the broader context of the recently released National Security Strategyⁱⁱ and National Defense Strategyⁱⁱⁱ documents.

Key NPR Conclusions and Findings

- Sustain, modernize, and where necessary, replace U.S. nuclear capabilities including an updated triad of heavy bombers, land-based ICBMs, and sea-based submarine-launched ballistic missiles (SLBMs).
- Develop tailored and flexible approaches for credible deterrence across a range of adversaries, threats, and scenarios. For deterrence to remain credible, the United States must be capable of holding at risk the assets most valued by adversaries. U.S. declaratory policy must also communicate to them the risks and costs that would accompany any aggression.
- Make clear to states, terrorist groups, or other non-state actors that if they support terrorist efforts to acquire nuclear weapons the United States will hold them accountable. A terrorist nuclear attack against the United States or its allies would represent an “extreme circumstance” in which the United States would consider nuclear retaliation.
- Enhance deterrence by denying potential adversaries any mistaken confidence that limited nuclear use, including low-yield non-strategic nuclear weapons, can provide a coercive advantage in a crisis.
- Develop a low-yield SLBM warhead, a new-generation submarine-launched cruise missile (SLCM), and move the dual-capable aircraft nuclear role to the stealthy, fifth-generation F-35. These programs should be fast-tracked in light of the international security environment discussed below. Such measures will strengthen U.S. extended nuclear deterrence capabilities, assure allies, and dissuade proliferation.
- Modernize the U.S. nuclear command, control, and communications (NC3) network. This includes enhancing protection against cyber and space-based attacks, integrating planning and operations, and reforming the cumbersome authority/responsibility relationships of the NC3 system.
- Upgrade/modernize the U.S. nuclear-scientific-industrial base and support the infrastructure workforce to sustain the capacity to produce the requisite strategic materials and components for nuclear deterrent systems.

The Key Elements of the Trump Administration's Nuclear Posture Review

The Nuclear Posture Review released by the Trump Administration on February 2, 2018 is the fourth NPR since the end of the Cold War.^{iv} Like its predecessors, the Trump NPR reviews and assesses the nuclear policies, posture, and programs of the United States. Moreover, it shares considerable continuity with the previous three documents as well as with overall U.S. policy as it has developed in the nearly 75 years since the beginning of the nuclear age.

It examines U.S. nuclear policy and systems, together with the necessary actions required to maintain an effective deterrent and meet the increasing challenges posed by our adversaries. The current review states that global threat conditions have deteriorated markedly since the previous NPR was released by the Obama Administration in 2010 with the United States now facing a broader range of strategic threats.

The Trump NPR reflects the primary conclusion of both the 2017 National Security Strategy and the 2018 National Defense Strategy, namely that great power tensions are resurfacing as the driving force in international security. Russia's annexation of Crimea and China's aggressive behavior in the South China Sea combined with those two nations' revamped nuclear capabilities with modern weapons possessing characteristics different from their Cold War arsenals and the growing "salience of nuclear forces in their strategies and plans, and increasingly aggressive behavior, including in outer space and cyber space" underscore the fact that the central element of today's security environment is a return to great power competition and that the United States must respond accordingly.

Other contemporary threats include the continued growth of the ballistic missile and nuclear capabilities of North Korea which now can strike targets throughout the U.S. homeland. Pyongyang has threatened explicitly to do so. Furthermore, Iran, even with the restrictions imposed on its nuclear program by the 2015 Joint Comprehensive Plan of Action (commonly referred to as the Iran Nuclear Agreement), has the capability to develop a nuclear weapon within one year if it so decides, and possesses the largest (and growing) ballistic missile inventory in the Middle East.

