

Written Testimony for the House Armed Services Committee

“Findings of the Congressional Commission on the Strategic Posture of the United States”

Honorable Madelyn R. Creedon

Chair, Congressional Commission on the Strategic Posture of the United States

Honorable Jon L. Kyl

Vice Chair, Congressional Commission on the Strategic Posture of the United States

November 15, 2023

Preface to the Final Report

The militarily troubling and increasingly aggressive behaviors of Russia and China over the past decade led Congress to direct a review of the strategic posture of the United States, including nuclear weapons policy, strategy, and force structure.¹ We have the privilege to serve as the chair and vice chair of this second Strategic Posture Commission (SPC).

Much has happened since the first SPC released its report in 2009.² China's rapid military build-up, including the unprecedented growth of its nuclear forces, Russia's diversification and expansion of its theater-based nuclear systems, the invasion of Ukraine in 2014 and subsequent full-scale invasion in February 2022, have all fundamentally altered the geopolitical landscape. As a result of China's and Russia's growing competition with the United States and its Allies and partners, and the increasing risk of military conflict with one or both, as well as concerns about whether the United States would be prepared to deter two nuclear peers, Congress determined it was time for a new look at U.S. strategic policy, strategy, and force structure.

The first SPC had a charge like ours: "to conduct a review of the strategic posture of the United States and to make a recommendation on how to move forward."³ The vision of a world without nuclear weapons, aspirational even in 2009, is more improbable now than ever. The new global environment is fundamentally different than anything experienced in the past, even in the darkest days of the Cold War. Today the United States is on the cusp of having not one, but two nuclear peer adversaries, each with ambitions to change the international status quo, by force, if necessary: a situation which the United States did not anticipate and for which it is not prepared. While the risk of a major nuclear conflict remains low, the risk of military conflict with either or both Russia and China, while not inevitable, has grown, and with it the risk of nuclear use, possibly against the U.S. homeland.

We started our work with extensive intelligence briefings to understand this new, rapidly changing security environment. These briefings underpin our conclusion that as a nation we need to urgently prepare for the new reality, and that measures need to be taken now to deal with these new threats. We believe that prompt actions are needed to provide future decision-makers viable options to credibly deter conflict. Being unprepared for the reality of two nuclear peers, who are dedicated to and focused on undermining the post-Cold War international order that has served the United States and its Allies and partners so well, is, in our view, not an option.

We had extensive discussions and briefings on the problems we face as a nation, including workforce shortages, supply chain limitations, and inadequate physical, scientific, technical, and experimental infrastructure at the Department of Defense (DOD) and Department of Energy/National Nuclear Security Administration (DOE/NNSA). These shortcomings resulted from years of inattention and if not addressed promptly, will continue to limit the U.S. ability to prepare and respond to the new challenges.

As we discussed this new normal, we also concluded that the United States does not truly have, but must commit to, a "whole-of-government" approach to be more efficient and effective.

Keeping up with technology is also a challenge. Whereas in the past, when U.S. government research was uniformly on the cutting edge, that role has shifted to the private sector in many areas. As a result, the DOD and DOE/NNSA will have to change traditional procurement practices to work effectively with the private sector to rapidly develop and deploy new cutting-edge technology.

¹ Congress established the parameters of the review and a Strategic Posture Commission to carry it out in the National Defense Authorization Act for Fiscal Year 2022, Pub. L. 117-81, 135 Stat. 2126, 117th Cong.

² William J. Perry and James R. Schlesinger, *America's Strategic Posture: The Final Report of Congressional Commission on the Strategic Posture of the United States*, (United States Institute of Peace, 2009).

³ *Ibid*, Chairman's Preface.

Allies and partners are important as together we are stronger. Greater cooperation, coordination and integration with our Allies and partners is essential to deter conflict and prosper economically. National leaders must communicate to U.S. citizens the benefits and importance of U.S. global leadership, Allies and partners and extended deterrence, if they are to gain the support of the American people for the associated policy and costs.

Our review sought to address and respond to this new, more dangerous, and more competitive environment, while looking for ways to improve strategic stability and reduce the risk of conflict. We know that this will be difficult on many levels, but we believe that our recommendations can help shape needed future strategy and posture decisions.

For the most part the Commission deliberately avoided making specific force structure recommendations; instead, we identified capabilities beyond the existing program of record (POR) that will be needed. We believe it is appropriate to leave specific material solution decisions to the Executive Branch and Congress. We were clear, however, that the nuclear force modernization POR is absolutely essential, although not sufficient to meet the new threats posed by Russia and China, and that the elements of the POR should be completed on time, expedited wherever possible, and expanded as needed.

We also found that adopting new technologies faster, and working with smaller innovative companies will be necessary to support a modern, flexible, force structure and infrastructure in the future.

While we did not conduct a cost analysis of our recommendations, it is obvious they will cost money. We do recognize budget realities, but we also believe the nation must make these new investments and U.S. leaders must communicate to U.S. citizens both the need and urgency to rebuild the nuclear infrastructure and modernize the nuclear forces. These investments in the nuclear enterprise are a relatively small portion of the overall defense budget but provide the backbone and foundation of deterrence and are the nation's highest defense priority. The investments the Commission recommends in both nuclear and conventional capabilities will provide a safe, secure, reliable, effective, and credible deterrent, which is essential to reduce the risk of conflict, most importantly nuclear conflict.

From the outset the Commissioners understood that our most valuable contribution to U.S. national security would be a consensus report. There were certainly differences of opinion and a multitude of views expressed amongst our members during our many robust debates and discussions. No doubt some commissioners might have stated some things differently. For example, a number of commissioners believe it is inevitable that the size of the U.S. nuclear stockpile and the number of delivery systems should increase. We all agreed, however, on the findings and recommendations in this report and the need for actions now to better position the United States for the future and ensure a safe, secure, reliable, and credible deterrent.

We believe that sustained bipartisan consensus is possible and necessary to secure a strong future and credible deterrent for the United States. Moreover, we hope this report illustrates to policy- and decision-makers that even with different opinions, people of good faith can work together for the common good on fundamentally important matters.

This report would not have been possible without the excellent work of the Institute for Defense Analyses (IDA) leadership and staff. We extend a sincere thank you to our Executive Director, Maj. Gen. William Chambers (USAF retired) and the IDA staff.

Executive Summary of the Report

The United States faces a strategic challenge requiring urgent action. Given current threat trajectories, our nation will soon encounter a fundamentally different global setting than it has ever experienced: we will face a world where two nations possess nuclear arsenals on par with our own. In addition, the risk of conflict with these two nuclear peers is increasing. It is an existential challenge for which the United States is ill-prepared, unless its leaders make decisions now to adjust the U.S. strategic posture.

The Congressional Commission on the Strategic Posture of the United States was established by the Fiscal Year (FY) 2022 National Defense Authorization Act (NDAA), and concludes that America's defense strategy and strategic posture must change in order to properly defend its vital interests and improve strategic stability with China and Russia. Decisions need to be made now in order for the nation to be prepared to address the threats from these two nuclear-armed adversaries arising during the 2027-2035 timeframe. Moreover, these threats are such that the United States and its Allies and partners must be ready to deter and defeat both adversaries simultaneously.

We arrive at these conclusions following a comprehensive year-long review of the threats America faces and its strategy and planned capabilities to address those threats. The evidence demonstrates that the U.S.-led international order and the values it upholds are at risk from the Chinese and Russian authoritarian regimes. The risk of military conflict with those major powers has grown and carries the potential for nuclear war. Therefore, the Commission reached the unanimous, non-partisan conclusion that today's strategic outlook requires an urgent national focus and a series of concerted actions not currently planned. In sum, we find that the United States lacks a comprehensive strategy to address the looming two-nuclear-peer threat environment and lacks the force structure such a strategy will require.

In reaching that overall conclusion, we make clear that the fundamentals of America's deterrence strategy remain sound, but the application of that strategy must change to address the 2027-2035 threat environment. Those changes drive necessary adjustments to the posture of U.S. nuclear capabilities – in size and/or composition. A full spectrum of non-nuclear capabilities is also essential to the nation's strategic posture. Such adjustments, in turn, drive the need to strengthen and expand the capacity of the infrastructure required to sustain and enhance U.S. strategic capabilities. In addition, Allies and partners are central to our findings regarding strategy and posture. We also emphasize the need for robust risk reduction efforts as fundamental to the U.S. approach in the new threat environment.

Adhering to the stipulations of our mandate, the report that follows delineates 131 findings and makes 81 recommendations. Those findings and recommendations are found at the beginning and end, respectively, of each chapter that follows; a complete list is also included following the report's conclusion. Our most important recommendations are summarized here:

STRATEGY

- To achieve the most effective strategy for stability in light of the 2027-2035 threat environment, the Commission identifies three necessary changes:
 - The United States must develop and effectively implement a truly integrated, whole-of-government strategy to address the 2027-2035 threat environment.
 - The objectives of U.S. strategy must include effective deterrence and defeat of simultaneous Russian and Chinese aggression in Europe and Asia using conventional forces. If the United States and its Allies and partners do not field sufficient conventional forces to achieve this objective, U.S. strategy would need to be altered to increase reliance on nuclear weapons to deter or counter opportunistic or collaborative aggression in the other theater.