To address the changed security environment, the NPR calls for tailored and flexible approaches to deter credibly across a spectrum of adversaries, threats, and contexts. "There is no 'one size fits all' for deterrence." The ability to modify U.S. deterrent capabilities quickly, given the growing importance of nuclear weapons in the defense policies/strategies of U.S. adversaries, is crucial. It states that the "highest U.S. nuclear policy and strategy priority is to deter potential adversaries from nuclear attack of any scale." For deterrence to remain credible, the United States must be capable of holding at risk the assets most valued by adversaries. In addition, U.S. declaratory policy must communicate to them the risks and costs that would accompany any aggression. This includes, for example, making it clear to states, terrorist groups, or other non-state actors that if they support the efforts of terrorists to acquire nuclear weapons the United States would hold them responsible. The NPR states that a terrorist nuclear attack against the United States, its allies, or partners would represent an "extreme circumstance" in which the United States would consider nuclear retaliation.

Nuclear weapons serve several critical functions in U.S. national security strategy including:

- Deterrence of nuclear and non-nuclear attack;
- Assurance of allies and partners;
- Achievement of U.S. objectives if deterrence fails; and

- Capacity to hedge against an uncertain future.

The NPR recognizes and reconfirms the importance of the U.S. nuclear triad. It advocates the sustainment and replacement of U.S. nuclear and non-nuclear capabilities in an affordable, cost-effective manner together with greater integration of nuclear and non-nuclear military planning. It affirms the commitment to the nuclear recapitalization/modernization program initiated by the previous administration to replace the now decades-old U.S. delivery systems. It also sets forth a comprehensive list of advantages and synergisms inherent in the diversified mix of capabilities that comprise the triad. Together they provide a compelling case for the triad as a hedge against future uncertainty. This could include, for example, technological breakthroughs that might undermine the survivability and utility of any of the legs of the triad.

The new triad platforms include the *Columbia*-class submarine (to replace the *Trident*), the Ground-Based Strategic Deterrent (to replace *Minuteman* ICBMs), and the B-21 bomber (to replace the B-2). The NPR also calls for the development of the Long-Range Standoff (LRSO) cruise missile which will allow B-21 and B-52 bombers to keep pace with the threat by delivering stand-off weapons able to penetrate advanced integrated air defense systems. Plans also include several warhead modernization programs.

The NPR proposes initiatives to address new conditions in the security environment. It recommends developing low-yield nuclear weapons to enhance deterrence by “denying potential adversaries any mistaken confidence that limited nuclear employment can provide a useful advantage over the United States.”

For example, Russia may believe that in a conventional clash with NATO “its greater number and variety of non-strategic nuclear systems provide a coercive advantage at lower levels of conflict.” Russia, because of its estimated 10-to-1 advantage in non-strategic nuclear forces and current strategic nuclear modernization efforts, likely assumes that the United States, armed principally with high-yield strategic weapons, would be unable or unwilling to retaliate and would stand down in the face of Russian aggression. Russia may believe these factors and capabilities provide the basis for nuclear escalation dominance in a future crisis with the United States or NATO.

Russia’s stated escalate-to-deescalate nuclear doctrine (sometimes called the “escalate to win” strategy) encompassing the employment of nuclear weapons in a conventional conflict has been simulated in numerous Russian wargame exercises and appear to “lower the threshold for Moscow’s first-use of nuclear weapons.” Consequently, the United States will expand “flexible U.S. nuclear options now, to include low-yield options, ... for the preservation of credible deterrence against regional aggression.” Such U.S. action would be designed to obviate any perceived Russian advantage and therefore, as the NPR points out, to raise the nuclear threshold, as discussed below.

In the near term, the United States will develop a new low-yield warhead to be placed on a limited number of submarine-launched ballistic missiles (SLBMs). It will also maintain the capacity to forward deploy U.S. nuclear bombers and dual capable aircraft (DCA) including upgrading the stealthy, fifth-generation F-35 aircraft with DCA capability.

Another initiative is the development of a new submarine-launched cruise missile or SLCM to replace the nuclear *Tomahawk* land-attack missile which was retired after the 2010 NPR. The SLBM warhead and SLCM – unlike the DCA – will not require cumbersome host nation support and approval. The goal of all these efforts is to raise the threshold for nuclear use and to demonstrate that the employment of any nuclear weapons would result in catastrophic consequences for Russia, or any other adversary.