- The size and composition of the nuclear force must account for the possibility of combined aggression from Russia and China. U.S. strategy should no longer treat China’s nuclear forces as a “lesser included” threat. The United States needs a nuclear posture capable of simultaneously deterring both countries.
- The Commission recommends the United States maintain a nuclear strategy consistent with the Law of Armed Conflict (LOAC), based on six fundamental tenets—assured second strike, flexible response, tailored deterrence, extended deterrence and assurance, calculated ambiguity in declaratory policy, hedge against risk—and apply these tenets to address the 2027-2035 threat.

STRATEGIC POSTURE

In the context of a strategic posture deploying both conventional and nuclear capability, the Commission believes the traditional role of nuclear weapons in U.S. defense strategy remains valid and of continuing importance: deterrence of adversaries; assurance of Allies; achieving U.S. objectives should deterrence fail; and hedging against adverse events.

- The Commission recommends fully and urgently executing the U.S. nuclear modernization Program of Record (POR), which includes replacement of all U.S. nuclear delivery systems, modernization of their warheads, comprehensive modernization of U.S. nuclear command, control, and communications (NC3), and recapitalizing the nuclear enterprise infrastructure at the DOD and DOE/NNSA.
- The current modernization program should be supplemented to ensure U.S. nuclear strategy remains effective in a two-nuclear-peer environment.
- Comprehensive risk-mitigating actions across U.S. nuclear forces must be executed to ensure that delays in modernization programs or early age-out of currently deployed systems do not result in militarily significant shortfalls in deployed nuclear capability.
- The U.S. strategic nuclear force posture should be modified to:
 - Address the larger number of targets due to the growing Chinese nuclear threat.
 - Address the possibility that China will field large-scale, counterforce-capable missile forces that pose a threat to U.S. strategic nuclear forces on par with the threat Russia poses to those forces today.
 - Assure the United States continues to avoid reliance on executing Intercontinental Ballistic Missile (ICBM) launch under attack to retain an effective deterrent.
 - Account for advances in Russian and Chinese integrated air and missile defenses (IAMD).
- The U.S. theater nuclear force posture should be urgently modified to:
 - Provide the President a range of militarily effective nuclear response options to deter or counter Russian or Chinese limited nuclear use in theater.
 - Address the need for U.S. theater nuclear forces deployed or based in the Asia-Pacific theater.
 - Compensate for any shortfall in U.S. and allied non-nuclear capabilities in a sequential or simultaneous two-theater conflict against Russia and China.
 - Address advances in Russian and Chinese IAMD.

NUCLEAR SECURITY ENTERPRISE INFRASTRUCTURE AND ORGANIZATION

- The Commission recommends the DOD and DOE/NNSA strategic infrastructure be expanded to have sufficient capacity to:

- Meet the capability and schedule requirements of the current nuclear modernization POR and the requirements of the force posture modifications recommended by the Commission in time to address the two-peer threat.
 - Provide an effective hedge against four forms of risk: technical failure of a warhead or delivery system, programmatic delays, operational loss of delivery systems, and further deterioration of the geopolitical environment.
 - Flex to respond to emerging requirements in a timely fashion.
- To support the proposed strategy, the Commission recommends Congress fund an overhaul and expansion of the capacity of the U.S. nuclear weapons defense industrial base and the DOE/NNSA nuclear security enterprise, including weapons science, design, and production infrastructure. Specifically:
 - Congress should fund the full range of NNSA’s recapitalization efforts, such as pit production and all operations related to critical materials.
 - Congress should forge and sustain bipartisan consensus and year-to-year funding stability to enable the defense industry to respond to innovative DOD contracting approaches and invest with more certainty.
 - Congress should enact annual DOD and DOE authorization and appropriation bills before the beginning of each fiscal year.
 - Congress should place the purview of all “050” programs (President’s Budget line item for “national security”) that are in NNSA under Defense appropriations subcommittees (House Appropriations Committee-Defense (HAC-D), Senate Appropriations Committee-Defense (SAC-D).
 - Cabinet Secretaries, working with states and union leaders, should establish and increase the technical education and vocational training programs required to create the nation’s necessary skilled-trades workforce for the nuclear enterprise.
 - The Commission recommends a number of specific actions to expand the capacity and effectiveness of the nation’s infrastructure and supply chain for its strategic capabilities.

NON-NUCLEAR CAPABILITIES

The Commission recommends:

- The United States urgently deploy a more resilient space architecture and adopt a strategy that includes both offensive and defensive elements to ensure U.S. access to and operations in space.
- The United States and its Allies take steps to ensure they are at the cutting edge of emerging technologies – such as big data analytics, quantum computing, and artificial intelligence (AI) – to avoid strategic surprise and potentially enhance the U.S. strategic posture.
- The United States prioritize funding and accelerate long-range non-nuclear precision strike programs to meet the operational need and in greater quantities than currently planned.
- The United States develop and field homeland IAMD that can deter and defeat coercive attacks by Russia and China, and determine the capabilities needed to stay ahead of the North Korean threat.⁴
- The Secretary of Defense direct research, development, test and evaluation into advanced IAMD capabilities leveraging all domains, including land, sea, air, and space. These activities should focus on sensor architectures, integrated command and control, interceptors, cruise and hypersonic missile defenses, and area or point defenses. The DOD should urgently pursue deployment of any capabilities that prove feasible.
- The Secretary of Defense and the Military Departments transfer operations and sustainment responsibility for missile defense to the appropriate Military Departments by 1 October 2024.

⁴ A “coercive” attack consists of limited conventional or nuclear strikes intended to convince U.S. leadership that the costs of intervening or persevering in a conflict involving the attacker are too high.

This will allow the Missile Defense Agency (MDA) to focus on research, development, prototyping and testing.

ALLIES AND PARTNERS

The Commission believes it is in the U.S. national interest to maintain, strengthen, and when appropriate, expand its network of alliances and partnerships. These relationships strengthen American security by deterring aggression regionally, before it can reach the U.S. homeland, while also enabling U.S. economic prosperity through access to international markets. Withdrawing from U.S. alliances and partnerships would directly benefit adversaries, invite aggression that the United States might later have to reverse, and ultimately decrease American, allied, and partner security and economic prosperity. Further, the Commission believes that our defense and the defense of the current international order is strengthened when Allies can directly contribute to the broader strategic posture, and the United States should seek to incorporate those contributions as much as possible.

- The Executive branch should recognize that any major change to U.S. strategic posture, policies, or capabilities will have great effect on Allies' perceptions and their deterrence and assurance requirements. As a result, any changes should be predicated on meaningful consultations.

RISK REDUCTION

The Commission believes it is of paramount importance for the United States to work to reduce strategic risks. This involves activities and programs across the U.S. government, including in nonproliferation and arms control, as well as maintaining strong, viable, and resilient military forces.

- The Commission recommends that a strategy to address the two-nuclear-peer threat environment be a prerequisite for developing U.S. nuclear arms control limits for the 2027-2035 timeframe. The Commission recommends that once a strategy and its related force requirements are established, the U.S. government determine whether and how nuclear arms control limits continue to enhance U.S. security.
- The Commission recommends that the United States continue to explore nuclear arms control opportunities and conduct research into potential verification technologies in order to support or enable future negotiations in the U.S. national interest that seek to limit all nuclear weapon types, should the geopolitical environment change.
- Where formal nuclear arms control agreements are not possible, the Commission recommends pursuing nuclear risk reduction measures to increase predictability and reduce uncertainty and the chances for misperception and miscalculation.

The 2009 Congressional Commission on the Strategic Posture of the United States reported that the United States was at “a moment of opportunity, . . .but also a moment of urgency” – because the security environment had improved and the threat of nuclear proliferation was the principal concern. Since 2009, the security environment has dramatically worsened and new existential threats have emerged. This Commission concludes that the United States now faces a high-stakes challenge that requires urgent action. Nevertheless, the Commission has not seen the U.S. government demonstrate the urgency and creativity required to meet the challenge. Nothing other than synchronized steps taken by the Executive and Legislative Branches will craft the strategy and build the posture the nation requires.

The challenges are unmistakable; the problems are urgent; the steps are needed now.

Compilation of Findings and Recommendations from the Final Report

THE STAKES

Findings

Today, the U.S.-led international order is under threat from the Chinese and Russian authoritarian regimes, which seek to disrupt and displace this order and create a new version conducive to their authoritarian regimes, premised on values antithetical to those held by the United States and like-minded Allies and partners worldwide.

Though the U.S.-led order is threatened, it currently holds. The Commission concludes, however, that unless the United States adjusts its strategic posture, U.S. vital interests and international stability are at risk during the 2027-2035 period.

U.S. Allies and partners give the United States a clear strategic advantage. If the United States were to adopt a defense strategy and associated strategic posture no longer based on existing alliance systems in Asia and Europe, U.S. vital interests would be at risk, U.S. global influence diminished, and Americans' liberties threatened.

A central thrust of China's and Russia's adversarial approach toward the United States is their building of military capabilities, including major expansion and modernization of nuclear capabilities, which could lead to a situation where both powers pose an existential threat to the United States.

There is a growing risk of confrontation with China, Russia, or both. This includes the risk of military conflict.

Unlike World Wars I and II, a major power conflict in the 21st century has the potential to escalate into a large-scale nuclear war.

While it is challenging to maintain a strategic posture sufficient to prevent major power war, it would be far more expensive to fight such a war.

The urgent imperative to tackle the strategic challenge the United States faces must be consistently conveyed in a bipartisan manner by national leaders and broadly understood by the American people.

Recommendations

The Commission recommends America's elected leaders communicate strategic realities— U.S. vital interests, threats to those vital interests, and necessary changes to the U.S. strategic posture—to the American people clearly, forthrightly, and regularly:

- This entails communicating that U.S. national security requires the United States to remain engaged in international affairs to maintain and further its national interests, prevent armed aggression and escalation if possible, and prevail in armed conflict if necessary.
- It also requires communicating that U.S. and allied commitments to come to the defense of one another protect and advance U.S. vital interests, including our shared democratic values, freedoms, and prosperity. The U.S. alliance security commitments, therefore, are acts of friendship that also advance vital economic and security interests of all U.S. citizens. More fundamentally, Allies and partners make the United States stronger and enable it to better pursue and protect U.S. national and shared interests.

THE THREAT THROUGH 2027-2035

Findings

The United States will face two nuclear peer adversaries for the first time. The Commission concludes that China's rapid expansion of its nuclear forces and Russia's increasing reliance on nuclear weapons and potentially expanded nuclear arsenal are an unprecedented and growing threat to U.S. national security and potentially the U.S. homeland. In addition, unlike previous conflicts in the 20th century, a future potential conflict with China or Russia would likely involve new kinetic and non-kinetic attacks on the U.S. homeland and assets in space and cyber domains – further underscoring the importance of deterring and defeating such attacks.

The new partnership between Russian and Chinese leaders poses qualitatively new threats of potential opportunistic aggression and/or the risk of future cooperative two-theater aggression. Neither the 2018 nor the 2022 National Defense Strategy (NDS) adequately address this rapidly emerging threat. As noted by the 2018 Commission on the NDS, regarding the 2018 NDS: “The Department has largely abandoned the longstanding ‘two war’ construct for a ‘one major war’ sizing and shaping construct. In the event of large-scale conflict with China or Russia, the United States may not have sufficient remaining resources to deter other adversaries in one—let alone two—other theaters by denying them the ability to accomplish their objectives without relying on nuclear weapons.”

The 2022 NDS also adopts a “one major war” sizing construct, while both the 2022 NDS and the 2022 Nuclear Posture Review (NPR) hint at increased reliance on U.S. nuclear forces to deter opportunistic aggression. But neither addresses the nature of the U.S. conventional force, including space and non-kinetic capabilities, or nuclear force that will be required to do so when facing two peers. As noted in the 2022 NPR: “In a potential conflict with a competitor, the United States would need to be able to deter opportunistic aggression by another competitor. We will rely in part on nuclear weapons to help mitigate this risk, recognizing that a near-simultaneous conflict with two nuclear-armed states would constitute an extreme circumstance.”

Due to China's nuclear build-up, the United States will no longer be able to treat the Chinese nuclear threat as a “lesser included case” of the Russian nuclear threat. As a result, the United States must re-evaluate the size and composition of the U.S. nuclear force that would be adequate to fulfill longstanding roles of that force. These roles include deterrence, assurance, achieving objectives should deterrence fail, and hedging against adverse events.

U.S. defense strategy to address the two-nuclear-peer threat requires a U.S. nuclear force that is either larger in size, different in composition, or both; therefore, decisions must be made now to meet evolving deterrence requirements.

- The current and planned capacity of the U.S. nuclear weapons enterprise, in both DOD and DOE/NNSA, limits the nation's ability to meet and build on the existing POR in order to address the threat.

The Commission concludes the U.S. and allied conventional military advantages in Asia are decreasing at the same time the potential for two simultaneous theater conflicts is increasing.

- Moreover, the U.S. conventional forces needed to fight a theater conflict in Europe differ from those required for Asia. The currently planned force is not structured to be able to fully reinforce both theaters simultaneously – especially given the growing adversary non-nuclear capability to hinder U.S. ability to flow additional forces to Asia or Europe. This shortfall, combined with increases in China's nuclear capabilities, has the potential to undermine deterrence, especially deterrence of opportunistic aggression.

The Commission concludes that dismissing the possibility of opportunistic or simultaneous two-peer aggression because it may seem improbable, and not addressing it in U.S. strategy and strategic posture, could have the perverse effect of making such aggression more likely.

- China, Russia, or both simultaneously, may believe that the United States and its Allies are unlikely to oppose their regional aggression with sufficient forces to guarantee victory, since doing so may leave the United States and its Allies vulnerable in another theater. These states may gamble that their perceived greater stake in a conflict's outcome, combined with perceived U.S. limitations, may offer a unique opportunity for their successful aggression.
- The speed and scale of success of U.S. forces in meeting that aggression in one theater may greatly influence the chances of conflict, or success in conflict, in the other theater.

China is pursuing a nuclear force build-up on a scale and pace unseen since the U.S.–Soviet nuclear arms race that ended in the late 1980s.

The Commission further concludes that at China's current pace, it will reach rough quantitative parity with the United States in deployed nuclear warheads by the mid-2030s.

- As it acquires sufficient fissile material, China will retain the capacity to continue growing its nuclear forces quickly past that point.

China's capacity for rapid change, and opacity concerning its intentions, presents great challenges for U.S. defense and nuclear strategy.

China appears to have decided to change the role of nuclear weapons in its national security strategy (e.g., adopting an expanded theater nuclear war-fighting role), in anticipation of a conflict over Taiwan and perhaps in pursuit of its broader national objectives.

Neither a new Chinese strategy nor the far larger and more diverse Chinese nuclear force required to implement it were envisioned when the current U.S. nuclear modernization program was developed.

The Commission also assesses that the rapid pace of potential change in Chinese strategy and capabilities will place additional demands on the ability of the United States and its Allies to adapt their own strategies and capabilities.

The Commission has concluded that China now has, for the first time, a nascent triad of strategic nuclear delivery systems, and potentially a launch-on-warning posture. China also is developing and testing potentially destabilizing, new intercontinental range systems that include hypersonic as well as fractional or multiple orbital bombardment systems (FOBS or MOBS) that could potentially threaten an unwarned preemptive attack on the United States.

China will also for the first time have survivable (mobile) theater nuclear forces capable of conducting low-yield precision strikes on U.S. and allied forces and infrastructure across East Asia, in contrast to its historic practice of fielding only larger yield weapons. Theater-range low-yield weapons may reduce China's threshold for using nuclear weapons.

The Commission finds that China is rapidly fielding new non-nuclear capabilities in space and cyberspace and electronic warfare (EW) capabilities that create both strategic and theater effects. These capabilities, in addition to China's conventional forces, can deny, disrupt, or diminish U.S. conventional forces' ability to project power effectively, and can threaten both U.S. NC3 and the critical national infrastructure that supports it.

The Commission concludes that China continues to engage in biological and chemical activities with dual-use applications, which raises concerns regarding its compliance with the Biological and Chemical Weapons Conventions (BWC and CWC).

The Commission concludes that China is rapidly expanding and modernizing its conventional forces—to include ballistic missile systems—posing an increasing threat to U.S. forces and Allies in Asia. By the 2030s China’s conventional military build-up could turn the conventional military balance in Asia against the U.S. and its Allies.

- This potential conventional imbalance, particularly in long-range and intermediate-range systems, increases the risk of deterrence failure should China contemplate aggression, especially if there were to be a theater conflict already underway between Russia and North Atlantic Treaty Organization (NATO).
- China is also strengthening and expanding its air and missile defense network, primarily aimed at defeating the full range of U.S. advanced strike capabilities.

The Commission finds that even before any potential change in the conventional military balance, China may perceive that the cost of inaction against Taiwan is higher than the cost of conflict with the United States over Taiwan – even at the risk of nuclear war.

The Commission concludes that Russia today has the largest nuclear force of any state. This is likely to remain true through 2035.

Russia is projected to continue to expand and enhance its nuclear forces, with most of the growth concentrated in theater nuclear forces, thus increasing its decided numerical advantage over U.S. and allied nuclear forces.

Russian strategy and doctrine as written envisions limited first use of theater nuclear weapons to, inter alia, coerce war termination on terms acceptable to Russia, and larger scale use of theater nuclear forces to defeat NATO conventional forces if Russia is decisively losing a war with NATO. Russian strategy and doctrine rely on strategic nuclear forces to deter a large-scale U.S. nuclear response against the Russian homeland while Russia can escalate to limited nuclear war in theater if it chooses.

The Commission concludes that Russia’s active nuclear warhead and missile production lines provide the capability, should Russia decide to discard the limits of New START (Strategic Arms Reduction Treaty), to expand its strategic nuclear forces.