These options will not, as some critics have suggested, lower the threshold making nuclear use more likely.^v As the NPR makes clear, increasing flexible U.S. nuclear options “will raise the nuclear threshold and help ensure that potential adversaries perceive no possible advantage in limited nuclear escalation, making nuclear employment less likely.” These flexible options will bolster deterrence to help ensure that conflict does not occur in the first place.

They represent a prudent, needed move that will reassure our NATO (and other regional) allies and possibly pressure Russia into finally engaging in arms control negotiations. For example, Secretary of Defense Jim Mattis believes the new SLCM could also serve as an incentive to bring Russia back into compliance with the 1987 Intermediate-Range Nuclear Forces (INF) Treaty, specifically with regard the nuclear ground-launched cruise missile Moscow has developed in violation of the INF.^{vi}

However, the SLBM warhead/SLCM/DCA initiatives do not appear to address in a sufficiently timely fashion the overwhelming disparity in low-yield nuclear weapons in the U.S. and Russian inventories which favors Russia by a 10-to-1 advantage. For example, currently the sole U.S. non-strategic nuclear capability is the F-15E DCA equipped with the B61 gravity bomb which will be replaced by the B61-12 gravity bomb beginning in 2021.

Russia on the other hand, and as noted in the NPR, possesses approximately 2,000 non-strategic nuclear weapons able to be deployed on ships and aircraft and by ground forces and include air-to-surface missiles, short-range ballistic missiles, gravity bombs, and depth charges for medium-range bombers, tactical bombers, and naval aviation, as well as anti-ship, anti-submarine, and anti-aircraft missiles and torpedoes for surface ships and submarines, and the aforementioned nuclear ground-launched cruise missile which violates the INF Treaty. Moreover, China possesses several non-strategic nuclear forces and North Korea’s inventory of such weapons continues to grow.

The shootdown of an Israeli F-16 fighter on February 10, 2018 by Syrian air defenses following a raid by Israel on Iranian facilities in Syria^{vii} has implications regarding the potential survivability of current U.S. DCA aircraft. The F-15E DCA, like the F-16, is a U.S. fourth-generation fighter, and may also be vulnerable to anti-air fire, particularly given the fact that the air defense networks of Russia are far more capable than Syria’s.

China is developing an advanced arsenal of anti-access/area denial (A2/AD) capabilities including robust air-defense assets. Both Russian and Chinese air-defense capabilities call into question whether the F-15E DCAs will be able to penetrate such defense networks and deliver their non-standoff, nuclear-gravity bombs.

Consequently, the United States urgently needs to rectify this dangerous situation to bolster deterrence and assure allies about the reliability of our extended deterrent. To do so the United States must give far greater urgency to the issue than what is apparent in the current NPR. The

priorities should be to transition DCA capabilities to the stealthy, fifth-generation F-35 aircraft as quickly as possible and to accelerate the deployment of the B61-12 gravity bomb.

The development of the new low-yield SLBM warhead should receive top priority with a fast-tracked development/deployment plan. The low-yield SLBM warhead will be survivable, will have no host-nation drawbacks, and will minimize concern over the potential vulnerabilities of DCA to the increasingly capable air-defenses of Russia and China. The United States should also move forward quickly with the new SLCM.

Taking these necessary steps will help to meet the NPR's stated objective of assuring allies and partners about the credibility of U.S. extended nuclear deterrence. The United States has formal extended deterrence commitments with European, Asian, and Pacific allies. Fast tracking the low-yield nuclear programs noted above will bolster the credibility and assurance of the U.S. nuclear umbrella and allow our allies/partners to "eschew possession of nuclear weapons, thereby contributing to U.S. nonproliferation goals."