- Russia’s current modernization program added substantial warhead upload capacity to its ICBMs and Submarine Launched Ballistic Missiles (SLBMs).
- Russia’s modernized nuclear warhead design and production infrastructure has significant surplus capacity to implement a decision to upload.
- Russia has nearly completed a multi-year modernization program of its strategic nuclear forces, with notable improvements to its triad of forces, including the new Sarmat heavy ICBM and cruise-missile equipped Severodvinsk class submarines.
- Russia’s future long-range nuclear forces include new forms of nuclear delivery systems (e.g., Avangard, Poseidon, nuclear-powered Skyfall Ground Launched Cruise Missile (GLCM), Kinzhal air-launched ballistic missile).

The Commission concludes that Russia is continuing to expand its space, cyber, and electronic warfare capabilities in an effort to deny U.S. and NATO forces critical enabling capabilities, and to derive coercive political leverage from threats to critical infrastructure.

The Commission concludes that Russia continues to pursue biological and chemical weapons capabilities in violation of the BWC and CWC.

The Commission has concluded that Russian conventional forces, while inferior to fully mobilized NATO forces, will continue to have a space/time advantage against NATO states on Russia's periphery, potentially enabling them to occupy such states' territory in a fait accompli before NATO forces can fully mobilize in their defense, thus presenting an existential threat to territorial sovereignty of Allies and partners.

Russian modernization and expansion of its air and missile defense capabilities beyond the Moscow region will pose a growing threat not only to the efficacy of U.S. nuclear forces but to conventional forces as well.

The Commission has found that Russia's use of large-scale conventional military force against Ukraine demonstrates a propensity to take risk and tolerate significant loss. The outcome of the war in Ukraine could influence future calculations – and indeed miscalculations – about the risks and benefits of aggression.

The Commission concludes that North Korea continues to expand and diversify its nuclear forces, increasing the threat to U.S. Allies and forces in theater, and posing a greater threat to the U.S. and its Allies.

North Korea is on pace to deploy nuclear-armed intercontinental range missiles in sufficient numbers that could potentially challenge U.S. homeland ground-based ballistic missile defenses.

The Commission concludes that North Korea's chemical and biological weapons programs continue to be of great concern.

The Commission also found that North Korea's cyber forces have matured and are fully capable of achieving a range of strategic objectives against diverse targets, including a wider target set in the United States.

The Commission concludes the Iranian regime will maintain a nuclear program as part of its strategic goals for enhancing security, prestige, and regional influence. This includes pursuit of nuclear energy and the capability to build missile-deliverable nuclear weapons.

If Iran decides to do so, it could field advanced longer-range missile systems in the 2027-2035 timeframe. Iran will also pose a credible theater missile threat as a key non-nuclear capability.

Recommendations

The Commission recommends the following:

- The Director of National Intelligence (DNI) should immediately direct increased collection, processing, exploitation, and analysis on Chinese nuclear strategy, planning, and employment doctrine. It is essential that the United States better understand, inter alia, whether and how China's thinking about the role of nuclear weapons is changing, where the Chinese are investing time and effort in military equipment and strategy development, and what goals CCP leadership wants to achieve with its newly expanded nuclear arsenal.
- The DNI should immediately direct development of dynamic assessments of the decision calculus of all nuclear-armed adversaries regarding the use of nuclear weapons for coercion or in conflict. The Intelligence Community must ensure these assessments identify specific adversary perceptions of the potential benefits and costs of employing nuclear weapons in conflict, the potential benefits and costs of restraint from doing so, and possibilities for misunderstanding and

miscalculation that could facilitate escalation of crises. Such assessments are critical prerequisites for the development of effective deterrence strategies and campaigns, and the plans that flow from them.

- The DNI should immediately direct an analysis of other potential adversaries that may develop strategic military capabilities during the 2027-2035 timeframe that could threaten U.S. and allied interests.
- The Secretary of Defense should immediately direct an analysis of the policy and posture effects of the threats posed by emerging and disruptive technologies, to include AI, quantum, and genetically engineered or other novel biological weapons on the future military balance and strategic stability. Based on the results of that analysis, develop a strategy and identify associated strategic posture changes, including defenses, sufficient to address these potential threats.

STRATEGY

Findings

The six core tenets of U.S. nuclear strategy—assured second strike, flexible response, tailored deterrence, extended deterrence and assurance, calculated ambiguity, and hedge against risk— remain sound and continue to provide an effective foundation for deterrence and defense.

Adversary kinetic and non-kinetic capabilities are a growing threat to the U.S. homeland.

Space, cyber, and other non-kinetic capabilities are not adequately reflected in a coherent U.S. strategy to address the 2027-2035 threat.

The risk of failing to deter potential opportunistic or collaborative two-theater aggression in the 2027-2035 timeframe will not be mitigated unless the United States modifies its defense strategy and the strategic posture that enables it.

Recommendations

U.S. nuclear strategy is the foundational element of its broader strategy for addressing the two-nuclear-peer threat environment. The Commission recommends the United States maintain a nuclear strategy based on six fundamental tenets:

- Assured second strike;
- Flexible response to achieve national objectives;
- Tailored deterrence;
- Extended deterrence and assurance;
- Calculated ambiguity in declaratory policy; and
- Hedge against risk.

These foundational strategy tenets should be applied to address the 2027-2035 threat in the following ways:

- Deter large-scale strategic attack on the United States and its Allies and partners through maintaining an assured second-strike capability sufficient to impose unacceptable costs as an adversary or adversaries perceive it under any conditions.
- Continue the practice and policy of not directly targeting civilian populations, and adhere to the LOAC in nuclear planning and operations.
- Tailor U.S. deterrence strategy and practice to decisively influence the unique decision calculus of each nuclear-armed adversary. As a general rule, the most effective deterrent is to hold at risk

what adversaries value most. As long as the Chinese and Russian regimes maintain their current autocratic structure and dangerous policies, this means holding at risk key elements of their leadership, the security structure maintaining the leadership in power, their nuclear and conventional forces, and their war supporting industry.

- Deter limited strategic attacks, including limited nuclear escalation, through a flexible response strategy enabled by U.S. and allied nuclear and conventional forces and partner conventional forces that are capable of:
 - Continuing to operate effectively to achieve U.S. and allied and partner objectives in a limited nuclear use environment; and
 - Providing a credible range of resilient response options to restore nuclear deterrence and promote conflict termination by convincing an adversary's leadership it has seriously miscalculated, that further use of nuclear weapons will not achieve its objectives, and that it will incur costs that far exceed any benefits it can achieve should it escalate further.
- Enhance deterrence of armed aggression against U.S. Allies and partners and reduce the risk of escalation in a conflict if deterrence fails. U.S. extended nuclear deterrence requires that U.S. flexible response options be credible, especially in a simultaneous conflict with two peer nuclear adversaries.
- Maintain a declaratory policy of calculated ambiguity about the conditions in which the United States may employ nuclear weapons to preserve options for the President under all circumstances, complicate adversary decision-making regarding going to war with the United States, and deter an adversary from escalating a conflict with the United States.
- Develop the means to hedge against geopolitical, technical, operational, and programmatic risk that ensures such risks cannot result in U.S. deployed nuclear forces being insufficient to support U.S. nuclear strategy.

The Commission believes that U.S. national security strategy should strengthen deterrence by incorporating resilient offensive and defensive capabilities necessary to deny adversaries' theories of military victory. This recommendation is driven by Russian and Chinese advances in kinetic and non-kinetic offensive weapons, including dual-capable strike systems that can range the U.S. homeland. These weapons pose threats to the U.S. ability to project power in support of its Allies and partners in Europe and Asia, and to elements of the nuclear command, control, and communications system, strategic nuclear forces, and military space capabilities. The Commission recommends significant attention to these new kinetic and non-kinetic threats, including changes to U.S. IAMD in order to address the 2027-2035 security environment. U.S. strategy should increase the role of homeland IAMD capabilities capable of deterring and defending against coercive attacks by Russia and China. The Commission believes that protecting against such kinetic and non-kinetic attacks will complicate adversary attack planning and force them to contemplate larger-scale attacks to achieve similar objectives, thus strengthening deterrence.

The Commission believes U.S. military strategy requires active and passive defense of U.S. and allied and partner assets, as well as credible threats of punishment, to enable the military operations necessary to deter and counter Russian and/or Chinese theater aggression. For example, because Russian and Chinese advances in offensive counterspace capabilities pose an increasingly serious threat to U.S. and allied and partner space capabilities that enable U.S. power projection, missile attack warning, and nuclear command and control, the United States should urgently deploy a more resilient space architecture and adopt a strategy that includes both offensive and defensive elements to ensure U.S. access to and operations in space.

To achieve the most effective strategy for stability in light of the 2027-2035 threat environment, the Commission recommends three necessary changes:

1. The United States must develop and effectively implement a truly integrated, whole-of-government strategy to address the 2027-2035 threat environment, and must be able to bring all elements of American power to bear against these impending threats. The Department of Defense's Integrated Deterrence concept is a good start in this direction, but the Commission sees little evidence of its implementation across the interagency.
2. The objectives of U.S. strategy must include effective deterrence and defeat of simultaneous Russian and Chinese aggression in Europe and Asia using conventional forces. If the United States and its Allies and partners do not field sufficient conventional forces to achieve this objective, U.S. strategy would need to be altered to increase reliance on nuclear weapons to deter or counter opportunistic or collaborative aggression in the other theater.
3. This strategy must be reflected in U.S. nuclear force structure. U.S. strategy should no longer treat China's nuclear forces as a "lesser included" threat. Therefore, nuclear force structure constructs can no longer assume that the nuclear forces necessary to deter or counter the Russian nuclear threat will be sufficient to deter or counter the Chinese nuclear threat simultaneously. Nuclear force sizing and composition must account for the possibility of combined aggression from Russia and China. Therefore, the United States needs a nuclear posture capable of simultaneously deterring both.

STRATEGIC POSTURE

Findings

In the context of a strategic posture deploying both conventional and nuclear capability, the traditional role of nuclear weapons in U.S. defense strategy remains valid and of continuing importance: deterrence of adversaries; assurance of Allies; achieving U.S. objectives should deterrence fail; and hedging against adverse events.

The U.S. triad of strategic delivery systems (intercontinental ballistic missiles, ballistic missile submarines, and bombers) has great value in presenting an intractable targeting problem for adversaries. Each system has unique strengths, such as responsiveness, survivability, and flexibility, that complement the others and vastly complicate adversary planning – thus contributing to deterrence. The triad will remain the key foundation for the U.S. strategic posture for the foreseeable future.

The triad provides the President with a range of options to protect U.S. national interests in any crisis or against any challenge. For example, the responsiveness and alert status of the ICBM force provides the President with options to:

- **Launch under Attack** – ICBMs are launched before they are destroyed by an adversary's preemptive counterforce attack; or
- **Ride-Out** – The U.S. absorbs an adversary first strike on its ICBM force and responds with forces at a time and place of its choosing.

The President is never compelled to launch ICBMs under attack.

The strategic setting in 2010, which informed the current POR, led to these assumptions:

- New START force levels were a sufficient deterrent capability against Russia;
- The PRC was a lesser-included case; and

- The aggressive foreign policies of China and Russia, the extent of their nuclear modernization, and the possibility of conflict with China and Russia were not foreseen.

U.S. strategic force requirements were set more than a decade ago and anticipated a significantly more benign threat environment than the one the United States now faces. Therefore, the United States requires an updated strategic posture to address the projected security environment. This is an urgent task that has yet to be acknowledged.

U.S. deterrence requirements must be tailored to each adversary in light of characteristics specific to their regime (e.g., goals, values, capabilities, vulnerabilities).

Chinese and Russian force modernization and expansion confronts the United States with a two-peer threat environment. In the emerging environment, the United States must maintain a resilient nuclear force that can absorb a first strike and respond effectively with enough forces to cause unacceptable damage to the aggressor while still posing a credible threat to the other nuclear power.

If China and Russia continue on their current trajectories with respect to force modernization and expansion, the rate at which U.S. nuclear force modernization is proceeding will likely add unacceptable risk.

Deployed strategic nuclear force requirements will increase for the United States in such a threat environment.

The current multi-program, multi-decade U.S. nuclear modernization program is necessary, but not sufficient to enable the nuclear strategy recommended by the Commission to address an unprecedented two-nuclear-peer threat environment. To avoid additional risk and meet emerging challenges, the United States must act now to pursue additional measures and programs. Additional measures beyond the planned modernization of strategic delivery vehicles and warheads may include either or both qualitative and quantitative adjustments in the U.S. strategic posture.

Current U.S. nuclear capabilities are safe, secure, reliable, and effective, and all operate on a daily basis, however, they have been extended past their original design lives.

Modernizing the U.S. nuclear command and control system is urgently required to ensure it remains survivable, adaptable, resilient, and effective against future threats.

The nuclear deterrent modernization POR, for DOD and DOE/NNSA combined, began in 2011. Its principal traits are as follows:

- Continued adherence to the strategic triad structure and theater dual-capable aircraft structure;
- Each leg of the triad and its NC3 systems are being modernized and replaced, which presents a challenge to DOD for the next 25 years;
- The new delivery systems will begin to be fielded in the late 2020s, but currently planned modernization will require several decades;
- Unlike previous platforms, the new systems are generally being designed to operate longer, and to more easily adapt to emerging threats, such as adversary air and missile defenses; and
- DOE/NNSA will be significantly challenged to deliver on time the nuclear weapons required by DOD.

The U.S. POR calls for “just-in-time” delivery. The new systems will enter service at the same time the legacy systems must be retired. Although the POR is underway in both DOD and DOE/NNSA, significant risks to the schedule are apparent as most margin has been used. DOD and DOE/ NNSA, while candid

about challenges, express “can-do” confidence, notwithstanding multiple factors that are already driving delays of programs.

This just-in-time situation means that delays in elements of the POR, or any early aging out of an existing system, will create shortfalls in U.S. nuclear capabilities.

There are several ways to mitigate the impact of shortfalls created by problems in the execution of the POR, but none are optimal or completely meet the requirements of the modernization program. Some require significant additional investment and/or near-term decisions to hedge against the problem. Others may require potential near-term decisions to be able to field different warhead loads. For example, sustaining the legacy force until its modernized replacement arrives will require additional investment in order to prevent a loss of capability and sustain the U.S. vital nuclear deterrent.

Additional U.S. theater nuclear capabilities will be necessary in both Europe and the Indo-Pacific regions to deter adversary nuclear use and offset local conventional superiority. These additional theater capabilities will need to be deployable, survivable, and variable in their available yield options.

Modernizing nuclear command and control capabilities is necessary if U.S. systems are to remain resilient and effective against future threats. NC3 modernization must also address the need for cross-Combatant Command interaction in planning and executing combat operations in a regional context.

Advancements in emerging technologies could pose new risks, but also new opportunities to defend, survive, and prevail. If the United States effectively adapts and employs these technologies, they could contribute to the survivability and effectiveness of U.S. nuclear forces. Of particular note are hypersonic delivery vehicles, quantum computing, generative AI, and autonomous vehicles.

Recommendations

The Commission recommends fully and urgently executing the U.S. nuclear modernization POR, which includes replacement of all U.S. nuclear delivery systems, modernization of their warheads, comprehensive modernization of U.S. nuclear command, control, and communications, and recapitalizing the nuclear enterprise infrastructure at the DOD and DOE/NNSA.

At the same time, the current modernization program should be supplemented to ensure U.S. nuclear strategy remains effective in a two-nuclear-peer environment. Modifications to both strategic nuclear forces and theater nuclear forces are urgently necessary.

The U.S. strategic nuclear force posture should be modified in order to:

- Address the larger number of targets. The Chinese nuclear threat is no longer a “lesser included case” of the Russian nuclear threat, resulting in the need to deter and achieve objectives against China and Russia simultaneously should deterrence fail;
- Address the possibility that China will field large scale counterforce-capable missile forces that pose a threat to U.S. strategic nuclear forces on par with the threat Russia poses to those forces today;
- Assure the United States continues to avoid reliance on executing ICBM launch under attack to retain an effective deterrent; and
- Account for advances in Russian and Chinese IAMD.

The following strategic nuclear force posture modifications should be pursued with urgency:

- Prepare to upload some or all of the nation’s hedge warheads;

- Plan to deploy the Sentinel ICBM in a MIRVed configuration;
- Increase the planned number of deployed Long-Range Standoff Weapons;
- Increase the planned number of B-21 bombers and the tankers an expanded force would require;
- Increase the planned production of Columbia SSBNs and their Trident ballistic missile systems, and accelerate development and deployment of D5 LE2;
- Pursue the feasibility of fielding some portion of the future ICBM force in a road mobile configuration;
- Accelerate efforts to develop advanced countermeasures to adversary IAMD; and
- Initiate planning and preparations for a portion of the future bomber fleet to be on continuous alert status, in time for the B-21 Full Operational Capability (FOC) date.

A comprehensive set of risk-mitigating actions across U.S. nuclear forces must also be executed to ensure that delays in modernization programs or early age-out of currently deployed systems do not result in militarily significant shortfalls in deployed nuclear capability. The Commission recommends that set of urgent actions include, at a minimum:

- Exercise upload of ICBM and SLBM warheads on existing deployed systems;
- Develop plans and procedures to “re-convert” SLBM launchers and B-52 bombers that were rendered incapable of launching a nuclear weapon under New START; and
- Provide sufficient funding to ensure existing deployed systems, such as NC3 and Ohio-class SSBNs, can operate past their currently planned retirement dates, as technically feasible.

U.S. theater nuclear force posture should be urgently modified in order to:

- Provide the President a range of militarily effective nuclear response options to deter or counter Chinese or Russian limited nuclear use in theater;
- Address the need for U.S. theater nuclear forces deployed or based in the Asia-Pacific theater;
- Compensate for any shortfall in U.S. and allied non-nuclear capabilities in a sequential or simultaneous two-theater conflict against China and Russia.
- Address advances in Chinese and Russian IAMD; and
- Address allied concerns regarding extended deterrence.