To operate, control, and coordinate our nuclear and non-nuclear deterrent forces effectively the United States must maintain a modern, survivable nuclear command, control, and communications (NC3) system. The NC3 "must be increasingly flexible to tailor deterrence strategies across a range of potential adversaries and threats." Information transmitted over the NC3 must be resilient and secure, able to overcome the effects of a nuclear attack. The NPR states that threats in space and cyber space, together with Russia's strategy of limited-nuclear escalation noted earlier, are of particular concern.

However, the current U.S. NC3 network has not had major updates for almost thirty years. To correct this situation, the NPR calls for enhanced protection against cyber and space-based threats, improving integrated tactical warning and attack assessment and command nodes and communication links, augmenting decision support technology, integrating planning and operations, and reforming the cumbersome authority/responsibility relationships of the NC3 system.

The NPR states that maintaining and recapitalizing the defense industrial infrastructure and facilities in both the Department of Defense and the Department of Energy's National Nuclear Security Administration (NNSA)^{viii} together with sustaining/increasing the necessary skills of the DOD and DOE/NNSA personnel is "essential to the U.S. capacity to adapt flexibly to shifting requirements."

A vibrant, resilient nuclear weapons infrastructure and workforce provide "tangible evidence to both allies and potential adversaries of U.S. nuclear weapons capabilities and thus contribute to deterrence, assurance, and hedging against adverse developments." This includes the Stockpile Responsiveness Program designed to expand opportunities for young scientists and engineers to advance warhead design, development, and production skills.

Although each previous NPR has underscored the need for an updated, modernized nuclear weapons infrastructure, more than "half of NNSA's infrastructure is over 40 years old, and a quarter dates back to the Manhattan Project era." The United States can no longer postpone "recapitalizing the physical infrastructure needed to produce strategic materials and components for U.S. nuclear weapons."

As will be discussed in greater detail in the next section, studies conducted by the Institute for Foreign Policy Analysis (IFPA) nearly 15 years ago, underscored the need for a modern, flexible, and responsive nuclear-weapons infrastructure capable of producing warheads and other deterrent components in a timely fashion to meet geopolitical and changing security conditions. The need for such a capability is abundantly clear today as the United States grapples with the low-yield, non-strategic nuclear weapons gap we face with Russia and China as described earlier.

The NPR also supports compliance with the New Strategic Arms Reduction and the Intermediate-Range Nuclear Forces Treaties, and reiterates continued support for the moratorium on nuclear testing. However, it also states that additional progress on arms control is “difficult to envision in an environment that is characterized by continuing significant non-compliance with existing arms control obligations and commitments, and by potential adversaries who seek to change borders and overturn existing norms.”

For example, Russia has continued to violate several arms control treaties and obligations, most significantly the Intermediate-range Nuclear Forces Treaty, and has “rebuffed U.S. efforts to follow the New Strategic Arms Reduction Treaty (START) with another round of negotiated reductions and to pursue reductions in non-strategic nuclear forces.” The NPR signals that the United States is ready to consider arms control initiatives but only if they “return parties to compliance, predictability, and transparency ... and improve the security of the United States.”

The cost estimates to sustain and replace U.S. nuclear capabilities outlined in the Trump NPR differ. However, even when using the highest cost projection, the NPR calculates the price tag to be approximately 6.4 percent of the present DOD budget which is less than 1 percent of the total federal budget. Operating and maintaining current U.S. nuclear forces represents between 2 and 3 percent of the defense budget.

The NPR: Highlighting Issues of Long-standing Concern and Growing Urgency

The issues addressed in the 2018 NPR have been the object of concern for many years. Numerous earlier reports and studies including those of IFPA and others, have identified the need to modernize our nuclear arsenal to maintain a responsive infrastructure, to update our command and control systems, and to assure the safety, security, and reliability of our nuclear stockpile. The Trump Administration’s NPR underscores the fact that the lead time to do so is diminishing.