The Commission recommends the following U.S. theater nuclear force posture modifications:

- Develop and deploy theater nuclear delivery systems that have some or all of the following attributes:
 - Forward-deployed or deployable in the European and Asia-Pacific theaters;
 - Survivable against preemptive attack without force generation day-to-day;
 - A range of explosive yield options, including low yield;
 - Capable of penetrating advanced IAMD with high confidence; and
 - Operationally relevant weapon delivery timeline (promptness);
- Ensure that USEUCOM and USINDOPACOM are capable of planning integrated nuclear-conventional operations in their respective areas of responsibility (AORs).

NUCLEAR SECURITY ENTERPRISE

Findings

A critical element of U.S. strategic posture is the nation's ability to develop, produce, and maintain the nuclear weapon systems necessary to enable U.S. strategy.

Expanding the infrastructure and supply chain for the nation's nuclear complex and its strategic capabilities is part of an overall national need to broaden and deepen the American defense industrial base. This includes the ability to accelerate the incorporation of emerging and innovative weapon and production technologies.

The Commission believes that due to previous years of neglect and a dangerous threat environment, the infrastructure (facilities and workforce) that enables development and fielding of strategic capabilities needs to be overhauled. This will require nothing short of a government-wide focus akin to the U.S. moonshot of the 1960s.

Unlike Russia, China, and even the North Korea, the United States does not currently have the production capacity to deliver new nuclear warheads with newly manufactured pits.

Sustainment of the legacy deterrent force and execution of the nuclear modernization POR— maintaining required capability during the complex legacy-to-modern transition in both warheads and delivery platforms—is now stressing and will continue to stress the capacity of the infrastructure and industrial base supporting both DOD and DOE/NNSA.

DOE/NNSA's infrastructure recapitalization in the nuclear weapons complex—the replacement or modernization of 1940s-era Manhattan Project and other facilities—is underway. The infrastructure modernization POR is necessary but not sufficient to meet the future threat. When the DOE/NNSA production infrastructure modernization was planned it was sized to support the stockpile the United States believed it needed in 2010 to support a New START size force. As a result, the planned DOE/NNSA production infrastructure will not have sufficient capacity to support the force needed to address the future threat.

In the Strategic Posture chapter, the Commission has recommended immediate actions to mitigate risks in the nuclear modernization POR and has recommended responses to the new threat environment, including additional capabilities to the POR. These steps will drive extraordinary demands on the already-constrained DOD and DOE/NNSA infrastructure.

DOE/NNSA's infrastructure recapitalization faces many cost and schedule issues, some of which are outside DOE/NNSA's control. Nevertheless, this recapitalization is absolutely essential to build the capacity of the complex's production capability.

Infrastructure recapitalization for both DOD and DOE/NNSA is also hindered by unpredictable incrementally funded budget levels each fiscal year, exacerbated by the continued practice of Continuing Resolutions to fund the government.

Component organizations responsible for strategic infrastructure must conduct extraordinary advocacy for budget share inside their parent organizations in order to successfully garner necessary resources in the midst of their organization's many competing demands. This advocacy is required despite public statements by senior leaders that nuclear deterrence is their highest-priority national security mission.

The challenge of hiring and retaining a skilled workforce, for both DOD and DOE/NNSA, has also grown substantially.

Diminishing manufacturing sources, lack of skilled trades in the workforce, and supply chain fragility, among other things, inhibit both sustainment and modernization of the strategic deterrent force (platforms and warheads). Both DOD and DOE/NNSA are attempting to tackle these challenges, but it remains to be seen if these shortfalls can be overcome in time to prevent a gap in required capability. These are national-level challenges that require focused Executive and Legislative Branch leadership.

Regarding organizational issues related to the DOE/NNSA nuclear weapons complex, multiple administrations have taken steps to address the findings and recommendations made by the many previous assessments of DOE/NNSA's organizational effectiveness. Continued focus is critical, especially in light of the new demands placed on the weapons complex.

Recommendations

The Commission recommends the DOD and DOE/NNSA urgently expand strategic infrastructure to ensure sufficient capacity to:

- Meet the capability and schedule requirements of the current nuclear modernization POR and the requirements of the force posture modifications recommended by the Commission in time to address the two-peer threat;
- Provide an effective hedge against four forms of risk: technical failure of a warhead or delivery system, programmatic delays, operational loss of delivery systems, and further worsening of the geopolitical environment; and
- Communicate to U.S. adversaries that the United States has the technical capabilities and political will—paired with all other instruments of national power—necessary to ensure they cannot gain a geopolitical or military advantage through nuclear arms racing.

The Commission recommends this urgent expansion of the capacity of the U.S. nuclear weapons defense industrial base and the DOE/NNSA nuclear security enterprise include the flexibility to respond to emerging requirements in a timely fashion.

In order to support the Commission's recommended strategy, with respect to resourcing, the Commission recommends Congress:

- Fund an overhaul and expansion of the capacity of the U.S. nuclear weapons defense industrial base and the DOE/NNSA nuclear security enterprise;
- Fund NNSA's recapitalization efforts, including weapons science, design and production infrastructure. In order to support these appropriations, NNSA should deliver to Congress a long-term prioritized recapitalization plan that highlights the roles played by each facility, the highest risk factors at each facility, actions already taken to mitigate those risks, and opportunities for additional risk mitigation;
- Forge and sustain bipartisan consensus and year-to-year funding stability to enable defense industry to respond to innovative DOD contracting approaches and invest with more certainty;
- Pass annual DOD and DOE authorization and appropriation bills on time. No continuing resolutions;
- Avoid placing artificial caps on defense spending; necessary expansion of DOE/NNSA and DOD infrastructure for strategic capabilities require increases in funding for these fundamental national security priorities;
- Place purview of all 050 programs (President's Budget line item for "national security") that are in NNSA under Defense appropriations subcommittees (HAC-D, SAC-D); and

- Work with state governments and private industry to expand the manufacturing and supply base for strategic weapons.

With respect to capacity and effectiveness of the nation's infrastructure and supply chain for its strategic capabilities, the Commission recommends:

- DOE/NNSA plan to increase production capacity beyond current POR, in accord with earlier Recommendations, to meet the needs of the two-peer threat;
- DOD incentivize private industry bidding on government Request for Proposals (RFPs) by offering multi-year contracts that send a steady demand signal, especially for smaller sustainment-related requirements;
- DOE/NNSA incentivize private industry bidding on government RFPs for equipment and supplies by offering multi-year contracts that send a steady demand signal;
- DOD and DOE/NNSA continue to reform acquisition and project management processes to better reward on-time product delivery;
- DOD increase shipbuilding capacity, by working with industry to establish or renovate a third shipyard dedicated to production of nuclear-powered vessels, with particular emphasis on nuclear-powered submarines.

With respect to workforce, the Commission recommends:

- Cabinet Secretaries, working with states and union leaders, establish and increase the technical education and vocational training programs required to create the nation's necessary skilled-trades workforce for the nuclear enterprise;
- Leaders in DOD and DOE/NNSA establish a workplace culture in the nuclear security enterprise that reinforces the strategic importance of such work; grows effective leaders, including mid-tier leaders; adjusts to new workplace expectations; rewards experimentation; recognizes failure as part of the development process; and delegates responsibility to those program experts at the lowest level who are most knowledgeable of that program's characteristics; and
- DOD and DOE/NNSA expand use of innovative contracting methods, including offering higher pay scales for high-priority projects in order to better attract and retain skilled personnel.

With respect to organization and governance, the Commission recommends:

- Secretary of Defense and Secretary of Energy establish the nuclear deterrence mission as the #1 priority in their Departments' processes, to help eliminate the gap between statements of priority and actual results;
- Secretary of Energy protect and reinforce NNSA's independent role as steward of the nuclear warhead stockpile and its semi-autonomous operating model;
- Congress elevate the Under Secretary for Nuclear Security/NNSA Administrator position in DOE to Deputy Secretary for Nuclear Security;
- The Senate Armed Services Committee invite the nominee for Secretary of Energy to appear before the committee in advance of confirmation; and
- The NWC expand its enterprise-wide approach in order to effectively synchronize the plans and programs of DOD and DOE/NNSA in the midst of multi-faceted challenges.

U.S. NON-NUCLEAR CAPABILITIES

Findings

China, Russia, North Korea, and Iran continue to increase their regional and intercontinental missile capabilities. Missile threats to the U.S. homeland, to U.S. Allies and partners, and U.S. forces overseas are growing both quantitatively and qualitatively.

Homeland and regional missile defense systems constitute a critical component of U.S. efforts to deter, and if necessary, defeat missile attacks by states such as North Korea and Iran, while enhancing U.S. freedom of action to conduct regional military operations. IAMD can limit or prevent damage from an adversary's offensive missile strikes, and thus contribute to the U.S. ability to deter, respond to, and stabilize crisis or conflict.

IAMD capabilities play an important role in U.S. strategy by serving as a “deterrence by denial” component of the broader deterrence framework. IAMD adds resilience to U.S. defense strategy; complicates adversary decision-making by creating uncertainty about the success of offensive missile use; reduces incentives to conduct coercive attacks by increasing the size of the attack required to, potentially, be effective; assures Allies and partners that the United States will not be deterred from fulfilling its global security commitments; and in crisis or conflict, offers a military option that may be less escalatory than offensive strikes.

Given Russia's and China's technical capabilities and financial resources, the United States has not built an impenetrable missile defense “shield” over the entire U.S. homeland. However, it does not need to for U.S. missile defenses to provide critical defense capabilities that contribute to deterrence.

Given the threat picture for 2027-2035, the currently planned U.S. homeland IAMD capability does not adequately defend against coercive attacks from China and Russia. Such attacks are potentially designed to dissuade and deter the United States from defending or supporting its Allies and partners in a regional conflict; keep the United States from participating in any confrontation; and divide U.S. alliances. To defend against a coercive attack from China or Russia, while staying ahead of the North Korean threat, the United States will require additional IAMD capabilities beyond the current POR.

U.S. Northern Command (USNORTHCOM) needs improved warning and defensive capabilities to protect critical U.S. infrastructure from conventional or nuclear attack from air- and sea-launched cruise missiles—systems that ground-based interceptors (GBIs) are not designed to counter. In addition, CDRUSNORTHCOM has limited authority to detect and defeat such missiles inside U.S. airspace.

Strategic investments in research, development, test and engineering of advanced sensor architectures, interceptors, cruise and hypersonic missile defenses, and area or point defenses are urgently needed. If proven feasible, these capabilities would enhance deterrence and provide a significant measure of protection for the homeland to help address coercive nuclear or conventional strikes.

The space domain provides critical capabilities for strategic posture such as protected, resilient communications; positioning, navigation, and timing; ISR; and global, persistent missile warning and attack assessment.

Space situational awareness (SSA) is and will continue to be indispensable to U.S. and allied space and terrestrial missions. SSA enables both defensive and offensive counterspace operations necessary to conduct effective terrestrial military operations.

Space is now a fully contested domain; Russia and China have fielded counterspace capabilities that make it a warfighting domain. An integrated approach to deterring adversary aggression in space is essential to

protect U.S. and allied space capabilities, especially for adversaries who believe they can achieve asymmetric benefits from denying or eliminating space assets.

Survivability and durability of essential U.S. and allied space capabilities must be ensured through active defense, passive defense, and U.S. terrestrial strike and offensive counterspace capabilities. Essential U.S. space capabilities constitute critical infrastructure that merits an explicit threat of response to enhance deterrence of adversary strategic attack.

Of note, U.S. missile defense benefits greatly from space-based sensors; its mission and other national security missions stand to gain even more from increasingly capable space-based networks, including the growing cost-effective commercial capabilities.

Existing U.S. and allied general purpose forces' long-range non-nuclear precision strike capabilities are inadequate. Current programs are not pacing the threat.

Current plans to modernize and expand the nation's global mobility capabilities, especially its fleet of air refueling tankers, are inadequate for a simultaneous two-war construct.

Effective cyber defense requires a whole-of-government approach, as the Department of Defense has neither the mission nor the necessary authorities to defend civilian critical infrastructure.

It is essential to incorporate cyber capabilities into strategic and theater campaign plans and the deliberate planning process of the Combatant Commands.

Securing U.S. sensitive data will require working collaboratively with the defense industrial base.

Cyber security programs for, and active cyber defense of, the nation's strategic systems play a major role in ensuring the reliability and effectiveness of the U.S. nuclear deterrent force.

Despite frequent use of economic sanctions, the U.S. government does not have a well-understood concept nor a synchronized playbook for employing financial and economic measures to bolster U.S. efforts to deter adversary aggression. Such measures include the imposition of sanctions, trade and investment restrictions, and export controls, and depend on coordinated action within the interagency.

An important national goal is avoiding strategic surprise. The Commission is concerned that emerging technologies could result in military capabilities that would rapidly and surprisingly shift the military balance between the United States and its Allies and potential adversaries. In addition, these technologies increase the number of pathways by which new threats as well as misperceptions and miscalculations can emerge.

Emerging technologies may significantly benefit U.S. security and strengthen U.S. defense capabilities. Some applications, for instance, could improve information flow and crisis management and potentially reduce the risk of miscalculation.

U.S. advances in AI, quantum computing, additive manufacturing, ubiquitous sensing, big data analytics, and directed energy offer potential benefits to U.S. strategic posture, especially if streamlined, rapid acquisition methods are employed.

Current procurement processes are generally slow and ill-suited to adequately integrate new capabilities. Funding and bureaucratic obstacles remain impediments to rapidly using commercial capabilities. Effectively leveraging U.S. and allied innovation requires a cultural and bureaucratic shift.

Recommendations

The Commission recommends DOD develop, acquire, and deploy the Next Generation Interceptors as soon as possible.

The Commission recommends the Director of MDA, in conjunction with CDRUSNORTHCOM and CDRUSSTRATCOM, determine the required effectiveness criteria and number of additional GBIs/NGIs that will be needed overall to stay ahead of the North Korean threat. In addition, they should assess the feasibility to counter coercive attacks from cruise, hypersonic, and ballistic missiles from any adversary.

The United States should develop and field homeland IAMD capabilities that can deter and defeat coercive attacks by Russia and China. To this end, the Commission recommends the Chairman of the Joint Chiefs of Staff, in conjunction with the CDRUSNORTHCOM, identify existing or new sensor and interceptor capabilities necessary to defend critical infrastructure assets. The Secretary of Defense should ensure adequate funding is incorporated in the Service and Agency budgets to fulfill these requirements. Congress should appropriate the funds necessary for the sensors and interceptors necessary to defend these assets.

The Commission recommends the Secretary of Defense and the Chairman of the Joint Chiefs of Staff, in conjunction with relevant Combatant Commanders, review and determine what additional IAMD requirements exist in geographic areas of responsibility and identify existing or new capabilities, including capabilities that could be provided by Allies and partners, that could provide this necessary defense. The Secretary of Defense should ensure adequate funding is incorporated in the Service and Agency budgets to fulfill these requirements.

The Secretary of Defense should direct research, development, test and evaluation into advanced IAMD capabilities, leveraging all domains, including land, sea, air, and space. These activities should focus on sensor architectures, integrated command and control, interceptors, cruise and hypersonic missile defenses, and area or point defenses. If any of these capabilities prove feasible, the Department should pursue deployment with urgency.

In order to achieve advanced, potentially game-changing missile defense/defeat capabilities, the Commission recommends Congress promptly and consistently fund significant additional new investments in the defense industrial base, cooperation with the private sector, and expansion of the technical talent pipeline in order to conduct foundational research and development, explore the application of emerging technologies, and develop advanced IAMD systems.

The Commission recommends that the Secretary of Defense and the Military Departments transfer operations and sustainment responsibility for missile defense to the appropriate Military Departments by 1 October 2024. This will allow the MDA to focus on research, development, prototyping and testing.

Funding needs to be prioritized and long-range non-nuclear precision strike programs must be accelerated to meet the operational need and in greater quantities than currently planned.

Funding needs to be prioritized and air refueling tanker programs must be accelerated to meet the operational needs of a two-theater conflict.

Department of Defense leaders should increase the focus on and continue to prioritize adaptive cyber defense of strategic delivery platforms, warheads, and NC3 systems.

Congress should not auction for commercial use those portions of the electromagnetic spectrum critical for national security and homeland defense without proper cost-benefit analysis and due diligence by DOD and other federal agencies.

DOD should accelerate and direct further development of advanced EMSO capabilities and the integration of robust EMSO into CCMD deliberate planning.

The Commission recommends the President direct a whole-of-government approach to financial and economic statecraft that analyzes what adversaries value in the economic and financial domain; plans the tailored employment of financial and economic tools in concert with planning for other tools of national power; executes a synchronized use of financial and economic levers as part of the nation's broader deterrence campaign; assesses the effects of financial tools on adversaries; and continues this analysis-planning-execution-assessment cycle until a deterrent effect is achieved.

DOD routinely conducts this type of planning for application of military forces. Therefore, DOD is well positioned to advise and assist the Treasury, State, and Commerce Departments, and others, with the planning processes for the application of financial and economic tools.

The Executive Branch should initiate and Congress should authorize and appropriate a whole-of-government focus—including a strong partnership among academia, industry, and government—to ensure the United States and its Allies remain at the cutting edge of basic and applied research of emerging technologies, such as big data analytics, quantum computing, and AI, in order to avoid strategic surprise and leverage important new tools for national security.

The Departments of Defense and Energy should further expand processes for streamlined requirements development and rapid and more agile acquisition. This would enable insertion of innovative technologies to accelerate applications of new capabilities and have an impact on the 2027-2035 strategic landscape and beyond. To this end, the Departments of Defense and Energy should establish agile acquisition pathways and set aside specific budget lines and funding to rapidly acquire and leverage innovative commercial technologies for applications to strategic deterrence. The Departments should work with Congress to allow the budget flexibility necessary, while providing transparency and ensuring accountability, to enable rapid acquisition for use of new technologies and concepts.