The essence of the discussion of such issues in earlier studies was that the current stockpile had been designed to deter the Soviet Union, not the spectrum of 21st-century threats. Therefore, it was frequently pointed out that future nuclear weapons should emphasize low-maintenance costs and enable the United States to manipulate the effects for weapons (e.g., the ability to adjust warhead yields) so that they could be tailored to different deterrence situations in a multi-nuclear world. Our future warheads should also be able to operate on different platforms and achieve higher levels of safety and reliability. Such flexible capabilities would help correct the low-yield, non-strategic-nuclear-weapons gap we now face with Russia and China described in the previous section.

It was also suggested that we would need a more flexible scientific-industrial base that could rapidly evolve as new threats emerged. By effectively integrating our nuclear and non-nuclear

forces, furthermore, we could contribute substantially to the underlying aims of assuring allies, and dissuading, deterring, and where necessary, defeating adversaries, and address the growing levels of proliferation in WMD and ballistic missiles.

If the United States was starting to build a nuclear stockpile today it would differ substantially from the Cold War configuration. For example, we would use new technologies and processes in warhead design. New generation systems would be more easily manufactured with environmentally benign materials, and they would be designed for reliability, security, and ease of maintenance. They would also be backed by a robust infrastructure capable of responding to emerging technical, geopolitical, and military conditions in timely fashion.

These are among the major conclusions and recommendations set forth in the final report from the Conference on *Nuclear and Non-Nuclear Forces in 21st-Century Deterrence*^{ix} organized by IFPA in 2005. This 2005 Conference also placed emphasis on the inherent relationship between nuclear modernization and missile defenses. There was an overall consensus that active and passive defenses, especially in the 21st-century multi-nuclear setting, can complement “deterrence by punishment” with “deterrence by denial.” Deterrence by denial provides the ability to defend and protect vitally important targets such as threats posed by North Korea. Furthermore, deterrence by denial represents an indispensable element of escalation control which would give U.S. decision makers escalatory and deterrence options in addition to those based solely on retaliation.

Therefore, it is hoped that the Trump Administration’s soon-to-be released Ballistic Missile Defense Review will reach a similar conclusion. The BMDR is designed to examine U.S. missile defense strategy and objectives and to provide a comprehensive assessment of present capabilities and future missile defense requirements and its indispensable deterrence role.

Conclusions

Overall, the Trump Administration’s Nuclear Posture Review outlines a sound, realistic, and affordable program for implementing the requisite nuclear policies, strategy, and acquiring the capabilities/systems needed to protect the United States in today’s deteriorating security environment. The Administration should move forward with their implementation as quickly and effectively as possible.

- The United States must sustain and replace as necessary U.S. nuclear capabilities in an affordable, cost-effective manner in order to deter credibly the broad spectrum of 21st-century threats and challenges. Among the requisite capabilities is an updated triad of heavy bombers, land-based ICBMs, and sea-based submarine-launched ballistic missiles.
- Tailored and flexible approaches for credible deterrence capable of holding at risk an adversary’s most valued assets are required across a range of adversaries, threats, and scenarios. U.S. declaratory policy must also communicate to adversaries the risks and costs that would accompany any aggression.
- It must be made clear to states, terrorist groups, or other non-state actors that if they support terrorist efforts to acquire nuclear weapons the United States will hold them accountable. A terrorist nuclear attack against the United States or its allies would represent an “extreme circumstance” in which the United States would consider nuclear retaliation.

- A pressing need exists to develop low-yield nuclear weapons to enhance deterrence to disabuse adversaries from the idea that limited use of nuclear weapons could provide an advantage over the United States. As the NPR points out, both Russia and China possess major inventories of non-strategic nuclear weapons (North Korea’s arsenal of such weapons is also growing). Therefore, it is an essential priority for the United States to accelerate development of the SLBM warhead, transition DCA capabilities to the more stealthy and survivable F-35 rapidly, and develop an advanced generation SLCM. This is a matter of urgency to strengthen U.S. extended nuclear deterrence capabilities and to assure allies and dissuade their development of indigenous nuclear weapons.
- A robust, resilient nuclear command, control, and communications network is needed to support all potential contingencies. Among other things, this includes enhancing protection against cyber and space-based attacks, integrating planning and operations, and reforming the cumbersome authority/responsibility relationships of the NC3 system.
- Maintaining an effective defense industrial infrastructure and workforce is critical to effective deterrence, assurance, and hedging against adverse developments.
- Although defense systems are not addressed in the current NPR, they will be the focus of the forthcoming Ballistic Missile Defense Review. Among other benefits, active and passive defenses will reinforce U.S. deterrence posture by providing deterrence by denial giving decision makers escalatory and deterrence options in addition to those based solely on retaliation.