ALLIES AND PARTNERS

Findings

It is in the U.S. national interest to maintain, strengthen, and when appropriate expand its network of alliances and partnerships. These relationships strengthen American security by deterring aggression regionally before it can reach the U.S. homeland, while also enabling U.S. economic prosperity through access to international markets. Withdrawing from U.S. alliances and partnerships would directly benefit U.S. adversaries, invite aggression that the United States might later have to reverse, and ultimately decrease American security and economic prosperity.

Just as the U.S. benefits from its alliances, Allies rely on the U.S. strategic posture because it forms an integral part of their defense strategy. In some cases, Allies are jointly developing capabilities that benefit mutual defense. The United States uses its strategic posture to support Allies by extending to them deterrence, including nuclear deterrence, against adversaries. The U.S. strategic posture also serves to assure Allies that the United States is a credible security partner. As a result, many Allies perceive no need to develop their own nuclear weapon capabilities, which is in the U.S. national security interest. Any major changes to U.S. strategic posture, policies, or capabilities will, therefore, have great effect on Allies' perceptions and their deterrence and assurance requirements.

Given the geographic distance between the U.S. homeland and its Allies overseas, and the long lead time for force projection from the U.S. homeland, Allies stressed the importance of U.S. military forces being available in theater for deterrence and assurance purposes.

Allies perceive that the risk of Russian and Chinese aggression and potential nuclear employment has increased; and thus, U.S. nuclear and conventional capabilities are increasingly important for credible extended deterrence. Allies expressed an aversion to any major change in the current U.S. nuclear declaratory policy of calculated ambiguity.

Additionally, a strong and credible U.S. nuclear arsenal is one of the greatest nonproliferation tools the United States possesses for assuring Allies they do not need to pursue nuclear weapons of their own.

The relationship that exists between NATO, its member states, and the United States is strong, and deserves continuous care. The Commission supports the initiative by NATO leadership to revitalize the Nuclear Planning Group (NPG), increase the operational effectiveness of NATO DCA, and conduct additional exercises with broader participation by Allies.

The United Kingdom and France provide important nuclear forces that contribute to the NATO Alliance. The United Kingdom, in particular, contributes to deterrence and complicates adversary planning with its independent nuclear arsenal.

The Commission supports NATO Allies' commitment to increased investments in their defense capabilities in order to enhance deterrence of Russian aggression.

The special relationship that exists between the United Kingdom and the United States is strong, and deserves continuous care.

As America's oldest ally, France contributes to security in Europe and Asia, and remains an important contributor to NATO.

The Australia, United Kingdom, United States (AUKUS) agreement strengthens U.S.-allied bonds by expanding areas of cooperation and enhancing deterrent capability in the Indo-Pacific region.

The Commission supports the Washington Declaration and all ongoing efforts with Japan and South Korea to strengthen extended deterrence consultations.

Allies are increasingly concerned by the actions of Russia and China. Other Allies are equally concerned with the actions of North Korea and Iran. European Allies communicated to the Commission how the security environment has fundamentally changed due to Russia's further invasion of Ukraine, and its use of overt nuclear coercion. Likewise, Allies in Asia communicated to the Commission their increasing concern over China's aggressive foreign policies, economic coercion, and rapidly growing nuclear arsenal.

Some Allies in both Europe and Asia have thus begun to invest more heavily in their own conventional military forces, and seek opportunities to jointly develop capabilities with the United States. Allies repeatedly stressed that the worsening threat environment requires closer and stronger cooperation with the United States because the consequences of deterrence failure are so severe, and for some Allies, existential.

Recommendations

The Commission recommends the Executive branch recognize that any major change to U.S. strategic posture, policies, or capabilities will have great effect on Allies' perceptions and their deterrence and assurance requirements; as a result, any changes should be predicated on meaningful consultations.

The Commission recommends the Department of Defense continue increasing interoperability between U.S. and allied systems in order to maximize regional deterrent effects, by balancing the need for classification and export controls with the critical need to increase technological cooperation and combined capabilities.

RISK REDUCTION

Findings

The Commission believes it is of paramount importance for the United States to work to reduce strategic risks. This involves activities and programs across the U.S. government, including in nonproliferation and arms control, as well as the maintenance of strong, viable, and resilient military forces.

U.S. vital interests and international security are served by robust diplomatic engagements that reduce uncertainty and reduce the risk of deterrence failure and unnecessary arms competition. It is in the U.S. national interest to lead, and be recognized as leading, diplomatic efforts to reduce such risks.

Although the potential for a return to a more cooperative relationship with Russia and China now seems remote, we cannot rule out the possibility of change in the 2027-2035 timeframe.

Risk reduction measures can increase predictability, reduce uncertainty and the risk of misperception and miscalculation.

U.S. nonproliferation efforts and the nonproliferation regime have slowed the spread of nuclear weapons, thereby making the world safer. It is in the U.S. interest to prevent the spread of nuclear weapons to additional states.

The U.S. nuclear umbrella has protected Allies, thereby removing the need for them to develop their own nuclear weapons.

U.S. threat reduction measures have successfully constrained the availability of nuclear materials, technology, and expertise to potential proliferators.

The Commission is concerned that new developments in genetically engineered and novel biological agents pose a significant threat to U.S. and allied security, and the Commission assesses that the BWC will not effectively prevent the development and deployment of new biological weapons.

Effectively verifiable arms control measures with parties who comply with their obligations can improve international security and stability. Such measures can provide predictability and reduce the threats to U.S. vital interests and those of its Allies.

Arms control agreements in the U.S. national interest are potentially important tools to support U.S. policy goals, but given Russia's history of noncompliance and illegal treaty suspensions, and China's continued intransigence on arms control dialogue, the United States cannot develop its strategic posture based on the assumption that arms control agreements are imminent or will always be in force. In short, the United States must be prepared for a future with and without arms control agreements.

The current policy of the Chinese leadership is not to engage in substantive dialogue on nuclear arms control or risk reduction measures.

The United States cannot set its arms control limits without first determining the requirements for its overall strategic posture, and the strategy that those requirements will support.

While there is no prospect of a meaningful arms control treaty being negotiated with Russia in the foreseeable future, any future nuclear arms control treaty must, as the U.S. Senate stated in its resolution of ratification for New START, address all Russian nuclear weapons.

Emerging technologies have the potential to support U.S. efforts in arms control, verification, and risk reduction.

Certain weapon technologies deserve urgent attention, as incipient threats and potential subjects for future arms control negotiations. An example is China's development of ICBM-launched FOBS or MOBS.

Recommendations

The Commission recommends that a strategy to address the two-nuclear-peer threat environment be a prerequisite for developing U.S. nuclear arms control limits for the 2027-2035 timeframe. The Commission recommends that once a strategy and its related force requirements are established, the U.S. government determine whether and how nuclear arms control limits continue to enhance U.S. security. The United States cannot properly evaluate a future nuclear arms control proposal that will serve the U.S. interest, by reducing risk and avoiding the costs of an unconstrained nuclear arms competition, without knowing what the U.S. nuclear force requirements will be. Any future arms control proposal must be consistent with U.S. nuclear force requirements.

The Commission recommends that the United States continue to explore nuclear arms control opportunities and conduct research into potential verification technologies in order to support or enable future negotiations in the U.S. national interest that seek to limit all nuclear weapon types, should the geopolitical environment change.

Where formal nuclear arms control agreements are not possible, the Commission recommends pursuing nuclear risk reduction measures to increase predictability and reduce uncertainty and the chances for misperception and miscalculation.

The Commission recommends continued pursuit of such measures, to include: ballistic missile launch notification agreements; open ocean targeting of ballistic missiles; hotline or leadership communications agreements (crisis communications); Agreement on the Prevention of Incidents On and Over the High Seas; strategic stability talks; peacetime norms regarding activities in space and cyber space in peacetime; and military exercise notifications and transparency.

The Commission recommends that the United States use all its instruments of national power, including its strong economic, political and defense capabilities, to turn Russia and China away from their nuclear arms build-ups and toward negotiation of effectively verifiable arms control measures.

- The Commission condemns the unwarranted and illegal Russian suspension of New START.

The Commission recommends the Departments of Defense, Energy, and State in a coordinated fashion assess the potential impacts of new and emerging technologies on the U.S. strategic posture, with the goal of identifying potentially destabilizing or threatening capabilities the United States may want to address, whether through arms control negotiations or other means.

- The Commission believes China's development of FOBS/MOBS is a compelling example of this phenomenon. The Commission recommends the United States, as an urgent matter, propose an immediate global ban on further testing and deployment of missiles in a FOB/MOB mode.

The Commission recommends that the United States develop measures to prevent the proliferation of threatening emerging military technologies to hostile states.

Given the importance of preventing the further proliferation of nuclear weapons, the Commission recommends the United States continue to support the current nonproliferation regime centered on the NPT.

The Commission recommends the U.S. evaluate diplomatic measures, whether in the BWC context or beyond, to address the threat of novel biological weapons. It may be necessary to strengthen the

development of multilateral transparency and enforcement mechanisms related to the handling of dangerous pathogens as well as BWC violations.