Endnotes

-
- ⁱ *Nuclear Posture Review 2018*, Department of Defense. See <https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF>.
- ⁱⁱ *National Security Strategy of the United States*, December 2017. See <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>.
- ⁱⁱⁱ *Summary of the 2018 National Defense Strategy*. See <https://www.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>.
- ^{iv} For the Clinton Administration 1994 NPR see https://fas.org/nuke/guide/usa/doctrine/dod/95_npr.htm; for the Bush Administration 2001 NPR see <http://archive.defense.gov/news/Jan2002/d20020109npr.pdf>; for the Obama Administration 2010 NPR see https://www.defense.gov/Portals/1/features/defenseReviews/NPR/2010_Nuclear_Posture_Review_Report.pdf; and for the Trump Administration 2018 NPR see <https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF>.
- ^v “Questions about the Nuclear Posture Review,” by Steven Pifer, *Brookings*, February 5, 2018. See https://www.brookings.edu/blog/order-from-chaos/2018/02/05/questions-about-the-nuclear-posture-review/?utm_campaign=Foreign%20Policy&utm_source=hs_email&utm_medium=email&utm_content=60582309. See also “Nuclear Posture Review puts Russia firmly in crosshairs,” by Aaron Mehta, *DefenseNews*, February 2, 2018. See https://www.defensenews.com/space/2018/02/02/nuclear-posture-review-puts-russia-firmly-in-crosshairs/?utm_source=Sailthru&utm_medium=email&utm_campaign=ebb%2002.05.2018&utm_term=Editorial%20-%20Early%20Bird%20Brief.

vi “Will the US trade its new sub-launched cruise missile for Russian arms treaty compliance?” by Aaron Mehta, *DefenseNews*, February 6, 2018. See <https://www.defensenews.com/space/2018/02/06/will-the-us-trade-its-new-sub-launched-cruise-missile-for-russian-arms-treaty-compliance/>.

vii “Israel launches 'large-scale' attack in Syria after fighter jet crashes,” by Oliver Holmes, *The Guardian*, February 10, 2018. See <https://www.theguardian.com/world/2018/feb/10/israeli-fighter-jet-shot-down-by-syrian-fire-says-military>.

viii NNSA is responsible to maintain and enhance the safety, security, and effectiveness of the U.S. nuclear weapons stockpile; reduce the global danger from weapons of mass destruction; provide the U.S. Navy with safe and effective nuclear propulsion; and respond to nuclear and radiological emergencies in the U.S. and abroad.

ix Conference Report on *The Nuclear and Non-Nuclear Forces in 21st-Century Deterrence: Implementing the New Triad Conference*, The Institute for Foreign Policy Analysis. See <http://www.ifpa.org/pdf/IFC36.pdf>.

The Institute for Foreign Policy Analysis

<http://www.ifpa.org>

Robert L. Pfaltzgraff, Jr., President
RLP@ifpa.org

February 28, 2018 Report

The Institute for Foreign Policy Analysis, Inc. (IFPA) develops innovative strategies for new security challenges. IFPA conducts studies and produces reports, briefings, and publications. We also organize seminars and conferences. IFPA’s products and services help government policymakers, military and industry leaders, and the broader public policy communities make informed decisions in a complex and dynamic global environment. To find out more about IFPA’s work and publications, visit www.IFPA.org.